TRANSMOUNTAIN

Geographic Response Plan

Alberta District



Geographic Response Plan – Alberta District

This material is protected by copyright and is the exclusive property of Trans Mountain Corporation and its affiliates. No external distribution or transmission of this material is permitted without the prior written consent of Trans Mountain Corporation.

To apply for the copyright holder's written permission to reproduce any part of this publication, or to receive a hardcopy of this document a written submission should be made to the Emergency Management Department at Trans Mountain Corporation 2700-300, 5 Avenue SW, Calgary, AB T2P 5J2 or by email to emergency_management@transmountain.com.

Trans Mountain assumes no responsibility for errors or omissions in this document or for direct, incidental or consequential losses or damages that may result from the external use or duplication of this material. This document is uncontrolled when downloaded or printed from the company website. Before using this material verify that this is the most current version of the document.

This document will be updated from time to time if you wish to receive notification of updates please send an email to emergency_management@transmountain.com requesting to be notified when a new version of the document is available online. Manual holders, as indicated on the distribution list, will receive updates automatically as required.

Table of Contents

GEOGRAPHIC RESPONSE PLAN – ALBERTA DISTRICT 1
TABLE OF CONTENTS I
PLAN MAINTENANCE III
RESPONSIBILITY III
PLAN REVISIONS III
INITIATING REVISIONS III
REVISION DISTRIBUTION III
REVISIONS AFTER AN INCIDENT OR EXERCISE III
CHANGES IN OPERATING CONDITIONS III
REVISION REQUEST FORM IV
CONTROL SHEET V
DISTRIBUTION VI
1.0 INTRODUCTION 1
1.1 SCOPE OF THE PLAN 1
1.2 IMPLEMENTATION OF THE GRP 1
1.3 DISTRICT SPECIFIC INFORMATION 1
1.3.1 Alberta District Map 2
1.3.2 Alberta District Worst Case Spill Volume 2
1.4 HOW TO USE THIS PLAN 3
2.0 INITIAL RESPONSE ACTIONS 1
2.1 SITE ASSESSMENT 1
2.1.1 Site Assessment Guidelines 2
2.2 RESPONDER HEALTH AND SAFETY 3
2.3 SAFETY GUIDELINES 4
2.3.1 Skin Contact 4
2.3.2 Inhalation of Vapours 4
2.3.3 Fire/Explosion 4
2.3.4 Other Hazards 4
2.4 VAPOUR MONITORING SITE ASSESSMENT PROCEDURE 5
2.4.1 Vapour Monitoring Flowchart 6
2.5 SPILL OBSERVATION/ASSESSMENT/ESTIMATION FACTORS 7
2.5.1 Spill Surveillance 7
2.5.2 Estimating Spill Volume 7
2.5.3 Rapid Response Method for Estimating Spill Size 8
3.0 NOTIFICATION 1
3.1 SPILL VERIFICATION FLOWCHART 1
3.2 INTERNAL NOTIFICATION PROCEDURE 2
3.3 INFORMATION TO REPORT 2
4.0 TACTICAL RESPONSE ACTIONS 1
4.1 LAND AND SMALL WATERCOURSE SPILL RESPONSE 1
4.1.1 Vacuum Truck, Gator Vacuum Truck, Port – a – Vac Unit 1

4.1.2 Earthen Berm and Bell Hole 2
4.1.3 Earthen Trench 3
4.1.4 Culvert Block 5
4.1.5 Inverted Weir / Underflow Dam 7
4.1.6 Water – Gate Dam 10
4.1.7 Turner Valley Gate 11
4.1.8 Aquadam / Waterbloc 12
4.1.9 Sorbent Fence 13
4.2 MOVING WATERCOURSE 15
4.2.1 Watercourse Boom Angle 15
4.2.2 River Anchor System 15
4.2.3 Exclusion Zone 15
4.2.4 Catenary Boom Deployment 16
4.2.5 Deflection or Diversion Boom Deployment 18
4.2.6 Trolley Line Deflection 20
4.2.7 Cascade Boom Deployment 22
4.2.8 Closed Chevron Boom Deployment 23
4.2.9 Open Chevron Boom Deployment 25
4.2.10 Deadman Trench 27
4.3 LOW CURRENT WATERBODY 29
4.3.1 V – Boom 30
4.3.2 U – Boom 31
4.4 WINTER RESPONSE 32
4.4.1 Ice Types 32
4.4.2 Ice assessment Methodology 32
4.4.3 Ice Slot ('J' slot) 35
4.4.4 Ice Slot with a Barricade 36
4.4.5 Trench on Ice 38
4.4.6 Snow Covered Land Response 41

5.0 DECONTAMINATION 1

5.1 INTRODUCTION 1
5.2 DECONTAMINATION PLAN 1

6.0 CONTROL POINT ROUTE MAP 1

7.0 GRP DATA SHEETS 1

8.0 FORMS 1

Plan Maintenance

Responsibility

Single point accountability for the Geographic Response Plan development and maintenance, rests with the Manager, Emergency Management. This accountability is for:

- The development of the Geographic Response Plan and management of any future revisions;
- Ensuring the systems Incident Command System (ICS) and response structure are in place and able to meet the requirements set out in the Plan;
- Ensuring Control Points (CP) are reviewed and confirmed every four years; and
- Ensuring an annual review of the plan is conducted for completeness.

Manual holders are responsible:

- For keeping their copies current and ensuring that all revisions are appropriately filed
- Studying all new material issued and incorporating it into their work practice
- Suggesting changes to correct existing material and contributing new text material to improve the quality of the manual

Plan Revisions

Initiating Revisions

All requests for change must be made through the Manager, Emergency Management using the Revision Request Form located in this section of the manual.

Revision Distribution

Plan revisions are issued with an Acknowledgement of Receipt Form and a brief description of the changes itemized by chapter. The Acknowledgment of Receipt form must be signed and returned to the Emergency Management Department as specified. Revisions to the Distribution List will be maintained in a secure Trans Mountain (electronic) location and will be distributed to confidential manual holders only. All other revisions will be distributed to manual holders in a timely manner. A revised date is shown at the bottom of each updated or new page. The original date of the manual is 04/2018. All revisions will be tracked on the Control Sheet.

Revisions after an Incident or Exercise

In the event that Trans Mountain experiences a spill (worst case or otherwise), or conducts an exercise or training session, the effectiveness of the plan will be evaluated and updated as necessary.

Changes in Operating Conditions

If a new or different operating condition or information would substantially affect the implementation of the plan, Trans Mountain will modify the plan to address such a change

Revision Request Form

Requested by:	Date:
Dept/ Agency:	Phone No.:
Revision Type: ___ Addition ___ Deletion ___ Correction	
Manual Section:	Page:
Revision (attach separate sheet if necessary):	
Signature of Requestor:	
Send to: Manager, Emergency Management Trans Mountain 2700-300 - 5th Avenue S.W. Calgary, AB T2P 5J2 Canada Fax: (403) 514-6401	

To be completed by Manager, Emergency Management	
Date Received:	Comments:
Date Reviewed:	
Issued as Revision: Y/ N	
If No, reason for Rejection:	
Signature Manager, Emergency Management	

Control Sheet

Revision Number	Date of Revision	Change(s)	Name
1	April 2018	New Manual Issued	J. Kereliuk
2	Oct 2018	Rebranding to Trans Mountain	Kelly Malinoski
3	October 2019	Annual Review Completed	K. McLernon
4	October 2020	Updated Worst Case Discharge Section 1.3.2, updated minor wording throughout document	K. McLernon
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			

Distribution

No.	Issued To
4000	Canada Energy Regulator
4001	Canada Energy Regulator – Vancouver Office
4100	Control Centre
4101	Back-up Control Centre
4102	Central Region Office
4103	Western Region Office
4104	Director, Emergency Management
4105	Emergency Management Department Library
4106	Gainford OSCAR
4107	Jasper OSCAR
4108	Blue River OSCAR
4109	Kamloops OSCAR
4110	Hope Rapid Response Trailer
4111	Sumas OSCAR
4112	Burnaby OSCAR
4113	Spare
4114	Spare
4115	Spare
4116	Spare
4117	Spare
4118	Edmonton Terminal
4119	Stony Plain Station
4120	Gainford Station
4121	Chip Station
4122	Ninton Station
4123	Wolf Station
4124	Edson Station
4125	Hinton Station
4126	Jasper Station
4127	Rearguard Station

Note: Field responders receive a copy of the GRP – Field Handbook which is tracked electronically.

Uncontrolled copy if printed

1.0 INTRODUCTION

Geographic Response Plans (GRP's) provide detailed, geographic specific information to assist spill responders in the containment and recovery of released product. GRP's identify and describe environmental sensitivities, including natural and cultural resources, as well as locate and classify Control Points.

Control Points are pre-identified locations where responders can set up equipment to intercept, contain, and recover spilled product. The datasheets found within Section 8.0 of each Operational District GRP idenitfy the site-specific strategies and equipment requirements for individual response locations.

The GRP document is designed to be a rapid response document to be used during the early hours of a pipeline incident. The document may enhance response time by idenitfying control points and pre-approved spill response tactics. Rapid deployment of response equipment will also assist with the protection of High Consequence Areas which include but are not limited to aquifers, drinking water, ecologically sensitive areas, highly populated areas, low populated areas, navigable waterways, cultural, archeological or historical sites and economically significant areas.

1.1 Scope of the Plan

This is the Geographic Response Plan for the assets associated with the Trans Mountain Pipeline (TMPL) System operated by Trans Mountain Corporation; specifically, the Alberta District.

The Plan is intended to satisfy the requirements of the Canada Energy Regulator Onshore Pipeline Regulations (OPR), British Columbia Environmental Protection Act and conditions required of TMPL as set out by Canada Energy Regulator report dated May 2016 and British Columbia Environmental Assessment Office (EAO) certificate dated January 11, 2017.

1.2 Implementation of the GRP

Activation of the GRP will occur when an emergency is declared. The GRP will be implemented for any incident within the Alberta District that results from the Trans Mountain Pipeline System. This plan will be used in conjunction with other supplemental plans for the response phase of any spill and is expected to be used until the implementation of the Recovery Plan. Unified Command may also approve the use of alternate plans if required.

1.3 District Specific Information

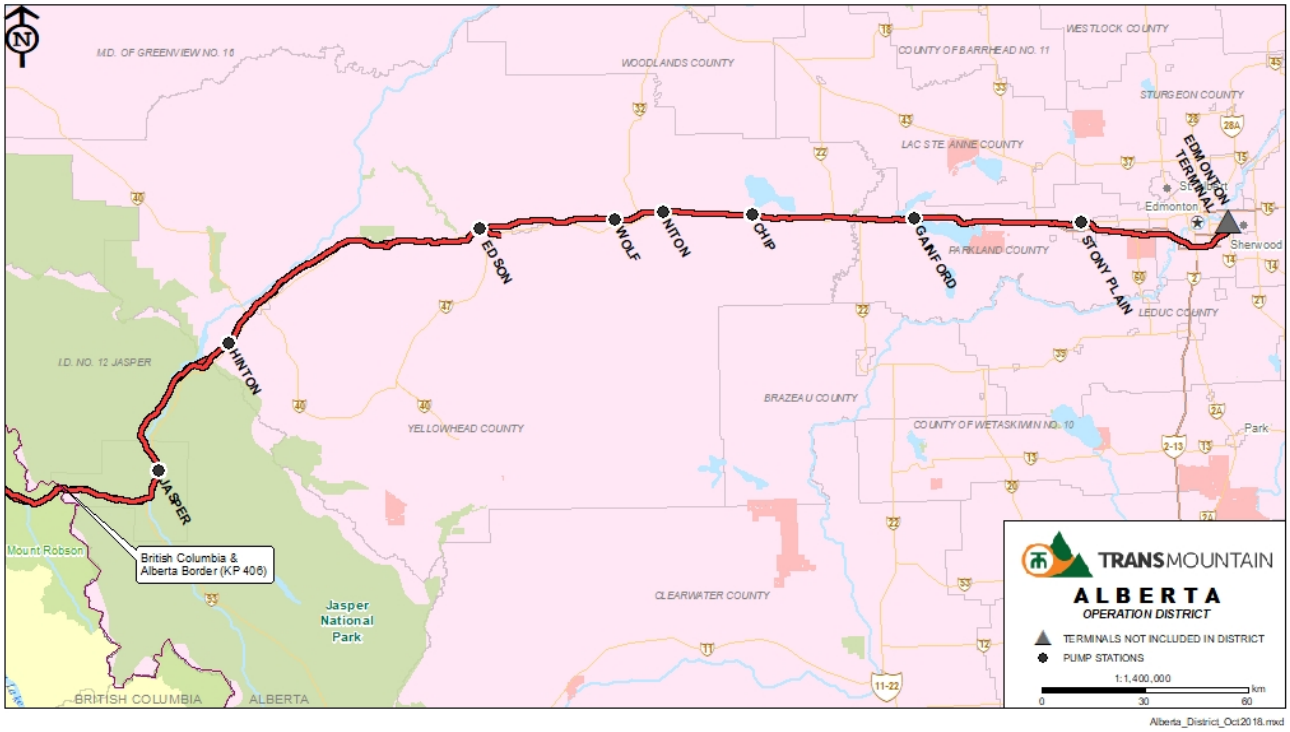
The Alberta District begins at Sherwood Park, Alberta (KP 0) and ends at the Alberta/British Columbia border (KP 406) covering approximately 406 km. The TMPL varies in size from 24" to 36" (60.96 cm to 91.44cm) in diameter throughout Alberta District. The land around the pipeline ranges from an urban environment in the east, travelling west through primarily flat agricultural land and finally into the eastern slopes of the Rocky Mountains. The pipeline crosses a number of HCAs and numerous unnamed streams and rivers, and also comes in close proximity to various water bodies including:

- The Athabasca River;
- Wabamum Lake; and
- The North Saskatchewan River.

The pipeline also passes in close proximity to a number of population centers including:

- Sherwood Park;
- Edmonton;
- Stony Plain;
- Edson;
- Hinton;
- Parkland County;
- Yellowhead County; and
- Jasper National Park.

1.3.1 Alberta District Map



1.3.2 Alberta District Worst Case Spill Volume

The worst-case discharge volume for the Alberta District occurs between Edson and Hinton and is calculated to be:

- 21,686 barrels (3,448 m^3)

1.4 How to use this Plan

There are nine (9) components to this GRP. The GRP works in coordination with the Emergency Response Plan for the pipeline and/or facilities. This document is meant as a field response tool and may serve for background data for the Incident Command Post to assist with the development of Incident Action Plans (IAP).

Introduction- Section 1.0

Provides an overview of the GRP and district specific information.

Initial Response Actions- Section 2.0

The initial responder to arrive at a spill site will take some immediate actions to ensure the safety of responders, public and to the environment and property. Safety is always the number one priority.

The Initial Site Health & Safety Plan (ISHSP) will be completed within one hour of confirmation of the incident and updated as needed to ensure responder safety. While completing the ISHSP, the initial responder will conduct the initial site assessment to determine the early response actions.

Notification Section- Section 3.0

Immediate notification is a key element of any emergency response action. Any employee or contractor is to report any emergency, or suspected emergency, to the Control Centre immediately and, depending upon the situation, will contact local first responders and emergency services.

Tactical Response Actions- Section 4.0

The information within the GRP increases the initial spill response efficiency by providing guidance on the resources and capabilities required to complete the tactic(s) identified for each Control Point or developed by the Incident Command Post (ICP). The Tactical Response Action section describes when certain tactics are best used and provides instructions on how to implement the tactic.

Decontamination Procedures- Section 5.0

Decontamination is the process of removing or neutralizing contaminants that have accumulated on personnel and equipment. Decontamination is critical to health and safety at release sites. A decontamination area should be in a safe convenient location for all works to access. Decontamination protects workers from hazardous substances.

Control Points Route Maps- Section 6.0

Pipeline base route maps are composed and indexed, illustrating the routes within the operational district. The maps illustrate:

- Active pipelines
- Inactive pipelines
- Pipeline facilities
- Valves
- Equipment locations
- Control Points
- Directions for responders to access the CP

At the beginning of this section is an index map that outlines the corresponding route map numbers. Typically, the map numbers go from smaller to larger in the direction that the pipeline flows within the district. In the Alberta District, the maps start at Map 1 near KP 0 and ends at Map 23 near KP 406.

GRP Data Sheets- Section 7.0

The GRP Data Sheets provide responders with quick and detailed information on each Control Point to assist spill responders in deploying containment and recovery tactics and strategies, should an incident occur. The data sheets provide:

- Geographical details
- Waterbody information
- Shoreline information
- Safety concerns
- Resources at risk
- Logistical information, including staging areas
- Staging area photographs
- CP tactical diagram and implementation instructions
- Implementation strategies
- Implementation and equipment resources
- Support and technical services
- Wildlife at risk
- Wildlife mitigation tactics
- Decontamination area information

Forms – Section 8.0

The forms section of provides samples of the forms required during the early period of a response. These include:

- Initial Site Health & Safety Plan
- ICS 201
- Gas Detection Record
- ICS 214
- ICS 211
- Ice Assessment Form

2.0 INITIAL RESPONSE ACTIONS

The initial responder to arrive at a spill site will take some immediate actions to ensure responder safety and to protect the environment. The initial responder will complete the following things, if appropriate and safe to do so:

1. Ensure the Health and Safety of responders and the public in the area of the spill
2. Complete the Initial Health and Safety Plan
3. Conduct a site assessment (i.e., incident size, severity, likely impacts)
4. Notify, immediately, the Control Centre and/or Supervisor to activate the Emergency Response Line (TAS) System
5. Take appropriate action to mitigate the impacts to life, safety, the environment, and property.

Note: the initial responder will begin documentation on an ICS 201 form, and/or notes on other paper, or will relay the information to personnel at the Control Centre or District Supervisor. This initial documentation will be kept with all other incident documentation.

2.1 Site Assessment

The primary purpose of a site assessment is to evaluate the presence of risk to both incident responders and the public. However, if it is safe to do so, information about the incident should be gathered as quickly as possible in order to evaluate the situation and develop an initial action plan. It might also be possible for the Site Assessment Team to take measures to reduce possible impacts.

NOTE: **Site Assessment Team members should wear all PPE (boots, FR Coveralls, Gloves, Eye Protection, Hard Hat and half-face respirators) while assessing the incident. This may include radiant heat protection.**

If vapour levels reach 10% of the LEL, Site Assessment Team members should leave the area immediately and keep all other responders at a safe distance.

2.1.1 Site Assessment Guidelines

When conducting the initial site assessment of the spill the following parameters must be documented:

- Identify and evaluate the immediate risks to and impacts on the environment, human health and infrastructure;
- Classify the spill according to the following factors:
  - Substance spilled,
  - Quantity of the substance spilled,
- The location and circumstances of the spill; and
- Assess:
  - What is to be done to protect the safety of response personnel and the public,
  - Whether or not an evacuation is necessary.

Safety Checklist

- ☐ Conduct Pre-Entry Safety Checklist (IHSP, or HSP)
- ☐ Remove all non-intrinsically-safe radios, pagers, etc.
- ☐ Establish communications procedures/schedules
- ☐ Don appropriate PPE, as per health and safety plan
- ☐ Refer to SDS
- ☐ Determine wind speed and direction
- ☐ Determine current direction
- ☐ Approach spill from upwind/up current if possible
- ☐ Conduct vapour monitoring

Incident Intelligence Checklist

- ☐ Determine status of any injured personnel
- ☐ Determine spill source if known
- ☐ Confirm spilled product
- ☐ Determine if source is isolated
- ☐ Estimate spill rate/volume
- ☐ Determine if product has or will reach the water
- ☐ Determine if product has escaped local containment

Incident Mitigation Checklist

- ☐ Evacuate and attend to any injured personnel
- ☐ Isolate spill source
- ☐ Close all valves

2.2 Responder Health and Safety

It is important to understand that the different hydrocarbon products handled pose different hazards when spilled, and/or are on fire, depending on their chemical composition. Therefore, the primary hazards, need for vapor monitoring, and the cleanup techniques will depend on the characteristics, volume and type of product.

Many crude oils (including “sweet” crudes) can emit potentially dangerous levels of H2S, and most crude oils also contain Benzene. Typically, the risks associated with the concentration of potentially-dangerous vapors will diminish with time, due to reduced vapor production as the lighter components volatize, and vapors disperse. There are exceptions to this however; i.e., in some cases, where crude oil pools into thick layers, a skin may develop on the surface, trapping vapors. Later, if the skin is broken and the oil disturbed, the oil may emit vapors normally associated with freshly-spilled oil. Some crude oils have low flash points, especially during the initial hours after being spilled, when hydrocarbons burn there are other risks to consider, such as the combination of chemicals in the smoke plume and radiant heat emitted by the fire. In all of these cases, the risk of accidental ignition and/or the inhalation of toxic vapors must be mitigated, and a detailed site assessment completed before on-scene operations are initiated. This assessment will be made by the designated Safety Officer. In all cases, the results of the initial site assessment should be used to develop the initial site health and Safety Plan (ISHSP).

The ISHSP should be completed as soon as possible by one of the initial responders, and updated as required. When completing the ISHSP some of the information may not apply during the initial stages of the response, but may change within a short period, thereby altering the PPE and/ or other requirements. The Initial Health and Safety Plan form is available in Section 8.0 and on the intranet site E:\Manuals\Emergency Management\ICS Guide and Forms

The ISHSP:

- Aids the initial responders in assessing hazards related to the incident
- States the required PPE to be used
- Documents important health and safety information
- Establishes on-site communication protocols
- Serves as an interim "Plan" until the Site Health & Safety Plan is developed
- Assigns responsibilities, i.e., completion of the ICS 201 and notification
- Identifies "site set-up" features that may be required
- Authorizes work to be completed (in lieu of a Safe Work Permit)

Upon the completion and delivery of the Site Health & Safety Plan, the Initial Site Health & Safety Plan becomes void.

2.3 Safety Guidelines

2.3.1 Skin Contact

The accidental absorption of toxins through skin/eye contact can be greatly reduced through the wearing of oil-resistant Personal Protective Equipment (PPE). These include:

- Approved Fire-Resistant Coveralls
- Hard Hats (where overhead hazards are present)
- Gloves
- Splash Goggles
- Rubber Steel-Toed Boots

Also:

- PPE must be worn properly in order to fully protect responders.
- Damaged or heavily-oiled PPE should be replaced as soon as possible.
- All responders leaving the *Hot Zone* must go through a decontamination zone *(Warm Zone)* to ensure that contamination is not spread into the *Cold Zone.*

2.3.2 Inhalation of Vapours

The need for respiratory protection will be determined by the Safety Officer after a review of the SDS and data retrieved from the initial site assessment. If toxic vapour levels are determined to exceed safe working limits, it may be possible for responders to work while wearing half-face respirators fitted with Organic cartridges, or SCBA. In this case, on-going vapour monitoring is essential to ensure that vapour levels do not exceed safe working limits.

2.3.3 Fire/Explosion

All hydrocarbon products are capable of ignition if certain conditions are met. It is important to review the SDS to determine the flash point of the material spilled and perform vapour monitoring (for LEL). Whenever vapour levels are approaching 10% of the LEL for any spilled product, responders will leave the area immediately.

2.3.4 Other Hazards

There are a number of additional potential hazards faced during spill response including slips, trips and falls, and working around water and equipment. Special care should be taken when walking on oiled surfaces, especially during night-time operations. The Site-Specific Health and Safety Plan shall identify these potential hazards, and they must be clearly communicated to responders.

2.4 Vapour Monitoring Site Assessment Procedure

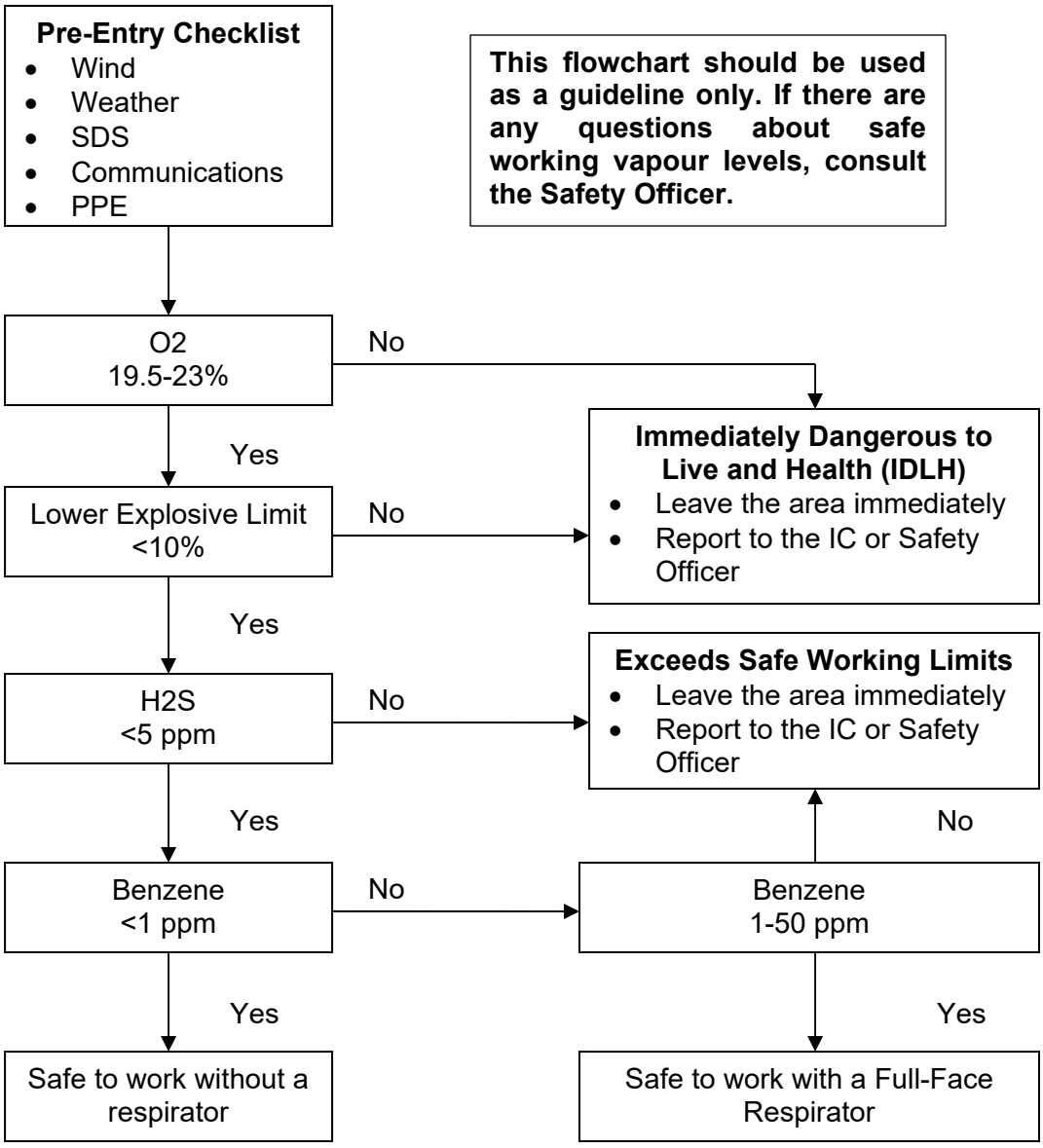
The team should move toward the area and stop at an acceptable location, preferably upwind, to make final preparations for assessment. The team must evaluate its options and decide the best approach route. Frequent reading of air monitoring instruments can ensure the safety of the survey party during the approach. The assessment team leader needs to exercise caution and use controls that will best protect the team.

The survey should continue as long as air monitoring instrument readings remain within acceptable limits, with the objective of (a) obtaining readings across the zone and (b) locating a significant accumulation to provide a detailed assessment. A safe and effective site assessment will require caution, persistence and field decisions.

The team leader must take immediate action if at any time the air monitoring instrument readings meet or exceed safe working limits (see Vapour Monitoring Flowchart, next page). If safe working limits are met or exceeded, move upwind from the spill and halt the assessment. Notify the Incident Commander.

When sufficient representative locations have been recorded, the air-monitoring phase of the initial site assessment is complete. The identification of physical, environmental, or other hazards will complete the assessment.

2.4.1 Vapour Monitoring Flowchart



2.5 Spill Observation/Assessment/Estimation Factors

2.5.1 Spill Surveillance

The following guidelines should assist in spill surveillance:

- Surveillance of an oil spill should begin as soon as possible following discovery to enable response personnel to assess spill size, movement, and potential impact locations. Dispatch observers to crossings downstream or down gradient to determine the spills maximum spread.
- Efforts should be made to approach from an uphill/upwind direction.
- Clouds, shadows, sediment, floating organic matter, submerged sand banks or wind-induced patterns on the water may resemble an oil slick if viewed from a distance.
- Spill surveillance is best accomplished through the use of helicopters or small planes; helicopters are preferred due to their superior visibility and manoeuvrability.
- All observations should be documented in writing and with photographs and/ or videotapes.
- Record observations on detailed maps.
- Surveillance is also required during spill response operations to gauge the effectiveness of response operations; to assist in locating skimmers; and assess the spill's size, movement, and impact.

2.5.2 Estimating Spill Volume

If possible, the initial assessment should also include an estimate of the volume of oil spilled. Oil volumes can be estimated by multiplying the area of the slick by the average estimated thickness. The following chart applies when the oil is on the water. In the case of an impoundment area the spill can be estimated by multiplying the thickness by the area covered.

Appearance	Slick Thickness	Spill Volume
 Barely visible	0.05 µm	50 L/km^2
 Visible as silvery sheen	0.08 µm	80 L/km^2
 First trace of colours	0.15 µm	150 L/km^2
 Bright bands of colour	0.3 µm	300 L/km^2
 Colours begin to turn dull	1 µm	1,000 L/km^2
 Colours are much darker	2 µm	2,000 L/km^2

2.5.3 Rapid Response Method for Estimating Spill Size

Transfer operations
Multiply the pumping rate by the elapsed time that the leak was in progress, plus the drainage volume of the line between the two closest valves or isolation points

volume loss = pump rate [bbls/ min] x elapsed time [min] + line contents [bbl]

Tank overfills
Elapsed time multiplied by the pumping rate

3.0 NOTIFICATION

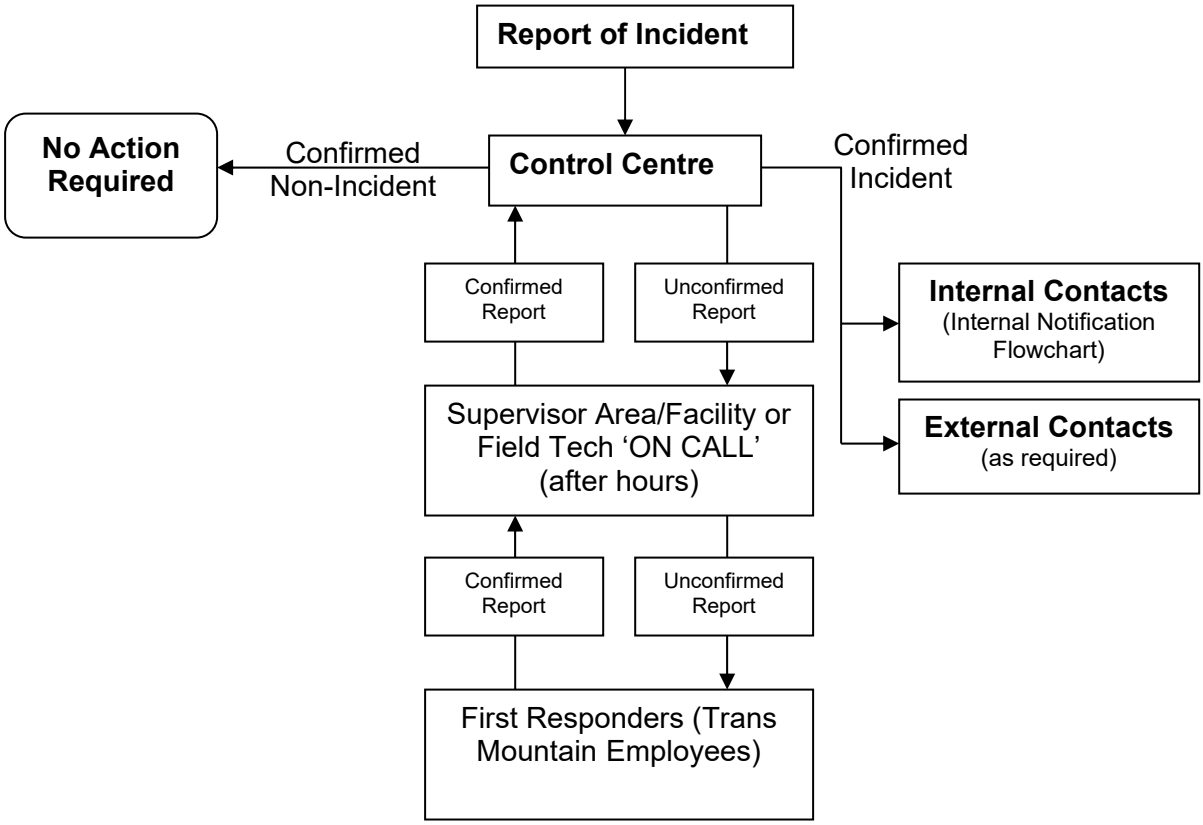
Any employee or contractor will report any emergency or suspected emergency to the Control Centre immediately and depending upon the situation, will contact the local first responders and emergency services.

Control Centre Emergency Line 1-888-876-6711

Notes: A field technician or District Supervisor may request a shutdown as the result of local conditions in response to the investigation of a complaint or regular duties where a release or other abnormal operating condition is suspected. The Control Centre Operator (CCO) will comply with the request and initiate the Emergency Condition Response Procedures.

3.1 Spill Verification Flowchart

The first step in many incidents is to confirm that a spill has actually occurred. Spill reports may come from a number of sources including the public, and First Responders (Police, fire and Ambulance). Once a report is received, the following flowchart shows the direction of communication to verify an incident.



3.2 Internal Notification Procedure

All spills, regardless of size, must be reported immediately to the Control Center, who will:

- Contact the District Supervisor to verify and Assess the situation
- Determine the Response Level (i.e., Level 1, 2 or 3 - See Introduction for a description of the 3 Response Levels)
- Initiate the notification of company and external personnel

3.3 Information to Report

Information about the spill should be as clear, concise, accurate and timely as possible. The minimum information reported, for both the initial report and update reports, should be:

- Name and Telephone Number of the Caller
- Date and Time of the call
- Name of Pipeline
- Location of the Spill
- Product(s) Spilled
- Estimated Quantity
- Actions Taken To-Date
- Assistance Required
- Injuries
- Weather Conditions
- Reason for discharge (if known)

4.0 TACTICAL RESPONSE ACTIONS

The following sections outline the response options for containment and recovery.

4.1 Land and Small Watercourse Spill Response

4.1.1 Vacuum Truck, Gator Vacuum Truck, Port – a – Vac Unit

Vacuum trucks are used to assist in the cleanup and transport of released product and waste material. These trucks are equipped with vacuum pumps and a cylindrical chamber capable of sustaining low internal pressures. Vacuum trucks use 2-4 inch (5-10 cm) diameter hose which is placed slightly below the surface of the oil slick for collection. Depending on the slick thickness and density, a mixture of oil and water will enter the chamber. Positioning the intake end of the hose is critical to minimize the amount of water that is collected.

Responder Considerations	Advantages	Limitations
Vacuum Truck: • Requires an area that is accessible by vehicle. • Vacuum trucks will need to be within 30 m with no more than 5 m of incline to effectively recovery released fluids. *Gator Vacuum Truck:* • Is able to access remote areas not accessible by a vehicle. • May require tree clearing to access recovery points. • Can create extensive environmental damage with multiple trips over the same area. *Port – A – Vac Unit:* • Is able to access remote areas not accessible by a vehicle or a Gator Vacuum Truck. • Minimal environmental disturbance. • Available in 6 x 6 or tracked configurations.	• Readily available in most operating areas. • Considered a recovery tactic. • Effective free fluid recovery during the initial spill response activities. • Used in conjunction with other containment and recovery techniques. • Can be attached to multiple different types of skimmers. • Best application is to focus and remove large pools of released fluids fast and effectively. • Applicable for all types of released products and volumes. • Volumes that can be recovered at one (1) time range from 1 m^3 to 14 m^3, depending on type and application.	• Not considered a containment measure. • Efficiency and productivity decline over a longer period of time. • Significant cost over a longer period of time. • Can be restricted by terrain and space. • Restrict by amount that can be recovered and transported at once. o Will require area to transfer recovered product into tanks or tank trucks. • Significant noise pollution in an urban environment. • Recovers all free fluids, not just the released product.

4.1.2 Earthen Berm and Bell Hole

An earthen berm and bell hole can be used in conjunction with each other or on their own. When constructing a berm, it should be composed of a non-porous substance (I.e. clay, wood, poly or metal) and can be built with mechanical (I.e. backhoe) or hand equipment (I.e. shovel). If a non-porous material is unavailable, sandbags and an impermeable liner can be used instead. The berm should be built on or keyed into a solid non-porous base (I.e. clay vs. grass/sand). Constructing the berm from high ground to high ground in a crescent shape will provide the highest degree of containment.

When constructing a bell hole in conjunction with a berm it should be created upslope of the berm to allow for additional fluid storage volumes. The material removed from the bell hole can be used to create the berm on the downslope side. Berms and bell holes can be used to separate areas of high impact from areas of low impact and aid in recovery efforts.

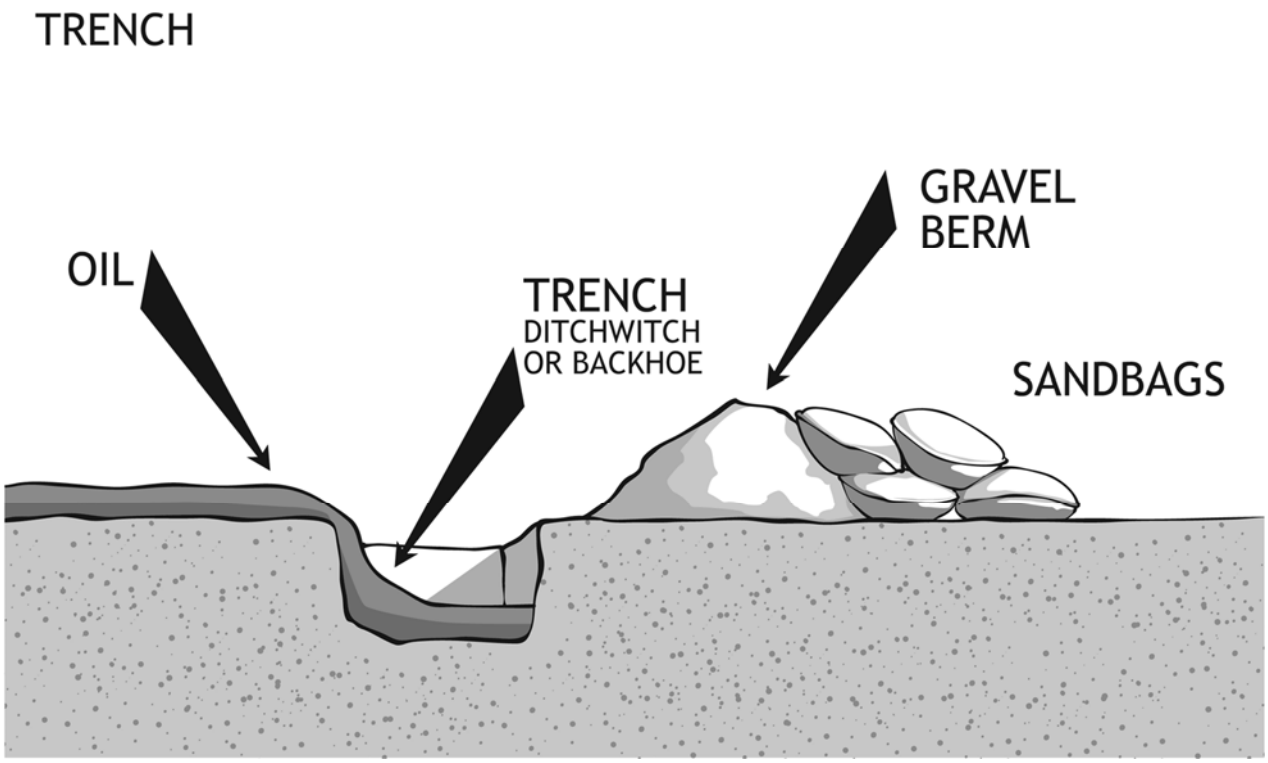
Responder Considerations	Advantages	Limitations
• Construct berm out of a non-porous material (E.g. clay). • Remove vegetation and other porous materials before constructing berm. • An earthen berm can be constructed by mechanical and/or hand equipment. • Berm edges should be keyed into the parent material to provide the highest possible containment. • When possible, an earthen berm should be constructed in natural depressions (E.g. from high ground to high ground) in a U shape configuration for greatest containment potential.	• Considered a containment method to be used with recovery tactic(s). • Can be used to contain and/or divert released fluids and fresh water from high consequence areas (HCAs) (E.g. rivers, wetlands etc.). • Can be used to separate areas of high impact from areas of low impact. • Use this containment technique with multiple different containment and recovery tactics. • Can be constructed in multiple areas as required (E.g. you are not limited to one (1) berm). • Applicable for all types of released products and volumes.	• Environmentally intrusive (high impact). • Not a preferred method in sensitive environments such as wetlands and fens. • Require constant monitoring. • If a bell hole is constructed in porous material, there is the potential to push impacts subsurface. • Require remediation and reclamation at end of life. • If poorly constructed, does not provide adequate containment. • Required to manage inflow of water with pumps or other diversion techniques in order to maintain containment.

4.1.3 Earthen Trench

An earthen trench (figure 4.1.3) can be built in porous or non-porous material and can be built with mechanical (E.g., backhoe) or hand equipment (E.g. shovel). The trench should be built in a solid non-porous base (E.g., clay vs. grass/sand) if possible. Constructing a trench in non-porous material will help prevent the migration of product. If a non-porous material is not available the trench can be constructed and lined with an impermeable substance (I.e. plastic sheeting, hard containment boom skirting etc.).

Responder Considerations	Advantages	Limitations
• Construct a trench with mechanical and/or hand equipment. • An earthen trench can be constructed in a porous or non-porous substance. • An impermeable barrier (E.g. plastic liner or geotextile) can be placed in the trench to prevent penetration and migration through the downstream substrate. • If possible, construct in non-porous parent material. • Excavated material should be piled on backside of trench to act as barrier to prevent further downstream product movement.	• Considered a recovery and containment tactic if constructed in non-porous material. • An earthen trench is used to recover and/or divert released fluids and fresh water from high consequence areas (HCAs) (E.g. rivers, wetlands etc.). • Can be used to separate areas of high impact from areas of low impact. • An earthen trench can be used with multiple types of containment and recovery tactics. • Can be constructed in multiple areas as required (E.g. you are not limited to one (1) berm). • Applicable for all types of released products and volumes.	• Environmentally intrusive (high impact). • Not a preferred method in sensitive environments such as wetlands and fens. • Require constant monitoring. • If an earthen trench is constructed in a porous material, there is the potential to push impacts subsurface. • Require remediation and reclamation at end of life. • If poorly constructed, does not provide adequate containment or recovery. • Required to manage inflow of water with pumps or other diversion techniques to maintain containment and recovery.

Figure 4.1.3 Earthen Trench

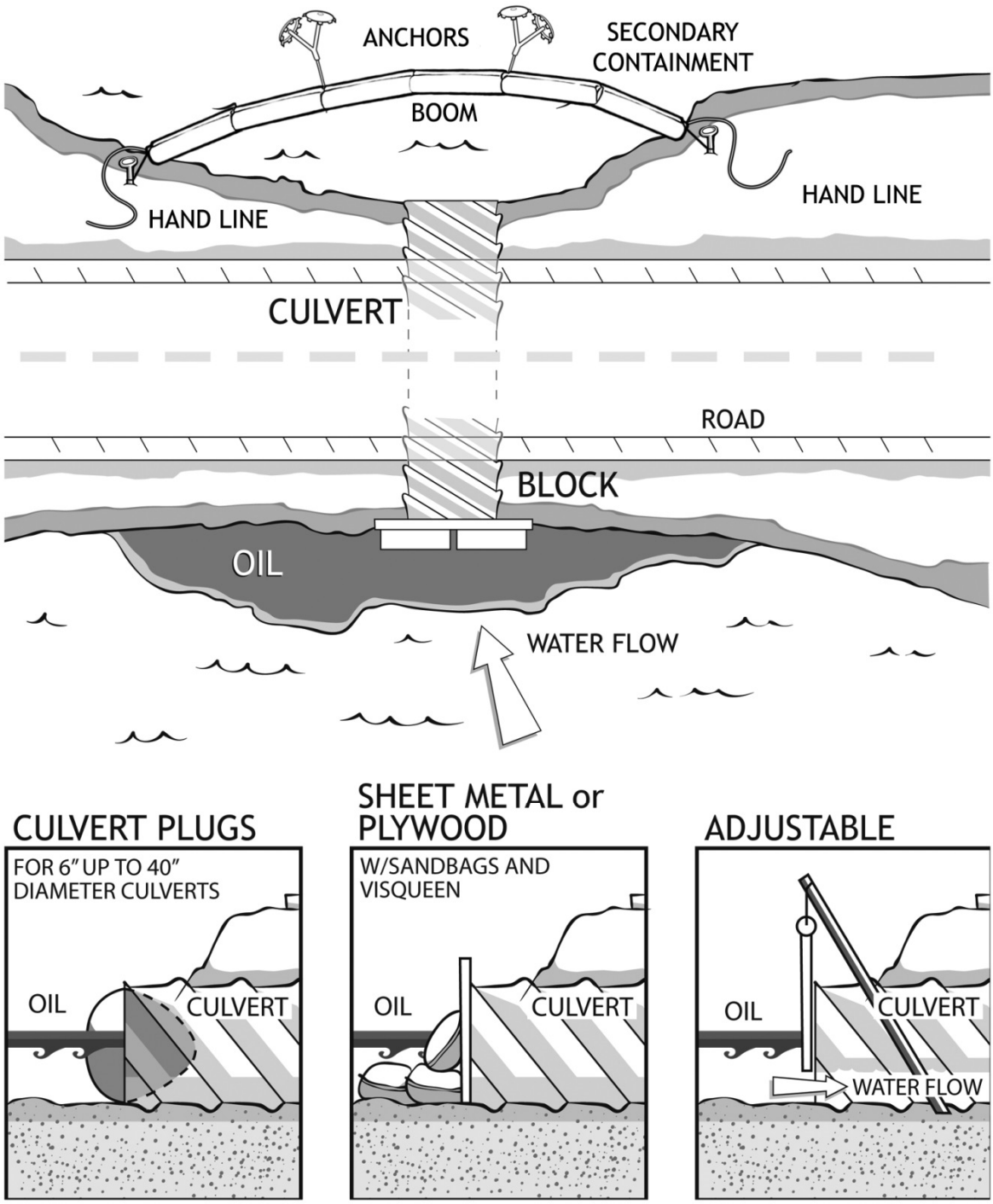


4.1.4 Culvert Block

Blocking a culvert (Figure 4.1.4) will stop all fluids from traveling through the culvert including any freshwater entering the water system as well as any released product. The largest consideration for blocking a culvert is the amount of fluids entering the water system and the amount of storage available upstream of the culvert to allow backflow. If a gated culvert is available this will allow the fresh water to flow underneath and retain the release product upstream of the culvert. When blocking the culvert use an impermeable material (I.e. non-porous material, a culvert plug, sheet metal, clay etc.).

Responder Considerations	Advantages	Limitations
• Culverts can be blocked with available materials such as: o Sheet metal, o Sand bags, o Plywood, o Inflatable culvert plugs, and o Crushing / burying the culvert in non-porous earthen material. • A gated culvert can be utilized to prevent surface hydrocarbon migration and allow subsurface water to pass. • If implementing a culvert block is not an option, a closed chevron boom technique can be used to direct product to the left and right descending bank recovery areas away from the culvert mouth. • A full culvert block should only be utilized if water flow can be managed by pumps in order to maintain a stable water level. Diversionary pumps can be set up to divert incoming fresh water around the impact area and discharge downstream.	• Considered a containment method to be used with recovery tactic(s). • Roadway acts as man-made barrier and choke point to a release. • Relatively easy area to block and prevent further downstream product movement. • Allows for access of all types of equipment. • Ease of access allows for rapid contaminant and recovery to be set up. • Applicable for all types of released products and volumes.	• If a culvert is completely blocked, consideration is to be given to the correct and additional back-up pumping power required in the event of weather and/or melt event to prevent road washout. • The ability to block a culvert on a busy roadway is limited. • Some culvert blocking techniques may require excavation of the damaged culvert and re-installation. • Remediation and reclamation of watercourse banks around the blocked culvert will be required.

Figure 4.1.4 Culvert Blocking



4.1.5 Inverted Weir / Underflow Dam

An inverted weir (Figure 4.1.5-1) is designed to stop free product on the surface while allowing freshwater to continue to flow downstream. The inverted weir is made up of two components (Figure 4.1.5-2), a berm and a culvert. The berm can be constructed out of any non-porous substance (E.g. clay, wood, poly or metal).

Built with mechanical (E.g. backhoe) or hand equipment (E.g. shovel). The berm must be built on or keyed into a solid non-porous base (E.g. clay vs. grass/sand). If possible, the berm should be keyed into parent material as it provides the highest level of containment. When constructing the berm build a crescent shape from high ground to high ground with the culvert(s) at the center point of the arc. The culvert or culverts depending on the volume of flow should be designed for the current water flow x 150 percent to withstand any rain and/or melt events. This can be determined based on culvert sizes on engineered roads in the area. The top of the inflow end of the culvert must be lower than the bottom of the discharge end. Typically, a 45-degree angle can be used as a baseline and adjusted based upon water flow, depth and culvert length. An inverted weir can be used in conjunction with additional containment tactics or it can be used to separate areas of low and high impacts.

Responder Considerations	Advantages	Limitations

• Construct with mechanical or hand equipment.
• Can be constructed with sandbags.
• A pre-fabricated Inverted Weir can be used to minimize environmental disturbance.
• If possible, line upstream side of dam with impermeable barrier (E.g. plastic liner)
• Construct in a non-porous material.
• Remove vegetation and other porous materials before construction.
• Inverted Weir should be keyed into parent material on both sides to provide the highest possible containment.
• Culverts to be placed on the upstream side of the dam with the elevated end on the downstream side.
  o Approximate 45 degrees on incline is required.
  o The height of the elevated downstream end of the pipe
	• Considered a containment method to be used with recovery tactic(s).
	• Contain released fluids on surface of water while allowing water to continue to flow downstream.
	• Suitable for areas with constant and intermittent water flow as a way to mitigate constant water management.
	• Can be used to separate areas of high impact from areas of low impact.
	• Can be used with multiple types of containment and recovery tactics.
	• Can be constructed in multiple areas as required.
	• Applicable for hydrocarbon-based products or non-water-soluble products.
	• Can be constructed with readily available material. No special equipment is required.
		• Can be environmentally intrusive (high impact).
		• Requires remediation and reclamation at end of life.
		• If poorly constructed does not provide adequate containment and/or will washout.
		• Requires instream work, proper siltation mitigation measures installed prior to installation.
		• Regulatory permits will be required outside of the emergency phase of the response.
		• Requires back-up pumps for an increase of water flow beyond what Inverted Weir was initially designed for.

Responder Considerations	Advantages	Limitations
determines water level behind the Inverted Weir. • The Inverted Weir should be designed to withstand future weather and/or melt events up to 150 percent of current water flow. o Additional pumps should be on standby if water flow above 150 percent is expected.		

Figure 4.1.5 -1 Inverted Weir

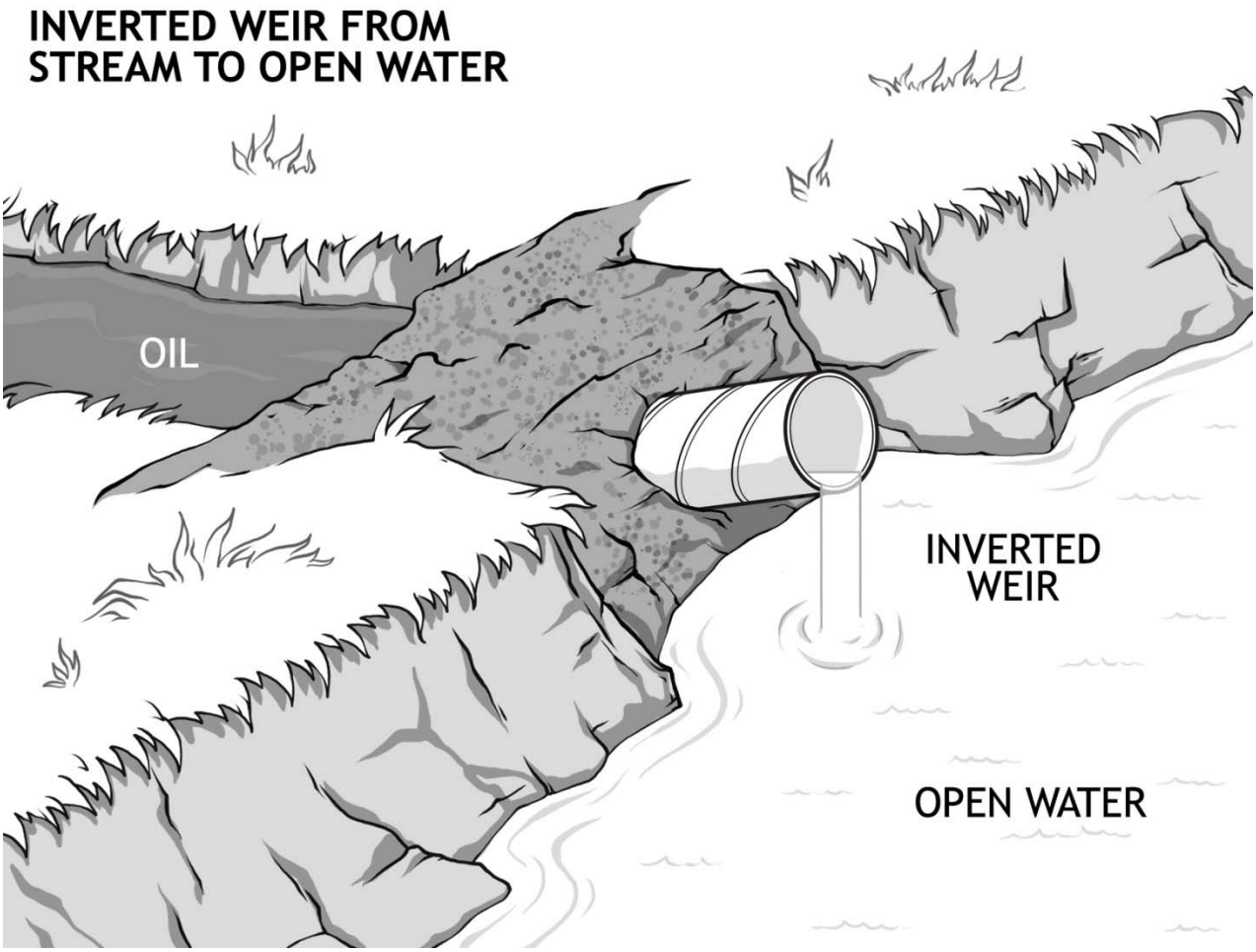
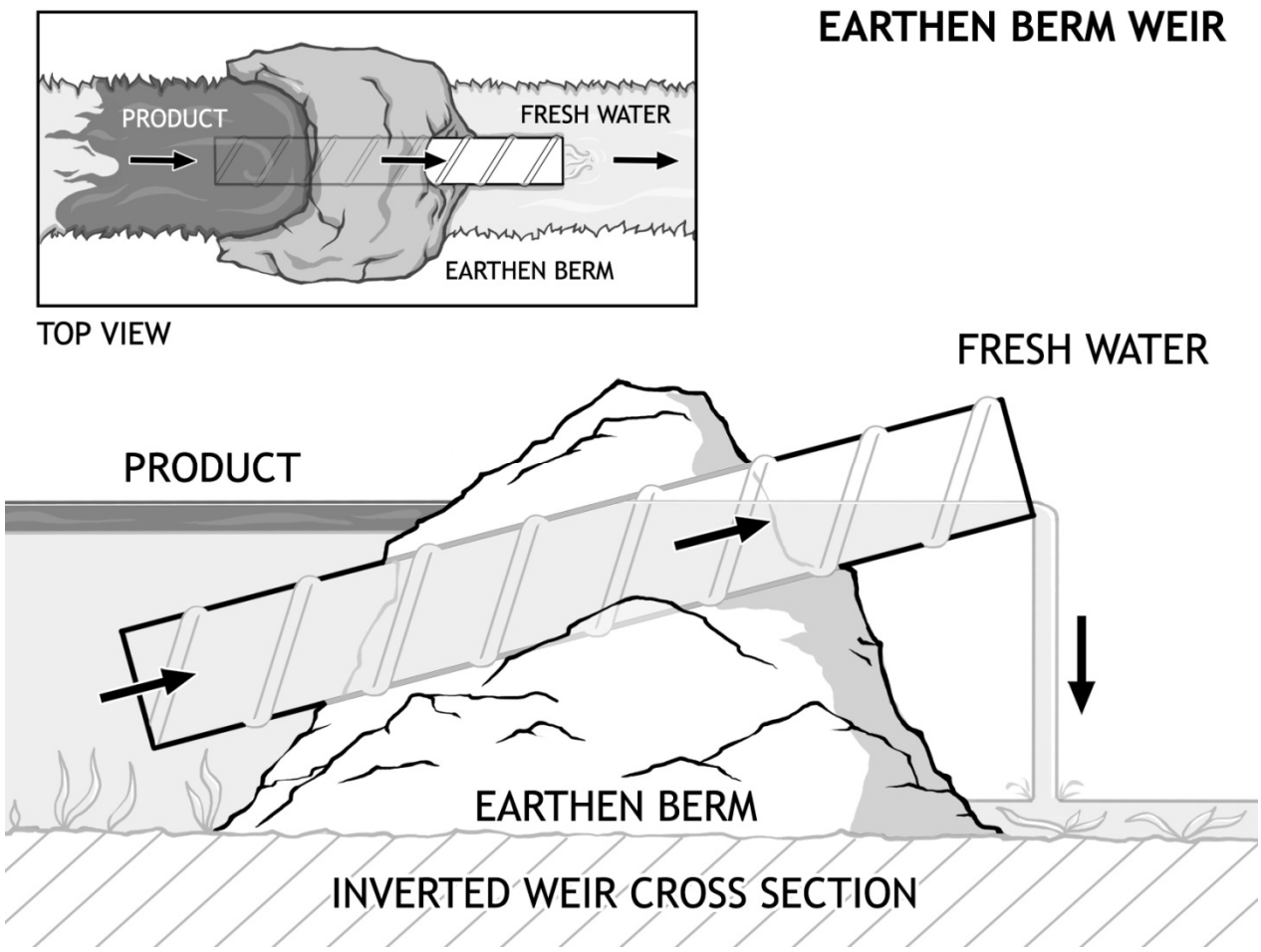


Figure 4.1.5 -2 Inverted Weir Components



4.1.6 Water – Gate Dam

Water – Gate Dams are portable quick installation barriers that allow the depth of water upstream to be regulated. Keeping a consistent water depth ensures released product does not become stranded along the shorelines. Water – Gate Dams can be used in conjunction with additional containment techniques or it can be used to separate areas of low and high impacts. Water - Gate Dams are largely used to increase the water depth to allow additional containment and recovery tactics to be more effective upstream of the dam.

Responder Considerations	Advantages	Limitations

• Install Water – Gate Dam across shallow waterbodies in order to build water volume behind the Water-Gate.
  o Allows containment and recovery tactics to be deployed upstream of the Water – Gate.
• Use water outflow gates at bottom of Water-Gate to regulate inflow to outflow of subsurface water to regulate water levels. Weight of inflated Water – Gate will hold it in place.
  o Anchors are provided if required.
• A Water-Gate can also be used to divert product.
	• Considered a containment method to be used with recovery tactic(s).
	• Can be quickly deployed into a watercourse with minimal personnel.
	• Minimal environmental disturbance.
	• Contains released fluids on surface of water while allowing subsurface water to continue to flow downstream.
	• Suitable for areas with constant water flow as a way to manage water depth.
	• Can be used to separate areas of high impact from areas of low impact.
	• Can be used with multiple types of containment and recovery tactics.
	• Can be deployed in multiple areas as required.
	• Applicable for hydrocarbon-based products or non-water-soluble products.
		• Requires back-up pumps for an increase of water flow beyond what Water-Gate Dam initial designed for.
		• Requires removal of thick vegetation from watercourse banks to properly install.
		• Requires shallow, slow to moderate moving watercourse.
		• Most effective in a watercourse with a depth of 0.50 m or less and in a defined channel to ensure water does not bypass and erode out the channel banks.
		• Water-Gate dam requires constant monitoring out outflow and inflow to maintain a consistent water depth.

4.1.7 Turner Valley Gate

Turner Valley Gates are rapidly deployed shallow water containment measures. The Turner Valley Gate consists of two components, a stand and a plastic skirt. The stand allows the watercourse to be spanned and supports the plastic skirt. The stand is composed of a material that will support the skirt but also allow water to flow past. Typically, they are constructed of aluminum or steel grating or mesh with a solid outer frame. The Skirt is composed of an oil resistant plastic skirting typically PVC fabric. The skirting deflects the product to a recovery area. The angle a Watergate is deployed spanning a watercourse is consistent with a typical boom angle. The Turner Valley Gate can be used alone or in conjunction with other containment tactics.

Responder Considerations	Advantages	Limitations
• Install a pre-fabricated Turner Valley Gate in small watercourses with shallow water depths. • Install the Turner Valley Gate at a 10 / 30 degree angle per current velocity in the watercourse creating a recovery area. • Recover product with hand skimming techniques and/or a vacuum truck. • Can be used to deflect product to a containment and/or recovery area. • Multiple Turner Valley Gates can be used together depending on width of the watercourse.	• Can be quickly deployed into a small watercourse with minimal personnel. • Minimal environmental disturbance. • Skirt can be adjusted depending on water depth to facilitate free product containment. • Applicable for hydrocarbon-based products or non-water-soluble products.	• Requires constant monitoring for product and subsequent hand skimming or vacuum truck removal. • Not effective in fast moving watercourses. • Not effective in water depths exceeding 0.5 m. • Not effective for a large volume of release product.

4.1.8 Aquadam / Waterbloc

An Aquadam / Waterbloc is a water filled inflatable bladder that impedes fluid movement downstream or downslope where installed. An Aquadam / Waterbloc can be used to contain product, divert freshwater or isolate an area of a waterbody or watercourse. Aquadams / Waterblocs are installed by pumping water into the rubber bladders to inflate the tubes and provide fluid control. Aquadams / Waterblocs come in numerous sizes depending on the application. Aquadams / Water blocks typically come in 50 or 100 foot sections and can be joined together to increase the length if required.

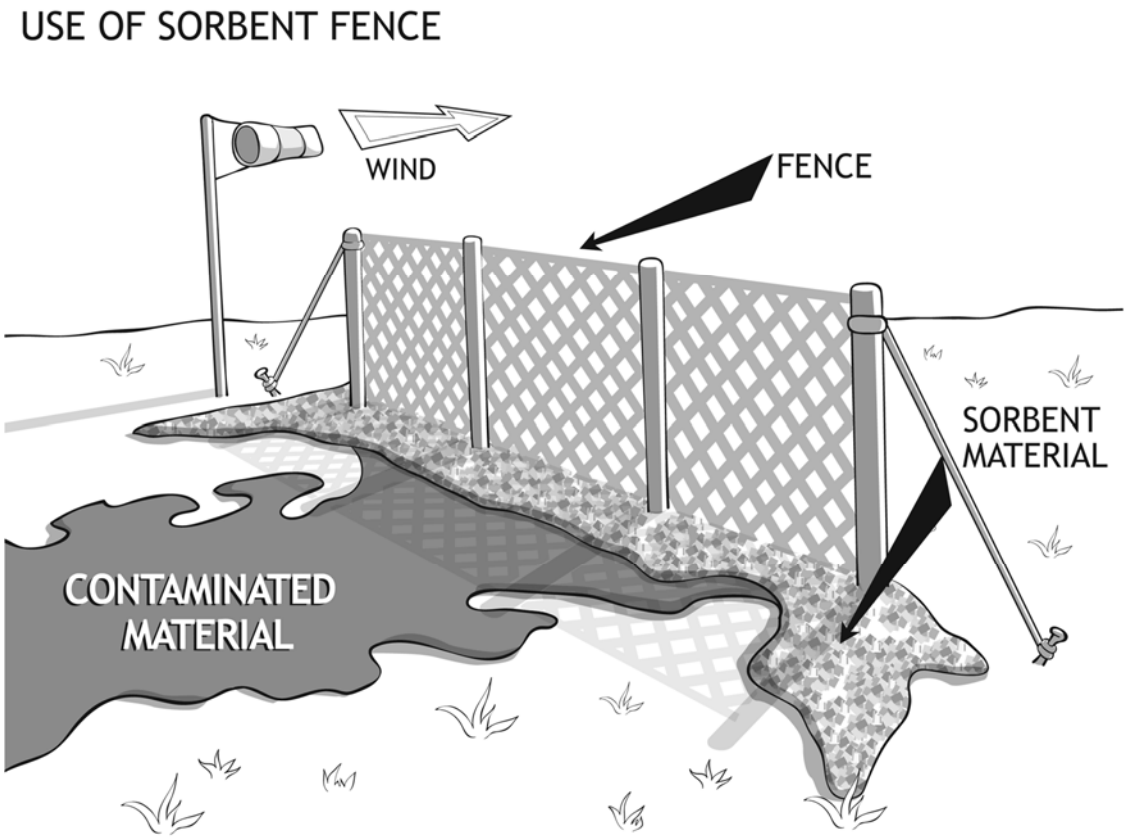
Responder Considerations	Advantages	Limitations
• Install a bladder dam across shallow waterbodies to divert or stop water flow completely. • Can be installed in a U shape configuration to isolate an area within a waterbody. • Can be used to isolate and de-water areas. • Can be used as waste storage in remote areas. • Highly effective in creating a containment and recovery area. • Remove vegetation and other materials that can puncture the bladder. • A water source is required in order to inflate the bladder dam.	• Can be quickly deployed into a watercourse with minimal personnel. • Minimal environmental disturbance. • Reduces sedimentation of watercourse compared to earthen berms. • Highly effective in creating a containment and recovery area. • Use with multiple types of containment and recovery tactics. • Applicable for all types of released products and volumes.	• Require pumps to manage water inflow and outflow. • Require removal of vegetation from banks to create a watertight seal. • Require slow moving or stagnant watercourses or waterbodies. • Removal can be difficult. • Limited by height of the bladder Dam. • A single chamber bladder dam has a tendency to roll. • It is recommended that trained personnel that have experience in installing Aqua Dams / Waterbloc complete the installation.

4.1.9 Sorbent Fence

A sorbent fence is a rapidly constructed containment technique. The largest advantage is the sorbent fence can be constructed very quickly with readily available materials. When constructing the sorbent fence it should be constructed from high ground to high ground or in a U shape for the most effective containment. The sorbent materials should be placed along the water's surface for the entire length of the fence creating a barrier. Once the sorbent material has become saturated they should be removed and replaced with fresh sorbent material. The sorbent fence can be used in conjunction with other containment and recovery tactics.

Responder Considerations	Advantages	Limitations
• Constructed out of t-posts, fencing, rope, stakes and sorbent material. • Install the sorbent fence from high ground to high ground.	• Can be quickly deployed. • Requires minimal personnel. • Collects free product and impedes further movement. • Minimal environmental disturbance. • Use with multiple types of containment and recovery tactics. • Applicable for hydrocarbon-based products.	• Requires constant removal and replacement of absorbent materials. • High waste content generated by absorbent materials. • Not an effective recovery technique. • Not effective in water depths over 0.50 m. • Not considered a containment technique.

Figure 4.1.9 Sorbent Fence



4.2 Moving Watercourse

A moving watercourse is typically referred to as a river or stream. The watercourse has a current and is generally within a channel of some type. The amount of current will dictate the type of response option that is most effective.

4.2.1 Watercourse Boom Angle

The correct boom angle is critical for maintaining containment and to continue recovery operations. The slower the current, the greater the boom angle and the faster the current, the smaller the boom angle.

	Current Speed		
	Less than 4 km/hr.	**Greater than 4 km/hr.**	**Frozen Waterbodies**
Boom Angle (degrees to current)	30 degrees	10 degrees	15 Degrees

4.2.2 River Anchor System

A tandem anchor set if the preferred method for installing instream hard containment boom. The tandem anchor set consists of a Rake and Sarca anchor, ballast chain, rode line and a marker buoy. The length of ballast chain required should be approximately 120 feet (ft.)

The length of rode line required should be approximately 7 ft. of rode line to 1 ft. of water depth in order to minimize upward pull on the anchors from the buoy and hard containment boom.

4.2.3 Exclusion Zone

An exclusion zone is characterized as an area you want to protect from being impacted by free product (E.g. sensitive ecosystems, residences, public beach). Boom is placed adjacent to the area and used as either shoreline protection or with instream anchor sets to deflect product from these areas.

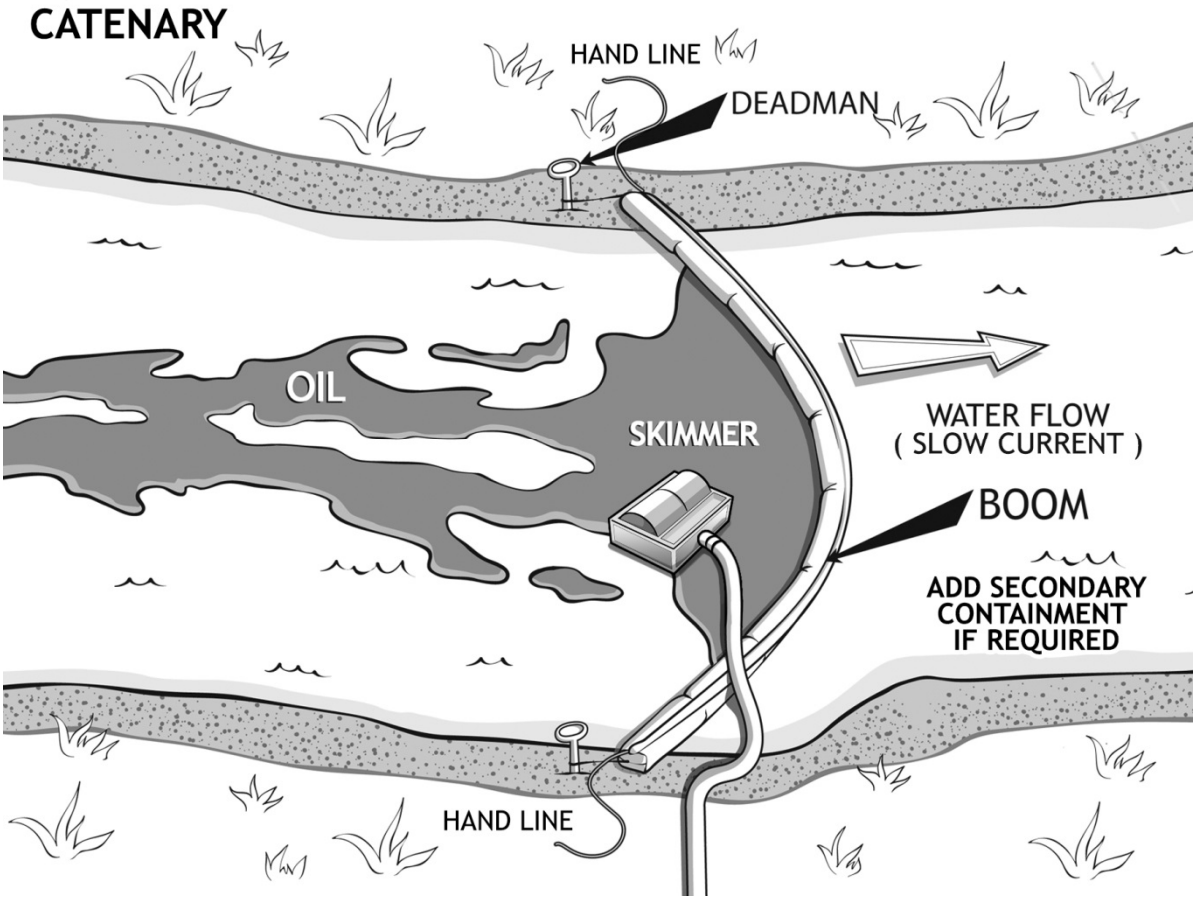
Responder Considerations	Advantages	Limitations
• This tactic is used to isolate high consequence areas from being impacted by released product. • Danforth anchors can be used to maintain hard containment boom placement in slow to moderate currents. • Anchor the hard containment boom above the high-water mark to allow for fluctuating water levels using shoreline pins, screw or natural anchors. • For smaller waterbodies deployment can be done with hand lines.	• This tactic is most suited for use in slow to moderate currents. • Hard containment boom is used to direct product away from sensitive areas. • The tactic can be used along the banks of a watercourse at multiple high consequence areas. • A series of smaller boom sets may be preferable to protect longer continuous sensitive areas as opposed to one large set.	• Not recommended for fast moving water environments. • Difficult to maintain boom integrity during ice breakup. • Boom failure due to floating debris or vessel contact is possible.

4.2.4 Catenary Boom Deployment

A Catenary (Figure 4.2.4) culboom deployment is used in calm water where the channel width does not exceed 15 m. When choosing a deployment location pick areas that will protect any identified priority zones (E.g. sensitive areas, areas that have logistical access issues etc.). Anchor the boom and/or boom strings above the high-water mark to protect against fluctuating water levels.

Responder Considerations	Advantages	Limitations
• Tactic is used in calm water. • Anchor hard or absorbent boom to shoreline above the high-water mark using shoreline pins, screw in or natural anchors.	• Consists of one (1) hard containment boom length (50 feet) from shoreline to shoreline. • Absorbents can be used to recover product if it is the only recovery method available. • Boom sweeps, water spray or wind can be used to move product to recovery location for more efficient recovery.	• This type of boom deployment typically occurs in waterbodies not conducive to watercraft travel.

Figure 4.2.4

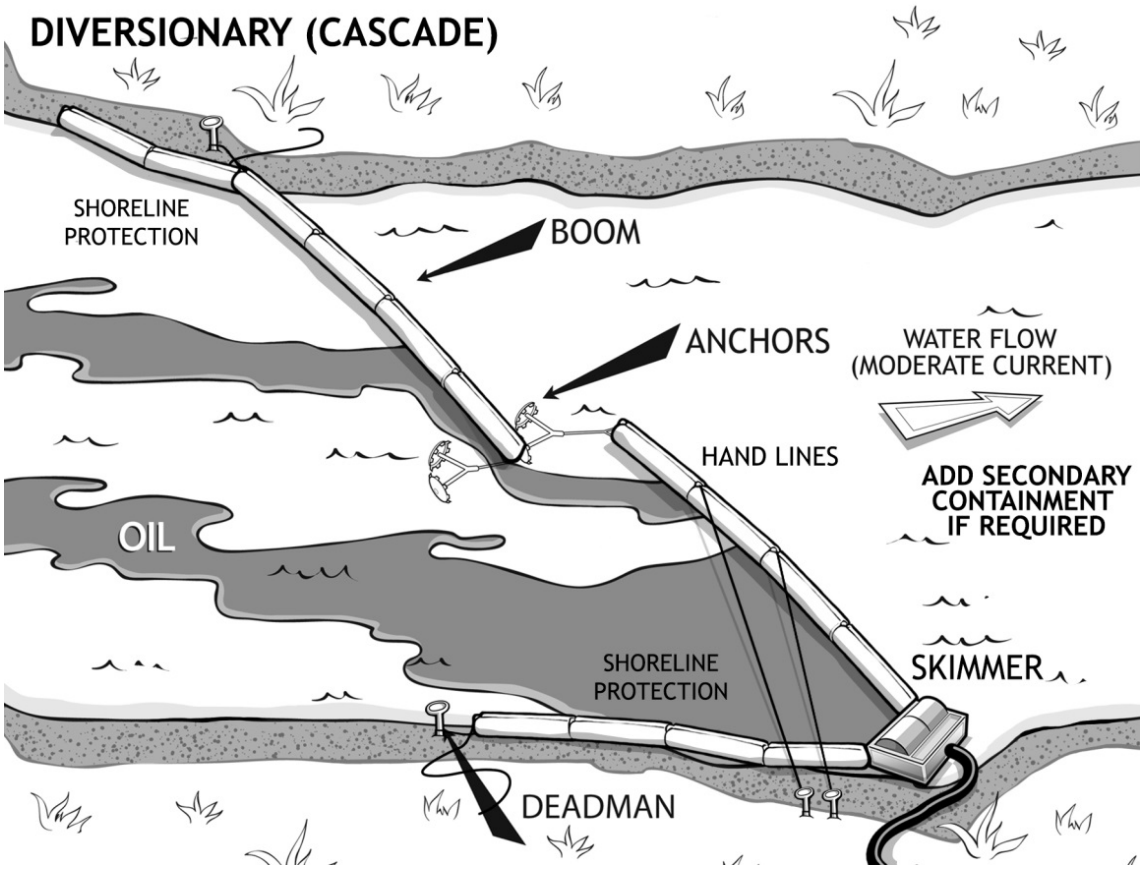

CATENARY
HAND LINE
DEADMAN
OIL
SKIMMER
WATER FLOW
(SLOW CURRENT)
BOOM
ADD SECONDARY
CONTAINMENT
IF REQUIRED
HAND LINE

4.2.5 Deflection or Diversion Boom Deployment

A deflection or diversion boom deployment (figure 4.2.5) is used to direct product within the watercourse to your recovery area. Other uses also include protection for sensitive in stream structures (E.g. architectural in stream structures, islands) by deflecting the free product away from these areas. This can be achieved by instream anchor sets or through utilization of a boom vane.

Responder Considerations	Advantages	Limitations
• Boom angle should be at 10 or 30 degrees depending on the current velocity. • Anchor the hard containment boom above the high-water mark to allow for fluctuating water levels using shoreline pins, screw or natural anchors. • For smaller waterbodies deployment can be completed using hand lines. • For larger waterbodies deployment is completed using response vessels.	• This tactic can be used in slow, moderate and fast currents. • A boom vane can be used to deflect product (on downstream side) or collect product (on the upstream side) of the hard containment boom. • This tactic can be used to deflect product to a recovery area. • Depending on the water velocity at the recovery area, a mechanical or weir skimmer can be deployed to recover the product.	• Only trained spill responders should attempt Deflection or Diversion Boom Deployment Tactics.

Figure 4.2.5 Deflection/Diversion Boom

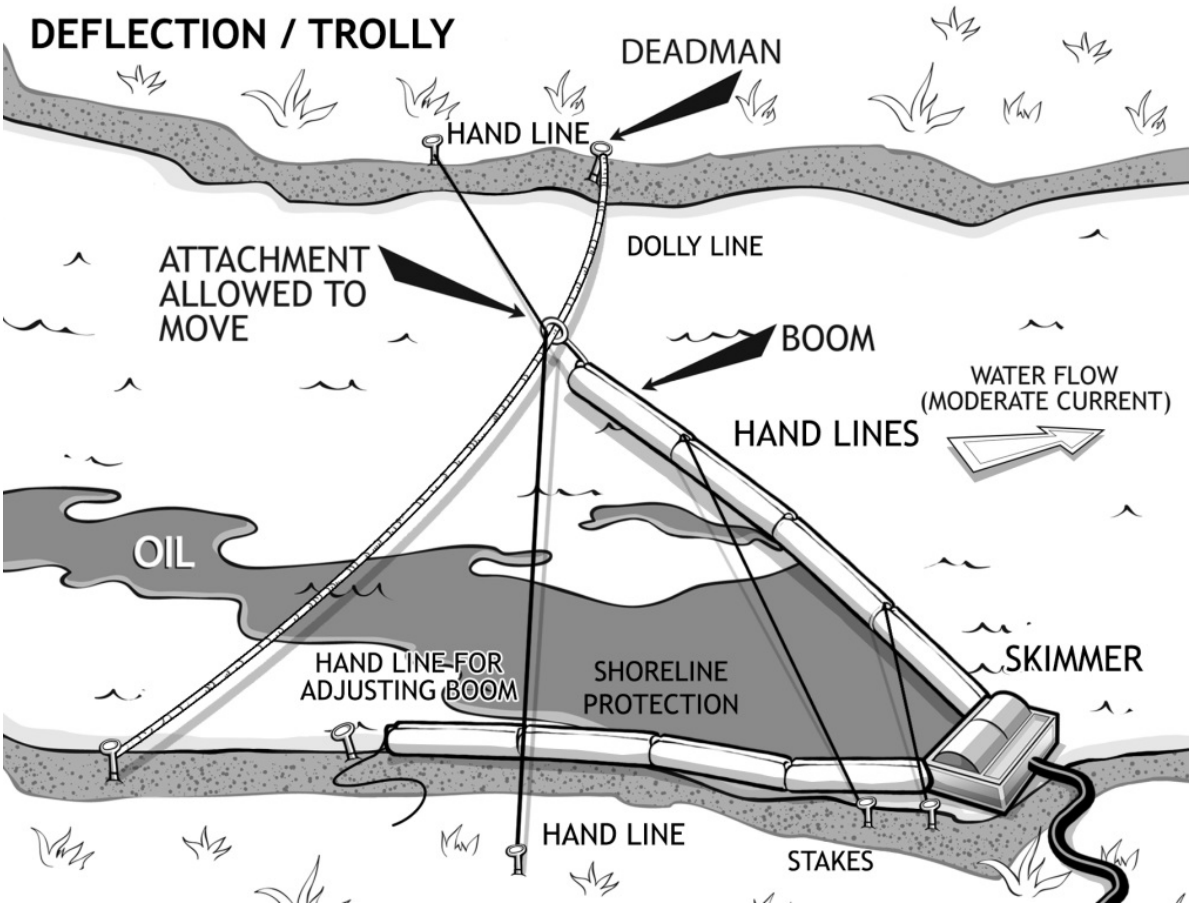


4.2.6 Trolley Line Deflection

A trolley line (figure 4.2.6) is utilized to contain product on the surface of small to medium sized watercourses with moderate to strong currents where bank to bank deployment is not feasible and instream anchors can't be used. The boom angle can be adjusted along the trolley line allowing for a larger or smaller recovery area as required which can be beneficial in watercourses with variable flow speeds or a changing product plume size.

Responder Considerations	Advantages	Limitations
• Boom angle should be at 10 or 30 degrees depending on the water velocity. • Anchor the hard containment boom for shoreline projection above the high-water mark to allow for fluctuating water levels using shoreline pins, screw or natural anchors. • Anchor the trolley line using shoreline pins, screw or natural anchors. • The Trolley line should be anchored at an angle with the opposite shore being downstream. This allows the current to pull the hard containment boom to the location selected by the responder. • For smaller waterbodies deployment can be done with hand lines.	• This tactic can be used in slow, moderate and fast currents. • Trolley lines are used to deflect product to a recovery area. • Depending on the water velocity at the recovery area, a mechanical or weir skimmer can be deployed to recover the product.	• Only trained spill responders should attempt a Trolley Line Deflection Tactic. • A Trolley Line can impede boat traffic and should be clearly marked.

Figure 4.2.6 Trolley Line Deflection



4.2.7 Cascade Boom Deployment

A cascading boom deployment is used to direct product to a recovery point using multiple smaller deflection booms. Cascading boom deployment is used when the flow speed or length of the waterbody is too great for a single boom to span from one bank to the other. Cascading boom deployment also allows for the continued passage of watercrafts within the waterbody. Cascading boom deployments can be achieved with instream anchor sets or through the use of a boom vane.

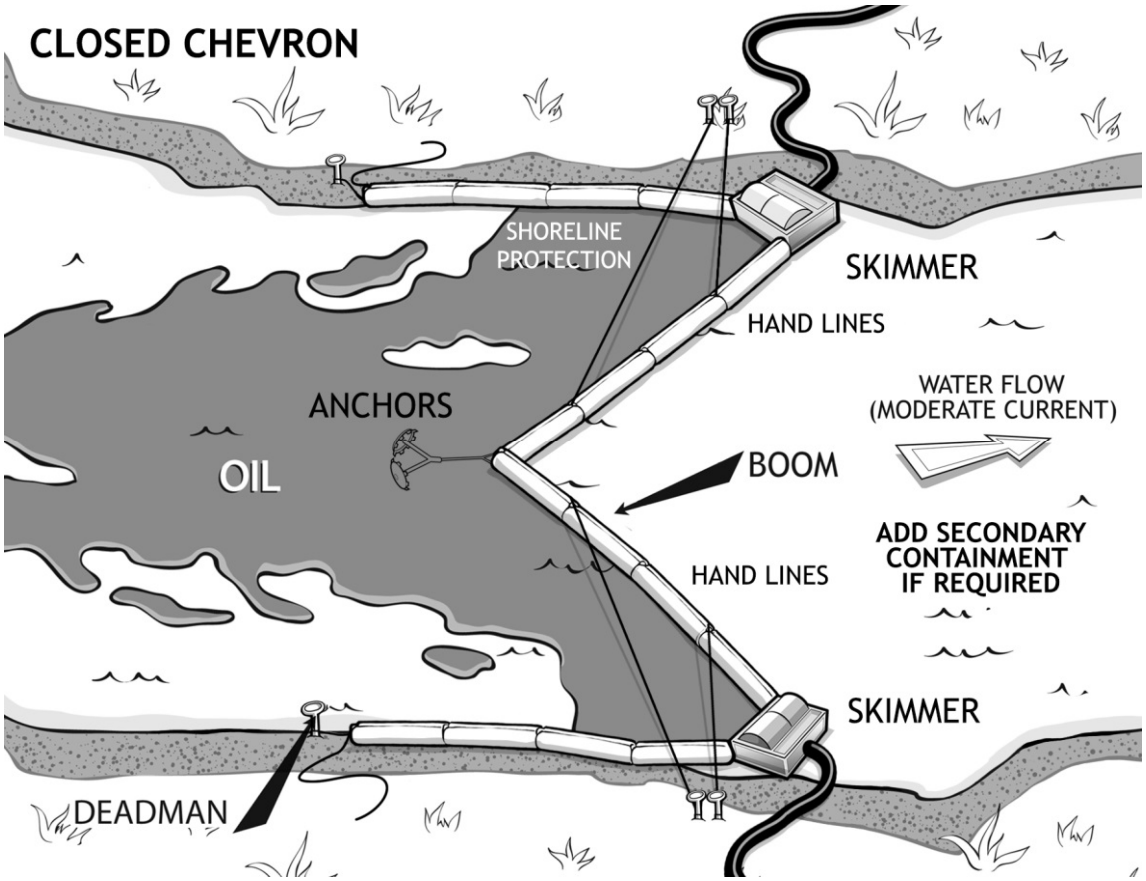
Responder Considerations	Advantages	Limitations
• Boom angle should be at 10 or 30 degrees depending on the current velocity. • Anchor the hard containment boom above the high-water mark to allow for fluctuating water levels using shoreline pins, screw or natural anchors. • This tactic is utilized when one hard containment boom set is insufficient due to water velocity and the amount of boom required.	• This tactic can be used in slow, moderate and fast currents. • This tactic is used to deflect product to a recovery area. • Depending on the water velocity at the recovery area, a mechanical or weir skimmer can be deployed to recover the product.	• Response vessels and crew are required to set in-stream tandem anchor sets. • Only trained spill responders should attempt a Cascade Boom Deployment Tactic.

4.2.8 Closed Chevron Boom Deployment

A closed chevron (Figure 4.2.8) deployment is used in large straight watercourses when access is available to both banks. Product is contained and directed to both the left and right descending banks to recovery points. Closed chevrons are created off an instream anchor set and limit watercraft traffic as the entire reach of the watercourse is boomed.

Responder Considerations	Advantages	Limitations
• Boom angle should be at 10 or 30 degrees depending on the current velocity. • Anchor the hard containment boom above the high-water mark to allow for fluctuating water levels using shoreline pins, screw or natural anchors.	• This tactic can be used in slow, moderate and fast currents. • This tactic is used to deflect product to recovery areas located on the right and left descending banks. • This tactic allows the entire watercourse to be boomed therefore preventing further downstream migration of product. • Depending on the water velocity at the recovery area, a mechanical or weir skimmer can be deployed to recover the product.	• This tactic does not allow response vessel traffic to pass safely. • A response vessel and crew are required to set the in-stream tandem anchor set and attach the boom apex to the anchor set. • Only trained spill responders should attempt a Closed Chevron Boom Tactic.

Figure 4.2.8 Closed Chevron Boom Deployment

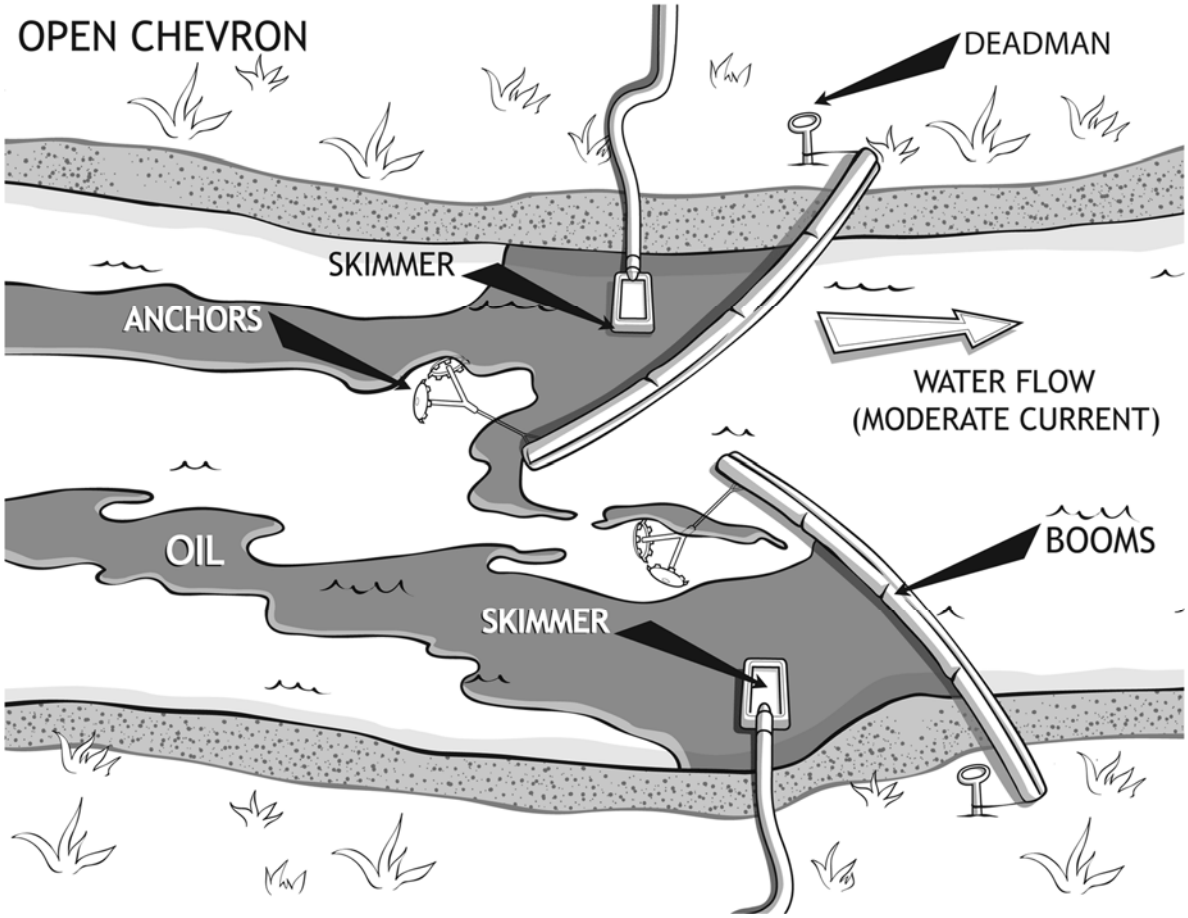


4.2.9 Open Chevron Boom Deployment

An open chevron deployment (figure 4.2.9) is similar to a closed chevron in that it's used in large straight watercourses when access is available to both banks, however, it allows you to maintain watercraft passage. Product is contained and directed to both the left and right descending banks to recovery points. Open chevrons are created off two instream anchor sets instead of one.

Responder Considerations	Advantages	Limitations
• Boom angle should be at 10 or 30 degrees depending on the current velocity. • Anchor the hard containment boom above the high-water mark to allow for fluctuating water levels using shoreline pins, screw or natural anchors.	• This tactic can be used in slow, moderate and fast currents. • This tactic is used to deflect product to recovery areas located on the right and left descending banks. • This tactic allows the entire watercourse to be boomed therefore prevent further downstream migration of product. • This tactic allows response vessel traffic to pass safely. • Depending on the water velocity at the recovery area, a mechanical or weir skimmer can be deployed to recover the product.	• Response vessel and crew are required to set two (2) in-stream tandem anchor sets and corresponding boom strings. • Only trained spill responders should attempt an Open Chevron Boom Tactic.

Figure 4.2.9 Open Chevron Boom Deployment

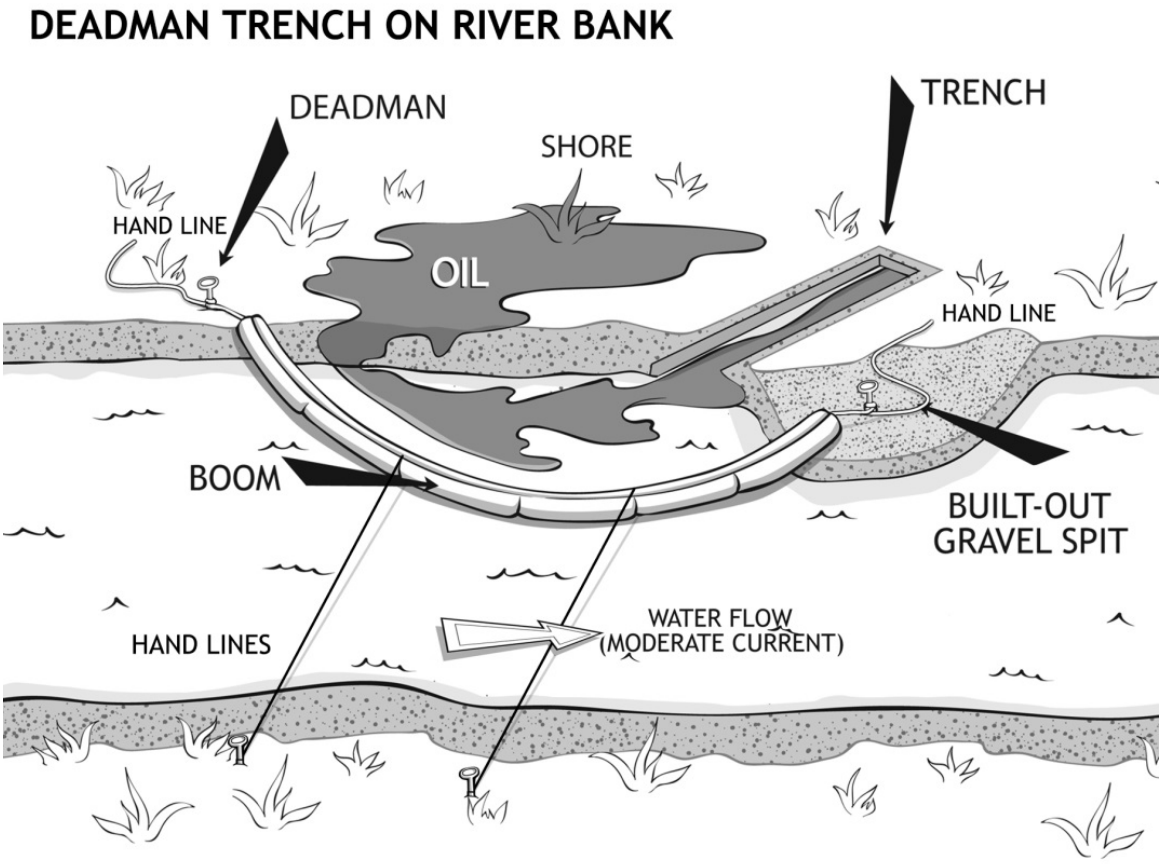


4.2.10 Deadman Trench

A Deadman Trench (Figure 4.2.10) is used when flow speed or product volume is too great for conventional recovery methods to work. Boom is used to deflect product into a trench created at the recovery point allowing for greater retention of released product. Flow speeds within the main body of the watercourse can hinder the effectiveness of mechanical and weir skimmers, a Deadman Trench allows for recovery in near stagnant water conditions greatly increasing skimmer efficiency.

Responder Considerations	Advantages	Limitations
• A built-out gravel spit is utilized to create a retention / containment area and slow water flow to aid in recovery activities. • Used along the bank of a river in order to stop product from migrating downstream from a land-based spill. • Hard containment boom is used to direct product to the mechanically constructed trench or back channel. • Anchor the hard containment boom above the high-water mark to allow for fluctuating water levels using shoreline pins, screw or natural anchors.	• This tactic can be used in slow, moderate and fast currents. • The mechanically constructed trench serves as the recovery area. • Responders are able to use natural back channels in place of a mechanically constructed trench where available.	• Requires regulatory approval due to alternation of river bank / bottom. • Only trained spill responders should attempt a Deadman Trench.

Figure 4.2.10 Deadman Trench



4.3 Low Current Waterbody

A low current waterbody is generally referred to as a lake or other large body of water, with little to no current at the surface of the water. Hydrocarbon movement occurs in four (4) ways on low current waterbodies:

- Wind driven product movement
- Dispersion of product over the surface of the waterbody
- Watercraft movement and subsequent wave action
- Submersion and/or sinking of product

Responder Considerations	Advantages	Limitations
• Hard containment boom can be installed from land using hand lines or slow-moving watercraft to minimize product movement. • Anchor hard or absorbent boom to shoreline above the high-water mark using shoreline pins, screw in or natural anchors. • Free product is recovered using mechanical skimmers, vacuum trucks and/or surface pumps.	• Hard or absorbent containment boom can be used to contain free product. • Depending on the size of point of entry and/or amount of product in water, the containment area can be expanded or contracted as required. • Danforth anchors can be used on the outside of the hard containment boom to maintain correct boom configuration. • Absorbents can be used to recover product if it is the only recovery method available. • Boom sweeps, water spray or wind can be used to moved product to recovery location for more efficient recovery.	• Extra monitoring of potentially impacted wildlife should be considered as large, slow moving waterbodies often host a large variety of wildlife species and often form key breeding ground locations.

4.3.1 V – Boom

A V-Boom is utilized in open water where there is negligible flow and the product is located away from the shoreline requiring active oil recovery. A V-Boom is created between three work boats with the two leading boats each pulling a section of boom anchored to a third recovery boat in a triangular formation. The recovery boat located at the apex of the triangle is equipped with a bow mounted skimmer or other method to recover the free product from the surface. A V-Boom configuration allows for the active recovery of product in place rather than waiting for the product to migrate to a shoreline recovery area.

Responder Considerations	Advantages	Limitations
• 400’ – 600’ of hard containment boom is attached from each response vessel to the recovery vessel to create a ‘V’ formation.	• This tactic is used to contain and recovery product on open water.	• Requires two (2) response vessels and crews. • Requires one (1) on-water recovery vessel. • Tactic does not work in shallow water environments due to vessel draft. • The recovery vessel must be equipped with a bow skimmer in order to recovery free product. • Constant communication between the two tow vessels and recovery vessel is required in order for the tactic to be successful. • Not a suitable containment and recovery method in moderate and fast-moving waterbodies. • Only trained spill responders should attempt the V – Boom Tactic.

4.3.2 U – Boom

A U-Boom can be created when two workboats pull a section of boom attached to each in a horseshoe pattern or when one boat pulls a section of boom equipped with a Boom Vane to create drag and a horseshoe pattern. This method is effective for actively corralling free product in open water scenarios with negligible flow. On water recovery can be completed via a bow skimmer equipped work boat or by ferrying the product to shore within the boom to a designated recovery area.

Responder Considerations	Advantages	Limitations
• 400’ – 600’ of hard containment boom is attached from tow vessel to each vessel. • The recovered product is then towed to a recovery area long shoreline and/or a recovery vessel recovers collected product in U-Boom.	• A tow vessel can be replaced with a boom vane when there is a shortage of vessels. •	• Requires two (2) response vessels and crews. • Tactic does not work in shallow water environments due to vessel draft. • Constant communication between the two tow vessels is required in order for the tactic to be successful. • Not a suitable containment and recovery method in moderate and fast-moving waterbodies. • Only trained spill responders should attempt the U – Boom Tactic.

4.4 Winter Response

4.4.1 Ice Types

There are five types of ice; each of which is created under different atmospheric conditions and differs *significantly* in strength.

- Blue Ice – Strongest form of ice and is blue or clear in appearance, generally it is void of bubbles and/or debris
- White Ice – has half the load bearing capacity of blue ice and is generally white in colour.
- Frazil Ice - Frazil ice is a collection of loose, randomly oriented needle-shaped ice crystals in water. It resembles slush and has the appearance of being slightly oily when seen on the surface of water. It sporadically forms in open, turbulent, super cooled water, which means that it usually forms in rivers, lakes and oceans, on clear nights when the weather is colder, and air temperature reaches −6 °C or lower.
- Jam Ice - Is a stationary accumulation of fragmented ice or frazil ice that restricts flow. This most often occurs in the spring, however can form during the freezing cycle in early winter. The surface will be uneven and will not have the strength of blue or white ice, although the jam can be made up of both.
- Layered Ice – a layered combination of blue and/or white ice intermittently mixed with layers of water or slush. This ice may form as part of a continued freezing and thawing process. This is a dangerous mixture of ice and can provide incorrect thickness readings and subsequent weight bearing capacity calculations. Extreme caution should be used if working near this type of ice formation.

4.4.2 Ice assessment Methodology

Prior to commencing any activity over a frozen waterbody, the type, strength and thickness of the ice must be established. Utilize the following steps for measuring ice thickness and determining weight bearing capacity.

- Prior to conducting the ice assessment, a tailgate meeting should be conducted which includes a review of the Initial Site Health and Safety Plan (ISHSP). In addition to the ISHSP, an Ice Rescue Plan should be developed and communicated with all responders. If required, a trained ice rescue crew should be on standby.
- Personal Protective Equipment should be reviewed during the tailgate meeting and donned prior to conducting operations.
- Ice assessors will work in pairs and don safety harnesses secured with rope to shoreline crews before moving onto ice.
- Utilizing an ice auger, the assessors should drill the first test hole while standing on the shoreline to determine if it is safe to proceed onto the frozen waterbody.
- In order to determine ice weight bearing capacity, utilize the ice measurement stick located on the Winter Response Trailer. The measuring stick is placed into the drill hole to determine total

ice thickness. All measurements should be recorded on the Ice Assessment Form located in Section 8.0 of this manual.

- To calculate the weight bearing capacity utilize the following formula.

  Gold's Formula - $P = A \times h^2$
  where:
  P is the calculated allowable load in kilograms
  A is the selected risk tolerance value
  h is the effective thickness of good quality blue/white ice (cm)

  "A" values range from 3.5 to 6 depending on overall risk tolerance. Selecting a lower "A" value when completing the calculation allows for a more conservative weight bearing capacity. **For Trans Mountain's purposes a preliminary "A" value of 3.5 should be utilized.**

- When determining total ice thicknesses exclude any surface snow in the measurement. Record the thickness for each test hole using the Ice Assessment Form located in Section 8.0 of this manual.

- Assessment should only continue if ice thickness is determined to be adequate.

- Subsequent test holes should be drilled working in a straight line from the original hole. Distance between test holes should never exceed 10 metres (5 metres on moderate to fast moving river systems). Ensure that each test hole is indicated on a site diagram and that holes are marked with a pylon or other device for visual reference. Additionally, a GPS reference for each drill hole may be taken and recorded.

- Augured test holes should be reevaluated at minimum every two days to ensure that thickness has not significantly decreased. If substantial temperature changes occur during response operations, then test holes should be reevaluated more frequently.

- Once the identified work area for containment and recovery operations has been reached an additional weight bearing capacity assessment for response equipment must be completed. This is done by cutting and extracting an ice block from the work area, moving the block to the safety of the shoreline and measuring the different types of ice formed within the block sample. Utilize Gold's Formula to then determine the work areas total weight bearing capacity which will in turn indicate the type and number of responders and response equipment that may be utilized for safe operations.

Additional Considerations

On lakes, the distance between test holes may be substantially increased with the trailing responders remaining well behind. Extra caution needs to be exercised along shore, as the floating ice cover may actually be thinner near the shore. In addition, as progress is made across the lake, sampling distances will need to be shortened as the ice thickness begins to decrease. **If any sample reveals clear blue ice less than 10 centimeters thick, responders are to leave the area immediately.**

In addition to Gold's Formula the following table may be referenced as a general guideline for ice thickness weight bearing capacity.

Potential Load of Blue Ice	Effective Ice Thickness (Millimeters)	
	Lake	River
One person on foot	50	60
Group, single file	80	90
Passenger car 2000 kilograms	180	210
Light truck 2500 kilograms	200	230
Medium truck 3500 kilograms	260	300
Heavy truck 7000 – 8000 kilograms	350	410
10,000 kilograms	380	440
25,000 kilograms	630	730
45,000 kilograms	800	920
70,000 kilograms	1000	1150
110,000 kilograms	1250	1440

Additional information regarding Best Practices for Building and Working on Ice Covered Waterbodies is located within each Trans Mountain Winter Response Trailer.

4.4.3 Ice Slot ('J' slot)

The ice J slot can be used within waterbody's that exhibit flow when product is under the ice. The ice slot is created at an angle to the current (angle dependent on current velocity) resulting in the oil surfacing within the slot and being directed to the recovery area by the current.

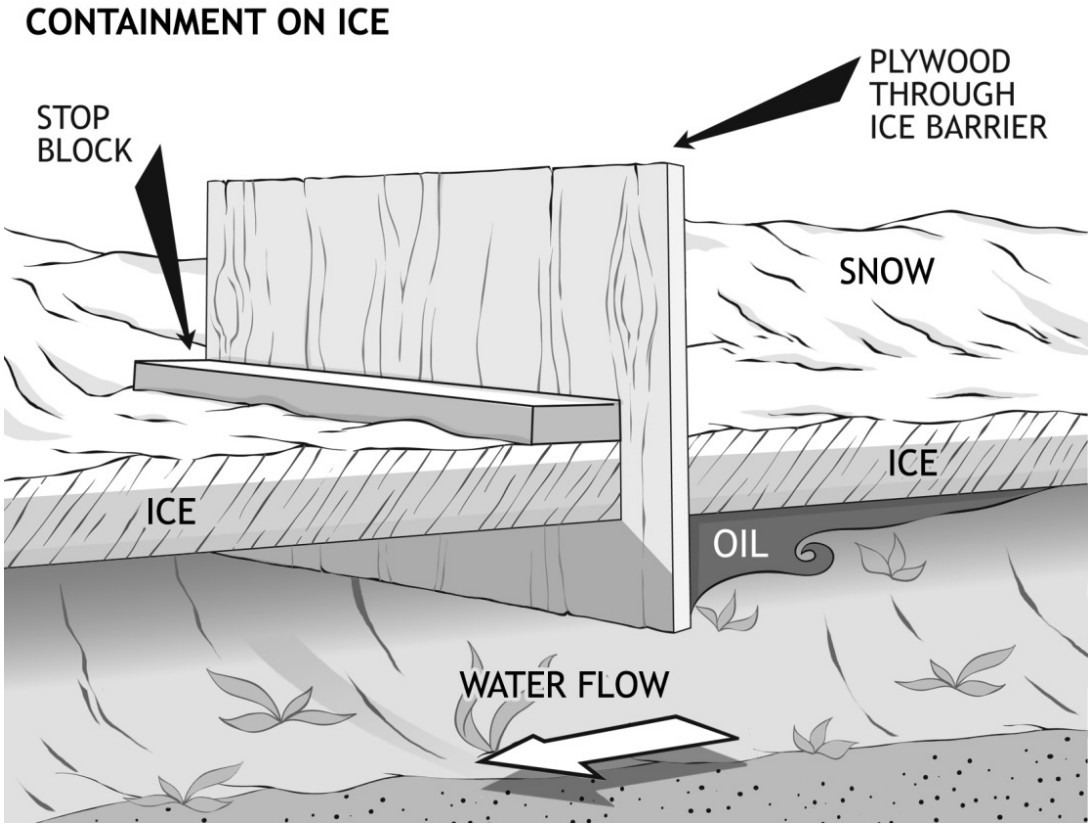
Responder Considerations	Advantages	Limitations
• Boom angle should be at 15 degrees depending on the current velocity. • Tactic can be used on ice covered waterbodies. • Hand and/or power tools can be used to create an ice slot in a 'J' configuration. • The Ice slot configuration can be marked out on ice before installation. • Ice blocks should be cut in approximatively 1 – 2 foot intervals to facilitate removal from the ice slot. • The ice slot should be narrow at the top and wider at the bottom.	• This tactic is used for accessing, containing and recovery of product underneath ice. • Ice blocks are floated down the slot to the recovery area for removal. • The ice slot is used for both containment and a recovery tactics. • Depending on the water velocity at the recovery area, a mechanical or weir skimmer can be deployed to recover the product.	• An ice evaluation must be completed prior to response activities. • Ice quality may rapidly deteriorate due to abrupt weather changes • Only trained spill responders should attempt the Ice Slot tactic.

4.4.4 Ice Slot with a Barricade

The ice slot with a barricade (Figure 4.4.4) is created in the same fashion as the J slot. A barrier is placed within the ice slot to allow for greater retention of free product within the surface water. The barrier is placed within the water profile as to allow for retention of only the surface water and product while permitting the subsurface water to continue unhindered.

Responder Considerations	Advantages	Limitations
• Hand and/or power tools can be used to create an ice slot. • The Ice slot configuration can be marked out on ice before installation. • Ice blocks should be cut in approximatively 1 – 2 foot intervals to facilitate removal from the ice slot. • A barrier is inserted through the slot (the barrier can consist of sheet metal, plywood, plastic etc.).	• Tactic can be used on ice covered waterbodies. • This tactic is used for accessing, containing and recovering product under the ice. • The barrier stops downstream migration of product underneath of ice.	• An ice evaluation must be completed prior to response activities. • Ice quality may rapidly deteriorate due to abrupt weather changes • The barrier should not be inserted to bottom of waterbody. Water must be allowed to flow underneath barrier. • Insert a stop block on the downstream side of barrier in order to keep the barrier rigid and upright. • The Ice Slot with a Barricade is deployed for containment purposes. • Only trained spill responders should attempt the Ice Slot with a Barricade.

Figure 4.4.4 Ice Slot with Barricade



4.4.5 Trench on Ice

An ice trench (Figure 4.4.5-1) is the same concept as an earthen trench. Ice trenches are used to contain and recover (Figure 4.4.5-2) free product moving on the surface of a frozen waterbody or in situations where free product is trapped within layers of ice. Ice pits or bell holes can also be advanced for product containment and recovery. Ensure the ice depth is known before installing a trench or bell hole as not to advance the cut below the depth of the ice allowing product into the water below. Ice trenches can be used in conjunction with ice slots if the free product has impacted the flowing water beneath the ice.

Responder Considerations	Advantages	Limitations
• Use hand and/or power tools to create a shallow trench within the ice. • Using hard containment boom lay the skirt within the shallow trench to create a barrier. • Fill trench partly with snow and/or water to freeze the hard containment boom skirt in place.	• This tactic can be used on ice covered waterbodies. • This tactic is used for accessing and containing product on ice.	• An ice evaluation must be completed prior to response activities. • Ice quality may rapidly deteriorate due to abrupt weather changes

Figure 4.4.5-1 Ice Trench

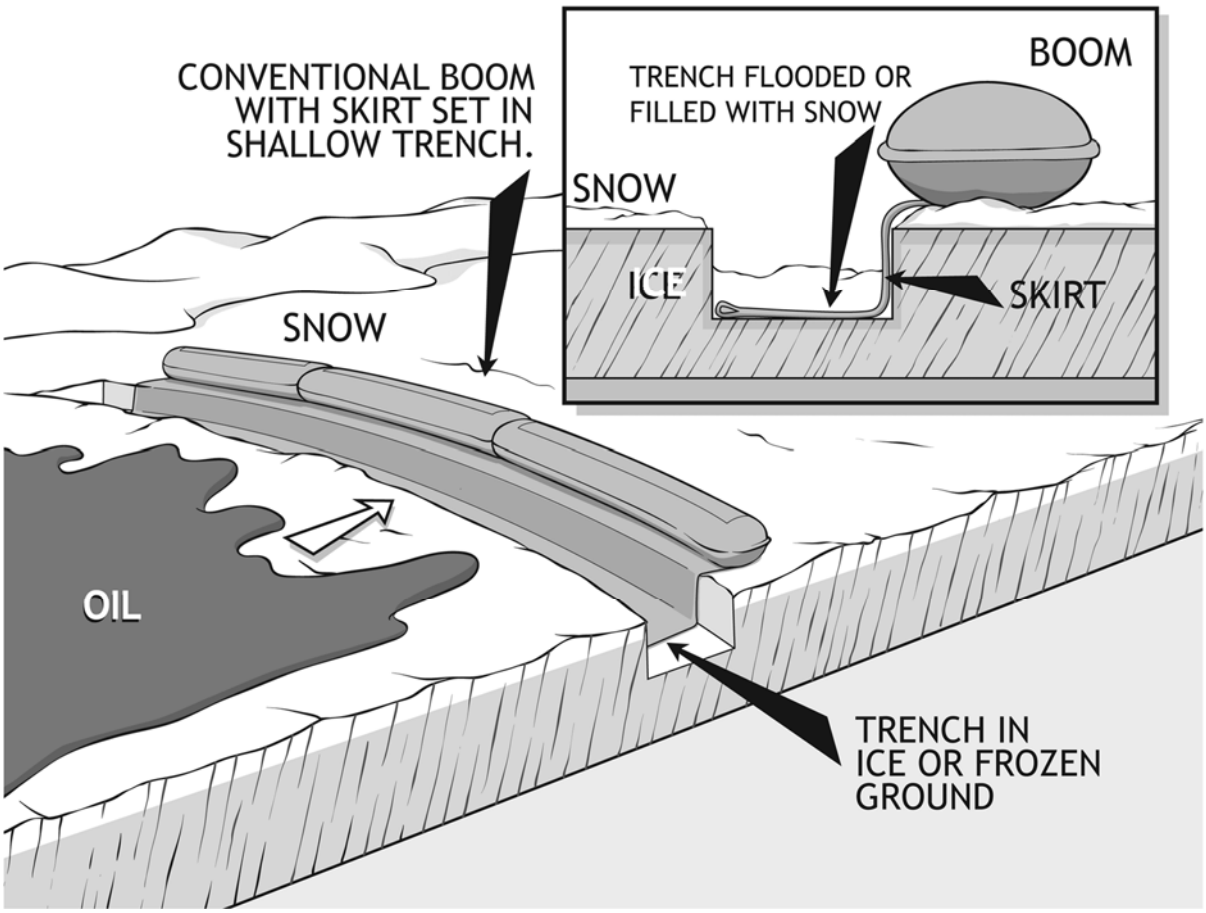
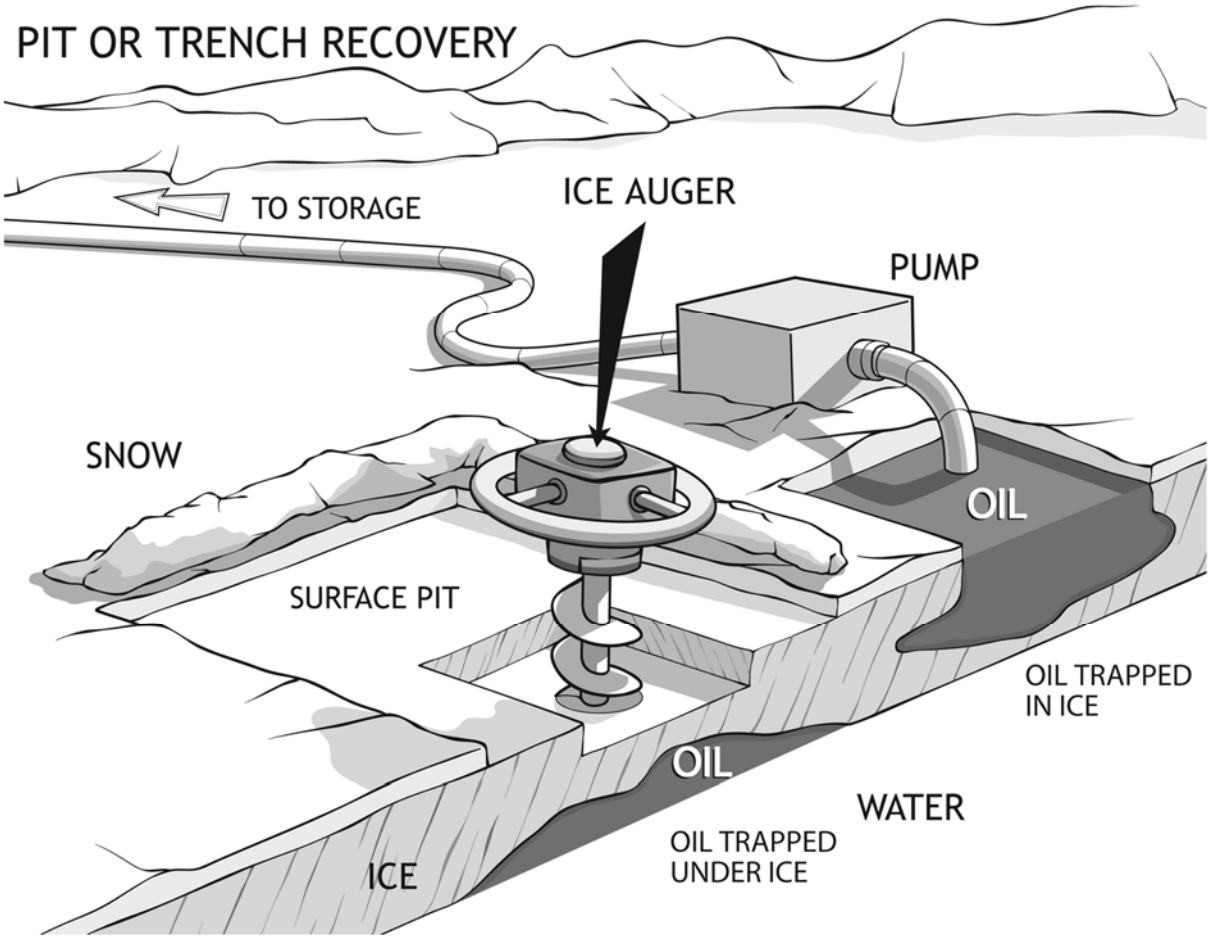


Figure 4.4.5-2 Ice Pit



4.4.6 Snow Covered Land Response

Response in snow covered environments can be equated to response on earthen material. Use shovels or heavy equipment, such as graders, loaders, bulldozers, or track hoes, to build a berm of either soil or snow to stop the flow of free fluids. Berms should be lined to prevent cross contamination of the berm materials. Snow can be disposed of in solid form or melted and disposed of as a liquid.

Responder Considerations	Advantages	Limitations
• Use heavy equipment to create snow berms to stop the movement of free product.	• Tactics can be used in snow covered environments. • Recovery of free product can be done with vacuum trucks. • Contaminated snow can be removed by dump trucks, lined on-site containment cell or open top tanks.	• Natural or man-made objects covered by snow may not be seen by equipment operators. Area must be assessed prior to operations.

5.0 DECONTAMINATION

5.1 Introduction

Decontamination is the process of removing or neutralizing contaminants that have accumulated on personnel and equipment. Decontamination is critical to health and safety at release sites. A decontamination area should be in a safe convenient location for all workers to access. Decontamination protects workers from hazardous substances which may contaminate and eventually permeate the protective clothing, respiratory equipment, tools, vehicles, and other equipment used on site. Decontamination protects site personnel and the environment by minimizing the transfer of harmful materials into clean areas. Decontamination can help prevent the mixing of incompatible chemicals which may create a harmful substance increasing the risks associated with cleanup activities. Decontamination protects the community by preventing uncontrolled transportation of contaminants from the site. Without an established decontamination area, clean up and remediation costs are increased as personnel transport the released material into clean areas increasing the impacted footprint and subsequent cleanup activities.

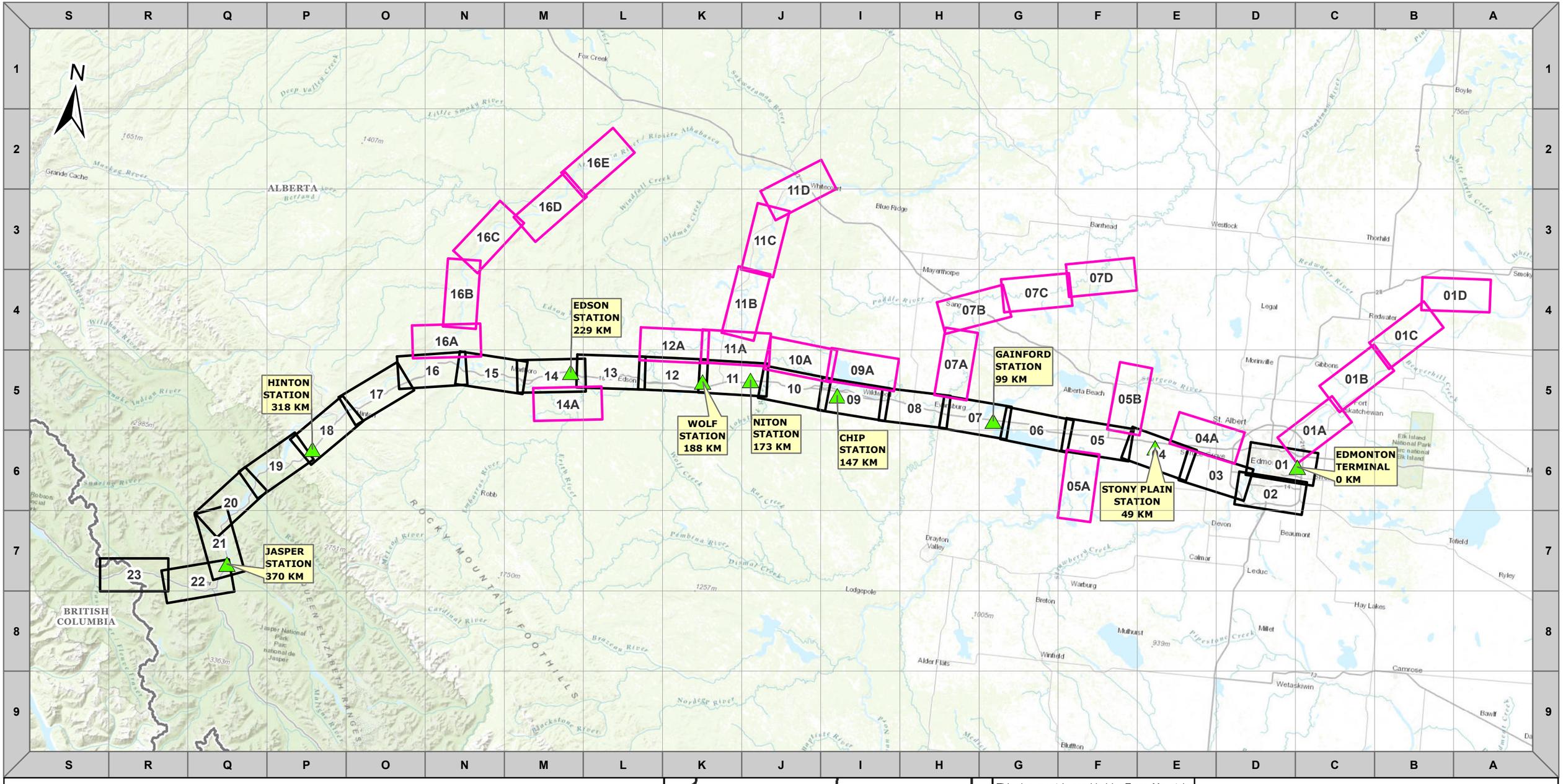
5.2 Decontamination Plan

All Trans Mountain Decontamination Trailers contain the required equipment for the establishment of effective decontamination. In Addition to the required equipment, each trailer contains a detailed Decontamination Plan which outlines the process for establishing effective decontamination stations. Included in the Decontamination Plan are details regarding;

- Roles and responsibilities for persons assigned to the Decontamination Group
- Location and layout considerations
- Personnel decontamination
- Small equipment and watercraft decontamination
- Guidelines for marine vessel decontamination
- Sample layouts for the decontamination of equipment and personnel

Refer to the Decontamination Plan located on the trailer prior to setup. Ensure that all site personnel are informed of the decontamination process including the location of hot, cold and warm zones.

6.0 CONTROL POINT ROUTE MAP



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

PIPELINE FACILITY
MAINLINE MAP WINDOW
OFFSET MAP WINDOW



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

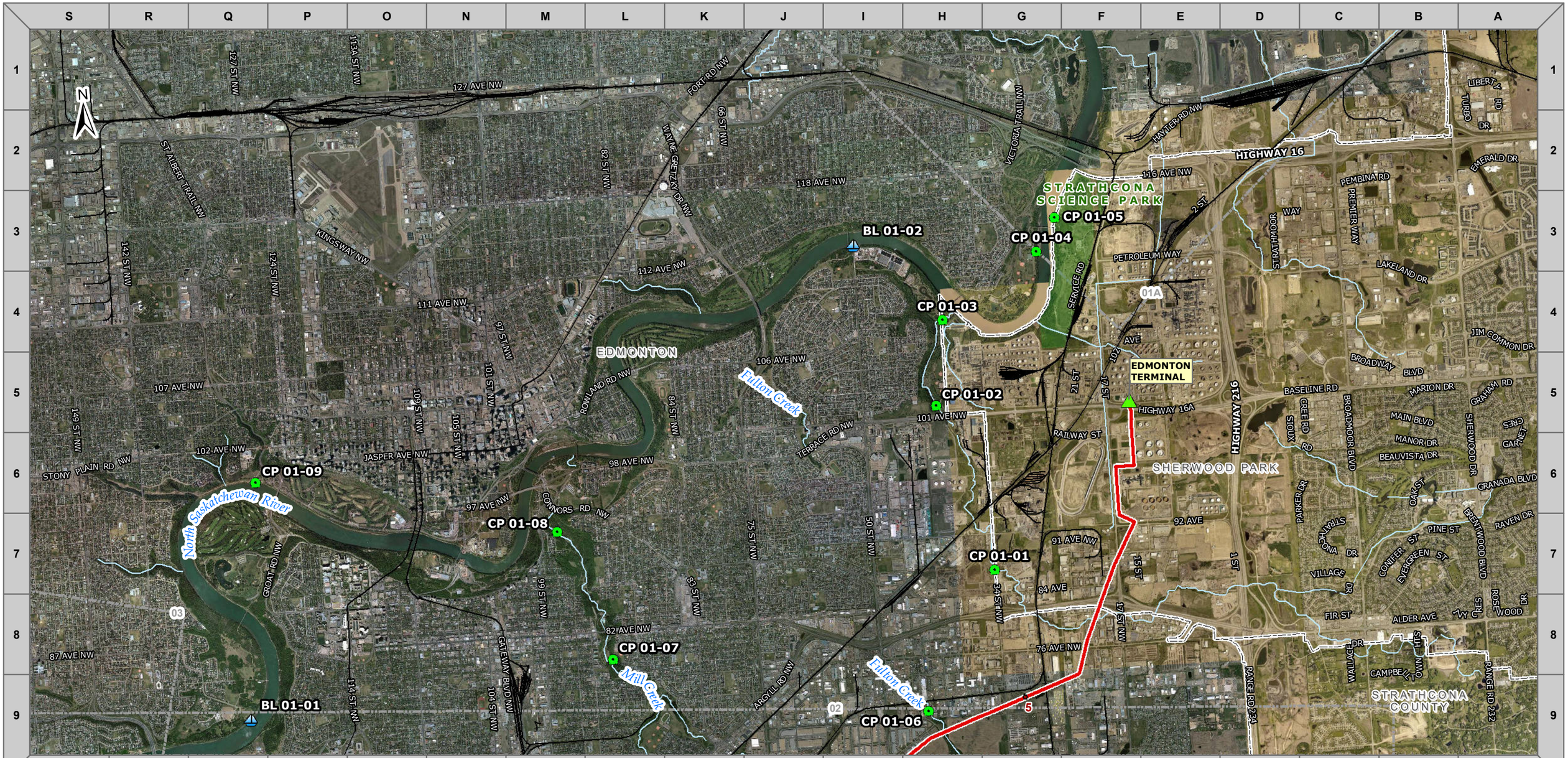
CONTROL POINTS ROUTE MAP INDEX

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_Maps_Index_AnsiB_Alberta_20181005.mxd
Revision: A

1:1,100,000

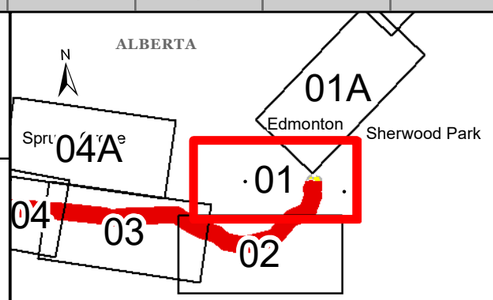
0 10 20 40 60 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 01 - CENTRAL EDMONTON CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

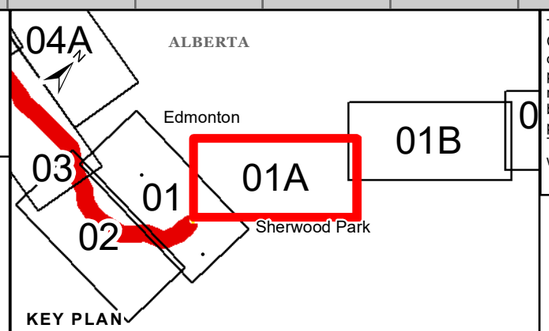
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 01A - NORTH SASKATCHEWAN RIVER CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

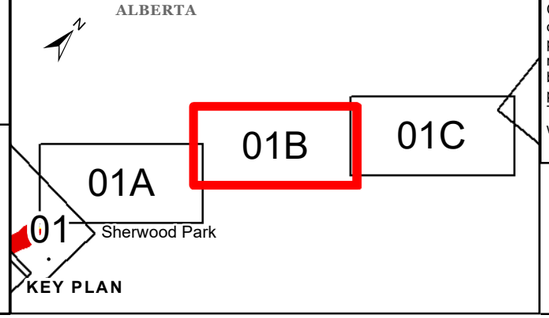
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 01B - NORTH SASKATCHEWAN RIVER CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

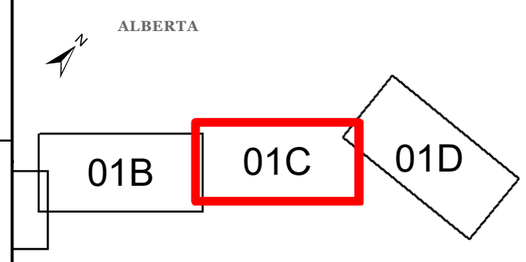
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 01C - NORTH SASKATCHEWAN RIVER CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

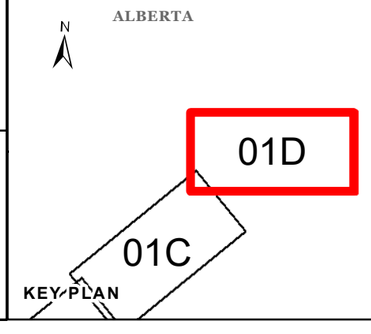
1:50,000

0 0.5 1 2 3 Km



TRANSMOUNTAIN
EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

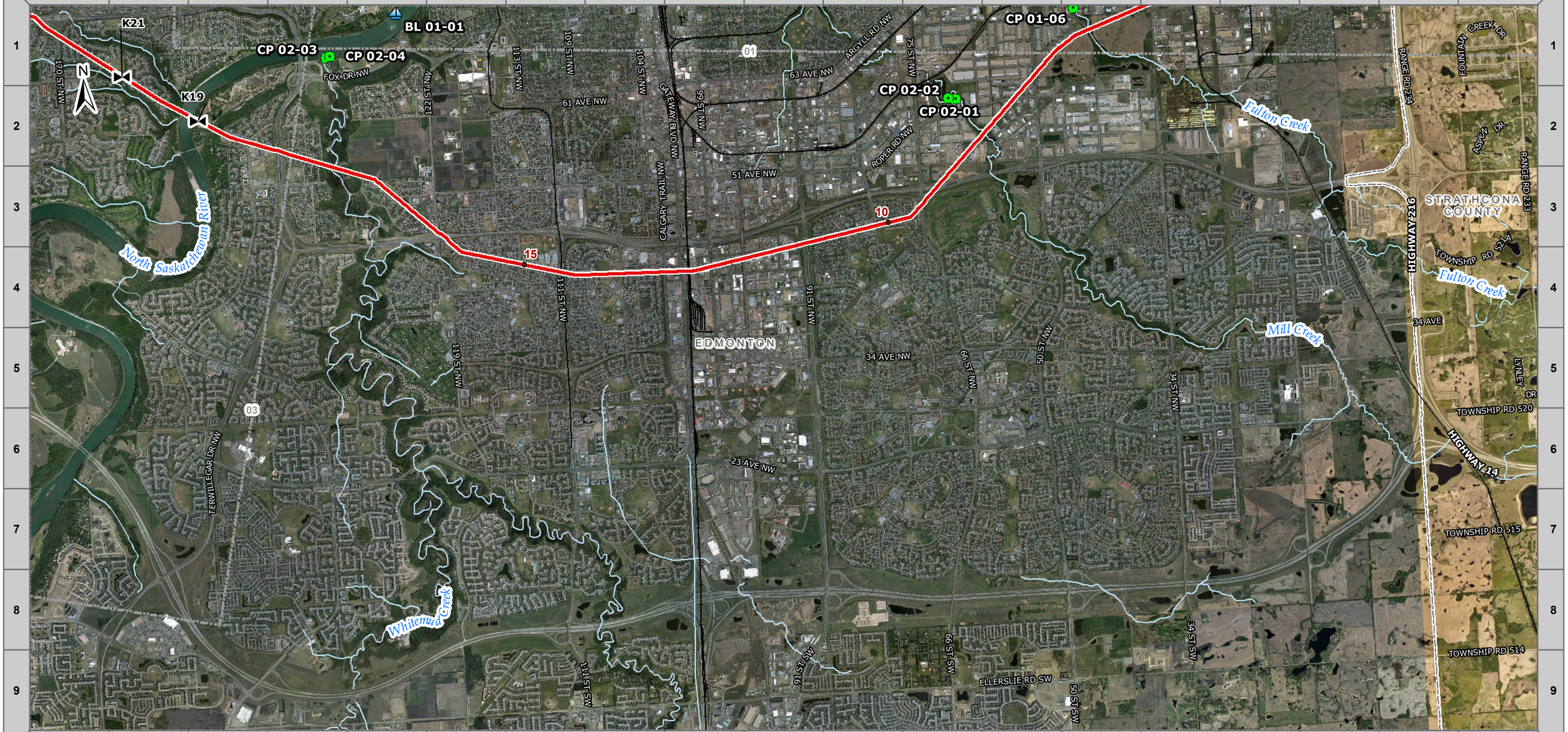
MAP 01D - NORTH SASKATCHEWAN RIVER CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

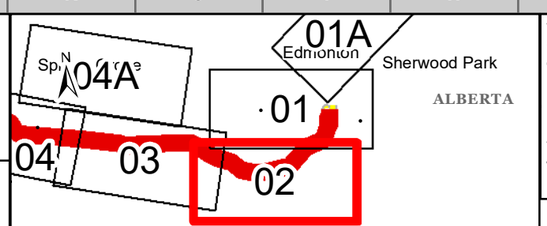
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 02 - SOUTH EDMONTON CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

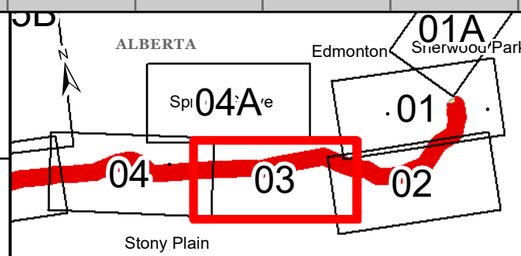
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

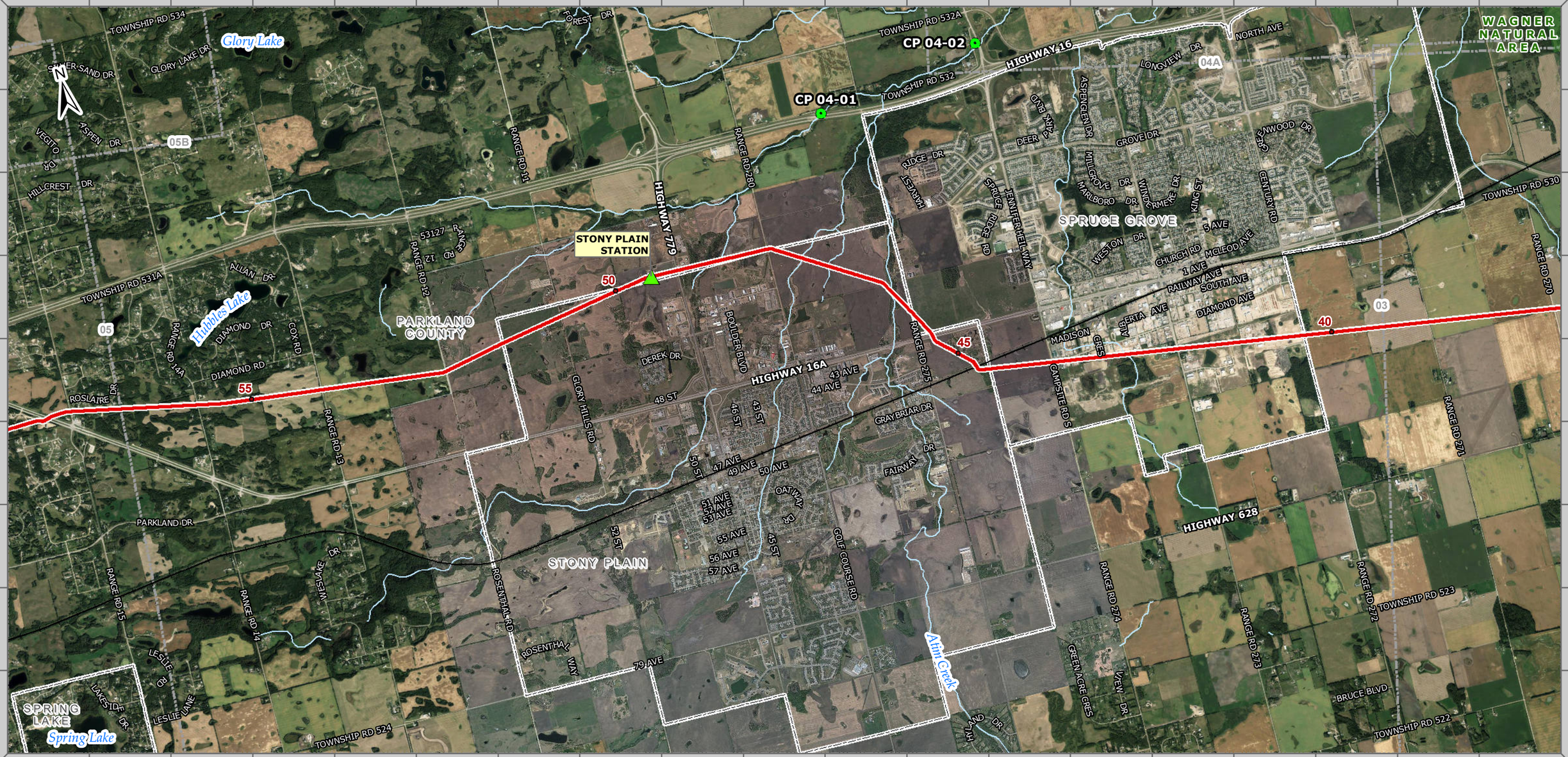
MAP 03 - WEST EDMONTON CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

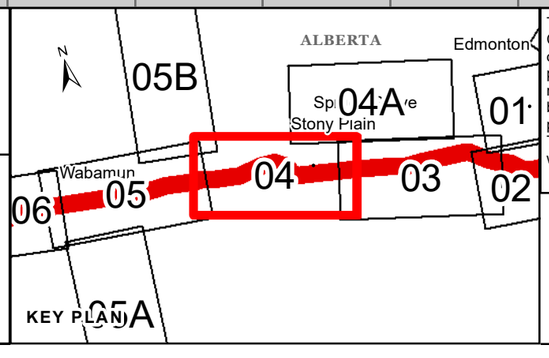
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

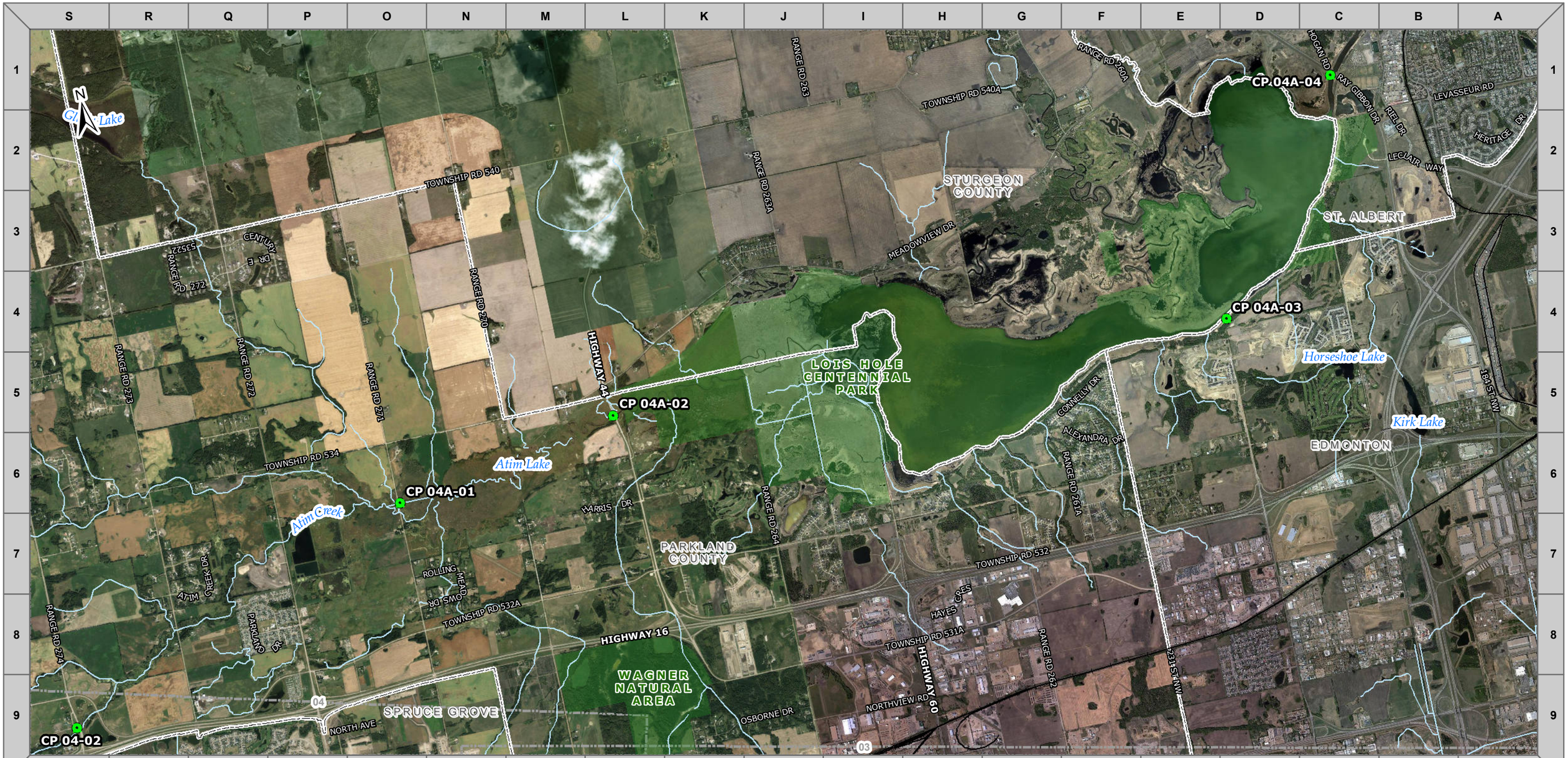
MAP 04 - STONY PLAIN CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

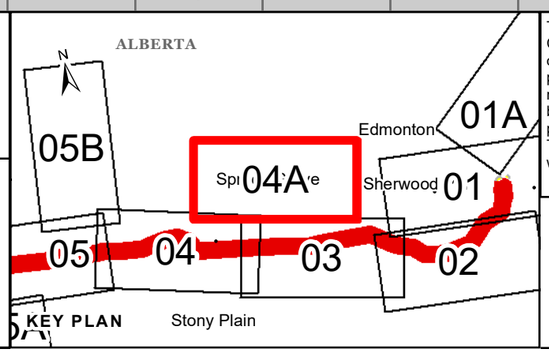
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

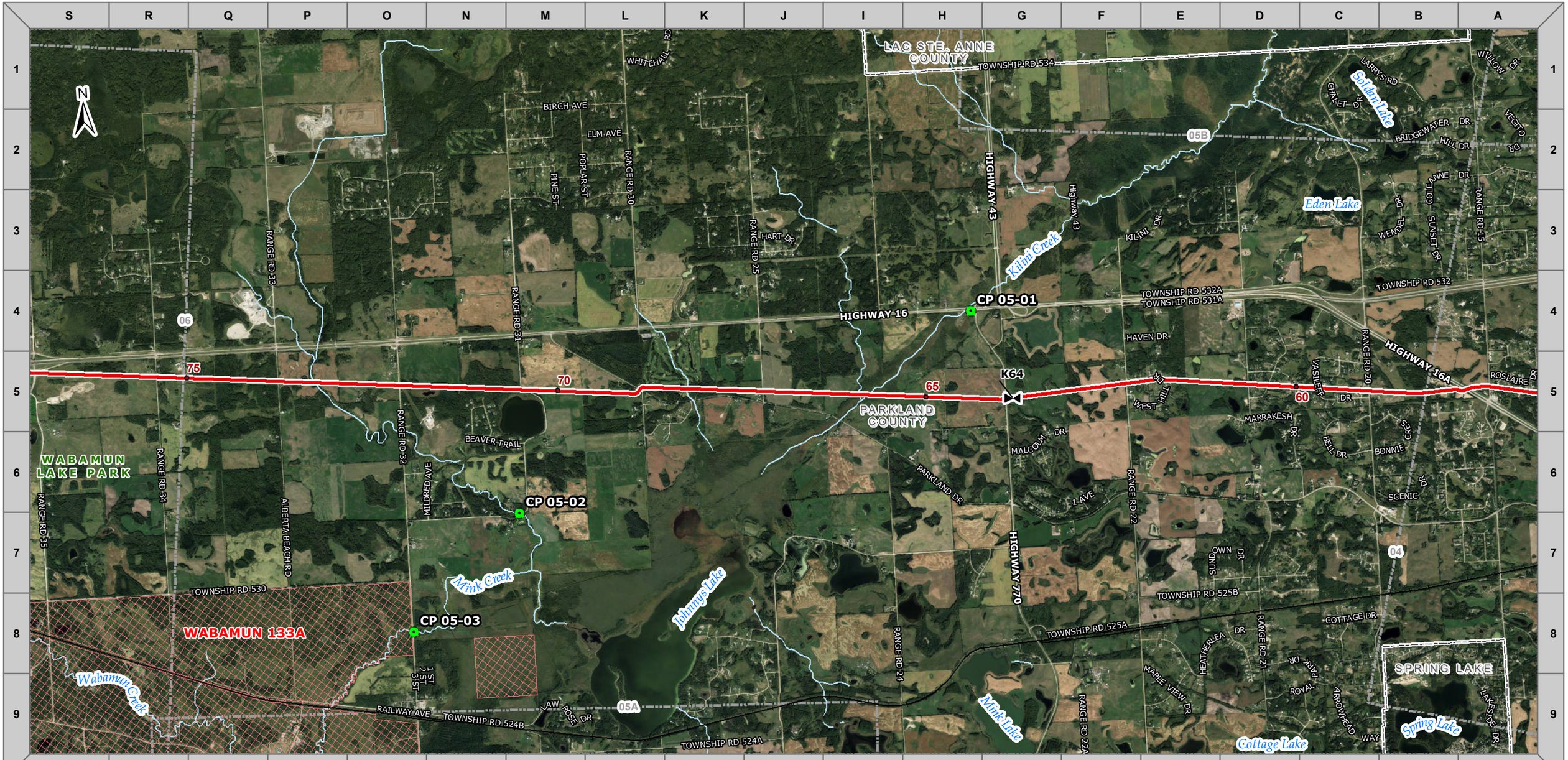
MAP 04A - BIG LAKE CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

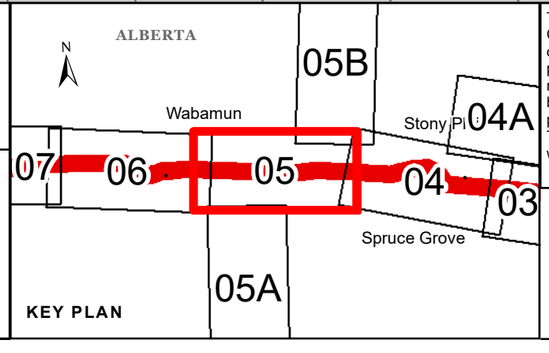
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

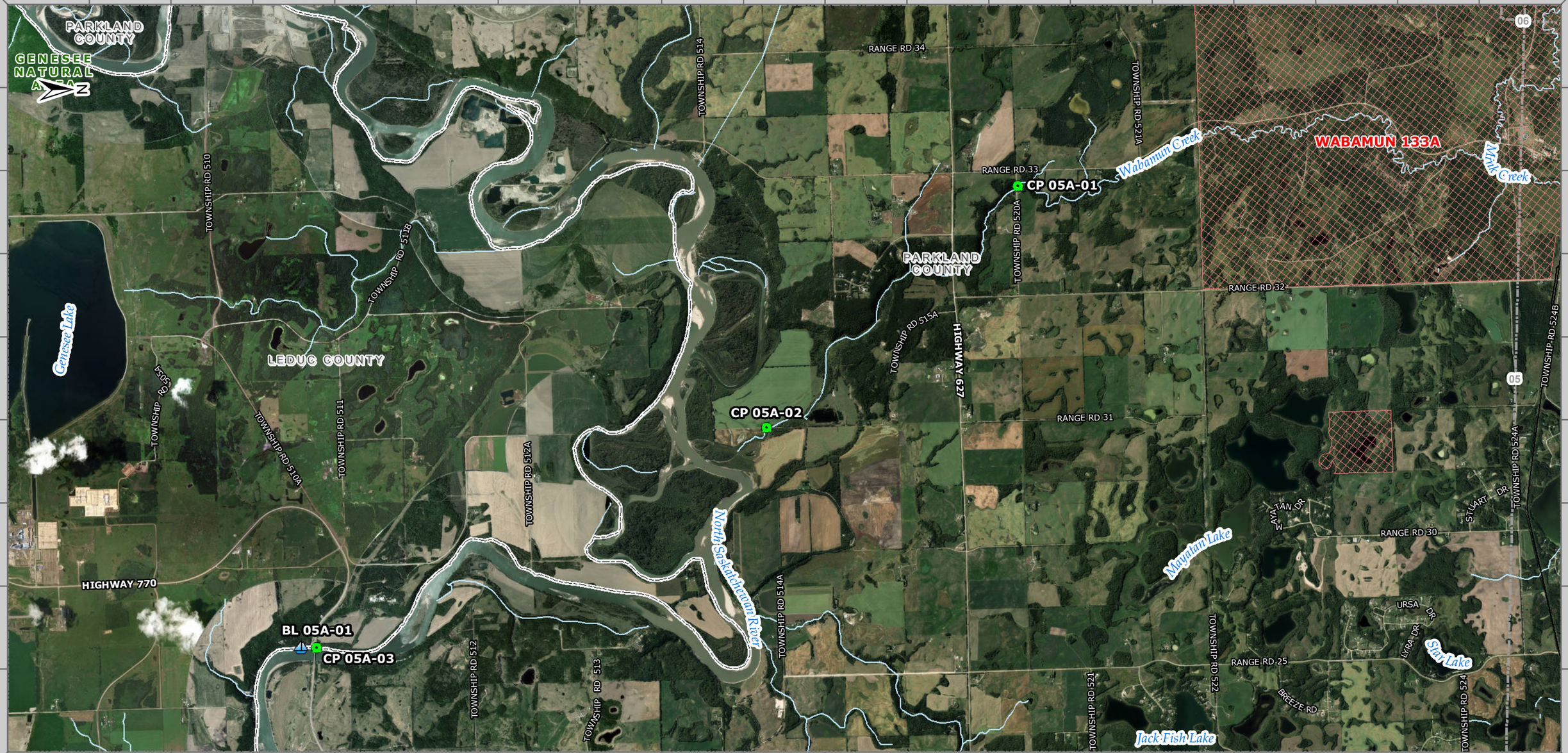
MAP 05 - CARVEL CORNER CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

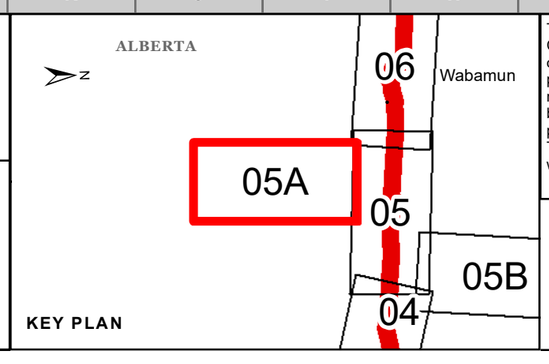
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

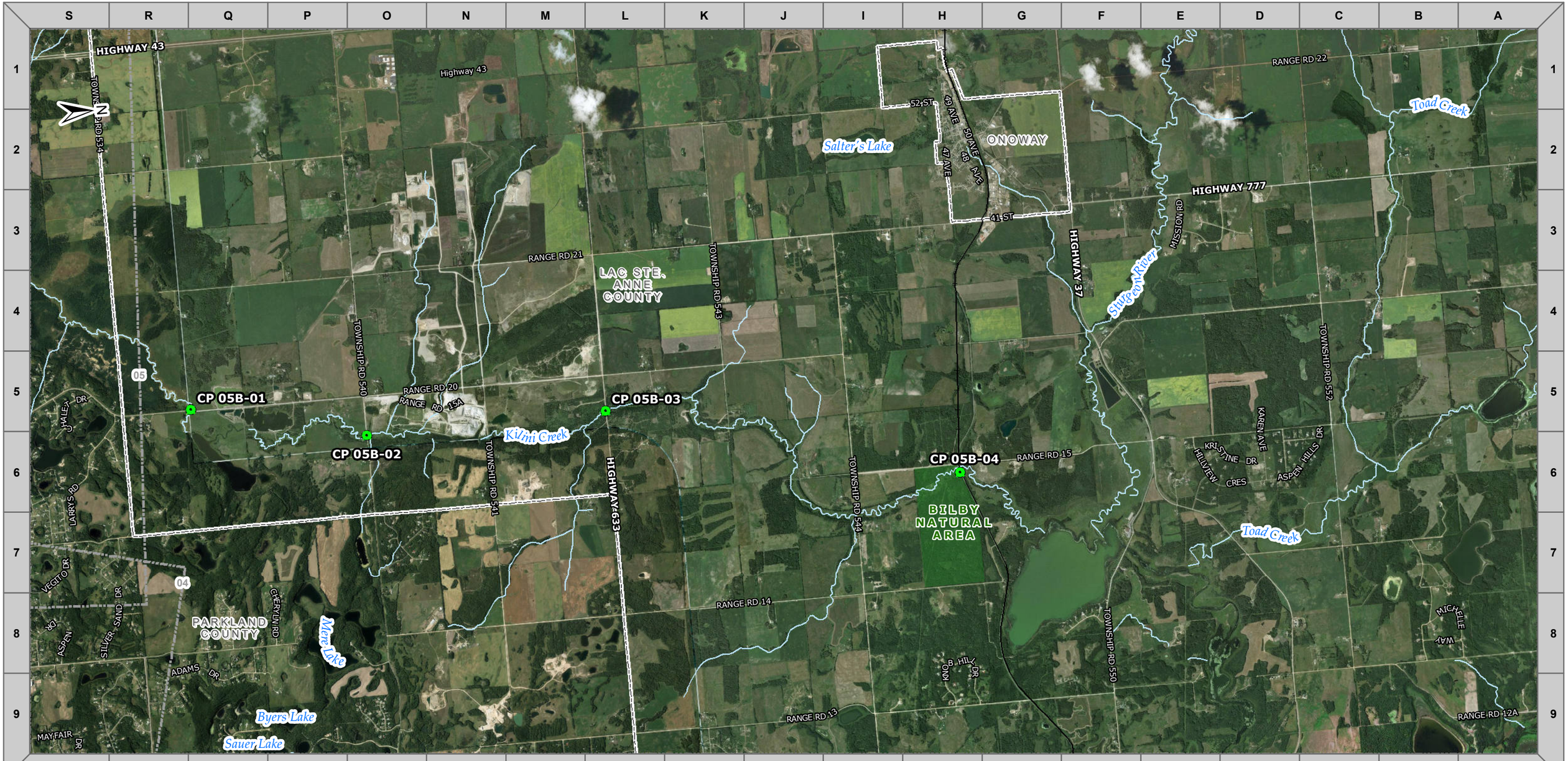
MAP 05A - WABAMUN CREEK CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

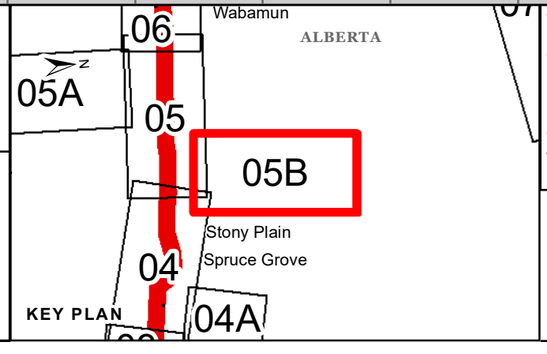
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

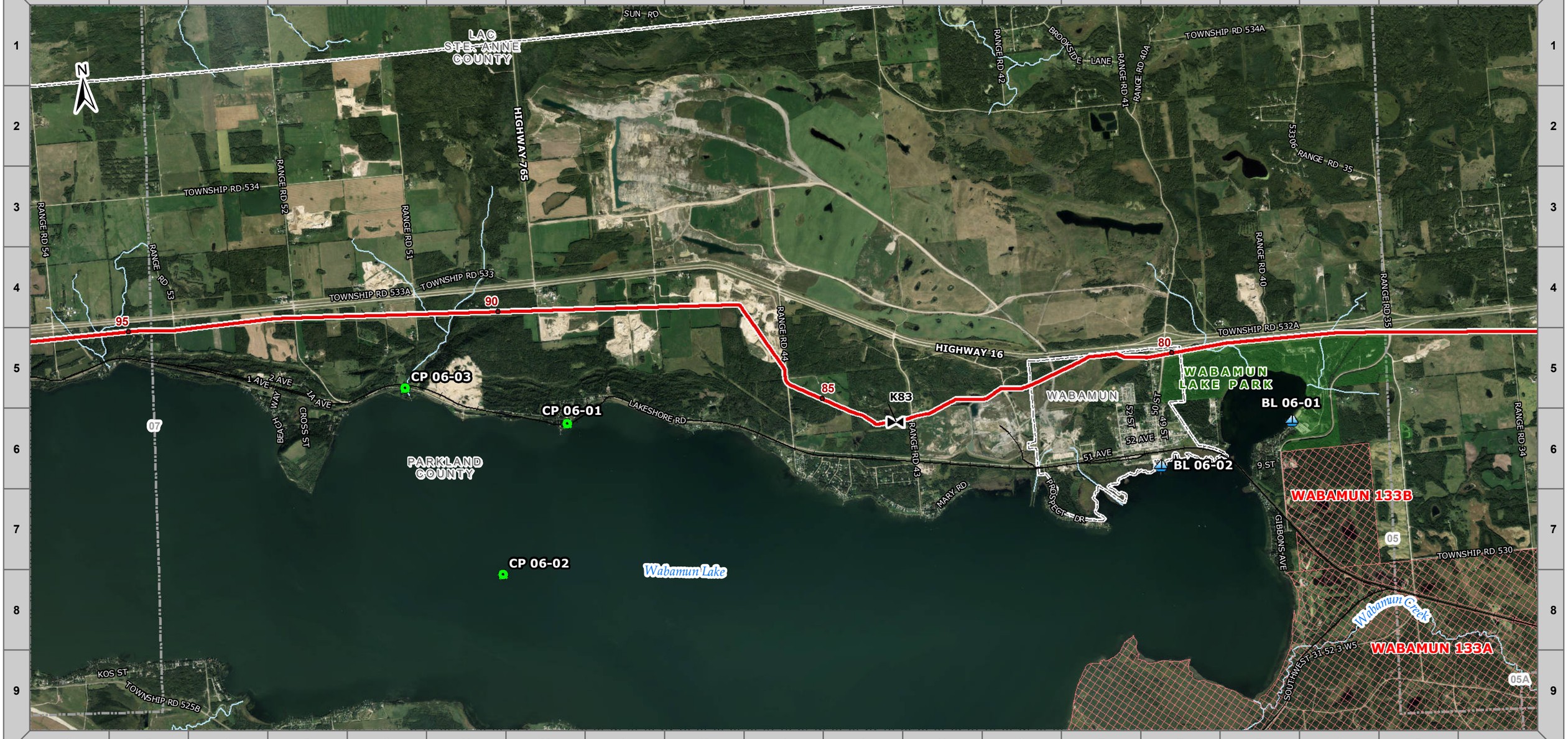
MAP 05B - CARVEL CORNER CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

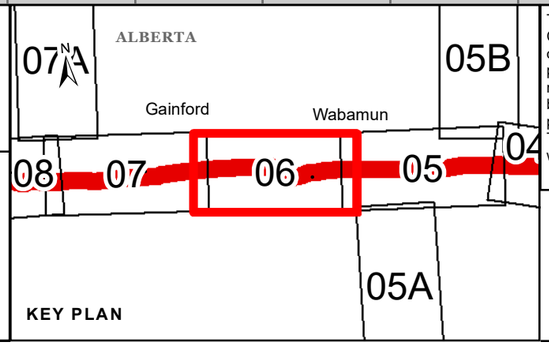
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

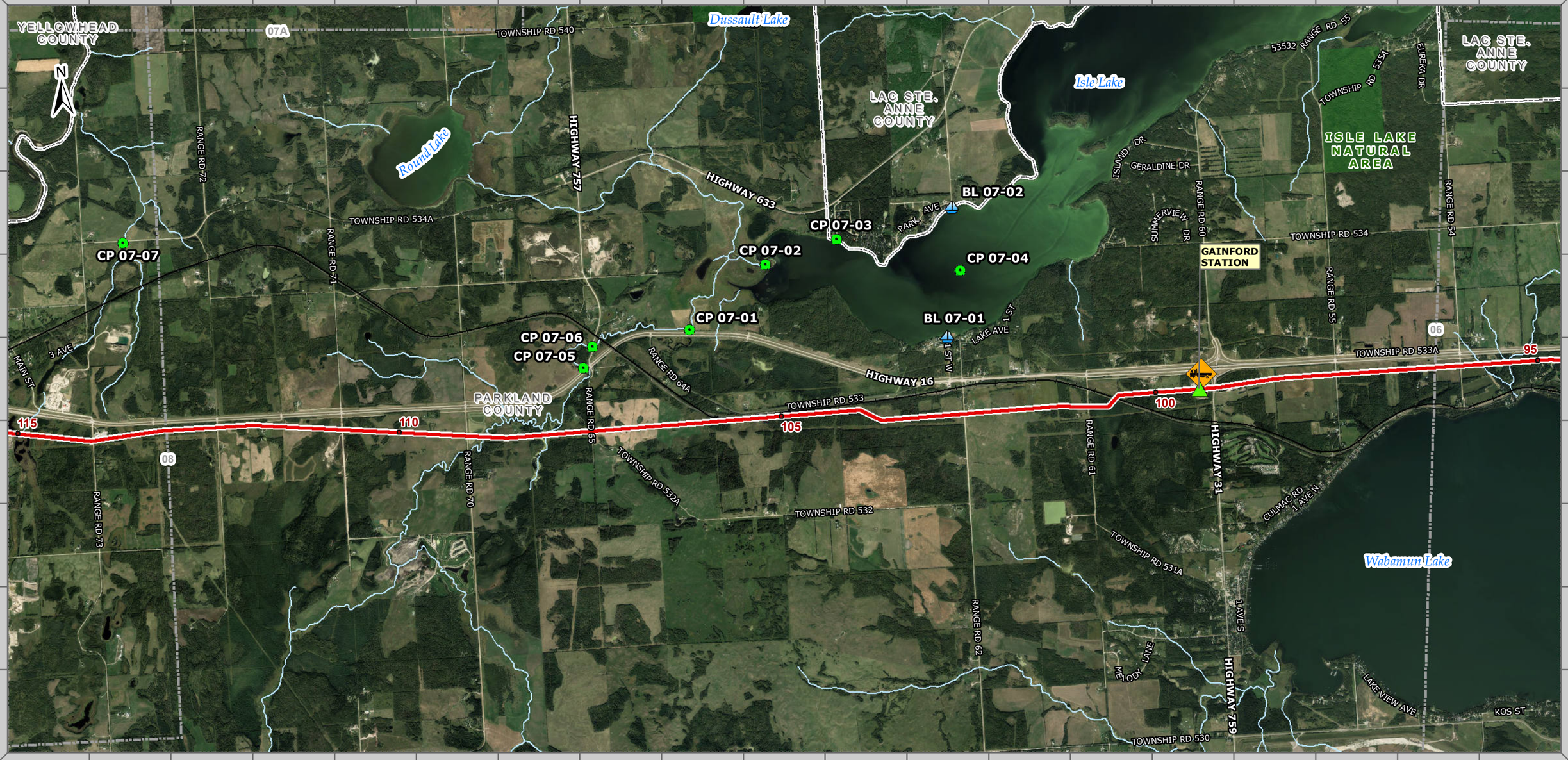
MAP 06 - FALLIS CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

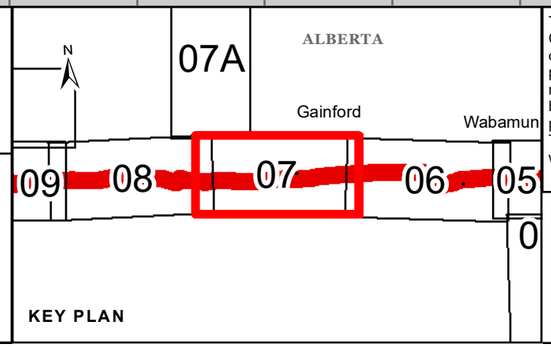
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 07 - GAINFORD CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

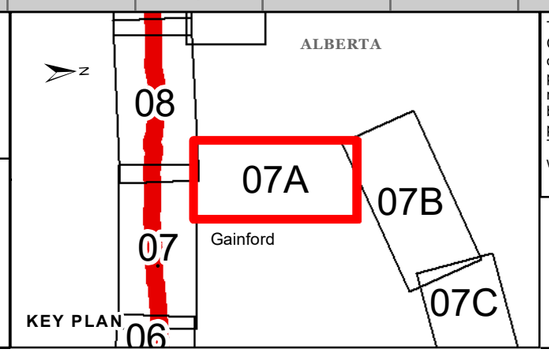
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

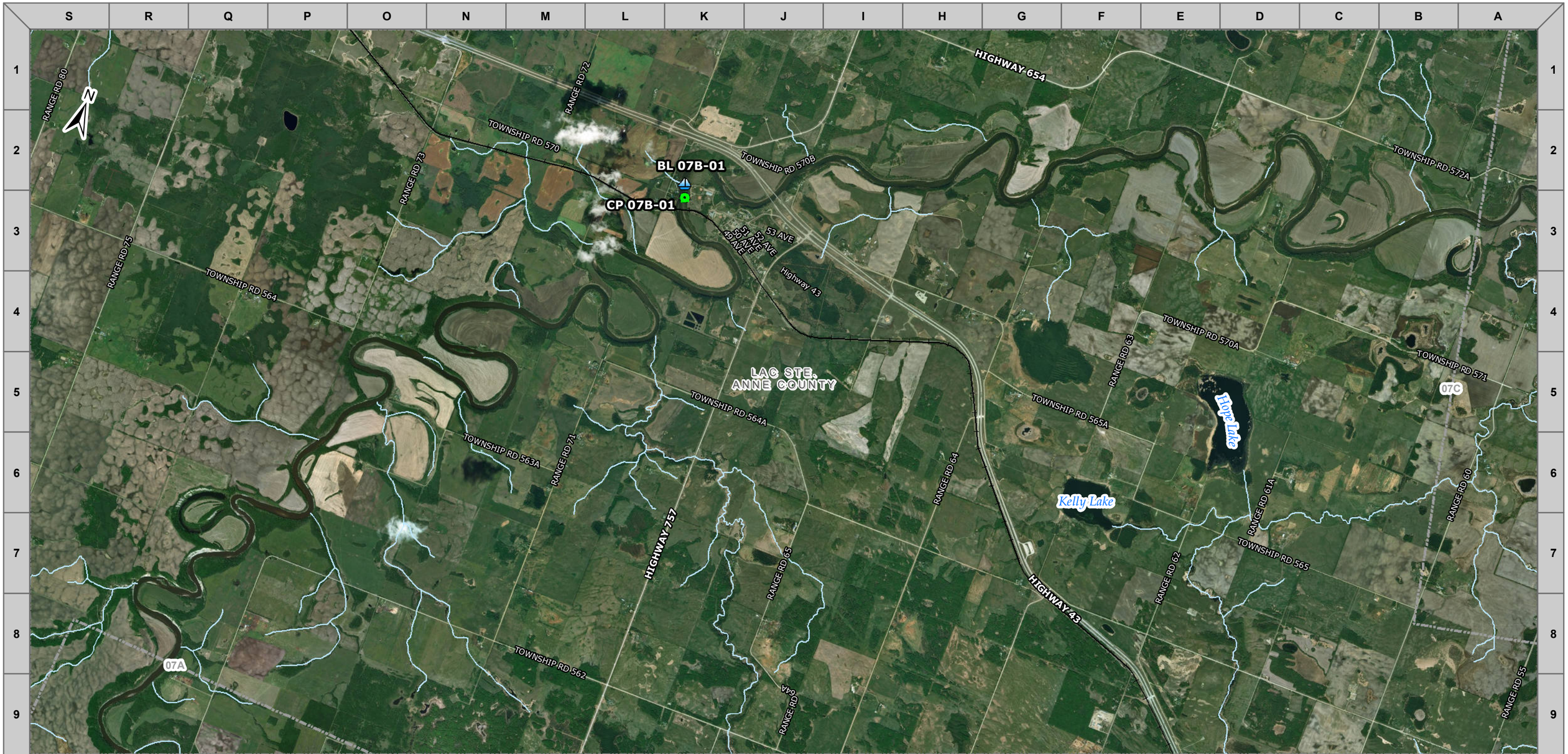
MAP 07A - PEMBINA RIVER 1
CONTROL POINTS ROUTE MAP
ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

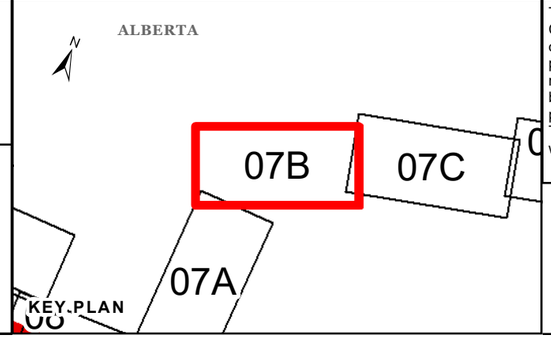
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA
OPERATIONAL DISTRICT

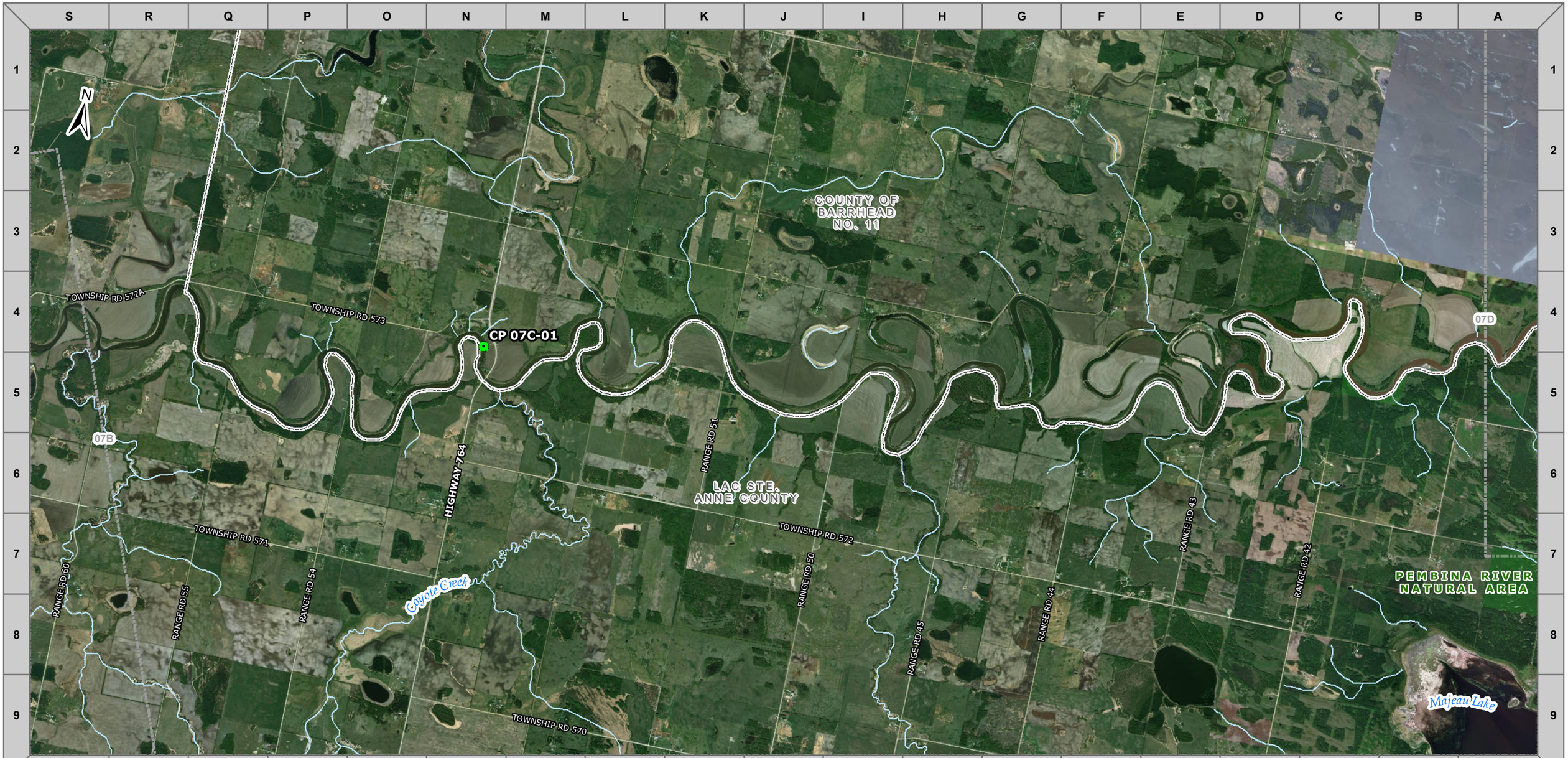
MAP 07B - PEMBINA RIVER 2
CONTROL POINTS ROUTE MAP
ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

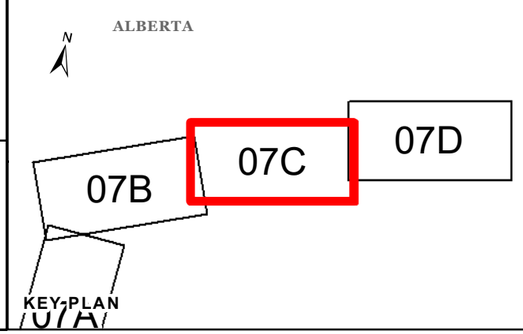
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

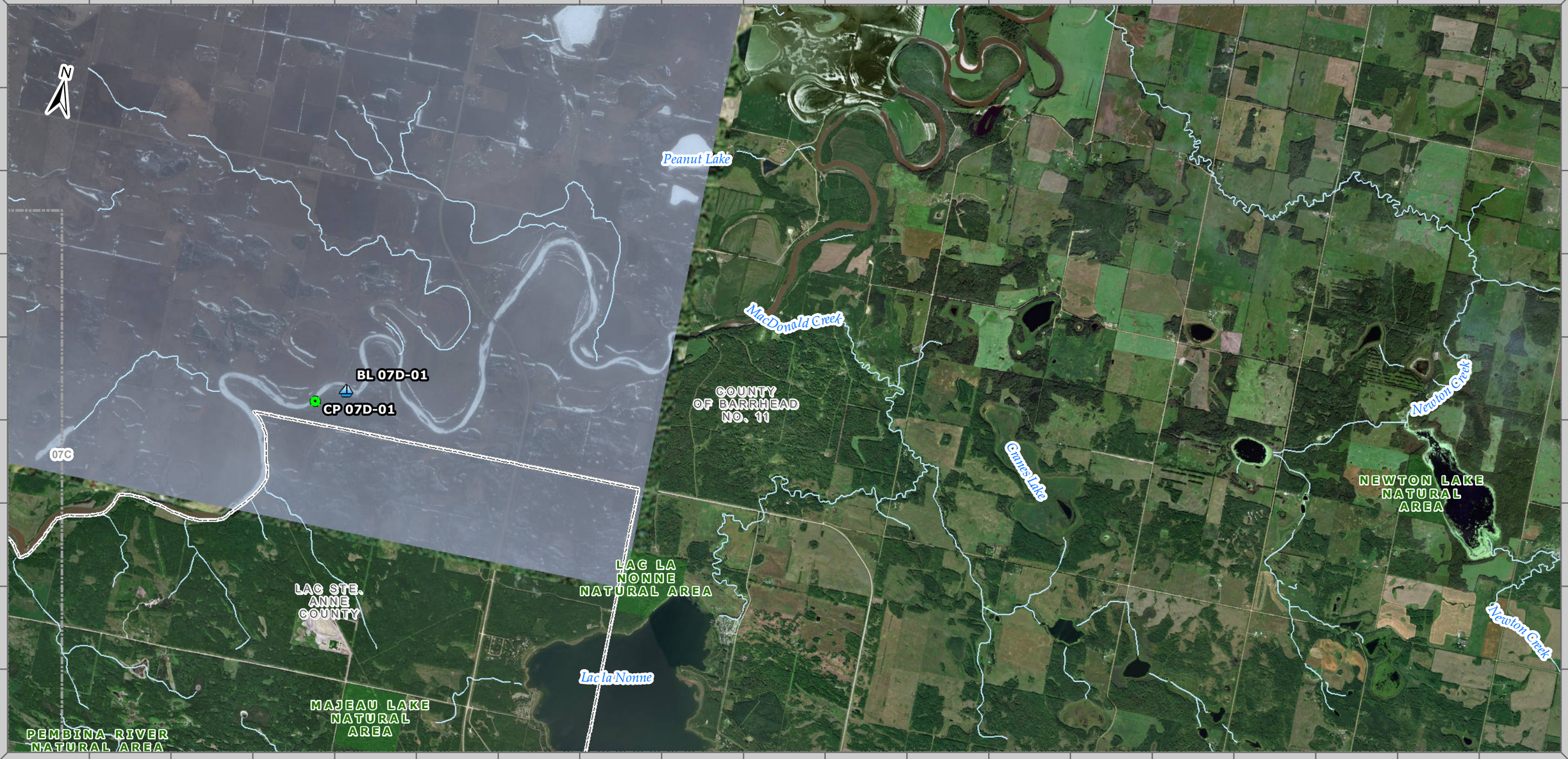
MAP 07C - PEMBINA RIVER 3 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

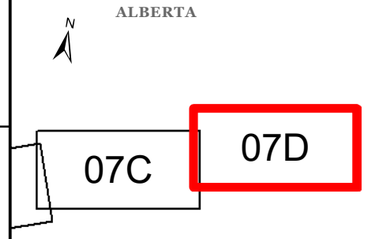
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

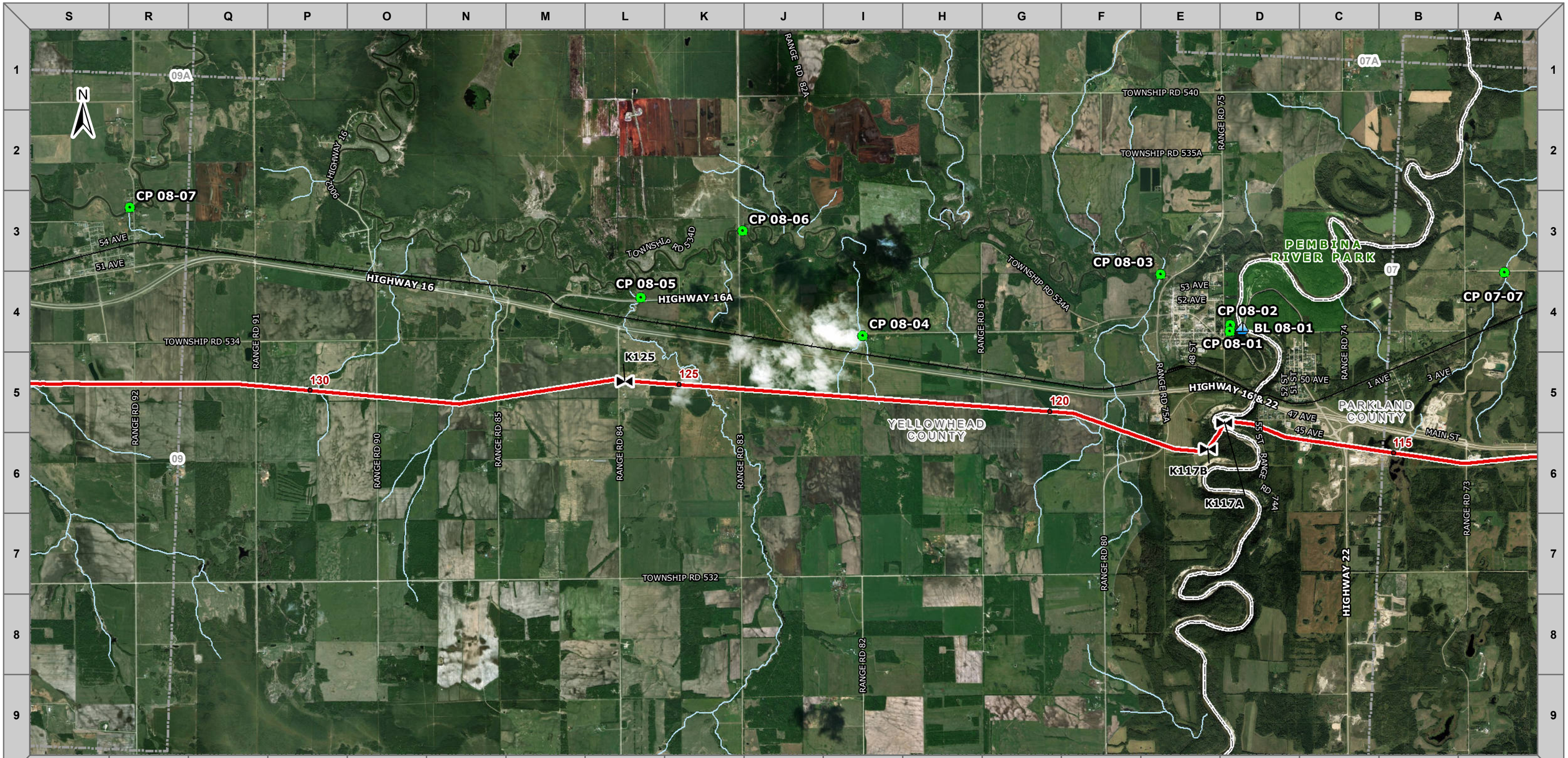
MAP 07D - PEMBINA RIVER 4 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

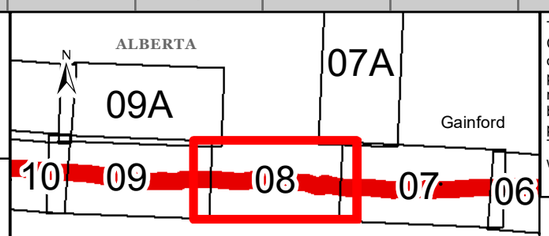
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

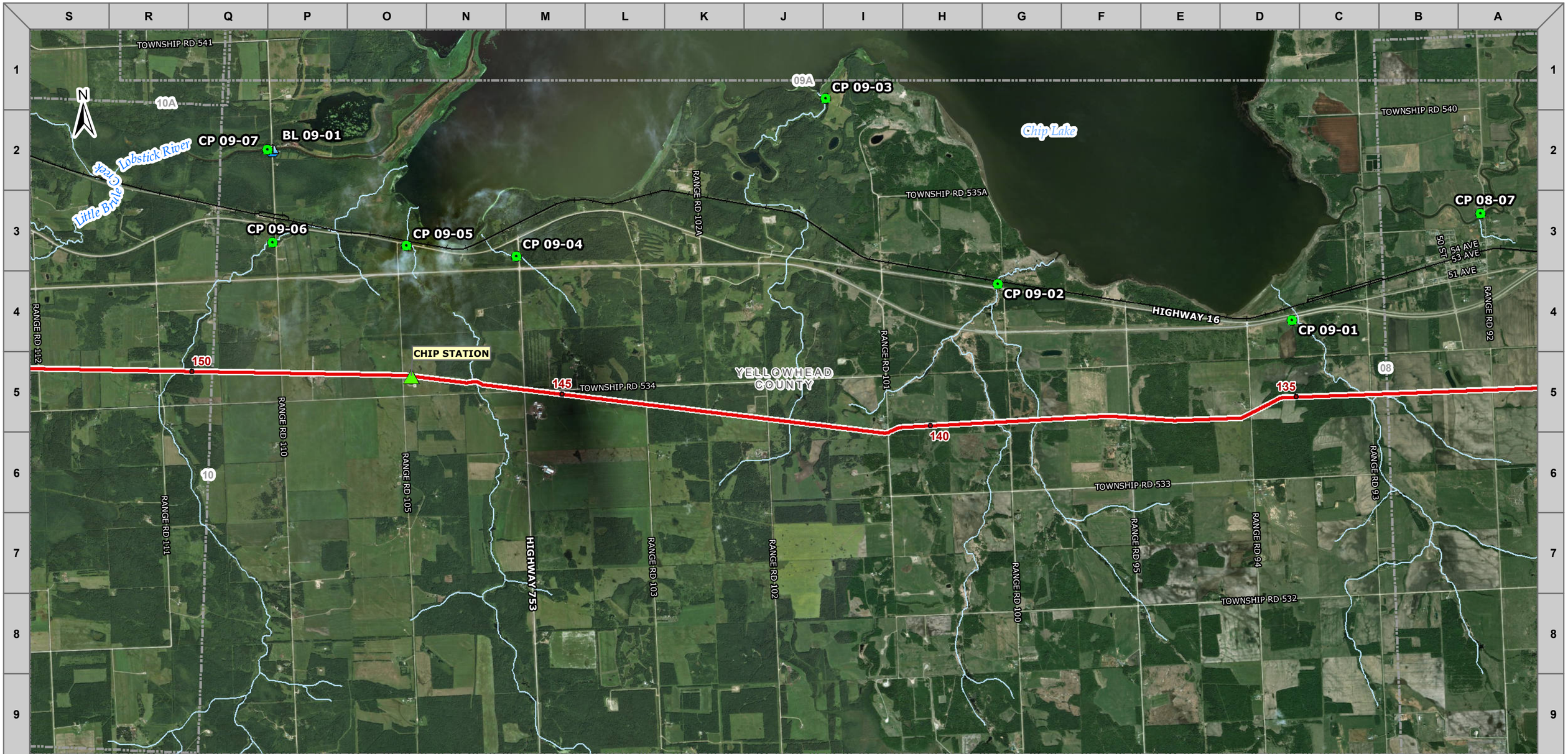
MAP 08 - EVANSBURG CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

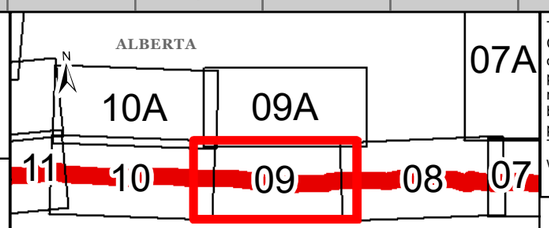
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

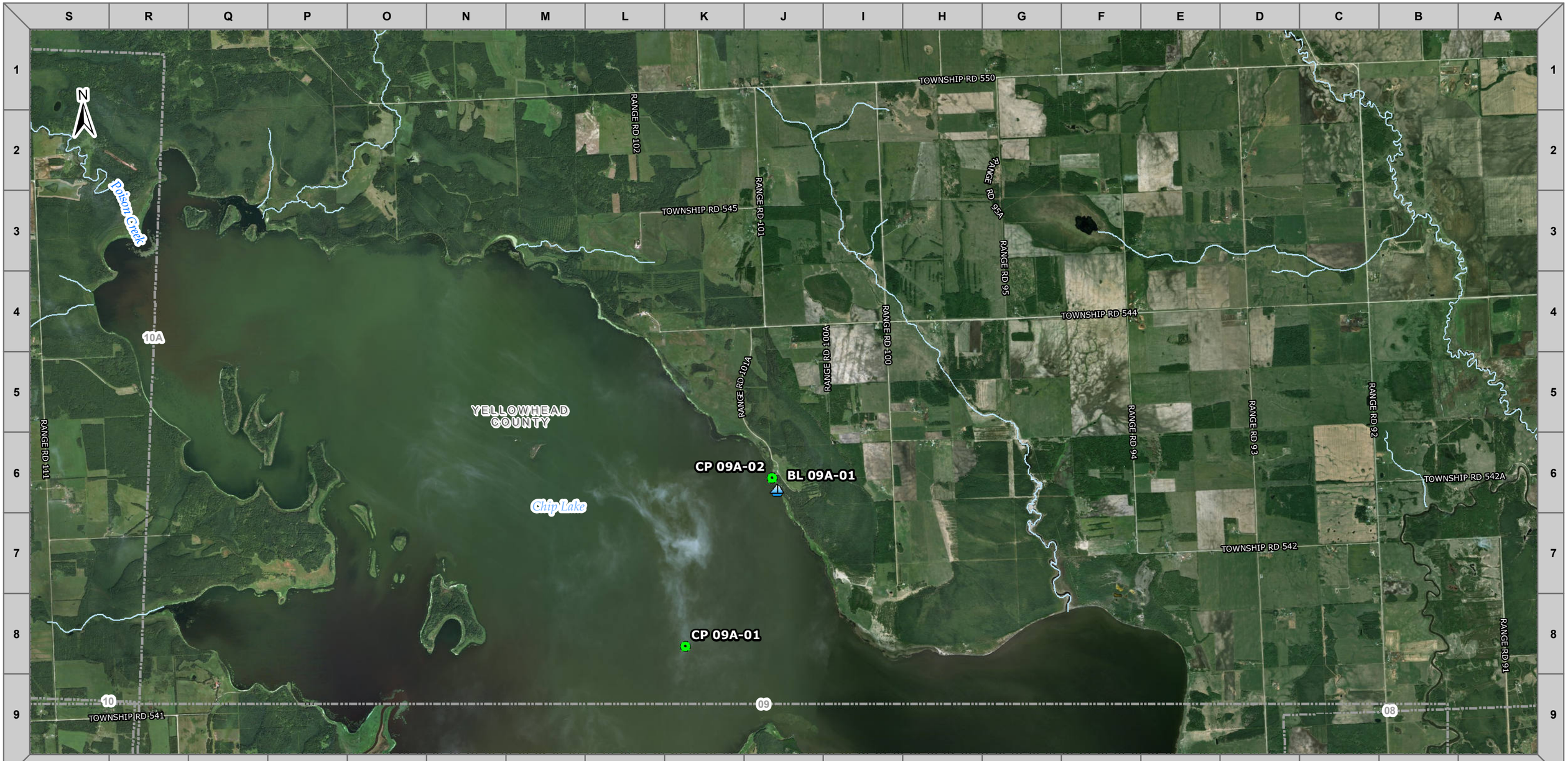
MAP 09 - WILDWOOD CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

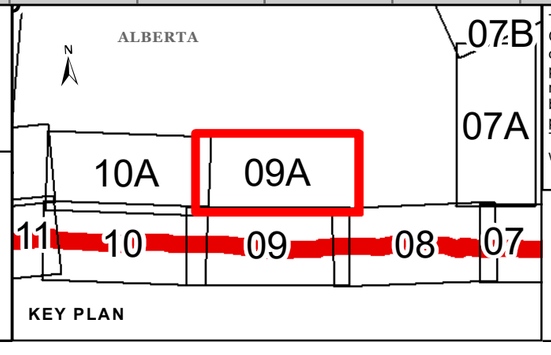
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

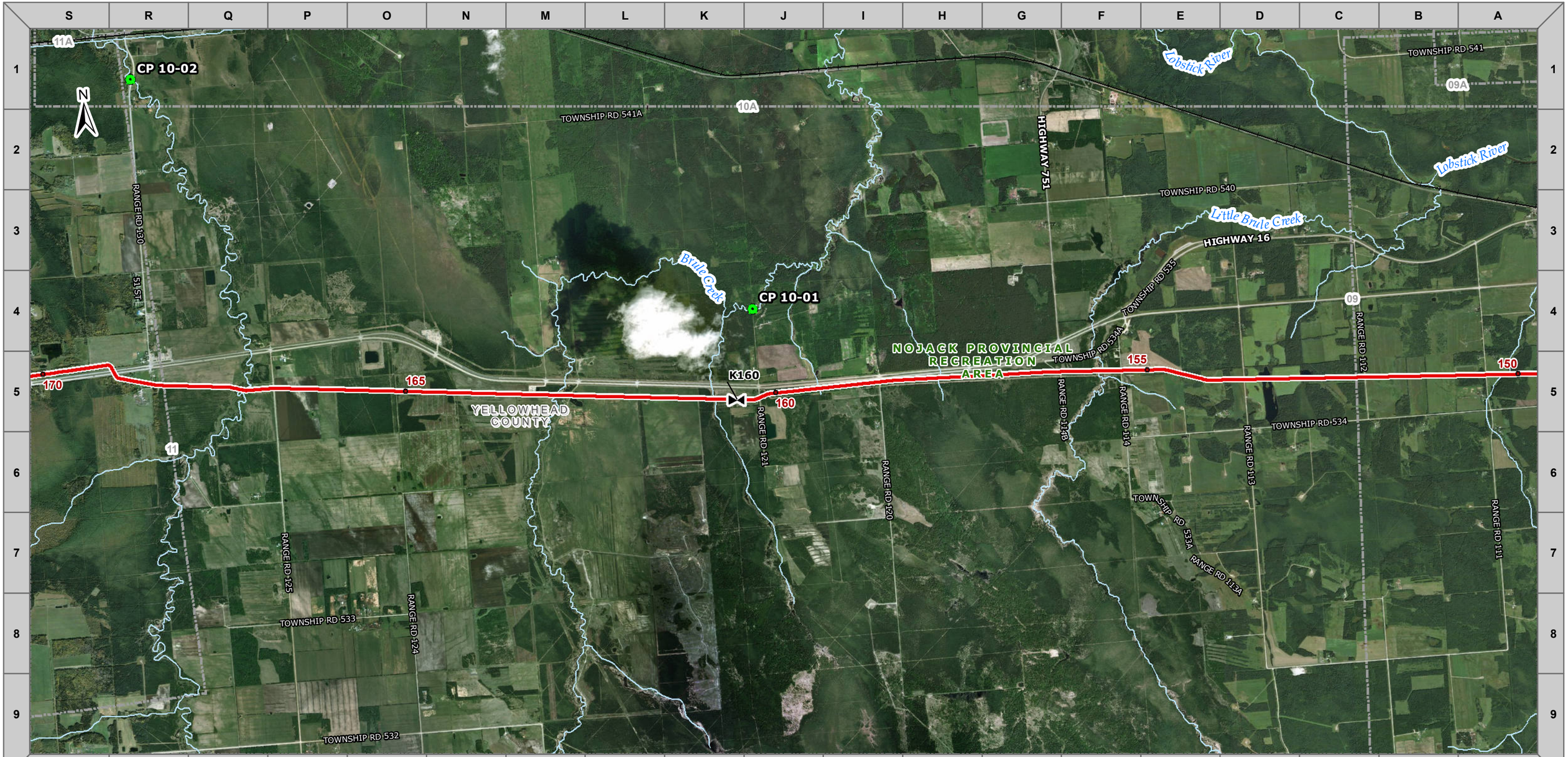
MAP 09A - CHIP LAKE CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

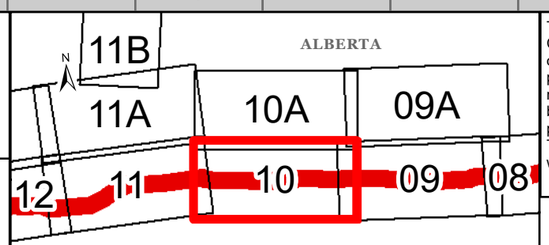
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

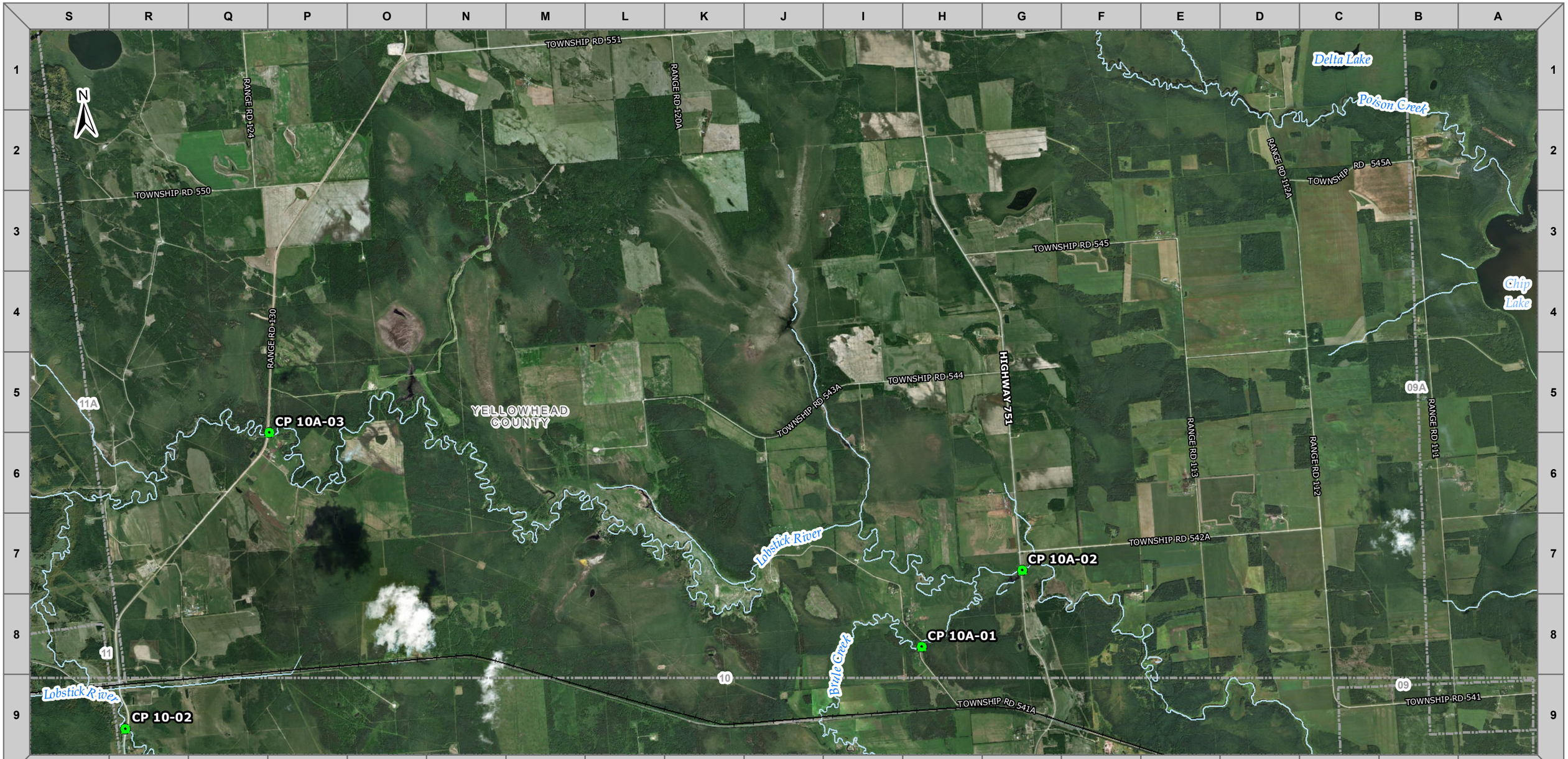
MAP 10 - NOJACK CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

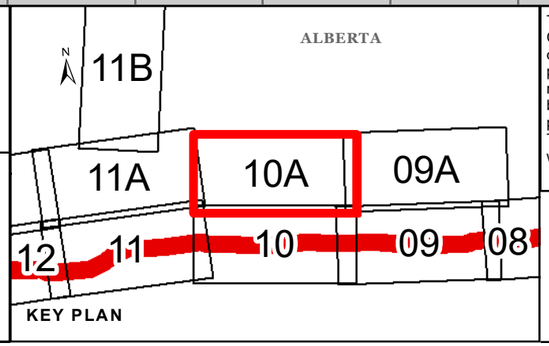
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

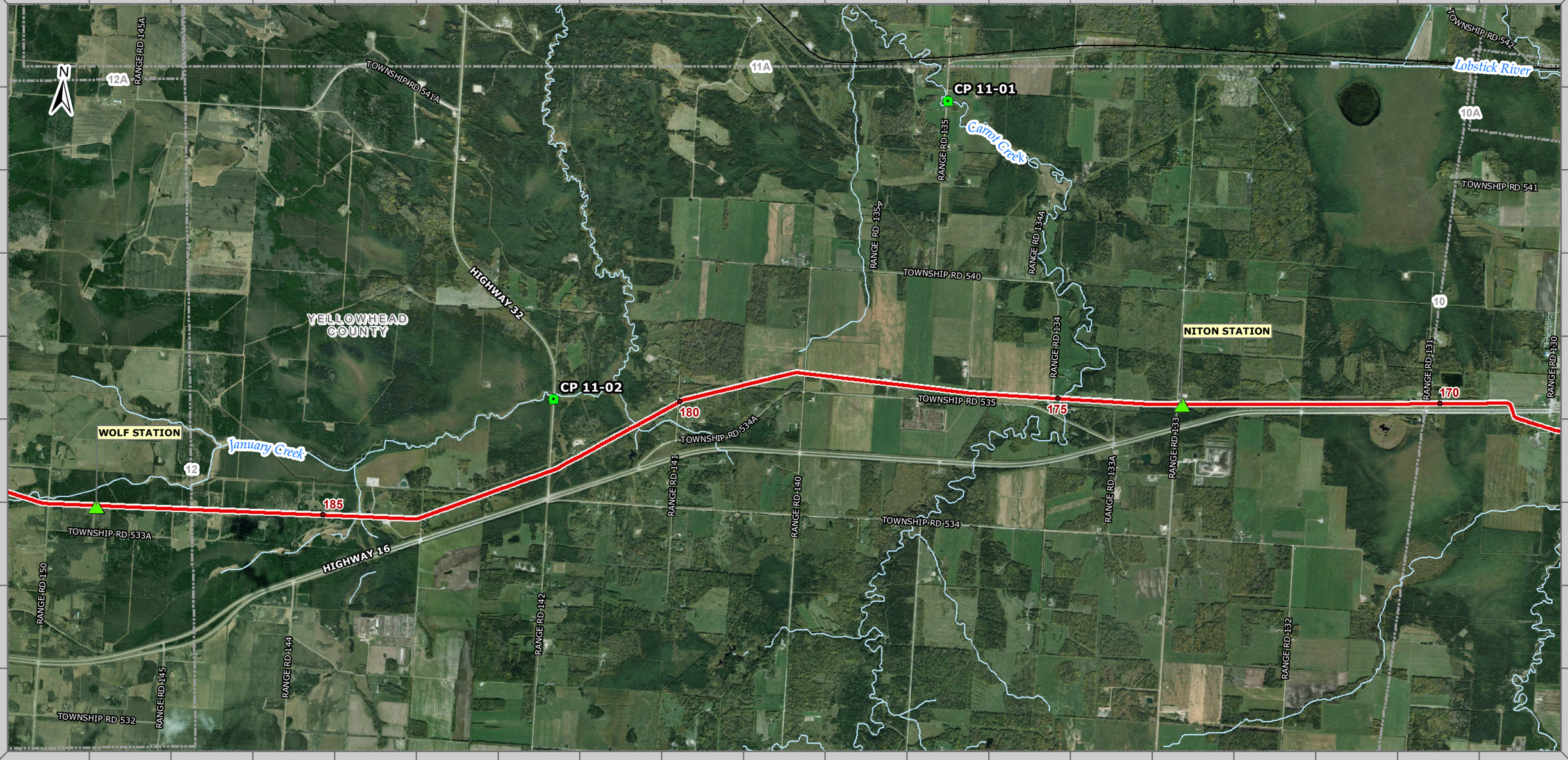
MAP 10A - NITON JUNCTION CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

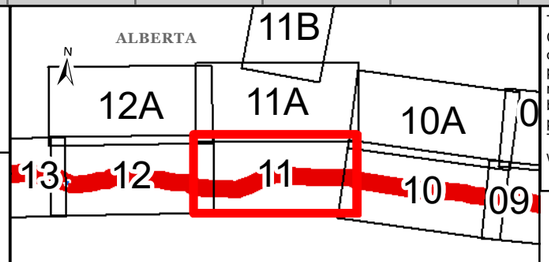
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

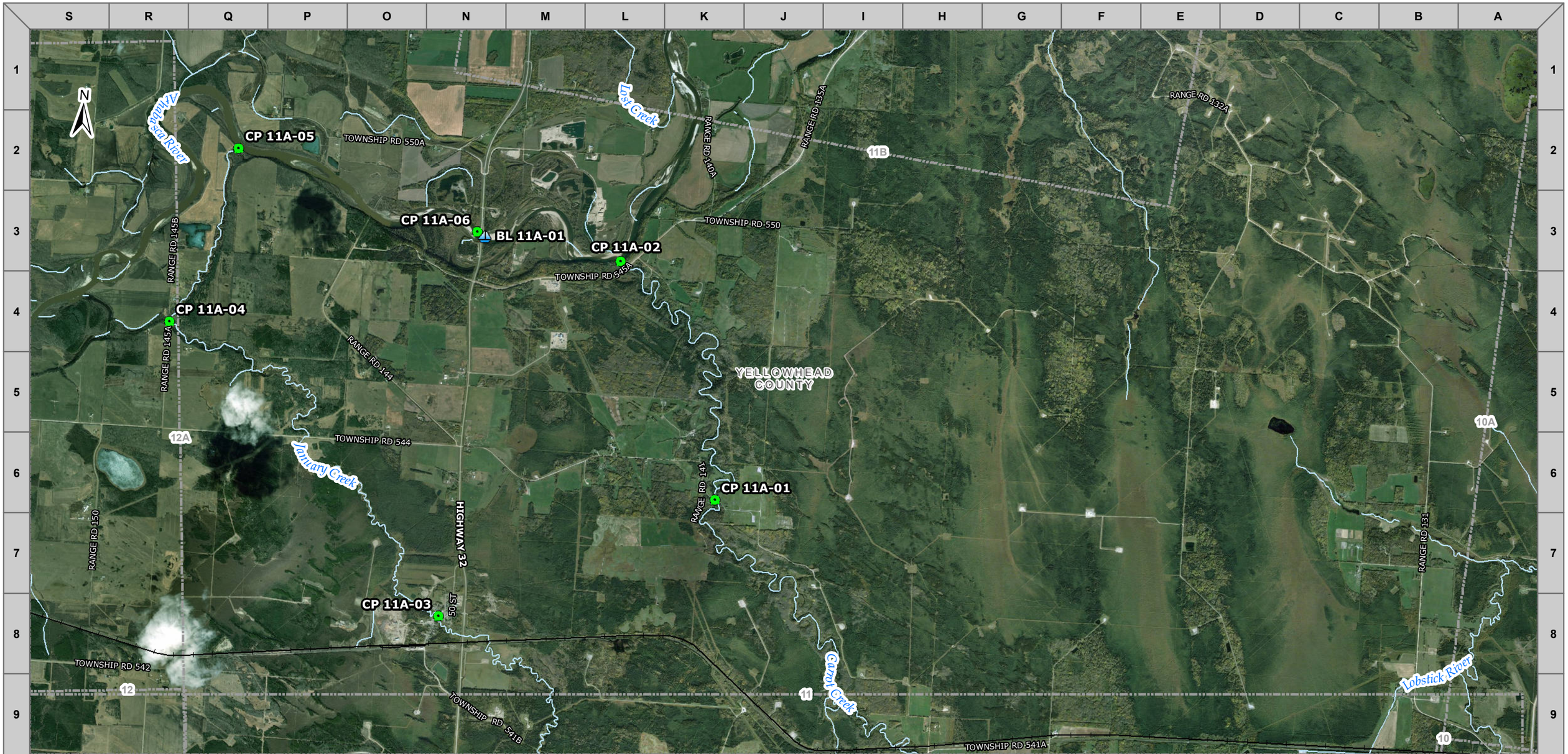
MAP 11 - JANUARY CREEK CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

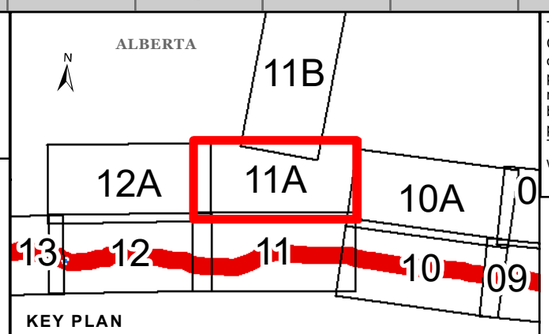
1:50,000

0 0.5 1 2 3 Km



TRANSMOUNTAIN
EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA
OPERATIONAL DISTRICT

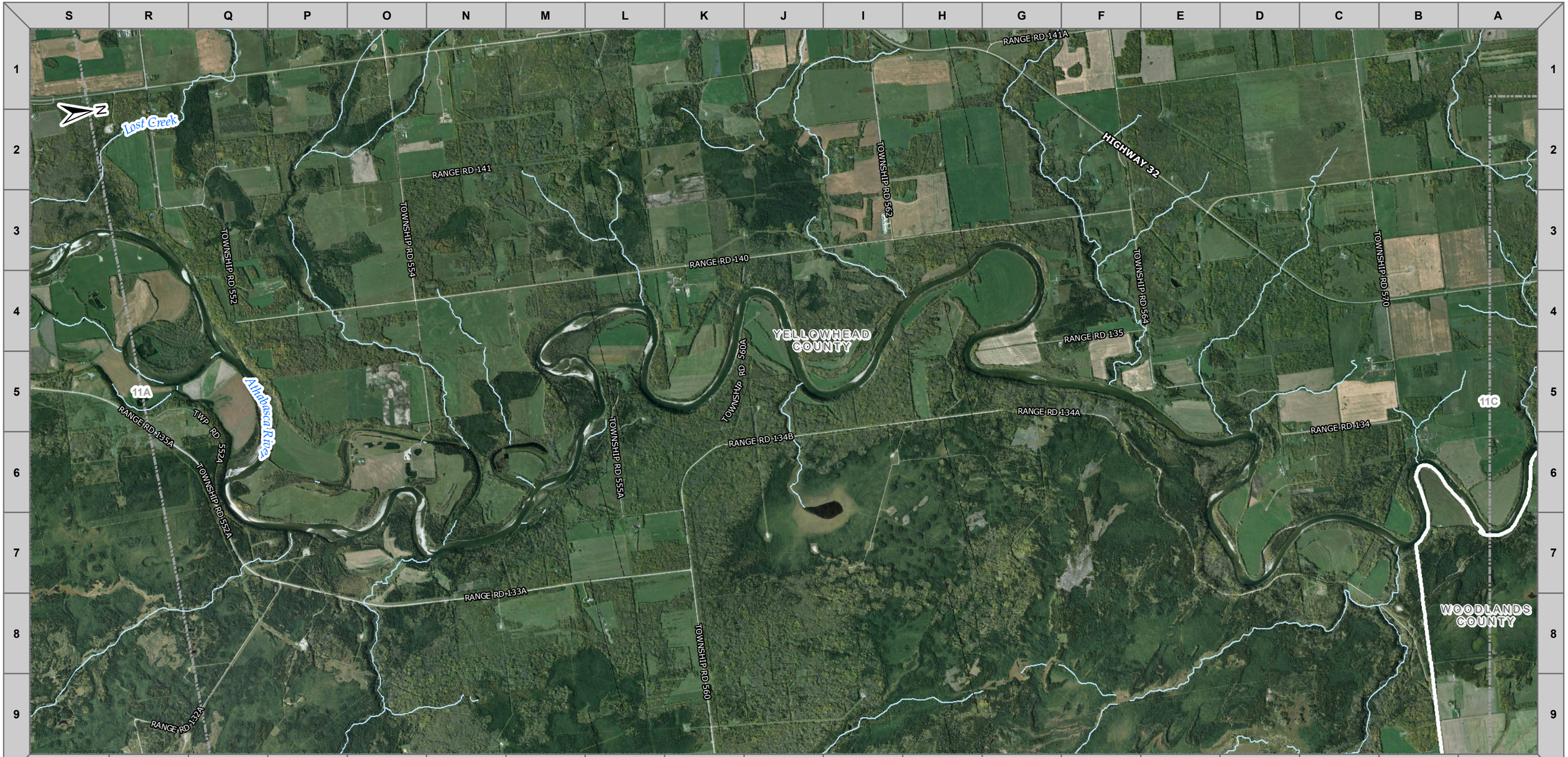
MAP 11A - MCLEOD RIVER 1
CONTROL POINTS ROUTE MAP
ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

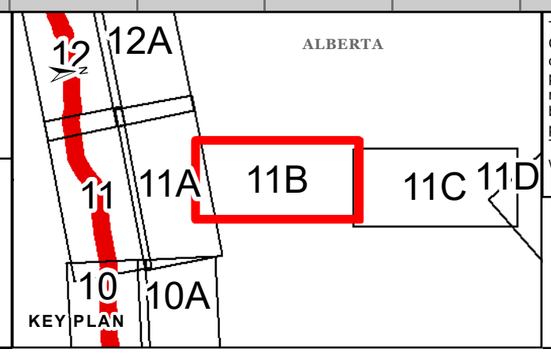
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 11B - MCLEOD RIVER 2 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

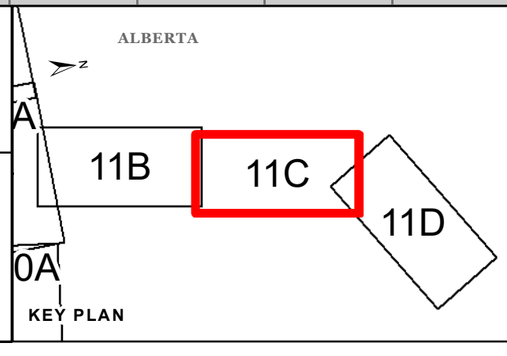
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

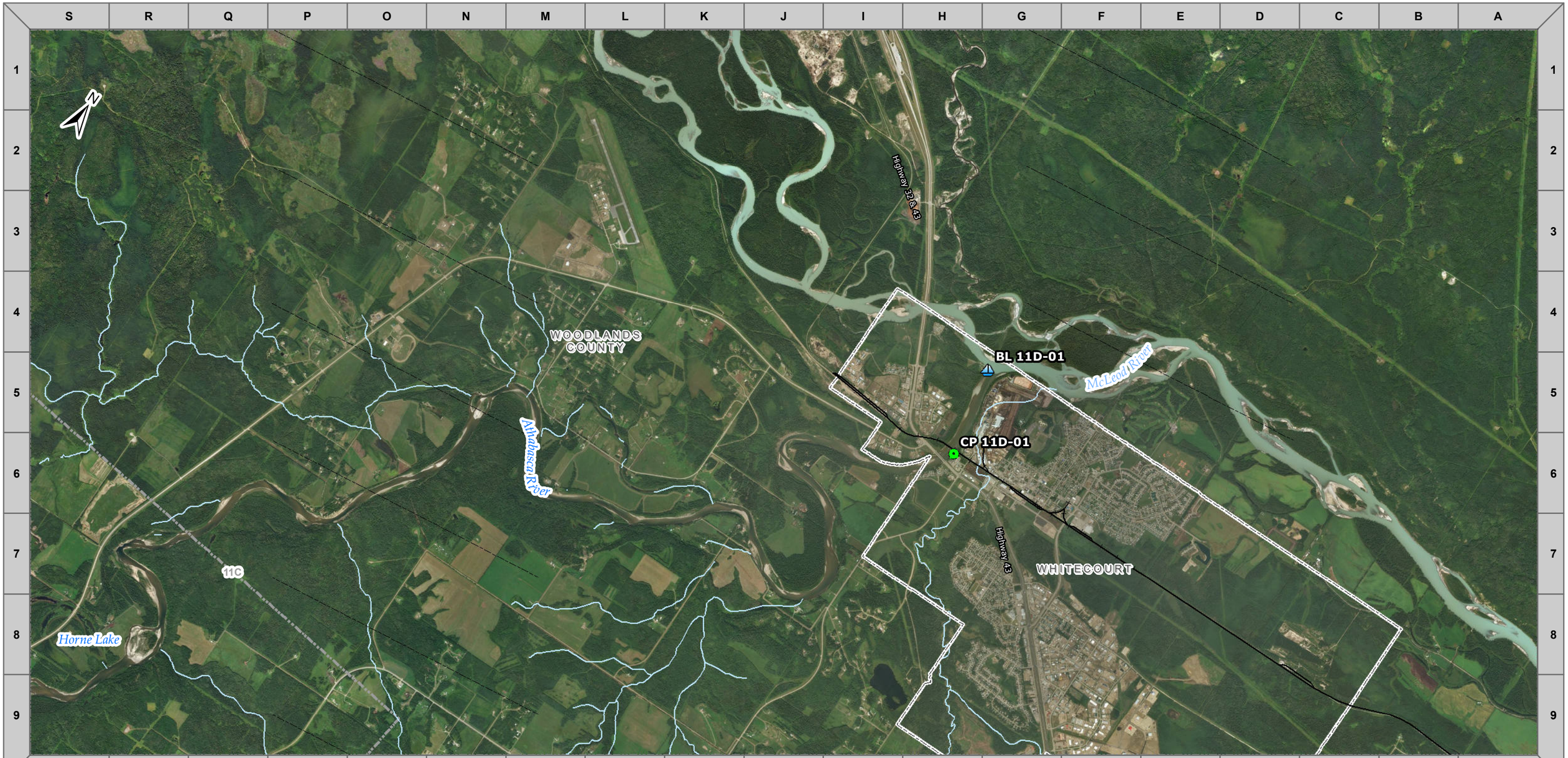
MAP 11C - MCLEOD RIVER 3 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

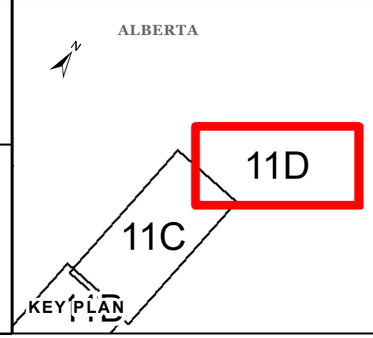
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

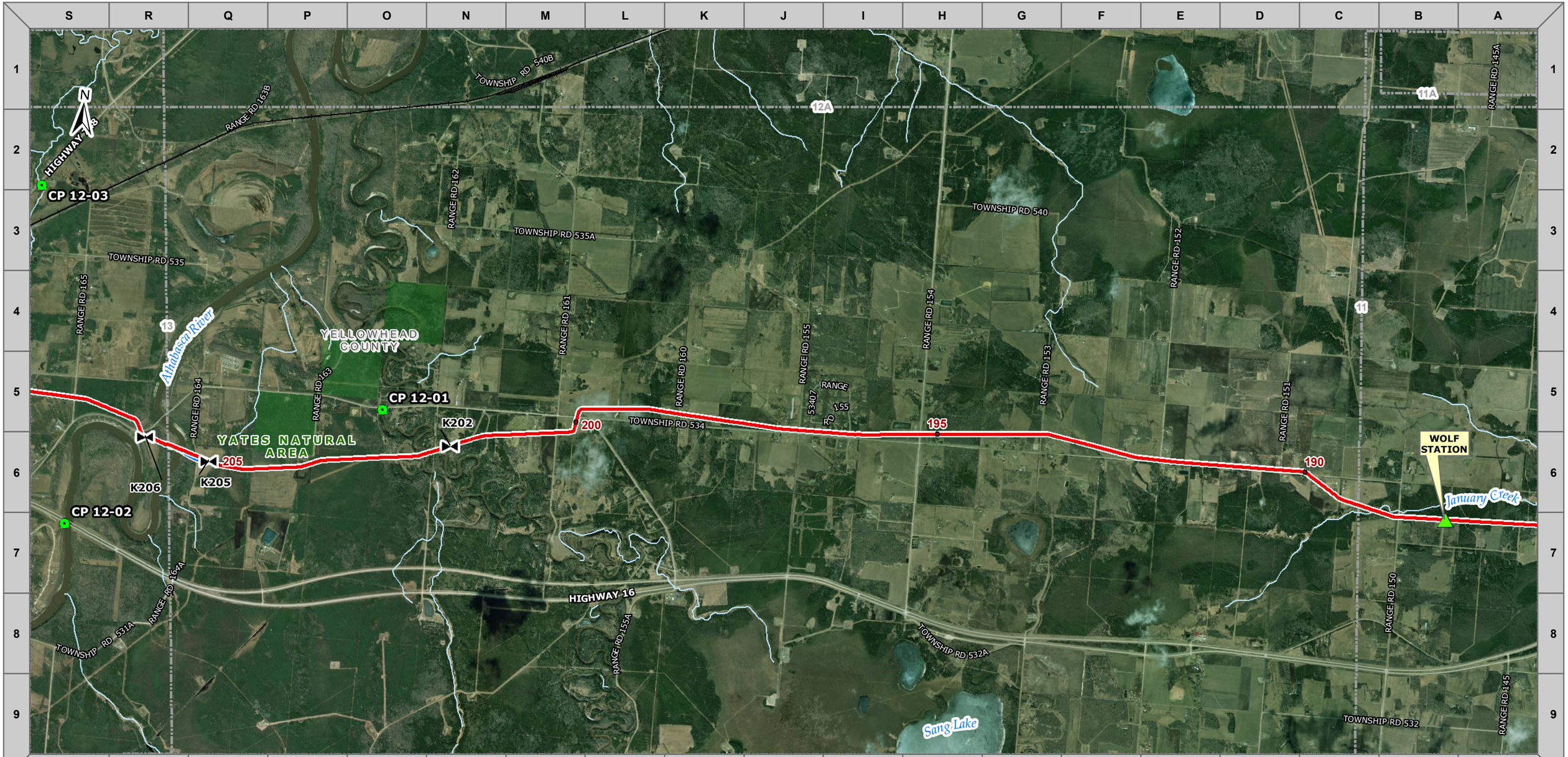
MAP 11D - MCLEOD RIVER 4 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

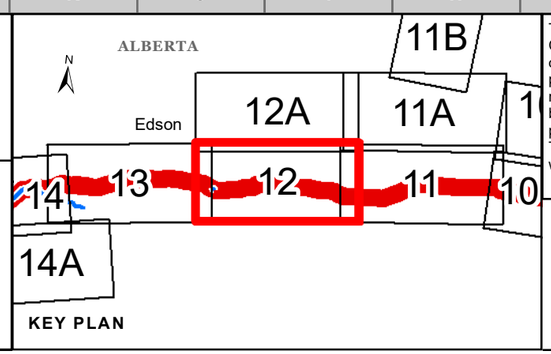
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 12 - WOLF CREEK CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

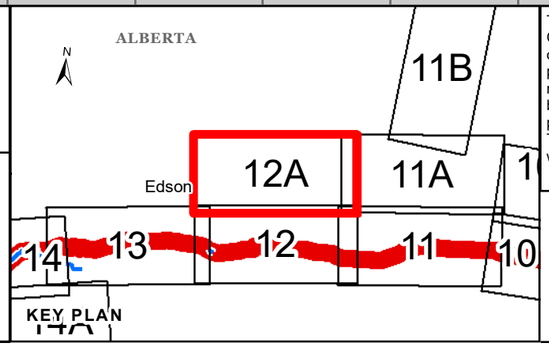
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

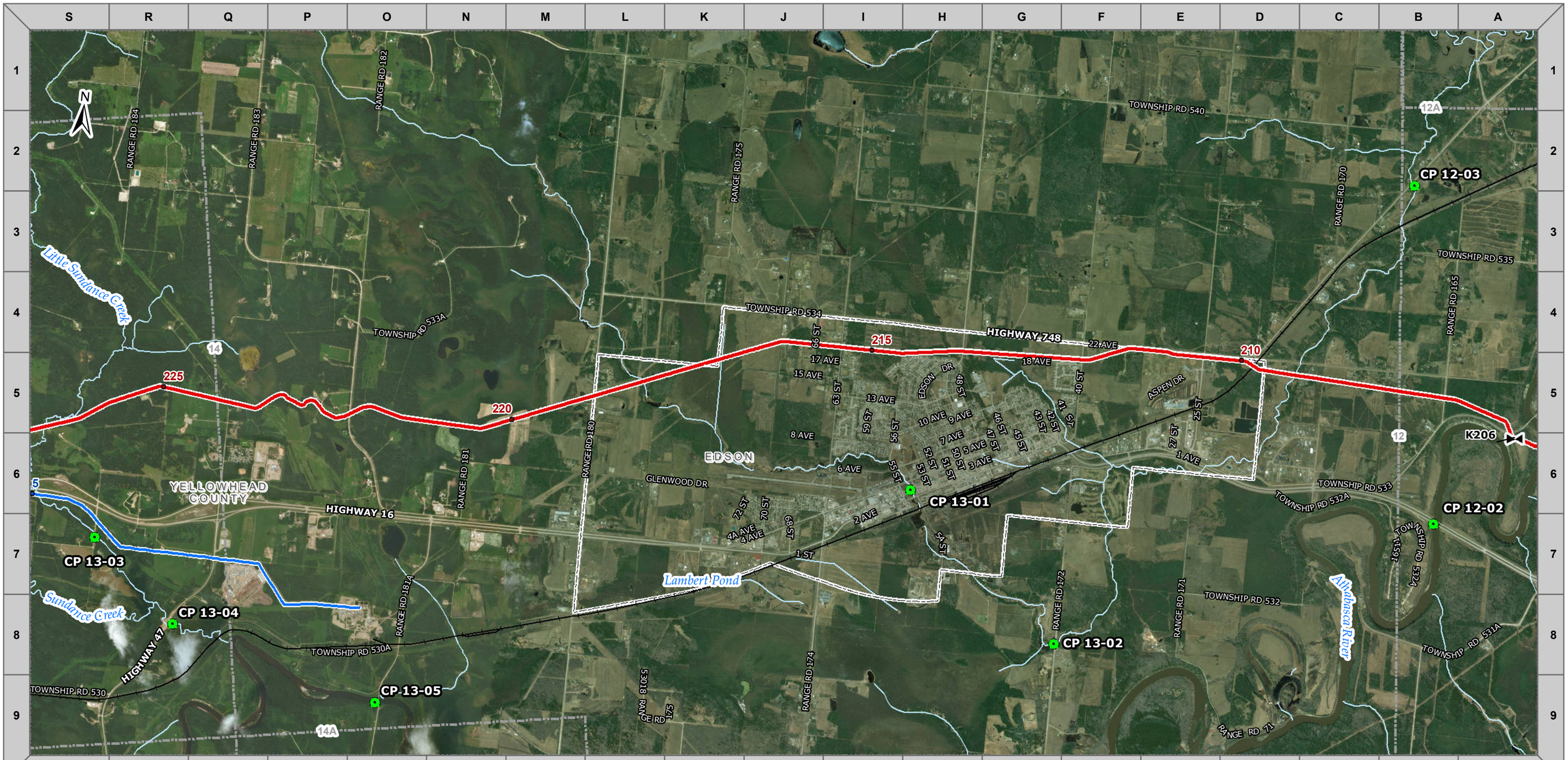
MAP 12A - ROSEVEAR CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

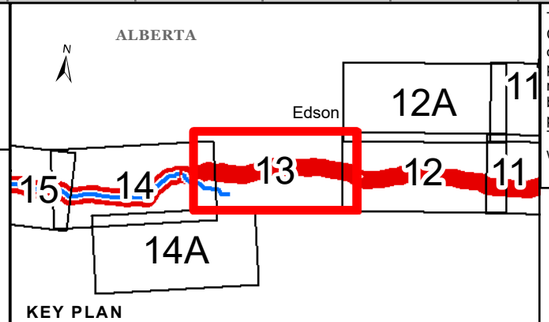
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

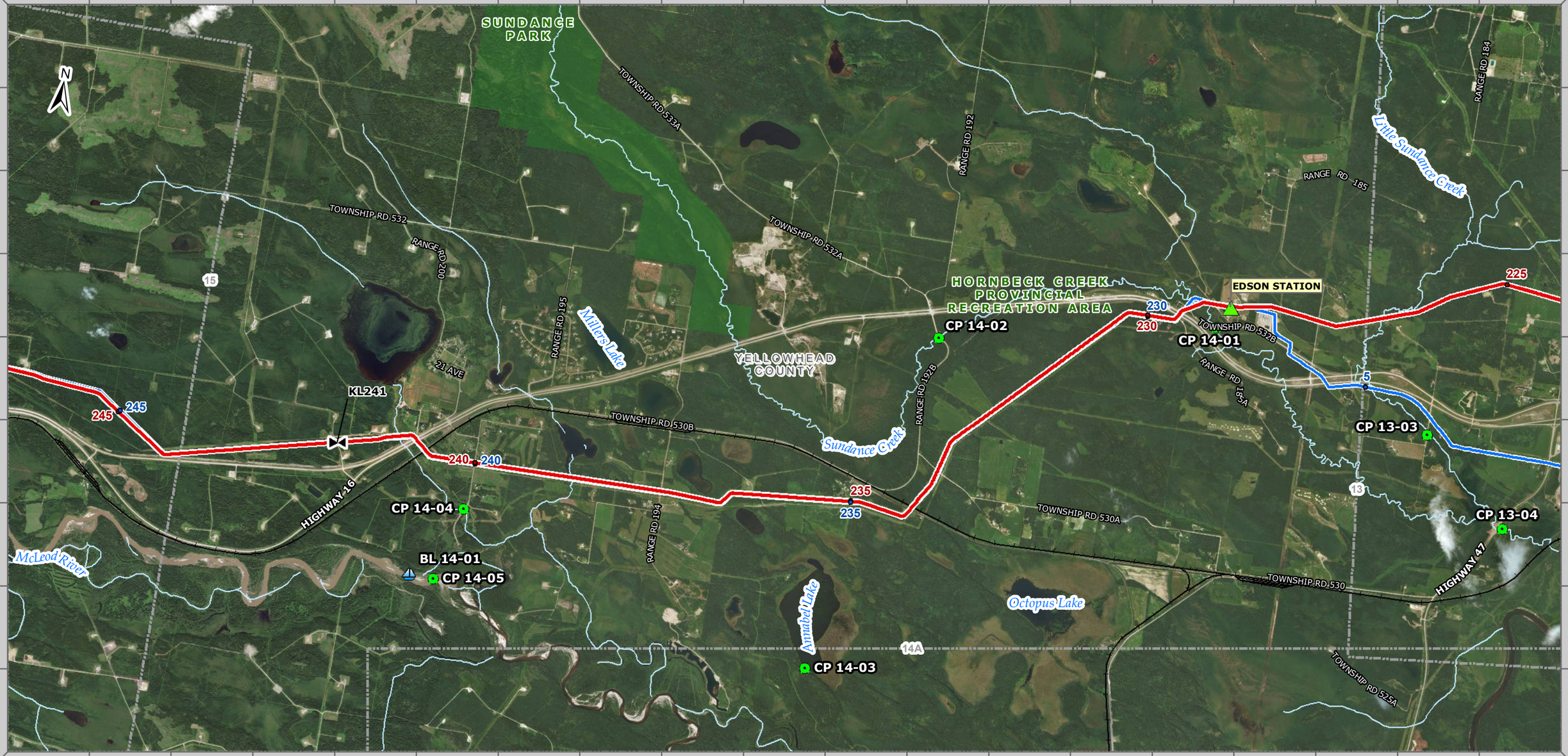
MAP 13 - EDSON 1
CONTROL POINTS ROUTE MAP
ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

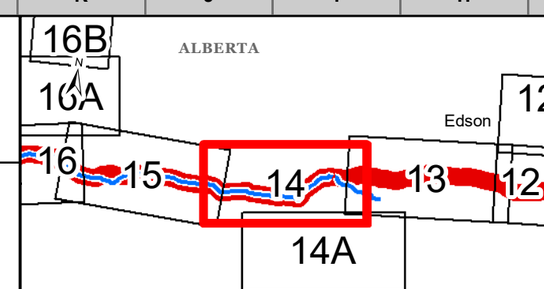
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

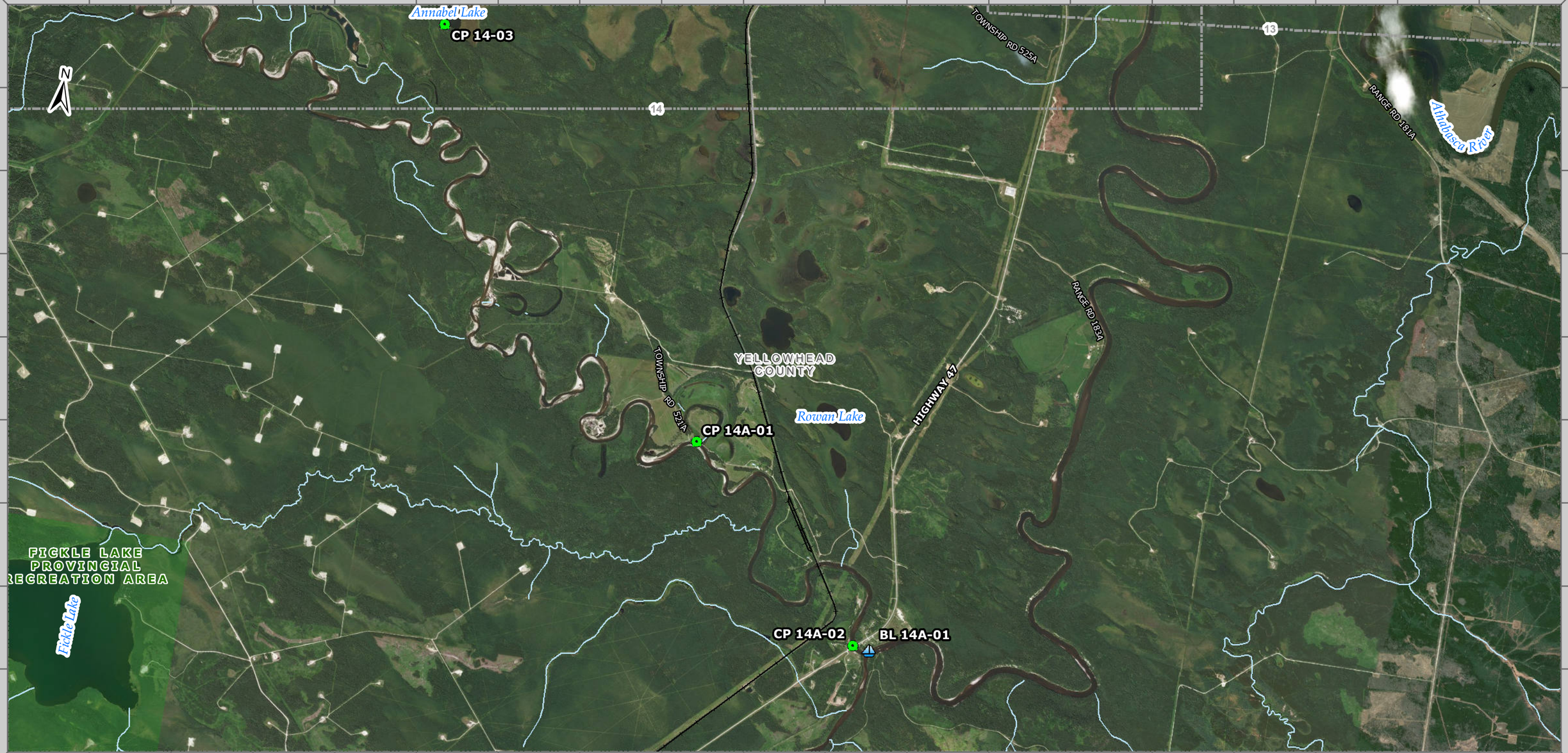
MAP 14 - MARLBORO CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

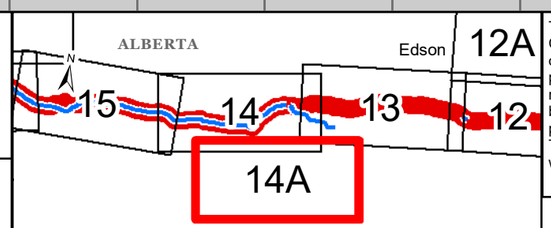
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

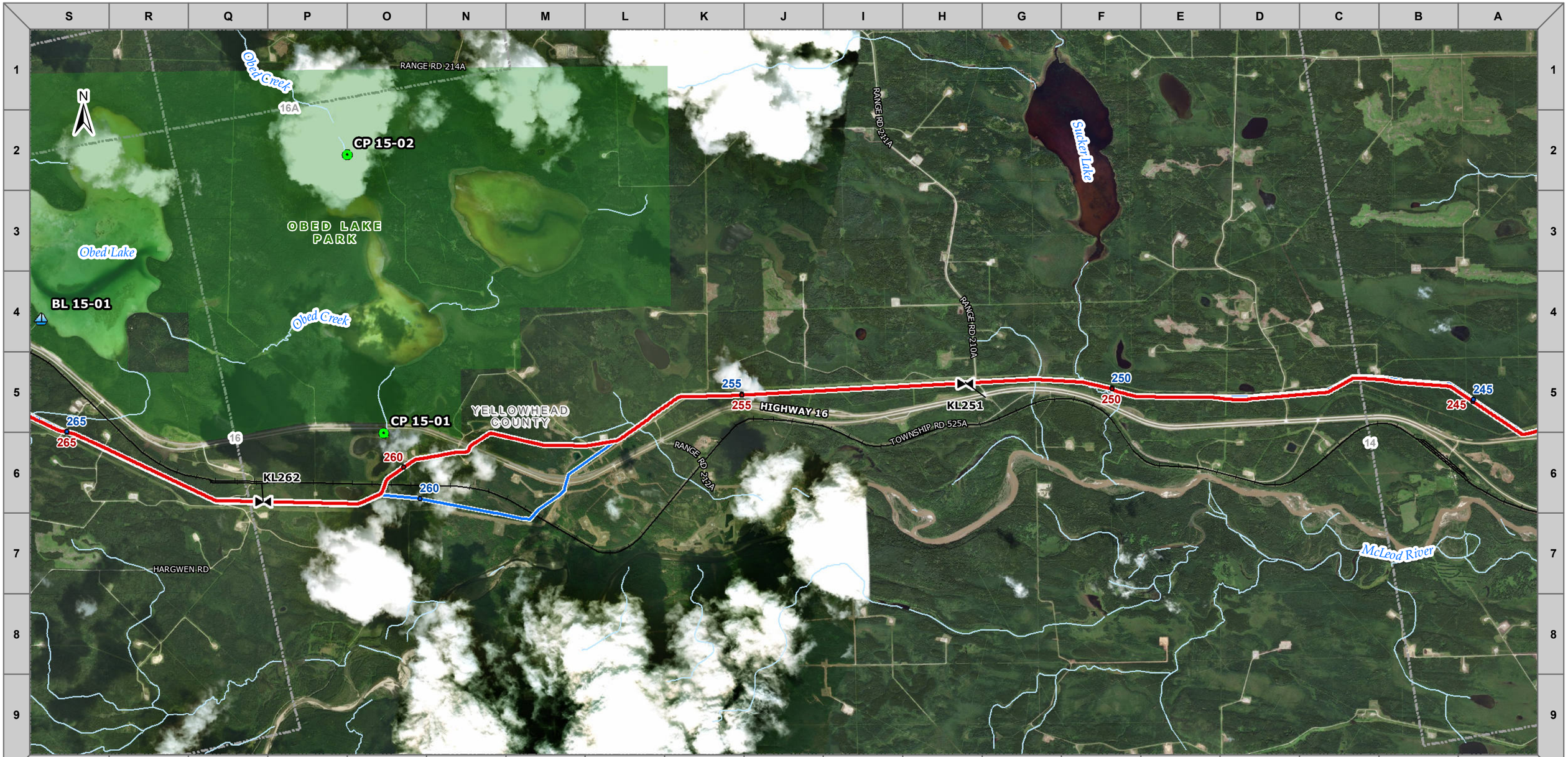
MAP 14A - MCLEOD RIVER 5 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

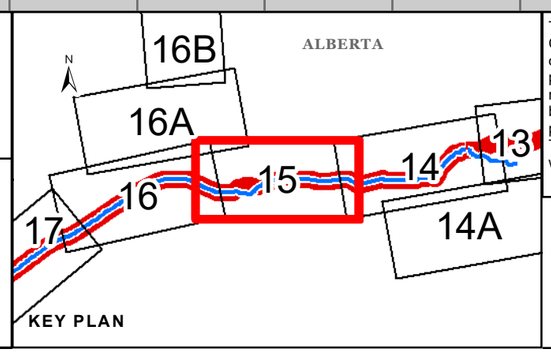
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

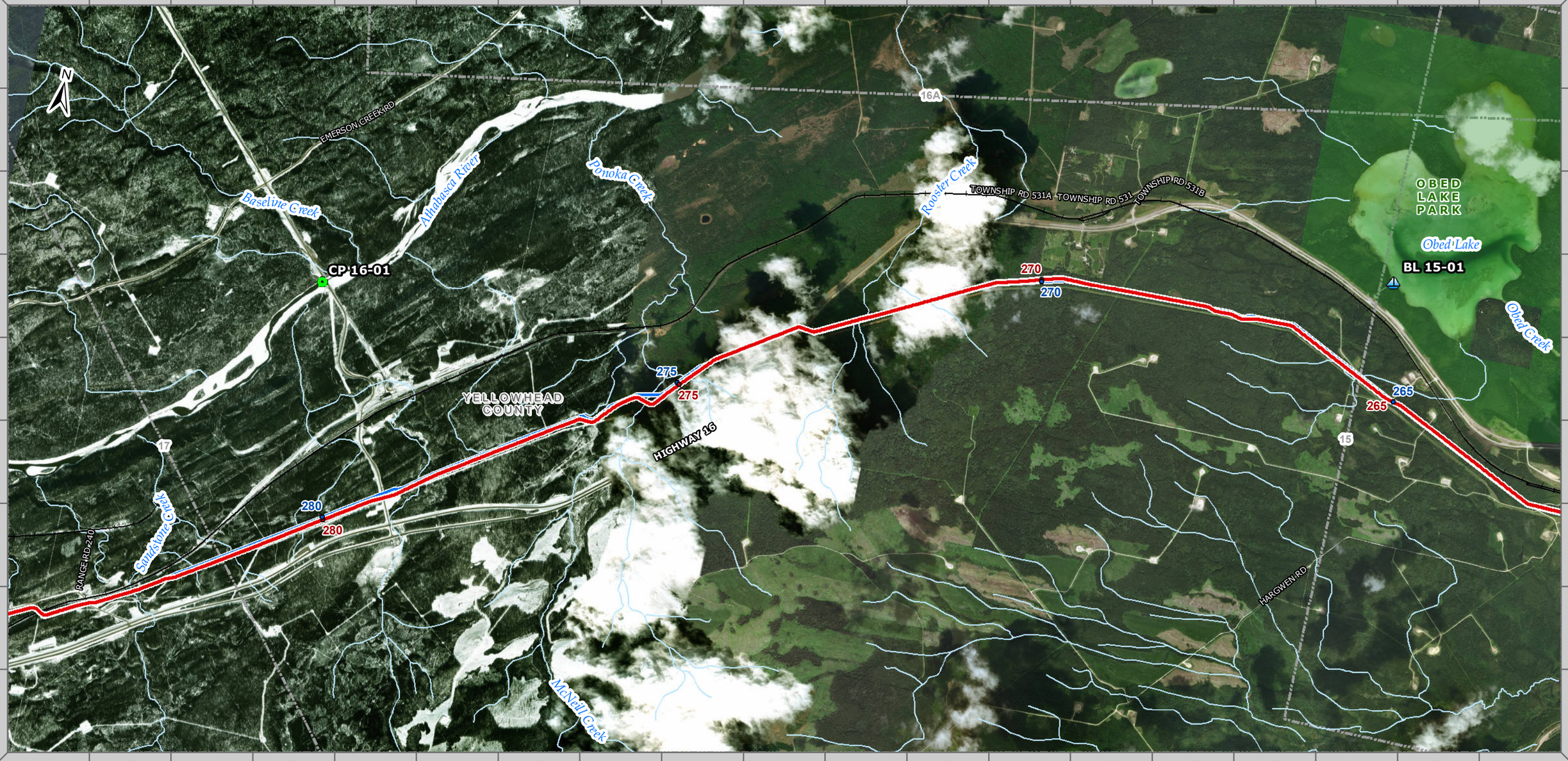
MAP 15 - MEDICINE LODGE CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

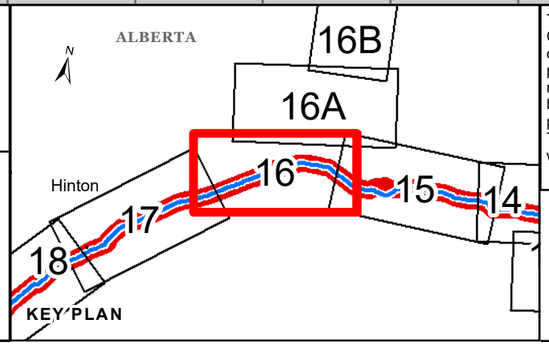
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

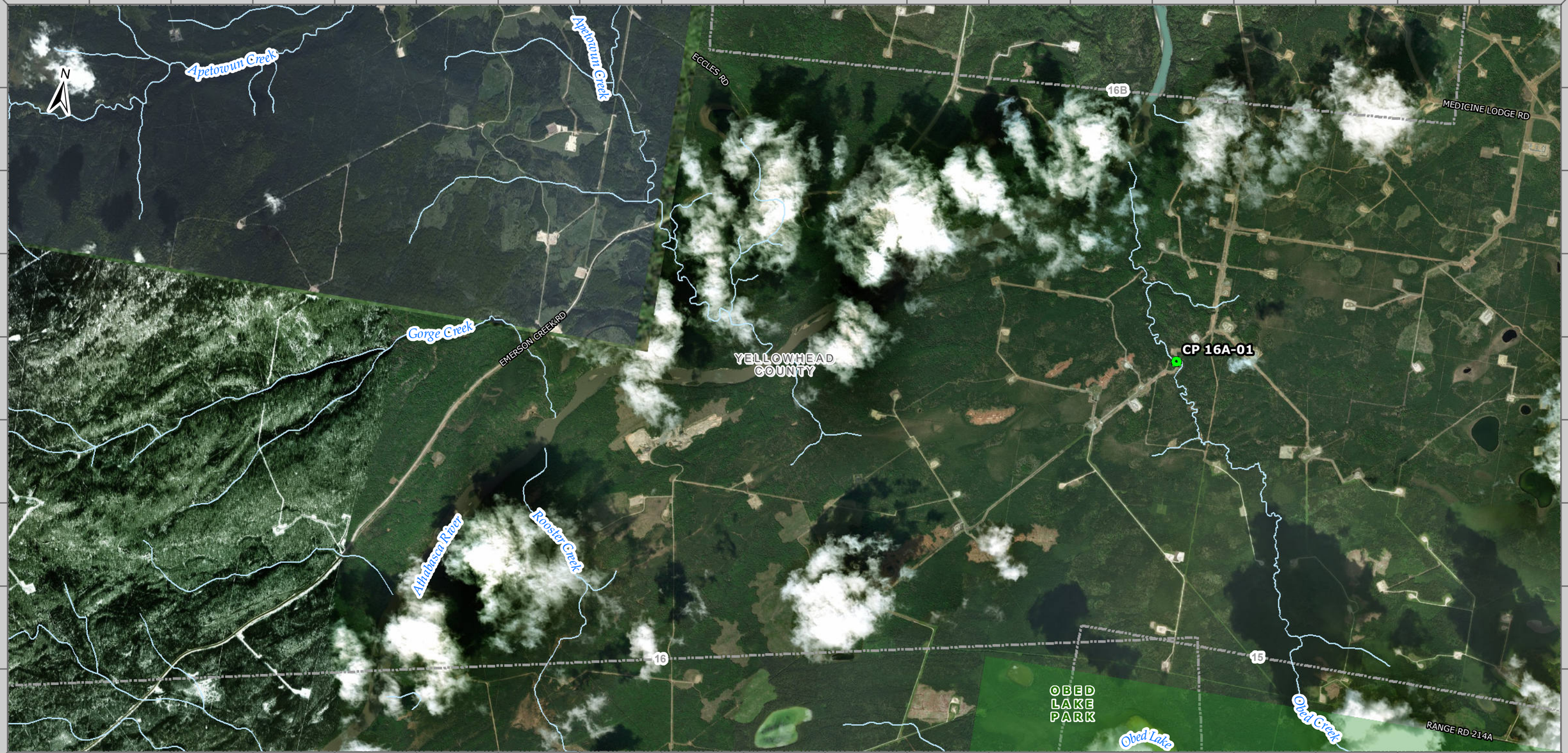
MAP 16 - OBED CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

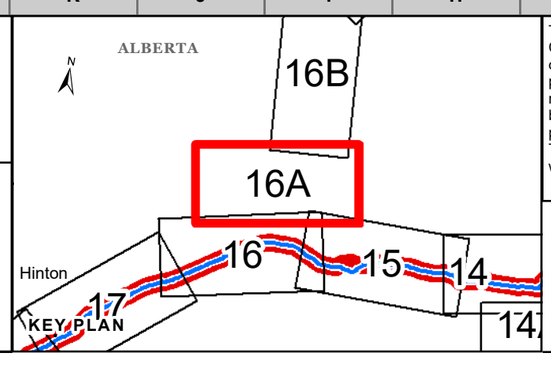
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 16A - OBED CREEK CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

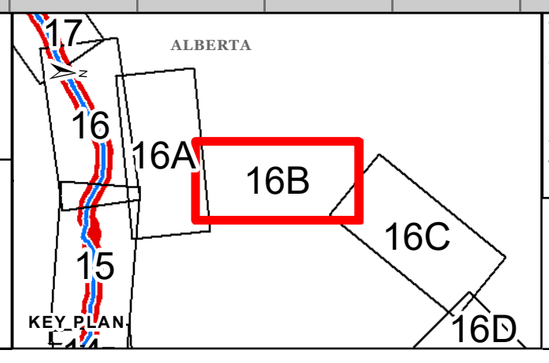
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 16B - ATHABASCA RIVER 1 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

0 0.5 1 2 3 Km

S R Q P O N M L K J I H G F E D C B A

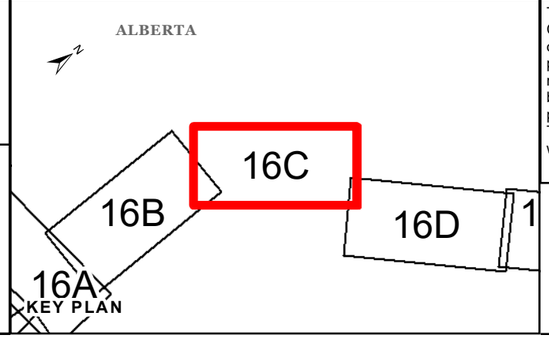
1 2 3 4 5 6 7 8 9



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

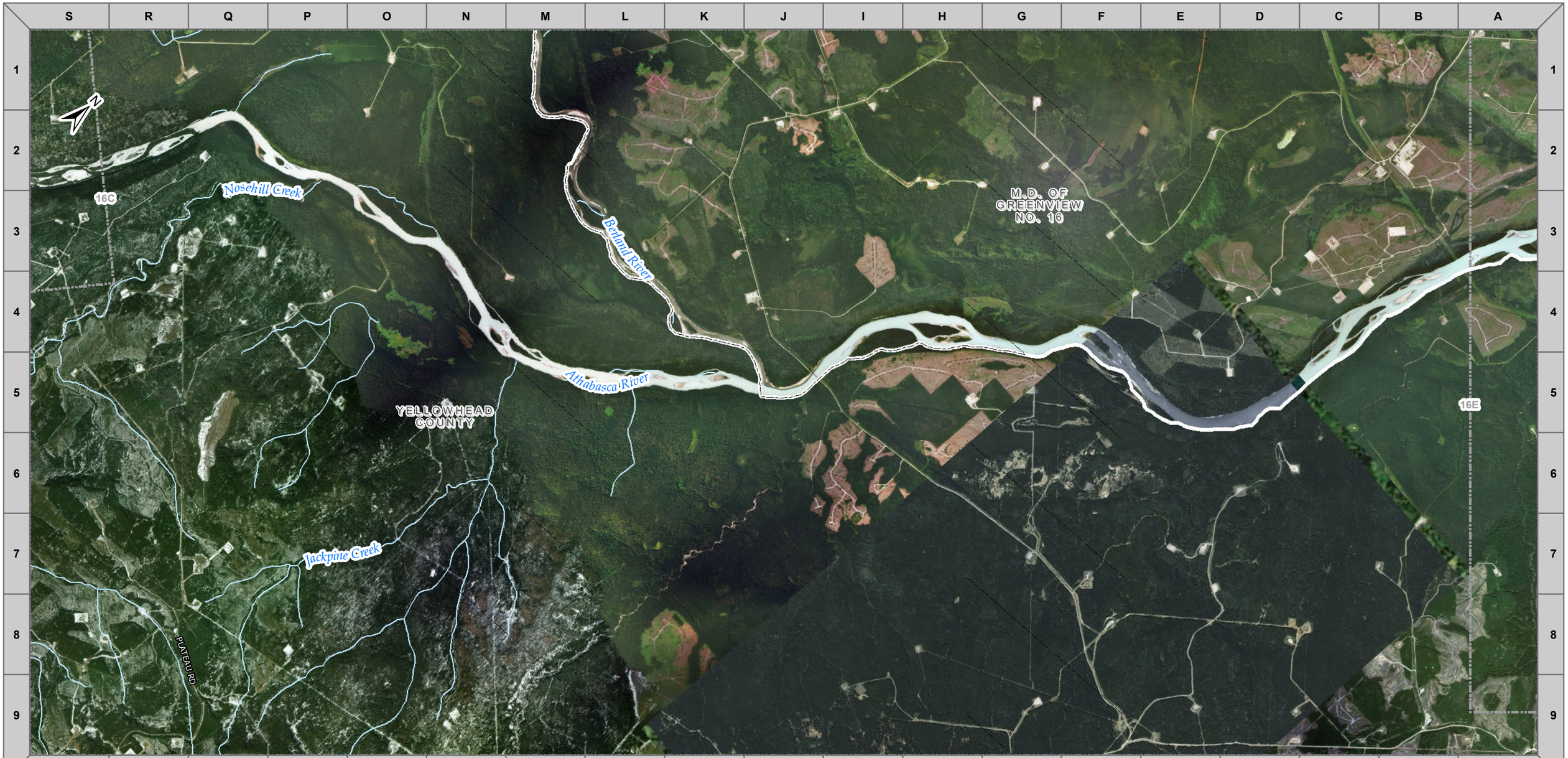
MAP 16C - ATHABASCA RIVER 2 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

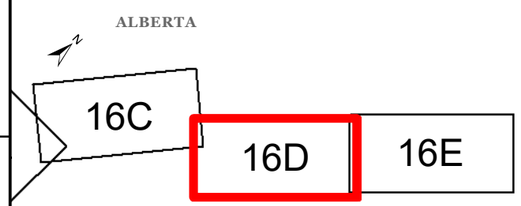
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

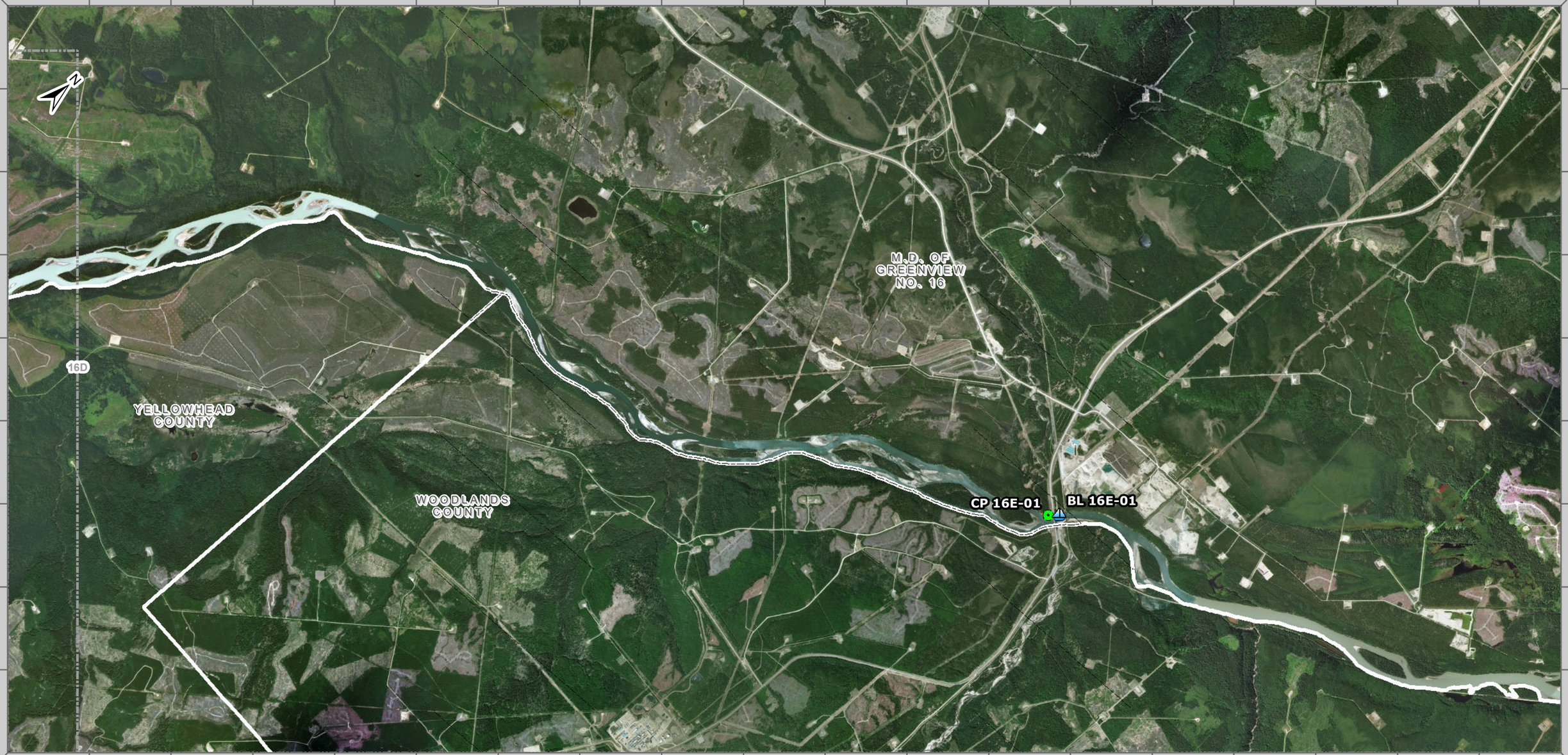
MAP 16D - ATHABASCA RIVER 3 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

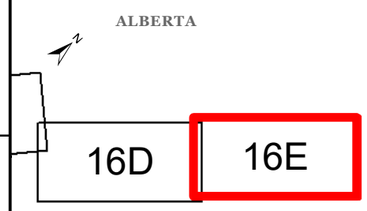
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

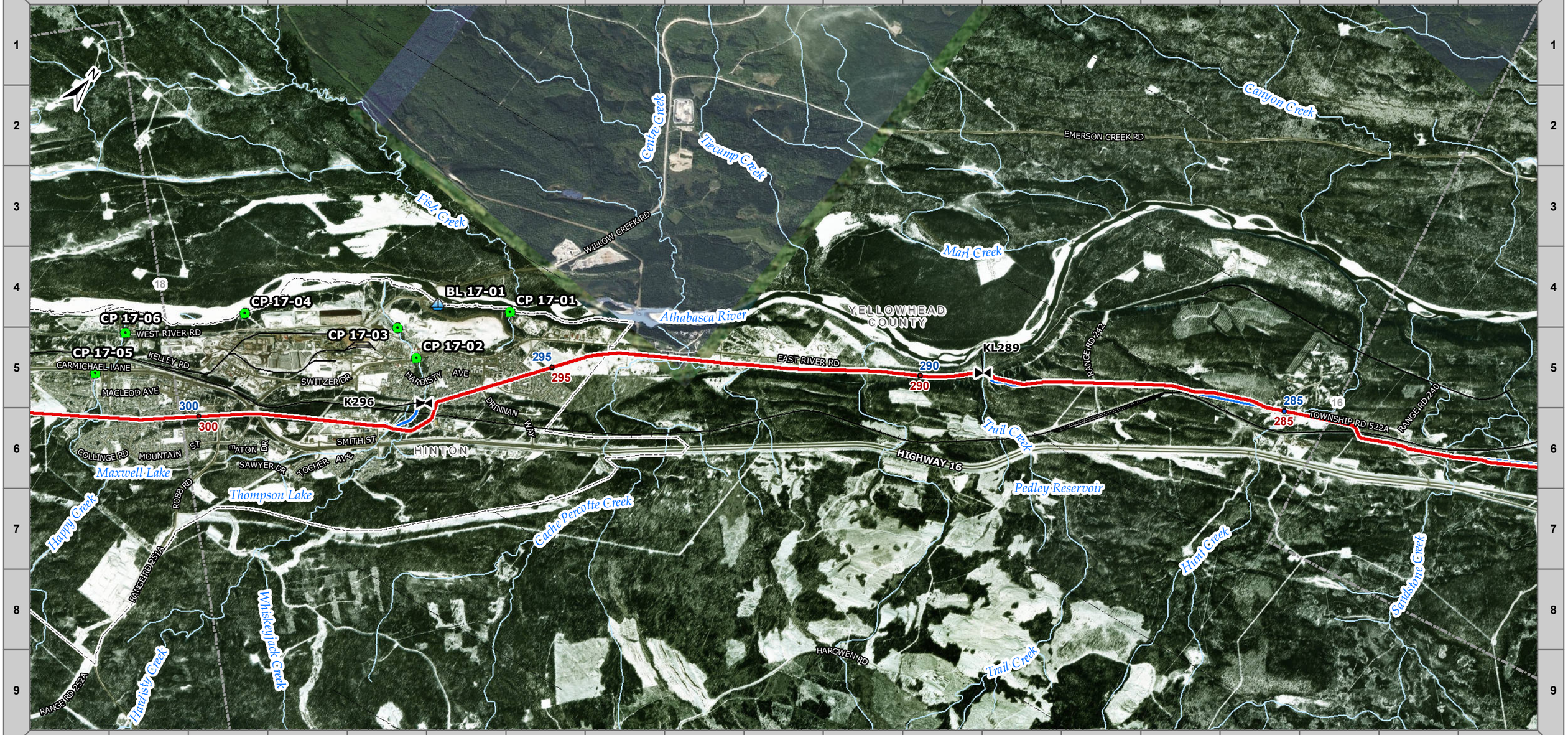
MAP 16E - ATHABASCA RIVER 4 CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

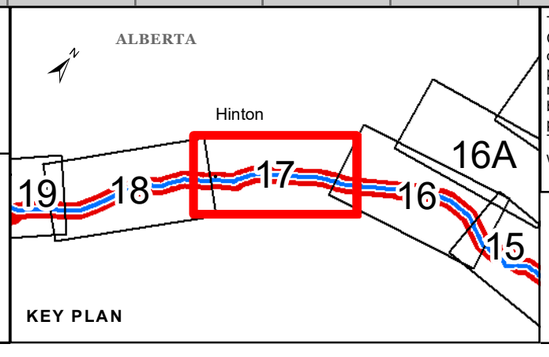
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

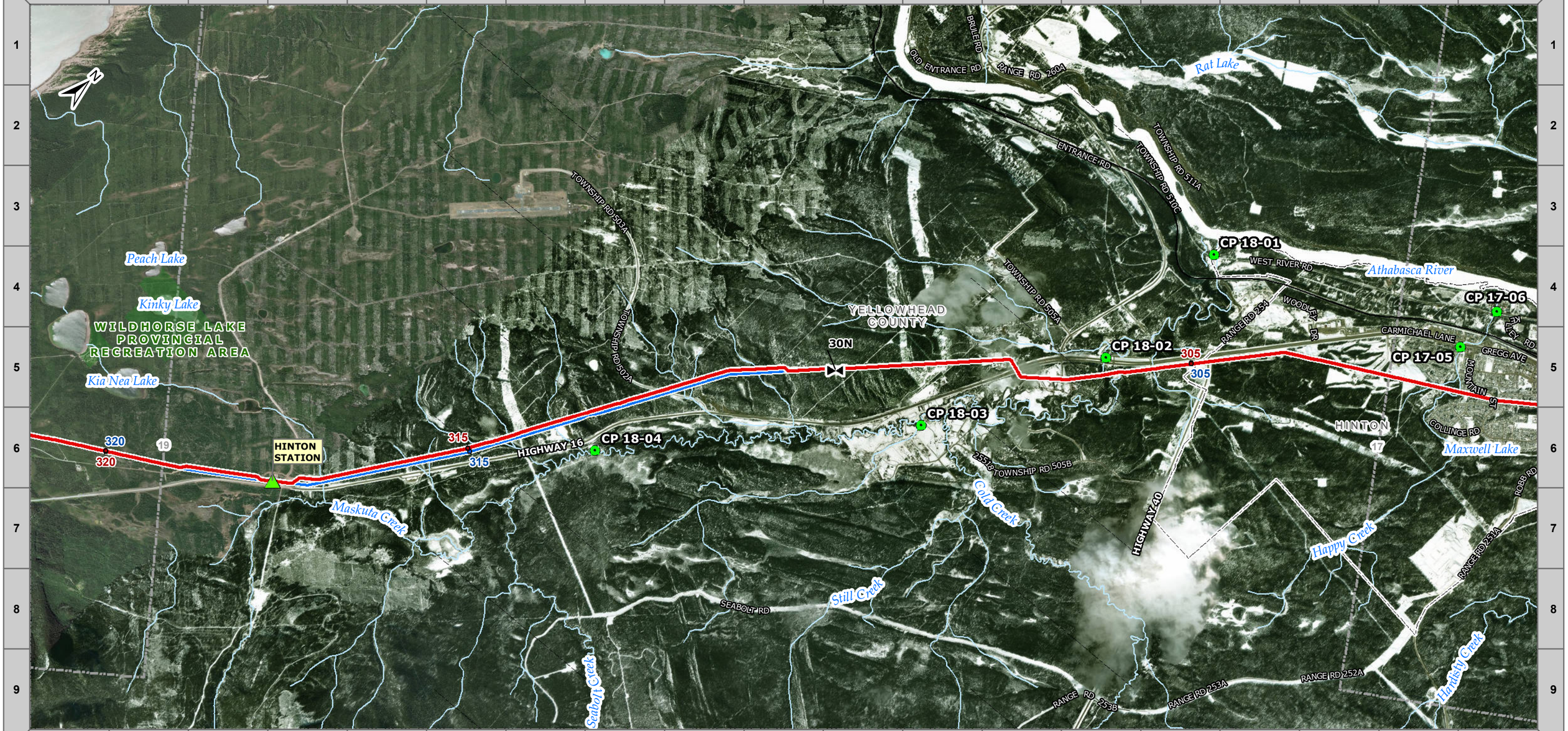
MAP 17 - HINTON CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

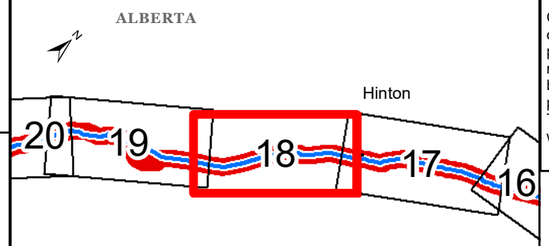
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



KEY PLAN

This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 18 - OLD ENTRANCE CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

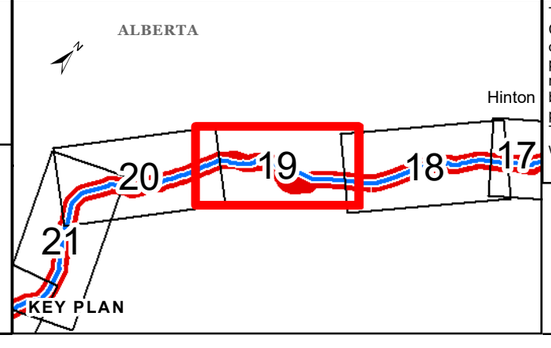
1:50,000

0 0.5 1 2 3 Km



EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

MAP 19 - POCAHONTAS CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

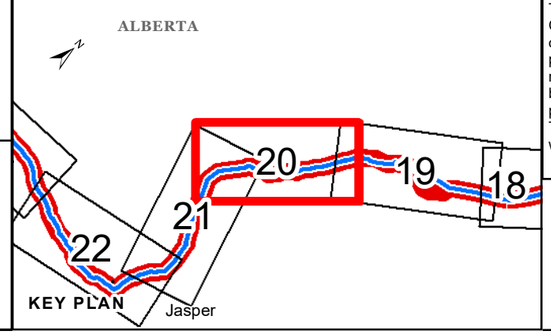
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

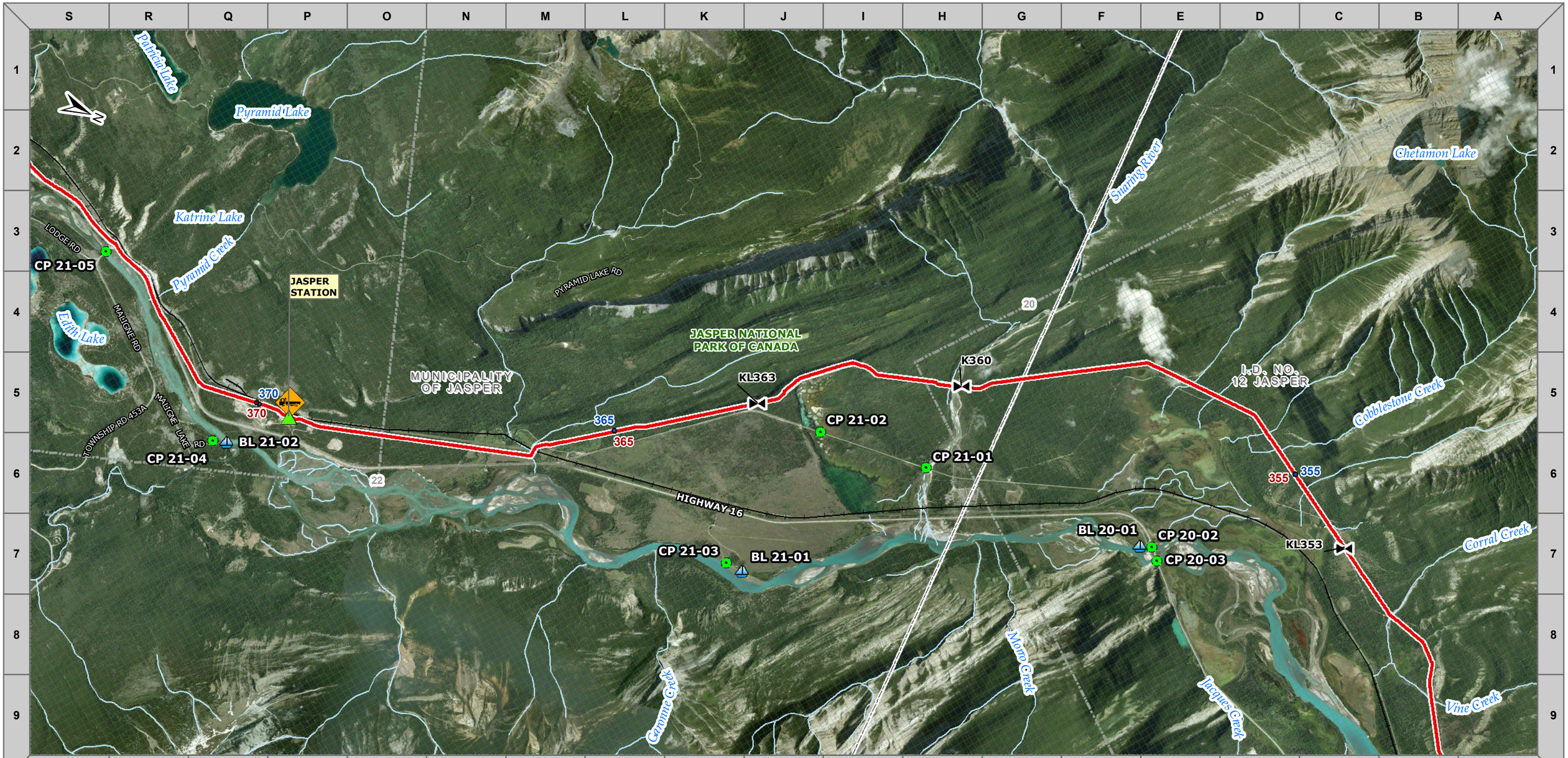
MAP 20 - JASPER LAKE CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

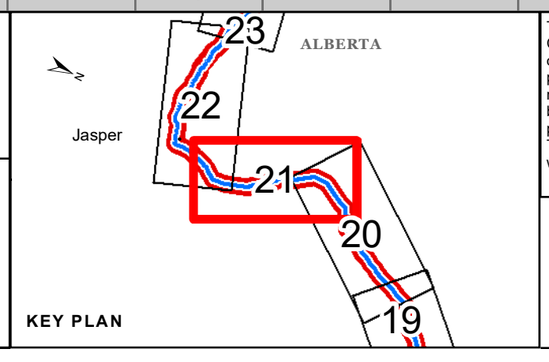
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

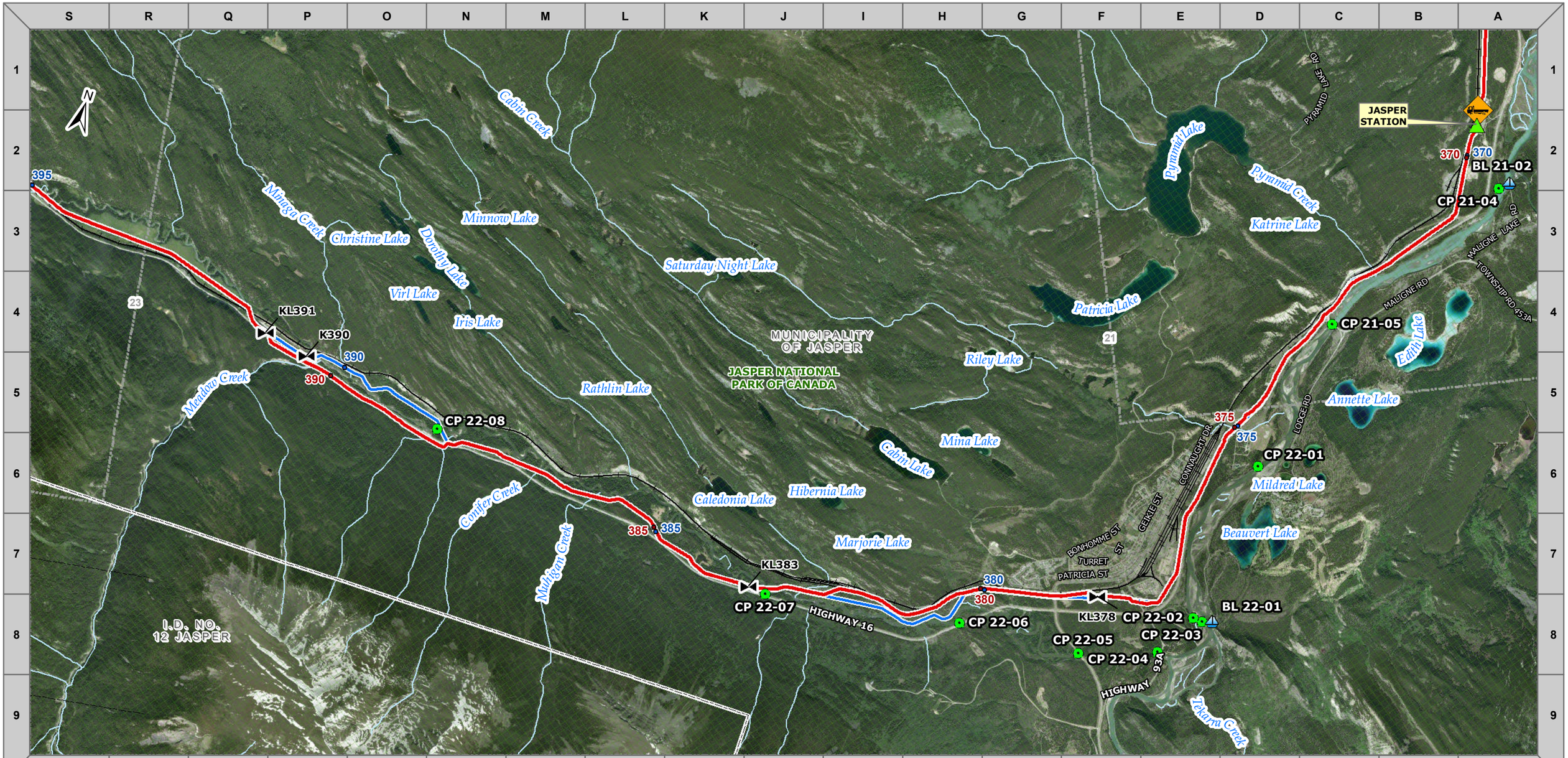
MAP 21 - MOBERLY FLATS CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

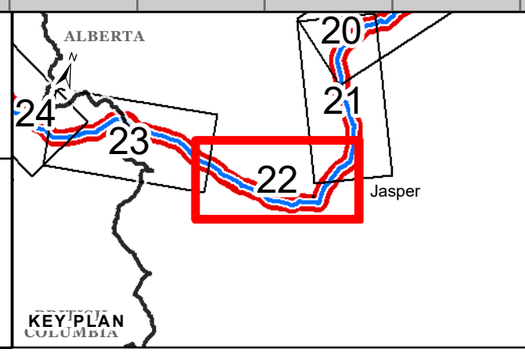
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA OPERATIONAL DISTRICT

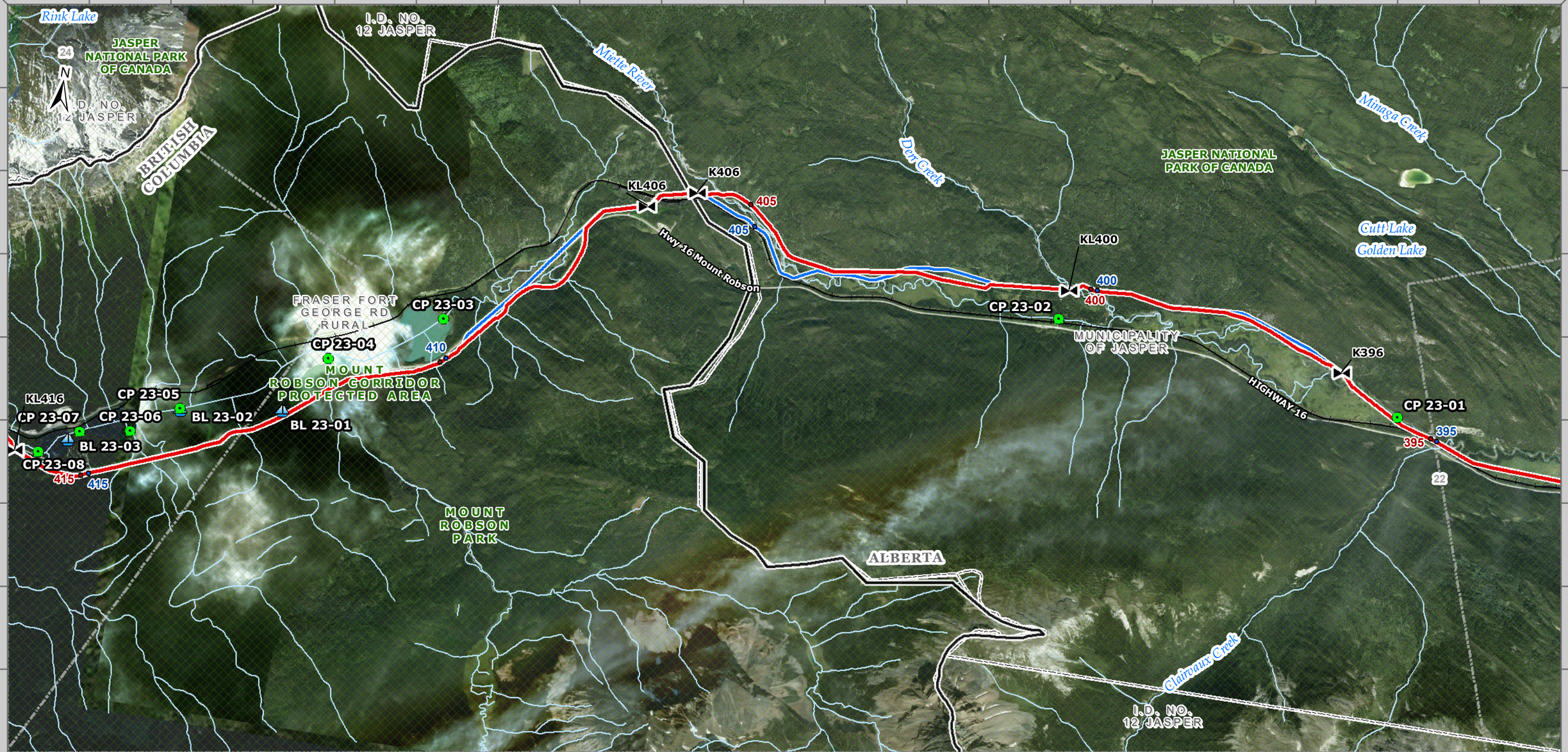
MAP 22 - JASPER CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

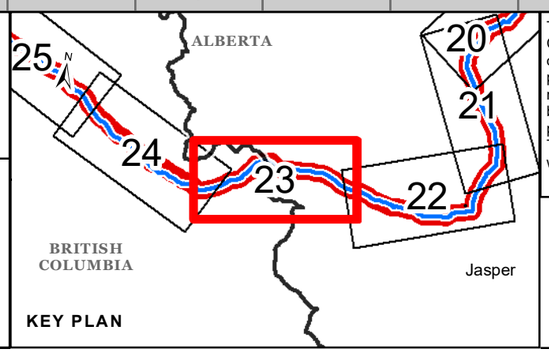
0 0.5 1 2 3 Km



TRANSMOUNTAIN

EMERGENCY MANAGEMENT MAP

- BOAT LAUNCH (BL)
- LAND CONTROL POINT (LCP)
- WATER CONTROL POINT (WCP)
- PIPELINE FACILITY
- OSCAR TRAILER
- TMPL VALVE
- TMPL ACTIVE KILOMETRE POST
- TMPL INACTIVE KILOMETRE POST
- TMPL ACTIVE LINE
- TMPL INACTIVE LINE
- ADJACENT MAP MATCHLINE
- RAILROAD
- HYDROLOGY
- FN RESERVE
- PARKS
- MT ROBSON/ JASPER NATL. PARK
- MUNICIPAL BOUNDARY



This document is provided by Trans Mountain Corporation, for use by the intended recipient only. This information is confidential and proprietary; not to be provided to any other recipient without written consent and it is not to be used for legal, engineering or surveying purposes, or for doing any work on or around Trans Mountain's pipelines and facilities, all of which require prior written approval.

ALBERTA/NORTH THOMPSON OPERATIONAL DISTRICT

MAP 23 - LUCERNE CONTROL POINTS ROUTE MAP ORTHOPHOTO BASE

Uncontrolled copy if printed

Published: October 05 2018
Projection: Custom Lambert Conformal Conic
Route_NoSpill_AnsiB_Alberta_20181005.mxd
Revision: A

1:50,000

0 0.5 1 2 3 Km

7.0 GRP DATA SHEETS

GRP DATA SHEET

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 01-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.510310	
	Long:	-113.546650	
Elevation	618 m		
Upstream Valves:	**Line 01:**	MOD	
Downstream Valves:	**Line 01:**	K19	
Control Point:	**Upstream**	**Downstream**	
	CP 02-04	CP 01-09	
Nearest KM Post:	**Line 01**		
	KP 18		

Waterbody Information:

Waterbody Name: North Saskatchewan River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		195 m	
Depth		Unknown	
Flow Velocity		5.5 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with main currently closer to LDB. Boat launch well-maintained, gradually sloping concrete pad. Rock piles and parking area on the upstream side of boat launch create shoreline eddy at launch site, with current increasing further out. Accessed down short gravel road through sloping forested area from Sir Wilfrid Larier Park. Frequent floating logs and woody debris during medium and high water. Be aware of shallow bars during low water.

Logistical Information:

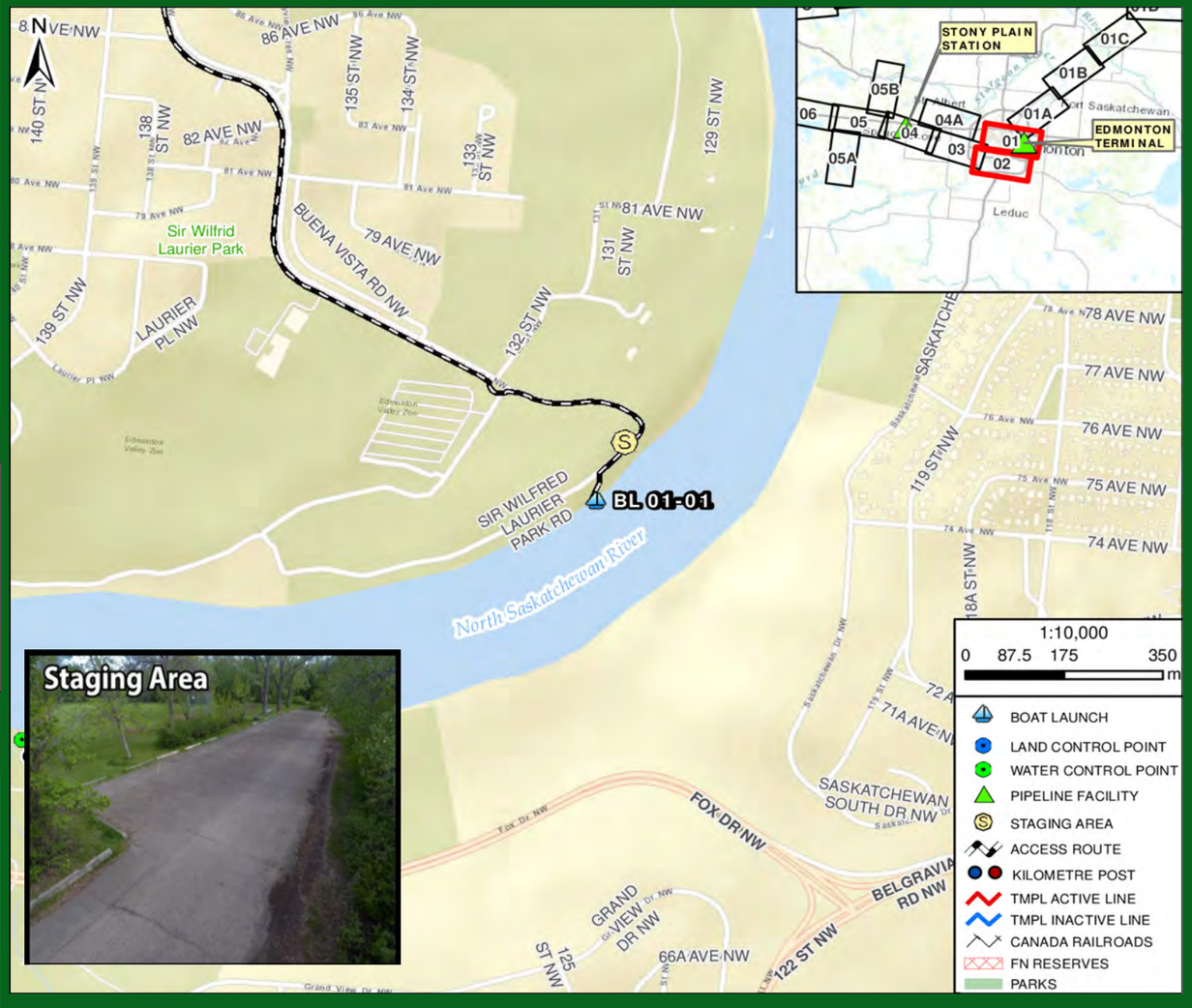
Road Access/Type:	- Access off of Sir Wilfred Laurier Park Road. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A small staging area can be located in Sir Wilfred Laurier Park. - The staging area is located in a parking lot on the left descending bank. - 10 m x 50 m area. - All weather access is established.	
	Lat: 53.51131	Long: -113.54617
Site Comments:	- The boat launch is located in Sir Wilfred Laurier Park. - Gated access to the boat launch and staging area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required. - Security recommended.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, install a boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Sir Wilfred Laurier Park, public may be present.





Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 2.2 km
- Turn right onto 142 St NW, heading south, for 3.4 km
- At the roundabout, take the 2nd exit and stay on 142 St NW for 3.6 km
- At the next roundabout, take the 3rd exit onto Buena Vista Rd NW for 1.6 km
- After entering the park, drive past the parking lot, and take Sir Wilfrid Laurier Park Rd NW for 450 m
- Destination is in Sir Wilfrid Laurier Park, at the boat launch onto North Saskatchewan River
- Total Distance = 87.8 km - Total Travel Time = 81 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-26
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 01-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.562390	
	Long:	-113.418480	
Elevation	612 m		
Upstream Valves:	**Line 01:** MOD		
Downstream Valves:	**Line 01:** K19		
Control Point:	**Upstream** CP 01-09	**Downstream** CP 01-04	
Nearest KM Post:	**Line 01** KP 0		

Waterbody Information:

Waterbody Name: North Saskatchewan River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		203	
Depth		Unknown	
Flow Velocity		4.7 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with even current across channel. Boat launch well-maintained, gradual sloping composed of compacted dirt and gravel. More challenging conditions during high water where submerged boulders become poorly visible and current likely increases near shore. Accessed down 100 m all weather access road from Goldbar Park, containing well maintained trail along backshore. Be aware of frequent floating logs/woody debris in medium/high water, shallow bars in low water.



Logistical Information:

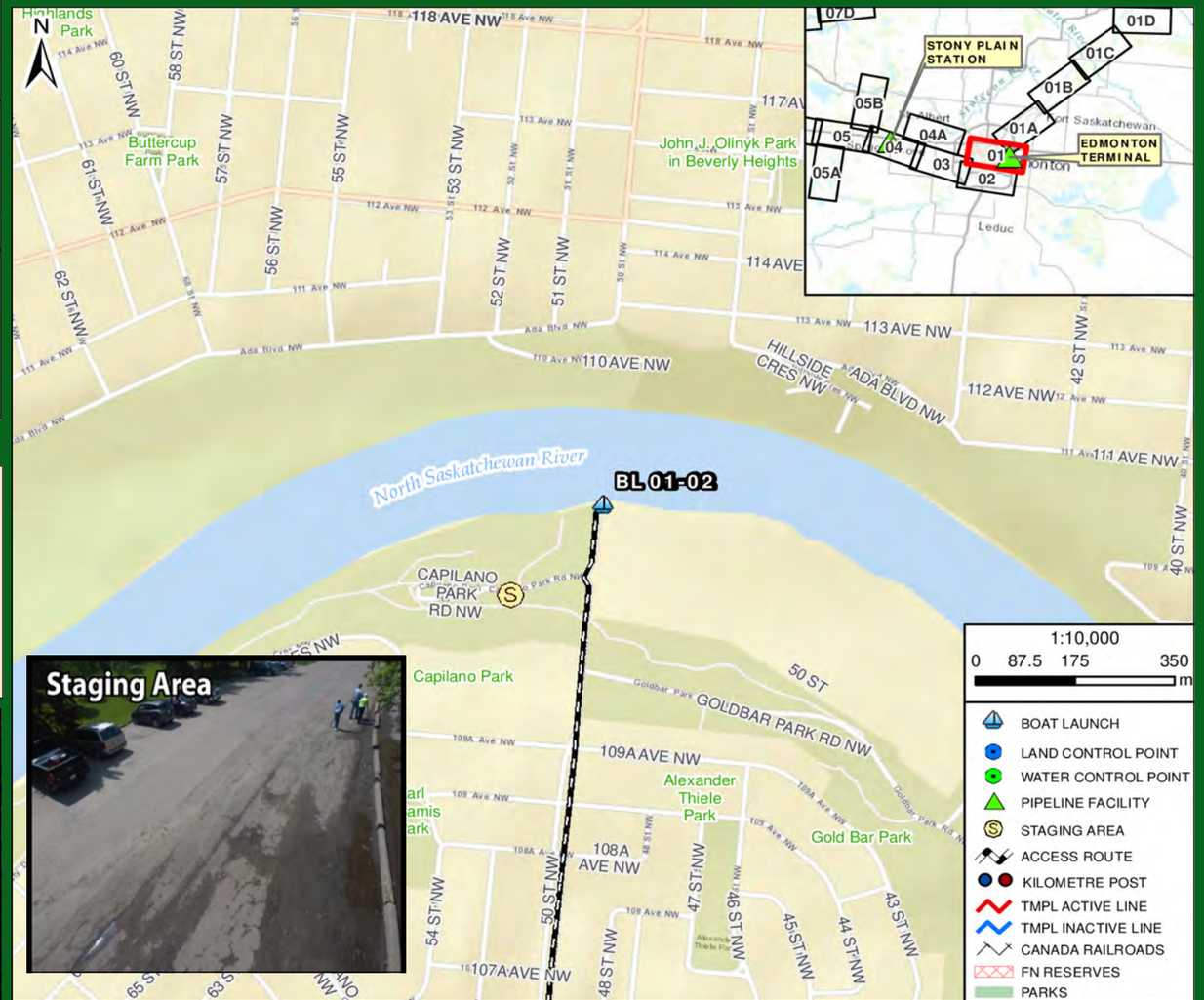
Road Access/Type:	- Access off of 50 Street. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located inside of Capilano Park. - The staging area is located in a parking lot on the right descending bank upstream of the control point. - 10 m x 50 m area. - All weather access is established.	
	Lat: 53.56095	Long: -113.42048
Site Comments:	- Gated access to the boat launch. - The boat launch is located within Capilano Park. - The boat launch is located downstream of the Capilano walking bridge. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required. - Security recommended.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, install a boat decontamination area for any vessels leaving the waterway.
- - All vessels should be free of contaminants before they leave site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Capilano Park, public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 9.5 km
- Take the Wayne Gretzky Dr exit and keep right to continue onto Wayne Gretzky Dr NW S for 3.1 km
- After crossing the Capilano Bridge, take the 106 Avenue exit
- Turn left onto 106 Ave NW (signs for 106 Avenue E) and continue straight for 1.5 km
- Turn left onto 50 St NW for 1.3 km to the end of the road ending in Capilano Park
- Destination is riverbank of North Saskatchewan River
- Total Distance = 92.9 km - Total Travel Time = 86 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-26

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.522520	
	Long: -113.394330	
Elevation:	665 m	
Land and Resource Use:	City of Edmonton. Industrial Reserve Zone.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** N/A	**Downstream** CP 01-02
Nearest KM Post:	**Line 01** KP 3	

Waterbody Information:

Waterbody Name: Gold Bar Creek

Waterbody Type: Seasonal Drainage

WATER LEVEL:	Low	Medium	High
Width		4 m	
Depth		0.78 m	
Flow Velocity		2.5 km/hr	
FlowType		Confined along man-made ditch, low velocity riffle and run structure	

Waterbody description:

Containment located downstream of 34 St., flowing into concrete culvert, continuing downstream of culvert along ditchline. There is an overflow culvert on LDB for when lower culvert becomes overwhelmed during high water or plugged, indicated by fine sediment and woody debris deposits up to 1 m above lower culvert. Susceptible to rapid fluctuations during heavy rainfall events with low or intermittent flow during winter.

Shoreline Information

Bank Height:
0.8 to 1.2 m

Shoreline Composition and Slope:
Banks are variable, steep to vertical with sloping 2 to 3 m high approaches of vegetated boulder riprap transitionging to paved road on RDB and gravel access road on LDB.

Shoreline Vegetation:
Abundant grasses (predominantly bluejoint); sparse sedges and many-flowered yarrow, isolated occurrences of wild rose, wild black current, poplar and Manitoba maple saplings; vetch spp., dock, mixed weeds (e.g., common knapweed spp., burdock).

Channel / Bank Forms:
Bed and banks composed predominantly of mixed fine sediments and boulder riprap.

Shoreline Comments:
CP located along ditchline between busy industrial road and stormwater treatment complex on City of Edmonton Industrial Reserve Land. Slip/trip/fall hazard from loose boulder riprap, muddy banks and coir boulder riprap. Mixed weeds present, including common tansy, burdock, knapweed spp.

Logistical Information:

Staging Area Location:	- The staging area can be located on the left descending bank upstream of the control point. - 20 m x 30 m area. - All weather access is established.	
	Lat: 53.5219	Long: -113.39443
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - All weather access is established.	
Site Restrictions:	- Access to control point can be gained inside of the City of Edmonton Industrial Reserve Zone. - Gated access. - Atco Pipelines underground facilities adjacent to the control point.	
Road Access/Type:	- Access off of 34 Street NW. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

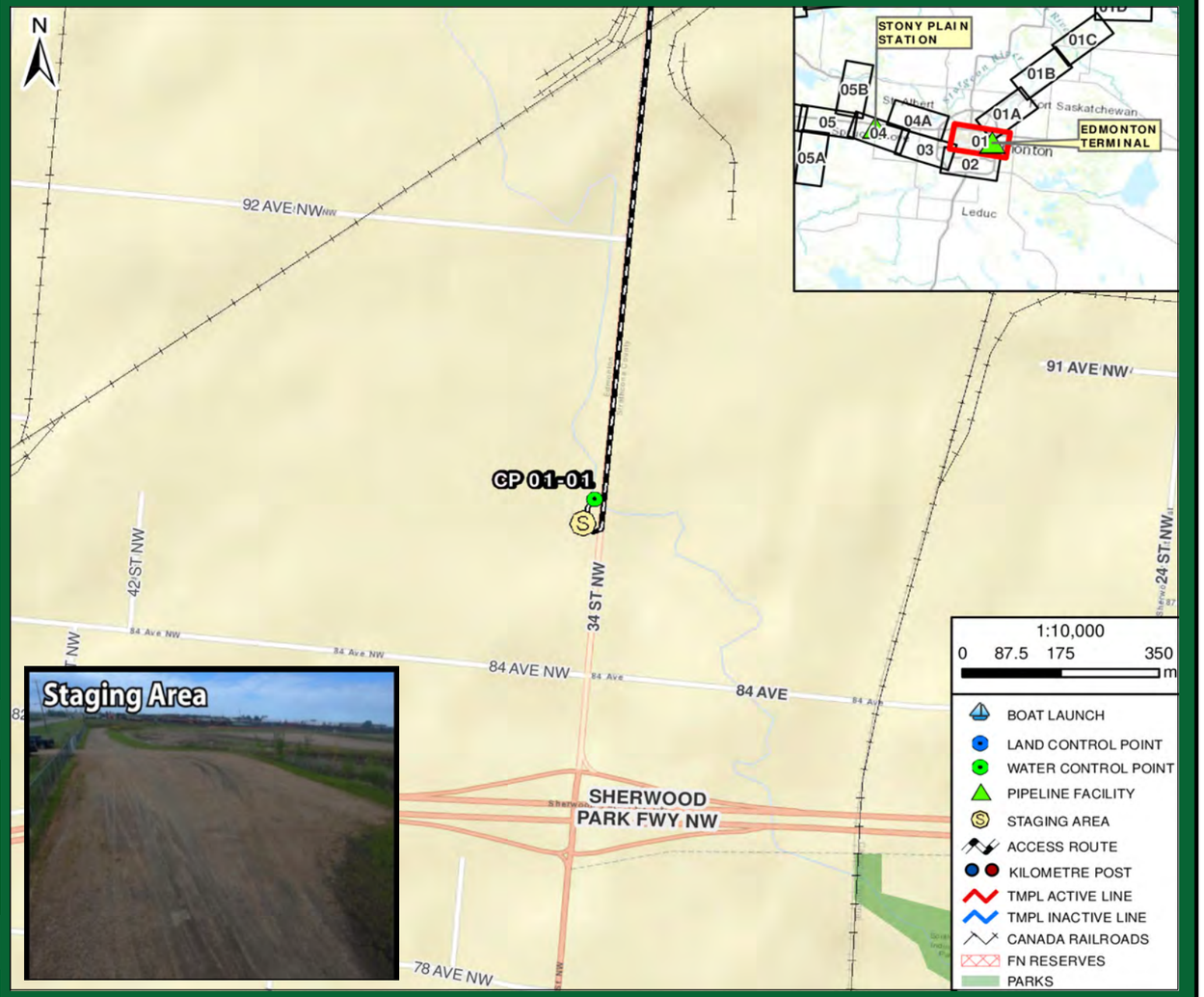
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; low fish habitat potential due to seasonal flow regime and potential upstream and downstream barriers to migration.
- Located in an industrial area within the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 9.5 km
- Take the Wayne Gretzky Dr exit and keep right to continue onto Wayne Gretzky Dr NW S for 3.1 km
- After crossing the Capilano Bridge, take the 106 Avenue exit
- Turn left onto 106 Ave NW (signs for 106 Avenue E) and continue straight for 1.5 km
- Turn right onto 50 St NW for 1.1 km, then turn left onto 101 Ave NW East for 1.6 km then turn right onto 34 St for 2.1 km
- Destination is creek culvert alongside road opposite 9101 34 Street (access thru gates)
- Total Distance = 96.6 km - Total Travel Time = 89 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-26
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-01



Implementation Strategy:

- Using a 4' x 8' sheet of plywood create a board weir spanning the watercourse blocking surface water flow through the concrete culvert.
- Create a watertight seal with tarps and/or securing the plywood with posts or sandbags.
- The depth of the board weir should allow movement of the sub-surface water that has collected behind the plywood.
- Pooled surface water behind the plywood should remain stagnant.
- Recover product using a Drum skimmer, 100' rigid suction hose directly to a vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 5 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	4' x 8' Sheet of Plywood
1	Safety Watch	1	Power Pack / Hydraulic Line
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., brook stickleback, fathead minnow)
- Deer, coyote, red fox, black bear
- Small mammals (e.g.,vole spp., skunk, cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Waterbirds (e.g., mallard)
- Raptors spp. (e.g., kestrel, Cooper's hawk, northern harrier, bald eagle)
- Urban birds (e.g., crow, raven, pigeon, dove, starling, magpie)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-09

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.542560	
	Long: -113.403720	
Elevation:	650 m	
Land and Resource Use:	City of Edmonton. Gold Stick Park.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01-01	**Downstream** CP 01-03
Nearest KM Post:	**Line 01** KP 1	

Waterbody Information:

Waterbody Name: Gold Bar Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		5 m	
Depth		0.3 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently confined low velocity run and riffle structure	

Waterbody description:

Frequently confined low velocity run and riffle structure. Upstream the watercourse flows through a culvert under baseline road. Creek is shallow (0.3 m) at collection with low turbidity. There are exposed roots along high undercut bank downstream; both banks are undercut downstream of the collection area. Bank characteristics indicate typical high water up to 1 m above water levels at time of survey.

Shoreline Information

Bank Height:
1 to 2 m

Shoreline Composition and Slope:
Gradually sloping to undercut banks on RDB; moderately steep riprap with undercut banks on LDB. Riprap covers both banks and most of streambed upstream of collection.

Shoreline Vegetation:
Young willow and open tall grasses followed by young mixedwood forest along RDB backshore; young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, raspberry); mixed grasses, thistle.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with mixed cobbles. Partially submerged boulders along LDB. Upstream riprap covers most of the bed and banks.

Shoreline Comments:
Collection accessed down gradually sloped well vegetated shoreline, becoming undercut bank, from a footpath running parallel to the watercourse at collection. The footpath can be accessed by vehicle upstream of collection from a moderately sloped low grade access road from the west side of the watercourse. A footbridge separates the access road from the path.

Logistical Information:

Staging Area Location:	- The staging area can be located in Gold Stick Park along the access road. - 20 m x 100 m area. - Matting required to establish all weather access.	
	Lat: 53.54161	Long: -113.40558
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is down a hiking / walking path 180 m. - Control point security recommended in Gold Stick Park. Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Low impact recovery recommended. - Steep access to the control point from the staging area.	
Road Access/Type:	- Access off of Base Line Road through Gold Stick Park 180 m down a walking / biking trail. - Matting required to establish all weather access.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

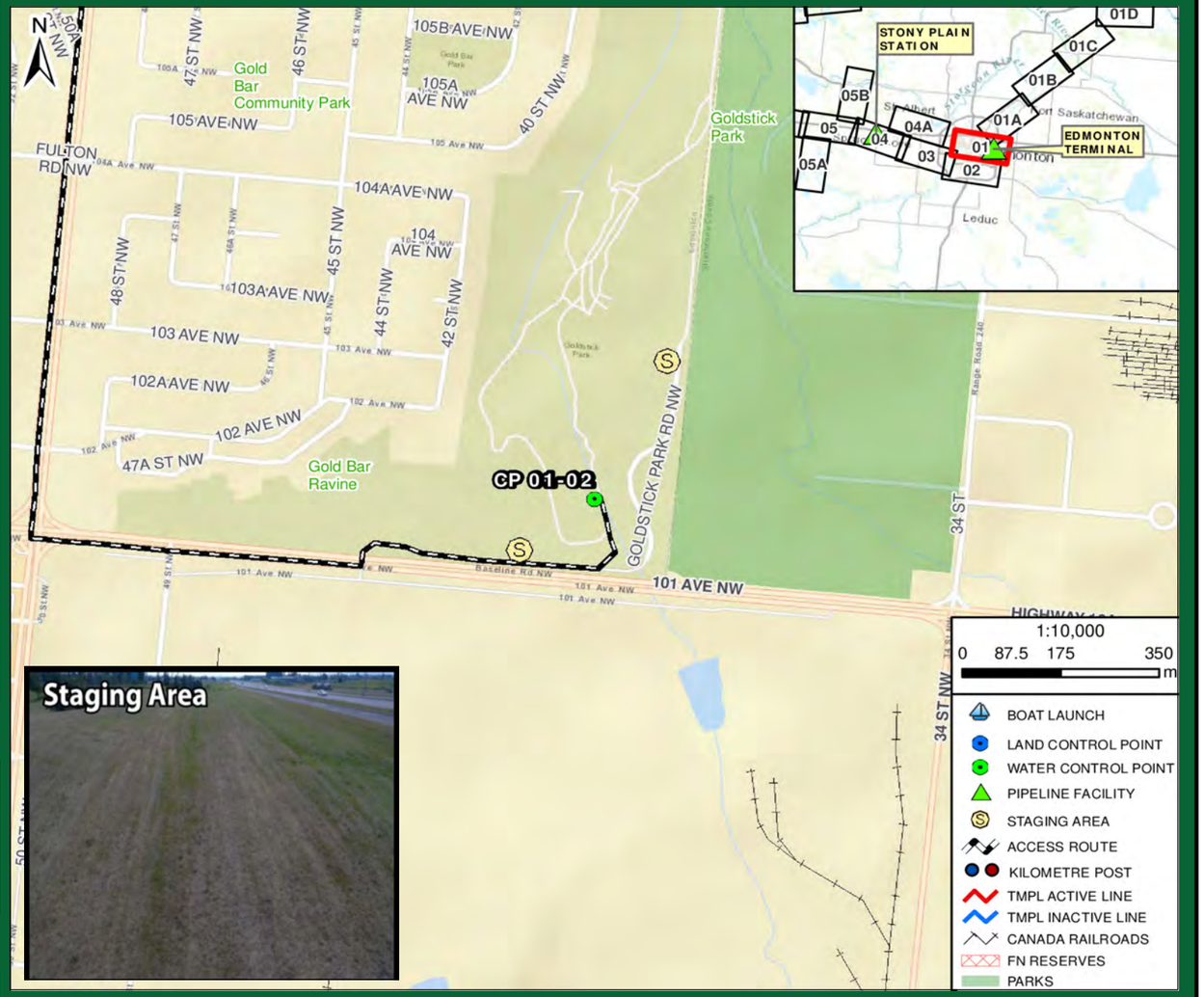
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; poor spawning habitat due to abundant fines and marginal current
- Mixedwood and aspen dominated forest habitat in along valley.
- Riparian nesting habitat.
- CP located adjacent to walking trail along RDB connecting to Goldstick Park.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around shoreline.
- Control point located in Gold Stick Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 9.5 km
- Take the Wayne Gretzky Dr exit and keep right to continue onto Wayne Gretzky Dr NW S for 3.1 km
- After crossing the Capilano Bridge, take the 106 Avenue exit
- Turn left onto 106 Ave NW (signs for 106 Avenue E) and continue straight for 1.5 km
- Turn right onto 50 St NW for 1.1 km, then turn left onto 101 Ave NW East for 600 m and turn left onto unnamed road and follow road through Goldstick Park
- Destination is creek culvert on unnamed watercourse crossing
- Total Distance = 93.9 km - Total Travel Time = 87 minutes calculated at 65 km/hr

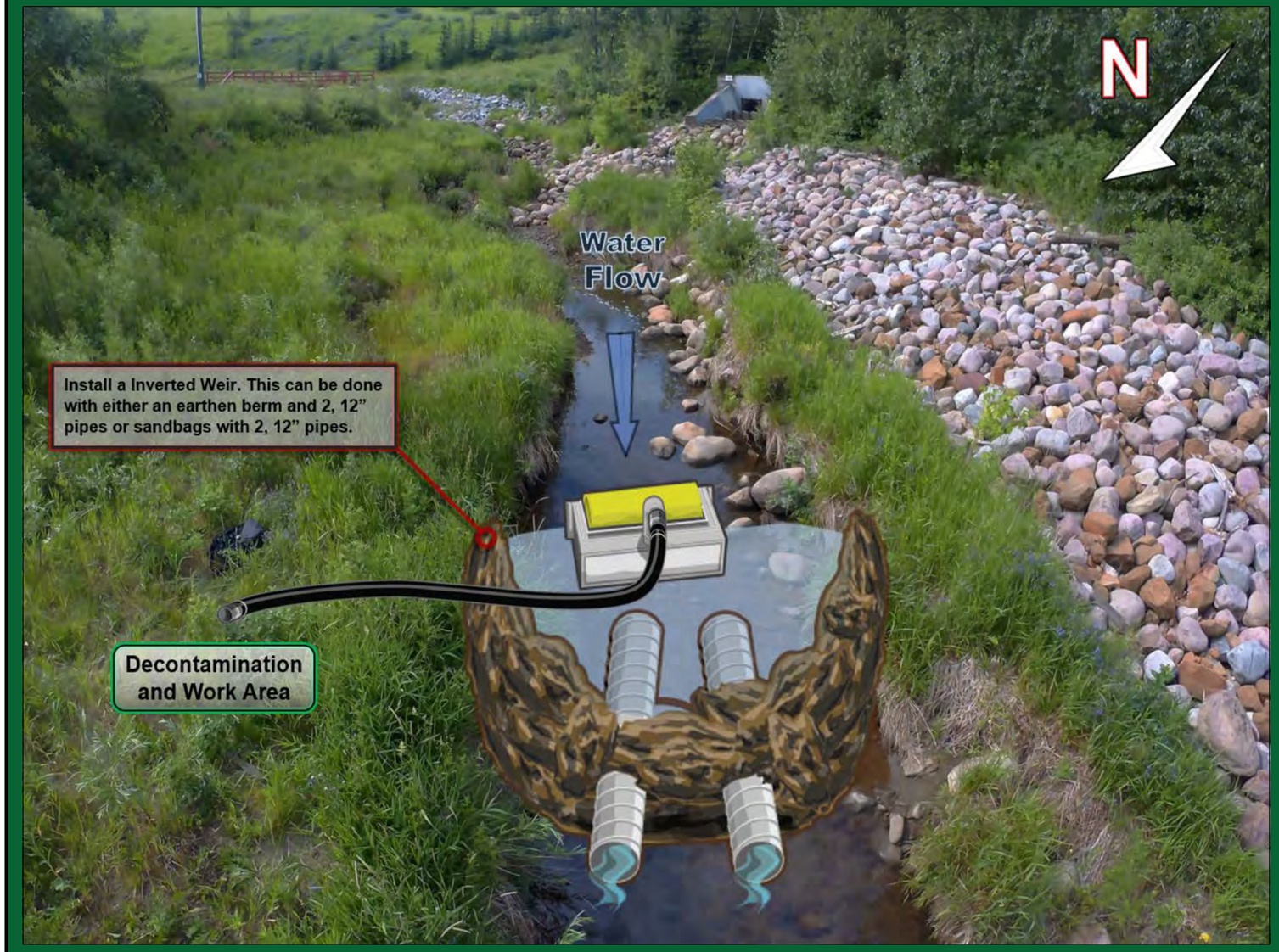
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-09
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	2	12" x 15' Culvert
1	Safety Watch	1	Trackhoe
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Low Impact Recovery Unit Operator	100'	Rigid Suction Hose
1	Site Security	5 Yards	Earthen Material or 60 Sandbags
1	Trackhoe Operator	1 / 50'	Power Pack / Hydraulic Line
		1	Low Impact Recovery Unit
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., brook stickleback, fathead minnow)
- Deer, coyote, red fox, black bear, cougar
- Small mammals (e.g.,vole spp., skunk, cottontail, porcupine)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Waterbirds (e.g., mallard), blue heron
- Raptors spp. (e.g., kestrel, sharp-shinned hawk, Cooper's hawk)
- Riparian and forest nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp., thrush spp., finch spp., vireo spp., chickadee spp.)
- Owl spp. (e.g., short-eared owl, saw-whet owl, long-eared owl)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (2) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 100' rigid suction hose directly to a low impact recovery unit.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 6 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-26

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.552840	
	Long: -113.401240	
Elevation:	610 m	
Land and Resource Use:	City of Edmonton. Gold Stick Park.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01-02	**Downstream** CP 01-04
Nearest KM Post:	**Line 01** KP 0	

Waterbody Information:

Waterbody Name: Gold Bar Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		6 m	
Depth		0.4 m	
Flow Velocity		3.5 km/hr	
FlowType		Frequently confined moderate velocity riffle and pool structure	

Waterbody description:

Frequently confined moderate velocity riffle and pool structure. Containment located along riffle section of ravine upstream of confluence with North Saskatchewan River. Downstream woody debris and small log jams; mature overhanging shrubs along RDB. Susceptible to low or intermittent flow during winter and rapidly fluctuating water levels during heavy rainfall events. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
0.5 to 0.9 m

Shoreline Composition and Slope:
Banks predominantly overhanging/vertical, well vegetated with grasses, moss and shrubs; low in some areas (0.2 m) of LDB allowing easy access instream access.

Shoreline Vegetation:
Saplings and young Manitoba maple, green ash, poplar, willow, red-osier dogwood, wild black current; grasses, vetch, Canada anemone.

Channel / Bank Forms:
Banks predominantly composed of organics underlain by fine sediments; bed composed of gravels, cobbles and boulders, with fines in lower current areas such as eddies and pools.

Shoreline Comments:
Banks well defined, relatively stable with level backshore area along LDB accessed via a well-maintained trail; very steep to vertical approaches along RDB up to 4 m high. Instream slips/trips/falls hazard from slippery boulders and woody debris.

Logistical Information:

Staging Area Location:	- The staging area can be located within Gold Stick Park in the parking lot. - 50 m x 60 m area. - All weather access is established.	
	Lat: 53.54497	Long: -113.40213
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is 800 m down a hiking / walking path. - The control point is located inside of Gold Stick Park, security recommended. Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Low impact recovery recommended.	
Road Access/Type:	- Access off of Base Line Road through Gold Stick Park 800 m down a walking / biking trail. - Matting required to establish all weather access.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; sufficient current and complexity, pockets of gravels/cobbles provide moderate spawning potential; migratory corridor to upstream spawning areas; pools, instream debris and overhead cover provide moderate rearing potential; poor overwintering potential due to low water levels.
- Ravine provides riparian/shrub nesting habitat.
- Recreational/nature trails; cross country ski trails.
- Located in Gold Bar Park.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around shoreline.
- Control point located in Gold Stick Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 16 km
- Take the exit toward 17 Street NW and keep left and follow signs for Anthony Henday Dr
- Keep right at the fork and merge onto AB-216 South for 2.2 km and Take the 101 Avenue W exit toward Edmonton for 1.9 km (past Edmonton Terminal)
- Merge onto Baseline Rd for 2.4 km then then continue onto 101 Ave NW W for 1.1 km
- Turn right and follow straight on road for 600 m towards Gold Bar Park
- Destination is riverbank of North Saskatchewan River, access through Goldstick Park
- Total Distance = 103 km - Total Travel Time = 95 minutes calculated at 65 km/hr

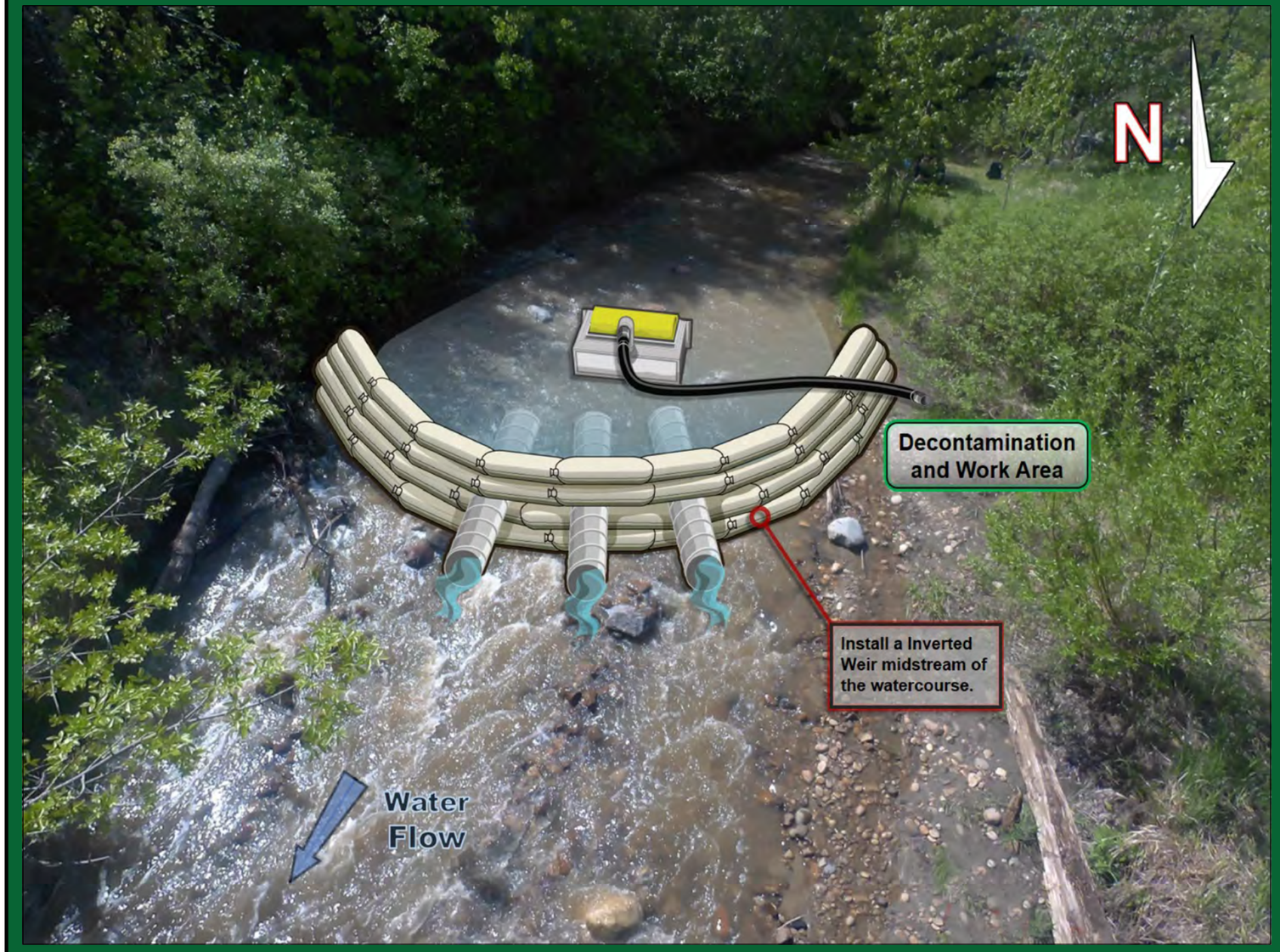
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-26
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	3'	24” x 15’ Culvert
1	Safety Watch	1	Trackhoe
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Low Impact Recovery Unit Operator	100'	Rigid Suction Hose
1	Site Security	30 Yards	Earthen Material or 200 Sandbags
1	Trackhoe Operator	1 / 50'	Power Pack / Hydraulic Line
		1	Low Impact Recovery Unit
11	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., brook stickleback, fathead minnow)
- Deer, coyote, red fox, black bear, cougar
- Small mammals (e.g.,vole spp., skunk, cottontail, porcupine)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Waterbirds (e.g., mallard)
- Raptors spp. (e.g., kestrel, sharp-shinned hawk, Cooper's hawk)
- Riparian and forest nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp., thrush spp., finch spp., vireo spp., chickadee spp.)
- Owl spp. (e.g., short-eared owl, saw-whet owl)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (3) 24" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 100' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 7 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-26

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.560340	
	Long: -113.381245	
Elevation:	610 m	
Land and Resource Use:	City of Edmonton. Rundle Park.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01-09	**Downstream** CP 01A-01
Nearest KM Post:	**Line 01** KP 0	

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		32 m	
Depth		Unknown	
Flow Velocity		3.7 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with relatively even current across channel width. Medium-high water levels at time of survey, with banks exposed 1-2 m above water level. Be aware of frequent shallow and exposed sediment bars during low water. CP located along LDB 30 m across from small, willow dominated island. High turbidity at time of survey, with frequent floating logs and woody debris observed.

Shoreline Information

Bank Height:
2.5 to 3 m

Shoreline Composition and Slope:
Muddy, submerged (0.8 m) foreshore area to steep to vertical/overhanging banks; stable but prone to undercutting and erosion during high water; with level work area along trail

Shoreline Vegetation:
Dense riparian corridor of mixed deciduous trees and shrubs (e.g., poplar, Manitoba maple, birch, willow, red-osier dogwood, wild rose), mixed grasses, horsetail, herbaceous vegetation (e.g., clover, vetch, false solomon's seal, willowherb, northern bedstraw).

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments; pockets of gravels and cobbles on riverbed along areas of swifter current.

Shoreline Comments:
Collection area located along muddy foreshore area along steep 2 m bank, accessed via a well-maintained recreation gravel trail along riparian shoreline. Slips/trips/falls hazard along vertical/overhanging banks with slipper muddy foreshores.

Logistical Information:

Staging Area Location:	- A staging area to be located within Rundle Park. - The staging area is located in a parking lot on the left descending bank. - 35 m x 65 m area. - All weather access is established.	
	Lat: 53.561117	Long: -113.382844
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is through Rundle Park. - Recreational boat traffic in the control point area. - Walking / biking trail adjacent to control point. - Site security required. - Steep access to control point.	
Road Access/Type:	- Access off of Victoria Trail through Rundle park. - From the staging area to the control point is 75 m down a walking / biking trail. - Matting required for all weather access.	
Boat Access:	- Main boat access from BL 01-02. - Refer to BL 01-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 01-01. - Refer to BL 01-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

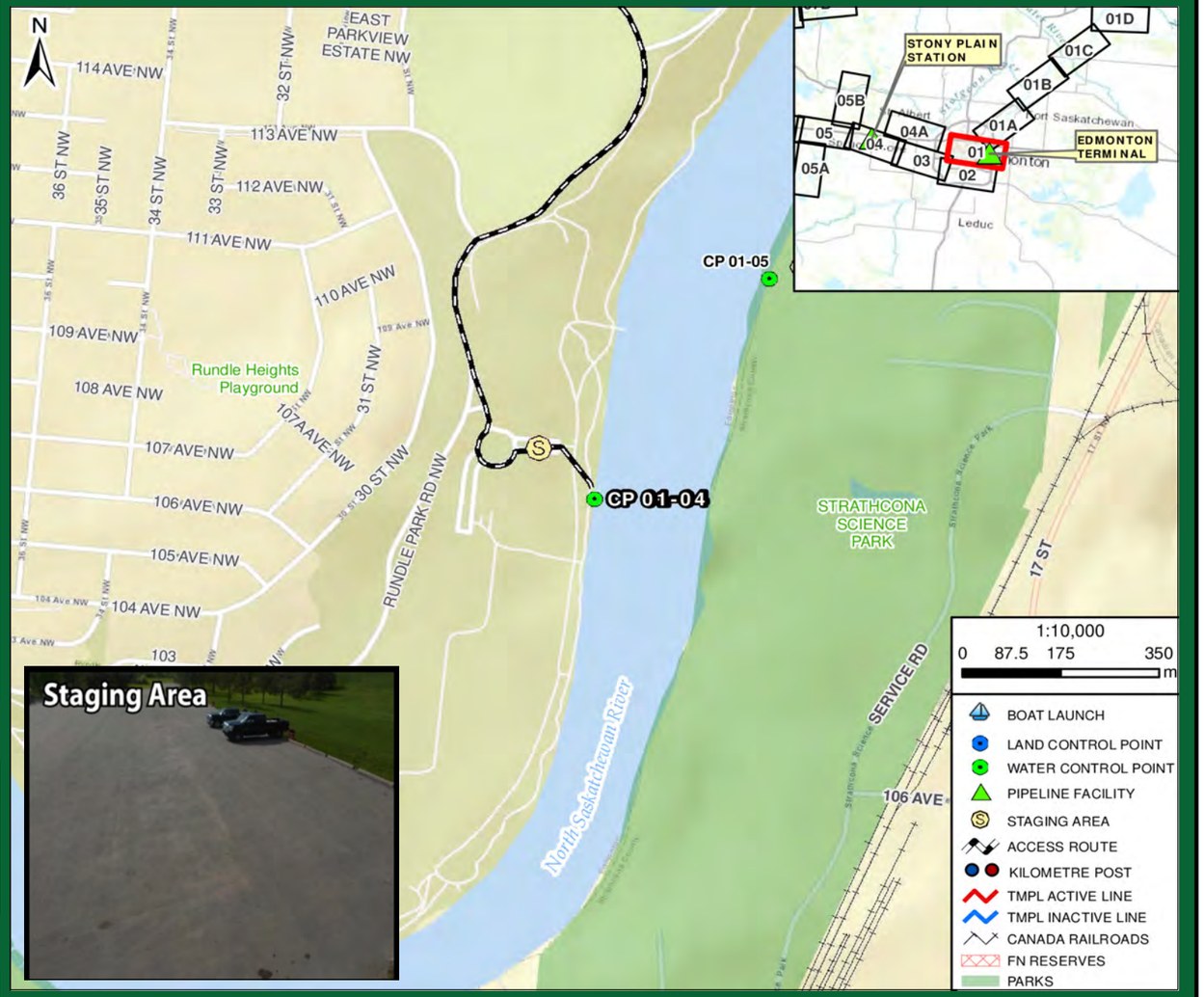
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat for numerous fish species.
- Shorebird and waterbird nesting habitat along sandy willow dominated islands near LDB and along RDB.
- Riparian nesting habitat along riparian margins.
- CP located in Rundle Park, with a frequently used recreational trail along LDB.
- Frequent boating and fishing.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Rundle Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

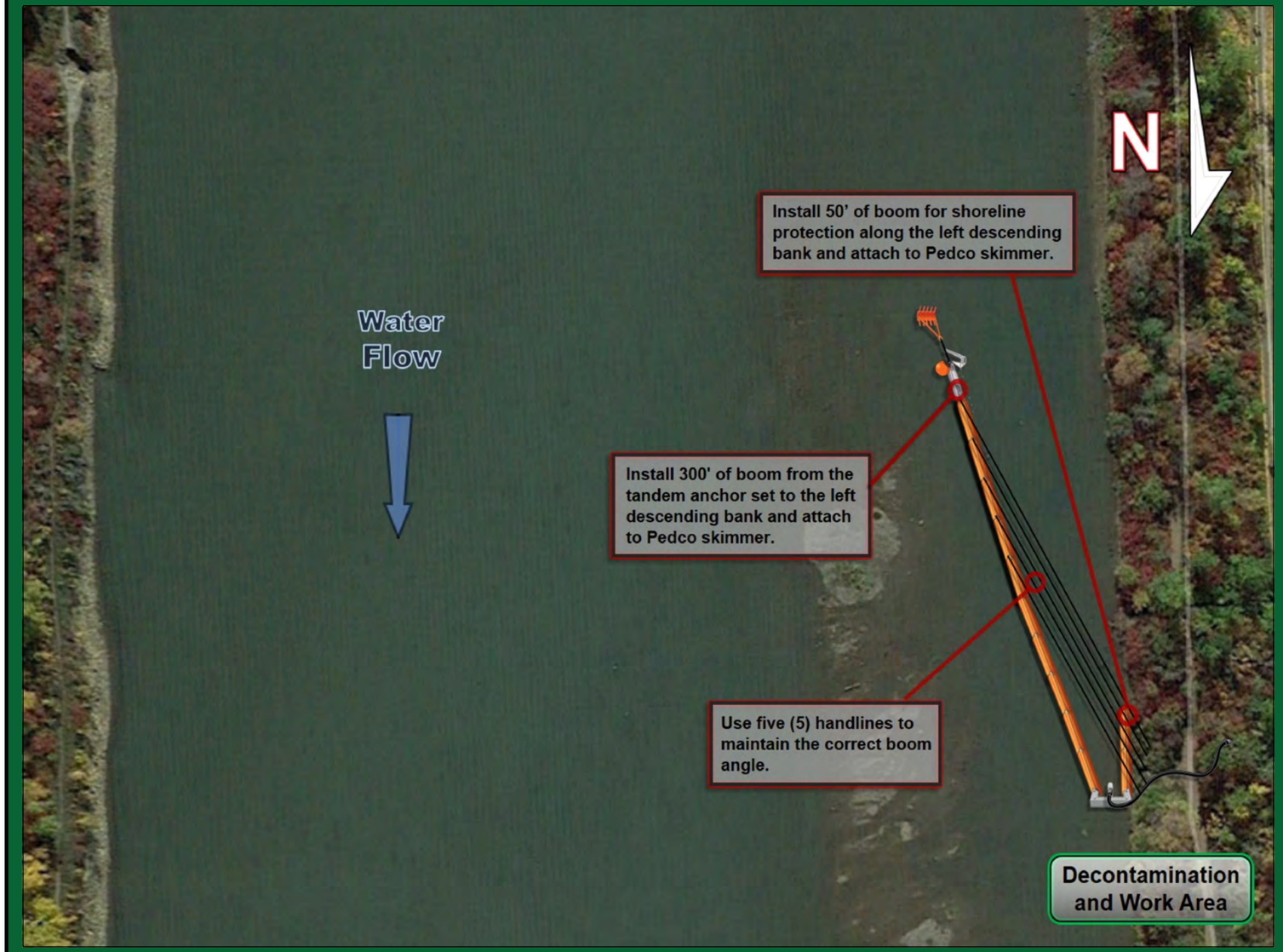
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 16 km
- Take exit 397 toward Victoria Trail towards Parks Area
- Keep right and follow signs for 118 Ave W and merge onto Victoria Trail NW S
- Take left onto Abbottsfield Rd NW and follow path into Strathcona Science Park until roundabout parking
- Destination is riverbank of North Saskatchewan River
- Total Distance = 93.6 km
- Total Travel Time = 86 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-26
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	450'	6" x 6" Hard Containment Boom
1	Safety Watch	14	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	10	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
14	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in the middle of the river.
- Install 300' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to shoreline.
- Install (5) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 40 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike),
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., Swainson's thrush)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.),
- Raptors (e.g., osprey, golden eagle),
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs).

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-26

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-05

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.564270	
	Long: -113.377130	
Elevation:	610 m	
Land and Resource Use:	City of Edmonton. Strathcona Science Park.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01-09	**Downstream** CP 01A-01
Nearest KM Post:	**Line 01** KP 0	

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		215 m	
Depth		Unknown	
Flow Velocity		3.7 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with relatively even current across channel width. Medium-high water levels at time of survey, with banks exposed 1-2 m above water level. Be aware of frequent shallow and exposed sediment bars during low water. There are two small willow dominated islands closer to LDB. High turbidity at time of survey, with frequent floating logs and woody debris observed.

Shoreline Information

Bank Height:
Up to 4 m along LDB; 1.8 to 3 m along RDB

Shoreline Composition and Slope:
Muddy, submerged (0.6 m) foreshore area to steep to vertical/overhanging banks; stable but prone to undercutting and erosion during high water; with level work area along trail

Shoreline Vegetation:
Dense riparian corridor of mixed deciduous trees and shrubs (e.g., poplar, Manitoba maple, birch, willow, red-osier dogwood, wild rose), mixed grasses, horsetail, herbaceous vegetation (e.g., clover, vetch, false solomon's seal, willowherb, northern bedstraw)

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments; potential gravels and cobbles on riverbed along areas of swifter current.

Shoreline Comments:
Collection area located along muddy foreshore area with embedded wooden steps down steep 2 m bank, accessed via a wide, well-maintained recreation trail which also serves as access road to the stormwater outfall located 20 m upstream of collection area. Pedestrian bridge with concrete abutments along upstream extent of containment. Slips/trips/falls hazard along vertical/overhanging banks with slipper muddy foreshores.

Logistical Information:

Staging Area Location:	- A staging area can be located in the Strathcona Science Park. - The staging area is to be located in the parking lot of Sunridge Ski Hill maintenance shop on the right descending bank. - 15 m x 20 m area. - All weather access is established.	
	Lat: 53.56453	Long: -113.37624
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is from Strathcona Science Park. - Recreational boat traffic in control point area. - Walking / biking trail adjacent to control point. Site security required. - Steep access to control point.	
Road Access/Type:	- Access off of 17 St through Strathcona Science Park. - From the staging area to the control point is 70 m down a walking / biking trail. - Matting required for all weather access.	
Boat Access:	- Main boat access from BL 01-02. - Refer to BL 01-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 01-01. - Refer to BL 01-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

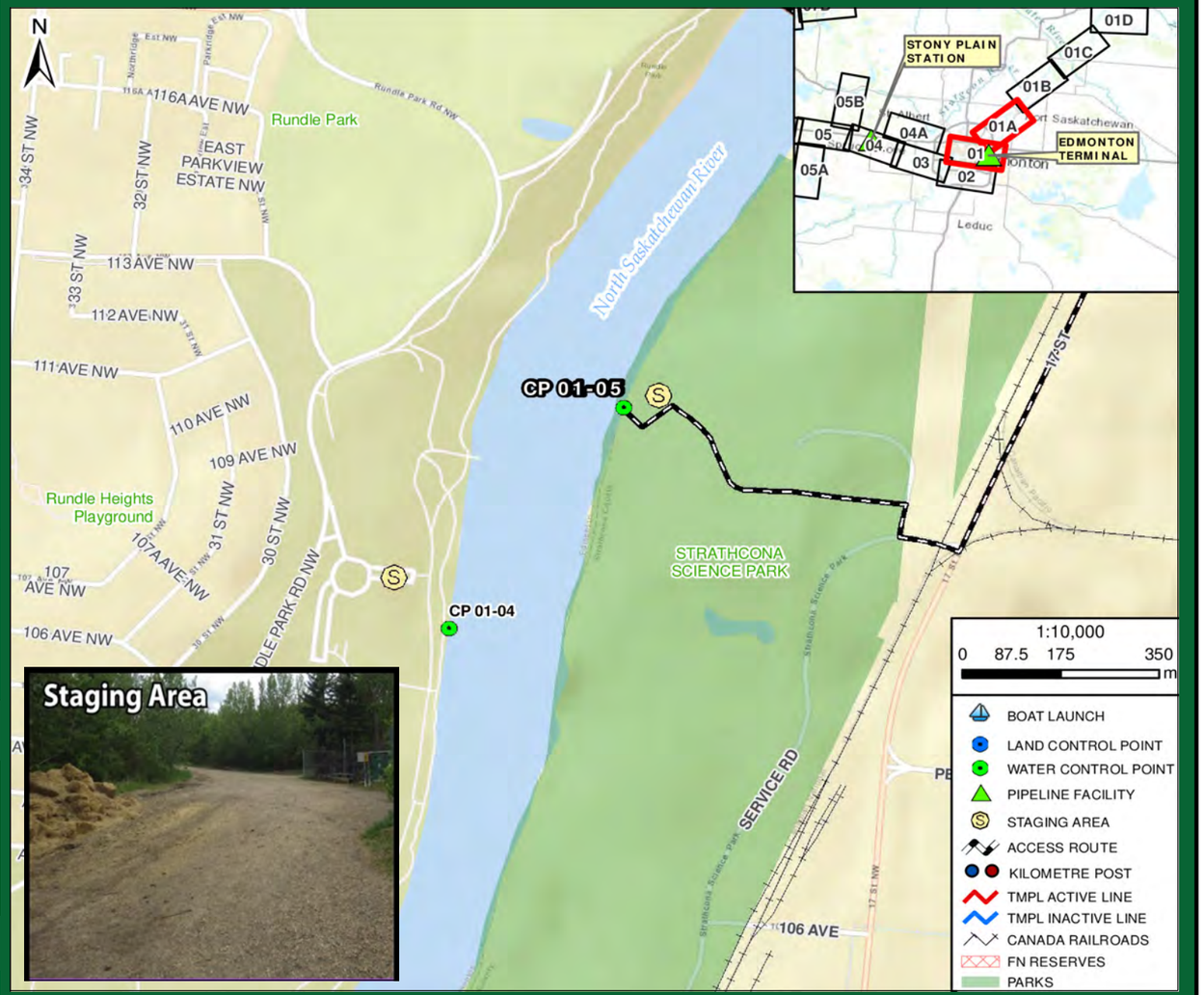
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat for numerous fish species.
- Riparian nesting habitat, shorebird nesting habitat, waterbird nesting habitat along sandy willow dominated islands near LDB and shoreline. Riparian nesing habitat along RDB.
- CP located in Strathcona Science Park.
- CP upstream of Sunridge Ski Hill.
- There is a frequently used recreational trail along RDB.
- Frequent boating and fishing.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Strathcona Science Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

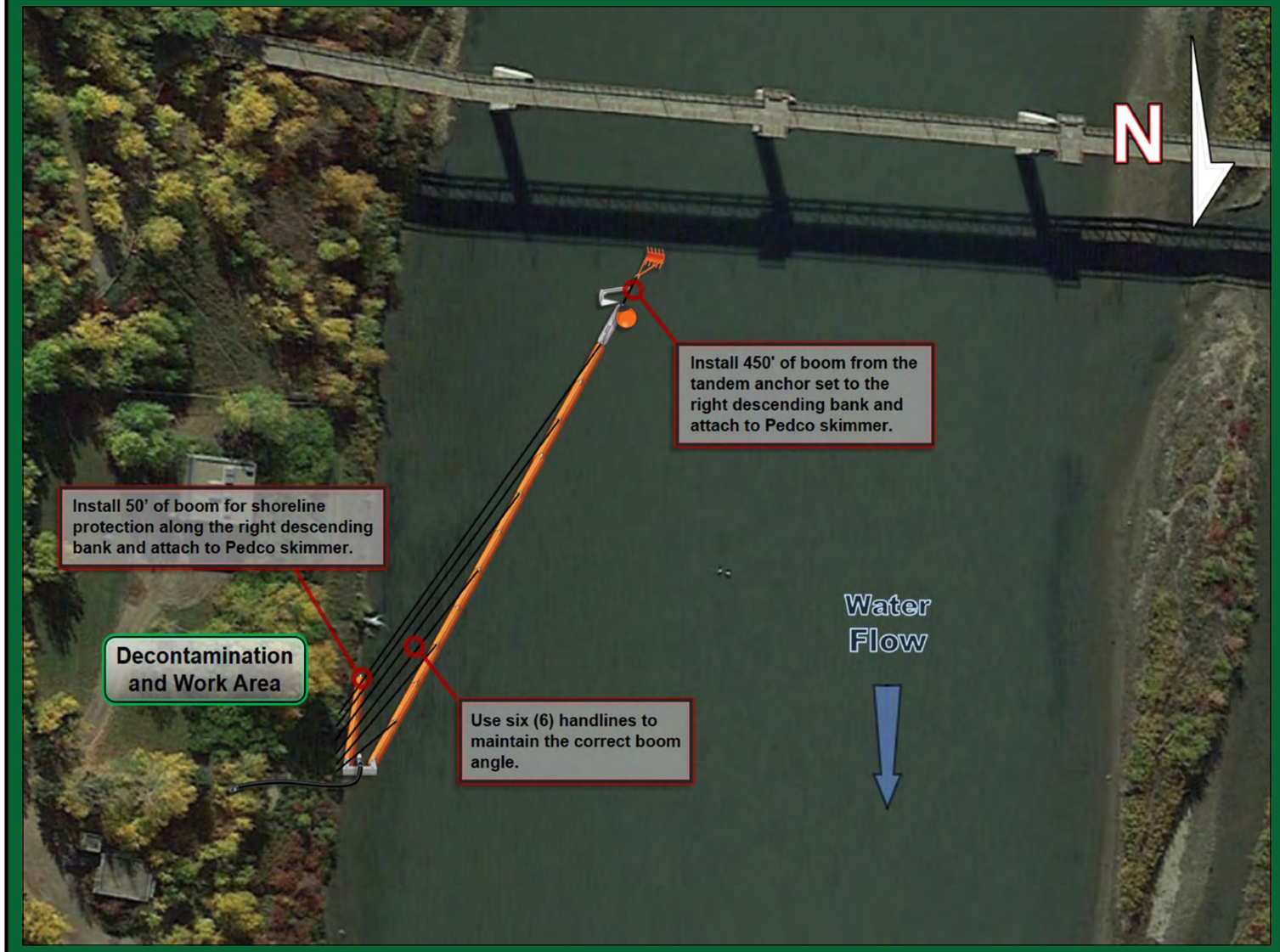
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 16 km
- Take the exit toward 17 Street NW
- Keep right to continue on Exit 216, follow signs for 17 St NW/Anthony Henday Dr
- Take 116 and 17 St thru the Strathcona Science Provincial Park via foot
- Destination is riverbank of North Saskatchewan River
- Total Distance = 96.5 km
- Total Travel Time = 89 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-26
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-05



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 450' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the right descending bank to maintain the correct boom angle.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 240 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike),
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., Swainson's thrush)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.),
- Raptors (e.g., osprey, golden eagle),
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs), blue heron

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-26

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-06

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.505720
	Long:	-113.409600
Elevation:	683 m	
Land and Resource Use:	City of Edmonton. Commercial.	
Upstream Valves:	**Line 01:**	MOD
Downstream Valves:	**Line 01:**	K19
Control Point:	**Upstream** N/A	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 6	

Waterbody Information:

Waterbody Name: Fulton Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		3 m	
Depth		1.1 m	
Flow Velocity		2.6 km/hr	
FlowType		Low-moderate velocity run and pool structure	

Waterbody description:

Low-moderate velocity run and pool structure. Watercourse flows along a grass dominated lot in an industrial area before flowing into a 1 m wide culvert under 69th Ave. Susceptible to low or intermittent flow during winter and rapidly fluctuating water levels during heavy rainfall events. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1.2 m

Shoreline Composition and Slope:
Banks are variable, steep to overhanging/vertical with level grassy backshore area along LDB abutting 69th Ave; dense grasses on uneven terrain and mounds along RDB.

Shoreline Vegetation:
Abundant grasses (predominantly bluejoint, some mannagrass); isolated occurrences of dogbane, willow seedlings, Canada thistle; patches of stinkweed, vetch spp., dandelion, clover

Channel / Bank Forms:
Banks composed predominantly of organics (e.g., sod) underlain by fines. Bed composed of fine sediment.

Shoreline Comments:
CP located on open, grassland lot in industrial area; possibly a reclaimed industrial site. Banks appear stable but are variable and poorly defined in areas, and prone to erosion and undercutting during high water events. Use caution when accessing CP as it is adjacent to a busy industrial road.

Logistical Information:

Staging Area Location:	- The staging area can be located on the left descending bank upstream of the control point. - 20 m x 40 m area. - Matting required for all weather access.	
	Lat: 53.50527	Long: -113.40991
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - All weather access is established.	
Site Restrictions:	- Steep cut banks along watercourse. - Fire hydrant along access to control point.	
Road Access/Type:	- Access off of 48a Avenue. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located on a vacant lot. Mounds of soil on the vacant lot may be used for inverted weir installation.	

Decontamination Area:

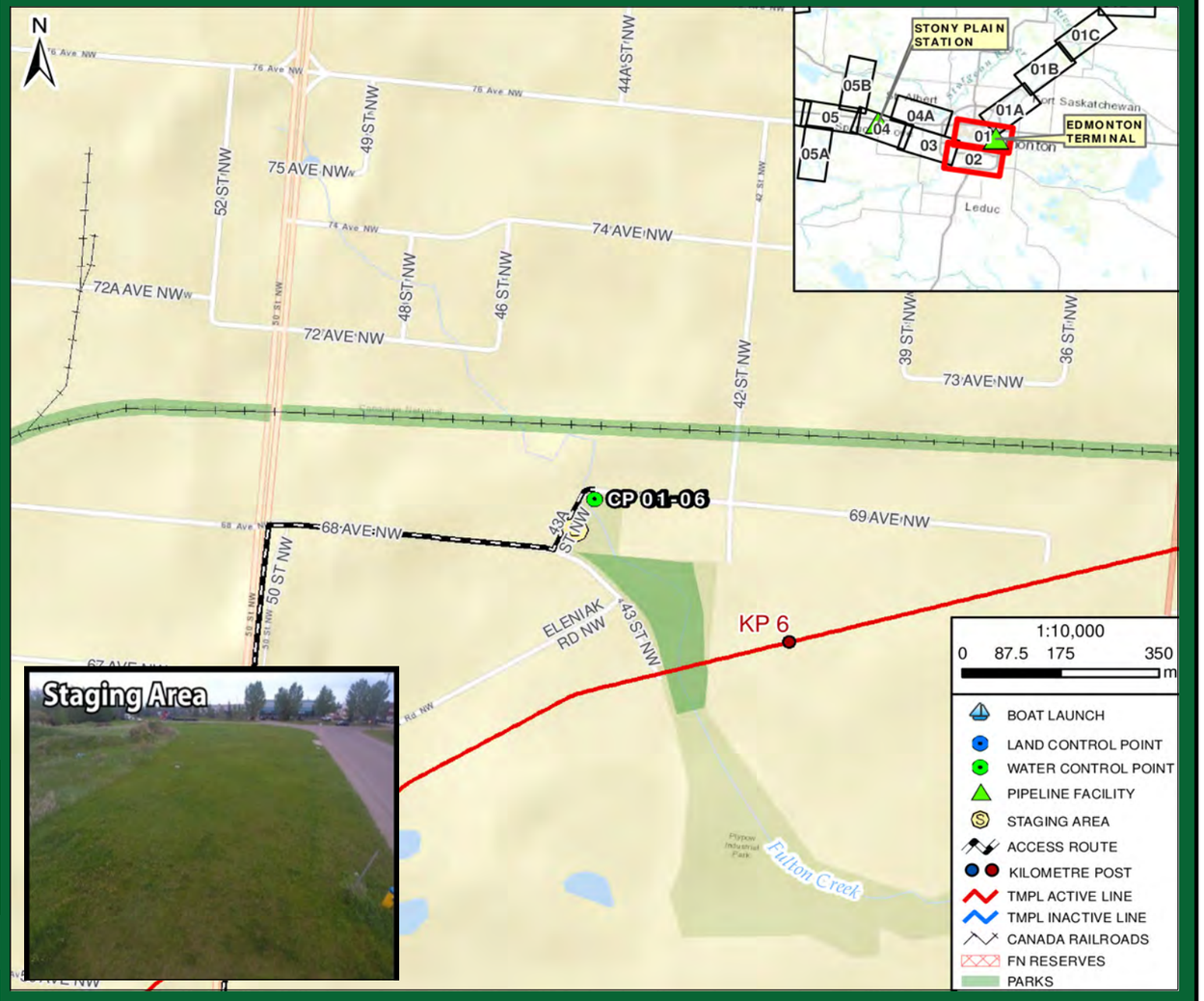
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; fine substrate, lack of channel complexity and riparian structure, and seasonal flow regime provide poor fish habitat potential.
- Waterbird nesting habitat (nesting blue-winged teal observed).
- Dense grasses along shoreline and backshore provide potential grassland nesting habitat (e.g., horned lark, Savanna sparrow).
- Located in an industrial area within the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around shoreline.
- Access from 48a Avenue, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 S / Anthony Henday Drive S and merge onto AB-216 S for 7.5 km
- Take the Whitemud Drive E exit and continue onto AB-2 S for 9 km
- Keep right to stay on AB-2 S for 5.4 km and Continue onto AB-14 for 5.2 km
- Take the 50 Street exit, keeping left, and turning left onto 50 St NW for 2 km
- Turn right onto 68 Ave NW for 500 m then turn left onto 43a St NW towards the bend for 120 m
- Destination is beside the road at Fulton Creek Culvert
- Total Distance = 101.6 km - Total Travel Time = 94 minutes calculated at 65 km/hr

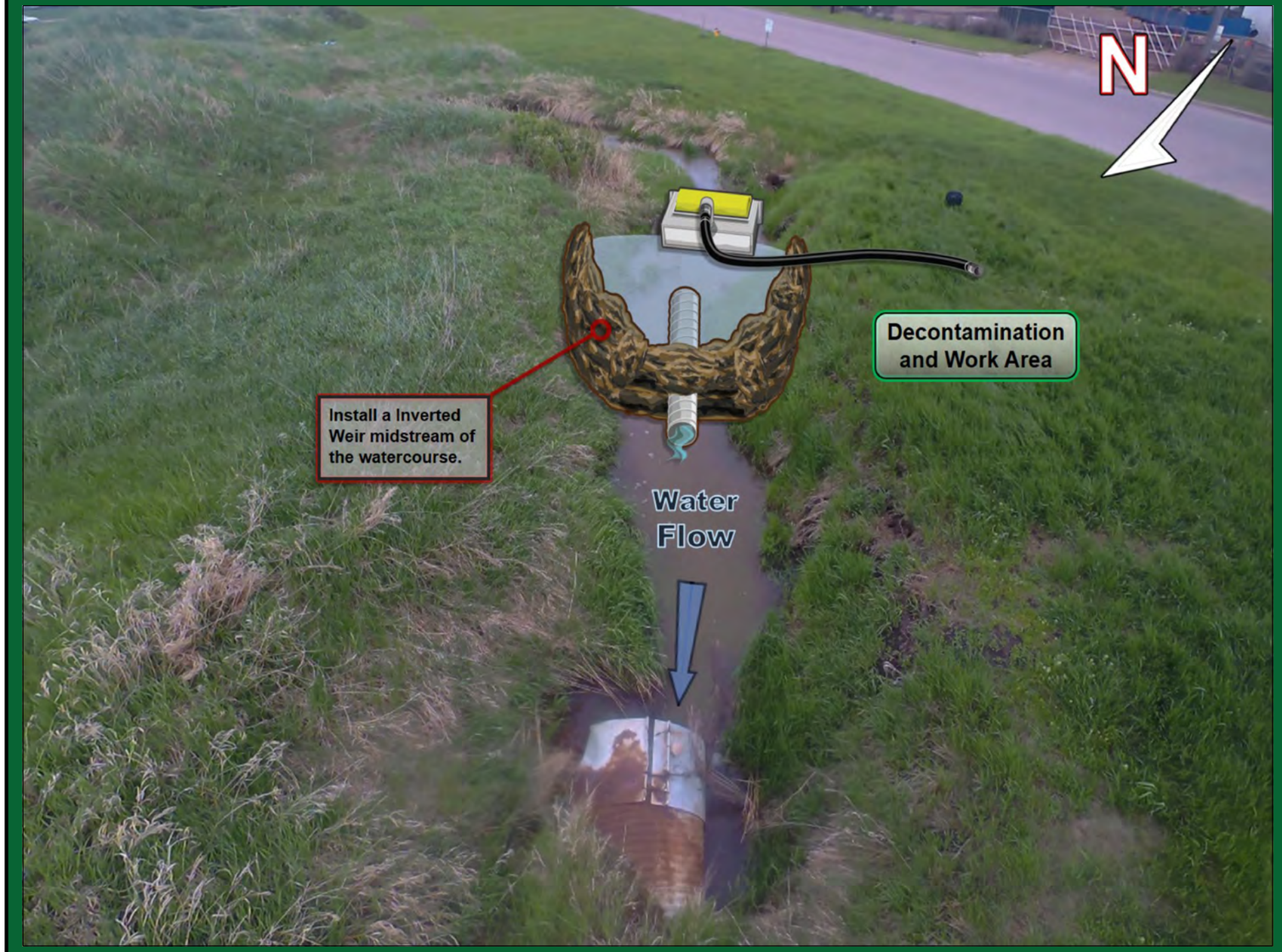
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-26
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-06



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	12” x 15’ Culvert
1	Safety Watch	1	Trackhoe
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	5 Yards	Earthen Material or 80 Sandbags
1	Trackhoe Operator	1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., brook stickleback, fathead minnow)
- Deer, coyote, red fox
- Small mammals (e.g.,vole spp., skunk, cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Waterbirds (e.g., mallard, blue-winged teal), blue heron
- Raptors spp. (e.g., kestrel, Cooper’s hawk, northern harrier, bald eagle)
- Urban birds (e.g., crow, raven, pigeon, dove, starling, magpie)
- Grassland birds (e.g., horned lark, Savannah sparrow)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (1) 12" x 15' culvert at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 100' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 3 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-25

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-07

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.514690	
	Long:	-113.472680	
Elevation:	654 m		
Land and Resource Use:	Mill Creek Ravine. City of Edmonton.		
Upstream Valves:	**Line 01:**	MOD	
Downstream Valves:	**Line 01:**	K19	
Control Point:	**Upstream** CP 02-01		**Downstream** CP 01-08
Nearest KM Post:	**Line 01** KP 8		

Waterbody Information:

Waterbody Name: Mill Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		Unknown	
Flow Velocity		5.0 km/hr	
FlowType		Occasional confined moderate-high velocity riffle and pool structure	

Waterbody description:

Creek flows along forested ravine, becoming subsurface 100 m downstream into cement drainage structure. Frequent stranded logs and woody debris along; overhanging trees; log jam 40 m downstream. Bare muddy backshores with elevated side channels up to 1 m above water level, presence of large stranded woody debris and active hillside erosion downstream indicate susceptible to flashy runoff events exceeding bankfull height.

Shoreline Information

Bank Height:
0.7 to 1.1 m

Shoreline Composition and Slope:
Banks range from steep to vertical/overhanging, often loose easily eroded sediment with bare, uneven muddy backshores with open understory; steep along ravine approaches.

Shoreline Vegetation:
Bare understory with young to mature poplar, Manitoba maple, willow and occasional grasses, dandelions.

Channel / Bank Forms:
Banks composed predominantly of fine sediments; bed composed of gravels and cobbles along riffle sections, fines in pools and areas of lower current.

Shoreline Comments:
Variable, steep to vertical/undercut banks transition to uneven, bare backshores along forested ravine. There is a frequently used recreational/dog walking trail along backshore LDB. Slips/trips/falls hazards along muddy, steep/vertical banks and muddy uneven backshores.

Logistical Information:

Staging Area Location:	- A staging area can be located at The Shamrock Curling Club. - 80 m x 45 m area. - All weather access is established.	
	Lat: 53.51566	Long: -113.47206
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to the control point is down a service road maintained by the city of Edmonton. - Gated access to service road. - The control point is in Mill Creek Ravine, security is recommended.	
Road Access/Type:	- Access from 80th Ave, 220 m down a city of Edmonton service road to control point. - Matting is required for all weather access. - Minor road preparation required (brushing).	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - Concrete screened debris catcher downstream of control point. - Walking bridges are located upstream and downstream of the control point.	

Decontamination Area:

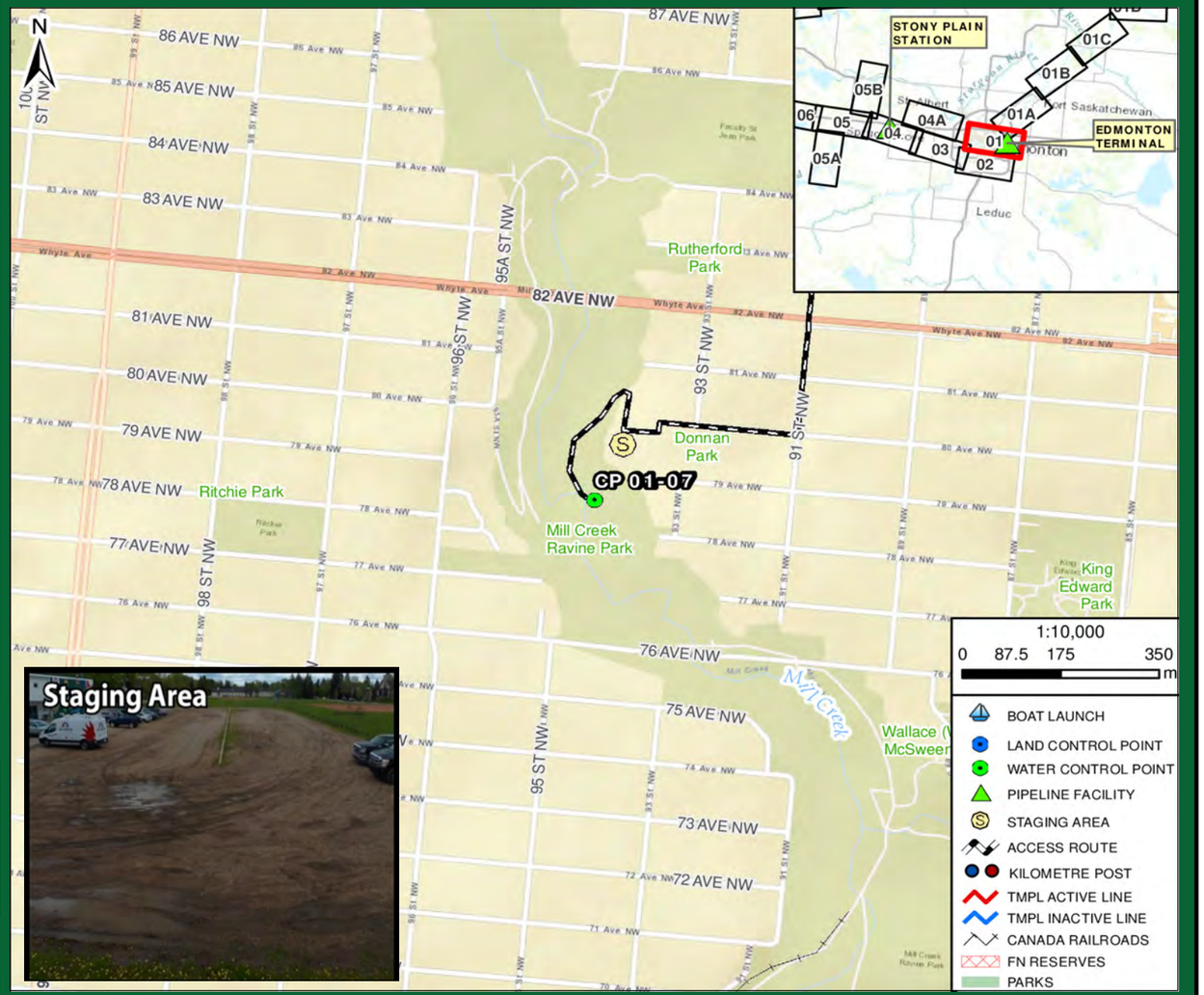
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current, gravels and cobbles provide moderate spawning habitat; migratory corridor to upstream spawning areas of Mill Creek; deeper areas and shoreline/instream cover provide low to moderate rearing habitat; poor overwintering habitat due to frequent low water, frozen conditions.
- Riparian and forest nesting habitat in mature poplars and maples.
- Located in Mill Creek Ravine North Park.
- There is a frequently used recreational/dog walking trail along backshore LDB.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Fast water, use caution around shoreline.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km and Continue on Yellowhead Trail East thru City of Edmonton for 2.4 km
- Turn right onto St Albert Trail NW for 1.6km and At the roundabout, take the 2nd exit onto Groat Rd NW S heading to city centre for 3.7 km
- Take the River Valley Road E ramp and continue onto River Valley Rd NW for 3 km
- Continue onto 95 Avenue NW, Rossdale Rd NW, then right onto 97 Ave NW crossing the James Macdonald Bridge for 1.3km
- Take the Connors Road ramp and continue onto Connors Rd NW for 1.5 km
- Turn right onto 92 St NW for 750 m, then left onto 88 Ave NW, then right onto 91 St S for 1 km
- Turn right onto 80 Ave NW to the Curling Club parking lot, then access Destination on foot via walking pathway thru forest toward Mill Creek Culvert crossing
- Total Distance = 92.5 km - Total Travel Time = 85 minutes calculated at 65 km/hr

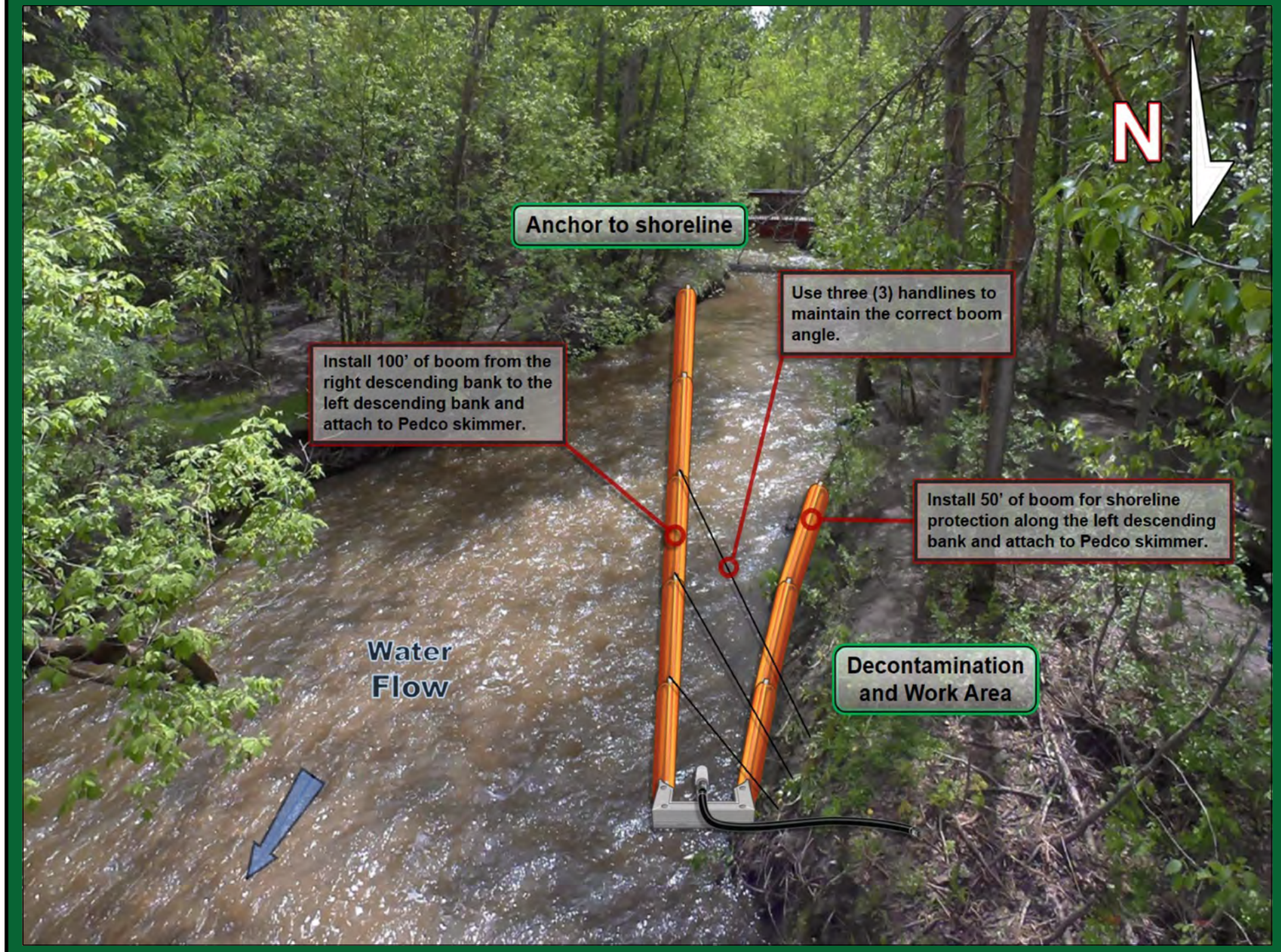
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-07



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	3" x 3" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		6	50' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 3" x 3" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to shoreline.
- Install (3) 50' handlines from the 3" x 3" hard containment boom to the left descending bank to maintain the correct boom angle.
- Install 50' of 3" x 3" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., brook stickleback, fathead minnow),
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Cavity and forest nesting birds (e.g., woodpecker spp., chickadee spp., thrush spp., white-breasted nuthatch),
- Raptors (e.g., Cooper's hawk)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-25

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-08

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.530500	
	Long: -113.482200	
Elevation:	626 m	
Land and Resource Use:	Mill Creek Ravine. City of Edmonton.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01-07	**Downstream** CP 01-04
Nearest KM Post:	**Line 01** KP 8	

Waterbody Information:

Waterbody Name: Mill Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		15 m	
Depth		Unknown	
Flow Velocity		1.9 km/hr	
FlowType		Frequently confined low velocity flat structure	

Waterbody description:
Frequently confined low velocity flat structure at bankfull conditions at time of survey. Sinuous, very turbid creek flows along forested ravine through city park, becoming subsurface immediately downstream of collection, flowing into 5 m wide, 3 m tall cement drainage structure with debris gate. Frequent woody debris and overhanging trees; several embedded vertical metal columns across river upstream of containment.

Shoreline Information

Bank Height:
0.7 to 1.1 m

Shoreline Composition and Slope:
Banks poorly defined along containment, varying from steep to vertical areas of exposed fine sediments and grasses, with level backshores becoming steep along forested ravine.

Shoreline Vegetation:
Bare muddy backshore RDB along trail transitioning to young aspen dominated approach with isolated occurrences of pin cherry, Manitoba maple. Poplar forest along LDB. Grasses, dandelion, clover, shepherd's purse.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments.

Shoreline Comments:
Variable, steep to vertical banks transition to level bare backshore trail along RDB becoming steep along forested ravine approach. Slip/trip/fall hazards along muddy banks obscured at the time of survey by turbid water. Collection area accessed along narrow paths that diverge from paved recreation trail to banks of creek.

Logistical Information:

Staging Area Location:	- A staging area to be located directly downstream of the control point in Mill Creek Ravine. - 40 m x 40 m area. - Matting required to establish all weather access.	
	Lat: 53.5307	Long: -113.48281
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is off Connors Road down a walking / biking trail. - Gated access to the walking / biking trails. - The control point is in Mill Creek Ravine, security is recommended. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access directly off of Connors Road, 380 m down a walking / biking trail to the staging area and control point. - Traffic control recommended. - Matting is required for all weather access.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The watercourse travels subsurface downstream of the control point.	

Decontamination Area:

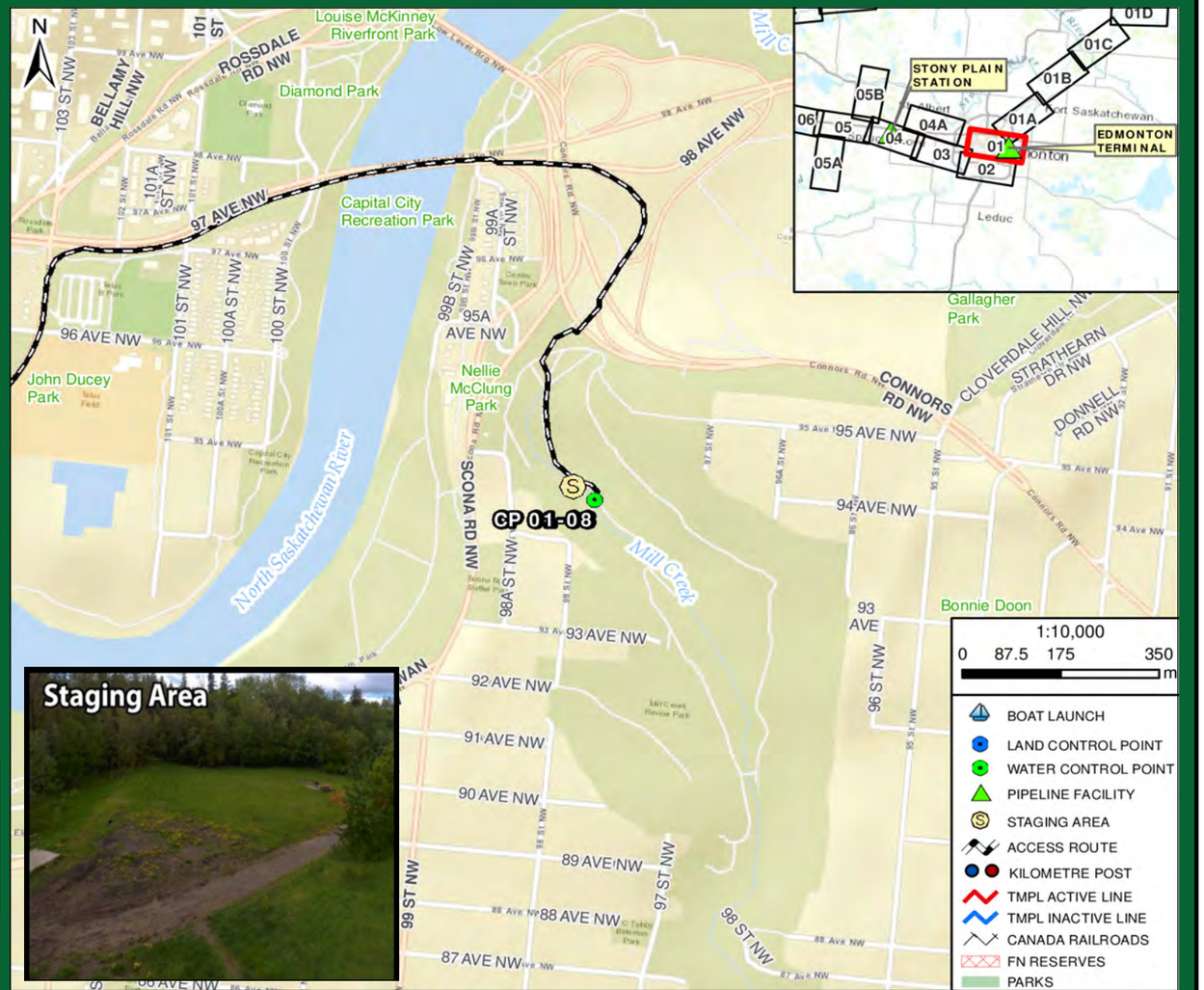
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be located at the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat due to abundant fines; migratory corridor to upstream spawning areas of Mill Creek; deeper areas and shoreline cover provide low to moderate rearing habitat; poor overwintering habitat due to frequent low water, frozen conditions.
- Riparian and cavity nesting habitat in mature poplars.
- Located in Mill Creek Ravine North Park, with frequent trails, including along RDB and a picnicking site downstream.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, use caution around shoreline.
- Access off of Connors Road, traffic control recommended.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 2.4 km
- Turn right onto St Albert Trail NW for 1.6km and at the roundabout, take the 2nd exit onto Groat Rd NW S heading to city centre for 3.7 km
- Take the River Valley Road E ramp and continue onto River Valley Rd NW for 3 km
- Continue onto 95 Avenue NW, Rossdale Rd NW, then right onto 97 Ave NW crossing the James Macdonald Bridge for 1.3km
- Take the Connors Rd NW exit and pulloff the road to access the bike pathway
- Destination is on foot via walking path toward Mill Creek Culvert crossing, inside Mill Creek Ravine Park
- Total Distance = 89.8 km - Total Travel Time = 83 minutes calculated at 65 km/hr

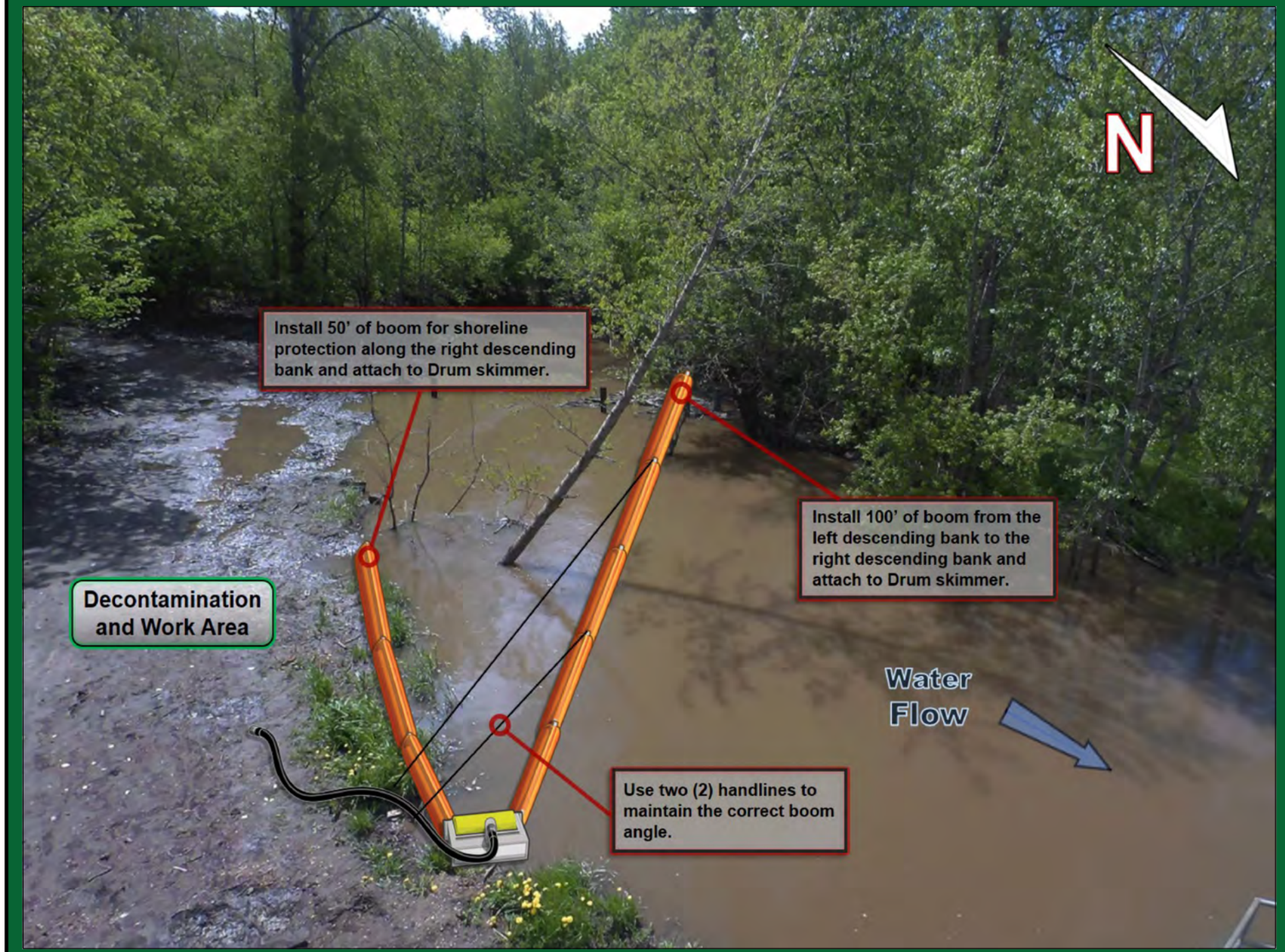
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-08



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
		4	50' Handline and Bridle
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., brook stickleback, fathead minnow),
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Cavity and forest nesting birds (e.g., woodpecker spp., chickadee spp., thrush spp., white-breasted nuthatch),
- Raptors (e.g., Cooper's hawk)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 10° angle to the right descending bank and anchor to shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install an 18 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-25

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-09

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.538930	
	Long: -113.542520	
Elevation:	621 m	
Land and Resource Use:	City of Edmonton. Government House Park.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 02-03	**Downstream** CP 01-04
Nearest KM Post:	**Line 01** KP 19	

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		233 m	
Depth		Unknown	
Flow Velocity		3.4 km/hr	
FlowType		Confined moderate velocity flat run structure.	

Waterbody description:

Confined moderate velocity flat run structure. Main current along center-left of river along outside bend. Occasional floating logs and woody debris, more frequent during high water. Medium water levels at time of survey, with banks exposed 2-3 m above water level. Be aware of frequent shallow and exposed sediment bars during low water. High turbidity during survey.

Shoreline Information

Bank Height:
up to 4 m along LDB; 6 m along RDB

Shoreline Composition and Slope:
Moderately steep foreshore along RDB with exposed fine sediments and embedded riprap, becoming steep to vertical along bank; vertical/overhanging actively eroding RDB.

Shoreline Vegetation:
Isolated mature willows and abundant saplings along LDB, with common tansy and grasses, transitioning to open grassy picnic area and trail. Cottonwood dominated forest along RDB.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments, with embedded concrete riprap upstream of collection area; potential gravels and cobbles along riverbed along areas of swifter current.

Shoreline Comments:
Collection area located along muddy foreshore area with embedded concrete riprap transitioning to steep 3-4 m high vegetated bank to a level open grassy backshore area along a paved park trail. Stormwater outfall 20 m downstream of collection on LDB. Numerous willow stakes planted along bank for erosion control. Steep muddy banks and active marmot burrows often obscured by vegetation pose slip/trip/fall hazard. Frequent weeds along LDB, predominantly common tansy.

Logistical Information:

Staging Area Location:	- The staging area to be located in Government House park. - The staging area is located in a parking lot on the left descending bank. - 15 m x 40 m area. - All weather access is established.	
	Lat: 53.53973	Long: -113.54216
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is gained from Government House Park. - Recreational boat traffic in the control point area. - Gated access to control point. - Walking trail adjacent to control point. - Site security required. - Steep access to control point.	
Road Access/Type:	- Access off of River Valley Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 01-01. - Refer to BL 01-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 01-02. - Refer to BL 01-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response.	

Decontamination Area:

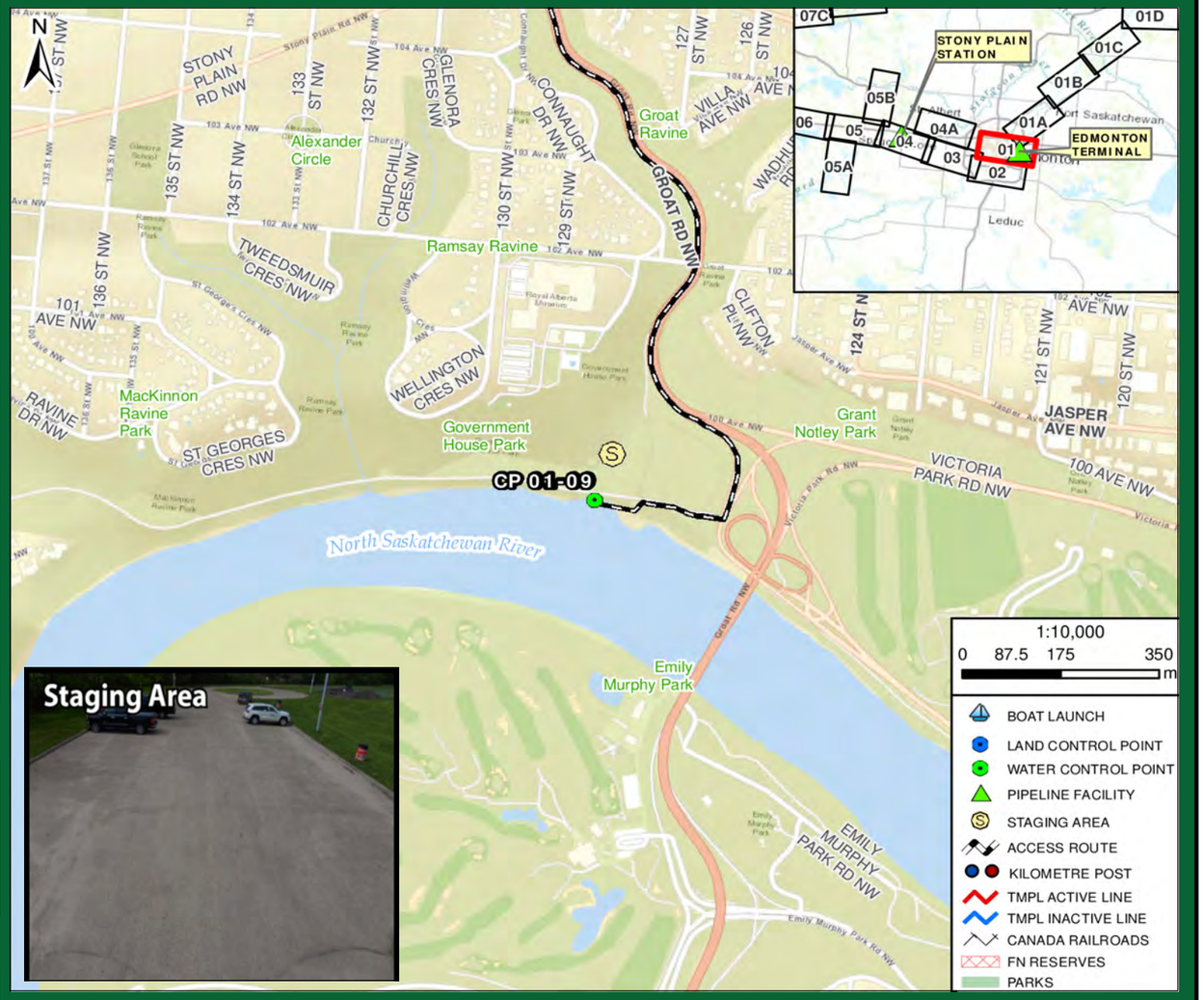
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat for numerous fish species.
- Cavity and raptor nesting habitat in mature cottonwood forest along RDB.
- Riparian nesting habitat along LDB.
- Yellow-bellied marmot colony along LDB.
- CP located in Government Hill Park; a popular day use and recreational area.
- Frequent boating and fishing.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Government Hill Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

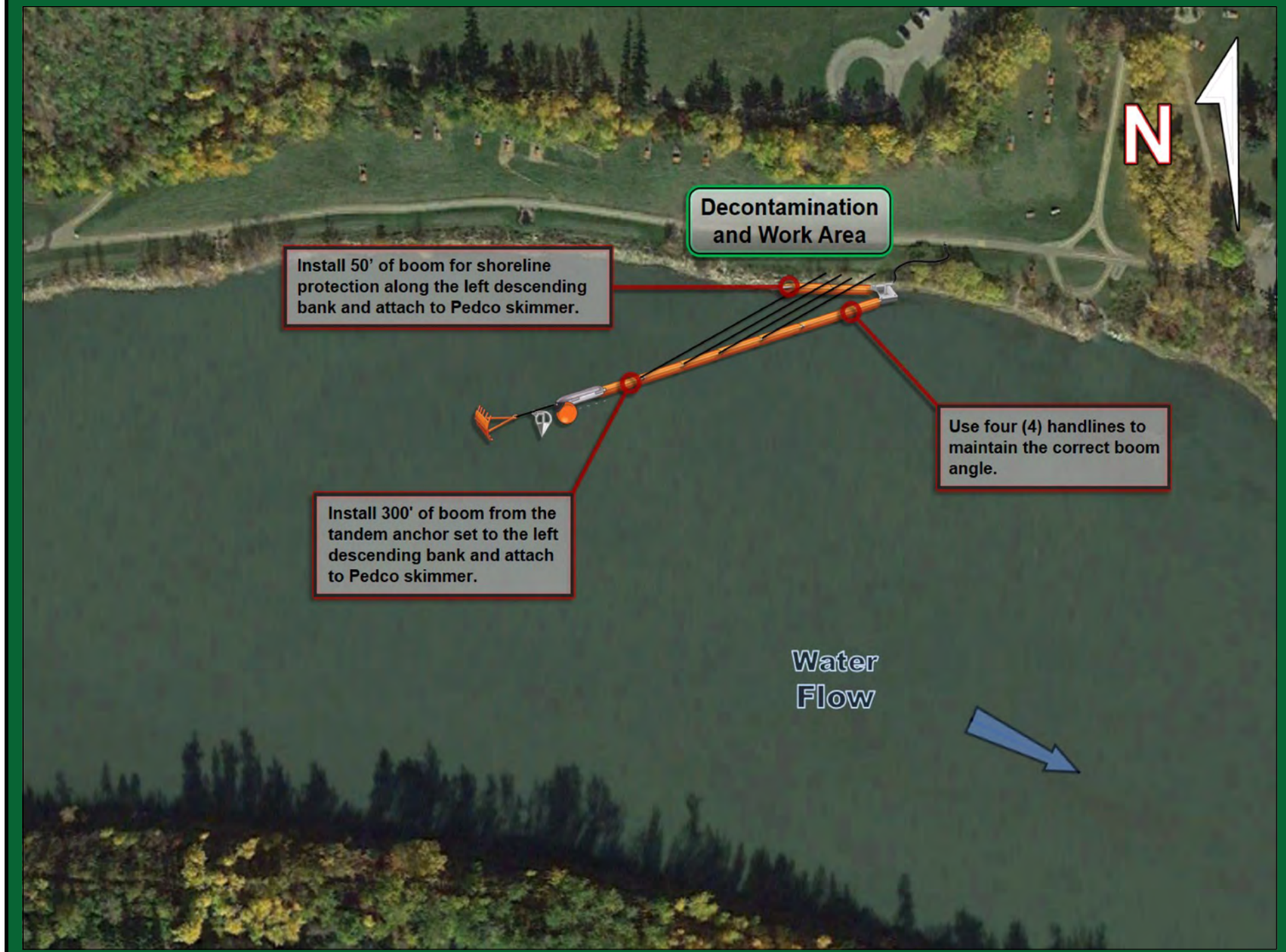
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 75 km
- Continue on Yellowhead Trail East thru City of Edmonton for 2.4 km
- Take slight right onto the St Albert Trail ramp to AB-2 N and take right onto St Albert Trail for 1.2 km
- At the roundabout, take the 2nd exit onto Groat Rd NW South heading to City Centre and continue for 3.7 km
- Take the River Valley Road East ramp and follow road towards the parking lot of MacKinnon Ravine Park
- Destination is riverbank of North Saskatchewan River, south of Government Hill
- Total Distance = 84.7 km
- Total Travel Time = 78 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01-09



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of line to a marker buoy.
- Install 300' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 130 m ice slot from the middle of the river at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	450'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike),
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail, marmot)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., Swainson's thrush)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.),
- Raptors (e.g., osprey, golden eagle),
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs).

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-27
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 01A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.686930	
	Long:	-113.271890	
Elevation	599 m		
Upstream Valves:	**Line 01:** MOD		
Downstream Valves:	**Line 01:** K19		
Control Point:	**Upstream** CP 01A-01	**Downstream** CP 01A-02	
Nearest KM Post:	**Line 01** KP 0		

Waterbody Information:

Waterbody Name: North Saskatchewan River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		229 m	
Depth		Unknown	
Flow Velocity		4.5 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with even current across channel. Boat launch well-maintained, gradually sloping concrete pad with level gravel launching and turnaround area (parking above approach). Accessed down a well-maintained 100 m all weather access road from parking lot above approach. Low current at boat launch created by instream boulder riprap. Located in city park. Frequent floating logs and woody debris during medium/high water. Be aware of shallow bars during low water.

Logistical Information:

Road Access/Type:	- Access off of West Rivers Edge Road. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- The staging area is located in a parking lot on the right descending bank. - 35 m x 60 m area. - All weather access is established.	
	Lat: 53.68626	Long: -113.27142
Site Comments:	- Islands located upstream and downstream of boat launch. - Public boat traffic in area. - Popular recreational area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, install a boat decontamination area for any vessels leaving the waterway.
- All vessels should be free of contaminants before they leave site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from a public park, public may be present. Security recommended.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 N for 21 km
- Take the Manning Dr exit and keep left at the fork, signs for Alberta 15 N/Ft Saskatchewan then
- Merge onto Manning Dr NW / AB-15 N for 17.4 km and turn right onto AB-21 S (signs for Edmonton) for 2.4 km
- Turn right onto Westpark Blvd for 500 m, then turn right onto Westpark Dr for 1.2 km
- Turn right onto River Valley Dr for 900 m, through the public park towards the riverbank
- Destination is Fort Saskatchewan Boat Launch onto the North Saskatchewan River
- Total Distance = 115.9 km - Total Travel Time = 107 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-27

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.686930	
	Long: -113.271890	
Elevation:	599 m	
Land and Resource Use:	City of Fort Saskatchewan. Recreational.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01-05	**Downstream** CP 01A-02
Nearest KM Post:	**Line 01** KP 0	

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		229 m	
Depth		Unknown	
Flow Velocity		4.5 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with even current across channel width. Medium-high water levels at time of survey, with top of bank exposed 0.4-0.6 m above water level. Mid-river there are forested islands along upstream extent of containment. Be aware of frequent shallow and exposed sediment bars during low water. High turbidity at time of survey, with frequent floating logs and woody debris observed.

Shoreline Information

Bank Height:
2.5 to 3 m

Shoreline Composition and Slope:
Muddy, submerged foreshore areas with steep to vertical/overhanging banks, well vegetated and stable along RDB, with open backshore gravel work area

Shoreline Vegetation:
Riparian band of young to mature mixedwood and isolated dead standing poplars along RDB; dense shrubs upstream and downstream of boat launch (e.g., willow, alder, dogwood, wild rose); abundant grass (e.g., bluejoint), weed patches (e.g., common tansy)

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments.

Shoreline Comments:
Collection area accessed down well-maintained, frequently used boat launch with level, open gravel work area, accessed down 100 m long high grade gravel road from parking lot (staging area). LDB approach up to 40 m high, very steep with actively eroding areas of loose substrate.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in the boat launch parking lot. - 35 m x 60 m area. - All weather access is established.	
	Lat: 53.68626	Long: -113.27142
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic may be present in the control point area. - Steep access to the control point. - The control point is located in the City of Fort Saskatchewan.	
Road Access/Type:	- Access off of West Rivers Edge Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 01A-01. - Refer to BL 01A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located at a popular recreational area.	

Decontamination Area:

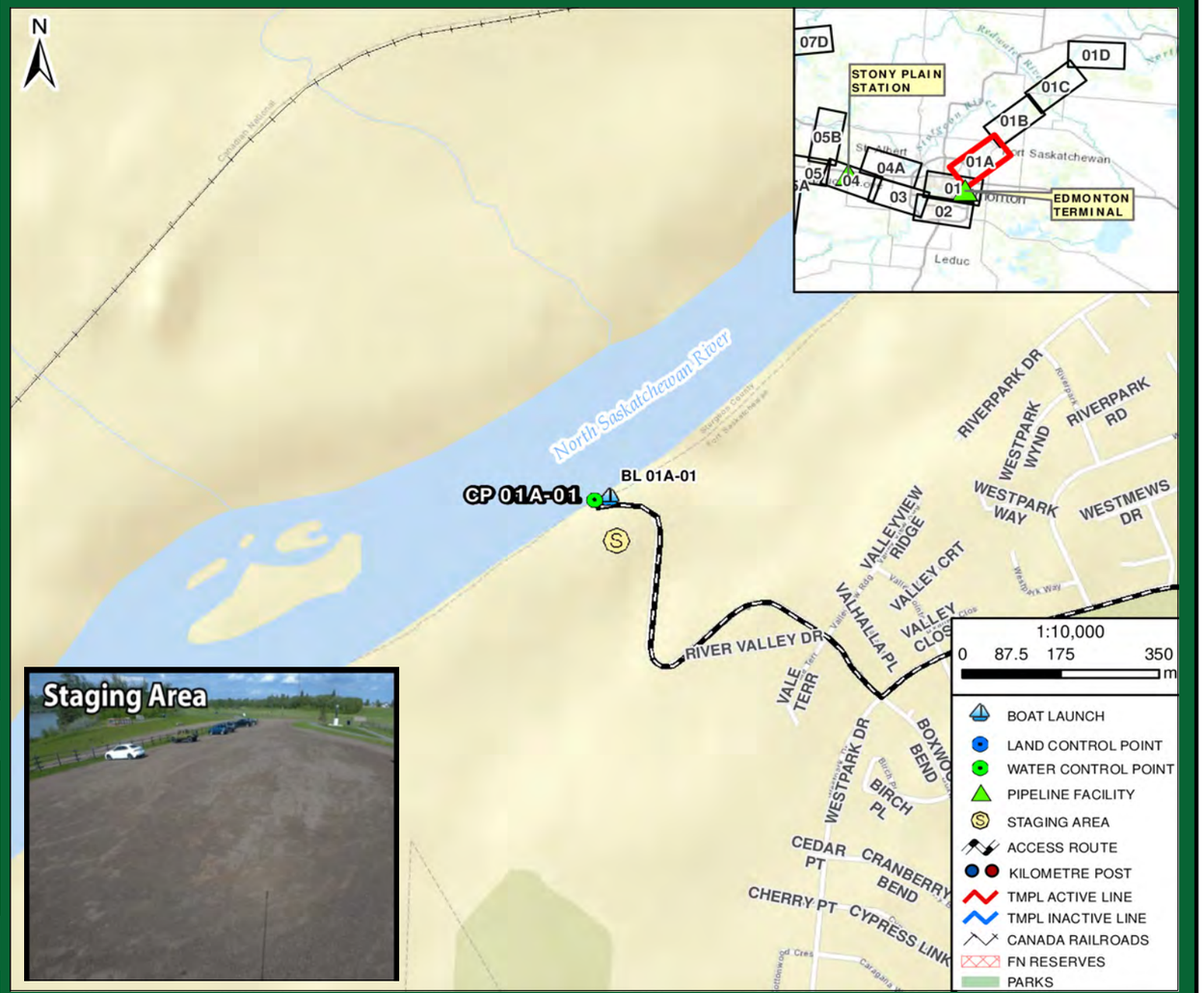
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat and moderate overwintering habitat for numerous fish species.
- Riparian nesting birds, shorebird nesting habitat, waterbird nesting habitat, cavity nesting habitat in mature and dead standing poplars along RDB. Stretch of river likely used for migratory bird staging.
- Frequent boating and fishing (CP located at well-maintained, frequently used boat launch [BL 01A-01]).
- Located in city park containing single track trail along shoreline; paved trail above approach. Located in the City of Fort Saskatchewan.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Public may be present. Security recommended.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

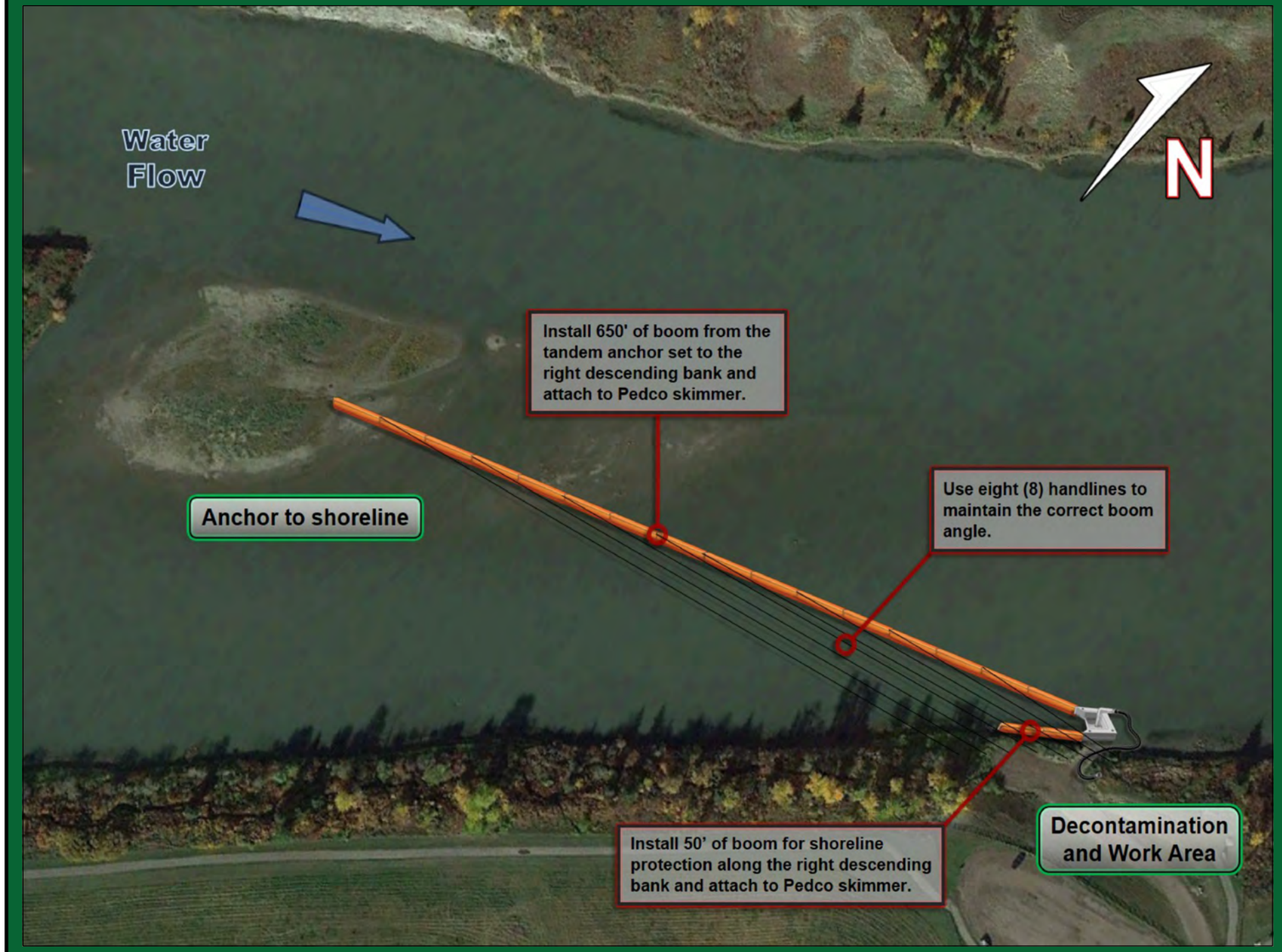
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 N for 21 km
- Take the Manning Dr exit and keep left at the fork, signs for Alberta 15 N/Ft Saskatchewan then
- Merge onto Manning Dr NW / AB-15 N for 17.4 km and turn right onto AB-21 S (signs for Edmonton) for 2.4 km
- Turn right onto Westpark Blvd for 500 m, then turn right onto Westpark Dr for 1.2 km
- Turn right onto River Valley Dr for 900 m, through the public park towards the riverbank
- Destination is Fort Saskatchewan Boat Launch onto the North Saskatchewan River
- Total Distance = 115.9 km - Total Travel Time = 107 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-27
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	800'	6" x 6" Hard Containment Boom
1	Safety Watch	20	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	16	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 650' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and attach anchor to shoreline.
- Install (8) 200' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a vacuum truck or portable tank.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 120 m ice slot from the middle of the river at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-27

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01A-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.703540	
	Long:	-113.241280	
Elevation:	594 m		
Land and Resource Use:	City of Fort Saskatchewan. Recreational.		
Upstream Valves:	**Line 01:**	MOD	
Downstream Valves:	**Line 01:**	K19	
Control Point:	**Upstream** CP 01A-01	**Downstream** CP 01B-01	
Nearest KM Post:	**Line 01** KP 0		

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		191 m	
Depth		Unknown	
Flow Velocity		4.5 km/hr	
FlowType		Confined low-moderate velocity flat run structure	

Waterbody description:

Confined low-moderate velocity flat run structure with even current across channel width. Medium-high levels at time of survey, with top of bank exposed 0.5-1 m above water. Appears shallow along LDB indicated by stranded woody debris, and small grassy island 15 m offshore 30 m downstream. Frequent floating logs and woody debris during high water and shallow and exposed sediment bars during low water. High turbidity.

Shoreline Information

Bank Height:
1.5 to 2 m along LDB: 2.5 to 3 m along RDB

Shoreline Composition and Slope:
Muddy, submerged foreshore areas with gradual to steep banks; generally stable along LDB with level backshore becoming gradually sloping up to paved road.

Shoreline Vegetation:
Mature mixedwood forest along valley approaches of RDB; band of young to mature poplar, Manitoba maple, mixed shrubs (e.g., wild rose, willow, pin cherry, dogbane, alder) along LDB approach, sparse around work area; grasses (e.g., bluejoint), vetch, horsetail.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments.

Shoreline Comments:
Collection area accessed along variable gradual to steep bank limited in height (up to 1.2 m), stable but soft and muddy from recent earth works at the work area located at end of low grade moderately steep 80 m long access road extending form Lamoureux Drive along decommissioned bridge crossing. There is an irrigation intake located immediately upstream of collection. Slips/trips/falls hazards along muddy banks and foreshores.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank along Lamoureux Drive. - 10 m x 10 m area. - Matting required to establish all weather access.	
	Lat: 53.70385	Long: -113.24158
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Steep access to the control point. - Old bridge piers located at the control point. - Residences in close proximity to control point.	
Road Access/Type:	- Access off of Lamoureux Drive. - All weather access is established. - Traffic control recommended.	
Boat Access:	- Main boat access from BL 01A-01. - Refer to BL 01A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

Low spawning potential due to slow current and absence of gravel and cobbles; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat and moderate overwintering habitat for numerous fish species. Riparian nesting birds, shorebird nesting habitat, waterbird nesting habitat, cavity nesting habitat in mature and dead standing poplars. Stretch of river likely used for migratory bird staging. Beaver observed swimming into side channel of river at collection area, which appears to be a drainage outflow with intermittent flow at time of survey. Occasional boating and river fishing. Mixed forested, residential and agricultural lands above river valley approaches. Low density residential opposite side of road along backshore LDB (nearest residence approximately 120 m west). Located in the City of Fort Saskatchewan.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Public may be present. Security recommended.
- Be aware of wildlife in the area. Overhead power along access road and staging area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 N for 21 km
- Take the Manning Dr exit and keep left at the fork, signs for Alberta 15 N/Ft Saskatchewan then
- Merge onto Manning Dr NW / AB-15 N for 17 km
- Turn right onto Lamoureux Dr for 900 m (sign for "Load Too high, exit right")
- Destination is river bank beside North Saskatchewan River, alongside old bridge foundation pillars
- Total Distance = 109.6 km
- Total Travel Time = 101 minutes calculated at 65 km/hr

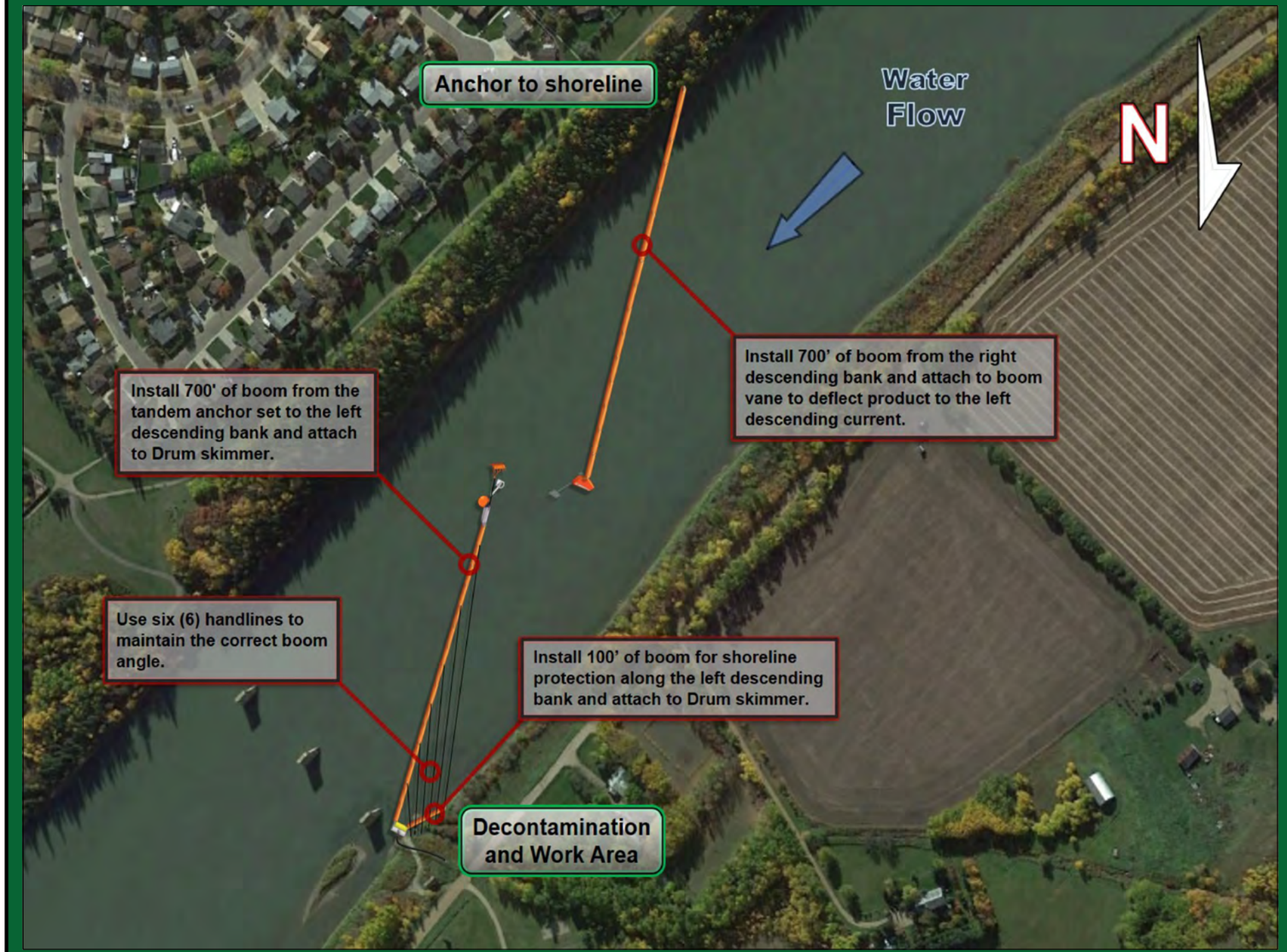
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-27
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01A-02



Implementation Strategy:

- Install 700' of 6" x 6" hard containment boom from the right descending bank and attached to a 1.0 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the left descending bank to maintain the correct boom angle.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 220 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 1	Rake Anchor /Sarca Anchor
		2	60' Ballast Chain
		1	1.0 m Boom Vane
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	1 / 50'	Power Pack / Hydraulic Line

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-09

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01B-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.829950
	Long:	-113.086810
Elevation:	592 m	
Land and Resource Use:	Private Land. Commercial.	
Upstream Valves:	**Line 01:**	MOD
Downstream Valves:	**Line 01:**	K19
Control Point:	**Upstream** CP 01A-02	**Downstream** CP 01C-01
Nearest KM Post:	**Line 01** KP 0	

Waterbody Information:

Waterbody Name: North Saskachewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		187 m	
Depth		Unknown	
Flow Velocity		2.5 km/hr	
FlowType		Confined low-moderate velocity flat run structure	

Waterbody description:

Confined low-moderate velocity flat run structure with even current across channel width. Medium water levels at time of survey, with top of bank exposed 0.5-1 m above water level. Water appears deep along RDB at the collection area and is over 2 m deep in front of a water intake. High turbidity with frequent floating logs and woody debris observed. Be aware of frequent shallow and exposed sediment bars during low water.

Shoreline Information

Bank Height:
3 to 5 m

Shoreline Composition and Slope:
Muddy, submerged foreshore areas with generally stable, steeply sloped RDB; gently to moderately sloped, stable shoreline along LDB with level forested backshore floodplain.

Shoreline Vegetation:
Young to mature mixedwood forest with dense shrubs (e.g. willow, wolf willow, alder) and grasses (e.g. brome) along valley approaches of RDB. Poplar and aspen dominated young to mature forest along LDB with dense shrubs and grasses along shoreline.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments. Bed composed of cobble and rip rap at collection area and immediately downstream due to water intake.

Shoreline Comments:
Collection area accessed along moderately sloped gravel access road to a rip rap enforced bank at the water intake and is surrounded by a steep bank up approximately 3 m high. The bank at collection is stable but soft and muddy. There is an ATCO Energy Solutions intake located immediately downstream of collection. Slips/trips/falls hazards along muddy banks and foreshores.

Logistical Information:

Staging Area Location:	- The staging area can be located along the right descending bank at the Atco Energy water intake. - 10 m x 30 m area. - All weather access is established.	Lat: 53.82985 / Long: -113.08661
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - All weather access is established.	
Site Restrictions:	- Gated access to Control point and access road. - The control point and staging area are located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Township Road 561, 1 km down an Atco Energy private road. - All weather access is established.	
Boat Access:	- Main boat access from BL 01A-01. - Refer to BL 01A-01 control point data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of an Atco Energy water uptake.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- Install a decontamination area at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to slow current and absence of gravel and cobbles; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat and moderate overwintering habitat for numerous fish species.
- Riparian nesting birds, shorebird nesting habitat, waterbird nesting habitat, cavity nesting habitat in mature and dead standing poplars. Stretch of river likely used for migratory bird staging.
- Occasional boating and fishing.
- Mixed forested and agricultural lands above river valley approaches. ATCO water intake immediately downstream of collection area on RDB and Agrium Redwater Fertilizer Operations downstream along LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around shoreline. Underground facilities located at control point.
- Deep / fast water, use caution around shoreline.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 N for 21 km
- Take the Manning Dr exit and keep left at the fork, signs for Alberta 15 N/Ft Saskatchewan, then
- Merge onto Manning Dr NW / AB-15 N for 18 km
- Turn left onto 89 Ave / AB-15 E (signs for Bruderheim / Mundare/ Industrial Area) for 8.4 km
- Turn left onto Range Rd 214 for 7.6 km towards the riverbank and Turn left onto Township Road 560/561 and follow private Atco Road for 1km to river
- Destination is riverbank beside the North Saskatchewan River thru private land
- Total Distance = 132.4 km - Total Travel Time = 122 minutes calculated at 65 km/hr

TRANSMOUNTAIN

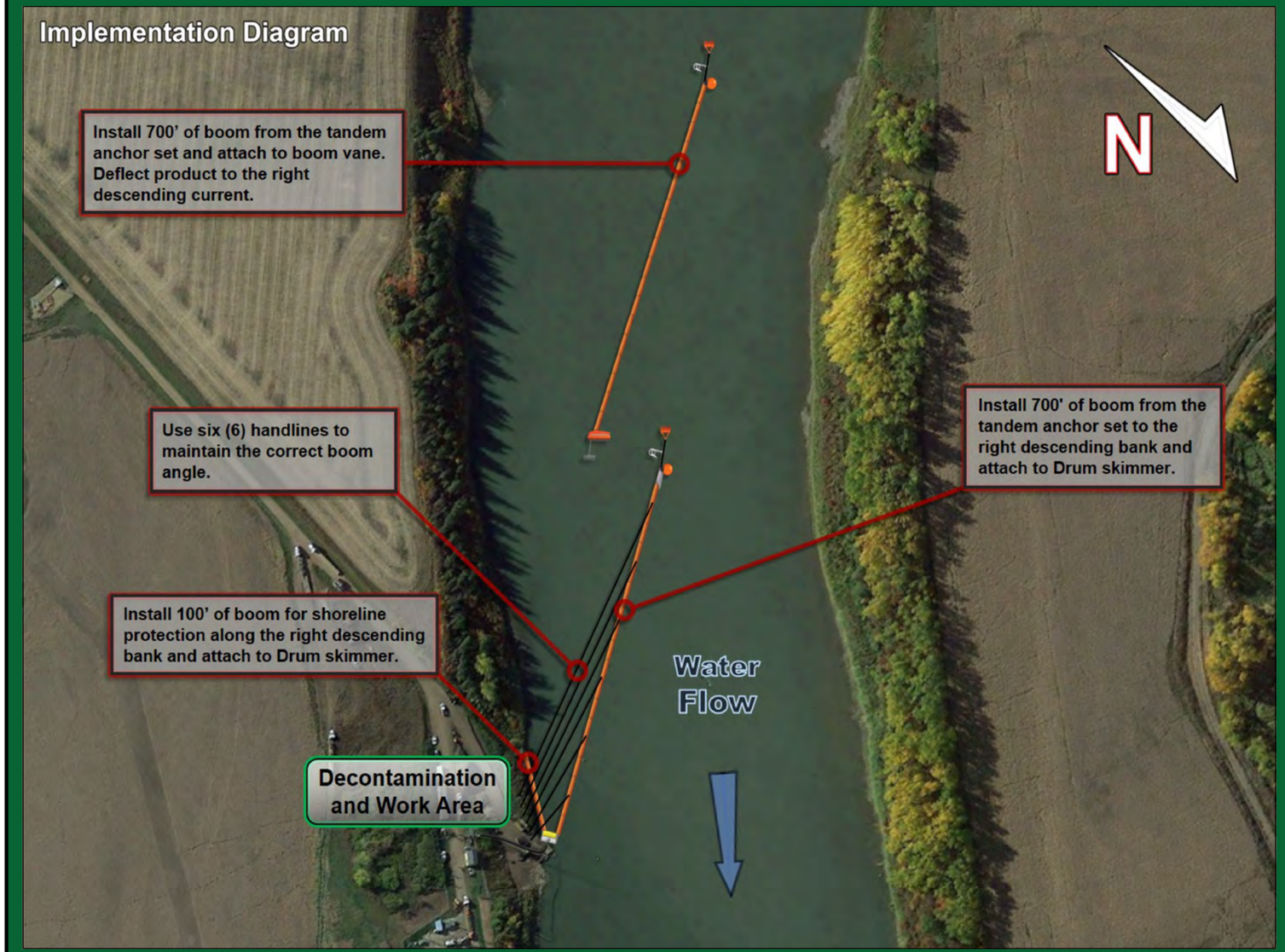
RESPONSE

Date Visited: 2017-07-09
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01B-01

Implementation Diagram



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	1 / 50'	Power Pack / Hydraulic Line
4	Boat Crew	12	250' Handline and Bridle
		1	Vacuum Truck
		2 / 2	Rake Anchor / Sarca Anchor
		1	1.0 m Boom Vane
		4	60' Ballast Chain
		2	Marker Buoy
		2	50' Rode Line
14	**TOTAL**	2	Paravane

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor and attached to a 1.0 m boom vane to deflect product to right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install six - 250' handlines from the 6" x 6" hard containment boom to the right descending bank to maintain the correct boom angle.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or Low Impact Recovery Unit.

Winter Response:
Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 120 m ice slot from the middle of the river at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-27

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01C-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.888530	
	Long: -112.974910	
Elevation:	590 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01B-01	**Downstream** CP 01D-01
Nearest KM Post:	**Line 01** KP 0	

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		218 m	
Depth		Unknown	
Flow Velocity		4.5 km/hr	
FlowType		Confined low-moderate velocity flat run structure	

Waterbody description:

Confined low-moderate velocity flat run structure with relatively even current across channel width. Medium-high water levels at time of survey, with top of bank exposed 0.5-1 m above water level. Be aware of frequent shallow and exposed sediment bars during low water. High turbidity at time of survey, with frequent floating logs and woody debris observed.

Shoreline Information

Bank Height:
Up to 3.5 m

Shoreline Composition and Slope:
Muddy, submerged foreshore areas with steep, occasionally vertical/overhanging banks; generally stable along LDB; steep approach with loose substrate to water edge on RDB.

Shoreline Vegetation:
Mixedwood forest of poplars, aspens and spruce along valley approaches of RDB; band of young to mature poplar, aspen and mixed shrubs (e.g., wild rose, willow, pin cherry, dogbane, alder) along LDB approach, sparse around work area with dense grasses.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments.

Shoreline Comments:
Collection area accessed down moderate becoming steep, stable but muddy 2.5-3 m m bank from open level work area under highway bridge frequently used as an informal day use and shoreline fishing site; with vehicle accessed down a low grade gradually sloping road extending from Highway 681. Slips/trips/falls hazard along variable steep to vertical/overhanging banks often obscured with grasses and shrubs, with slippery muddy foreshores; occasional chutes along bank.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank along Highway 38. - 50 m x 100 m area. - Matting required to establish all weather access. - Minor site preparation required (brushing).	
	Lat: 53.88963	Long: -112.97633
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 15 m x 20 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in the control point area. - Steep access to the control point recovery area. - Popular angeling location. - The Control point is located at Vinca bridge. - Security is needed to keep out all nonessential personnel.	
Road Access/Type:	- Access off of Highway 38, 400 m down a vehicle trail to the control point. - Matting required for all weather access. - Traffic control recommended to prevent congestion, and direct response crews and resources when entering and exiting the site.	
Boat Access:	- Main boat access from CP 01D-01. - Refer to CP 01D-01 control point data sheet for further information. - Additionally a secondary boat launch can be located at BL 01A-01. - Refer to BL 01A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

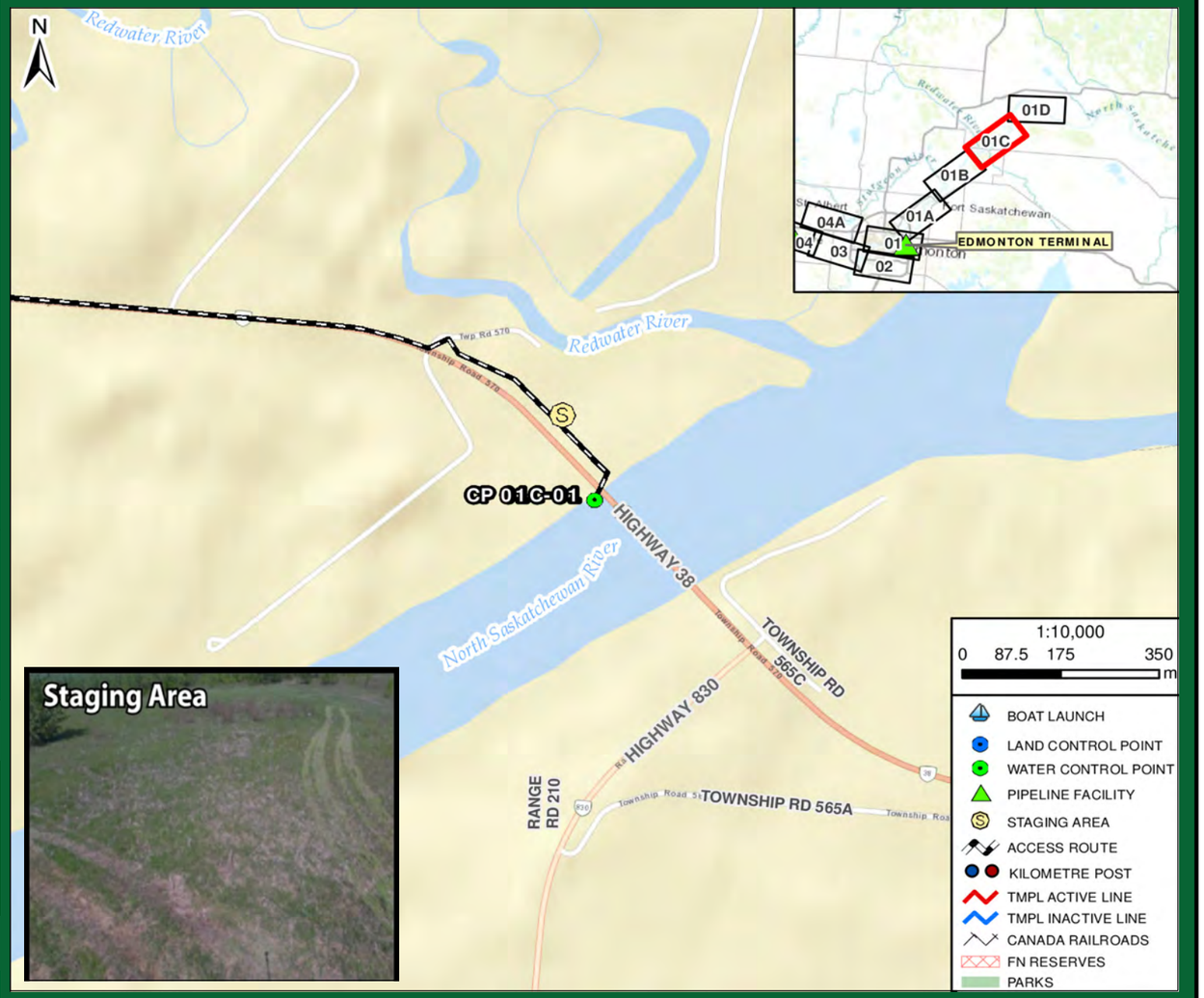
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to slow current and absence of gravel and cobbles; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat and moderate overwintering habitat for numerous fish species.
- Riparian nesting birds, shorebird nesting habitat, waterbird nesting habitat, cavity nesting habitat in mature and dead standing poplars; cliff swallows nesting under bridge deck. Stretch of river likely used for migratory bird staging.
- Occasional boating and river fishing.
- Mixed forested and agricultural lands above river valley approaches.
- CP located down low grade access road used frequently used by public for shoreline access (e.g., day use, fishing).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Public may be present. Security recommended.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

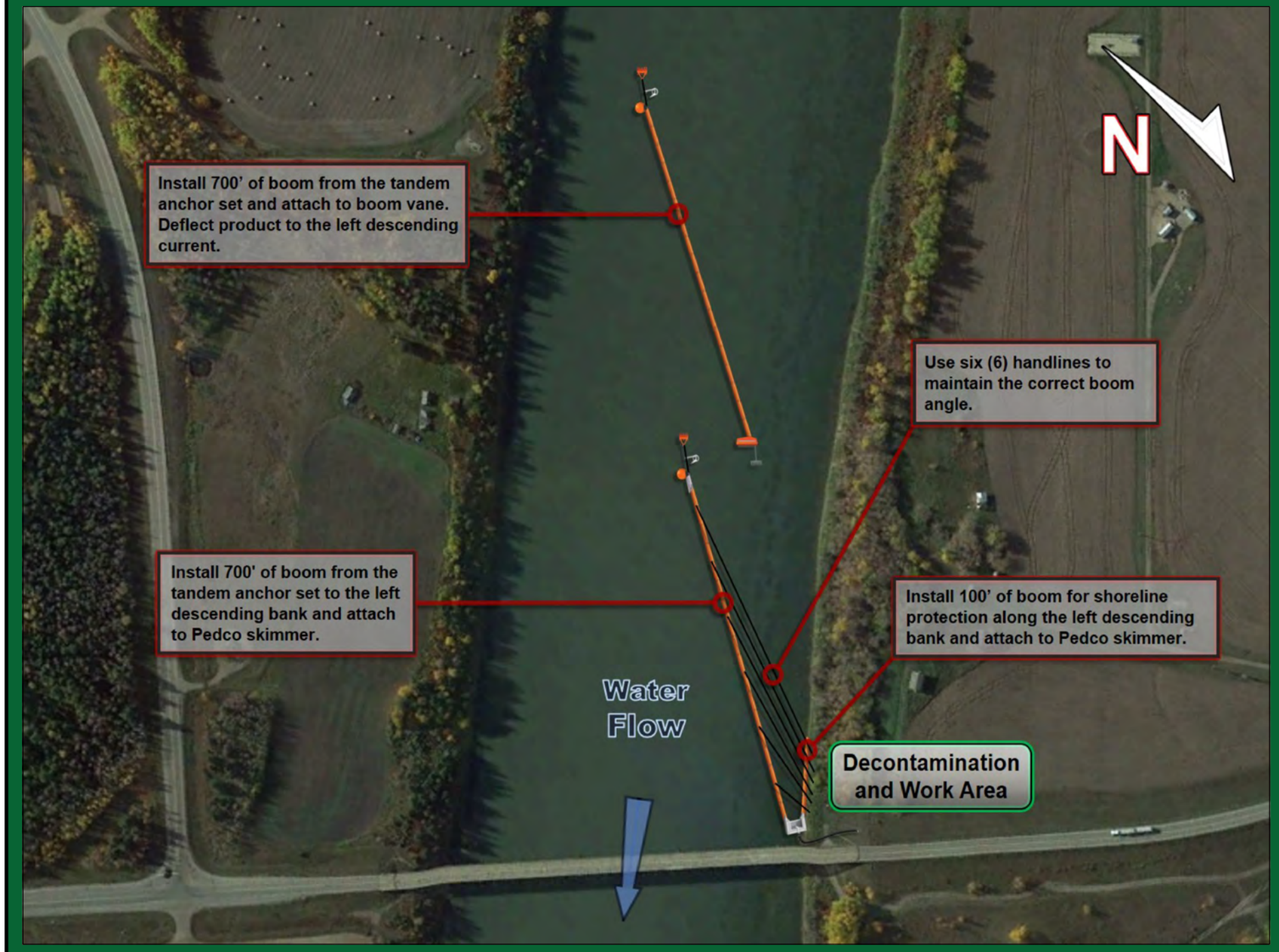
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 N for 21 km
- Take the Manning Dr exit and keep left at the fork, signs for Alberta 15 N/Ft Saskatchewan, then
- Merge onto Manning Dr NW / AB-15 N for 13.8 km
- Turn left onto AB-37 W, then turn right onto AB-825 N for 14.2 km
- Turn right onto AB-643 E for 14.2 km and turn right onto AB-38 E for 8.3 km towards riverbank at bridge
- Destination is riverbank beside the North Saskatchewan River
- Total Distance = 144.1 km - Total Travel Time = 133 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-27
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01C-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2 / 2	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		4	60' Ballast Chain
		2	Marker Buoy
		2	50' Rode Line
		2	Paravane
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor and attached to a 0.50 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 230 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, cliff swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-27

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01D-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 54.059100	
	Long: -112.778090	
Elevation:	574 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 01C-01	**Downstream** CP 01D-02
Nearest KM Post:	**Line 01** KP 0	

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		196 m	
Depth		Unknown	
Flow Velocity		4.5 km/hr	
FlowType		Confined moderate-high velocity flat run structure	

Waterbody description:

Confined moderate-high velocity flat run structure with relatively even current across channel width. Medium-high water levels at time of survey, with top of bank exposed 1-1.5 m above water level. Be aware of frequent shallow and exposed sediment bars during low water. High turbidity at time of survey, with frequent floating logs and woody debris observed.

Shoreline Information

Bank Height:
up to 3.5 m

Shoreline Composition and Slope:
Muddy, submerged foreshore areas with steep, occasionally vertical/overhanging banks; stable but prone to some undercutting and erosion during high water, open backshore.

Shoreline Vegetation:
Mixedwood forest of poplars, aspens and spruce along valley approaches of RDB; dense band of young to mature poplar, aspen, spruce and mixed shrubs (e.g., wild rose, willow, pin cherry, dogbane, alder) along LDB; mixed grasses, horsetail, common tansy, fireweed.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments; potential gravels and cobbles along riverbed along areas of swifter current.

Shoreline Comments:
Collection area accessed down moderate becoming steep, stable but muddy 3-4 m bank from open level work area frequently used as informal day use site; with vehicle accessed down a low grade gradually sloping road extending from Highway 831 that becomes parallel to bank downstream. Slips/trips/falls hazard along variable steep to vertical/overhanging banks often obscured with grasses and shrubs, with slippery muddy foreshores. CP located at water pipeline crossing operated by community of Wiskatenau.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank underneath Highway 831 bridge overpass. - 10 m x 45 m area. - Matting required to establish all weather access.	
	Lat: 54.05968	Long: -112.7792
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Recreational boat traffic in control point area. - Steep access to control point. - Consider installing a matting or pallet step-down to better access the recovery area.	
Road Access/Type:	- Access off of Highway 831, 250 m down a vehicle trail to the control point. - Matting required for all weather access. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site safely. Minor site preparation required (brushing).	
Boat Access:	- No boat launch at control point. - A boat launch will need to be established at the control point.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

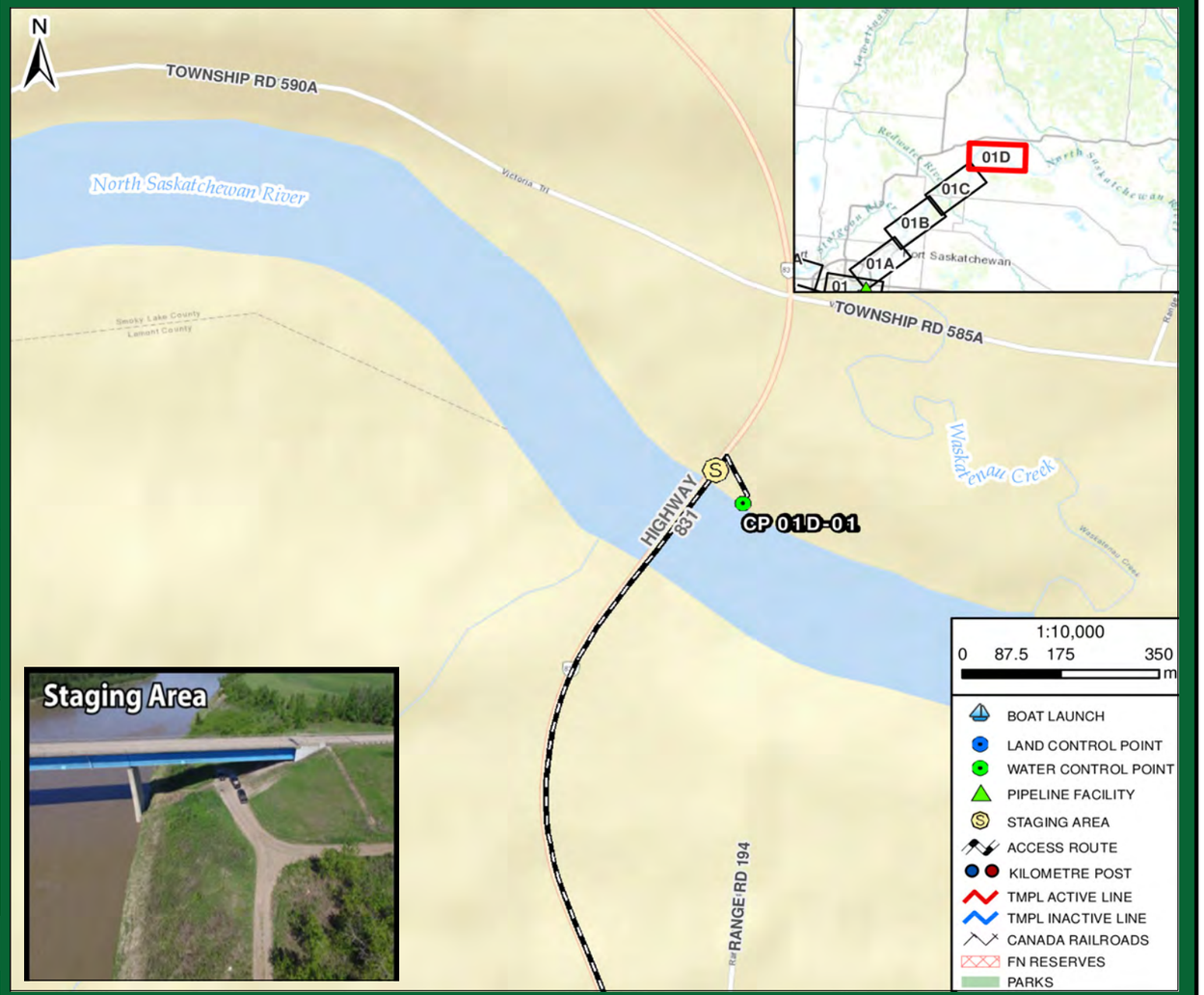
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat and moderate overwintering habitat for numerous fish species.
- Riparian nesting habitat, shorebird nesting habitat, waterbird nesting habitat. Stretch of river likely used for migratory bird staging.
- Occasional boating and fishing.
- Agricultural lands above forested river valley approaches.
- CP located down low grade access road used frequently used by public for shoreline access (e.g., day use, shoreline fishing).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Public may be present. Security recommended.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km and Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 N for 21 km
- Take the Manning Dr exit and keep left at the fork, signs for Alberta 15 N/Ft Saskatchewan, then
- Merge onto Manning Dr NW / AB-15 N for 18 km
- Turn left onto 89 Ave / AB-15 E (signs for Bruderheim / Mundare/ Industrial Area) for 19.2 km
- Turn left onto AB-38 E for 6.5 km and Continue onto AB-45 E (signs for Andrew Two hills) for 6.5 km
- Turn left onto AB-831 N for 18.9 km towards riverbank at bridge
- Destination is north riverbank beside the North Saskatchewan River
- Total Distance = 174.8 km - Total Travel Time = 161 minutes calculated at 65 km/hr

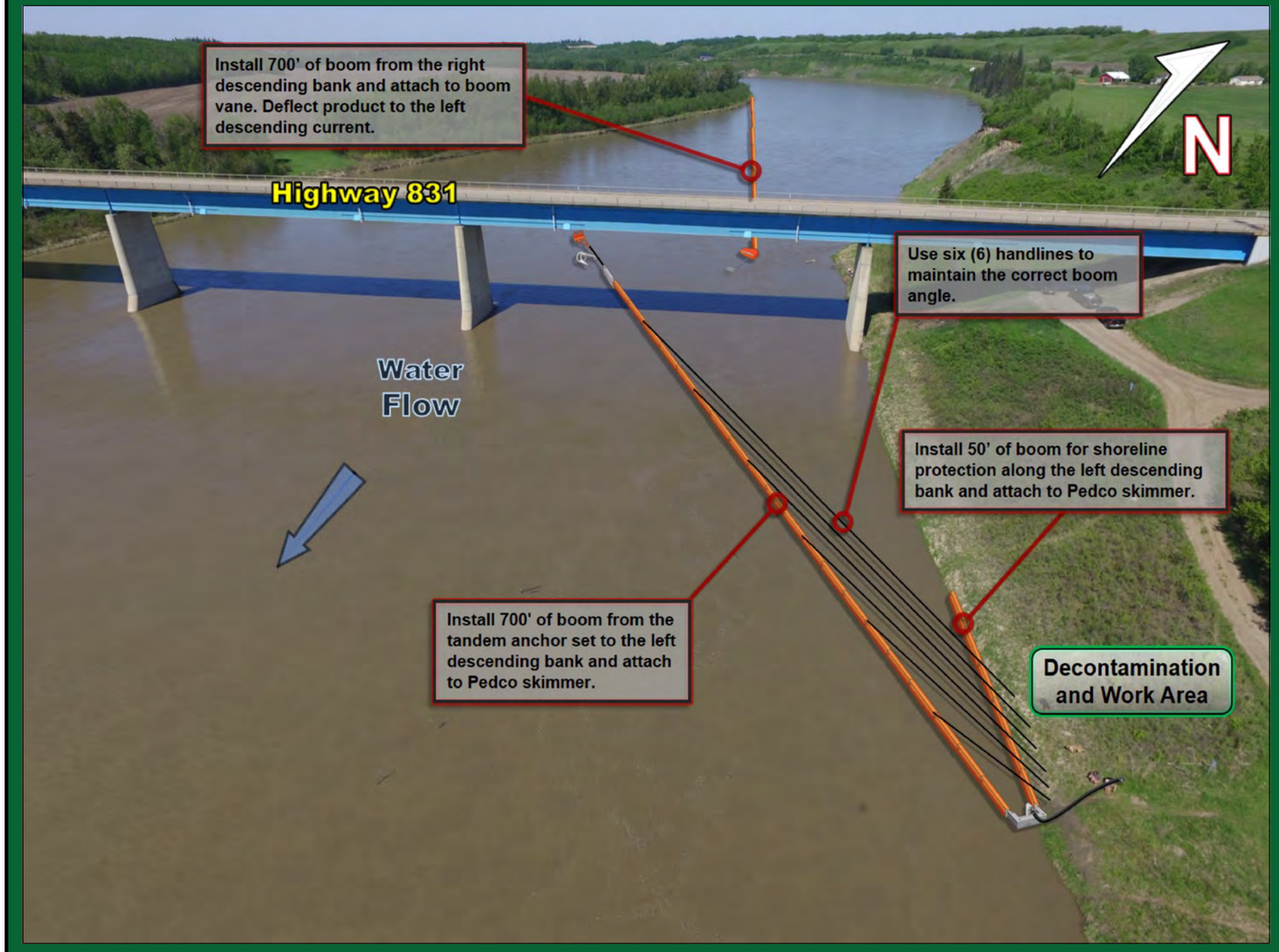
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-27
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01D-01



Implementation Strategy:

- Install 700' of 6" x 6" hard containment boom from the tandem anchor and attached to a 0.50 m boom vane to help deflect product to left descending bank.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to shoreline.
- Install (6) 200' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 220 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		4 / 2	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-27

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01D-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	54.008980	
	Long:	-112.620240	
Elevation:	572 m		
Land and Resource Use:	Crown Land. Recreational.		
Upstream Valves:	**Line 01:**	MOD	
Downstream Valves:	**Line 01:**	K19	
Control Point:	**Upstream** CP 01D-01	**Downstream** N/A	
Nearest KM Post:	**Line 01** KP 0		

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		218 m	
Depth		Unknown	
Flow Velocity		4.5 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with relatively even current across channel width. Medium-high water levels at time of survey, with banks exposed 1-1.5 m above water level. Be aware of frequent shallow and exposed sediment bars during low water, indicated by a stranded log observed mid river. High turbidity at time of survey, with frequent floating logs and woody debris observed.

Shoreline Information

Bank Height:
2.5 to 3.5 m

Shoreline Composition and Slope:
Muddy, submerged foreshore areas with steep and occasionally vertical/overhanging banks; stable but prone to undercutting and erosion during high water.

Shoreline Vegetation:
young to mature mixedwood forest of poplars, aspens and spruce along river valley approaches of RDB; band of young poplar and aspen forest along LDB approach; abundant willow (e.g., wolf willow), wild rose, grasses (e.g., bluejoint), horsetail, tansy.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments; potential gravels and cobbles along riverbed along areas of swifter current.

Shoreline Comments:
Collection area accessed down steep but stable 3 m grassy bank from open level work area occasionally used as an informal day use / camp site, accessed via an 80 m low grade moderately sloping access road extending from Victoria Trail road. Slips/trips/falls hazard along variable steep to vertical/overhanging banks often obscured with grasses and shrubs, with slipper muddy foreshores. There is a patch of common tansy around work area.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank adjacent to Victoria Trail. - 20 m x 20 m area. - Matting required to establish all weather access. - Minor site preparation required (brushing).	
	Lat: 54.00914	Long: -112.62024
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in the control point area. - Steep access to control point. - Consider installing a matting or pallet step-down to better access the recovery area.	
Road Access/Type:	- Access off of Victoria Trail, 100 m down a vehicle trail to the control point. - Matting required for all weather access.	
Boat Access:	- Main boat access from CP 01D-01. - Refer to CP 01D-01 control point data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point located at Warspite Ferry crossing.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat and moderate overwintering habitat for numerous fish species.
- Riparian nesting habitat, shorebird nesting habitat, waterbird nesting habitat. Stretch of river likely used for migratory bird staging.
- Occasional boating and fishing.
- Agricultural lands above forested river valley approaches.
- CP accessed via Victoria Trail road, which is a well-maintained agricultural gravel road and historic Fort Edmonton settlement trail; part of Victoria District National Historic Site of Canada.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- The control point is located at Warspite Ferry crossing, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

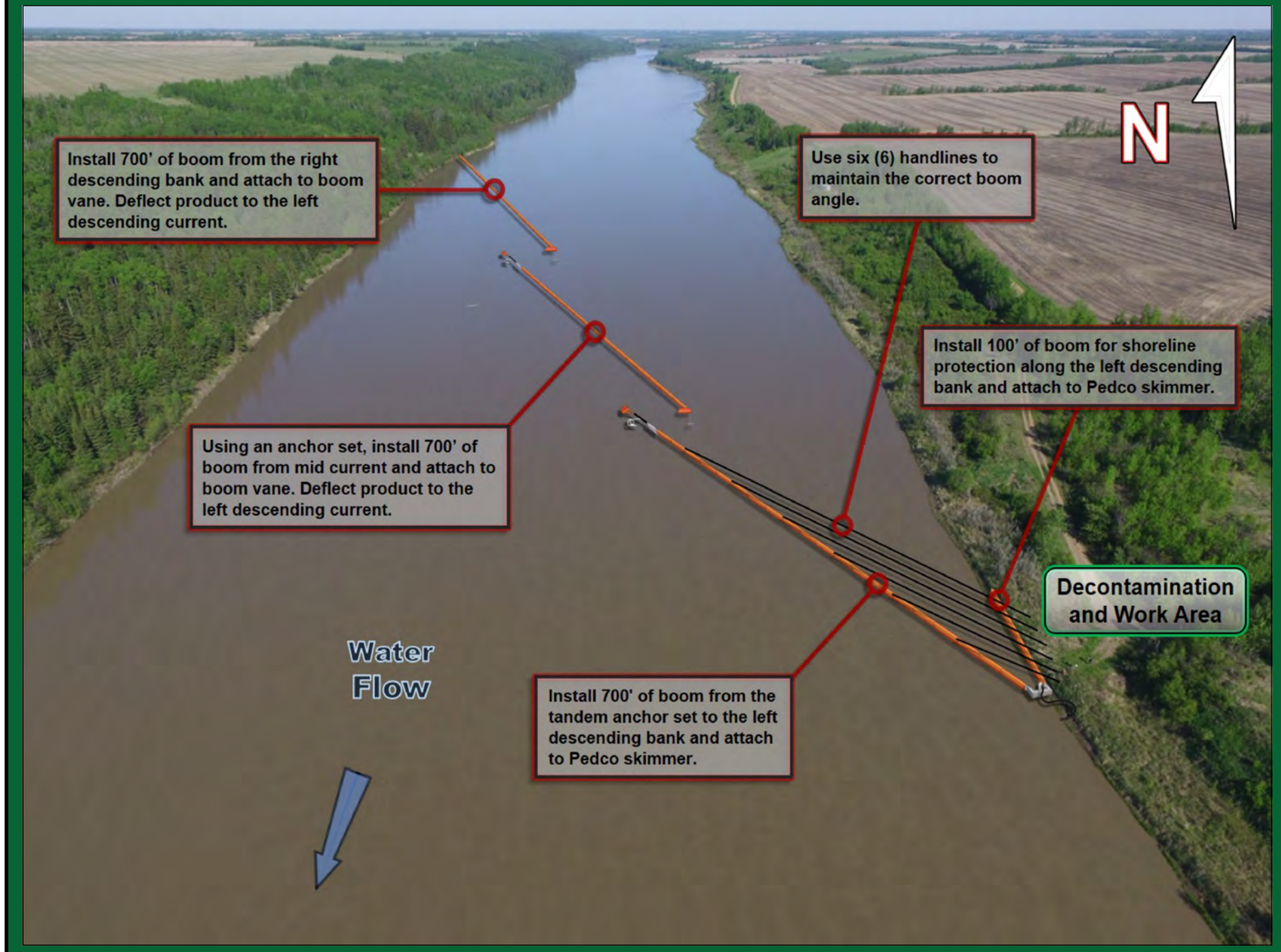
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km and Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 N for 21 km
- Take the Manning Dr exit and keep left at the fork, signs for Alberta 15 N/Ft Saskatchewan, then
- Merge onto Manning Dr NW / AB-15 N for 18 km and Turn left onto 89 Ave / AB-15 E (signs for Bruderheim / Mundare/ Industrial Area) for 19.2 km
- Turn left onto AB-38 E for 6.5 km and Continue onto AB-45 E (signs for Andrew Two hills) for 6.5 km
- Turn left onto AB-831 N for 19.3 km towards riverbank at bridge and turn right onto Township Rd 585A for 5.8 km and and as it becomes Range Rd 190A for 1.7 km
- Continue onto Township Rd 584A and as it becomes Township Rd 584 /583A for 1.6 km
- Turn right onto Range Rd 185 A and continue south as it becomes Township Rd 583A / 582 A for 3.8 km to the destination North Saskatchewan River riverbank
- Total Distance = 188.1 km - Total Travel Time = 174 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-27
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 01D-02



Implementation Strategy:

- Install 700' of 6" x 6" hard containment boom from the right descending bank and attached to a 0.50 m boom vane to deflect product to the middle of the river.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor and attached to a 0.50 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the left descending bank to maintain the correct boom angle.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or Low Impact Recovery Unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 120 m ice slot from the middle of the river at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	2300'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2 / 2	Rake Anchor / Sarca Anchor
		2	0.5 m Boom Vane
		4	60' Ballast Chain
		2	Marker Buoy
		2	50' Rode Line
		2	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-25

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.495810	
	Long: -113.434520	
Elevation:	681 m	
Land and Resource Use:	City of Edmonton. Roper Pond Constructed Wetland.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** N/A	**Downstream** CP 02-02
Nearest KM Post:	**Line 01** KP 8	

Waterbody Information:

Waterbody Name: Mill Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		Unknown	
Flow Velocity		<0.5 km/hr	
FlowType		Man-made pond at inflow	

Waterbody description:

CP located at inflow of Mill Creek into man-made pond created in 2004 for stormwater treatment and flood control along the upper Mill Creek Watershed. Automatic pump house located downstream extent of lower pond. Water level high during survey, as indicated by submerged grasses, partially submerged willows and young poplar, and moderately turbid water. Outflow of upper pond on opposite end (CP 02-02).

Shoreline Information

Bank Height:
Poorly defined, up to 1 m

Shoreline Composition and Slope:
Banks are often poorly defined, gradually sloping, composed of soft, organic substrate of grasses and sedges.

Shoreline Vegetation:
Willow and young poplars and aspen along shoreline with forested margins and open grassy areas; occasional wild rose, pin cherry, common tansy

Channel / Bank Forms:
Banks composed predominantly of organics (e.g., sod) underlain by fines. Bed composed of fine sediment.

Shoreline Comments:
Poorly defined, soft grassy banks transition to relatively level open grassy and forested areas beyond which is industrial complex. Collection area accessed along open grassy backshore from dirt pathway.

Logistical Information:

Staging Area Location:	- A staging area is to be located in the turnaround on McIntyre Road. - 35 m x 35 m area. - All weather access established.	
	Lat: 53.49508	Long: -113.43867
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is off McIntyre Road down a walking / biking trail. - Gated access to walking / biking trails. - The Control Point is located in Roper Pond Constructed Wetland. - Security is needed to keep out all nonessential personnel - Low impact access recommended.	
Road Access/Type:	- Access directly off of McIntyre Road, 210 m down a walking / biking trail to control point. - Matting is required for all weather access.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish presence could not be confirmed; previously documented fish species in Mill Creek include brook stickleback and fathead minnow.
- High functional riparian, wetland and open water habitat created by man-made pond and wetland complex, with numerous bird species observed during survey. Waterbird nesting and migratory staging. Amphibian breeding and overwintering habitat.
- Abundant shrubs and dense grassy shorelines provide riparian and shorebird nesting habitat. Cavity nesting habitat in mature poplars and man-made nest boxes.
- Active beaver habitat indicated by fresh cuttings and damming at outflow of upper pond.
- Nature trails along backshore of LDB of upper pond and perimeter of lower pond.
- Located in an industrial area within the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, use caution around the shoreline.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 S / Anthony Henday Drive S and merge onto AB-216 S for 7.5 km
- Take the Whitemud Drive E exit and continue onto AB-2 S for 9 km
- Keep right to stay on AB-2 S for 5.4 km and Continue onto AB-14 for 3.6 km
- Take the 66 St / 75 St exit, keeping left, and turning left onto 75 St NW for 1.2 km
- Turn right at McIntyre Rd NW onto private road (emergency access) towards SE corner of waterbody / Roper Pond Wetland
- Destination is Mill Creek Culvert
- Total Distance = 99 km - Total Travel Time = 91 minutes calculated at 65 km/hr

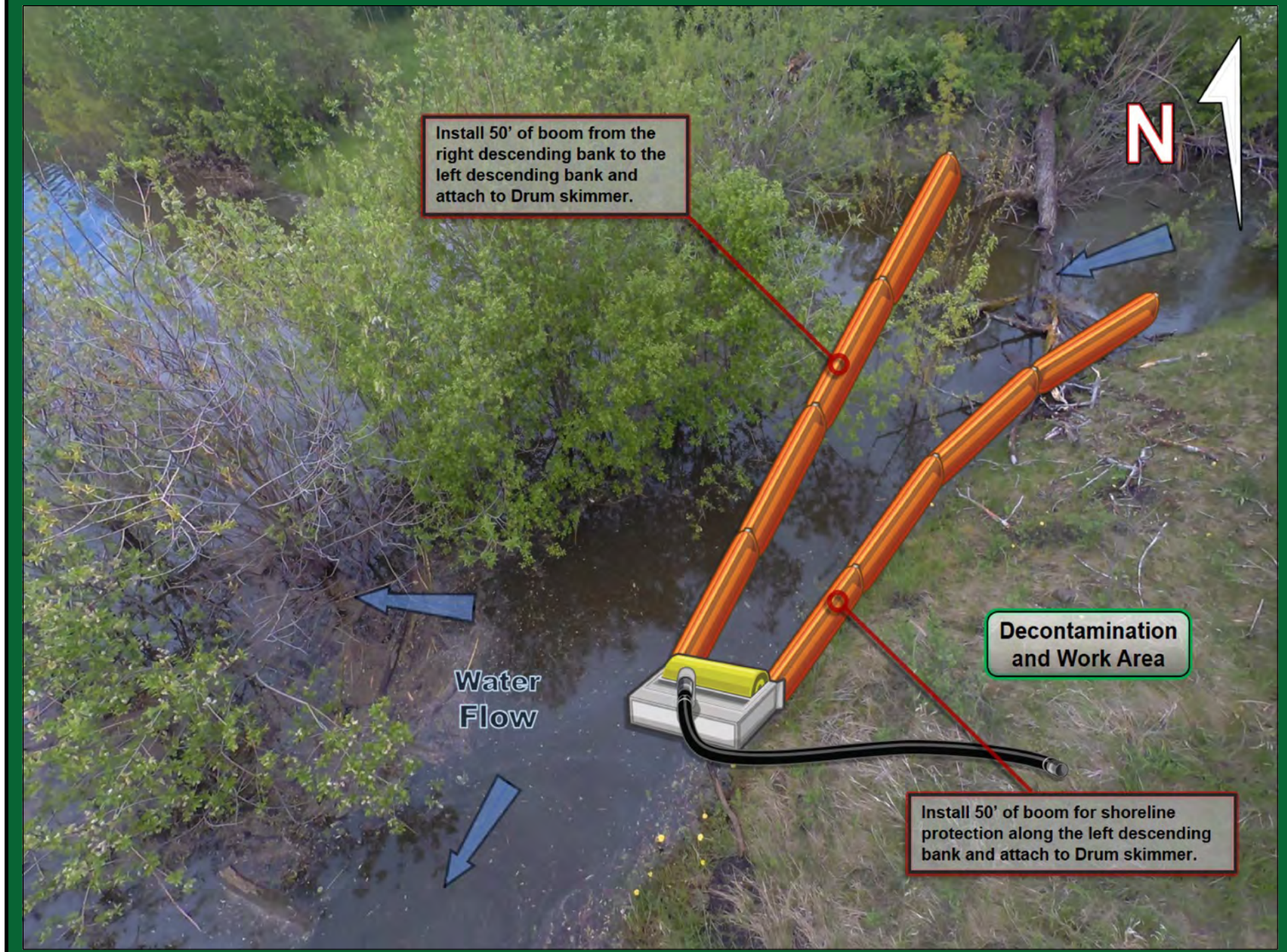
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
		250'	Rope
		1	Small Rubber Hull Workboat
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., fathead minnow, brook stickleback)
- Deer, coyote, red fox, black bear, beaver, muskrat
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp.)
- Amphibians (e.g., Western toad, Canadian toad, tiger salamander, wood frog, northern leopord frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Wetland nesting birds (e.g., marsh wren, red-winged blackbird, common yellowthroat, sora, night heron, great blue heron)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp.)
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., lesser yellowlegs)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-25

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.495980	
	Long: -113.435990	
Elevation:	676 m	
Land and Resource Use:	City of Edmonton. Roper Pond Constructed Wetland.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 02-01	**Downstream** CP 01-07
Nearest KM Post:	**Line 01** KP 8	

Waterbody Information:

Waterbody Name: Mill Creek Pond

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width			105 m
Depth			Unknown
Flow Velocity			N/A
FlowType			Man-made pond

Waterbody description:

Located on man-made pond created in 2004 for stormwater treatment and flood control along upper Mill Creek Watershed. Collection located near outflow of upper pond, which drains down short channel to lower, larger pond and wetland complex. Automatic pump house located downstream extent of lower pond. High water during survey, indicated by submerged grasses, willows. Mill Creek inflow located opposite end of pond (CP 02-01).

Shoreline Information

Bank Height:
Poorly defined, up to 1 m

Shoreline Composition and Slope:
Banks are often poorly defined, gradually sloping, composed of soft, organic substrate of grasses and sedges.

Shoreline Vegetation:
Willow and young poplars and aspen along shoreline with forested margins and open grassy areas; occasional wild rose, pin cherry, common tansy

Channel / Bank Forms:
Banks composed predominantly of organics (e.g., sod) underlain by fines. Bed composed of fine sediment.

Shoreline Comments:
Poorly defined, soft grassy banks transition to relatively level open grassy and forested areas beyond which is industrial complex. Collection area accessed along paved pathway to a pedestrian bridge across channel connecting upper and lower ponds.

Logistical Information:

Staging Area Location:	- A staging area can be located directly downstream of the control point in Mill Creek Ravine. - 35 m x 35 m area. - All weather access established. Lat: 53.49508 / Long: -113.43867	
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is off McIntyre Road down a walking / biking trail. - Gated access to walking / biking trails. - The Control Point is in the Roper Pond Constructed Wetland. - Security is needed to keep out all nonessential personnel. - Low impact access recommended.	
Road Access/Type:	- Access directly off of McIntyre Road, 210 m down a walking / biking trail to control point. - Matting is required for all weather access.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - This control point is located at the spillway of Mill Creek Pond.	

Decontamination Area:

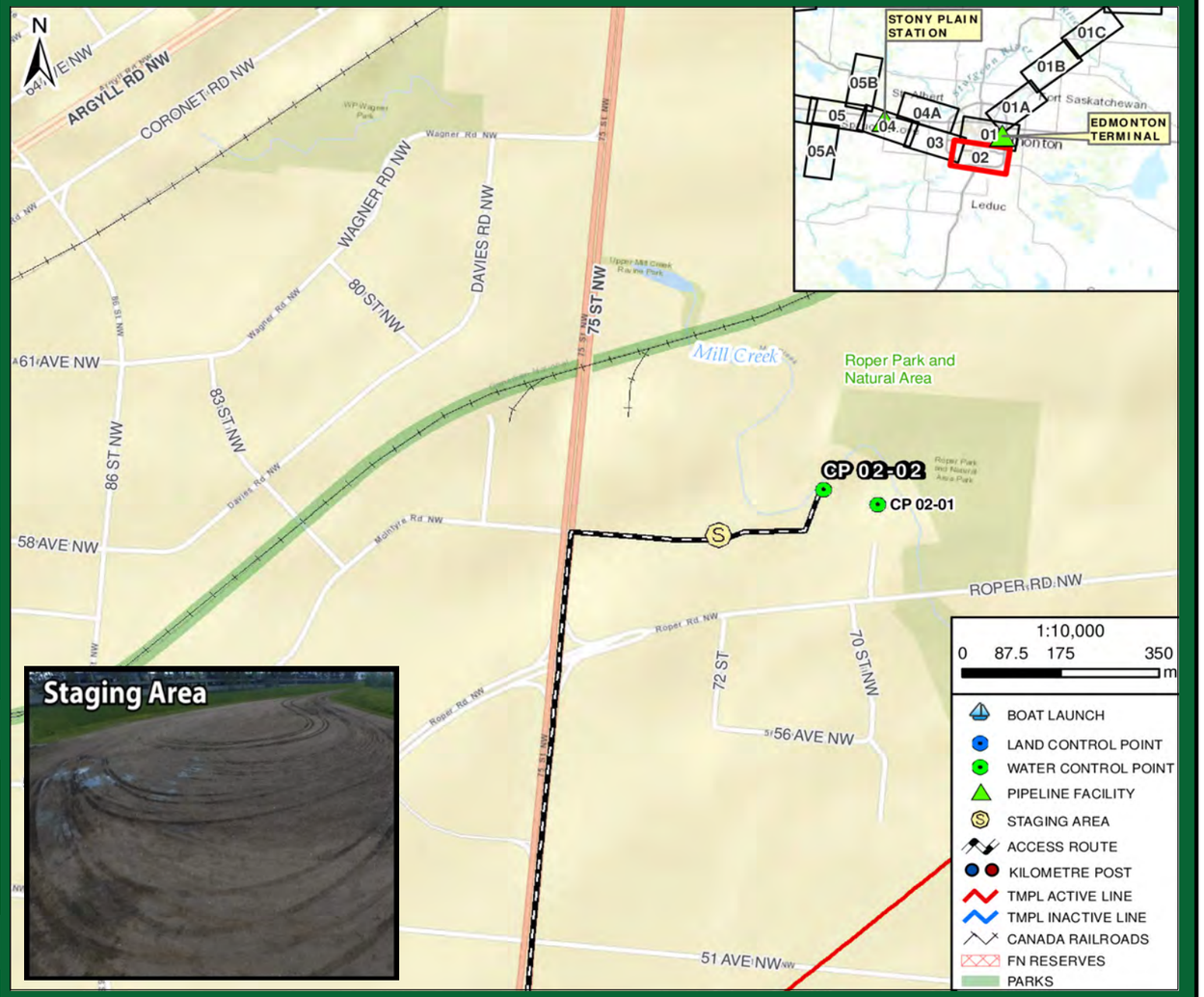
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish presence could not be confirmed; previously documented fish species in Mill Creek include brook stickleback and fathead minnow.
- High functional riparian, wetland and open water habitat created by man-made pond and wetland complex, with numerous bird species observed during survey. Waterbird nesting and migratory staging. Amphibian breeding and overwintering habitat.
- Abundant shrubs and dense grassy shorelines provide riparian and shorebird nesting habitat. Cavity nesting habitat in mature poplars and man-made nest boxes.
- Active beaver habitat indicated by fresh cuttings and damming at outflow of upper pond.
- Nature trails along backshore of LDB of upper pond and perimeter of lower pond.
- Located in an industrial area within the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, use caution around shoreline.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

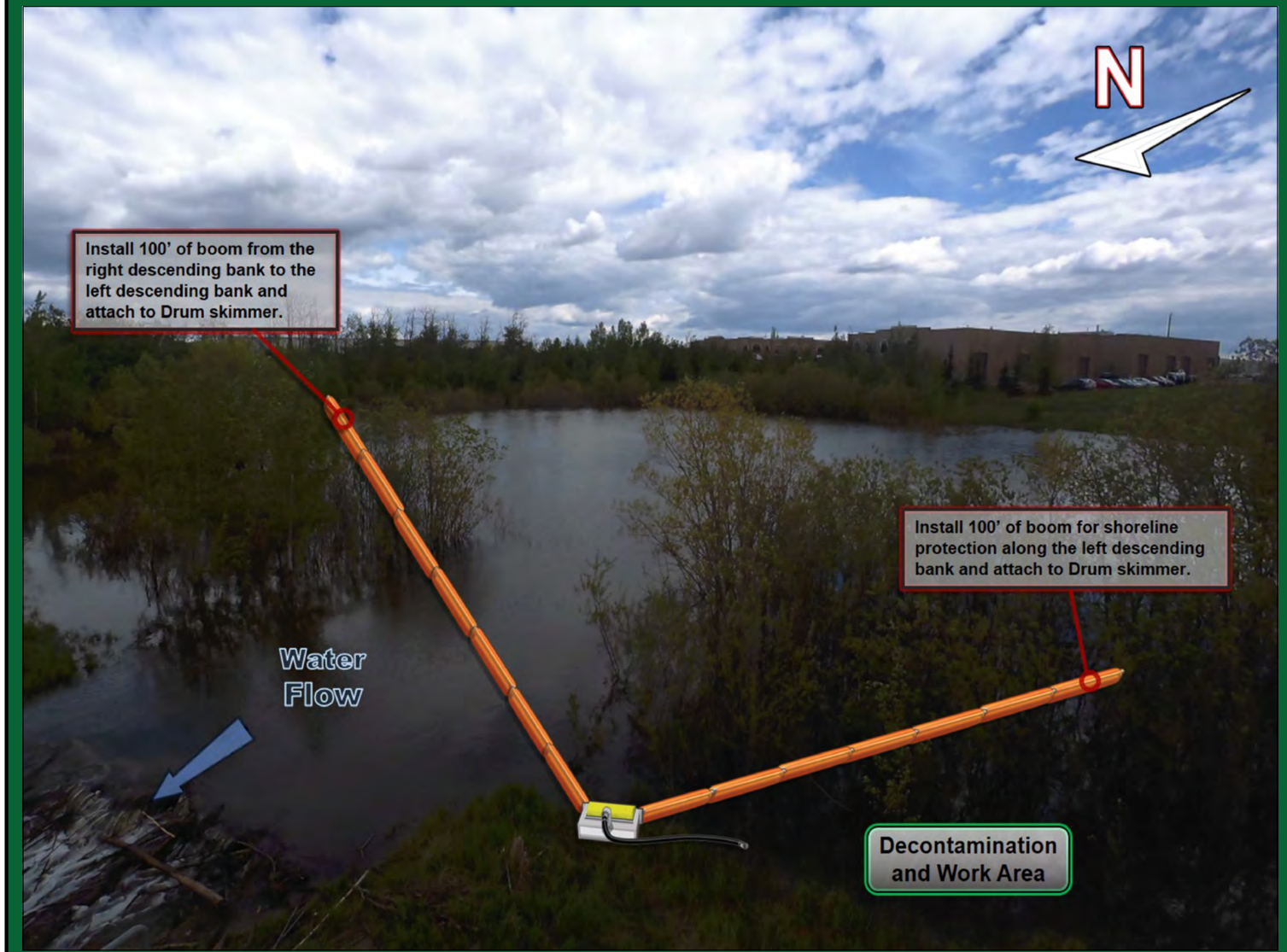
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 S / Anthony Henday Drive S and merge onto AB-216 S for 7.5 km
- Take the Whitemud Drive E exit and continue onto AB-2 S for 9 km
- Keep right to stay on AB-2 S for 5.4 km and Continue onto AB-14 for 3.6 km
- Take the 66 St / 75 St exit, keeping left, and turning left onto 75 St NW for 1.2 km
- Turn right at McIntyre Rd NW onto private road (emergency access) towards SE corner waterbody / Roper Pond Wetland
- Destination is Mill Creek Culvert
- Total Distance = 99.1 km - Total Travel Time = 91 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-02



Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle and anchor to the shoreline.
- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the Drum skimmer and anchor to the shoreline.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Power Pack, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		50'	Hydraulic Line
		1	Vacuum Truck
		250'	Rope
		1	Small Rubber Hull Workboat
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., fathead minnow, brook stickleback)
- Deer, coyote, red fox, black bear, beaver, muskrat
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp.)
- Amphibians (e.g., Western toad, Canadian toad, tiger salamander, wood frog, northern leopord frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Wetland nesting birds (e.g., marsh wren, red-winged blackbird, common yellowthroat, sora, night heron, great blue heron)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp.)
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-25

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.505100	
	Long: -113.561680	
Elevation:	692 m	
Land and Resource Use:	City of Edmonton. Whitemud Park.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** N/A	**Downstream** CP 02-04
Nearest KM Post:	**Line 01** KP 18	

Waterbody Information:

Waterbody Name: Whitemud Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		21 m	
Depth		Unknown	
Flow Velocity		2.8 km/hr	
FlowType		Frequently confined moderate velocity flat structure.	

Waterbody description:

Frequently confined moderate velocity flat structure. Sinuous, often turbid creek flows through city park, entering the North Saskatchewan River downstream of collection. Occasional stranded woody debris. High turbidity during survey.

Shoreline Information

Bank Height:
Variable, 1.2 to 2 m

Shoreline Composition and Slope:
Banks vary from steep to overhanging areas of mixed exposed fine sediments, grasses and willows, with level backshore along RDB and variable topography along LDB.

Shoreline Vegetation:
Patches and isolated occurrences of cottonwood and birch, abundant willow saplings, grasses and horsetail.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments.

Shoreline Comments:
Variable, steep to overhanging banks transition to level backshore area along RDB vegetated with grasses and willow saplings. Slip/trip/fall hazard from muddy areas along shoreline, potential instability along overhanging banks often obscured by vegetation, and protruding willow cuttings from recent beaver activity. Collection area accessed along narrow paths that diverge from paved recreation trail to banks of creek

Logistical Information:

Staging Area Location:	- A staging area to be installed in Whitemud park. - The staging area will be located in a parking area on the right descending bank. - 15 m x 30 m area. - All weather access is established.	
	Lat: 53.50366	Long: -113.5604
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Minor site preparation required (brushing). - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is from Whitemud Park. - Recreational boat traffic in the control point area. - Gated vehicle access to the control point. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Keillor Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 01-01. - Refer to BL 01-01 boat launch data sheet for further information. - Additionally a secondary boat launch can be located at BL 01-02. - Refer to BL 01-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - Control point is located 400 m downstream of the Quinsell bridge. - The control point and staging area are located at a popular recreational area.	

Decontamination Area:

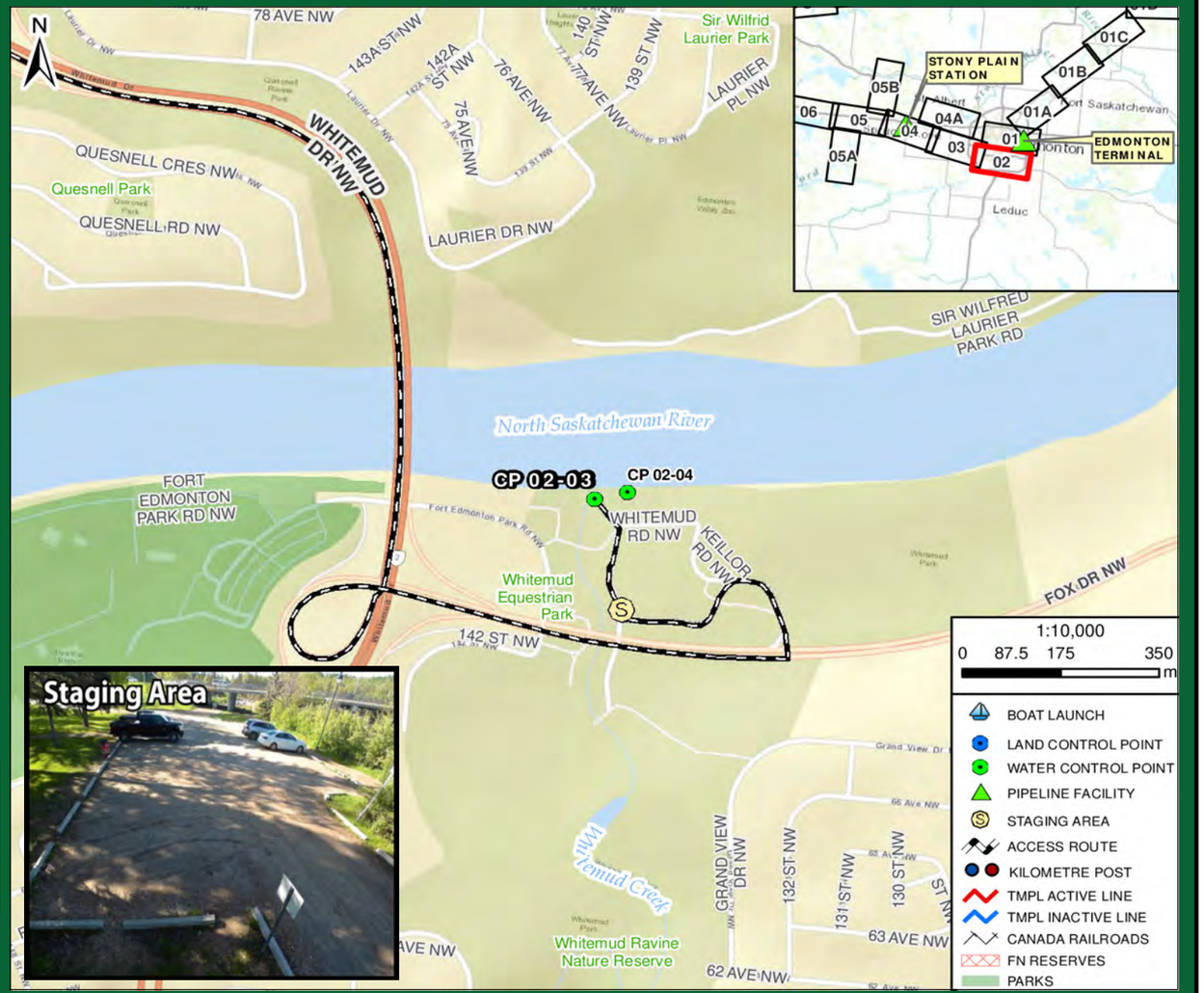
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat due to abundant fines; migratory corridor form North Saskatchewan River to upstream spawning areas of Whitemud Creek; deeper areas, shoreline cover and proximity to North Saskatchewan River prive low to moderate rearing and overwintering habitat.
- Riparian and cavity nesting habitat in mature cottonwoods. Evidence of recent beaver activity (e.g., shrub cuttings, chutes).
- Located in Whitemud Park, a popular day use and recreational area.
- Frequent shoreline angling at confluence with North Saskatchewan River.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Whitemud Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

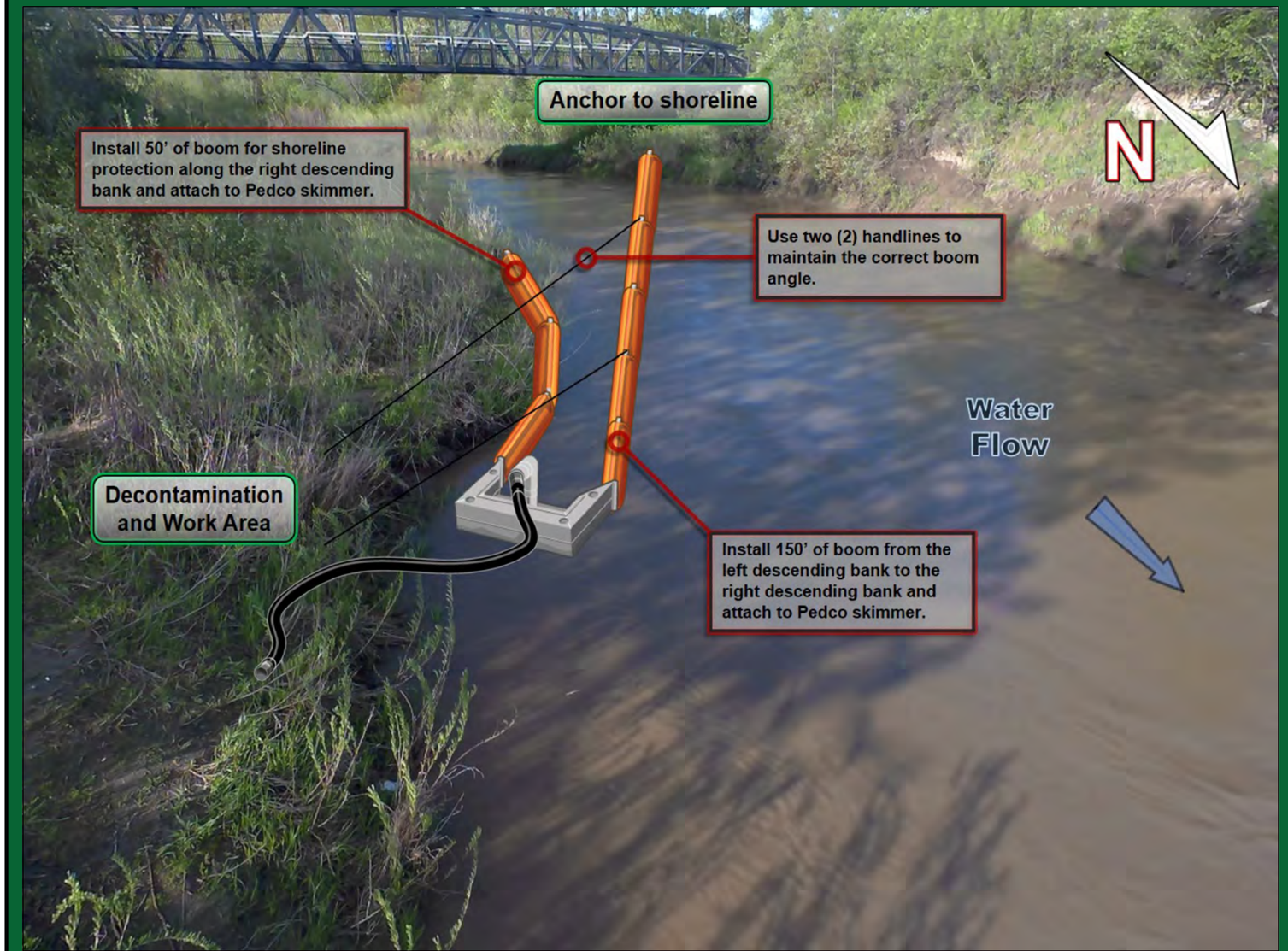
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 S / Anthony Henday Drive S and merge onto AB-216 S for 7.5 km
- Take the Whitemud Drive E exit and continue onto AB-2 S for 9 km
- Take the Fox Drive E exit toward Fort Edmonton Park for 700 m
- Continue onto Fox Dr NW E for 500 m and turn left onto Keillor Rd NW for 450 m towards the 2nd parking lot
- Destination is in Whitemud Park via pathway to open shoreline on south riverbank of North Saskatchewan River
- Total Distance = 88.1 km
- Total Travel Time = 81 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-03



Implementation Strategy:

- Install 150' of 6" x 6" hard containment boom from the left descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 25 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	4	50' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Work Boat
14	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-25

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.505620	
	Long: -113.560520	
Elevation:	676 m	
Land and Resource Use:	City of Edmonton. Whitemud Park.	
Upstream Valves:	**Line 01:** MOD	
Downstream Valves:	**Line 01:** K19	
Control Point:	**Upstream** CP 02-03	**Downstream** CP 01-09
Nearest KM Post:	**Line 01** KP 18	

Waterbody Information:

Waterbody Name: North Saskatchewan River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		265 m	
Depth		Unknown	
Flow Velocity		5.5 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:
Confined moderate velocity flat run structure. Main current along center-left of river along outside bend. Confluence of Whitemud Creek located upstream of collection area. Occasional floating logs and woody debris, more frequent during high water. Medium water levels at time of survey, with banks exposed 2-3 m above water level. High turbidity during survey.

Shoreline Information

Bank Height:
up to 4 m

Shoreline Composition and Slope:
Moderately steep to gradual along RDB with exposed fine sediments; steep to overhanging densely vegetated with loose underlying sediments.

Shoreline Vegetation:
Willow saplings, grasses, horsetail and patches of young to mature cottonwood along backshore RDB; isolated weeds (e.g., common tansy). Dense shrubs and young to mature mixedwood forest of cottonwood, birch, spruce along LDB.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments, patches of gravels along RDB; potential gravels and cobbles along riverbed along areas of swifter current.

Shoreline Comments:
Collection area located along moderately steep to gradual exposed shoreline transition to level, open grassy backshore area along a paved park trail. Signage and trail leading to bank suggest the site may be be used as a boat launch or put-in/pull-out location for boats; however, it is not a formal boat launch. Slip/trip/fall hazard from muddy areas along shoreline. Collection area accessed along paved trail to open grassy backshore area to gradually sloping bank.

Logistical Information:

Staging Area Location:	- A small staging area to be installed within Whitemud park. - The staging area is located in a parking area on the right descending bank. - 15 m x 30 m area. - All weather access is established.	
	Lat: 53.50366	Long: -113.5604
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 20 m x 20 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is from Whitemud Park. - Recreational boat traffic in control point area. - Gated access to control point - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Keillor Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 01-01. - Refer to BL 01-01 boat launch data sheet for further information. - Additionally a secondary boat launch can be located at BL 01-02. - Refer to C 01-3I boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat for numerous fish species.
- Riparian and cavity nesting habitat in mature cottonwoods. Evidence of recent beaver activity (e.g., shrub cuttings, chutes).
- Corridor of mixed deciduous and coniferous forest habitat along North Saskatchewan Vally.
- CP located in Whitemud Park, a popular day use and recreational area.
- Frequent shoreline angling at confluence with North Saskatchewan River.
- Frequent boating.
- Located in the City of Edmonton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Whitemud Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

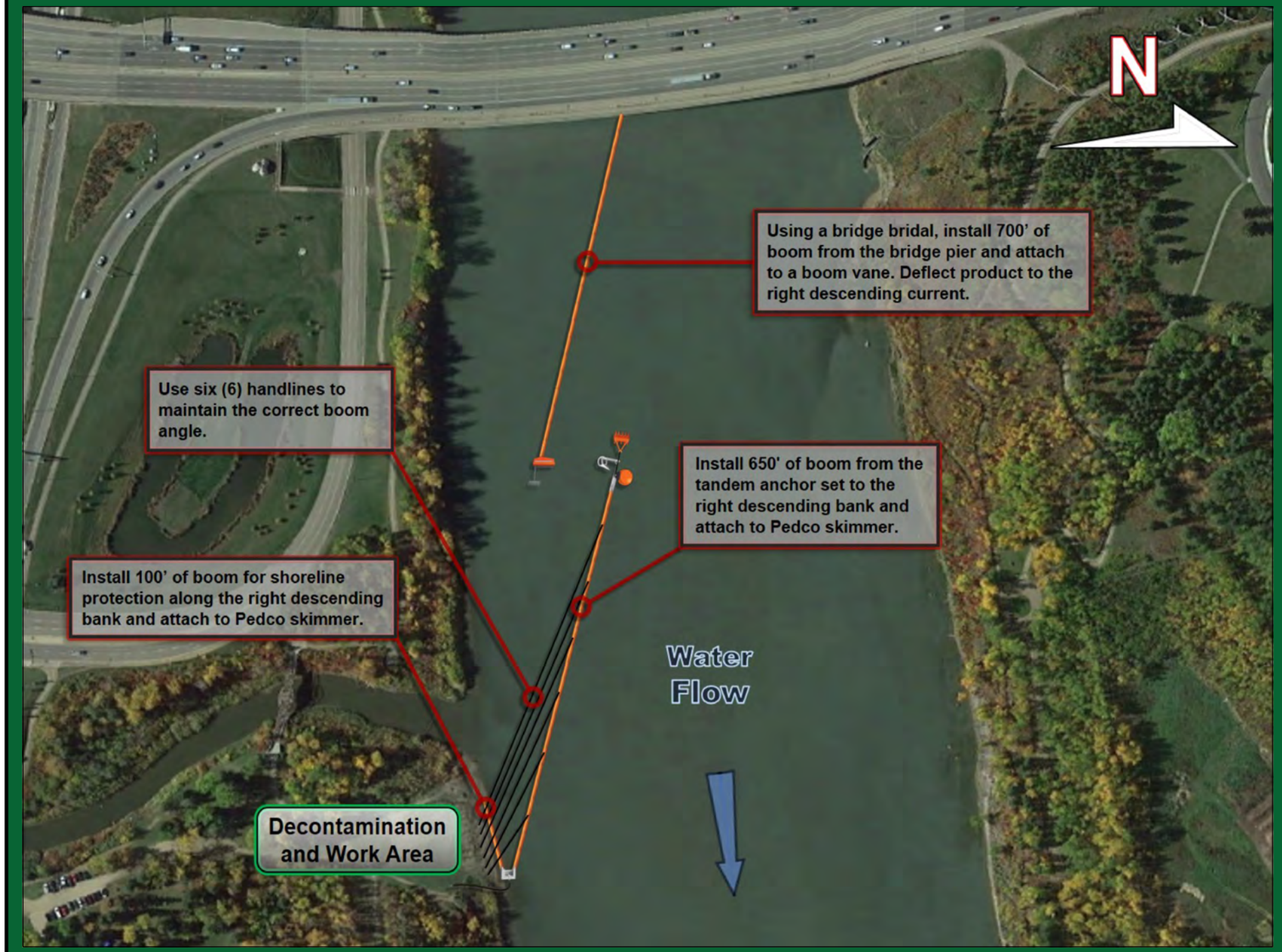
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 S / Anthony Henday Drive S and merge onto AB-216 S for 7.5 km
- Take the Whitemud Drive E exit and continue onto AB-2 S for 9 km
- Take the Fox Drive E exit toward Fort Edmonton Park for 700 m
- Continue onto Fox Dr NW E for 500 m and turn left onto Keillor Rd NW for 450 m towards the 2nd parking lot
- Destination is in Whitemud Park via pathway to open shoreline on south riverbank of North Saskatchewan River
- Total Distance = 88.1 km
- Total Travel Time = 81 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-25
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 02-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1550'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		4/ 2	Rake Anchor / Sarca Anchor
		1	Bridge Pier Bridle
		2 / 1	60' Ballast Chain / 50' Rode Line
		1	Marker Buoy
		1	0.5 m Boom Vane
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., thrush spp.)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Implementation Strategy:

- Install a bridge pier bridle on the bridge pier second from the right descending bank.
- Install 700' of 6" x 6" hard containment boom from the bridge pier bridle and attached to a 0.50 m boom vane to deflect product to the right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 650' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 200' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose directly to a vacuum truck/portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 290 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-28

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.569890		
	Long: -113.966930		
Elevation:	673 m		
Land and Resource Use:	Crown Land. Highway 16 /Township Road 532 Road Right-of-Way.		
Upstream Valves:	**Line 01:** K21		
Downstream Valves:	**Line 01:** UV-0001		
Control Point:	**Upstream** N/A	**Downstream** CP 04-02	
Nearest KM Post:	**Line 01** KP 48		

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Drainage

WATER LEVEL:	Low	Medium	High
Width		1 m	
Depth		0.5 m	
Flow Velocity		<0.5 km/hr	
FlowType		Confined seasonal drainage with run and pool structure	

Waterbody description:
Confined run and pool structure flowing out of two 1.2 m diameter metal culverts under highway along man-made ditch lined with boulder riprap, tall grasses, cattail and willow and poplar seedlings. Ranging from 0.2 to 0.5 m deep at medium water levels, sediment deposits and flatten grasses along banks indicate high water levels up to an addition 0.8 m. May become dry or intermittent during winter. Low-moderate turbidity.

Shoreline Information

Bank Height:
1 to 2 m

Shoreline Composition and Slope:
Banks well defined along containment, becoming less so downstream, lined with grasses and cattails, and moderately steep rounded boulder riprap transitions to grass approach.

Shoreline Vegetation:
Isolated poplar and aspen seedlings, frequent willow seedlings and saplings; mixed young to mature forest downstream (e.g., poplar, spruce); dense tall grasses (e.g., reed canarygrass), cattails, horsetail, alfalfa, weeds (e.g., tansy, thistle sp., knapweed sp.).

Channel / Bank Forms:
Banks composed of rounded boulder riprap and organics, bed composed of mixed organics, fines and occasional cobbles and boulders.

Shoreline Comments:
CP accessed from rural residential road down 4 m grassy man-made approach adjacent to highway easement to moderately steep boulder riprap lined with tall grasses and cattail along banks. Slips/trips/falls hazards along loose boulders, sediment fences along approach and soft organic/muddy bed and banks. Isolated occurrences and patches of weeds (e.g., common tansy, thistle sp., knapweed sp.).

Logistical Information:

Staging Area Location:	- The staging area can be established on the left descending bank upstream of the control point. - 10 m x 35 m area. - Matting required for all weather access.	
	Lat: 53.57014	Long: -113.96745
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Steep cut banks along watercourse. - Consider installing a matting or pallet step-down to better access the recovery area.	
Road Access/Type:	- Access off of Township Road 532. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

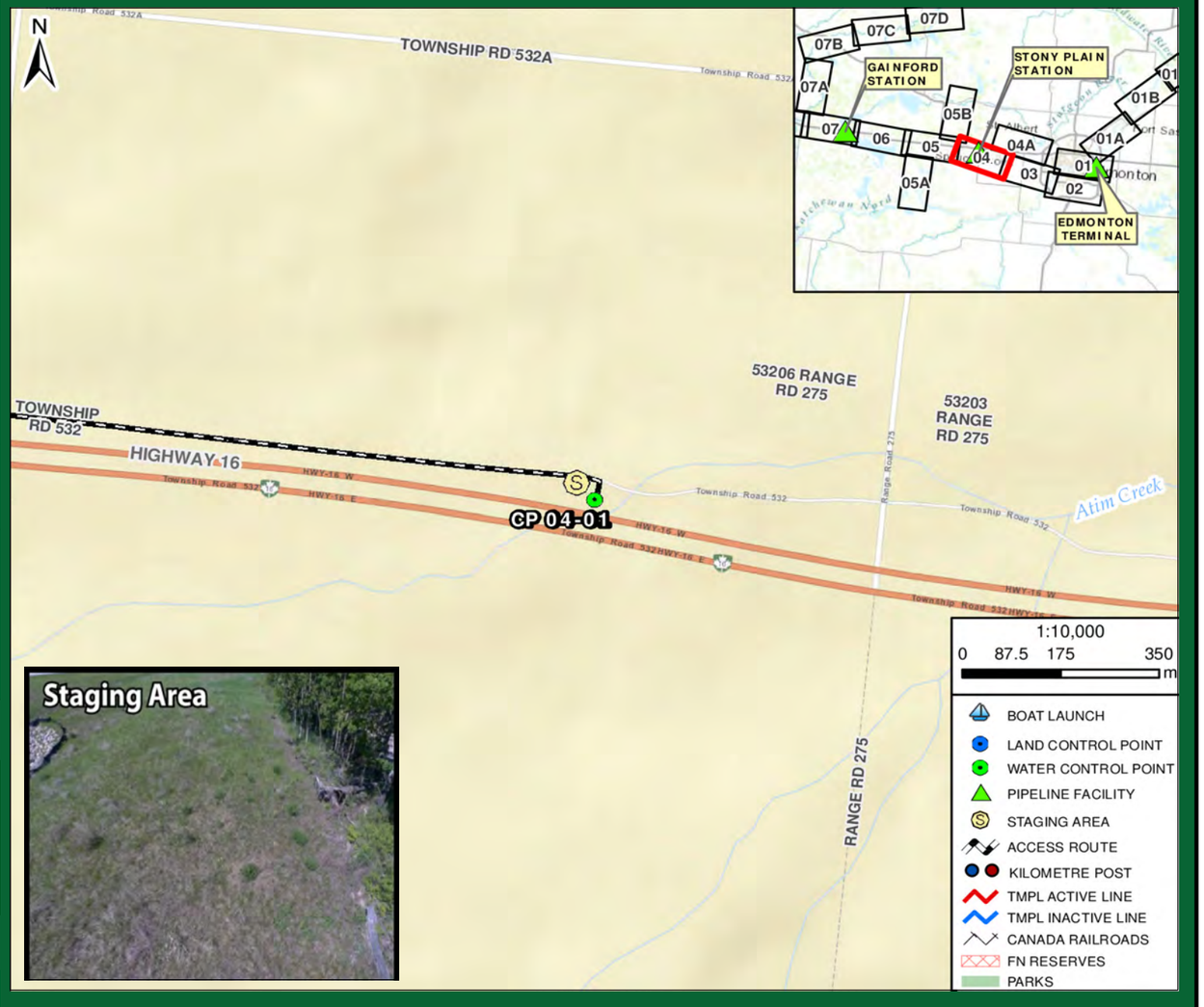
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; instream and shoreline cover, small pools provide moderate rearing potential; poor overwintering habitat due to low or intermittent flow.
- Wetland nesting habitat in tall grasses and cattails.
- Amphibian habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep soft banks, use caution around shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

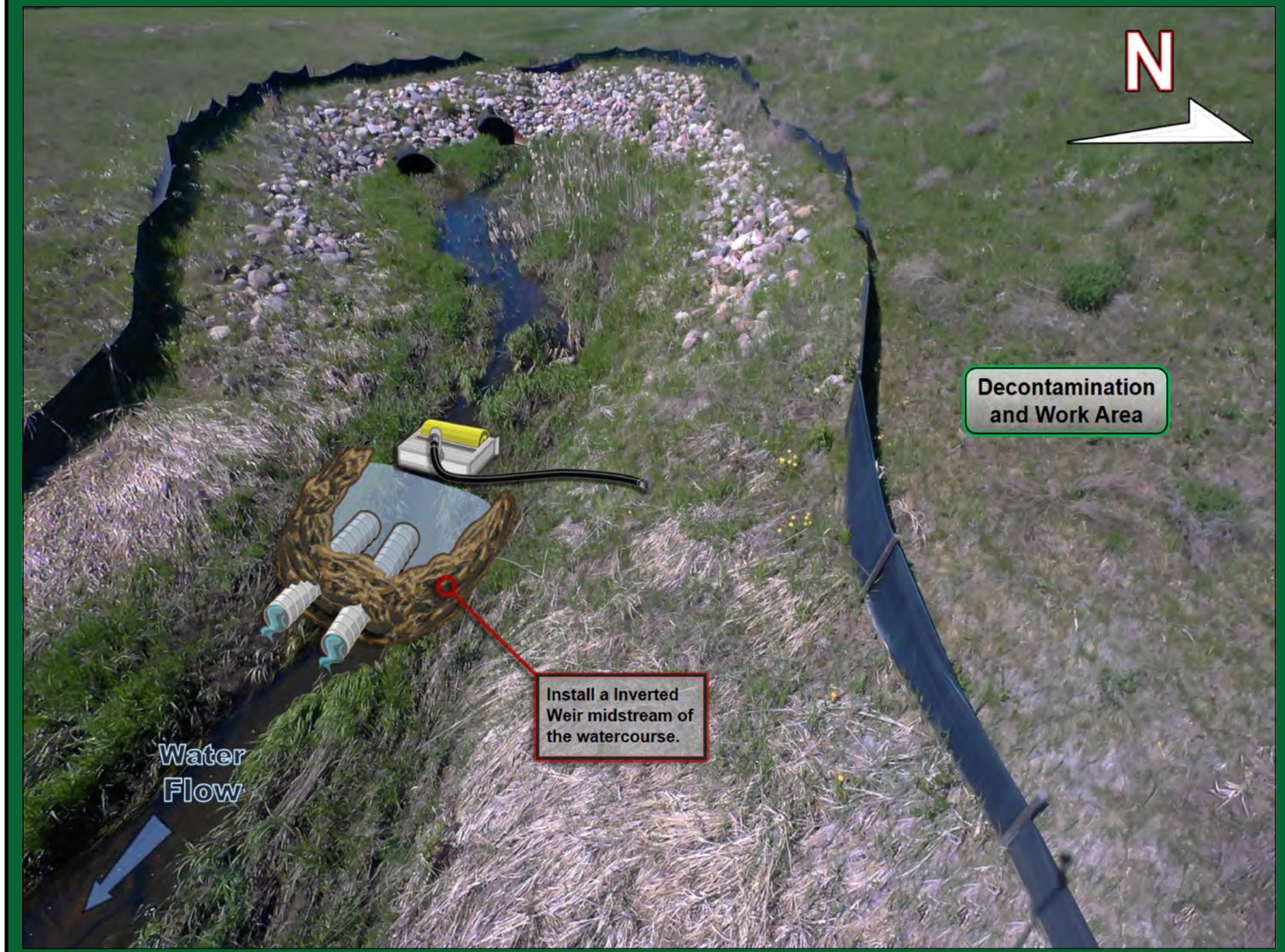
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 51 km
- Pulloff from highway, just before crossing Spruce Grove, onto Township Rd 532
- Destination is in unnamed watercourse road culvert
- Total Distance = 51.8 km
- Total Travel Time = 48 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-28
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	2'	12" x 15' Culvert
1	Safety Watch	1	Trackhoe
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	10 Yards	Earthen Material or 80 Sandbags
1	Trackhoe Operator	1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, goldeye, white sucker, lake chub, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, beaver, muskrat
- Small mammals (e.g.,vole spp.)
- Amphibians (e.g., Western toad, Canadian toad, chorus frog, wood frog)
- Riparian/wetland nesting birds (e.g., marsh wren, red-winged blackbird, sparrow spp., warbler spp.), blue heron
- Raptors (e.g., Swainson's hawk, northern harrier)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, coot)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (2) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 150' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 1 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-28

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.573420	
	Long: -113.934050	
Elevation:	667 m	
Land and Resource Use:	Crown Land. Campsite Road/Township 532 Right-of-Way.	
Upstream Valves:	**Line 01:** K21	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 04-01	**Downstream** CP 04A-01
Nearest KM Post:	**Line 01** KP 46	

Waterbody Information:

Waterbody Name: Atim Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		19 m	
Depth		1.5 m	
Flow Velocity		<0.5 km/hr	
FlowType		Mad-made pond associated with creek	

Waterbody description:

Creek becomes confined, open water pond with marginal flow between highway and rural road where it enters and exits 4 m diameter cement culverts with 3 m clearance. Open water area appears deep near centre (1.5 to 2 m) and is lined with 2-3 m of rounded medium size boulder riprap. Moderate turbidity during survey.

Shoreline Information

Bank Height:
1 to 2 m

Shoreline Composition and Slope:
Banks well defined, with moderately steep rounded, sparsely vegetated boulder riprap to gradual sloping becoming level grassy backshores.

Shoreline Vegetation:
Isolated poplar and aspen saplings and low density willows along riprap banks; grasses along shoreline and above riprap along highway and rural road easements.

Channel / Bank Forms:
Banks composed of rounded boulder riprap, bed composed of mixed organics, fines and boulders.

Shoreline Comments:
CP accessed from paved rural road down 2 to 3 m moderately steep boulder riprap lining open water area situated along a grass dominated 50 to 70 m wide ditchline easement between highway and rural road. Slips/trips/falls hazards along loose boulders.

Logistical Information:

Staging Area Location:	- The staging area can be located along Pioneer Road on the left descending bank. - 30 m x 80 m area. - Matting required to establish all weather access.	
	Lat: 53.5731	Long: -113.93407
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 2 m x 10 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- There are no restrictions to the control point or staging area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Township Road 532. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

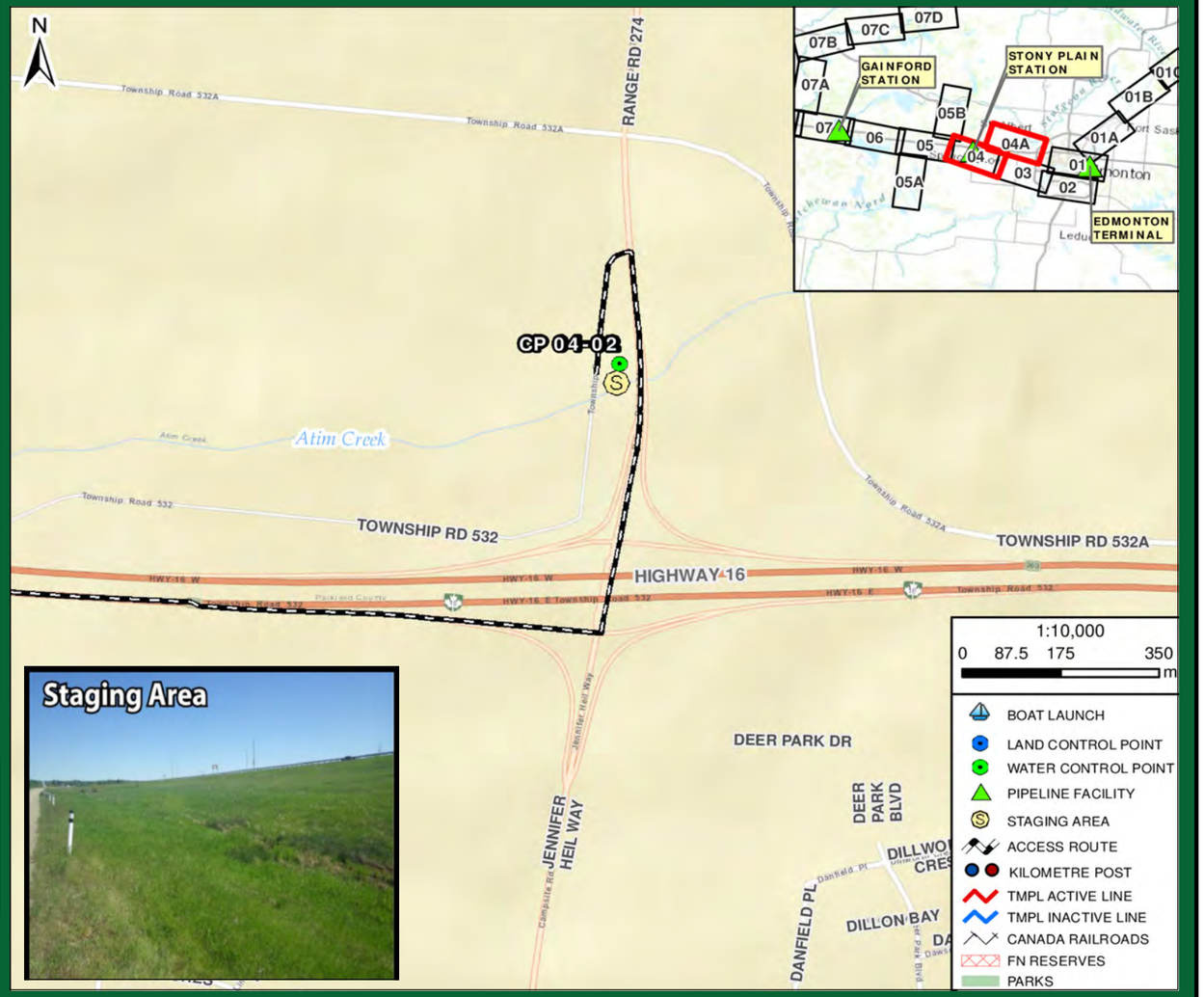
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; deep pool between culverts may provide moderate rearing and overwintering habitat potential.
- Riparian nesting habitat in willows.
- Waterbird habitat.
- There is a cattle farm on the west side of rural road approximately 80 m from of CP.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky ground conditions, use caution around shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

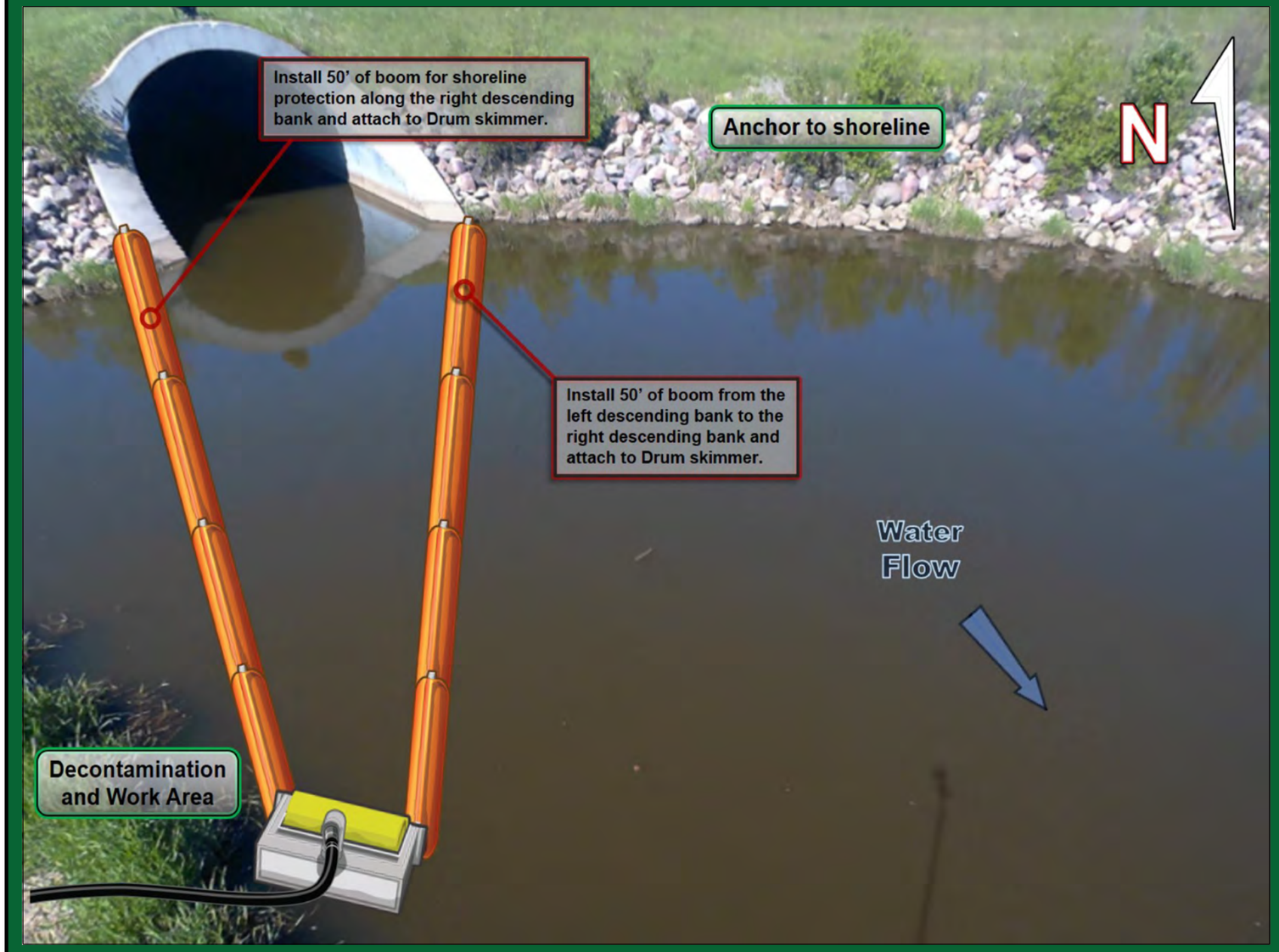
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 53 km
- Take exit 360 toward Campsite Road N for 700 m (just north of Spruce Grove)
- Turn left onto Jennifer Heil Way / Range Rd 274 for 750 m
- Turn left onto Township Rd 532 and continue parallel to the highway for 260 m (at ~27411)
- Destination is in Atim Creek road culvert
- Total Distance = 55.1 km
- Total Travel Time = 51 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-28
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	250'	Rope
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, goldeye, white sucker, lake chub, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, beaver, muskrat
- Small mammals (e.g.,vole spp.)
- Amphibians (e.g., Western toad, Canadian toad, chorus frog, wood frog)
- Riparian/wetland nesting birds (e.g., marsh wren, red-winged blackbird, sparrow spp., warbler spp.), blue heron
- Raptors (e.g., swainson's hawk, northern harrier)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, coot)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 20 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-28

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.592070	
	Long: -113.860520	
Elevation:	652 m	
Land and Resource Use:	Crown Land. Pioneer Road Right-of-Way.	
Upstream Valves:	**Line 01:** K21	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 04-02	**Downstream** CP 04A-02
Nearest KM Post:	**Line 01** KP 40	

Waterbody Information:

Waterbody Name: Atim Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		12 m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently unconfined low velocity flat structure	

Waterbody description:
At CP, channel is well defined, with depth ranging from 0.2 to 1 m as it courses along a sedge dominated wetland complex containing abundant stranded woody debris and instream organics, flowing under a clear span road bridge below containment with 1 m clearance. Water level appears well-moderated, though backshore prone to saturation and shallow flooding during higer water. Drainage enters creek on RDB near bridge.

Shoreline Information

Bank Height:
0.3 to 0.8 m

Shoreline Composition and Slope:
Banks are generally well defined with vertical/overhanging organic banks with level, stable but uneven sedge dominated backshore.

Shoreline Vegetation:
Predominantly sedges with isolated willows and occasional marsh marigold along containment transitioning to cattail dominated wetland downstream.

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines.

Shoreline Comments:
Soft organic substrate along banks and level sedge dominated backshore work area typically dry during low and medium water conditions; may become saturated, potentially flooding during higher water. Navigational barriers present (e.g., upstream beaver dam, woody debris accumulation). Residential power line crosses above containment approximately 4-5 m high. Slips/trips/falls hazards along soft organic vertical/overhanging banks and soft, muddy instream substrate.

Logistical Information:

Staging Area Location:	- The staging area can be located along Pioneer Road on the left descending bank. - 5 m x 100 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.59233	Long: -113.86083
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Narrow gravel road and bridge located at this control point. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Road Access/Type:	- Access off of Pioneer Road. - All weather access is established. - Traffic control recommended.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. -- A small rubber hull work boat can be utilized to help transport personnel from the left descending bank to the right descending bank.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

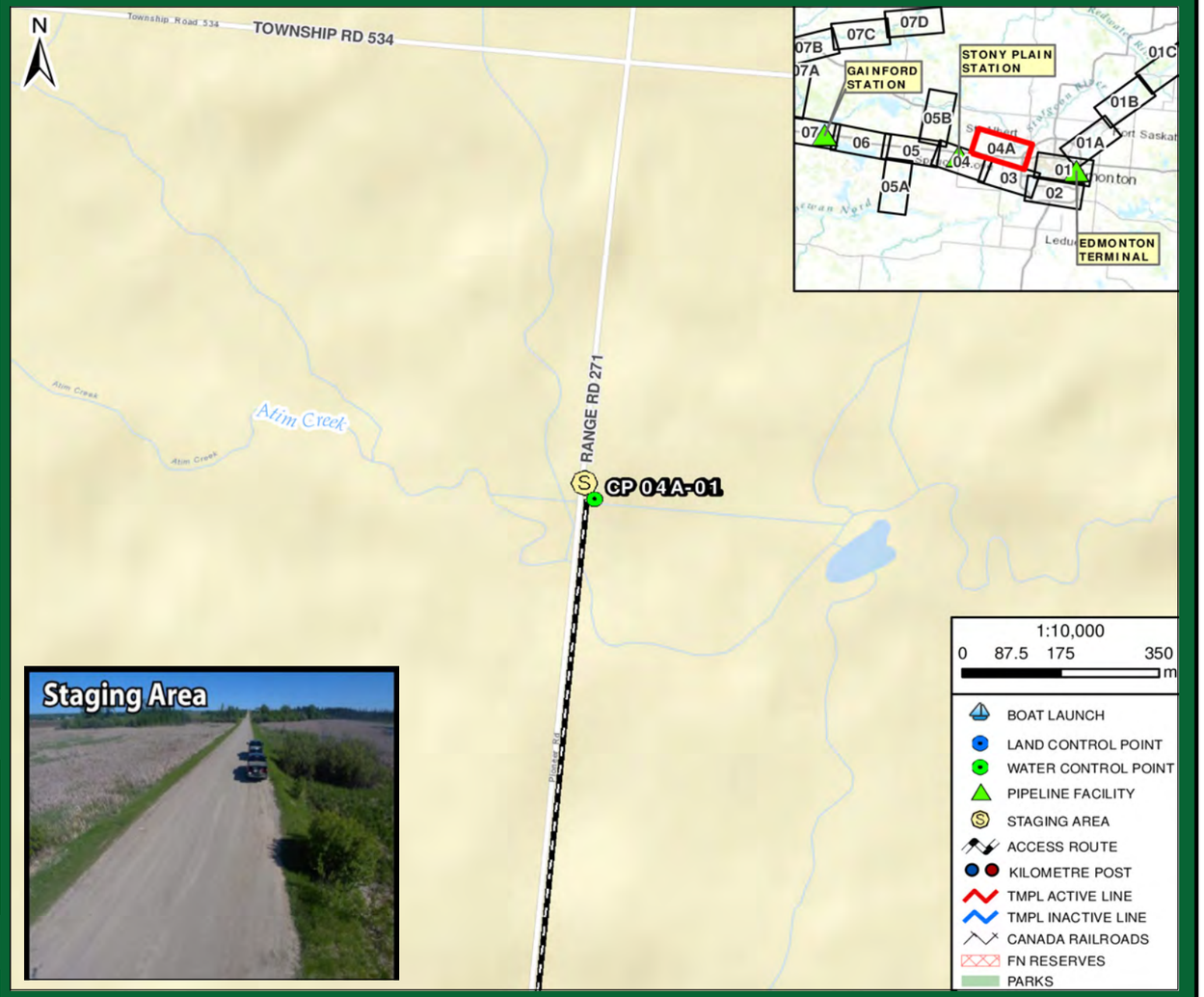
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; low current, woody debris and emergent / submergent vegetation and bank cover provides good rearing habitat; low overwintering habitat potential due to shallow depth (max 1 m during medium water levels).
- Low current watercourse along extensive sedge and cattail dominated wetland complex provides important waterbird and wetland nesting bird habitat and amphibian habitat. Riparian nesting habitat in willow patches along backhsore. There is an active beaver dam located 150 m upstream. Cliff swallows nesting under road bridge deck. Adjacent to rural gravel road; occasional shoreline angling and wildlife viewing. Confirm - City of Edmonton Wildlife Rehabilitation Centre located approximately 300 m north of CP along Range Road 271.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 57 km
- Take exit 363 for Century Road toward Parkland Village/Spruce Grove and turn left onto Century Road
- Continue on Range Rd 272 for 680 m
- Turn right onto Township Rd 532A for 1.7 km and turn left onto Range Rd 271 for 1.8 km
- Destination is bridge over Atim Creek
- Total Distance = 61.3 km
- Total Travel Time = 57 minutes calculated at 65 km/hr

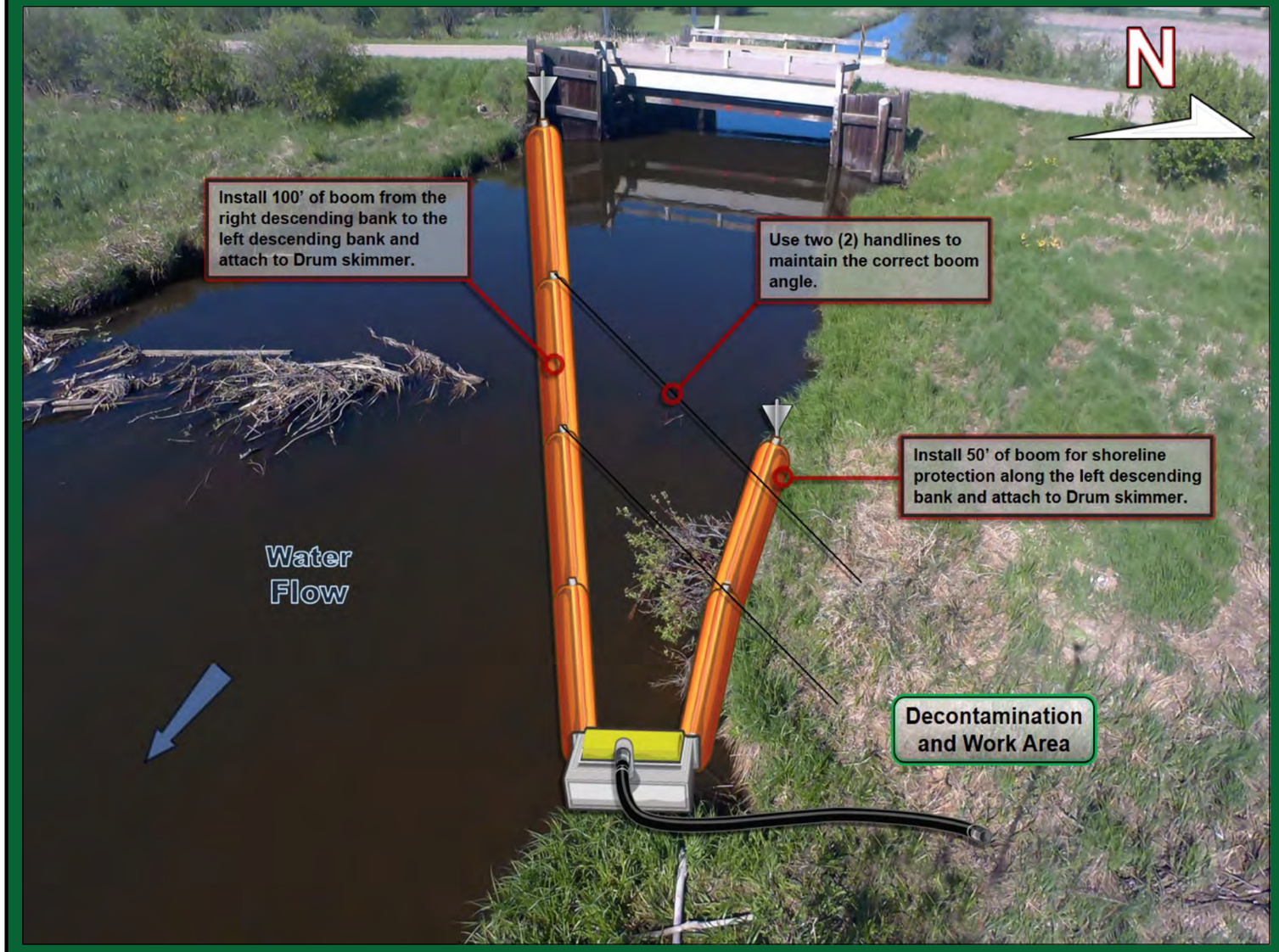
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-28
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	4	50' Handline and Bridle
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, goldeye, sauger, pike, sturgeon, white sucker, lake chub, fathead minnow, brook stickleback)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, tiger salamander, wood frog, chorus frog, northern leopord frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Wetland nesting birds (e.g., marsh wren, red-winged blackbird, common yellowthroat, sora, night heron, blue heron)
- Raptors (e.g., osprey, golden eagle, Swainson's hawk, northern harrier), owls (e.g., short-eared owl, long-eared owl)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 15 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-24

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.597168	
	Long: -113.814470	
Elevation:	655 m	
Land and Resource Use:	Private Land. Forested.	
Upstream Valves:	**Line 01:** K21	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 04A-01	**Downstream** CP 04A-03
Nearest KM Post:	**Line 01** KP 37	

Waterbody Information:

Waterbody Name: Atim Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		9 m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently unconfined low velocity flat structure	

Waterbody description:

Frequently unconfined low velocity flat structure. Sinuous, slow moving creek with cattail dominated riparian margins, flowing under a clear span road bridge below collection with 3 m clearance. Algae present along shoreline indicative of nutrient loading. Occasional stranded woody debris and an active beaver dam approximately 100 m upstream. Low to moderate turbidity during survey.

Shoreline Information

Bank Height:
Poorly defined, up to 1 m

Shoreline Composition and Slope:
Banks are often poorly defined, densely vegetated with cattails and sedges; range from gradual to steep in areas with level backshore and steep built-up approach along road.

Shoreline Vegetation:
Cattails, sedges, bulrush along margins, with isolated occurrences of willows, grasses along backshore and weeds along road (e.g., dandelion, silverweed, hawksbeard, clover)

Channel / Bank Forms:
Organic matter underlain by fine sediments along natural banks; mix of fines and gravels along road approaches. Bed composed of organics and fine sediment.

Shoreline Comments:
Poorly defined banks transition to relatively level grassland areas along broad, shallow valley transitioning to low density rural and agricultural development. Collection area accessed along moderately sloping 3-4 m high built-up approach along Range Road 44.

Logistical Information:

Staging Area Location:	- The staging area is located along the road right-of-way on the left descending bank. - 10 m x 50 m area. - Matting required to establish all weather access.	
	Lat: 53.59745	Long: -113.814644
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is directly off Highway 44. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Road Access/Type:	- Access off of Highway 44. - All weather access is established. - Traffic control recommended.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of highway 44 bridge crossing.	

Decontamination Area:

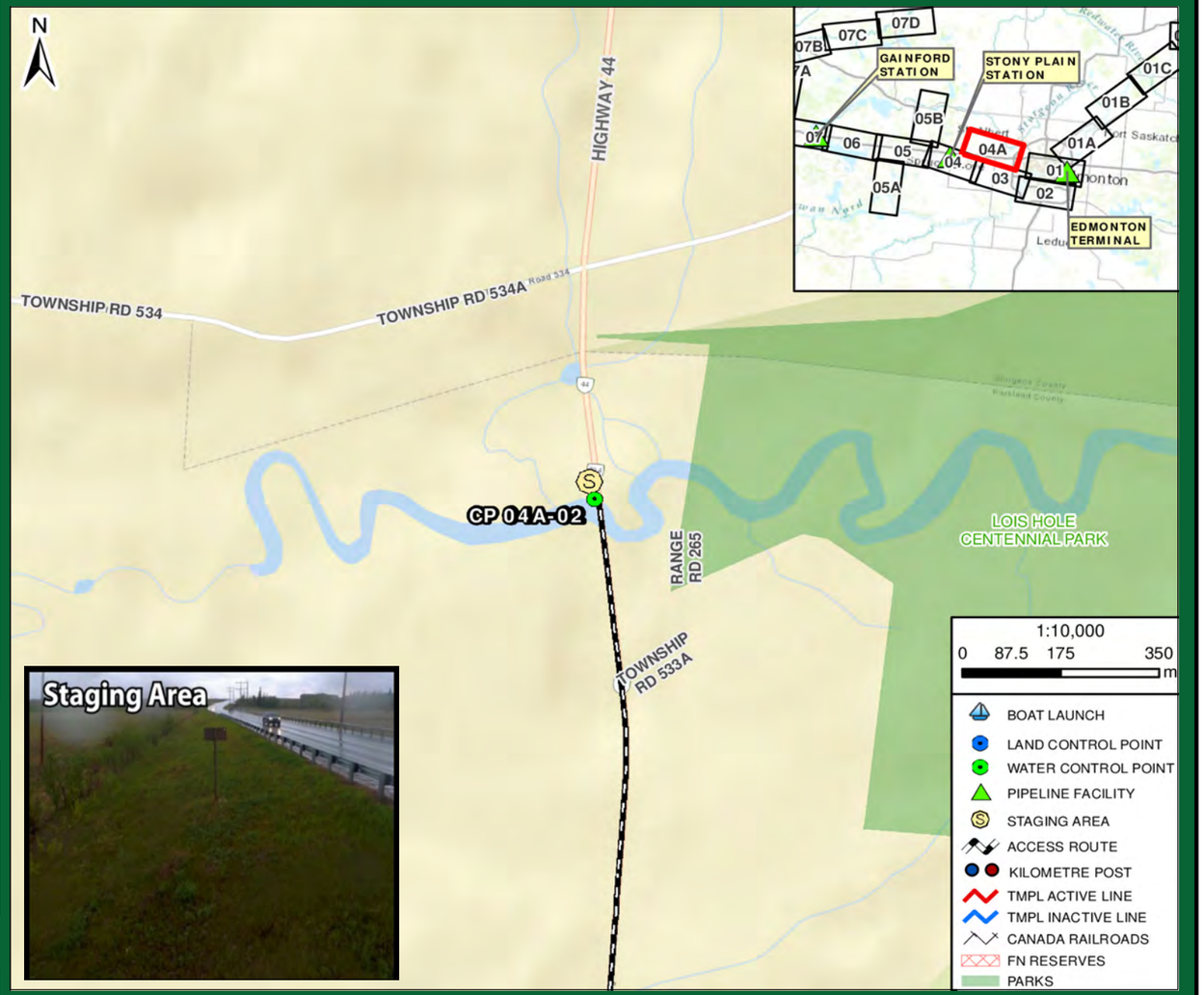
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Slow, moderately deep water with shoreline cover provides low to moderate rearing and overwintering potential for fish. S
- Slow moving, open water areas and cattail dominated wetland margins provide waterbird and wetland nesting bird habitat as well as amphibian habitat.
- There is an active beaver complex upstream, indicated by a dam across creek 100 m upstream.
- Located in an important Bird Area
- Lois Hole Centennial Provincial Park located approximately 100 m downstream of highway bridge.
- Located in a low density residential and agricultural area in Parkland County.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, use caution around the shoreline.
- Access off of Highway 44, traffic control recommended.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

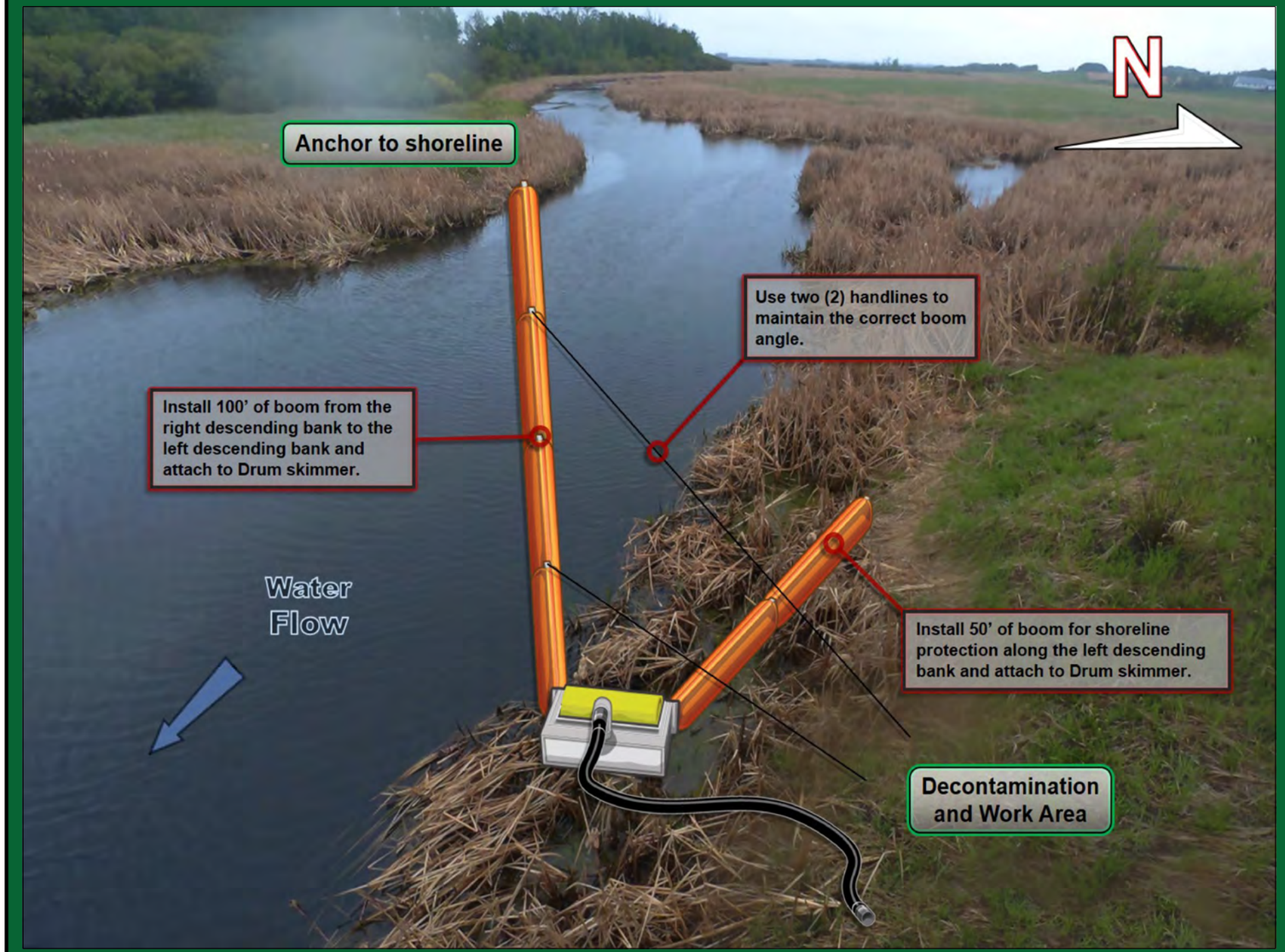
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 62 km
- Take exit 368 for AB-44 N toward Villeneuve/Westlock for 600 m, and keep left following signs for Villeneuve/Westlock
- Turn left onto AB-44 N for 3.2 km, heading north
- Pulloff from highway, after the blue tourist attraction signs for "JR Golf Course 2, Sunflower Gardens 4....etc."
- Destination is bridge over Atim Creek
- Total Distance = 65.7 km
- Total Travel Time = 61 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-24
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-02



Implementation Strategy:

- Install 100’ of 6" x 6" hard containment boom from the right descending bank at a 30˚ angle to the left descending bank and anchor to shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck/portable tank or Low Impact Recovery Unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 15 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Power Pack, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		50'	Hydraulic Line
		1	Vacuum Truck
		4	50' Handline
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, goldeye, sauger, pike, sturgeon, white sucker, lake chub, fathead minnow, brook stickleback)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, tiger salamander, wood frog, chorus frog, northern leopord frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Wetland nesting birds (e.g., marsh wren, red-winged blackbird, common yellowthroat, sora, night heron, blue heron)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-10

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.593320	
	Long: -113.688500	
Elevation:	647 m	
Land and Resource Use:	City of Edmonton. Recreational.	
Upstream Valves:	**Line 01:** K21	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 04A-02	**Downstream** CP 04A-04
Nearest KM Post:	**Line 01** KP 27	

Waterbody Information:

Waterbody Name: Big Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		25 m	
Depth		Unknown	
Flow Velocity		0.5 km/hr	
FlowType		Frequently unconfined low velocity flat structure	

Waterbody description:
Frequently unconfined low velocity flat structure. The CP is located on the channel connecting the west side of Big Lake to the east. The channel is broad at the CP with low current with wetland margins and abundant instream organics. The extensive wetland complex provides important ecological function for many wetland species. Water level appears well-moderated.

Shoreline Information

Bank Height:
Poorly defined, up to 1 m

Shoreline Composition and Slope:
Banks are often poorly defined but gradual, often saturated and densely vegetated with emergent vegetation; becoming steep along backshore.

Shoreline Vegetation:
Emergent vegetation along margins (e.g., cattails, sedges, rushes, reed canarygrass); grasses, clover and mixed weeds along backshore (e.g., scentless chamomile, cicer milkvetch) with mixed shrubs (e.g. willow, red-osier dogwood).

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines.

Shoreline Comments:
Poorly defined banks transition to frequently saturates shorelines with abundant emergent vegetation. Channel narrows between the west and east sides of Big Lake, with steep backshore, particularly along the RDB at the CP. Mixed weeds along backshore (e.g., scentless chamomile, thistle sp., cicer milkvetch).

Logistical Information:

Staging Area Location:	- The staging area can be located along the left descending bank. - 30 m x 60 m area. - Matting required to establish all weather access.	
	Lat: 53.5924	Long: -113.68778
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Gated access to the staging area and control point. - Steep access from staging area to down to the control point. - Low impact access recommended. - Large wetland surrounding the control point matting and/or pallets required to better access the control point.	
Road Access/Type:	- Access off of Winterburn Road, 250 m down a City of Edmonton vehicle path. - Matting required to establish all weather access.	
Boat Access:	- Air boat access from CP 04A-04. - Refer to CP 04A-04 data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

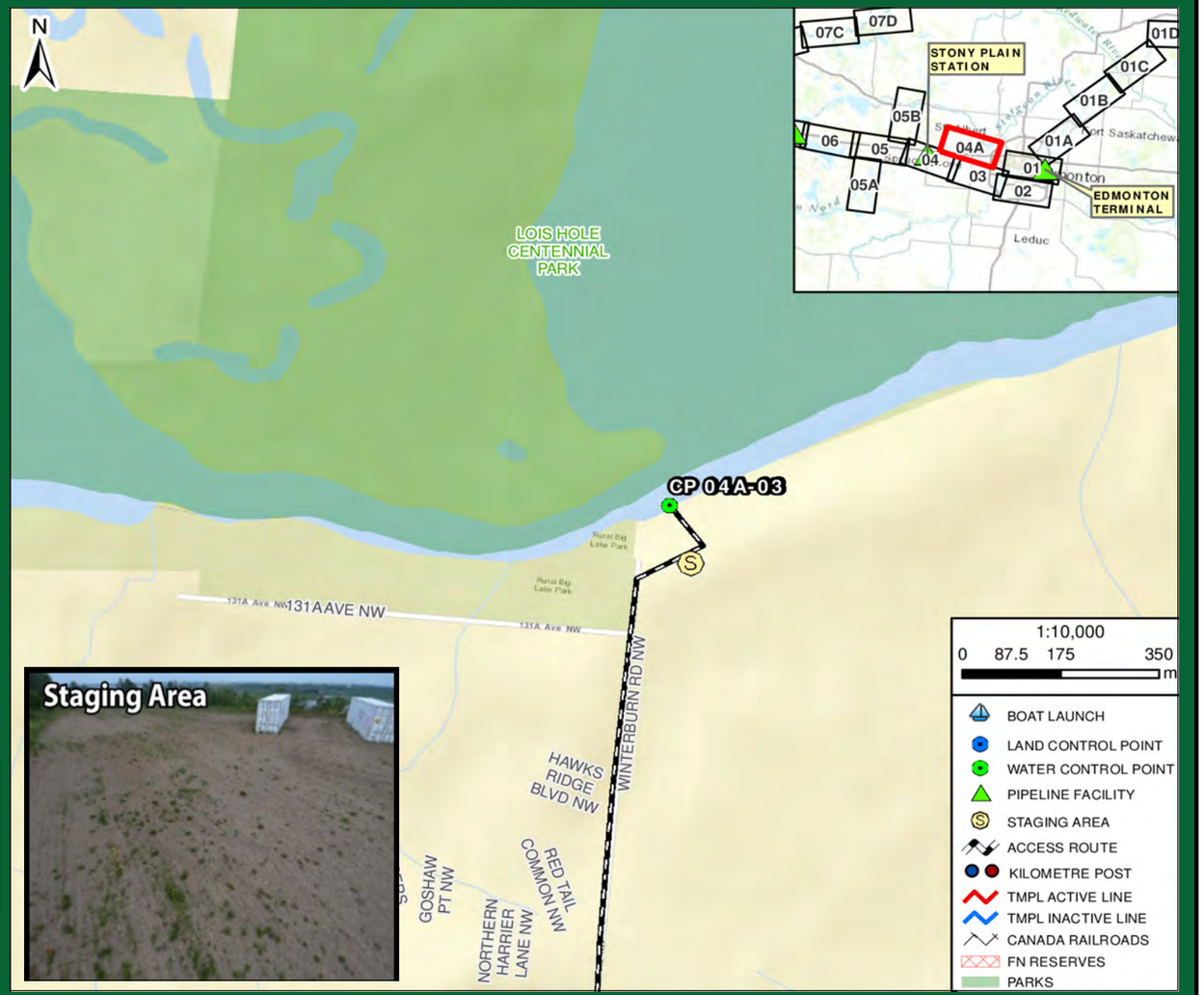
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; migratory corridor to upstream spawning areas of Sturgeon River Watershed; low current, areas of deeper open water and emergent and submergent vegetation cover provides moderate rearing and overwintering potential.
- Slow moving, open water areas and wetland margins provide important waterbird and wetland nesting bird habitat as well as amphibian habitat.
- Observations during survey include common grebe, sora, red-winged blackbird, western toad, and wood frog.
- Navigable watercourse with recreational boating (e.g., canoeing, kayaking) and angling.
- Located in Lois Hole Centennial Provincial Park and an important Bird Area.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Soft ground conditions, use caution around shoreline.
- Deep water, use caution around the shoreline.
- Be aware of wildlife in the area. Public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

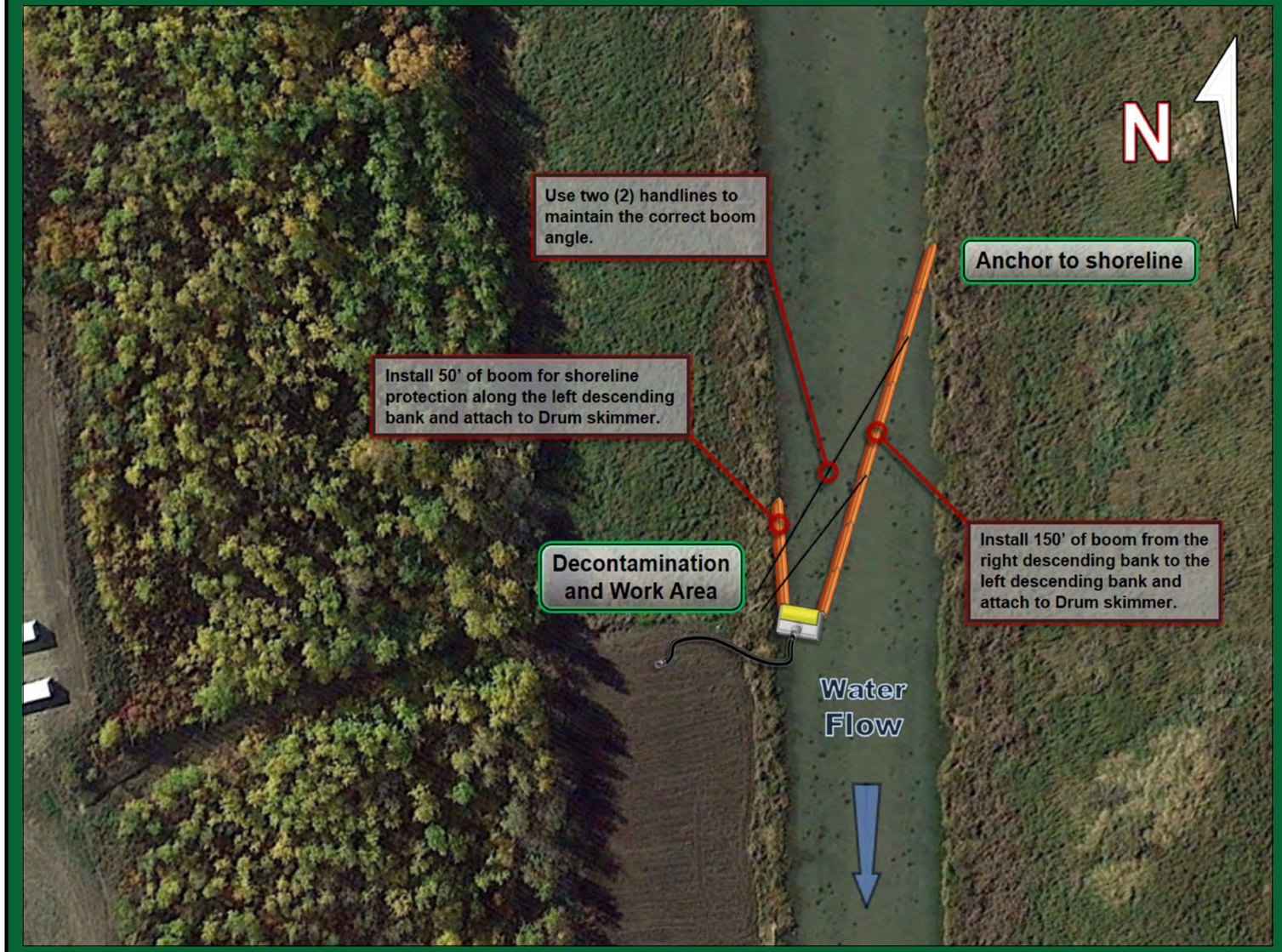
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 70 km
- Take exit 376 for 215 Street / Winterburn Road toward 199 Street for 450 m
- Turn left onto 215 St/ Winterburn Rd for 2.3 km
- Turn right following City of Edmonton vehicle path to access lakeshore
- Destination is Big Lake in Lois Hole Centennial Park
- Total Distance = 73.1 km
- Total Travel Time = 68 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-07-10
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-03



Implementation Strategy:

- Install 150’ of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (2) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 300' of rigid suction hose directly to a portable tank or low impact recovery unit. Transfer product by boat to CP 04A-1C for offloading.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 30 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
1	Low Impact Recovery Unit Operator	1 / 200'	Power Pack / Hydraulic Line
2	Boat Captain	4	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Low Impact Recovery Unit
		2	Air Boat
15	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, goldeye, sauger, pike, sturgeon, white sucker, lake chub, fathead minnow, brook stickleback)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, tiger salamander, wood frog, chorus frog, northern leopord frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Wetland nesting birds (e.g., marsh wren, red-winged blackbird, common yellowthroat, sora, night heron, blue heron)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-28

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.619530	
	Long: -113.657590	
Elevation:	623 m	
Land and Resource Use:	City of St. Albert. Riel Recreation Park.	
Upstream Valves:	**Line 01:** K21	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 04A-03	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 25	

Waterbody Information:

Waterbody Name: Sturgeon River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		47 m	
Depth		Unknown	
Flow Velocity		1.0 km/hr	
FlowType		Frequently unconfined low velocity flat structure	

Waterbody description:
Frequently unconfined low velocity flat structure. At CP, channel is broad, low current with wetland margins and abundant instream organics, flowing under a clear span road bridge below collection with 4 m clearance. The area provides important ecological function for many wetland species, and is a popular recreational and fishing area. Water level appears well-moderated. Moderate turbidity during survey.

Shoreline Information

Bank Height:
Poorly defined, up to 1 m

Shoreline Composition and Slope:
Banks are often poorly defined but gradual, often saturated and densely vegetated with emergent vegetation; becoming steep along built-up road approaches

Shoreline Vegetation:
Emergent vegetation along margins (e.g., cattails, sedges and reed canarygrass); grasses, clover and mixed weeds along backshore (e.g., scentless chamomile, stinkweed, lamb's quarters, cicer milkvetch) with isolated willows.

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines.

Shoreline Comments:
Poorly defined banks transition to frequently saturates shorelines with abundant emergent vegetation, particularly along LDB. Backshore of RDB is a recreation park, with a paved trail along backshore and wildlife viewing area 300 m upstream. Channel narrows with steep backshores at built up road bridge. Mixed weeds along backshore (e.g., scentless chamomile, thistle sp., stinkweed, lamb's quarters, cicer vetch)

Logistical Information:

Staging Area Location:	- The staging area can be located adjacent to Ray Gibbon Drive on the left descending bank. - 25 m x 100 m area. - Matting required to establish all weather access.	
	Lat: 53.61991	Long: -113.65771
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is located in Riel Recreation Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Low impact access recommended.	
Road Access/Type:	- Access is off of Ray Gibbon Drive. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

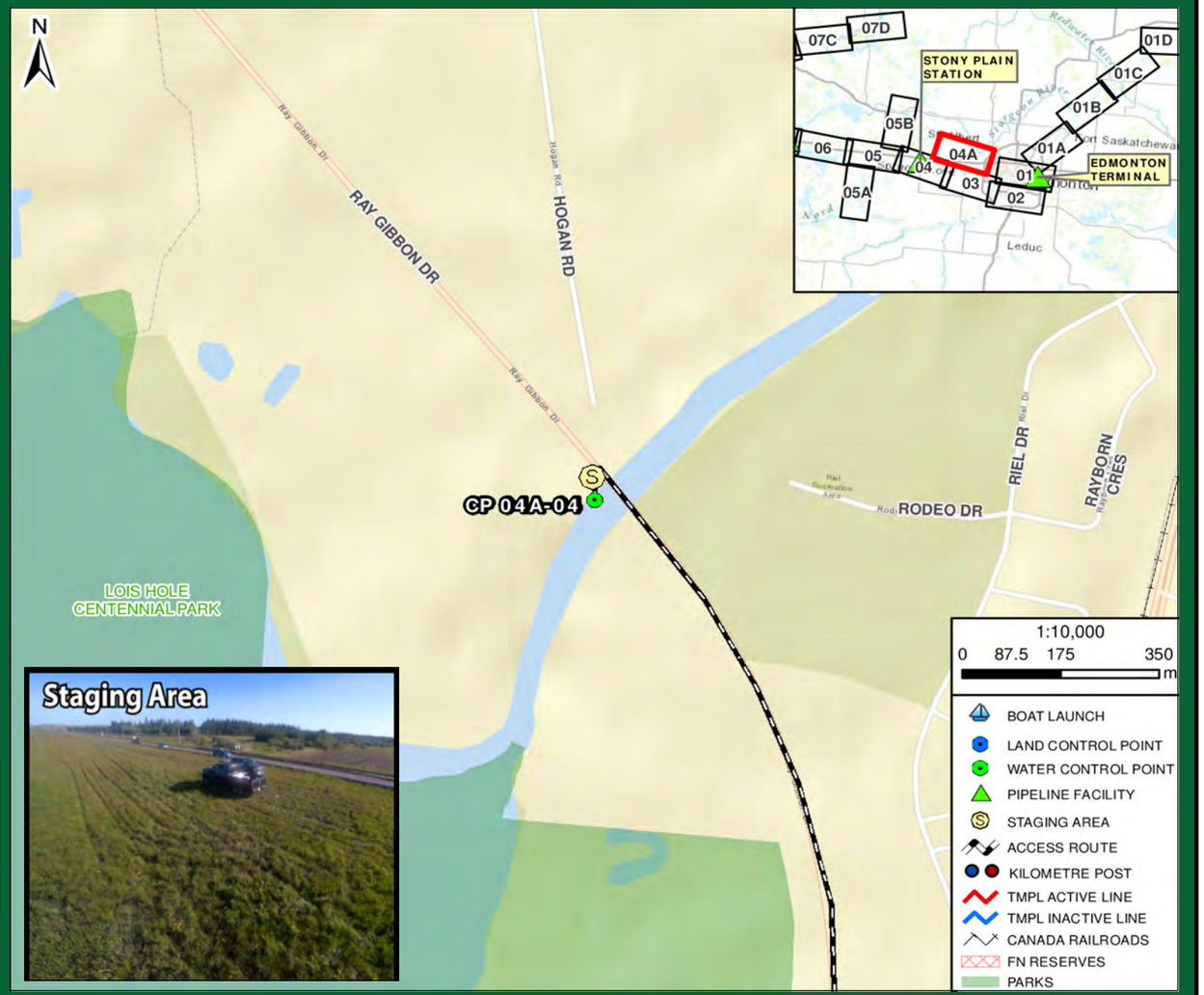
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

Poor spawning potential due to abundant fines and organics; migratory corridor to upstream spawning areas of Sturgeon River Watershed; low current, areas of deeper open water and emergent and submergent vegetation cover provides moderate rearing and overwintering potential. Slow moving, open water areas and wetland margins provide important waterbird and wetland nesting bird habitat as well as amphibian habitat. There is a beaver lodge located 250 m upstream. Cliff swallows nesting under road bridge deck. Navigable watercourse with recreational boating (e.g., canoeing, kayaking). Lois Hole Centennial Provincial Park boundary approximately 300 m upstream. Riel Recreation Park along backshore RDB, with paved trail along shoreline and wildlife viewing pier 300 m upstream. Frequent shoreline angling around bridge on LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around shoreline.
- Control point located in Riel Recreation Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

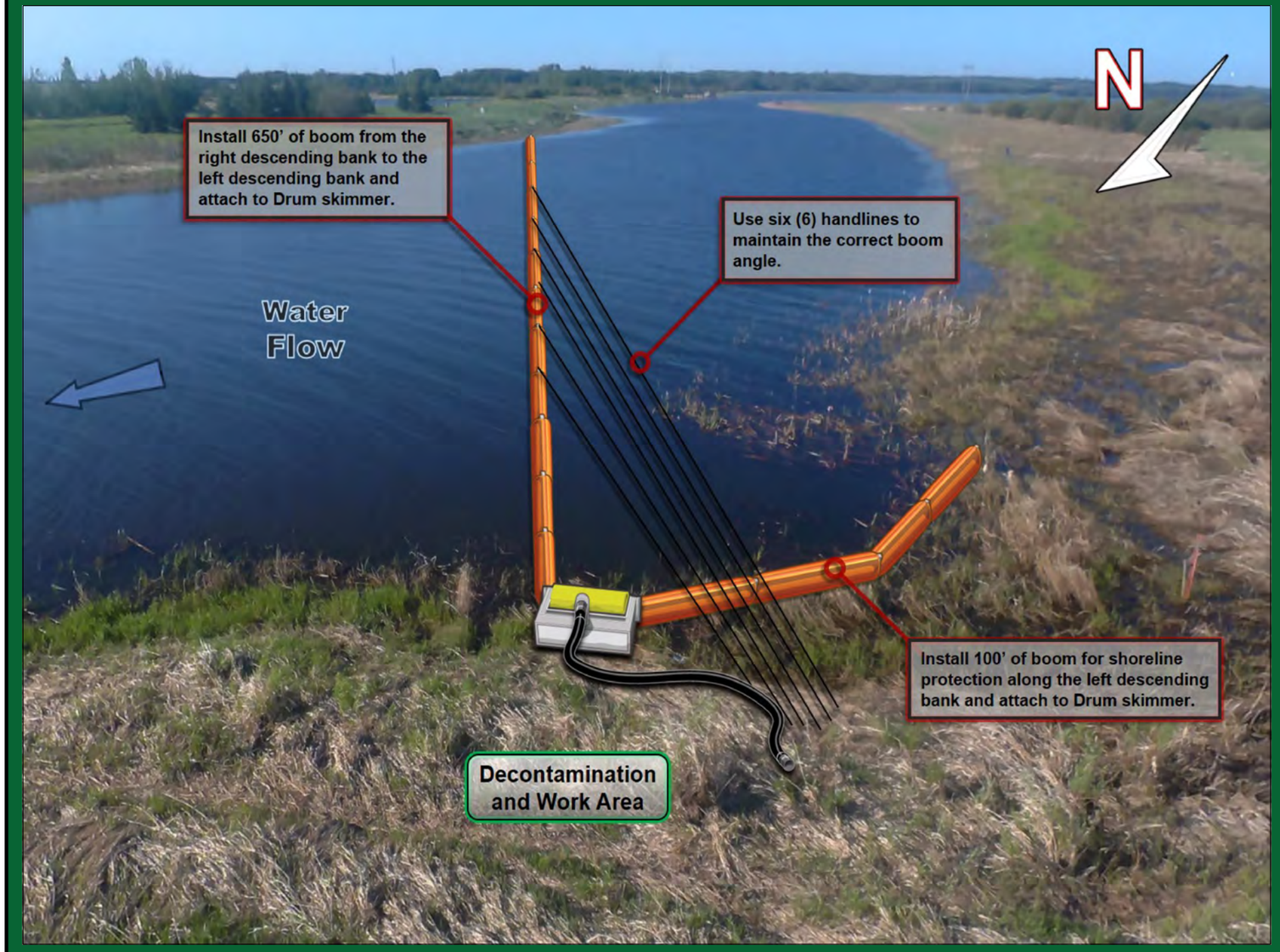
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 73 km
- Take exit 378 for Alberta 216 N / Anthony Henday Drive N and merge onto AB-216 S for 2.8. km
- Take exit 27 for Ray Gibbon Drive N for 800 m and turn left onto 184 St / Ray Gibbon Dr for 3.9 km
- Destination is dirrectly off Ray Gibbon Dr adjacent to bridge over Sturgeon River
- Total Distance = 78.7 km
- Total Travel Time = 72 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-28
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 04A-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	800'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	8	200' Handline and Bridle
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
		1	Portable Tank
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 600' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank, and then anchor to the shoreline.
- Install (6) 200' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck/portable tank or Low Impact Recovery Unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 55 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, goldeye, sauger, pike, sturgeon, white sucker, lake chub, fathead minnow, brook stickleback)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, tiger salamander, wood frog, chorus frog, northern leopord frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Wetland nesting birds (e.g., marsh wren, red-winged blackbird, common yellowthroat, sora, night heron, blue heron)
- Raptors (e.g., osprey, golden eagle), cliff swallow
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-28

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.569980	
	Long: -114.228900	
Elevation:	720 m	
Land and Resource Use:	Crown Land. Highway 16 Right-of-Way.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K64	
Control Point:	**Upstream** N/A	**Downstream** CP 05B-01
Nearest KM Post:	**Line 01** KP 64	

Waterbody Information:

Waterbody Name: Kilini Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		16 m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently unconfined with marginal flow	

Waterbody description:
Seasonal, well-defined watercourse with marginal flow at CP, becoming unconfined upstream along cattail-dominated wetland complex. Creek widens along containment becoming open water pond area ranging in depth from 0.2 to 1 m adjacent to highway before entering 1.2 diameter culvert. Contains abundant instream organics and duckweed along margins. May become stagnant or intermittent during winter months.

Shoreline Information

Bank Height:
0.2 to 1 m

Shoreline Composition and Slope:
Poorly defined RDB composed of organic substrate with level, stable but uneven backshore of tall grass/cattails; LDB well defined along highway shoulder, cattail fringe.

Shoreline Vegetation:
Predominantly tall grasses (e.g., reed canarygrass), dense cattails upstream, duckweed, isolated willow seedlings.

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines, gravels along highway.

Shoreline Comments:
Soft organic substrate along banks with level but uneven backshore RDB composed of dense tall grasses typically dry during low and medium water conditions; may become saturated, potentially flooding during higher water. LDB parallels 2 m high grassy highway shoulder. There is a fibre optic transmission line along RDB. Slips/trips/falls hazards along soft organic poorly defined banks and soft, muddy instream substrate; be aware of proximity to the highway.

Logistical Information:

Staging Area Location:	- The staging area can be located along Highway 770 on the right descending bank. - 15 m x 30 m area. - Matting required to establish all weather access. - Additional staging located in a pullout on Highway 16.	
	Lat: 53.56965	Long: -114.22817
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 2 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- High traffic intersection of Highway 770 and Highway 16. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Road Access/Type:	- Access off of Highway 770. - All weather access is established. - Traffic control recommended.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Additional staging can be found downstream of Highway 16.	

Decontamination Area:

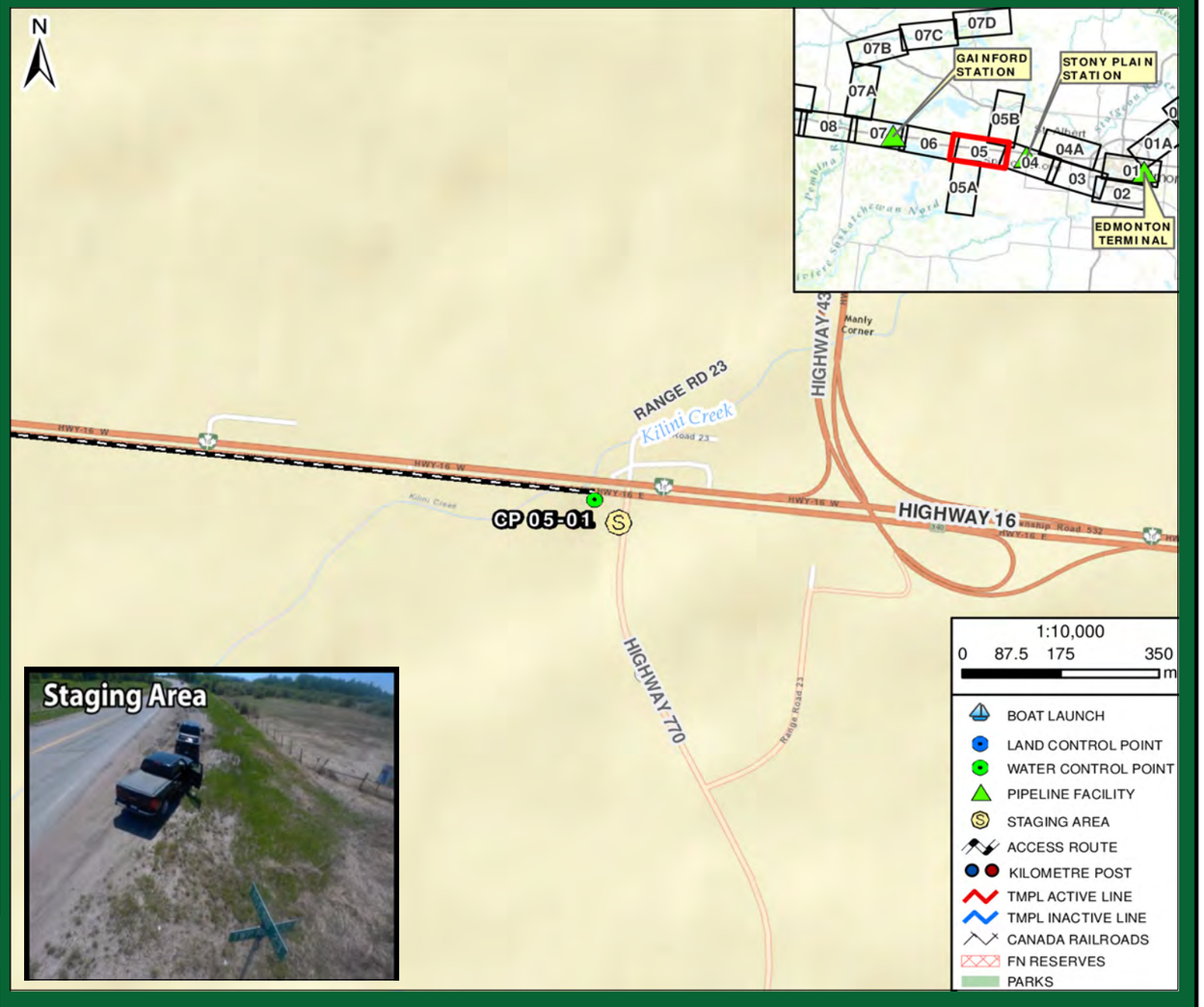
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; low current, woody debris and emergent / submergent vegetation and bank cover provides good rearing habitat; low overwintering habitat potential due to shallow depth (max 1 m during medium water levels).
- Low current watercourse along extensive tall grass and cattail dominated wetland complex provides important waterbird and wetland nesting bird habitat and amphibian habitat.
- Adjacent to Yellowhead Highway.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- High traffic area. Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

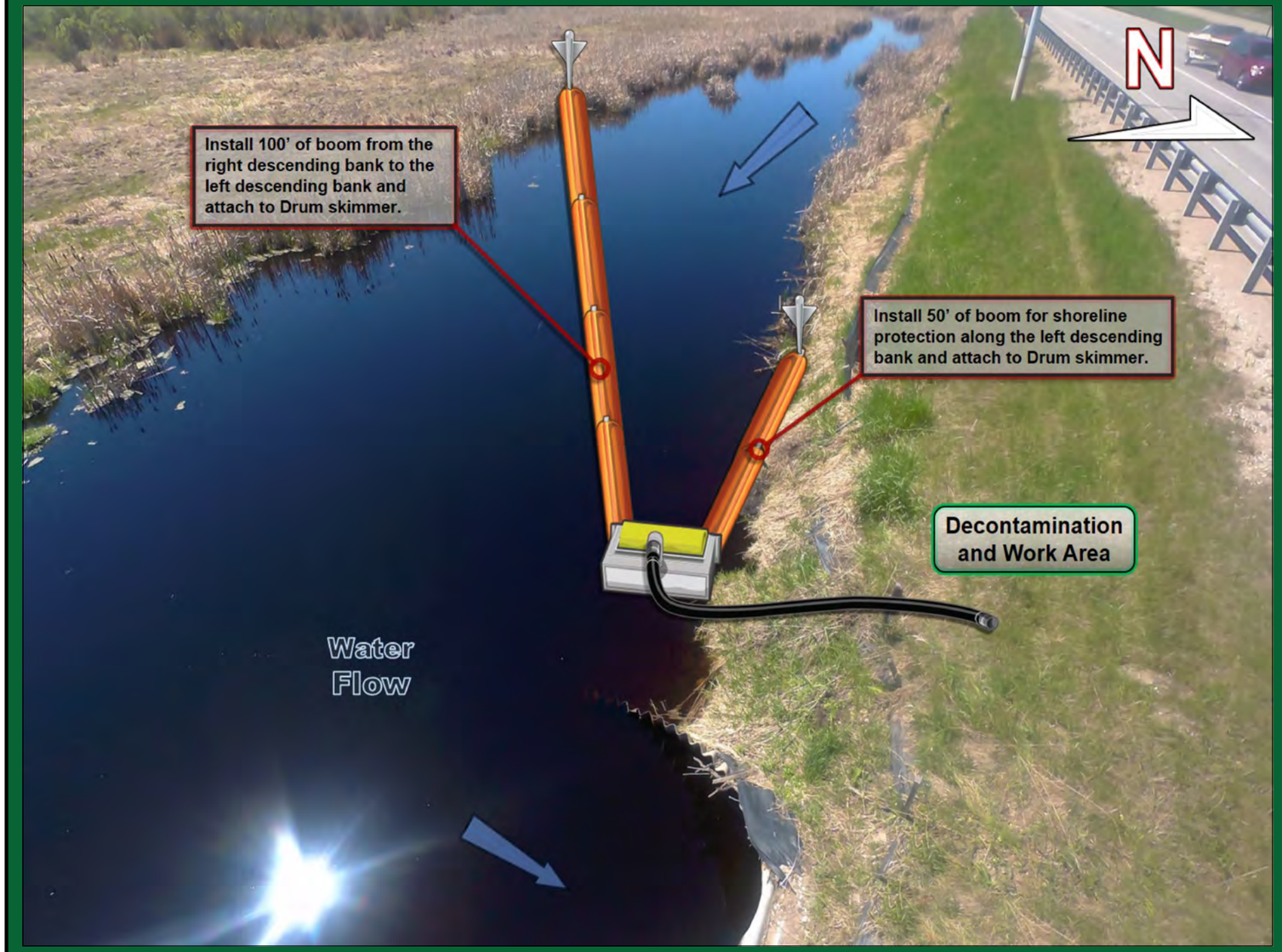
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 34 km
- Pulloff from highway at the right turn onto AB-770, before Manly Corner
- Destination is bridge over Kilini Creek
- Total Distance = 34.5 km
- Total Travel Time = 32 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-28
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	250'	Rope
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 18 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, goldeye, pike, white sucker, lake chub, fathead minnow, brook stickleback)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, tiger salamander, wood frog, chorus frog, northern leopord frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Wetland nesting birds (e.g., marsh wren, red-winged blackbird, common yellowthroat, sora, night heron, blue heron)
- Raptors (e.g., osprey, golden eagle, Swainson's hawk, northern harrier), owls (e.g., short-eared owl, long-eared owl)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.548660	
	Long: -114.322650	
Elevation:	727 m	
Land and Resource Use:	Private Land. Forested.	
Upstream Valves:	**Line 01:** K64	
Downstream Valves:	**Line 01:** K83	
Control Point:	**Upstream** N/A	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 70	

Waterbody Information:

Waterbody Name: Mink Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently confined with marginal current	

Waterbody description:
Frequently confined deep channel (up to 1.6 m at time of survey) with marginal flow. Containment and collection downstream of clearspan bridge with 1.5 m clearance, densely vegetated with partially submerged grasses along banks. Channel depths indicates water likely present year-round, likely becoming stagnant or intermittent during winter. Low-moderate turbidity during survey.

Shoreline Information

Bank Height:
0.4 to 0.8 m

Shoreline Composition and Slope:
Gradually sloping, becoming steep subsurface at collection area heavily obscured by dense mat of tall grasses, with open grassy work area and level forested backshores.

Shoreline Vegetation:
young to mature poplar dominated forest with aspens, spruce; mature willows along bank with wild rose and red-osier dogwood along backshore; dense tall grasses (e.g., bluejoint, reed canarygrass) with patches of common tansy along LDB.

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines

Shoreline Comments:
Collection area accessed down gradual sloping gravel road shoulder to open work area of dense tall grasses on the inside creek bend (LDB). Banks become steep near water into deep up to 1.6 m channel. Slips/trips/falls hazards along soft instream substrate and obscured banks.

Logistical Information:

Staging Area Location:	- The staging area can be located on the left descending bank. along Township Road 530A. - 5 m x 30 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.54833	Long: -114.32244
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Close proximity to residence. - Narrow bridge located at the control point. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Road Access/Type:	- Access off of Township Road 530A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Additional staging can be found downstream of Highway 16.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; deep channel (1.6 m during medium water) and instream and shoreline cover provide moderate rearing and overwintering habitat potential.
- Open water, mature willows and forested backshores provide waterbird habitat, riparian, forest and cavity nesting habitat.
- Evidence of beaver activity (e.g., shrub cuttings).
- Adjacent to rural residential gravel road.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 28 km
- Turn right onto Range Rd 31 for 2.7 km (passing large waterbody)
- Continue onto Township Rd 530A for28 m as it starts to bend west
- Destination is road culvert/bridge over Mink Creek
- Total Distance = 31.1 km
- Total Travel Time = 29 minutes calculated at 65 km/hr

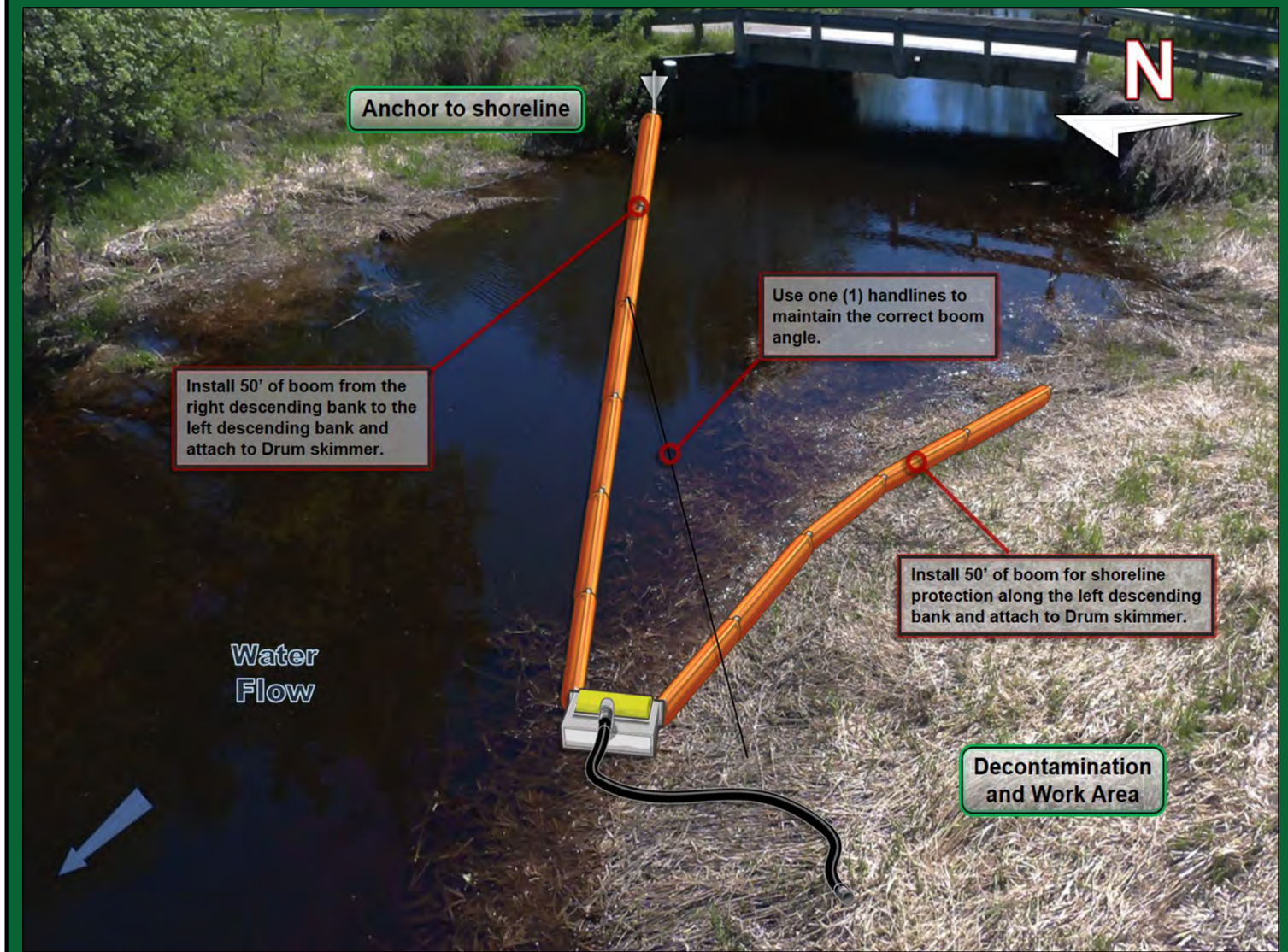
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	4	50' Handline and Bridle
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to shoreline.
- Install (1) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck/portable tank or low Impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., perch, pike, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp.)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Forest and cavity nesting birds (e.g., thrush spp., white-breasted nuthatch, woodpecker spp., chickadee spp.)
- Raptors (e.g., merlin, Cooper's hawk, red-tailed hawk)
- Owl spp. (e.g., short-eared owl, long-eared owl)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05-03

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.535130	
	Long:	-114.345410	
Elevation:	721 m		
Land and Resource Use:	Private Land. Forested.		
Upstream Valves:	**Line 01:**	K64	
Downstream Valves:	**Line 01:**	K83	
Control Point:	**Upstream** N/A		**Downstream** CP 05A-01
Nearest KM Post:	**Line 01** KP 72		

Waterbody Information:

Waterbody Name: Mink Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		17 m	
Depth		1.2 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently confined with marginal velocity	

Waterbody description:

Frequently confined watercourse widens along containment with marginal, moderately deep (1.2 m) flow, becoming narrow and shallow with increasing current under clearspan bridge (2 m clearance). Often shallow near shoreline along muddy exposed foreshores. Abundant algae and submergent vegetation suggest high nutrient levels. Water likely present year round, but flow may become stagnant or intermittent during winter.

Shoreline Information

Bank Height:
Variable, 0.5 to 0.8 m

Shoreline Composition and Slope:
Steep to vertical grassy bank at collection area with small woody debris pile, banks become variable, steep to gradual with soft foreshore substrate around containment.

Shoreline Vegetation:
poplar and aspen dominated forest upstream; young willows along backshore; algae and submergent vegetation (e.g., water milfoil, duckweed); dense grasses, sedges, occasional cattail, common tansy along road

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines.

Shoreline Comments:
Collection area accessed down 15 m long access trail off paved road to small man-made elevated area 1.5 m above water level, with steep to vertical bank at collection. Other areas of shoreline are variable, poorly defined in areas, with open water transitioning to areas of exposed soft muddy foreshores and sedge-grass-willow dominated backshores that are typically dry, but may become saturated during higher water. Slips/trips/falls hazard at collection where woody debris is piled up, and along soft muddy foreshores.

Logistical Information:

Staging Area Location:	- The staging area can be located on the right descending bank, along Duffield Road. - 5 m x 50 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.53854	Long: -114.34558
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Overhead power lines by the control point work area. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Road Access/Type:	- Access off of Duffield Road. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the left descending bank to the right descending bank.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - A bridge is located directly downstream of the control point.	

Decontamination Area:

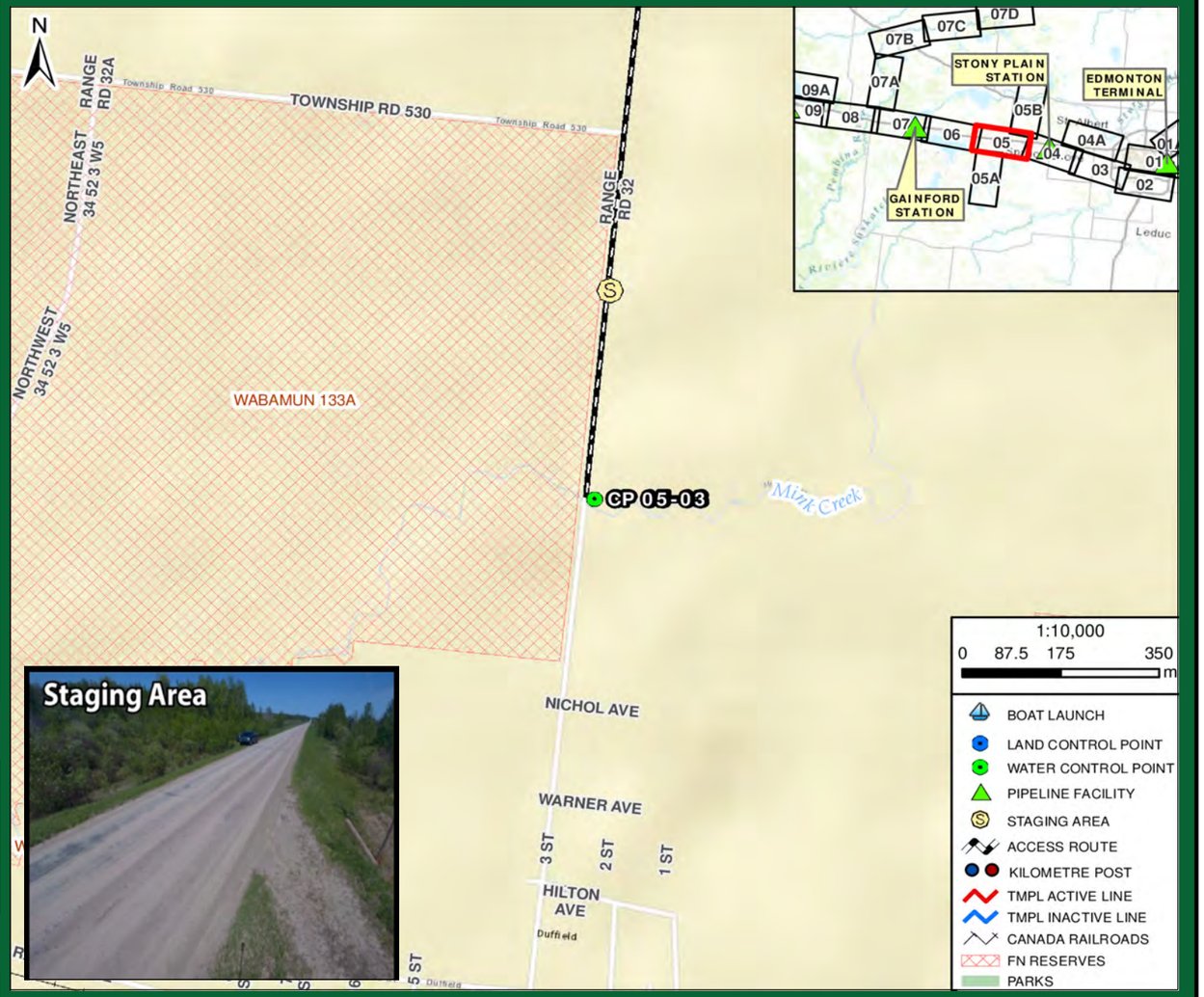
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; low current, woody debris and emergent / submergent vegetation and bank cover provides good rearing habitat; open up to 1.2 m deep water provides low to moderate overwintering habitat.
- Mudflats and grass-sedge cover provide good shorebird feeding and nesting habitat.
- Open water, dense grass-sedge and shrub dominated backshore provide riparian, waterbird and wetland nesting bird habitat and amphibian habitat.
- Adjacent to rural gravel road.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around shoreline.
- Public may be present. Overhead power lines at this control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

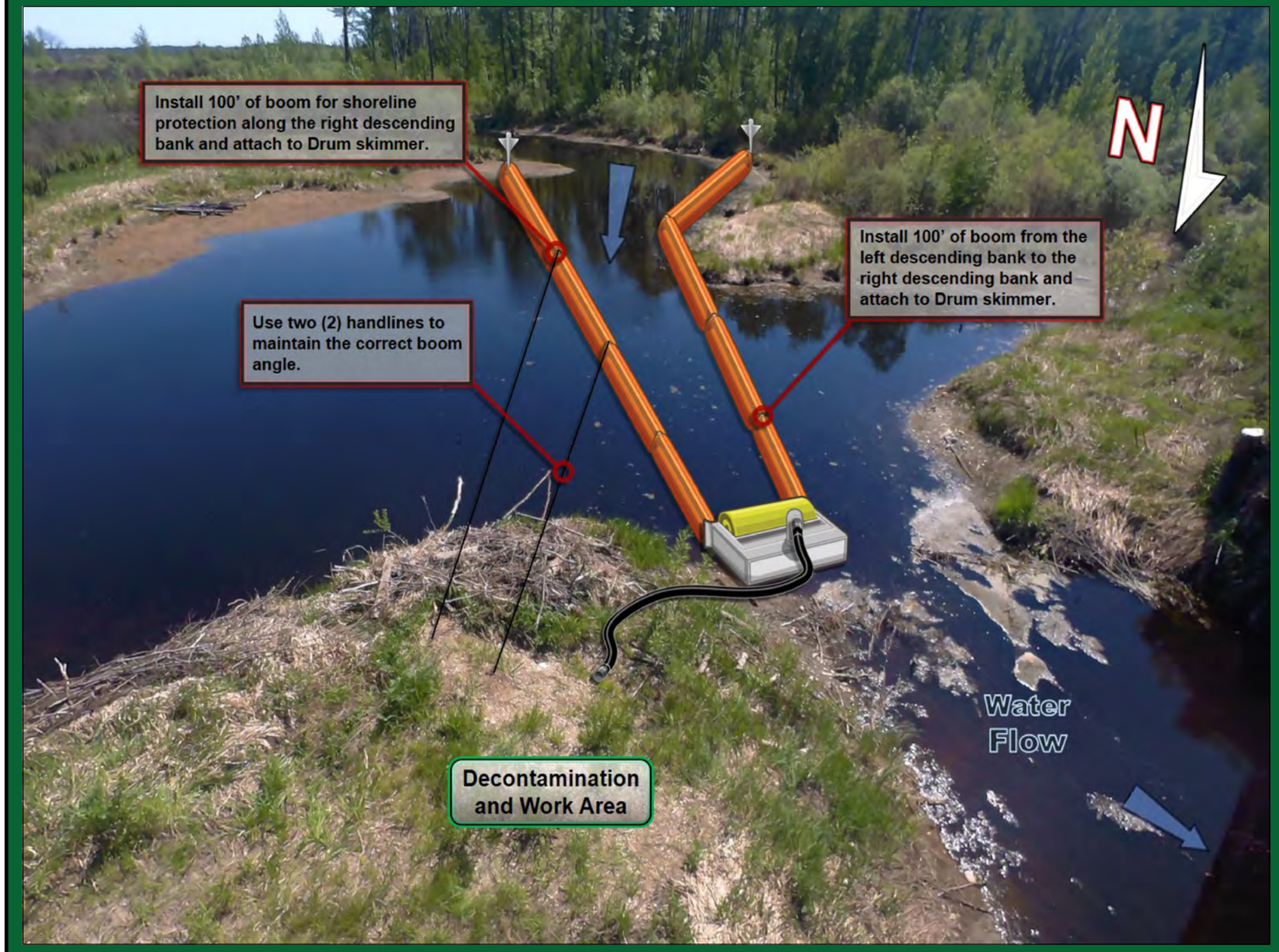
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 27 km
- Turn right onto Range Rd 32 for 3.9 km, heading south to Duffield
- Destination is road bridge over Mink Creek
- Total Distance = 30.6 km
- Total Travel Time = 28 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	4	100' Handline and Bridle
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, pike, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian/wetland nesting birds (e.g., marsh wren, common yellowthroat, sora, warbler spp., flycatcher spp.), blue heron
- Raptors (e.g., merlin, Cooper's hawk, red-tailed hawk)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (2) 100' handlines from the 6" x 6" hard containment boom to the opposing bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom channeling containments down to the skimmer for recovery.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 20 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 05A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.377320
	Long:	-114.280940
Elevation	654 m	
Upstream Valves:	**Line 01:**	K64
Downstream Valves:	**Line 01:**	K83
Control Point:	**Upstream** CP 05A-03	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 66	

Waterbody Information:

Waterbody Name: North Saskatchewan River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		181 m	
Depth		Unknown	
Flow Velocity		4.2 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with even current across channel. Boat launch well-maintained, moderately steep sloping concrete pad and packed substrate with level gravel parking area. Accessed down a well-maintained all weather access road from highway. Use caution as steep boat launch descends into deep, moving water during medium/high conditions and floating logs and woody debris are common. Be aware of shallow bars during low water. High turbidity during survey.



Logistical Information:

Road Access/Type:	- Access off of Highway 770. - Matting required for all weather access. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located at the boat launch. - 20 m x 35 m area. - Matting required to establish all weather access.	
	Lat: 53.37727	Long: -114.2814
Site Comments:	- Boat launch is located downstream of the Highway 770 bridge. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Popular angling and recreational area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, install a boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 34 km
- Turn right onto AB-770 S (signs for Carvel) for 24.3 km, passing Carvel and continuing south towards Genesee Lake
- Destination is boat launch below bridge over North Saskatchewan River
- Total Distance = 59 km
- Total Travel Time = 54 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.461750	
	Long:	-114.366680	
Elevation:	709 m		
Land and Resource Use:	Private Land. Transalta Right-of-Way.		
Upstream Valves:	**Line 01:**	K64	
Downstream Valves:	**Line 01:**	K83	
Control Point:	**Upstream** CP 05-03		**Downstream** CP 05A-02
Nearest KM Post:	**Line 01** KP 73		

Waterbody Information:

Waterbody Name: Wabamun Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		8 m	
Depth		0.8 m	
Flow Velocity		3.5 km/hr	
FlowType		Frequently confined moderate velocity riffle and run structure	

Waterbody description:

Frequently confined moderate velocity riffle and run structure along forested ravine. Gradual bed to bank transition along LDB vegetated with sedges and horsetails likely becomes inundated during higher water, but remains confined along RDB along steep, vegetated approach, before entering three rectangular, divided concrete culverts (each 1.8 m x 2 m) under road. Moderate turbidity during survey.

Shoreline Information

Bank Height:
0.5 m along RDB; 0.3 m along LDB

Shoreline Composition and Slope:
Gradually sloping stable, poorly defined LDB with variable gradual to steep approach. RDB along steep 2 m stable approach with level backshore area.

Shoreline Vegetation:
Spruce dominated forest with open grassland areas and low shrub community along transmission line right-of-way; abundant sedges and horsetail along shoreline transitioning to short grasses (e.g., fescue), low shrubs (e.g., willow, soopolallie, wild rose)

Channel / Bank Forms:
Banks composed predominantly of organics and fine sediment; bed composed of mixed fines to small boulders.

Shoreline Comments:
Collection area accessed down steep 6 m road easement on opposite side of barbed wire fence along transmission line right-of-way to level sedge and grass dominated collection and work area along gradually sloping LDB.

Logistical Information:

Staging Area Location:	- The staging area can be located along Township Road 520A. - 5 m x 30 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.46179	Long: -114.3666
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 15 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Steep access to the control point. - The control point is located on private. - Landowner permission required before accessing control point. - Barbwire fenced access to the control point.	
Road Access/Type:	- Access off of Township Road 520A. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Overhead power transmission lines are located at this control point.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with pockets of gravels and cobble provide moderate spawning potential; migratory corridor to upstream/downstream spawning areas of Wabamun Creek Watershed; perrenial flow and areas of shoreline cover and lower current provide low to moderate rearing and overwintering potential.
- Watercouse flows along conifer forest ravine with open grassland areas and sedge dominated shorelines below transmission line right-of-way; providing forest, riparian and grassland nesting bird habitat, as well as amphibian habtat (multiple wood frog observed).

- Barn swallow observed during survey, potential nest site upstream along vertical/undercut bank and forested area.
- Located along transmission line right-of-way adjacent to road.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Fast water, use caution around shoreline.
- Public may be present. Overhead power lines at both the staging area and the control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, head south on AB-31 S for 3.8 km towards Seba Lake
- Continue south as it becomes AB-759 S for 10.5 km
- Turn left onto AB-627 E for 24.7 km, past Highvale
- Turn left onto Range Rd 33 for 850 m then turn right onto Township Rd 520A for 200 m
- Destination is road culvert over Wabamun Creek
- Total Distance = 40.4 km
- Total Travel Time = 37 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	50' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., bull trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Waterbirds (e.g., common goldeneye, mallard)
- Raptors (e.g., merlin, red-tailed hawk), forest birds (e.g., thrush spp., finch spp., chickadee spp., nuthatch spp.), barn swallow
- Grassland birds (e.g., horned lark, savanna sparrow, upland sandpiper)
- Owl spp. (e.g., short-eared owl, long-eared owl)

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (2) 50' handline from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 10 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05A-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.431560	
	Long: -114.321400	
Elevation:	661 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:** K64	
Downstream Valves:	**Line 01:** K83	
Control Point:	**Upstream** CP 05A-01	**Downstream** CP 05A-03
Nearest KM Post:	**Line 01** KP 69	

Waterbody Information:

Waterbody Name: Wabamun Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		5 m	
Depth		1.0 m	
Flow Velocity		2.5 km/hr	
FlowType		Confined moderate velocity riffle and run structure	

Waterbody description:

Confined moderate velocity riffle and run structure along 1.5 to 2 m channel lined with boulder riprap course along boundary of cropland along RDB and willow dominated LDB before passing under clear-span bridge with 1.5 m clearance. Perennial watercourse with channel depth measured up to 1 m at time of survey, with moderate turbidity.

Shoreline Information

Bank Height:
0.5 m

Shoreline Composition and Slope:
Narrow, gradual foreshore areas becoming steep along boulder riprap bank/approach, stable with overgrowing vegetation, with level cropland along RDB, dense veg on LDB.

Shoreline Vegetation:
sparse seedlings and saplings along banks, cropland along backshore RDB, abundant willows along backshore LDB; wild rose, soopolallie, grasses, horsetail, common tansy

Channel / Bank Forms:
Bed and banks composed of mixed boulder riprap, organics and fines, with occasional gravels and cobbles.

Shoreline Comments:
Collection area accessed down steep 2 approach from road to gradual foreshore area of RDB. Approaches and banks lined with rounded boulder riprap, overgrown in areas with grasses and short shrubs. Common tansy present.

Logistical Information:

Staging Area Location:	- The staging area can be located along the left descending bank. - 15 m x 40 m area. - Matting required to establish all weather access.	
	Lat: 53.43173	Long: -114.32085
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Steep access to the control point. - The control point is located on private land. - Landowner permission required prior to accessing control point. - Barbwire fenced access to control point.	
Road Access/Type:	- Access off of Range Road 31. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - A bridge is located directly downstream of the control point.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with potential gravels and cobbles provide low-moderate spawning potential; migratory corridor to upstream/downstream spawning areas of Wabamun Creek Watershed; perennial flow provides low-moderate overwintering potential; poor rearing potential due to lack of pools and instream or overhead cover.
- Riparian nesting and grassland/agricultural birds.
- Cropland along RDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use extreme caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

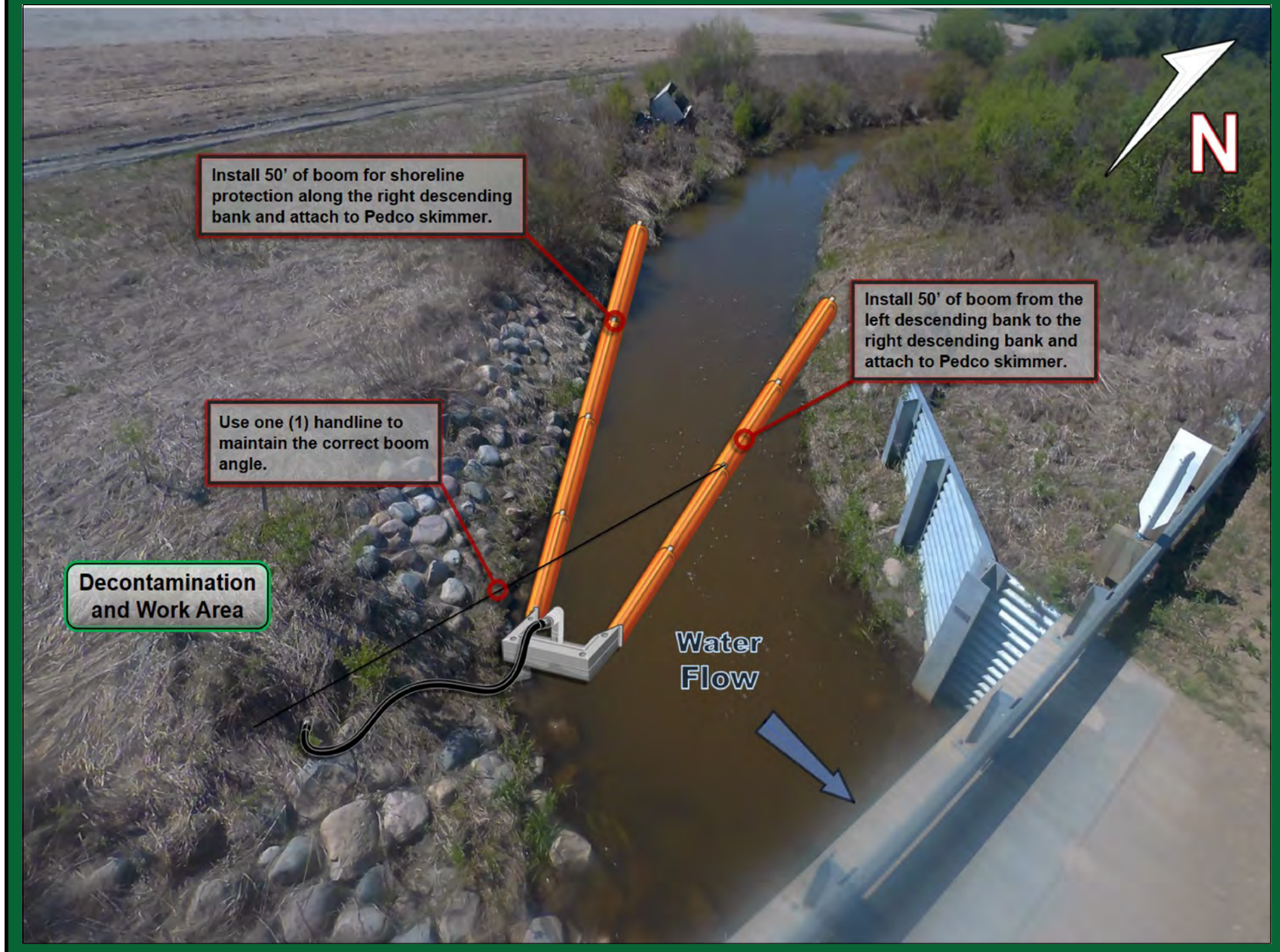
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 27 km
- Turn right onto Range Rd 32 for 12.9 km, heading south thru Duffield and onwards
- Turn left onto AB-627 E for 180 m, then Turn right onto Township Rd 515A for 2 km, continuing south, east of Keephills
- Continue as Township Rd 515A turns right and becomes Range Rd 31 for 1.5 km
- Destination is road bridge over Wabamun Creek
- Total Distance = 43.3 km
- Total Travel Time = 40 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05A-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	50' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (1) 50' handline from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install an 8 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., bull trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Waterbirds (e.g., common goldeneye, mallard)
- Raptors (e.g., Swainson's hawk, northern harrier, red-tailed hawk)
- Grassland birds (e.g., horned lark, savanna sparrow, upland sandpiper, vesper sparrow, cowbird)
- Owl spp. (e.g., short-eared owl, long-eared owl)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05A-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.377780	
	Long: -114.280940	
Elevation:	656 m	
Land and Resource Use:	Crown Land. Highway 770 Road Right-of-Way.	
Upstream Valves:	**Line 01:** K64	
Downstream Valves:	**Line 01:** K83	
Control Point:	**Upstream** CP 05A-02	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 66	

Waterbody Information:

Waterbody Name: North Saskatchewan River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		181 m	
Depth		Unknown	
Flow Velocity		4.2 km/hr	
FlowType		Confined moderate velocity flat run structure	

Waterbody description:

Confined moderate velocity flat run structure with relatively even current across channel width. Medium-high water levels at time of survey. Be aware of frequent shallow and exposed sediment bars during low water. High turbidity at time of survey, with frequent floating logs and woody debris observed.

Shoreline Information

Bank Height:
2 to 3 m

Shoreline Composition and Slope:
Fine sediments along approaches, often steep but less so at collection area; generally stable along RDB but unstable along eroding shoreline of LDB.

Shoreline Vegetation:
young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, alder, red-osier dogwood); grasses.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with mixed cobbles and boulders.

Shoreline Comments:
Collection area accessed from all-season access road that extends under highway bridge above moderately steep, stable bank and level foreshore area adjacent to cement bridge pier. Very steep areas of the river valley slope along LDB are being actively eroded as indicated by areas of loose exposed substrate.

Logistical Information:

Staging Area Location:	- A staging area can be located adjacent to this control point. - 20 m x 35 m area. - Matting required to establish all weather access.	
	Lat: 53.37727	Long: -114.2814
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Steep access to control point. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 770. - Matting required for all weather access. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 05A-01. - Refer to BL 05A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravel and areas of swifter current; important migratory corridor to upstream spawning areas of North Saskatchewan Basin; size and depth of river provides good rearing habitat and moderate overwintering habitat for numerous fish species.
- Riparian and forest nesting habitat. Waterbird habitat, with stretch of river likely used for migratory bird staging.
- Occasional boating and fishing.
- Agricultural lands above forested river valley approaches.
- CP located down all-season access road used to access small day use area and boat launch.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present. Popular recreational boat and angeling area. Security recommended.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

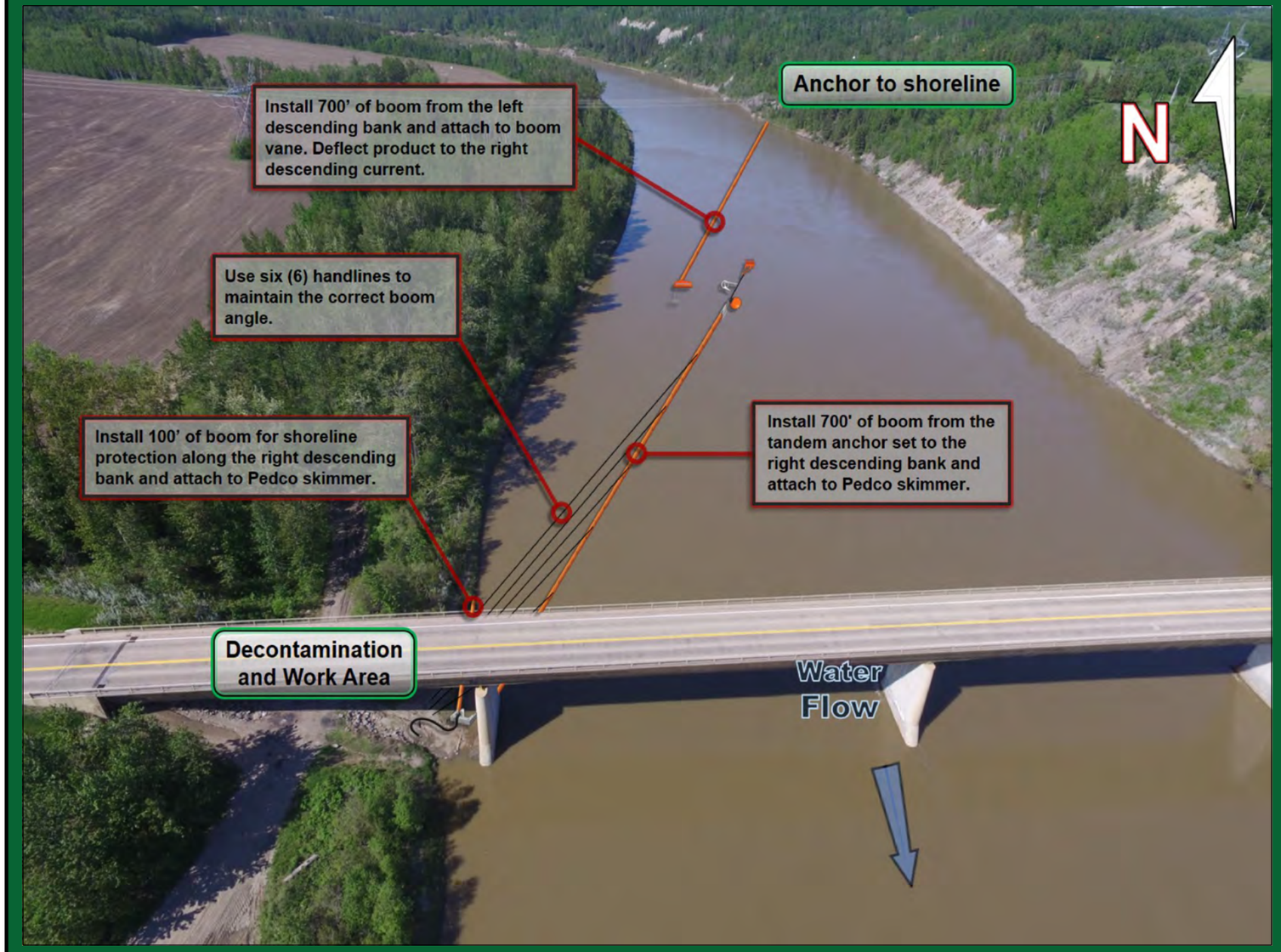
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 34 km
- Turn right onto AB-770 S (signs for Carvel) for 24.3 km, passing Carvel and continuing south towards Genesee Lake
- Destination is road bridge over North Saskatchewan River, accessed by adjacent boat launch
- Total Distance = 58.9 km
- Total Travel Time = 54 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05A-03



Implementation Strategy:

- Install 700' of 6" x 6" hard containment boom from the left descending bank and attached to a 0.50 m boom vane to deflect product to right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 110 m ice slot from the middle of the river at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 1	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., walleye, goldeye, brown trout, rainbow trout, bull trout, sauger, lake sturgeon, Arctic grayling, northern pike)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian/shrub nesting birds (e.g., warbler spp., sparrow spp, flycatcher spp., Swainson's thrush)
- Cavity nesting birds (e.g., tree swallow, red-breasted nuthatch, woodpecker spp.)
- Raptors (e.g., osprey, golden eagle)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Shorebirds (e.g., Wilson's snipe, sandpiper spp., lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-28

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.607400	
	Long: -114.149540	
Elevation:	714 m	
Land and Resource Use:	Private Land. Forested.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K64	
Control Point:	**Upstream** CP 05-01	**Downstream** CP 05B-02
Nearest KM Post:	**Line 01** KP 60	

Waterbody Information:

Waterbody Name: Kilini Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		512 m	
Depth		Unknown	
Flow Velocity		<0.5 km/hr	
FlowType		Wetland complex	

Waterbody description:

Watercourse associated with extensive open water and shrub dominated wetland complex impounded by 1 m high active beaver dam. On downstream side of dam, creek becomes confined with marginal flow before entering 3 m diameter culvert. Water level appears well-moderated by wetland complex and dam, but could drop 0.8-1 m if dam removed. Water likely present yearround; may become stagnant or intermittent in winter

Shoreline Information

Bank Height:
Poorly defined, 0.2 to 0.8 m

Shoreline Composition and Slope:
Gradual sloping at collection area with poorly defined wetland margins, becoming moderately steep, well defined along man-made channel downstream of dam.

Shoreline Vegetation:
Isolated willows around containment and recovery area, becoming abundant, often partially submerged, along margins of open water areas; patches of emergent vegetation (e.g., cattail, sedges), mixed grasses along shoreline, common tansy along road approach

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines.

Shoreline Comments:
Access from road along man-made 3 m high channel extending from both sides of cement culvert; lined with boulder riprap on downstream side of beaver dam, becoming gradually sloping near collection area on upstream side. Slips/trips/falls hazards along soft bank and instream substrate. On both sides of road above culvert there are small gravel pull over areas. Be aware of proximity to road and submered fencing on upstream side of beaver dam.

Logistical Information:

Staging Area Location:	- A limited staging area can be located at the control point. - The staging area can be located along both sides of Range Road 20. - 15 m x 15 m area. - Matting required to establish all weather access.	
	Lat: 53.60732	Long: -114.14919
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is surrounded by private land. - Landowner permission required before control point installation. - Barbed wire fence access to the control point.	
Road Access/Type:	- Access off of Range Road 20. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

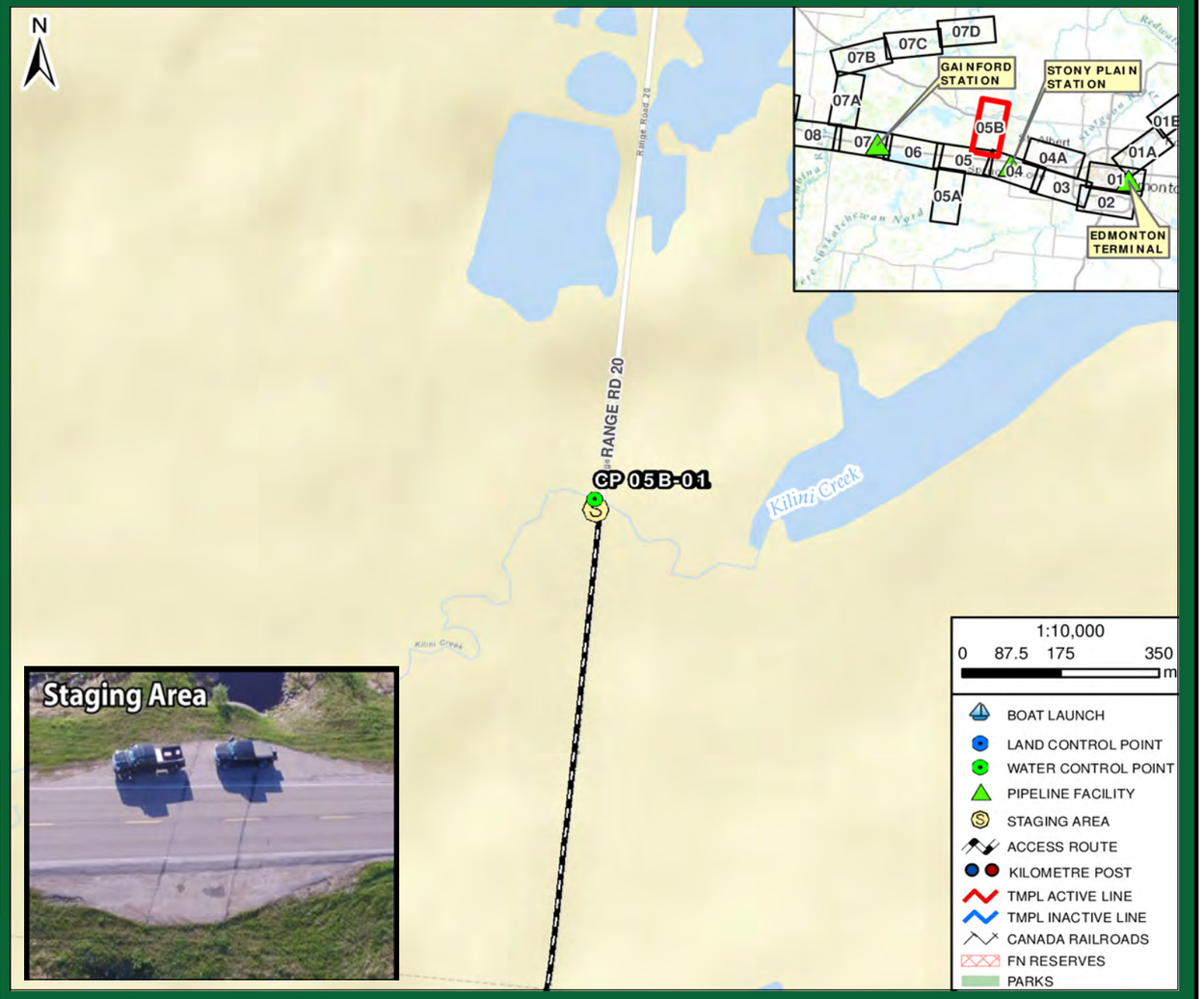
Resources At Risk:

- Poor spawning potential due to abundant fines and organics; low current, woody debris and emergent / submergent vegetation and bank cover provides good rearing habitat; deeper areas of wetland in part created by the beaver dam may provide moderate to good overwintering habitat potential; potential barrier to migration created by beaver dam.

- Active beaver lodge located 40 m southwest of dam.
- Open water and shrub dominated wetland complex provides important riparian, waterbird and wetland nesting bird habitat and amphibian habitat.
- Adjacent to paved road (Range Road 20).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

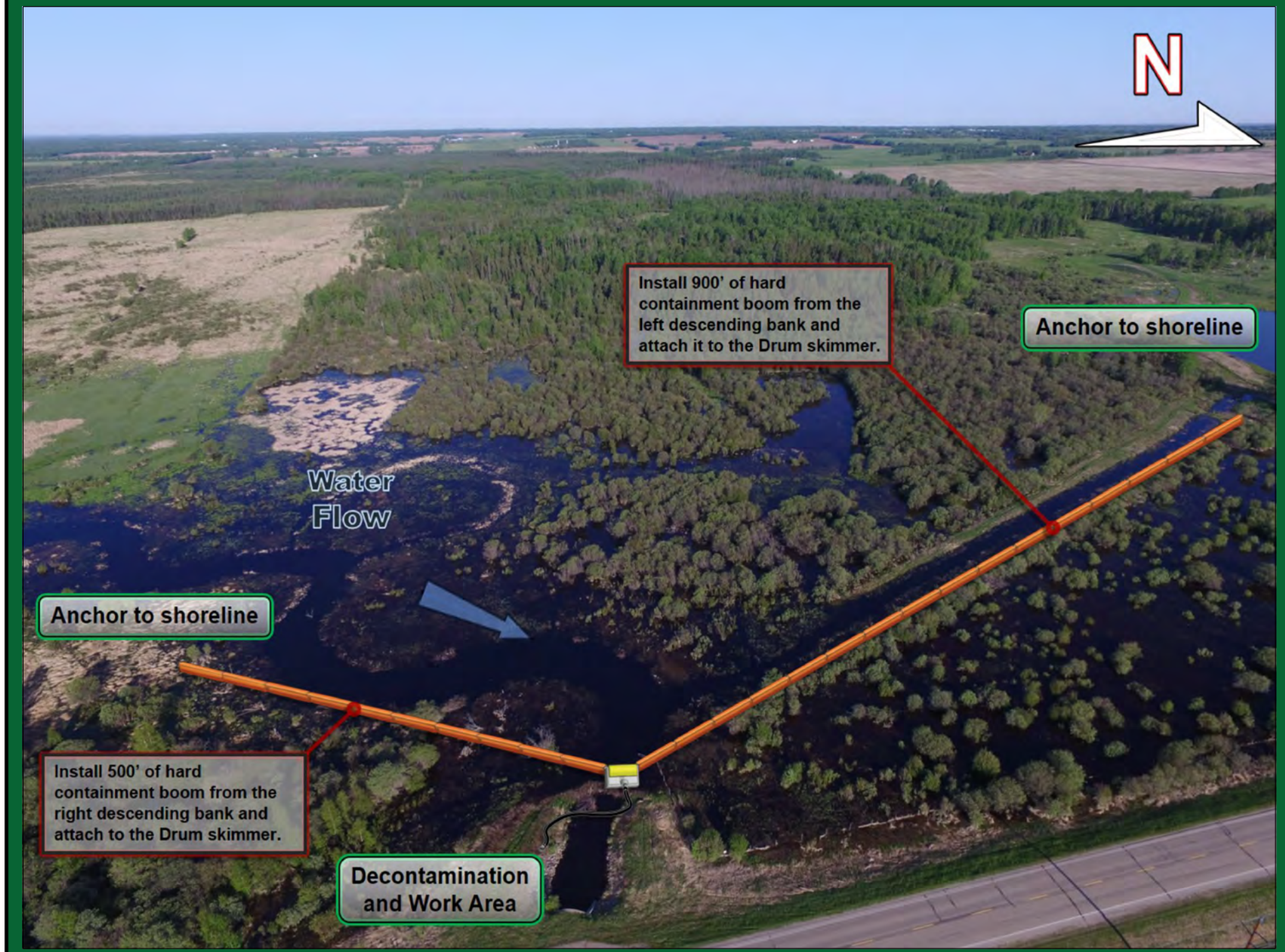
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 39 km
- Keep left to stay on AB-16 for 1.1 km (instead of AB-16A)
- Turn left at the 1st cross street onto Range Rd 20 for 4.6 km, heading north past Eden Lake and Soldan Lake
- Destination is road culvert over Kilini Creek, via highway pulloff
- Total Distance = 44.4 km
- Total Travel Time = 41 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-28
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1500'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
10	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1000'	Rope
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
14	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 900' of 6" x 6" hard containment boom from the left descending bank at an angle towards the watercourse outflow and anchor to the shoreline.
- Install 500' of 6" x 6" hard containment boom from the right descending bank at an angle towards the watercourse outflow and anchor to the shoreline.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install two 300 m ice slots from the right and left descending bank to the watercourse outflow and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., perch, fathead minnow, brook stickleback, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, coot), blue heron, night heron
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.628390	
	Long: -114.141520	
Elevation:	712 m	
Land and Resource Use:	Private Land. Forested.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K64	
Control Point:	**Upstream** CP 05B-01	**Downstream** CP 05B-03
Nearest KM Post:	**Line 01** KP 59	

Waterbody Information:

Waterbody Name: Kilini Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		14 m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unconfined with marginal flow	

Waterbody description:

Watercourse is unconfined with marginal flow, variable depths and ponded areas associated with sedge and shrub dominated wetland complex. Transition from open water to vegetated margins is variable, becoming shallow in areas with exposed, very soft muddy substrate with frequently saturated sedge dominated backshores. Abundant algae and submergent vegetation suggest high nutrient levels.

Shoreline Information

Bank Height:
Poorly defined, 0.2 to 0.5 m

Shoreline Composition and Slope:
Soft, poorly defined bank at collection area below 1.5 m high gravel road shoulder; poorly defined, soft and muddy substrate around containment.

Shoreline Vegetation:
sparse willows around collection and containment, becoming dense upstream; algae and abundant submergent vegetation (e.g., water milfoil, duckweed); abundant sedges and cattail patches

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines.

Shoreline Comments:
Collection area accessed on other side of barbed wire fence running adjacent to built-up (1.5 m) gravel road to water edge. Banks are poorly defined, with open water transitioning to areas of exposed soft muds and saturated sedge dominated wetland. Slips/trips/falls hazards along soft bank and instream substrate. Be aware of proximity to road with narrow shoulder and use caution removing fence to access site.

Logistical Information:

Staging Area Location:	- The staging area can be located along Township Road 540 on the left descending bank. - 5 m x 30 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.62843	Long: -114.14195
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 3 m x 3 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is located on private land. - Landowner permission required before accessing control point. - Narrow gravel road and bridge located at this control point. - Barbed wire fence access to the control point.	
Road Access/Type:	- Access off of Township Road 540. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

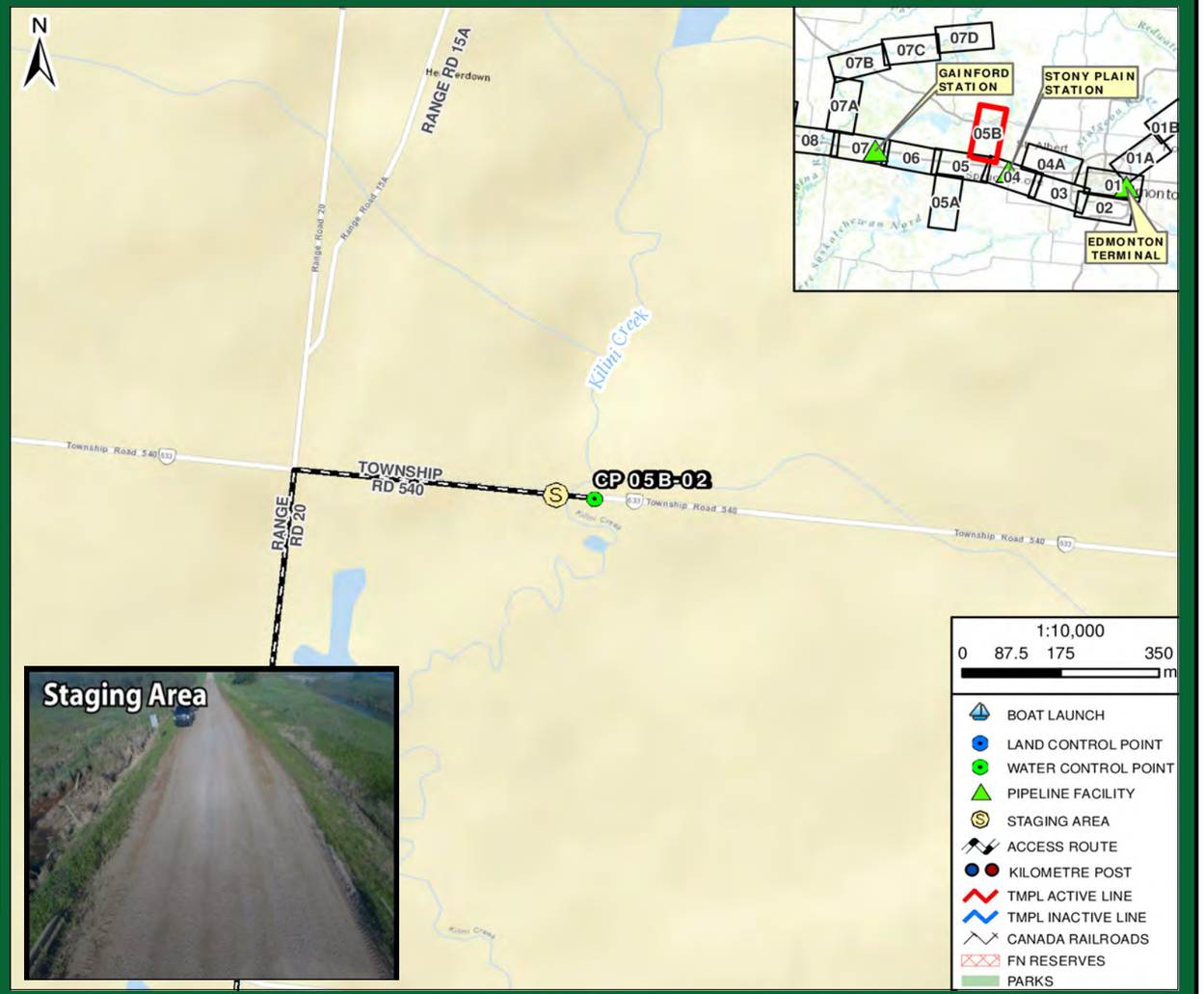
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; low current, woody debris and emergent / submergent vegetation and bank cover provides good rearing habitat; low overwintering habitat potential due to limited extent of deeper water areas.
- Mudflats and sedge cover provide good shorebird feeding and nesting habitat.
- Open water and sedge-shrub dominated wetland complex provides important riparian, waterbird and wetland nesting bird habitat and amphibian habitat.
- Adjacent to gravel road.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

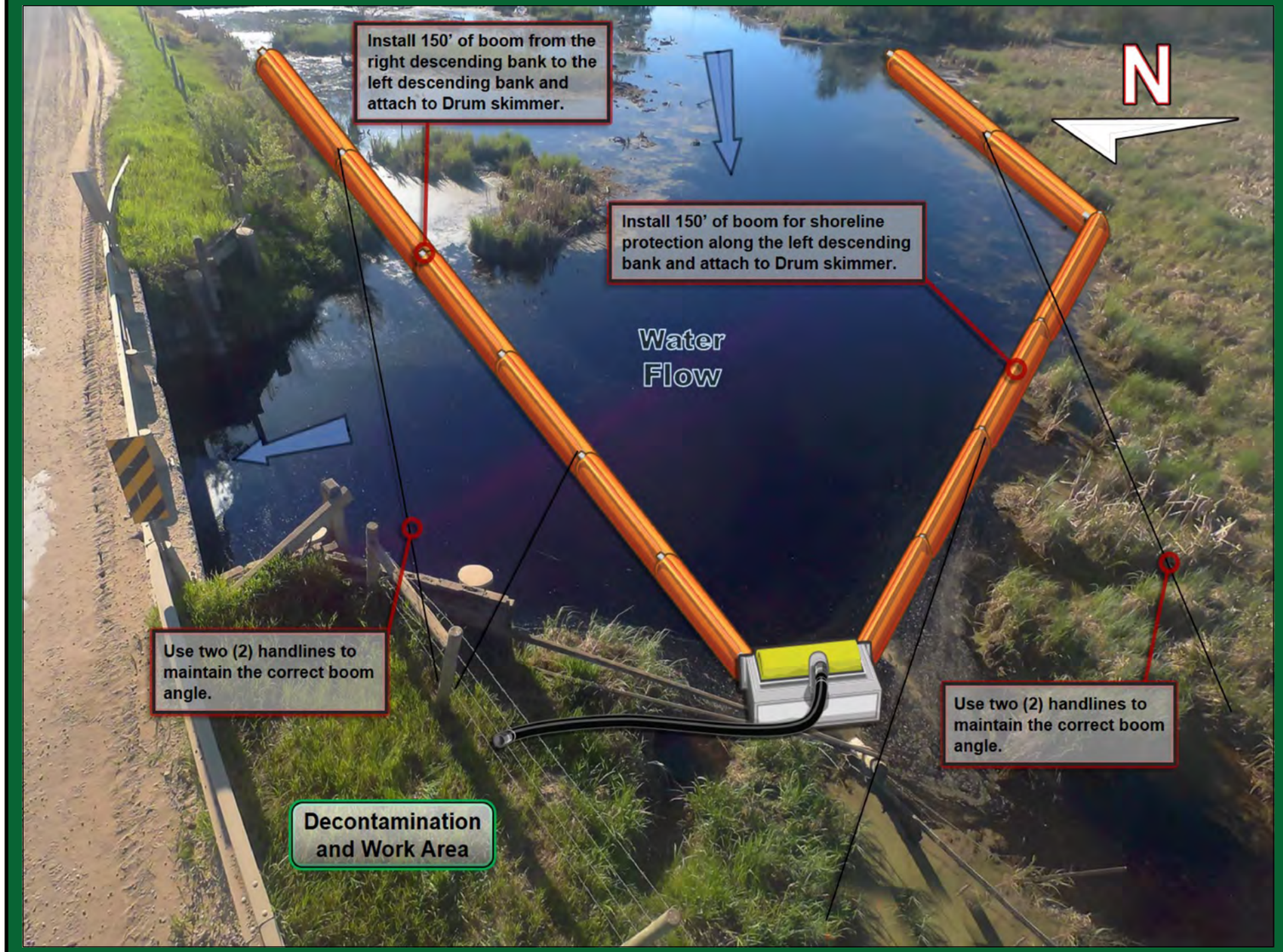
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 39 km
- Keep left to stay on AB-16 for 1.1 km (instead of AB-16A)
- Turn left at the 1st cross street onto Range Rd 20 for 6.9 km, heading north towards Bilby
- Turn right onto Heatherdown Rd/Township Rd 540 for 550 m
- Destination is road bridge over Kilini Creek, south of Lafarge Canada industrial area
- Total Distance = 47.3 km
- Total Travel Time = 44 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	8	100' Handline and Bridle
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 150’ of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 150' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Install (2) 100' handlines from each of the the 6" x 6" hard containment booms to the left descending bank to maintain the correct boom angle.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 16 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., perch, fathead minnow, brook stickleback, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, coot), blue heron, night heron
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.657170	
	Long: -114.141540	
Elevation:	704 m	
Land and Resource Use:	Private Land. Forested.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K64	
Control Point:	**Upstream** CP 05B-02	**Downstream** CP 05B-04
Nearest KM Post:	**Line 01** KP 60	

Waterbody Information:

Waterbody Name: Kilini Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		11 m	
Depth		1.2 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unconfined with marginal flow	

Waterbody description:

Unconfined with marginal flow, with variable depths and ponded areas created by active beaver dam at collection site. Watercourse flows along a broad ravine containing dense tall grasses, shrubby areas and forested backshores. There is a small side channel along LDB on upstream side of beaver dam connected to a small ponded backshore area. Water likely present year round, however, may become stagnant or intermittent in winter

Shoreline Information

Bank Height:
Poorly defined in areas, 0.4 to 0.8 m

Shoreline Composition and Slope:
Stable bank at collection created by overgrown, elevated beaver dam, with variable often vertical/overhanging grass-dominated banks elsewhere and level, uneven backshores.

Shoreline Vegetation:
Young to mature spruce dominated forest with isolated birch, poplar, aspen; several dead standing mature spruce trees; patches and isolated occurrences of willow and alder; dense tall grasses (e.g., bluejoint, reed canarygrass).

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines.

Shoreline Comments:
Collection area accessed 50 m south of gravel road along uneven terrain densely vegetated with grasses and willows to collection area adjacent to active beaver dam; where shoreline is stable overgrown grassy area associated with an old beaver dam. Banks upstream are variable, but often vertical/overhanging and obscured by dense grasses. Slips/trips/falls hazards in soft instream substrate and uneven terrain, and occasional stranded logs and woody debris around containment area.

Logistical Information:

Staging Area Location:	- The staging area can be located along Township Road 542 on the left descending bank. - 5 m x 30 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.65739	Long: -114.14182
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 2 m x 10 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point is located on private land. - Narrow gravel road and bridge located at control point. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Road Access/Type:	- Access off of Township Road 542. - All weather access is established. - Traffic control recommended.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

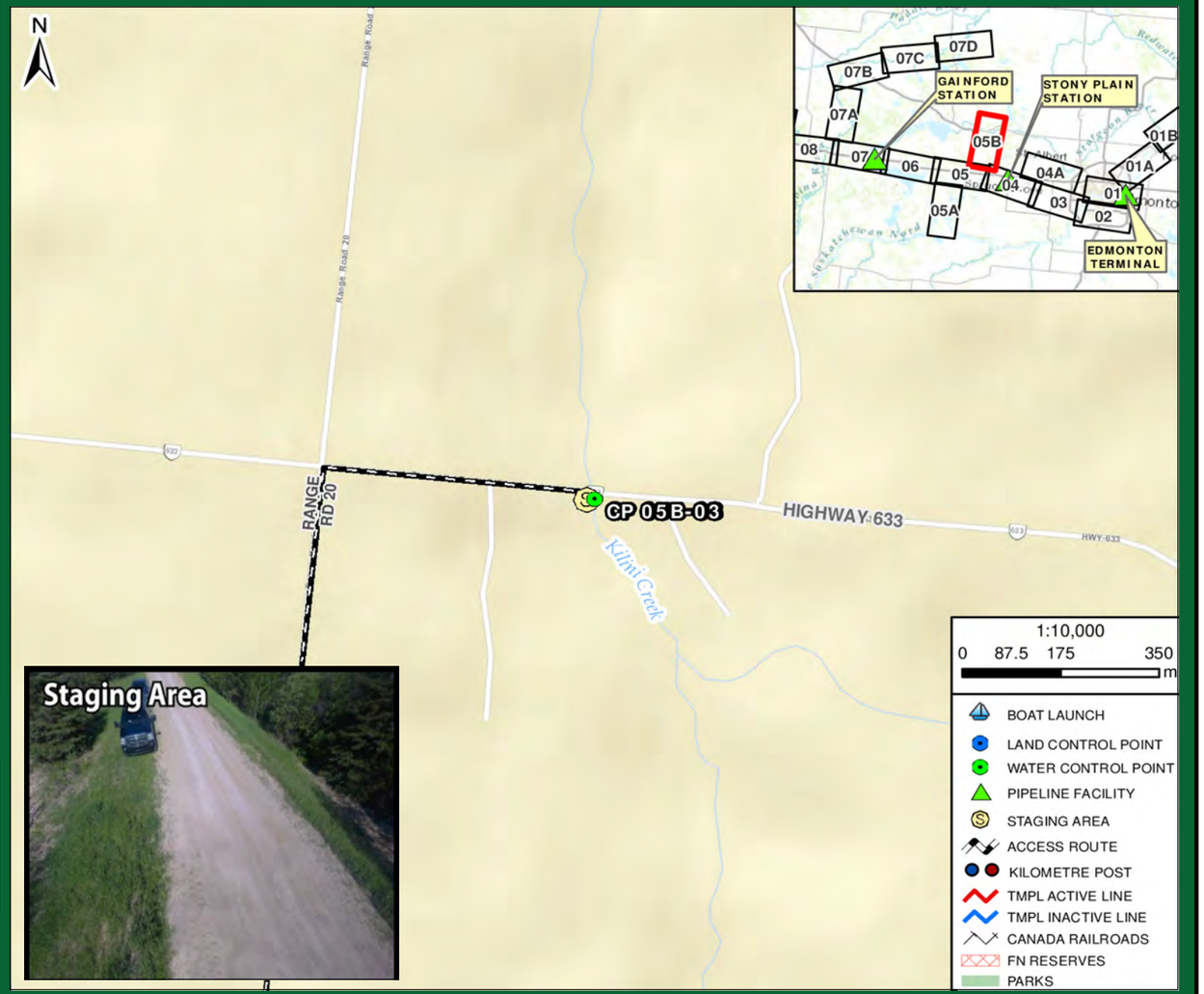
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; potential migratory barrier created by active beaver dam; low current, woody debris and emergent / submergent vegetation and bank cover provides good rearing habitat; low overwintering habitat potential due to limited extent of deeper water areas.
- Wildlife habitat along conifer dominated forested ravine containing ponded areas created by active beaver dam with abundant tall grasses and mixed shrub/tree riparian areas.
- Wetland and waterbird nesting habitat, forest nesting habitat; amphibian habitat; riparian nesting habitat in willows; cavity nesting habitat in dead standing spruce trees.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

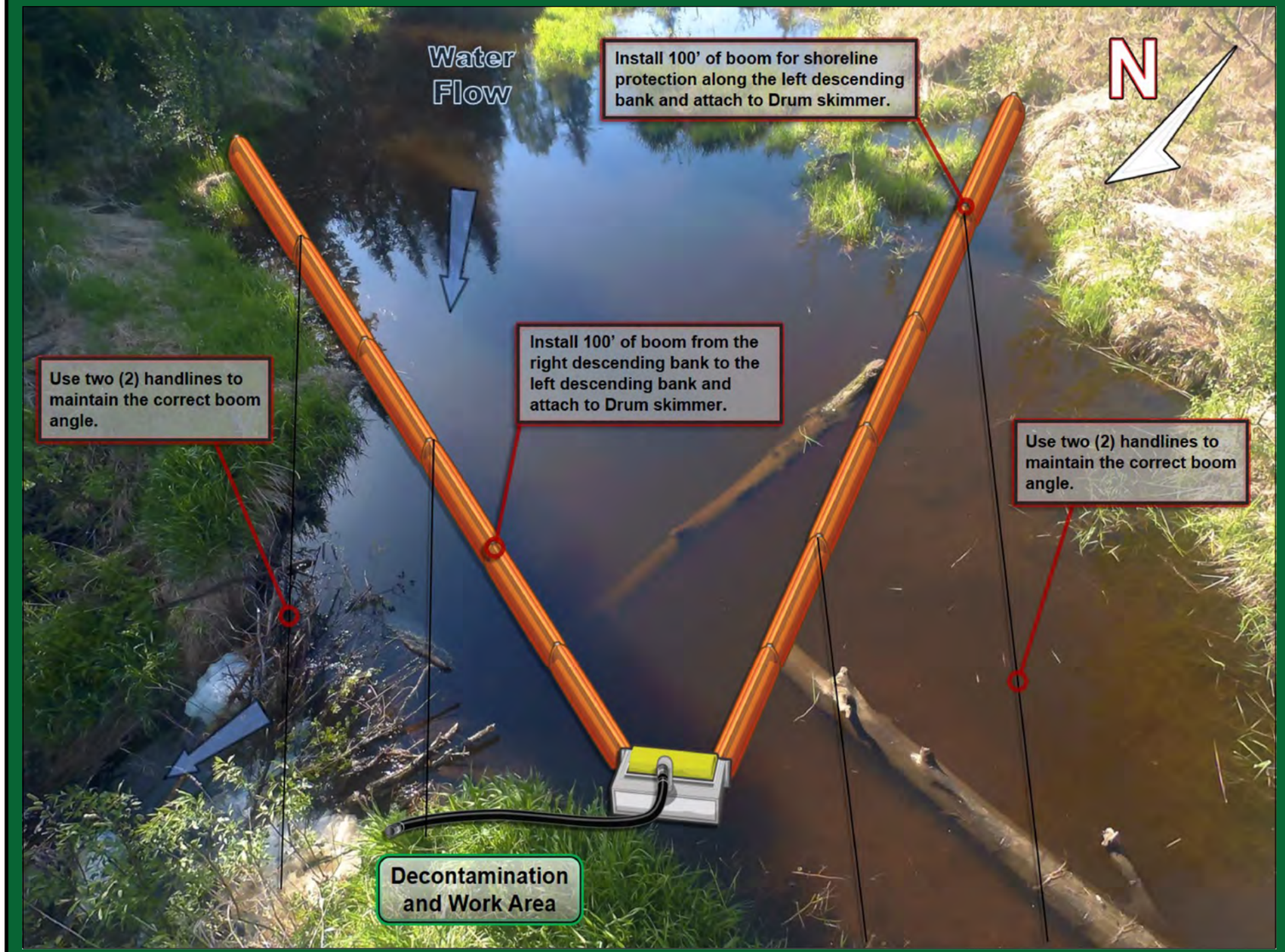
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 39 km
- Keep left to stay on AB-16 for 1.1 km (instead of AB-16A)
- Turn left at the 1st cross street onto Range Rd 20 for 10.2 km, heading north towards Onoway
- Turn right onto AB-633 E for 500 m
- Destination is road bridge over Kilini Creek
- Total Distance = 50.4 km
- Total Travel Time = 47 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-03



Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Install two (2) 50' handlines from each of the the 6" x 6" hard containment booms to the left descending bank to maintain the correct boom angle.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck/portable tank or Low Impact Recovery Unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 13 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	8	50' Handline and Bridle
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, fathead minnow, brook stickleback, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, coot), blue heron
- Raptors (e.g., merlin, red-tailed hawk), forest birds (e.g., thrush spp., finch spp., chickadee spp., nuthatch spp.), barn swallow
- Owl spp. (e.g., short-eared owl, long-eared owl)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-29

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.699310	
	Long: -114.123450	
Elevation:	686 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K64	
Control Point:	**Upstream** CP 05B-03	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 57	

Waterbody Information:

Waterbody Name: Kilini Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		17 m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unconfined with marginal flow	

Waterbody description:

Watercourse flows along broad, tall grass and willow dominated wetland meadow with aspen margins, widening and becoming unconfined with marginal flow with open shallow ponded areas at containment before flowing under wooden railway bridge with 4 m clearance. Exposed muddy areas, flattened grasses and stranded woody debris up to 0.5 m above water level suggest medium levels at time of survey.

Shoreline Information

Bank Height:
0.4 to 0.8 m

Shoreline Composition and Slope:
Gradually sloping stable bank at collection area with open grassy and bare work area along backshore LDB; with dense tall grasses, shrubs along uneven terrain upstream.

Shoreline Vegetation:
Aspen forest approaches with isolated birch near watercourse; isolated occurrences and patches of willow, alders; predominantly dense tall grasses (e.g., bluejoint, reed canarygrass), sedges, horsetail, common tansy along railway

Channel / Bank Forms:
Bed and banks predominantly composed of organics underlain by fines, with occasional rounded boulders and cobbles near railway.

Shoreline Comments:
Collection area accessed south from gravel road along off-road vehicle trail adjacent to built-up (4 m) railway, where it becomes gradually sloping at ford crossing with level backshore work area, becoming steep, variable and poorly defined in areas upstream and densely vegetated with tall grasses, patches of shrubs and trees. Slips/trips/falls hazards along soft instream substrate. Be aware of proximity to railway and gun range located on opposite side of railway.

Logistical Information:

Staging Area Location:	- A staging area can be located at the control point. - The staging area is to be located on the left descending bank. - 15 m x 15 m area. - Matting required to establish all weather access.	
	Lat: 53.69924	Long: -114.12341
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point on the north edge of Bilby Natural Area. - Access to control point along CN Rail right-of-way - Onoway Gun Club located downstream of the control point.	
Road Access/Type:	- Access off of Range Road 15. - Access to control point is 75 m down an ATV path. - Matting required to establish all weather access.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular recreational area. - Security is needed to keep out all nonessential personnel.	

Decontamination Area:

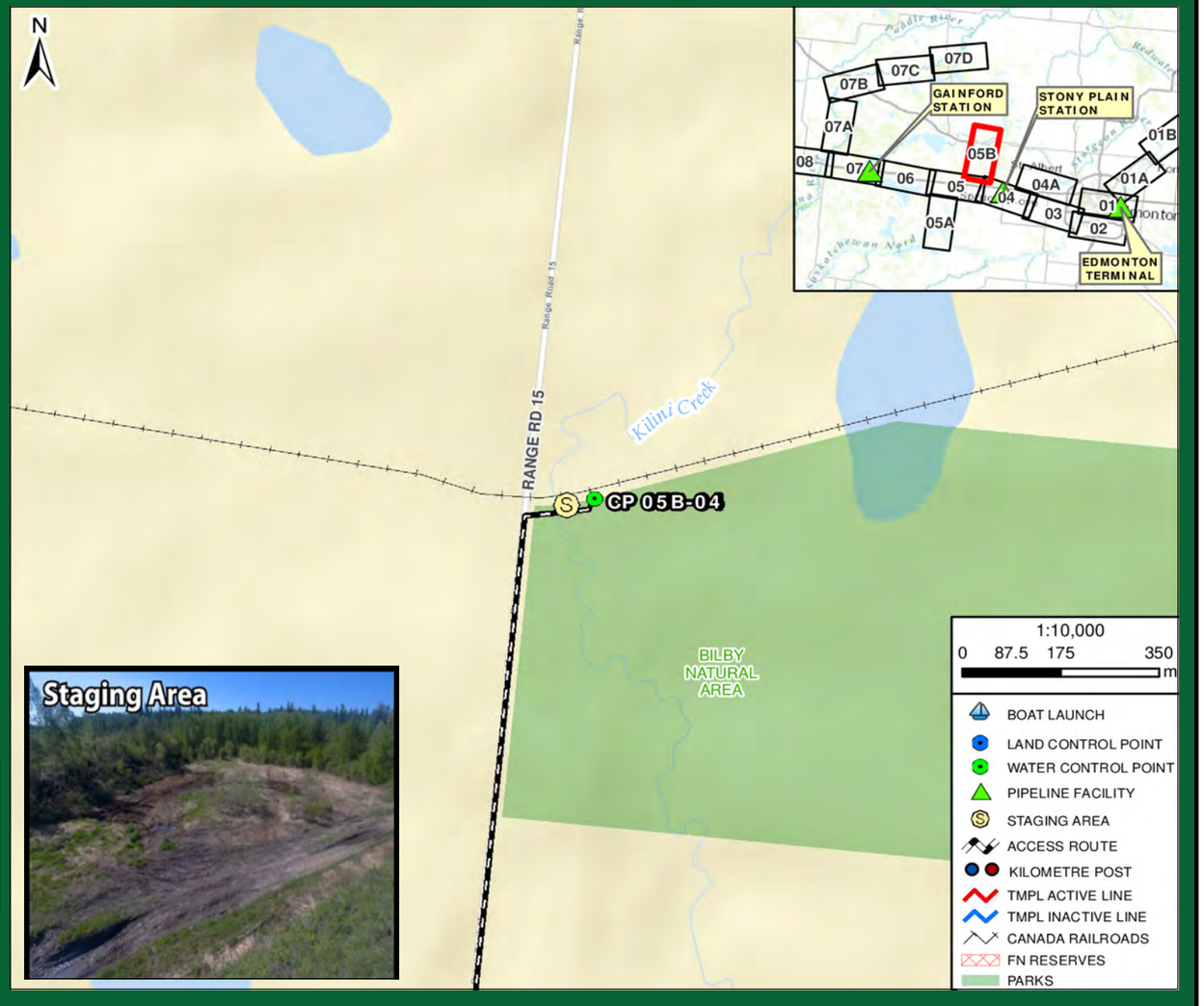
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; low rearing and overwintering habitat potential due to lack of cover and shallow water.
- Open water and tall grass and shrub dominated wetland meadow provides riparian, waterbird and wetland nesting bird habitat and amphibian habitat.
- Gun range on opposite side of railway downstream.
- Adjacent to railway.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- ATV trail located at this control point. Public may be present. Onoway Gun club downstream of control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 39 km
- Keep left to stay on AB-16 for 1.1 km (instead of AB-16A)
- Turn left at the 1st cross street onto Range Rd 20 for 13.4 km, heading north towards Bilby
- Turn right onto Township Rd 544 for 1.6 km
- Turn left onto Range Rd 15 for 1.4 km and turn right onto unnamed road for 100 m, adjacent to Bilby Natural Area
- Destination is road bridge over Kilini Creek, just south of Onoway Fish and Games Range
- Total Distance = 56.4 km
- Total Travel Time = 52 minutes calculated at 65 km/hr

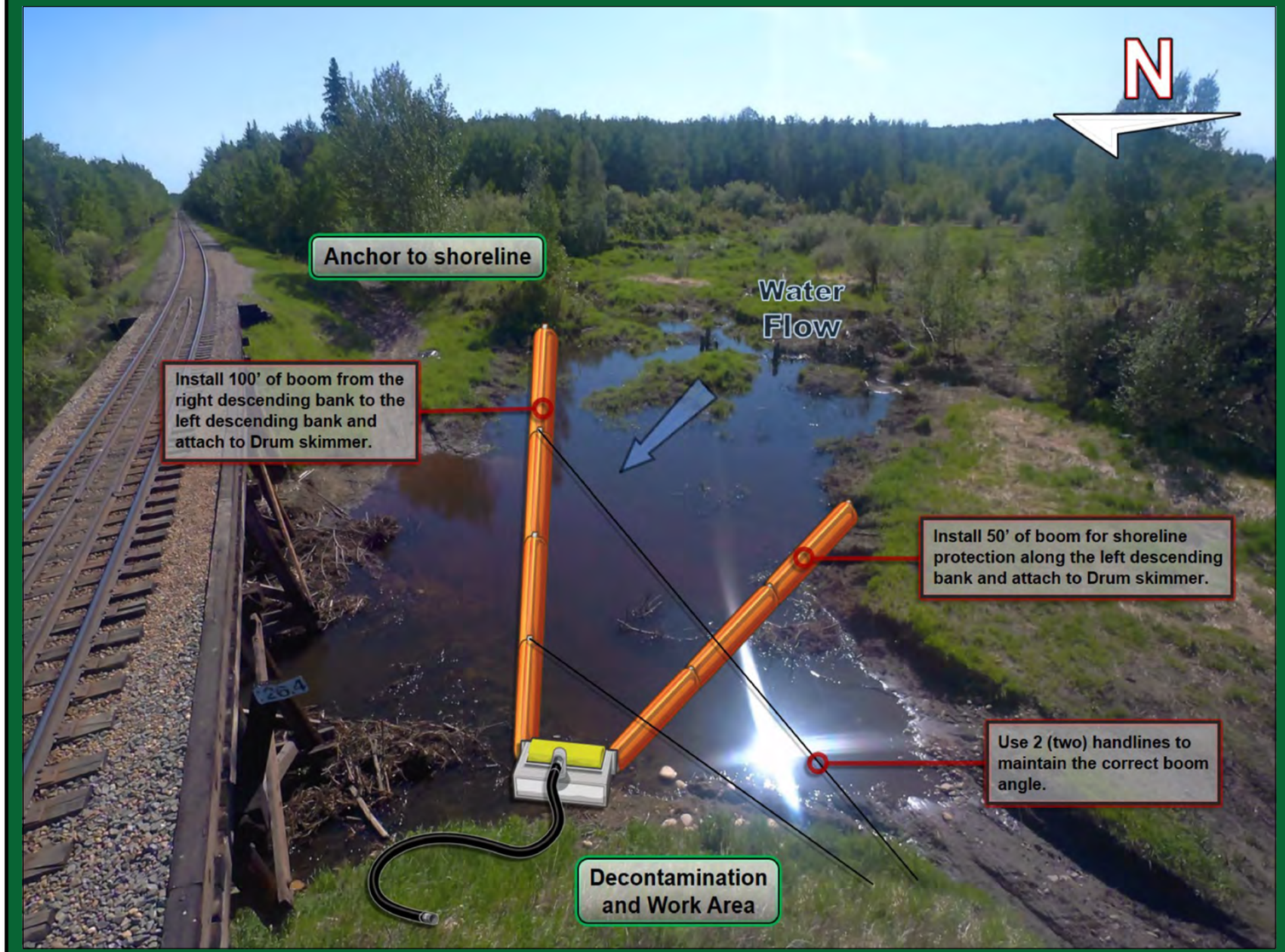
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-29
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 05B-04



Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install two (2) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 20 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	4	50' Handline and Bridle
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, pike, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian/wetland nesting birds (e.g., marsh wren, common yellowthroat, sora, warbler spp., flycatcher spp.), blue heron
- Raptors (e.g., Swainson's hawk, northern harrier, red-tailed hawk)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 06-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.559370	
	Long:	-114.440960	
Elevation	725 m		
Upstream Valves:	**Line 01:** K64		
Downstream Valves:	**Line 01:** K83		
Control Point:	**Upstream** N/A	**Downstream** N/A	
Nearest KM Post:	**Line 01** KP 78		

Waterbody Information:

Waterbody Name: Wabamun Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		935 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Well-maintained frequently used, gradually sloping concrete boat launch located at popular recreational site in Wabamun Lake Provincial Park. There are extensive open gravel parking areas along backshore; with park becoming very popular day use area during summer months (features and activities include sandy beach, playground, beach volleyball, picnicking and canoeing/kayaking). Prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.



Logistical Information:

Road Access/Type:	- Access off of Range Road 35 through Wabamun Lake Provincial Park. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in the boat launch parking lot. - 50 m x 150 m area. - All weather access is established.	
	Lat: 53.55862	Long: -114.43999
Site Comments:	- The boat launch is located within Wabamun Lake Provincial Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - In order to access a large portion of lake from this boat launch, vessels must pass under a railway bridge. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large waterbody with wind driven wave action, use caution around the shoreline and when operating small vessels.
- Public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 21 km
- Take exit 327 toward Kapasiwin and turn right onto Range Rd 35 for 900 m
- Continue straight onto Township Rd 531B /Range Rd 35A for 1 km
- Turn right into Wabamun Lake Provincial Park, heading towards the parking lot and boat launch
- Destination is boat launch at Wabamun Lake
- Total Distance = 24.4 km
- Total Travel Time = 23 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 06-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.555350
	Long:	-114.468090
Elevation	727 m	
Upstream Valves:	**Line 01:**	K64
Downstream Valves:	**Line 01:**	K83
Control Point:	**Upstream** N/A	**Downstream** CP 06-02
Nearest KM Post:	**Line 01** KP 80	

Waterbody Information:

Waterbody Name: Wabamun Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		935 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

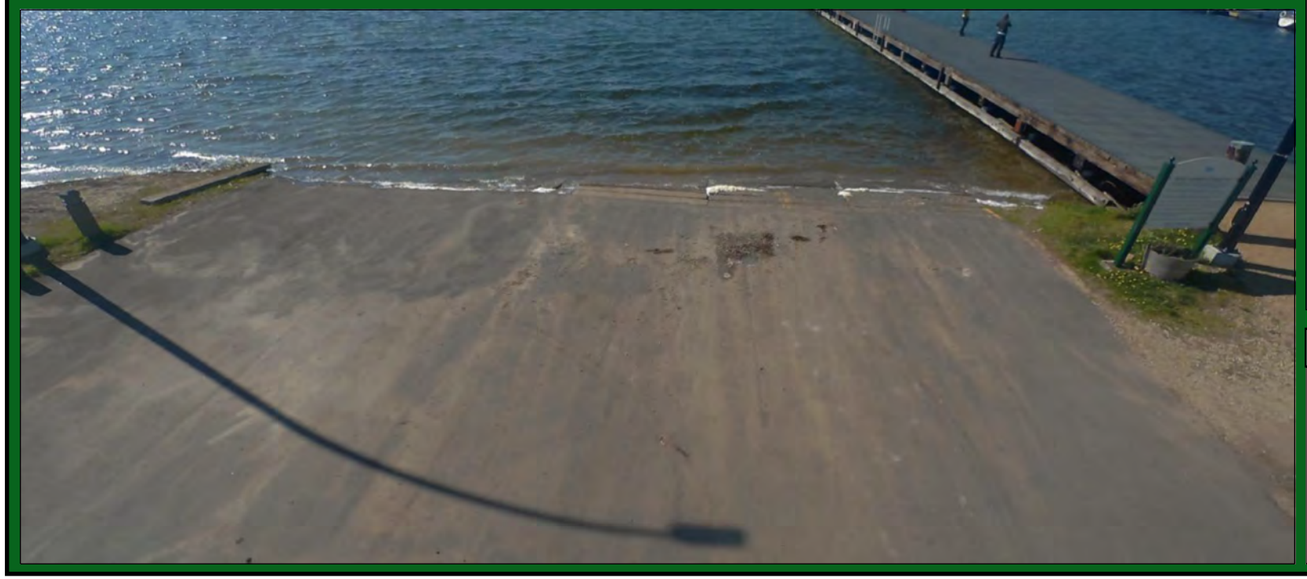
Well-maintained frequently used, gradually sloping concrete boat launch located at Wabamun Waterfront Park and Wabum Marina. Wabamun Lake is a popular recreational boating and fishing lake, and there are a variety of boats docked at marina, including sailboats, motorboats and jet skis. Adjacent to boat launch there is an approximately 100 m long pier and marina located an additional 50 m west. Signage present to prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Logistical Information:

Road Access/Type:	- Access off of 50 st through Wabamun Waterfront Park. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in the boat launch parking lot. - 40 m x 60 m area. - All weather access is established.	
	Lat: 53.55648	Long: -114.46933
Site Comments:	- The boat launch is located within Wabamun Waterfront Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular recreational boating and angling location. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

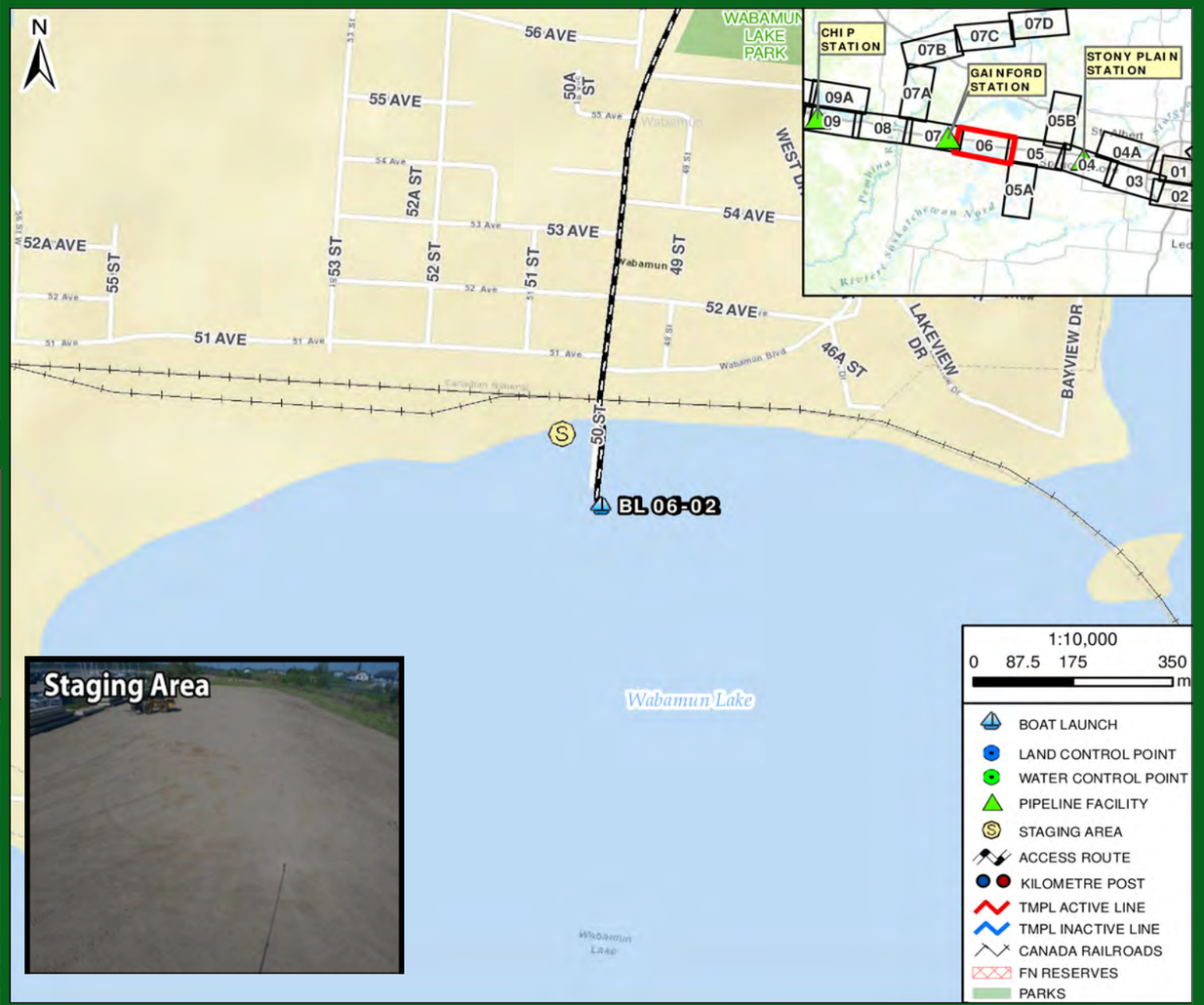
Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large waterbody with wind driven wave action, use caution around the shoreline and when operating small vessels.
- Public may be present, security is recommended.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 18 km
- Take exit 324 toward Wabamun and turn right (signs for Town Centre) for 550 m
- Continue straight south on 50 St for 1 km towards the Wabamun Waterfront Park / Marina and RV Park
- Destination is boat launch at Wabamun Lake, at the end of the angled parking lot
- Total Distance = 20.3 km
- Total Travel Time = 19 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-30

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 06-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.567160	
	Long: -114.587360	
Elevation:	727 m	
Land and Resource Use:	Crown Land. Lakeshore Road Right-of-Way.	
Upstream Valves:	**Line 01:** K83	
Downstream Valves:	**Line 01:** MOV-1024	
Control Point:	**Upstream** N/A	**Downstream** CP 06-02
Nearest KM Post:	**Line 01** KP 89	

Waterbody Information:

Waterbody Name: Wabamun Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		4085 m	
Depth		Unknown	
Flow Velocity		WInd Driven	
FlowType		Lake	

Waterbody description:
Wabamun Lake is a popular recreational boating and fishing destination, with mixed shoreline of forested areas, wetland areas, residential properties, commercial properties, campgrounds and recreational sites, including Wabamun Lake Provincial Park. Prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Shoreline Information

Bank Height:
1 m

Shoreline Composition and Slope:
Variable, typically gradually sloping banks with shallow foreshores.

Shoreline Vegetation:
Young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, alder, red-osier dogwood); grasses, cattails, bullrush.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with mixed gravels, cobbles and boulders.

Shoreline Comments:
Variable, typically gradually sloping banks with shallow foreshores.

Logistical Information:

Staging Area Location:	- The staging area can be located along Lakeshore Road. - 15 m x 25 m area. - All weather access is established.	
	Lat: 53.56726	Long: -114.58734
Work Area Location / Comments:	- The work area can be located on the north shoreline. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is surrounded by residences. - Boat lifts and private docks located at the control point. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Lakeshore Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 06-02. - Refer to BL 06-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 06-01. - Refer to BL 06-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

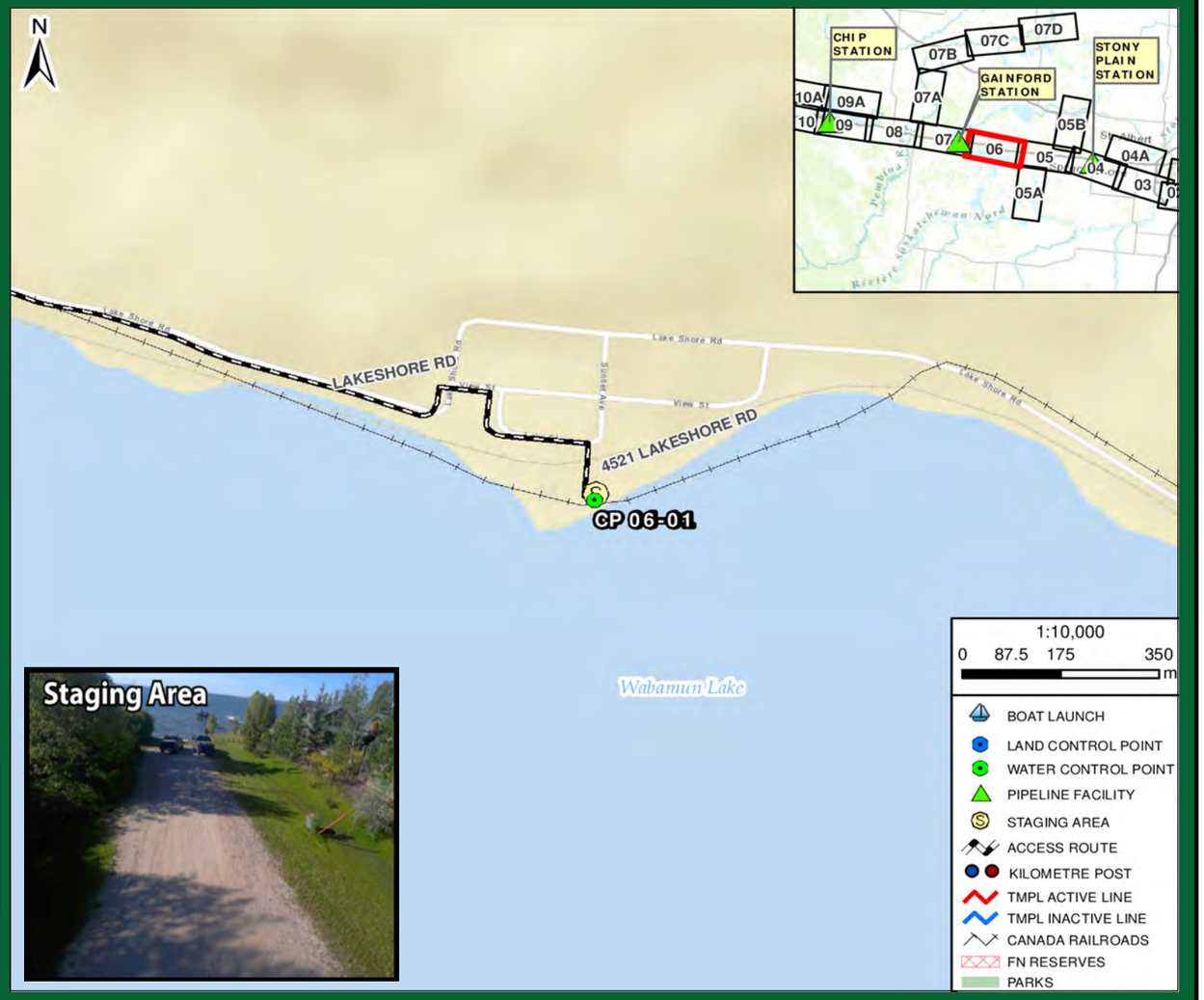
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including walleye, pike and perch.
- Abundant mixedwood and aspen dominated forest habitat; cattail dominated wetland margins; waterbird breeding and migratory staging.
- Wabamun Lake is a popular recreational boating and fishing lake, particularly during summer months, with multiple residential and commercial lake front properties.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 5.9 km
- Turn right onto Range Rd 52 for 800 m and follow as it becomes Lakeshore Rd for 4.4 km
- As it enters residential area, take the first three rights onto 4521 Lakeshore Rd (towards Whitewood Sands B&B)
- Destination is Wabamun Lake, lake access at docks (at #37-39 4521 Lakeshore Rd)
- Total Distance = 11.7 km
- Total Travel Time = 11 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 06-01



Implementation Strategy:

On-Water Recovery Techniques:
Corralling (This technique can be done with one boat, utilizing a 1.0 m deep draft boom vane, 600' of 18" x 12" hard containment boom):
- Use two (2) work boats, pulling 800' of 18" x 12" hard containment boom in a horseshoe pattern to corral the product.
- Slowly bring product to shoreline recovery area.
- Install 300' of 6" x 6" hard containment boom for shoreline protection along the north shoreline.
- Attach the 18" x 12" hard containment boom ends to the shoreline using shoreline pins or trees. Recover product with Drum Skimmer directly to vacuum truck.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	500'	Tow Rope
4	Boat Captain	1 / 100'	Power Pack / Hydraulic Line
8	Boat Crew	1	Vacuum Truck
		4	Work Boat
		1500'	18" x 12" Hard Containment Boom
		1	1.0 m Boom Vane
		4	Tow Bridle
22	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., loon, grebe spp., northern shoveler, lesser scaup, coot), blue heron
- Owl spp. (e.g., short-eared owl, long-eared owl), pelican, tundra and trumpeter swan, common tern, gull spp.
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-30

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 06-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.549756	
	Long: -114.603240	
Elevation:	727 m	
Land and Resource Use:	Crown Land. Lakeshore Road Right-of-Way.	
Upstream Valves:	**Line 01:** K83	
Downstream Valves:	**Line 01:** MOV-1024	
Control Point:	**Upstream** N/A	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 90	

Waterbody Information:

Waterbody Name: Wabamun Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		4085 m	
Depth		Unknown	
Flow Velocity		Wind Driven	
FlowType		Lake	

Waterbody description:

Wabamun Lake is a popular recreational boating and fishing destination, with mixed shoreline of forested areas, wetland areas, residential properties, commercial properties, campgrounds and recreational sites, including Wabamun Lake Provincial Park. Prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Shoreline Information

Bank Height:
1 m

Shoreline Composition and Slope:
Variable, typically gradually sloping banks with shallow foreshores.

Shoreline Vegetation:
Young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, alder, red-osier dogwood); grasses, cattails, bullrush.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with mixed gravels, cobbles and boulders.

Shoreline Comments:
Variable, typically gradually sloping banks with shallow foreshores.

Logistical Information:

Staging Area Location:	- The staging area can be located at BL 06-02. - 40 m x 80 m area. - All weather access is established.	
	Lat: 53.55648	Long: -114.46933
Work Area Location / Comments:	- The work area can be located on the north shoreline. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is surrounded by residences. - Boat lifts and private docks located along the shorelines. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Control point accessed by boat.	
Boat Access:	- Main boat access from BL 06-02. - Refer to BL 06-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 06-01. - Refer to BL 06-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including walleye, pike and perch.
- Abundant mixedwood and aspen dominated forest habitat; cattail dominated wetland margins; waterbird breeding and migratory staging.
- Wabamun Lake is a popular recreational boating and fishing lake, particularly during summer months, with multiple residential and commercial lake front properties.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large wind driven waterbody with varying wave height, use caution when operating vessels.
- Popular angeling and recreational lake, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

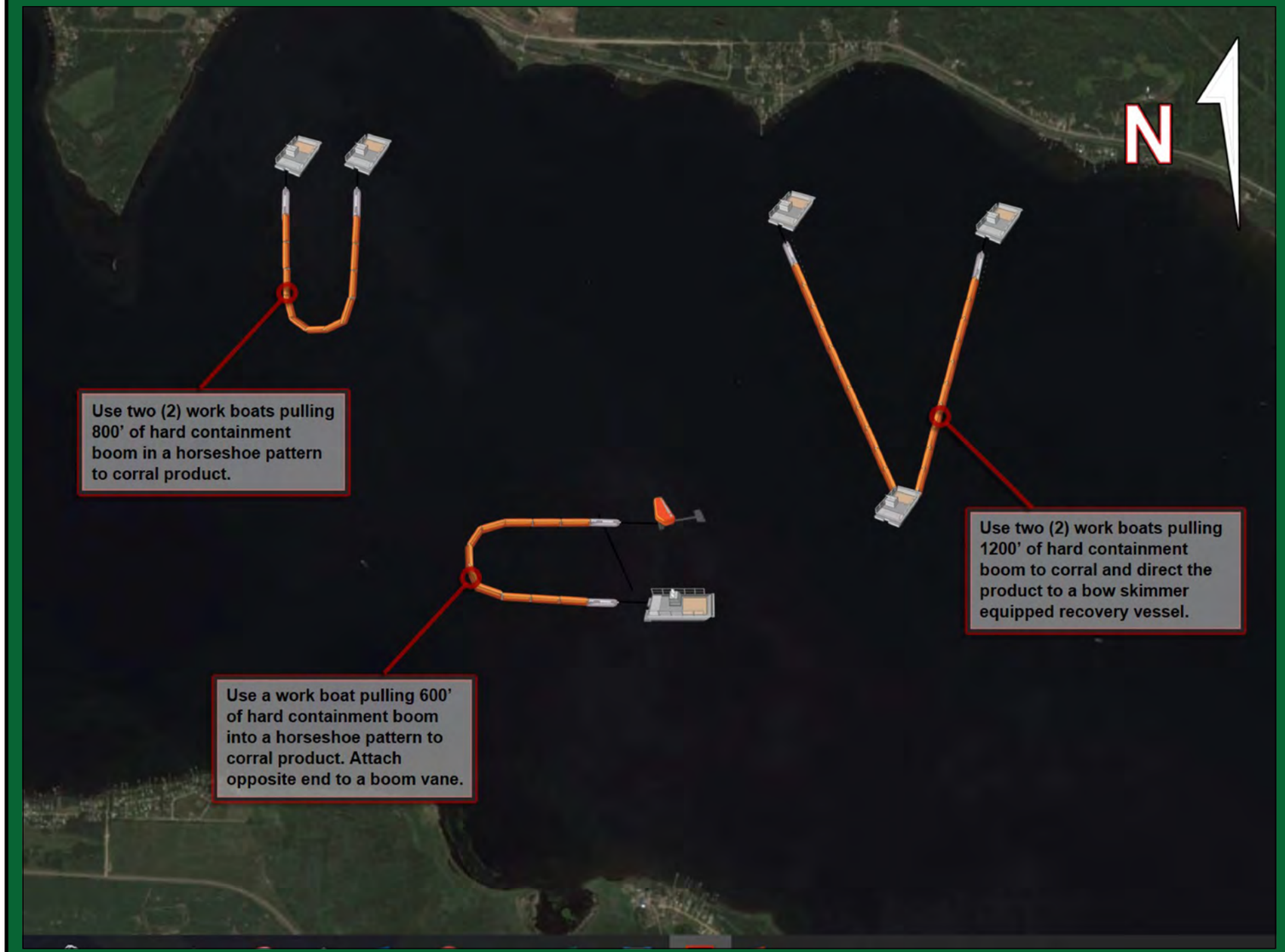
- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 21 km
- Take exit 327 toward Kapasiwin and turn right onto Range Rd 35 for 900 m
- Continue straight onto Township Rd 531B /Range Rd 35A for 1 km
- Turn right into Wabamun Lake Provincial Park, heading towards the parking lot and boat launch
- Destination is Wabamun Lake, accessed via boat launch at BL 06-01
- Total Distance = 35.8 km
- Total Travel Time = 33 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 06-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	500'	Tow Rope
6	Boat Captain	1 / 100'	Power Pack / Hydraulic Line
12	Boat Crew	1	Vacuum Truck
		5	Work Boat
		1500'	18” x 12” Hard Containment Boom
		1	1.0 m Boom Vane
		6	Tow Bridle
		1	Bow Skimmer Equipped Work Boat
28	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., loon, grebe spp., northern shoveler, lesser scaup, coot), blue heron
- Owl spp. (e.g., short-eared owl, long-eared owl), pelican, tundra and trumpeter swan, common tern, gull spp.
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Implementation Strategy:

On-Water Recovery Techniques:
Corralling (This technique can be done with one boat, utilizing a 1.0 m deep draft boom vane, 600’ of 18" x 12" hard containment boom):
- Use (2) work boats, pulling 800' of 18" x 12" hard containment boom in a horseshoe pattern to corral the product.
- Slowly bring product to shoreline recovery area.
- Attach the 18" x 12" hard containment boom ends to the shoreline using shoreline pins or trees. Recover product with Drum Skimmer directly to vacuum truck.

On-Lake Recovery:
- Use (2) work boats, pulling 1200' of 18" x 12" hard containment boom to corral and direct the product to bow skimmer equipped recovery vessel.
- Connect trailing ends of boom to bow of skimming vessel.
- Recover product with bow skimmer into on board containment. Transfer product at staging area or boat launch for disposal.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-09

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 06-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.573150	
	Long: -114.619280	
Elevation:	728 m	
Land and Resource Use:	Crown Land. Lake Shore Road Right-of-Way.	
Upstream Valves:	**Line 01:** K83	
Downstream Valves:	**Line 01:** MOV-1024	
Control Point:	**Upstream** N/A	**Downstream** CP 06-02
Nearest KM Post:	**Line 01** KP 91	

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Drainage

WATER LEVEL:	Low	Medium	High
Width	2.0 m		
Depth	0.2 m		
Flow Velocity	1.0 km/hr		
FlowType	Unnamed seasonal drainage with low flow		

Waterbody description:

Unnamed seasonal drainage with low flow and shallow, approximately 0.2 m depth, flowing into Wabamun Lake downstream approx. 150 m. Watercourse may become dry/intermittent or frozen to bottom during winter. Collection area located on downstream side of culvert, upstream of CP Rail bridge crossing. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
2 m

Shoreline Composition and Slope:
Both banks steeply sloped/vertical with dense shrubs and grasses.

Shoreline Vegetation:
Young to mature forest dominated by poplars and aspens along backshores. Both banks are heavily vegetated with dense shrubs (e.g. willow spp.), grasses, and sedges.

Channel / Bank Forms:
Banks composed of organics (e.g. grass) and cobble underlain by find sediments; bed composed of organics, fines, and gravel/pebbles with occasional cobbles.

Shoreline Comments:
Collection area accessed along steep, generally stable bank from Township Road 532A and the railway access. Slips/trips/falls hazards along cobble banks.

Logistical Information:

Staging Area Location:	- The staging area can be located along the right descending bank at the control point. - 10 m x 10 m area. - All weather access is established.	
	Lat: 53.57315	Long: -114.6194
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - All weather access is established.	
Site Restrictions:	- The control point is located directly upstream of a CN railway stream crossing.	
Road Access/Type:	- Access directly off of Lake Shore Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

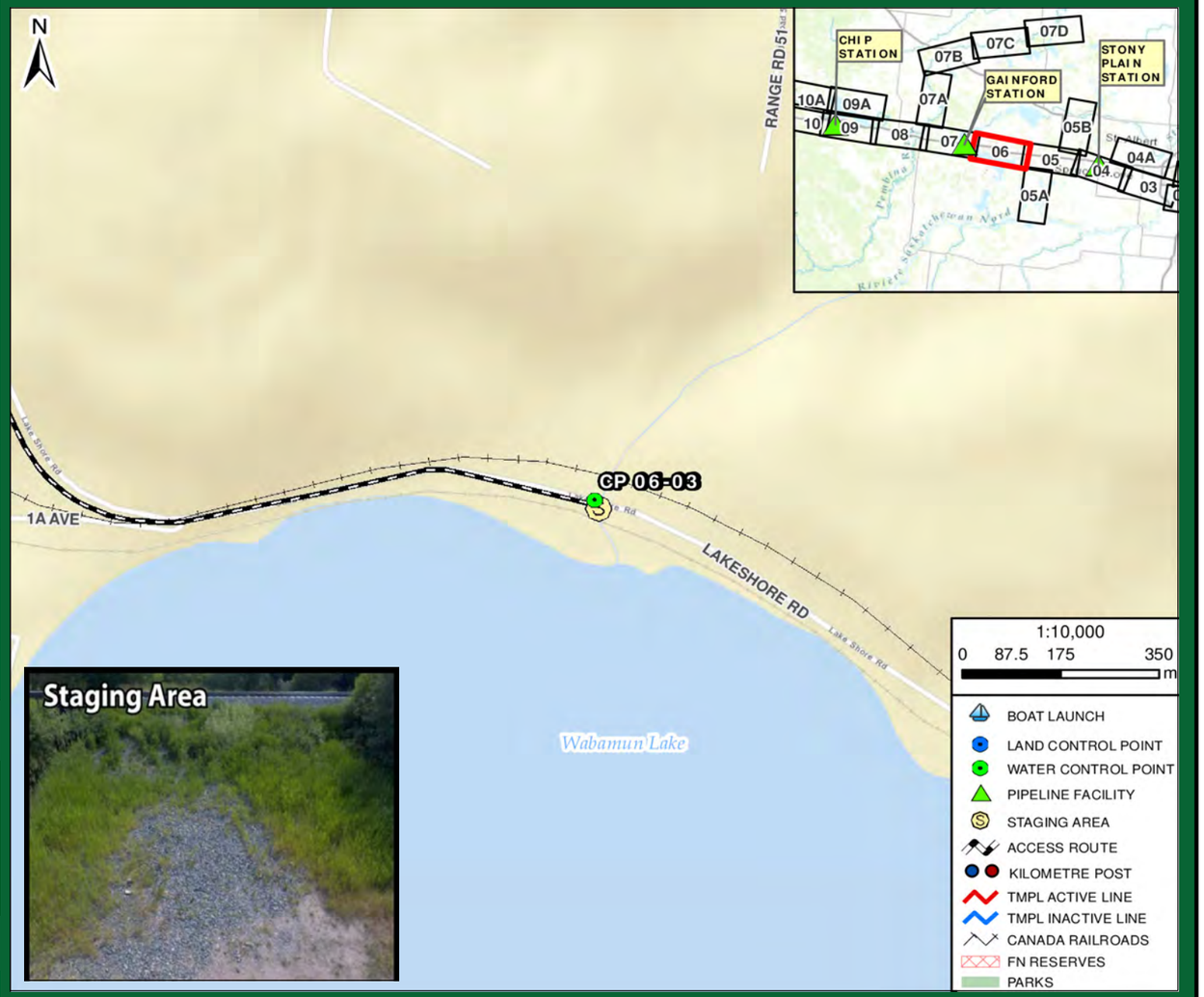
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; poor fish habitat potential during shallow, seasonal flow. Potential rearing habitat downstream during high water.
- Located upstream of Wabamun Lake.
- Private residence and grazing pasture located upstream along RDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 7 km
- Turn right onto Range Rd 52 for 800 m and continue as it becomes Lakeshore Rd for 1.6 km
- Destination is road culvert, north of Wabamun Lake, just past Fallis
- Total Distance = 9.2 km
- Total Travel Time = 8 minutes calculated at 65 km/hr

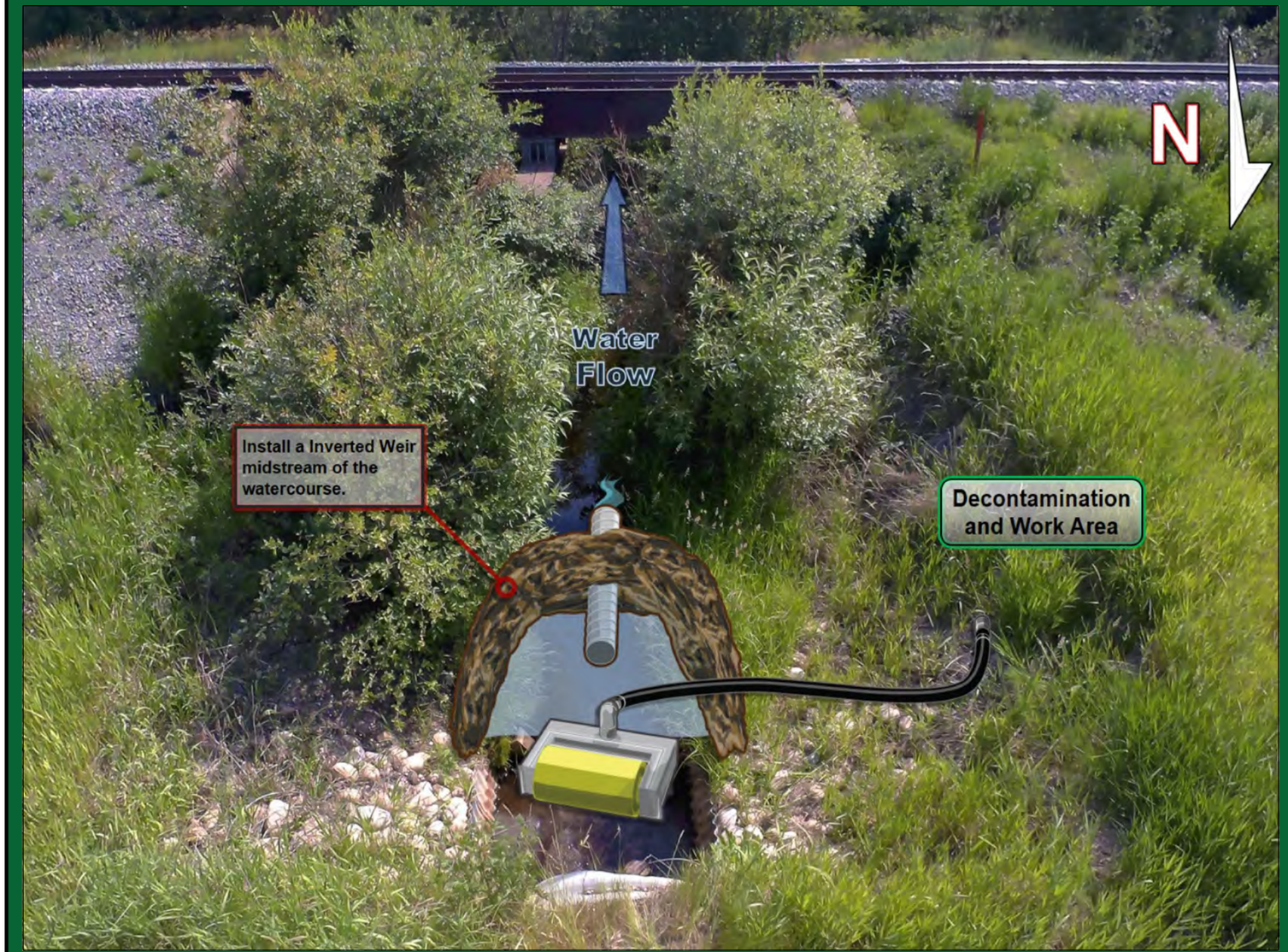
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-09
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 06-03



Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse completely blocking the water flow.
- Install (1) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 50' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 2.5 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	12” x 15’ Culvert
1	Safety Watch	1	Trackhoe
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Site Security	50'	Rigid Suction Hose
1	Track Hoe Operator	5 Yards	Earthen Material or 40 Sandbags
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, northern pike, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 07-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.590230	
	Long:	-114.790230	
Elevation	734 m		
Upstream Valves:	**Line 01:**	STATION CHECK	
Downstream Valves:	**Line 01:**	K117A	
Control Point:	**Upstream** CP 07-02	**Downstream** CP 07-04	
Nearest KM Post:	**Line 01** KP 103		

Waterbody Information:

Waterbody Name: Isle Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		1360 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Boat launch located at Gainford Park, consisting of an open grassy day use area adjacent to shoreline residences. Approach and parking area is paved, gradually sloping becoming narrow boat launch of compacted and loose gravels into shallow water. Popular boating and fishing lake, with mixed residential properties and forested lands along shoreline. Prone to summer blue-green algae blooms. Signage present to prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.



Logistical Information:

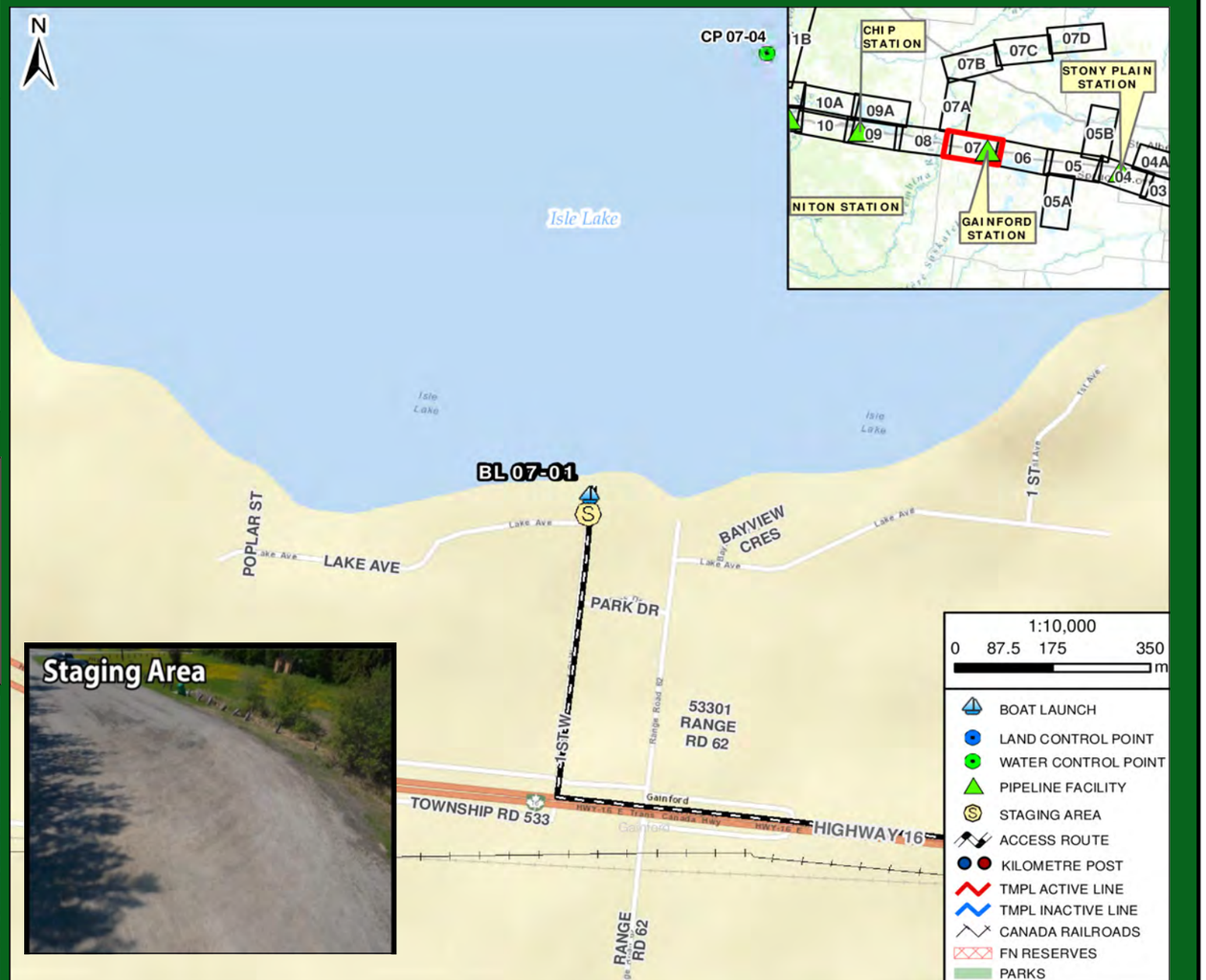
Road Access/Type:	- Access off of 1 Street West. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in the boat launch parking lot. - 20 m x 40 m area. - All weather access is established.	
	Lat: 53.5898	Long: -114.79025
Site Comments:	- The boat launch is located within Gainford Park recreational area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular angling and recreational area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large waterbody with wind driven wave action, use caution around the shoreline and when operating small vessels.
- Public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 3.5 km
- At Gainford, Turn right onto 1 St W for 500 m
- Continue north towards the lake until end of road/boat launch
- Destination is Isle Lake, accessible via south side boat launch
- Total Distance = 4.7 km
- Total Travel Time = 4 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 07-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.605270	
	Long:	-114.787820	
Elevation	734 m		
Upstream Valves:	**Line 01:**	STATION CHECK	
Downstream Valves:	**Line 01:**	K117A	
Control Point:	**Upstream** CP 07-02	**Downstream** N/A	
Nearest KM Post:	**Line 01** KP 103		

Waterbody Information:

Waterbody Name: Isle Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		1360 m	
Depth		Unknown	
Flow Velocity		Wind Driven	
FlowType		Lake	

Waterbody description:

Boat launch located along Jones Beach and Sherwood Cove Park, approach is along level becoming gradually sloping gravel road into shallow water. Along backshore there is an open level maintained grassy staging area. Isle Lake is a popular recreational boating and fishing lake, with mixed residential properties and forested lands along shoreline. Lake is prone to summer blue-green algae blooms. Signage present to prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.



Logistical Information:

Road Access/Type:	- Access off of Range Road 62. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in the reserve area of Jones Beach. - 40 m x 60 m area. - Matting required to establish all weather access.	
	Lat: 53.60545	Long: -114.78841
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular angling and recreational boat area. - The response area is surrounded by residences. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large waterbody with wind driven wave action, use caution around the shoreline and when operating small vessels.
- Public may be present. Overhead power lines are present in the staging area.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8 km
- Near Magnolia, Turn right onto AB-757 N (signs for Magnolia/Sangudo) for 2.5 km
- Turn right onto AB-633 E for 5.5 km, then turn right onto Range Rd 62 for 1.3 km heading south to end of the road
- Destination is boat launch at Isle Lake
- Total Distance = 18.4 km
- Total Travel Time = 17 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.592530	
	Long: -114.841260	
Elevation:	737 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 07-06	**Downstream** CP 07-02
Nearest KM Post:	**Line 01** KP 106	

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		12 m	
Depth		1.2 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently unconfined marginal velocity structure.	

Waterbody description:

Frequently unconfined marginal velocity run structure. Watercourse flows along pasture lands on RDB and highway easement along LDB. Flattened grasses stranded woody debris suggest high water mark approximately 0.4 m above water level at time of survey; water likely present year round, becoming stagnant or intermittent during winter. At collection there is a 0.5 m diameter perched highway culvert (flow absent during survey).

Shoreline Information

Bank Height:
0.5 to 1 m

Shoreline Composition and Slope:
Variable, poorly defined often gradually sloping banks densely vegetated with mixed grasses and level, but uneven backshores with low, saturated areas along LDB.

Shoreline Vegetation:
Mixed grasses and cattail patches along RDB; poplar saplings, willows, sedges, grasses, horsetail, dandelion, patches of cattail and duckweed along LDB.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by fine sediments

Shoreline Comments:
Collection area accessed along open, grass dominated highway easement to grassy, uneven work area and densely vegetated, soft but stable bank at collection. Slips/trips/falls hazards along soft poorly defined banks and instream substrate, and hidden willow cuttings from beaver activity. Be aware of an overhead power line hazard along highway easement, and barbed wire fence across containment area.

Logistical Information:

Staging Area Location:	- The staging area can be located along on the left descending bank in the Highway 16 ditch. - 15 m x 80 m area. - Matting required to establish all weather access.	
	Lat: 53.59246	Long: -114.84057
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

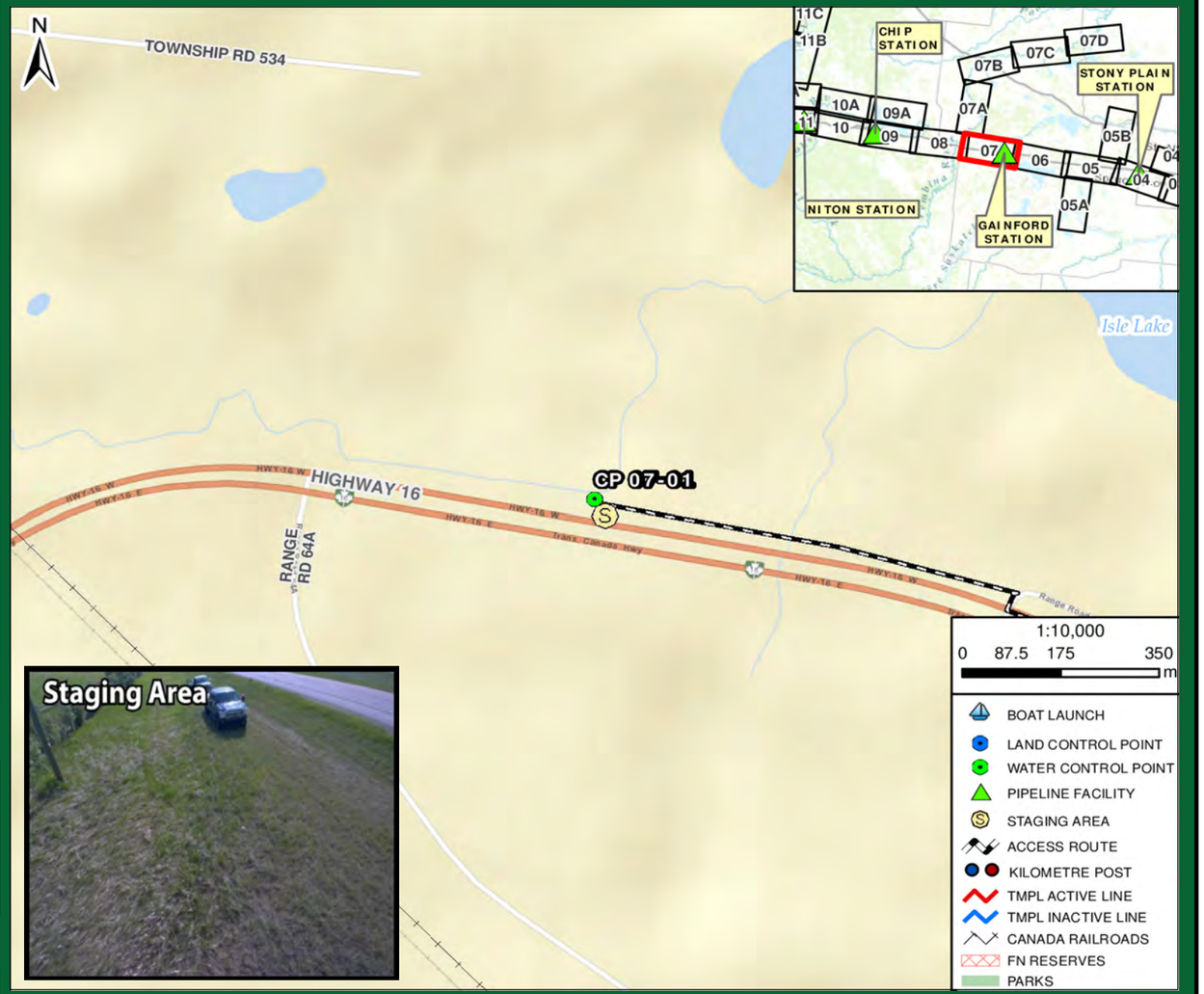
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to lack of current and abundant fines and organics; areas of deep water and shoreline/instream cover provide moderate rearing and overwintering habitat.
- Watercouse flows along grass dominated pasture lands with areas of wetland margins (e.g., cattails, reed canarygrass, sedge), willows and poplar saplings; providing riparian, wetland and waterbird nesting habitat and amphibian habitat.
- RDB located along cattle pasture lands.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven ground conditions, use caution around the shoreline.
- Public may be present. Overhead power lines at the staging area and control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 6.2 km
- Past Gainford, Turn right onto Range Rd 64 and pulloff from highway and access via foot for 800 m, parallel to highway
- Destination is unnamed outflow channel on west side of Isle Lake, adjacent to highway
- Alternatively, can pulloff from highway unto side of road; please be cautious of highway traffic safety
- Total Distance = 7.6 km
- Total Travel Time = 7 minutes calculated at 65 km/hr

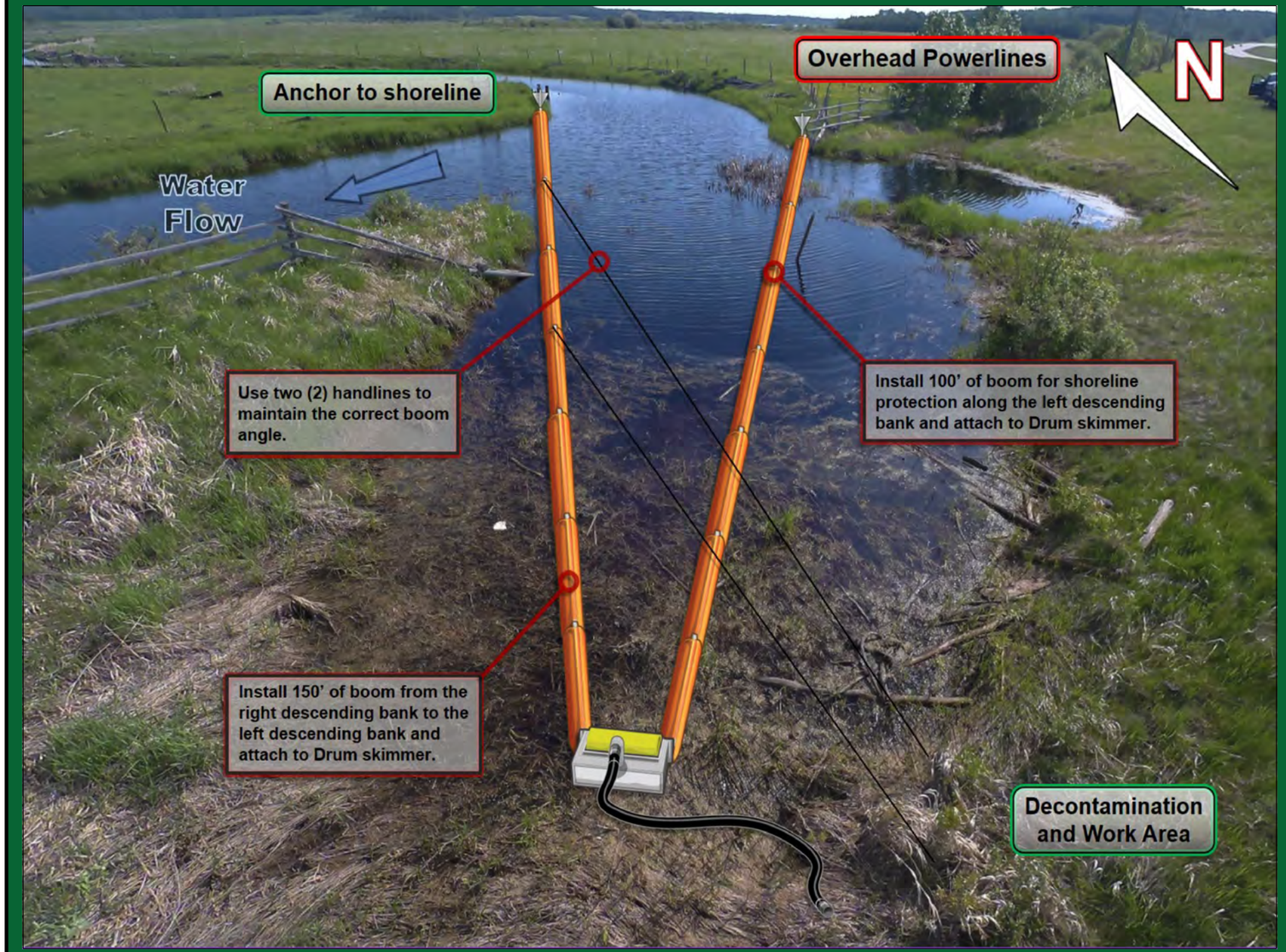
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-01



Implementation Strategy:

- Install 150' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to shoreline.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	350'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	4	100' Handline and Bridle
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, pike, walleye, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian/wetland nesting birds (e.g., marsh wren, common yellowthroat, sora, warbler spp., flycatcher spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, northern harrier, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds and grassland birds (e.g., Wilson's snipe, sandpiper spp., meadowlark)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-10

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.599839	
	Long: -114.825237	
Elevation:	727 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 07-01	**Downstream** CP 07-03
Nearest KM Post:	**Line 01** KP 104	

Waterbody Information:

Waterbody Name: Isle Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		580 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Isle Lake is a popular recreational boating and fishing lake, with mixed residential properties and forested lands along shoreline. A large wetland complex extends throughout the west end of lake upstream of the boat launch (straight boom). Lake is prone to summer blue-green algae blooms. Signage present to prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Shoreline Information

Bank Height:
1 m

Shoreline Composition and Slope:
Variable, typically gradually sloping banks with shallow foreshores.

Shoreline Vegetation:
Young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, alder, red-osier dogwood); grasses, cattails, sedges, bulrush

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with mixed gravels, and cobbles.

Shoreline Comments:
The shoreline is gradually sloping, stable grassy day use / picnic area overlooking the lake adjacent to the boat launch, transitioning to gradually sloping lakebed and shallow water containing abundant submergent vegetation (e.g. cattail, bulrush). The backshores are composed of aspen dominated mixedwood forest. Private residences are located on both sides of the boat launch.

Logistical Information:

Staging Area Location:	- The staging area will be located along the left descending bank in the County of Lac Ste Anne #28 boat launch parking lot. - 30 m x 30 m area. - All weather access is established.	
	Lat: 53.60266	Long: -114.81067
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Control point accessed by boat.	
Boat Access:	- Main boat access from BL 07-02. - Refer to BL 07-02 boat launch data sheet for further information. - Secondary boat access from BL 07-01. - Refer to BL 07-01 control point data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - The control point and staging area are surrounded by private residences.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including walleye, pike and perch.
- Abundant mixedwood and aspen dominated forest habitat; mixed sedge-rush-cattail-willow dominated wetland margins; large wetland complex extends throughout west end of lake; waterbird breeding and migratory staging.
- Isle Lake is a popular recreational boating and fishing lake, particularly during summer months, with multiple residential lake front properties.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Soft ground conditions, use caution around the shoreline.
- Deep moving water, use caution around shoreline.
- Be aware of wildlife in the area, public may be present. Control point and staging area located in Woodland Bay Estates.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 7.9 km
- Turn right onto AB-757 N (signs for Magnolia / Sangudo) for 2.5 km
- Turn right onto AB-633 East for 3.5 km
- Turn right onto Spruce St and continue towards lake thru boat launch at CP 07-03
- Access via boat to Isle lake inflow
- Alternatively, access from boat launch at BL 07-01
- Total Distance = 16.7 km
- Total Travel Time = 15 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-10
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	1 / 50'	Power Pack / Hydraulic Line
1	Site Security	50'	Rigid Suction Hose
2	Boat Captain	200'	Rope
4	Boat Crew	1	Barge, Portable Vacuum Unit
		2	Danforth Anchor
		2 / 2	100' Rode Line / 60' Ballast Chain
		2	Work Boat
14	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Raptors (e.g., bald eagle, osprey), riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., loon, grebe spp., northern shoveler, lesser scaup, coot)
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)
- Pelican, tundra and trumpeter swan, common tern, gull spp., blue heron

Implementation Strategy:

Contain product inflow into the lake:
- Install 100' of 6" x 6" hard containment boom from the left descending bank to the right descending bank and anchor to the shoreline.
- Install (2) Danforth anchors (complete with 60' ballast chain and 100' rode line) from the 6" x 6" hard containment boom, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 50' rigid suction hose directly to a barge with a portable vacuum unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-10

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.602290	
	Long: -114.810970	
Elevation:	727 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 07-02	**Downstream** CP 07-04
Nearest KM Post:	**Line 01** KP 104	

Waterbody Information:

Waterbody Name: Isle Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		580 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Isle Lake is a popular recreational boating and fishing lake, with mixed residential properties and forested lands along shoreline. A large wetland complex extends throughout the west end of lake upstream of the boat launch (straight boom). Lake is prone to summer blue-green algae blooms. Signage present to prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Shoreline Information

Bank Height:
1 m

Shoreline Composition and Slope:
Variable, typically gradually sloping banks with shallow foreshores.

Shoreline Vegetation:
Young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, alder, red-osier dogwood); grasses, cattails, sedges, bulrush

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with mixed gravels, and cobbles.

Shoreline Comments:
Straight boom across lake is located immediately upstream of boat launch on west point of lake near the inlet. The shoreline is gradually sloping, stable grassy day use / picnic area overlooking the lake adjacent to the boat launch, transitioning to gradually sloping lakebed and shallow water containing abundant submergent vegetation (e.g. cattail, bulrush). The backshores are composed of aspen dominated mixedwood forest. Private residences are located on both sides of the boat launch.

Logistical Information:

Staging Area Location:	- The staging area will be located along the left descending bank in the County of Lac Ste Anne #28 boat launch parking lot. - 30 m x 30 m area. - All weather access is established.	
	Lat: 53.60266	Long: -114.81067
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 633 through Woodland Bay Estates. - All weather access is established.	
Boat Access:	- A boat launch can be located at the control point. - Secondary boat access from BL 07-01. - Refer to BL 07-01 control point data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - The control point and staging area are surrounded by private residences.	

Decontamination Area:

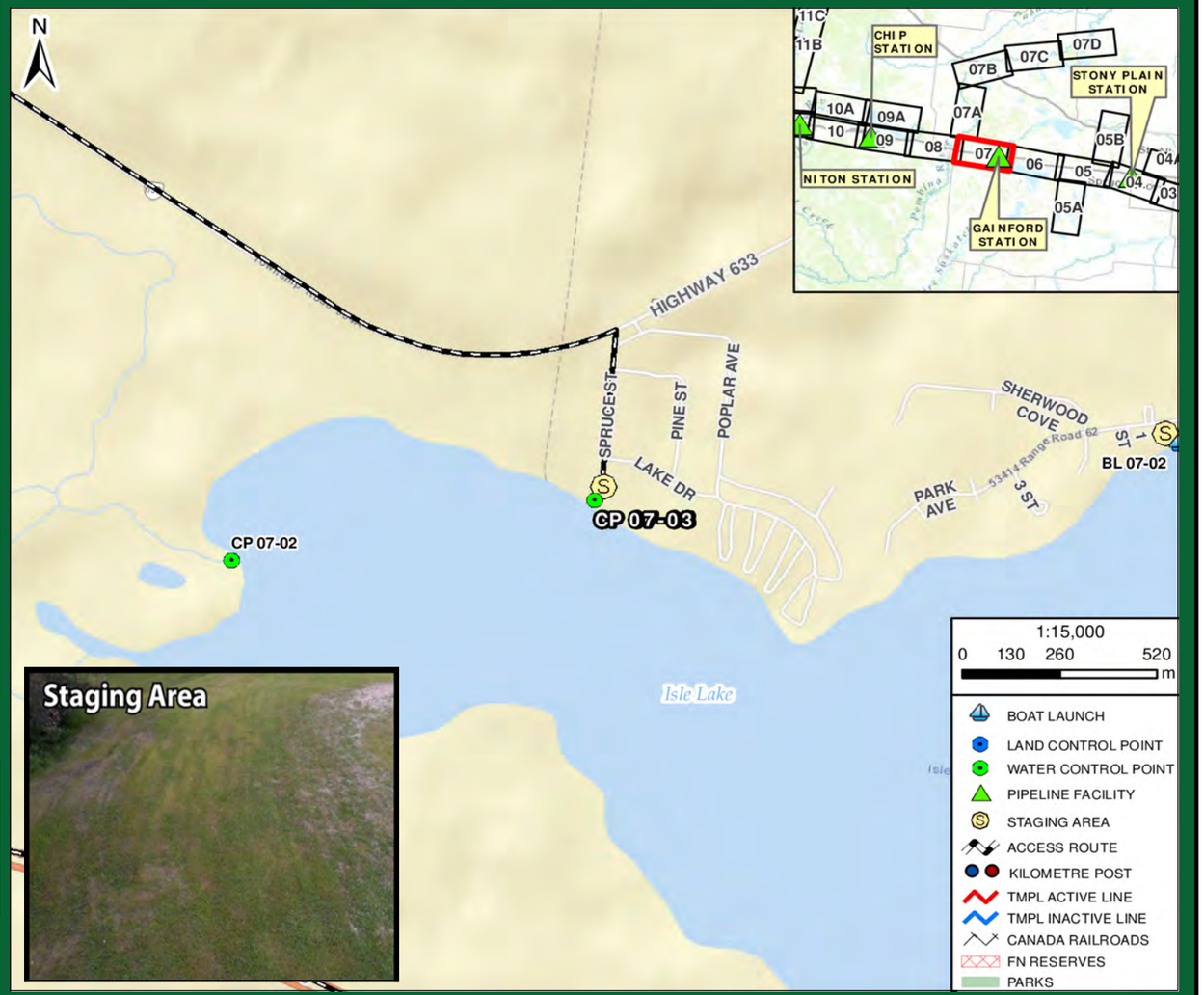
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including walleye, pike and perch.
- Abundant mixedwood and aspen dominated forest habitat; mixed sedge-rush-cattail-willow dominated wetland margins; large wetland complex extends throughout west end of lake; waterbird breeding and migratory staging.
- Isle Lake is a popular recreational boating and fishing lake, particularly during summer months, with multiple residential lake front properties.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Soft ground conditions, use caution around the shoreline.
- Deep moving water, use caution around shoreline.
- Be aware of wildlife in the area, public may be present. Control point and staging area located in Woodland Bay Estates.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 7.9 km
- Turn right onto AB-757 N (signs for Magnolia / Sangudo) for 2.5 km
- Turn right onto AB-633 East for 3.5 km
- Turn right onto Spruce St and continue towards lake access thru boat launch (Woodland Bay Estates)
- Total Distance = 15.7 km
- Total Travel Time = 15 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-10
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1800'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	500'	Rope
1	Vacuum Truck Operator	1	Vacuum Truck
1	Site Security	7	Danforth Anchor
3	Boat Captain	7	100' Rode Line
6	Boat Crew	7	60' Ballast Chain
		2	Work Boat
		1	Drum Skimmer, Transfer Pump
		1 / 50'	Power Pack / Hydraulic Line
17	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

Lake Containment & Recovery Strategy:
- Install 1700' of 6" x 6" hard containment boom from the right descending bank to the left descending bank at the narrow point in the lake to prevent further wind driven product movement.
- Install (7) Danforth anchors (complete with 60' ballast chain and 100' rode line each) from the 6" x 6" hard containment boom at 200' intervals to maintain the correct boom angle.
- Wind driven product movement will dictate shoreline protection placement and recovery areas along the lake shoreline.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Raptors (e.g., bald eagle, osprey), riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., loon, grebe spp., northern shoveler, lesser scaup, coot)
- Pelican, tundra and trumpeter swan, common tern, gull spp., blue heron
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-30

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.597852	
	Long: -114.786897	
Elevation:	734 m	
Land and Resource Use:	Crown Land. Isle Lake.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 07-02	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 102	

Waterbody Information:

Waterbody Name: Isle Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		1460 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Isle Lake is a popular recreational boating and fishing lake, with mixed residential properties and forested lands along shoreline. Lake is prone to summer blue-green algae blooms. Signage present to prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Shoreline Information

Bank Height:
1 m

Shoreline Composition and Slope:
Variable, typically gradually sloping banks with shallow foreshores.

Shoreline Vegetation:
Young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, alder, red-osier dogwood); grasses, cattails, sedges, bulrush.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with mixed gravels, cobbles and boulders.

Shoreline Comments:

Logistical Information:

Staging Area Location:	- The staging area can be located at BL 07-01. - 20 m x 40 m area. - All weather access is established.	
	Lat: 53.5898	Long: -114.79025
Work Area Location / Comments:	- The work area can be located on the south shoreline. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is surrounded by residences. - Boat lifts and private docks located along the shorelines. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Control point accessed by boat.	
Boat Access:	- Main boat access from BL 07-01. - Refer to BL 07-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 07-02. - Refer to BL 07-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including walleye, pike and perch.
- Abundant mixedwood and aspen dominated forest habitat; mixed sedge-rush-cattail-willow dominated wetland margins; waterbird breeding and migratory staging.
- Isle Lake is a popular recreational boating and fishing lake, particularly during summer months, with multiple residential lake front properties.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large wind driven waterbody with varying wave height, use caution when operating vessels.
- Popular angeling and recreational lake, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

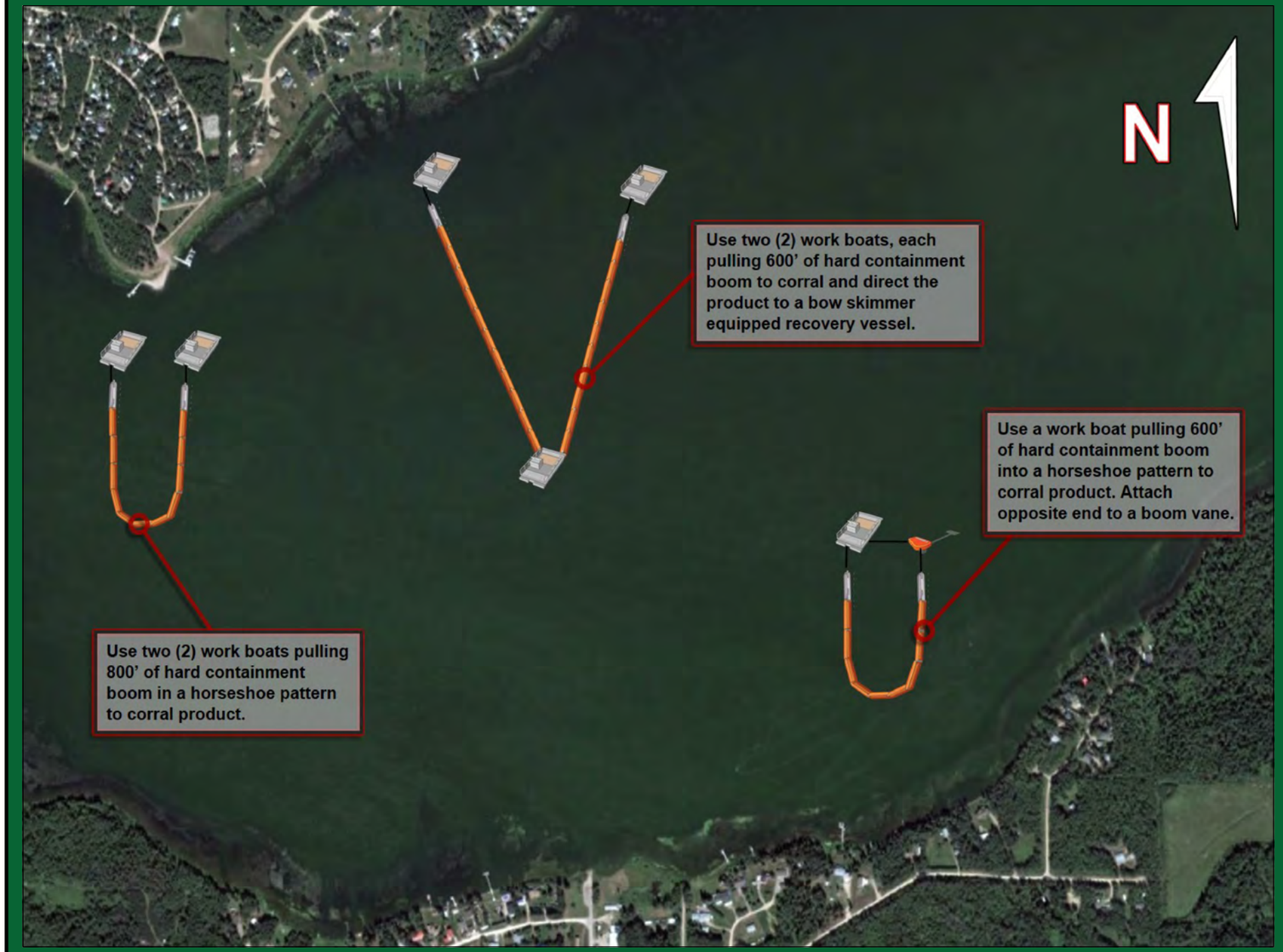
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8 km
- Near Magnolia, Turn right onto AB-757 N (signs for Magnolia/Sangudo) for 2.5 km
- Turn right onto AB-633 E for 5.5 km, then turn right onto Range Rd 62 for 1.3 km heading south to end of the road
- Destination is Isle Lake, accessible via boat launch at BL 07-02
- Total Distance = 19.2 km
- Total Travel Time = 18 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	500'	Tow Rope
6	Boat Captain	1 / 100'	Power Pack / Hydraulic Line
12	Boat Crew	1	Vacuum Truck
		4	Work Boat
		4000'	18" x 12" Hard Containment Boom
		1	1.0 m Boom Vane
		6	Tow Bridle
		1	Bow Skimmer Equipped Work Boat
28	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

On-Water Recovery Techniques:
Corralling (This technique can be done with one boat, utilizing a 1.0 m deep draft boom vane, 600' of 18" x 12" hard containment boom):
- Use (2) work boats, pulling 800' of 18" x 12" hard containment boom in a horseshoe pattern to corral the product.
- Slowly bring product to shoreline recovery area.
- Install 300' of 6" x 6" hard containment boom for shoreline protection on the south shoreline.
- Attach the 18" x 12" hard containment boom ends to the shoreline using shoreline pins or trees. Recover product with Drum Skimmer directly to vacuum truck.

On-Lake Recovery:
- Use (2) work boats, pulling 1200' of 18" x 12" hard containment boom to corral and direct the product to bow skimmer equipped recovery vessel.
- Connect trailing ends of boom to the bow of skimming vessel.
- Recover product with bow skimmer into on board containment. Transfer product at staging area or boat launch for disposal.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, northern leopard frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., loon, grebe spp., northern shoveler, lesser scaup, coot), blue heron
- Owl spp. (e.g., short-eared owl, long-eared owl), pelican, tundra and trumpeter swan, common tern, gull spp.
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-05

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.588860
	Long:	-114.862400
Elevation:	736 m	
Land and Resource Use:	Crown Land. Highway 16 Right-of-Way.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** N/A	**Downstream** CP 07-06
Nearest KM Post:	**Line 01** KP 108	

Waterbody Information:

Waterbody Name: Sturgeon River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		0.9 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently confined marginal velocity run structure	

Waterbody description:

Watercourse flows along elevated, grass dominated highway easement and open mixedwood forest downstream of collection. Exposed muddy areas, flattened grasses and snagged vegetation debris along fence crossing up suggest high water mark approximately 0.8 m above water levels at time of survey; water may be present year round, becoming stagnant or intermittent during winter. Low-moderate turbidity.

Shoreline Information

Bank Height:
0.8 to 1.2 m

Shoreline Composition and Slope:
Steep sloping stable grassy bank at collection area with open backshore along RDB; banks become predominantly overhanging upstream and down, but generally stable.

Shoreline Vegetation:
Spruce and poplar seedlings/saplings along highway easement; open mixedwood forest downstream; isolated willows, wild rose, red-osier dogwood; predominantly dense grasses, horsetail, Canada anemone, dandelion and common tansy; occasional thistle.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by mixed fines and occasional cobbles and boulders; bed composed of fine sediment with occasional cobbles and boulders.

Shoreline Comments:
Collection area accessed along open, grass dominated highway easement to level work area and steep sloping, but stable bank to collection immediately upstream of fence crossing. Slips/trips/falls hazards along areas of soft instream substrate; banks obscured by dense grasses.

Logistical Information:

Staging Area Location:	- The staging area can be located on the right descending bank along Highway 16. - 10 m x 75 m area. - Matting required to establish all weather access.	
	Lat: 53.589	Long: -114.86202
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 3 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access is off of Highway 757, 100 m down the Highway 16 ditch to the control point. - Matting required to establish all weather access. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - This control point is located directly downstream of the Magnolia Bridge.	

Decontamination Area:

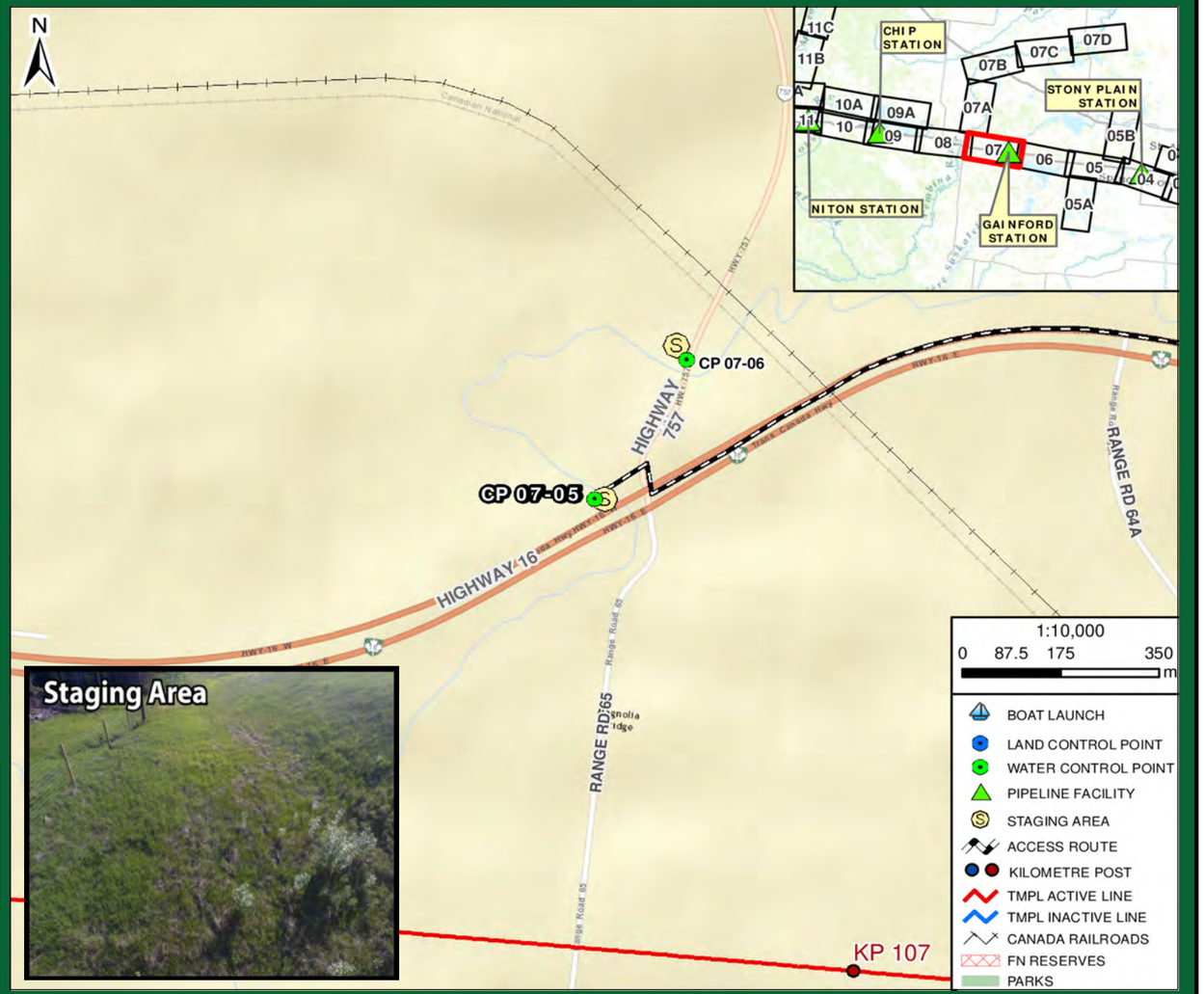
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential along due to lack of current and abundant fines; overhanging banks, occasional instream woody debris and deeper areas (up to 0.9 m at time of survey) provide low-moderate rearing and overwintering habitat potential.
- Downstream of highway bridge, watercourse flows along tall grass-sedge dominated elevated meadow with low density mature mixedwood forest along backshores; providing riparian, waterbird, cavity and forest nesting bird habitat and amphibian habitat.
- Muddy foreshores grass dominated banks and backshores provide shorebird feeding and nesting habitat.
- Watercourse is non-navigable at CP due to limited size and upstream barrier (fence crossing).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven ground conditions, use caution around the shoreline.
- Public may be present. Overhead power lines at the staging area.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

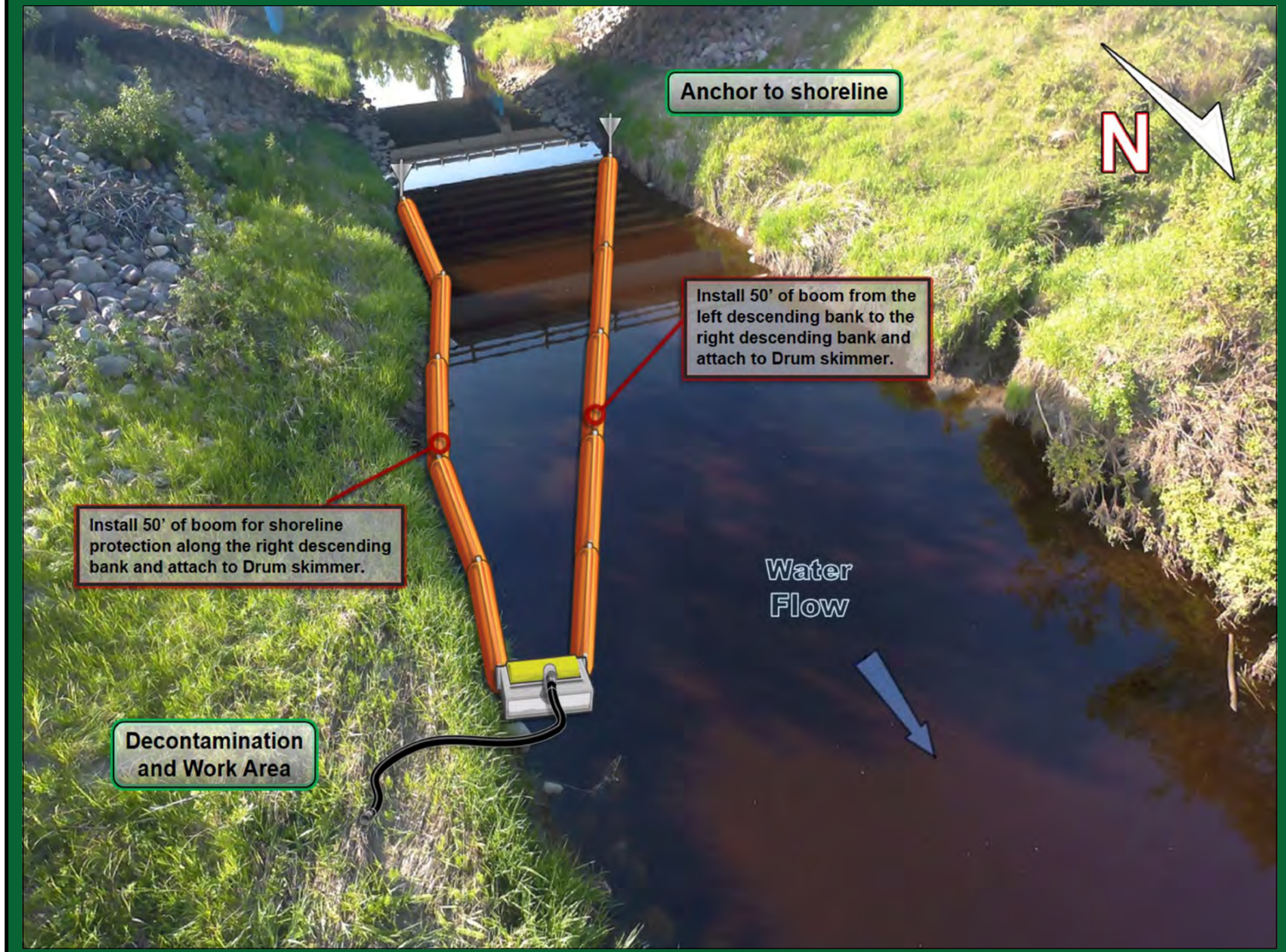
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto Range Rd 65/AB-757 and pulloff from highway and access via foot for 100 m, parallel to highway
- Destination is unnamed creek culvert, adjacent to highway
- Total Distance = 9.2 km
- Total Travel Time = 8 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-05



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	250'	Rope
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., perch, pike, walleye, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian/wetland nesting birds (e.g., marsh wren, common yellowthroat, sora, warbler spp., flycatcher spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, northern harrier, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds and grassland birds (e.g., Wilson's snipe, sandpiper spp., meadowlark)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-06

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.591400	
	Long:	-114.860730	
Elevation:	811 m		
Land and Resource Use:	Crown Land. Highway 757 Right-of-Way.		
Upstream Valves:	**Line 01:**	STATION CHECK	
Downstream Valves:	**Line 01:**	K117A	
Control Point:	**Upstream** CP 07-05	**Downstream** CP 07-01	
Nearest KM Post:	**Line 01** KP 107		

Waterbody Information:

Waterbody Name: Sturgeon River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		6 m	
Depth		1.0 m	
Flow Velocity		0.8 km/hr	
FlowType		Frequently confined low velocity with run and riffle structure	

Waterbody description:
Watercourse flows along elevated grass-sedge dominated meadow with mixedwood forest along RDB approach, before flowing under road bridge with 4 m clearance. Exposed muddy areas, flattened grasses and stranded woody debris up to 0.5 m above water level suggest medium levels at time of survey; water may be present year round, becoming stagnant or intermittent during winter. Low-moderate turbidity during survey.

Shoreline Information

Bank Height:
0.6 to 1 m

Shoreline Composition and Slope:
Gradually sloping stable grass-sedge bank at collection area with open backshore along LDB; banks become predominantly overhanging upstream and down, but stable.

Shoreline Vegetation:
Mature mixedwood forest (e.g., spruce, poplar, aspen); isolated occurrences of willows, patches of wild rose; predominantly dense grasses, sedges, horsetail; occasional meadow rue, Canada anemone, dandelion, common tansy.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by mixed fines occasional cobbles; bed composed of fine sediment with pockets of gravels, cobbles.

Shoreline Comments:
Collection area accessed down steep 3 m grassy road shoulder to open level work area and grass-sedge dominated, frequently overhanging but stable banks. Slips/trips/falls hazards along areas of soft instream substrate, banks obscured by dense grasses and sedges, and barbed wire fence along LDB.

Logistical Information:

Staging Area Location:	- The staging area can be located along on the left descending bank. - 30 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.59168	Long: -114.86056
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The staging area is located on private land. - Landowner permission required before using the staging area.	
Road Access/Type:	- Access off of Highway 757. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - AN Environment Canada hydro metric station is located upstream of the control point.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Moderate spawning potential along pockets of gravels and cobbles; overhanging banks, instream woody debris provide good rearing habitat potential; low overwintering potential due to shallow water along containment (up to 0.4 m at time of survey).
- Watercourse flows along tall grass-sedge dominated meadow with mature mixedwood forest along RDB approach; providing riparian, waterbird, cavity and forest nesting bird habitat and amphibian habitat. Muddy foreshores grass-sedge dominated banks provided shorebird feeding and nesting habitat.
- There is an Environmental Canada Gauging Station located 50 m upstream along backshore LDB.
- Watercourse is non-navigable at CP due to limited stream size and upstream barrier (fence crossing); occasional shoreline fishing.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven ground conditions, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto Range Rd 65/AB-757 (signs for Magnolia/Sangudo) for 200 m
- Destination is unnamed creek culvert
- Total Distance = 9.3 km
- Total Travel Time = 9 minutes calculated at 65 km/hr

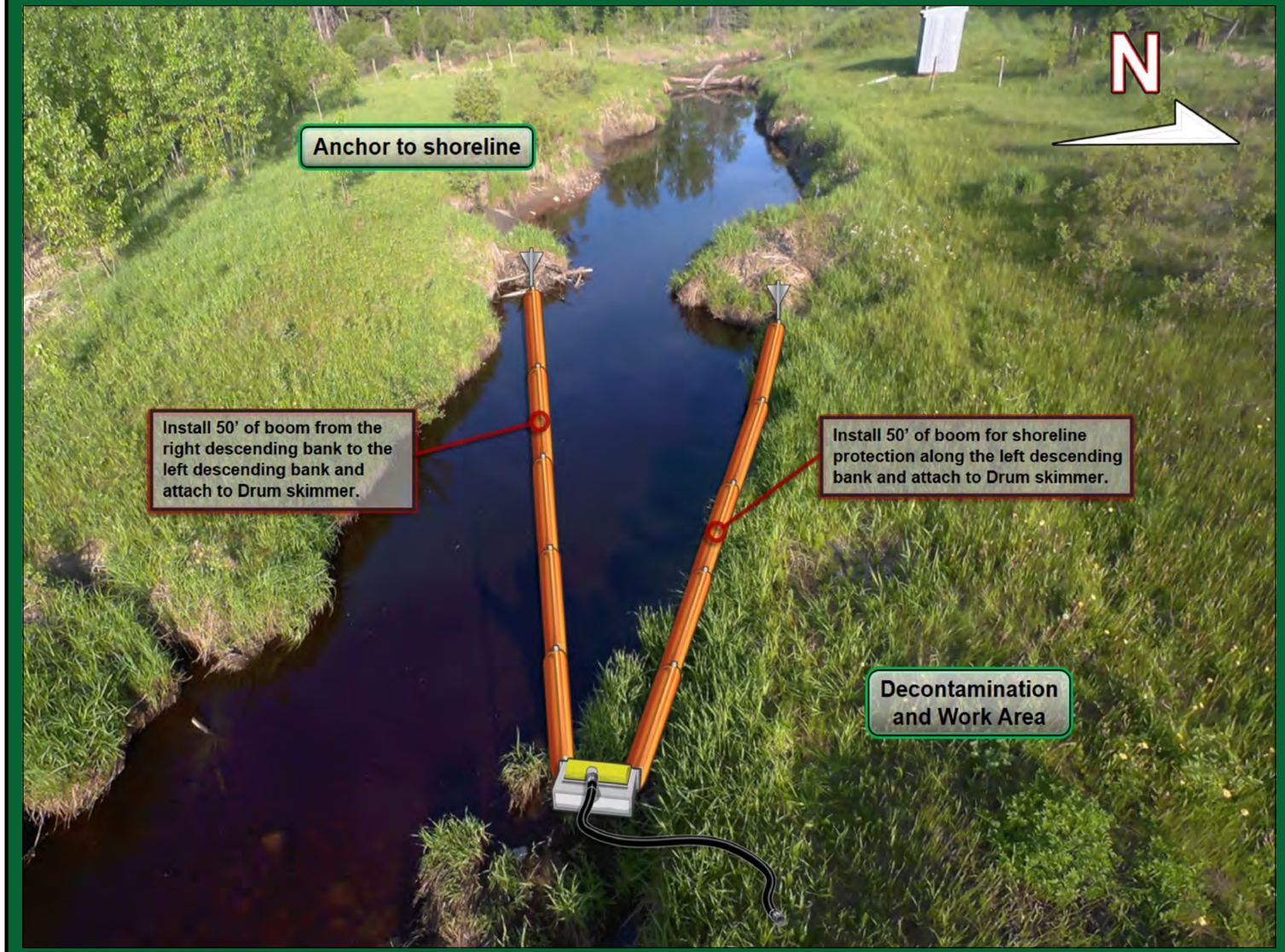
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-06



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	250'	Rope
		1 / 100'	Power Pack / Hydraulic Line
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, pike, walleye, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian/wetland nesting birds (e.g., marsh wren, common yellowthroat, sora, warbler spp., flycatcher spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, northern harrier, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds and grassland birds (e.g., Wilson's snipe, sandpiper spp., Vesper sparrow, Savannah sparrow, meadowlark)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install an 8 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-07

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.606850	
	Long: -114.951290	
Elevation:	755 m	
Land and Resource Use:	Crown Land. Township Road 534A Road Right-of-Way.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** N/A	**Downstream** CP 07A-01
Nearest KM Post:	**Line 01** KP 113	

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		1.0 m	
Depth		0.6 m	
Flow Velocity		<0.5 km/hr	
FlowType		Seasonal drainage	

Waterbody description:

Unnamed seasonal drainage with marginal velocity. Watercourse flows along grass dominated pasture lands with sedge-willow dominated margins. CP located on upstream side of 0.9 m culvert. Flattened grasses and sediment deposits suggest high water mark approximately 0.4 m above water levels at time of survey; drainage may become dry or frozen to bottom during winter. Moderate turbidity during survey.

Shoreline Information

Bank Height:
0.5 to 1 m

Shoreline Composition and Slope:
Variable, steep stable banks densely vegetated with grasses and sedges with level open backshore along road shoulder, with willows upstream and agricultural backshore.

Shoreline Vegetation:
Willows, grasses (e.g., bluejoint, brome), meadow rue, horsetail, Canada anemone, isolated marsh marigold.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by fine sediments.

Shoreline Comments:
Collection area accessed down 2 m gravel road shoulder to open work area of dense grasses, sedges with steep, stable banks. There is a metal debris grate downstream along barbed wire fenceline, where banks become densely vegetated with willows.

Logistical Information:

Staging Area Location:	- The staging area can be located along Township Road 534A. - 5 m x 40 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.60688	Long: -114.95068
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - All weather access is established.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Township Road 534A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good phone coverage at site. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

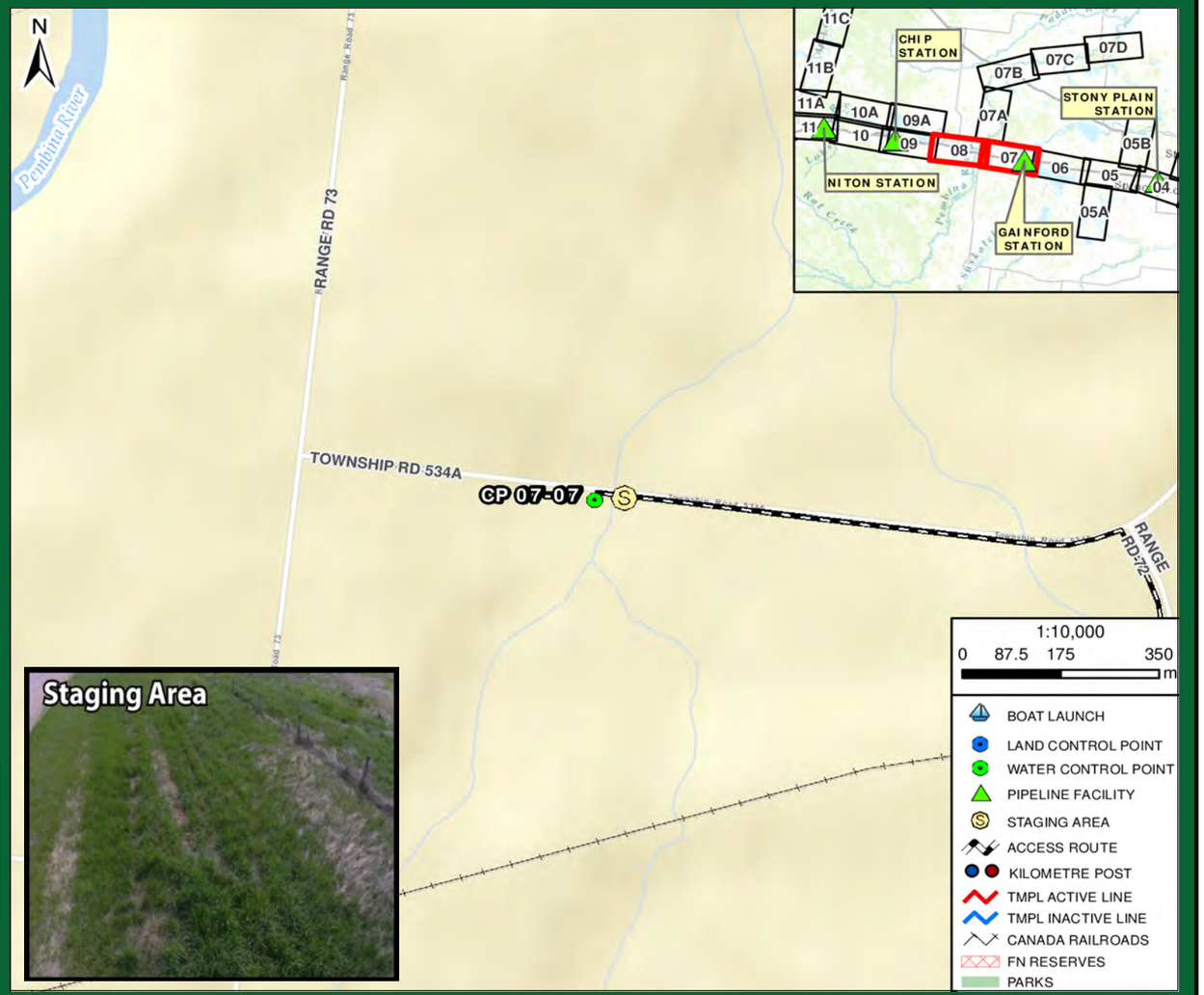
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; poor fish habitat due to stagnant shallow seasonal flow and upstream/downstream barriers to migration.
- Drainage flows along grass dominated pasture lands with sedge-willow dominated margins; providing riparian nesting habitat and amphibian habitat.
- Open pasture/hay lands along both backshores.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 11.8 km
- Turn right onto Range Rd 71 for 1.6 km
- Turn left onto Township Rd 534 for 1.6 km, and continue as it turns slightly right and becomes Range Rd 72 for 900 m
- Turn left onto Township Rd 534A for 950 m
- Destination is road culvert over unnamed creek, north of Entwistle Concrete site
- Total Distance = 17.5 km
- Total Travel Time = 16 minutes calculated at 65 km/hr

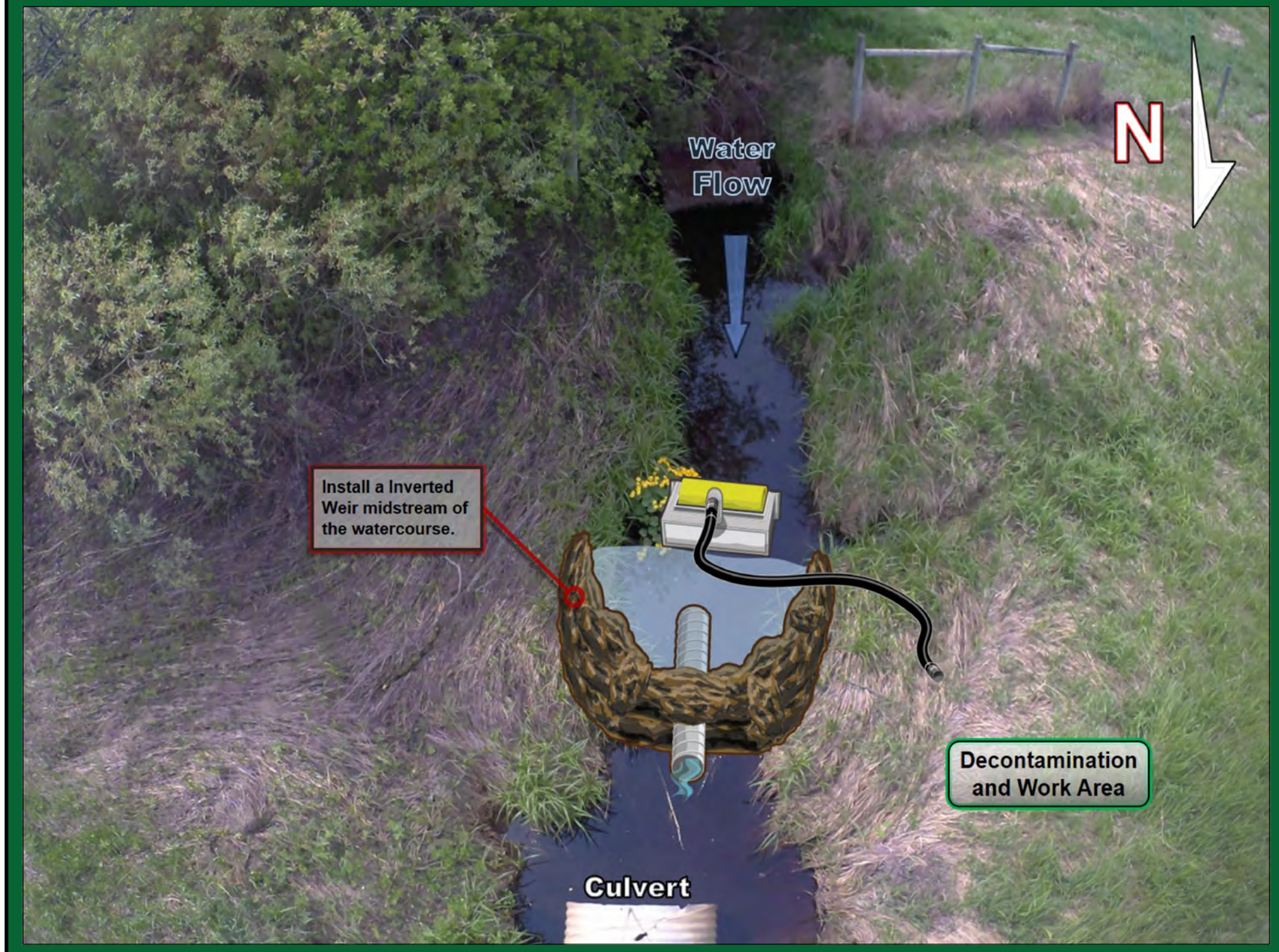
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07-07



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	12” x 15’ Culvert
1	Safety Watch	1	Trackhoe
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	5 Yards	Earthen Material or 40 Sandbags
1	Trackhoe Operator	1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, pike, fathead minnow, brook stickleback)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail)
- Amphibians (e.g., Western toad, wood frog)
- Riparian/wetland nesting birds (e.g., marsh wren, common yellowthroat, warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., northern harrier, Cooper's hawk, broad-winged hawk, kestrel)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Grassland birds (e.g., Vesper sparrow, Savannah sparrow, horned lark, meadowlark)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (1) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 50' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 1.5 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-01

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.668230	
	Long: -114.897260	
Elevation:	701 m	
Land and Resource Use:	Crown Land. Matthews Crossing.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 08-02	**Downstream** CP 07A-02
Nearest KM Post:	**Line 01** KP 111	

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		50 m	
Depth		Unknown	
Flow Velocity		3.5 km/hr	
FlowType		Frequently confined moderate velocity run and riffle structure	

Waterbody description:
Frequently confined moderate velocity run and riffle structure. Collection and work area located on fluvial fan of mixed fines to boulders created at confluence of small creek. Fan creates narrowing of channel and increased velocity with small rapids immediately downstream of collection. Occasional overhanging trees and shrubs, floating logs and woody debris during medium and high water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1 to 1.5 m along LDB; 1.5 to 2 m along RDB

Shoreline Composition and Slope:
Upstream and down of fan, RDB becomes steep to vertical/overhanging with gradual to steep forested approaches; LDB gradual along band of shrubs/trees, hay backshore.

Shoreline Vegetation:
Mixedwood forest along RDB dominated by spruce, poplar, aspen with understory of mixed shrubs (e.g., dogwood, alder, willow, rose) and plants (e.g., grasses, sedges, horsetail, spiked rush, sarsaparilla, false Solomon's seal); band of poplar/shrubs on LDB.

Channel / Bank Forms:
Banks predominantly composed of fine sediments. Bed and depositional fan composed of mixed substrate ranging from fines to boulders.

Shoreline Comments:
Collection area accessed down low grade access road to small, heavily eroded creek channel, opening up along depositional fan with composition ranging from fines to boulders.

Logistical Information:

Staging Area Location:	- A small staging area can be located at the control point. - 15 m x 20 m area. - Matting required to establish all weather access. - Main staging can be located along Township Road 543.	
	Lat: 53.67216	Long: -114.89027
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. -All weather access is established.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and ATV area. - Low impact access recommended. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access is off of Township Road 543 to Matthews Crossing 680 m down a vehicle / ATV trail to the control point. - Matting required to establish all weather access.	
Boat Access:	- Main boat access from BL 07B-01. - Refer to BL 07B-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 08-01. - Refer to BL 08-01boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

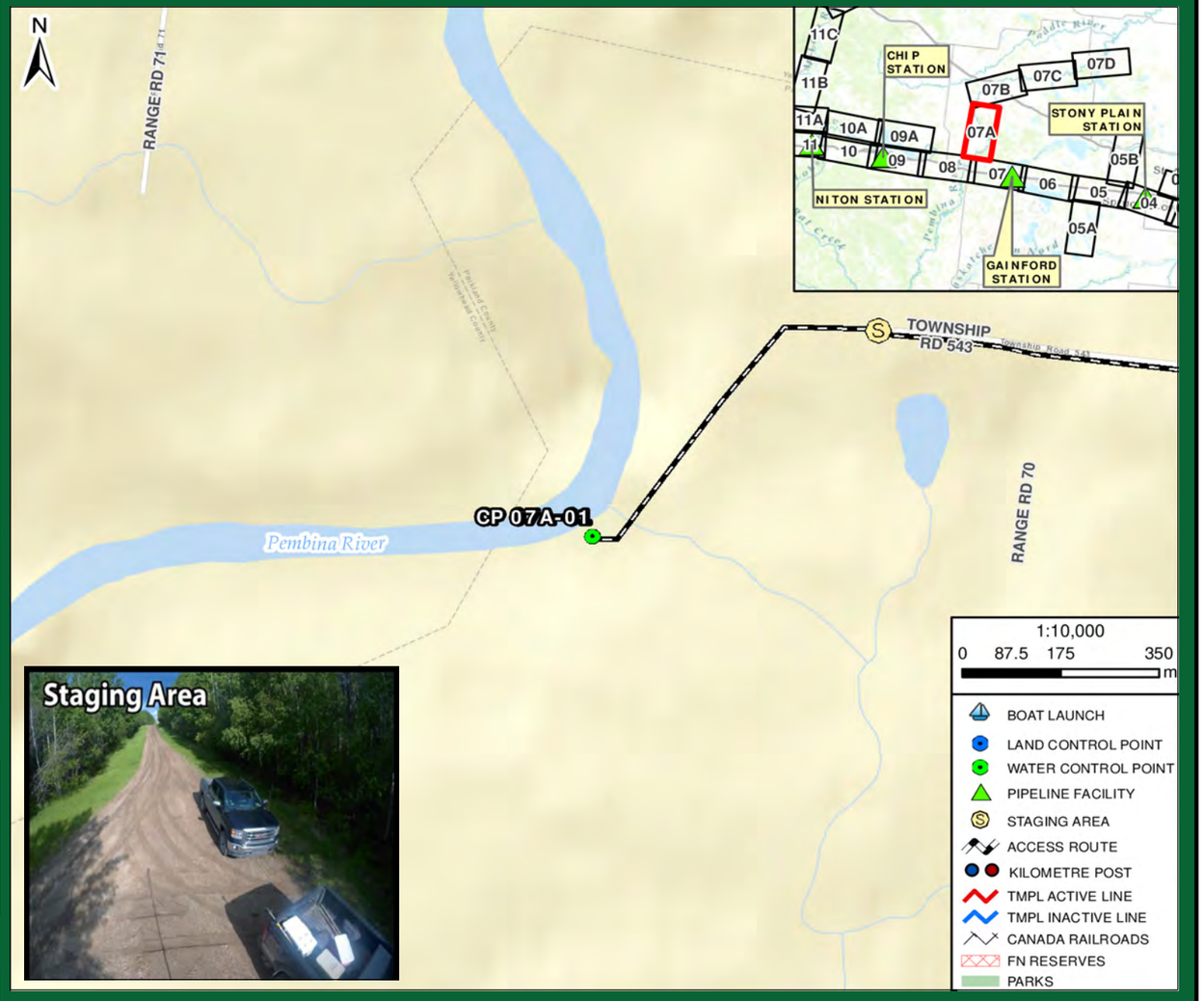
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current and pockets of gravels and cobbles provide moderate to good spawning potential; important migratory corridor to upstream spawning areas of the Pembina River Watershed; deeper shoreline eddys and areas of instream/shoreline cover provide moderate rearing and overwintering potential.
- Riparian, forest and cavity nesting birds in young to mature mixedwood forest along RDB.
- Shorebird feeding and nesting habitat along areas of muddy foreshores and banks vegetated with short plants and shrubs.
- Hay/pasture lands along backshore LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

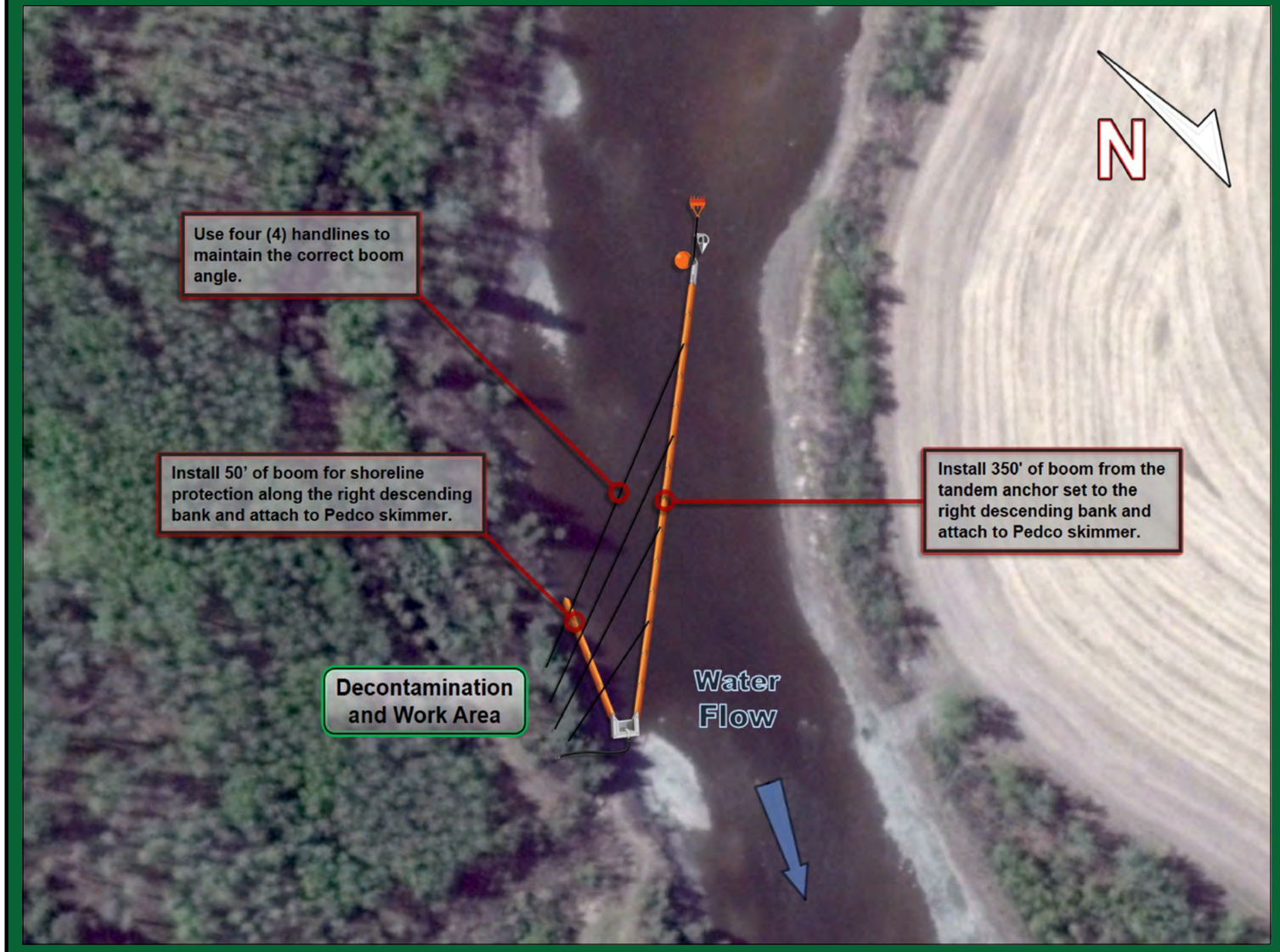
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto Range Rd 65/AB-757 (signs for Magnolia/Sangudo) for 9.3 km
- Turn left onto Township Rd 543 for 2.1 km and access via foot towards riverbank for 500 m
- Destination is Pembina River, in the Matthews Crossing Natural Area
- Total Distance = 20.9 km
- Total Travel Time = 19 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-01
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	500'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp.)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., white-breasted nuthatch, woodpecker spp.)

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 350' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 200' of rigid suction hose directly to a portable tank or Low Impact Recovery Unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 60 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-01

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07A-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.773430	
	Long: -114.959480	
Elevation:	682 m	
Land and Resource Use:	Crown Land. Rangeton Park.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 07A-01	**Downstream** CP 07B-01
Nearest KM Post:	**Line 01** KP 117	

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		69 m	
Depth		Unknown	
Flow Velocity		3.5 km/hr	
FlowType		Frequently confined moderate velocity run structure	

Waterbody description:
Frequently confined moderate velocity along long run with even current across width. Occasional overhanging trees and shrubs, floating logs and woody debris during medium and high water, and shallow bars potentially present during low water. High turbidity at time of survey.

Shoreline Information

Bank Height:
2 to 3 m

Shoreline Composition and Slope:
Bare, steep to vertical banks with level poplar dominated backshore along LDB with open bare picnic/camp sites; very steep 20-30 m exposed approaches along RDB.

Shoreline Vegetation:
Cottonwood dominated riparian margins with open understory of bare areas, mixed shrubs (e.g., wild rose, red-osier dogwood) and grasses; aspen dominated forest above exposed approaches on RDB.

Channel / Bank Forms:
Banks predominantly composed of fine sediments and occasional cobbles and boulders; bed composed of mixed fines, gravels, cobbles and boulders.

Shoreline Comments:
Collection area accessed from picnic / camp site down 2 m steep but stable bank.

Logistical Information:

Staging Area Location:	- A staging area can be located in Rangeton Park. - 30 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.77349	Long: -114.96183
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 15 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and camping area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access is off of Township Road 554 through Rangeton Park 120 m down a vehicle trail to the control point. - Matting required to establish all weather access.	
Boat Access:	- Main boat access from BL 07B-01. - Refer to BL 07B-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 08-01. - Refer to BL 08-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

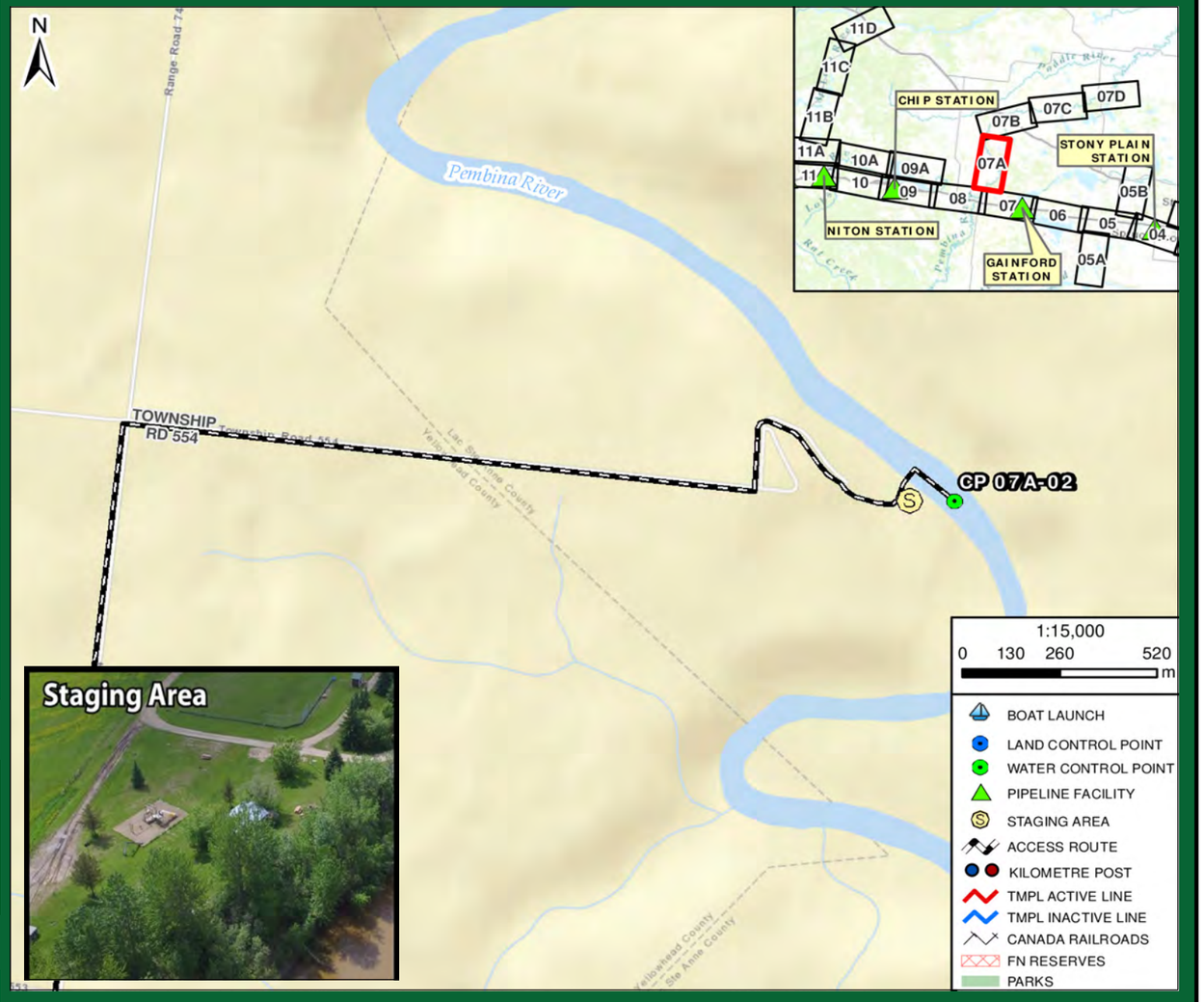
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Long run with sufficient current and pockets of gravels and cobbles provide moderate to good spawning potential; important migratory corridor to upstream spawning areas of the Pembina River Watershed; shoreline eddies and areas of instream/shoreline cover provide moderate rearing and overwintering potential.
- Riparian, forest and cavity nesting birds in young to mature poplar dominated riparian margins of LDB and aspen forest along RDB.
- Boating and fishing.
- Located in Rangeton Park and Campground, with well maintained camp sites and event grounds containing amphitheater and playground; there are also several informal camp sites along shoreline.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Access from Rangeton Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

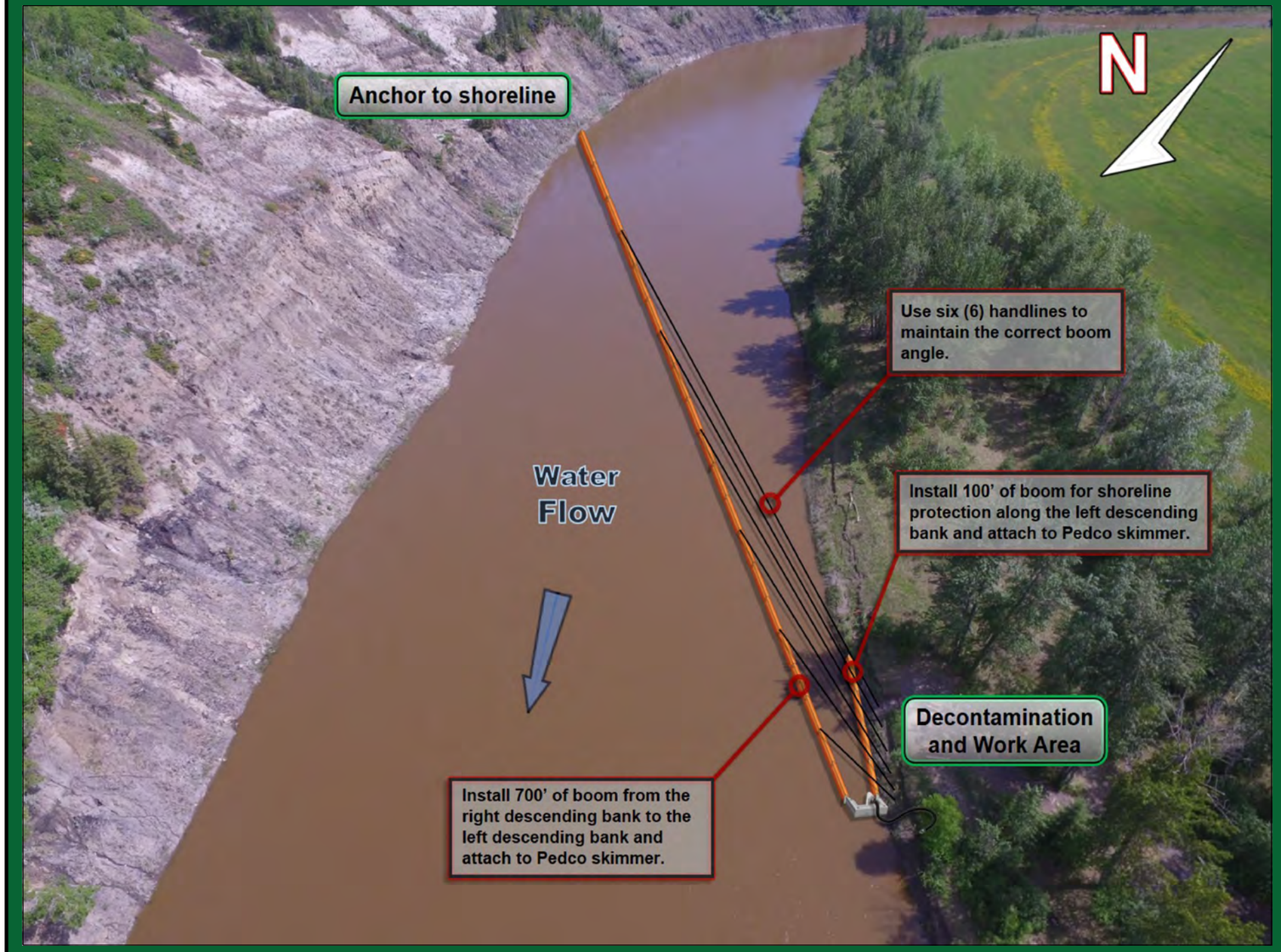
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 19.2 km
- Turn right onto Range Rd 75 for 14 km, passing Evansburg
- Turn right onto Township Rd 550 for 1 km
- Turn left onto Range Rd 74 for 6.4 km
- Turn right onto Township Rd 554 for 1.7 km and continue into the Rangeton Park Campground for 700 m
- Destination is Pembina River, east of campground
- Total Distance = 43.9 km
- Total Travel Time = 41 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-01
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07A-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Work Boat
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 700' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 200' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 75 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp.)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, white-breasted nuthatch, woodpecker spp.)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-01
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 07B-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.891490	
	Long:	-114.916240	
Elevation	665 m		
Upstream Valves:	**Line 01:**	STATION CHECK	
Downstream Valves:	**Line 01:**	K117A	
Control Point:	**Upstream** CP 07B-01		**Downstream** CP 07C-01
Nearest KM Post:	**Line 01** KP 113		

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		88 m	
Depth		Unknown	
Flow Velocity		3.1 km/hr	
FlowType		Frequently confined low-moderate velocity run structure	

Waterbody description:

Frequently confined low-moderate velocity along long run with even current across width. Boat launch located along moderately steep 2 m high bank with soft muddy foreshore. Soft substrate and gradient preclude use for larger vessels; more commonly utilized for small boats, canoes, kayaks. Slips/trips/falls hazard along steep banks and very soft, muddy foreshores. Occasional overhanging trees and shrubs, floating logs and woody debris during medium and high water; potential shallow bars during lower water.



Logistical Information:

Road Access/Type:	- Access off of 54 Ave. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located within the Sangudo Riverside Campground. - 30 m x 50 m area. - All weather access is established.	
	Lat: 53.89004	Long: -114.91486
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular angeling and recreational boat area. - Numerous events are held in the Sangudo Riverside park. A large amount of public may be present at certain times of the year. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present, site security is recommended.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto Range Rd 65/AB-757 (signs for Magnolia/Sangudo) for 34.8 km to Sangudo
- Turn left onto 52 Ave for 600 m, then left onto 53/54 Ave towards baseball parking lot by riverside
- Destination is Pembina River, boat launch in Sangudo Riverside Campground
- Total Distance = 45.9 km
- Total Travel Time = 42 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-01

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07B-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.889880	
	Long: -114.915500	
Elevation:	667 m	
Land and Resource Use:	Private Land. Recreational.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 07A-02	**Downstream** CP 07C-01
Nearest KM Post:	**Line 01** KP 113	

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		90 m	
Depth		Unknown	
Flow Velocity		3.1 km/hr	
FlowType		Frequently confined low-moderate velocity run structure	

Waterbody description:
Frequently confined low-moderate velocity along long run with even current across width. There are small vegetated islands associated with railway bridge piers along upstream extent of containment. Occasional overhanging trees and shrubs, floating logs and woody debris during medium and high water, and shallow bars potentially present during low water. High turbidity at time of survey.

Shoreline Information

Bank Height:
2 to 3 m

Shoreline Composition and Slope:
RDB steep, partially vegetated along upper extents becoming more bare near water edge with level, mowed understory along backshore. Variable, steep to vertical LDB.

Shoreline Vegetation:
Young to mature riparian margins composed predominantly of poplar, with understory of mixed shrubs (e.g., red-osier dogwood, alder, willow, wild rose, dogbane); grasses, horsetail, clover, dandelion; isolated occurrences of dead standing poplars.

Channel / Bank Forms:
Bed and banks predominantly composed of silts and sands.

Shoreline Comments:
Collection area accessed from camp ground to moderately steep 2 m high bank and muddy, gradual foreshore area used as put-in/pull-out area for small boats, canoes and kayaks. Slips/trips/falls hazard along steep banks and very soft, muddy foreshores.

Logistical Information:

Staging Area Location:	- A staging area can be located in the Sangudo Riverside Campground. - 30 m x 50 m area. - All weather access is established.	
	Lat: 53.89004	Long: -114.91486
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 20 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and water sports area. - The control point and staging area are located on private land. - Landowner permission required before accessing control point. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of 54 Avenue. - All weather access is established.	
Boat Access:	- Main boat access from BL 07B-01. - Refer to BL 07B-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - Sangudo Riverside Campground is used for a variety of events including dirt track racing, baseball tournaments and rodeo's.	

Decontamination Area:

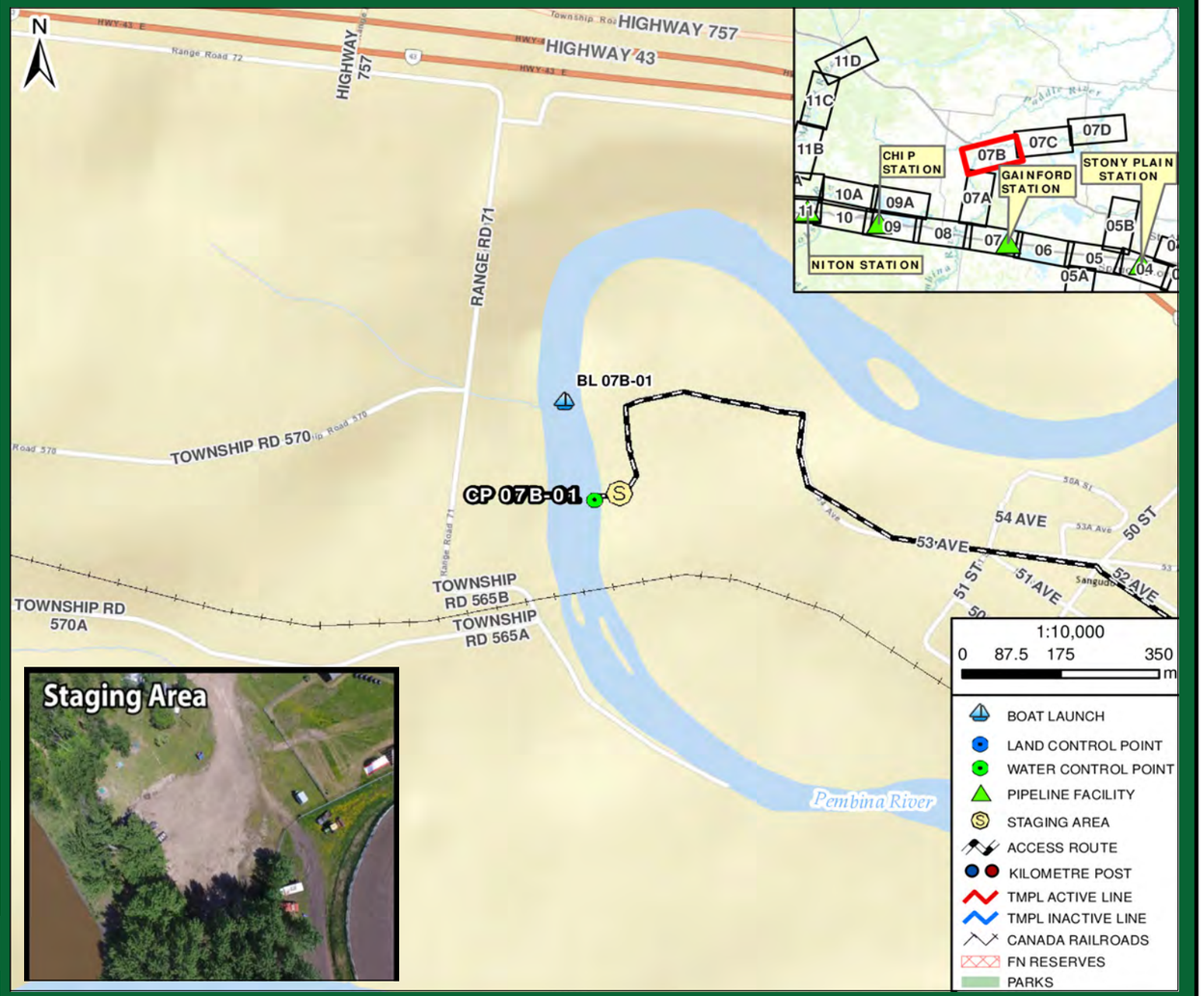
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

Poor spawning potential due to abundant fines; important migratory corridor to upstream spawning areas of the Pembina River Watershed; deep pool with areas of instream/shoreline cover provide good rearing and overwintering potential. Riparian and forest nesting birds in young to mature poplar dominated riparian margins of LDB and RDB. Dead old growth poplars provide cavity nesting habitat. Bank swallow nesting along vertical, silt banks/approaches of LDB. Evidence of beaver activity (e.g., chutes, willow cuttings). Exposed muddy foreshores and areas of grass-shrub dominated vegetation along banks provide shorebird feeding and nesting habitat. Waterbird habitat. Residences located above densely vegetated approach of LDB. CP located at campground and event grounds, containing an open festival area, raceway, skate park and river trail. Collection area located at put-in/pull-out area for small boats, canoes.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Access from Sangudo Riverside Campground, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

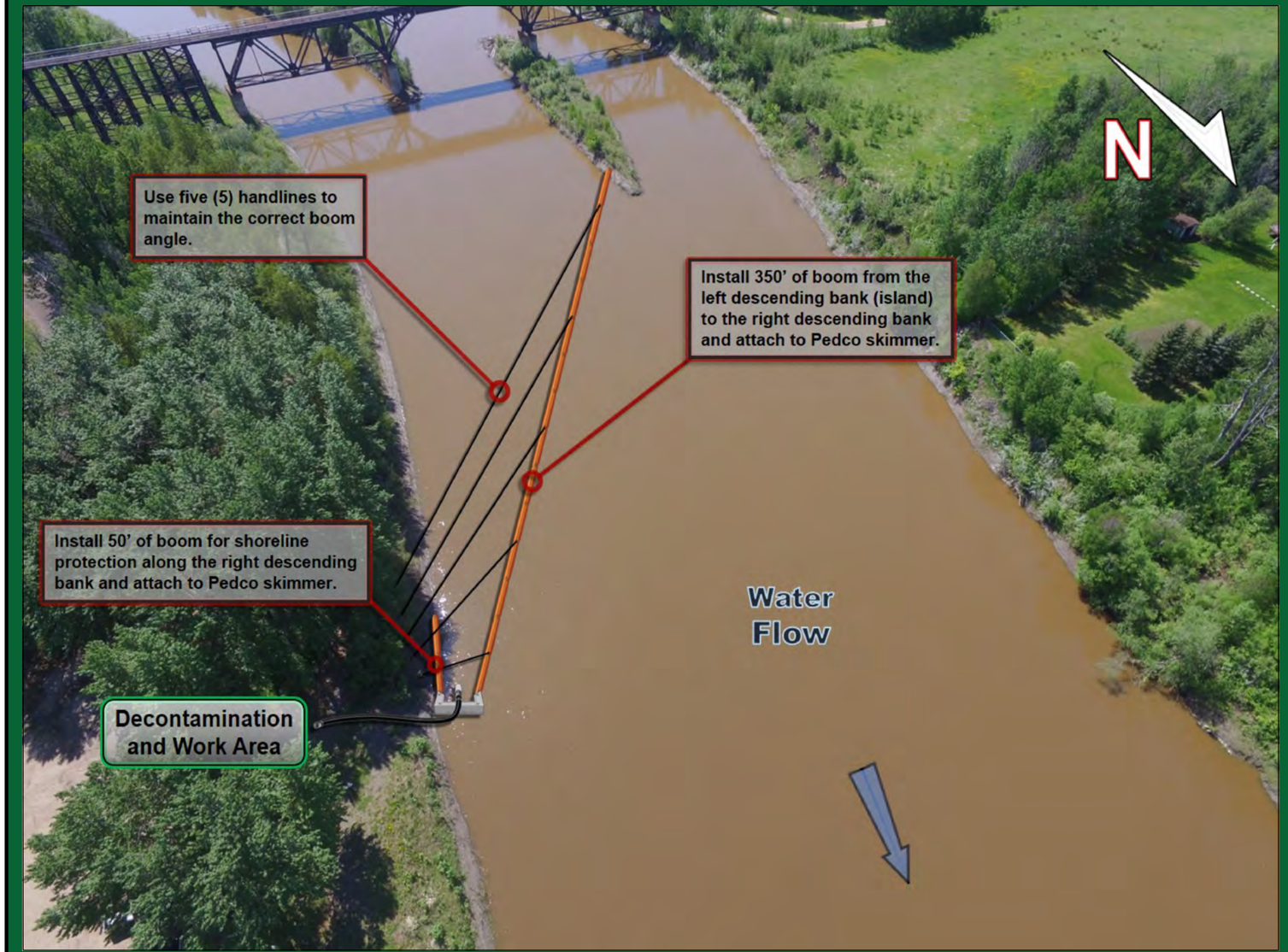
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto Range Rd 65/AB-757 (signs for Magnolia/Sangudo) for 34.8 km to Sangudo
- Turn left onto 52 Ave for 600 m, then left onto 53/54 Ave towards baseball parking lot by riverside
- Destination is Pembina River, boat launch in Sangudo Riverside Campground
- Total Distance = 45.8 km
- Total Travel Time = 42 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-01
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07B-01



Implementation Strategy:

- Install 350' of 6" x 6" hard containment boom from the midstream island at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (5) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 100 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	500'	6" x 6" Hard Containment Boom
1	Safety Watch	14	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	10	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp.)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, white-breasted nuthatch, woodpecker spp., bank swallow)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-01

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07C-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.932990
	Long:	-114.671390
Elevation:	700 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:**	STATION CHECK
Downstream Valves:	**Line 01:**	K117A
Control Point:	**Upstream** CP 07B-01	**Downstream** CP 07D-01
Nearest KM Post:	**Line 01** KP 113	

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		69 m	
Depth		Unknown	
Flow Velocity		3.2 km/hr	
FlowType		Frequently confined low-moderate velocity run structure	

Waterbody description:
CP located along downstream end of outside river bend with gradually sloping foreshores, where current and depth increases mid-river. Occasional overhanging trees and shrubs, floating logs and woody debris during medium and high water, and shallow bars present, indicated by stranded woody debris mid-river along upstream extent of containment. High turbidity at time of survey.

Shoreline Information

Bank Height:
1.2 to 1.8 m

Shoreline Composition and Slope:
Moderately steep forested approach up to 4 m high becomes gradual along muddy, exposed foreshore area of LDB; steeper upstream and down from collection.

Shoreline Vegetation:
Young to mature riparian band of deciduous (predominantly aspen, poplar); mixed shrubs (e.g., red-osier dogwood, alder, willow, wild rose, dogbane); grasses, horsetail, clover, dandelion.

Channel / Bank Forms:
Bed and banks predominantly composed of silts and sands, with occasion pockets of gravels and cobbles.

Shoreline Comments:
Collection area accessed from gravel access road and open grassy (mowed) staging area down narrow, moderately steep deciduous tree and shrub dominated approach with 10 m long trail extending to gradually sloping, muddy but stable foreshore collection area.

Logistical Information:

Staging Area Location:	- A staging area can be located at the Meadowview Community Centre baseball diamonds. - 30 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.93315	Long: -114.67072
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Recreational boat traffic in the control point area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 764. - All weather access is established.	
Boat Access:	- Main boat access from BL 07B-01. - Refer to BL 07B-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 07D-01. - Refer to BL 07D-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular angeling and recreational area.	

Decontamination Area:

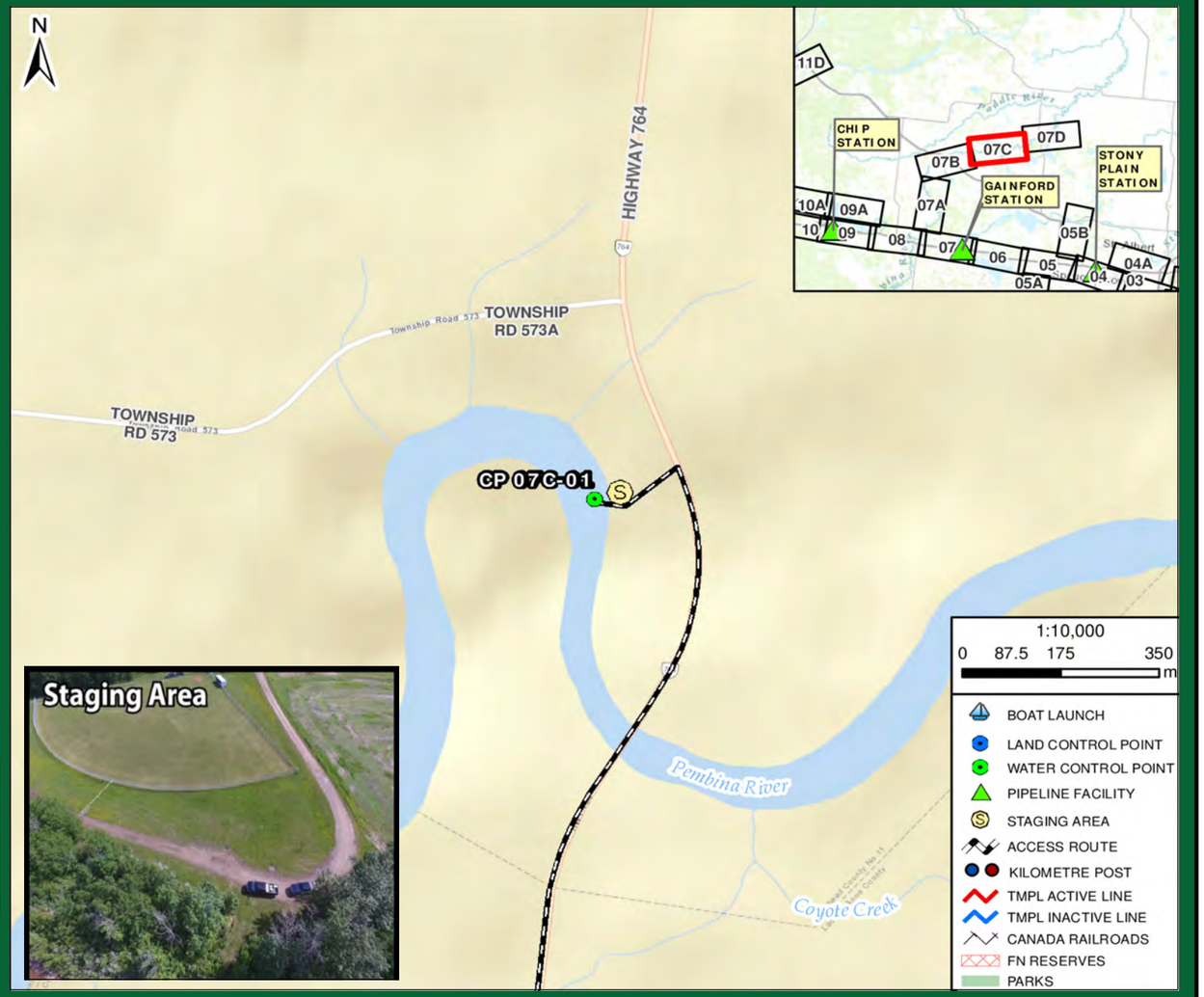
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines; important migratory corridor to upstream spawning areas of the Pembina River Watershed; deep pool with areas of instream/shoreline cover provide good rearing and overwintering potential.
- Shorebird, riparian, forest and cavity nesting birds in young to mature deciduous dominated riparian margins of LDB and RDB.
- Exposed foreshore areas provide shorebird feeding habitat during low and medium water.
- Occasional boating and fishing.
- CP located at Meadowview Community Centre, containing an open day use and camping area and baseball diamond.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Access from Meadowview Community Centre baseball diamonds, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 10 km
- Turn left onto AB-765 N (signs for AB 765 N / Darwell) for 24.2 km, past Darwell
- Turn left onto AB-43 N (signs for Alberta 43 N / Valleyview) for 5.5 km
- At Cherhill, Turn right onto AB-764 N for 12.6 km
- Destination is Pembina River, access via private access road (opposite the Welcome to County of Barrhead sign)
- Total Distance = 52.7 km
- Total Travel Time = 49 minutes calculated at 65 km/hr

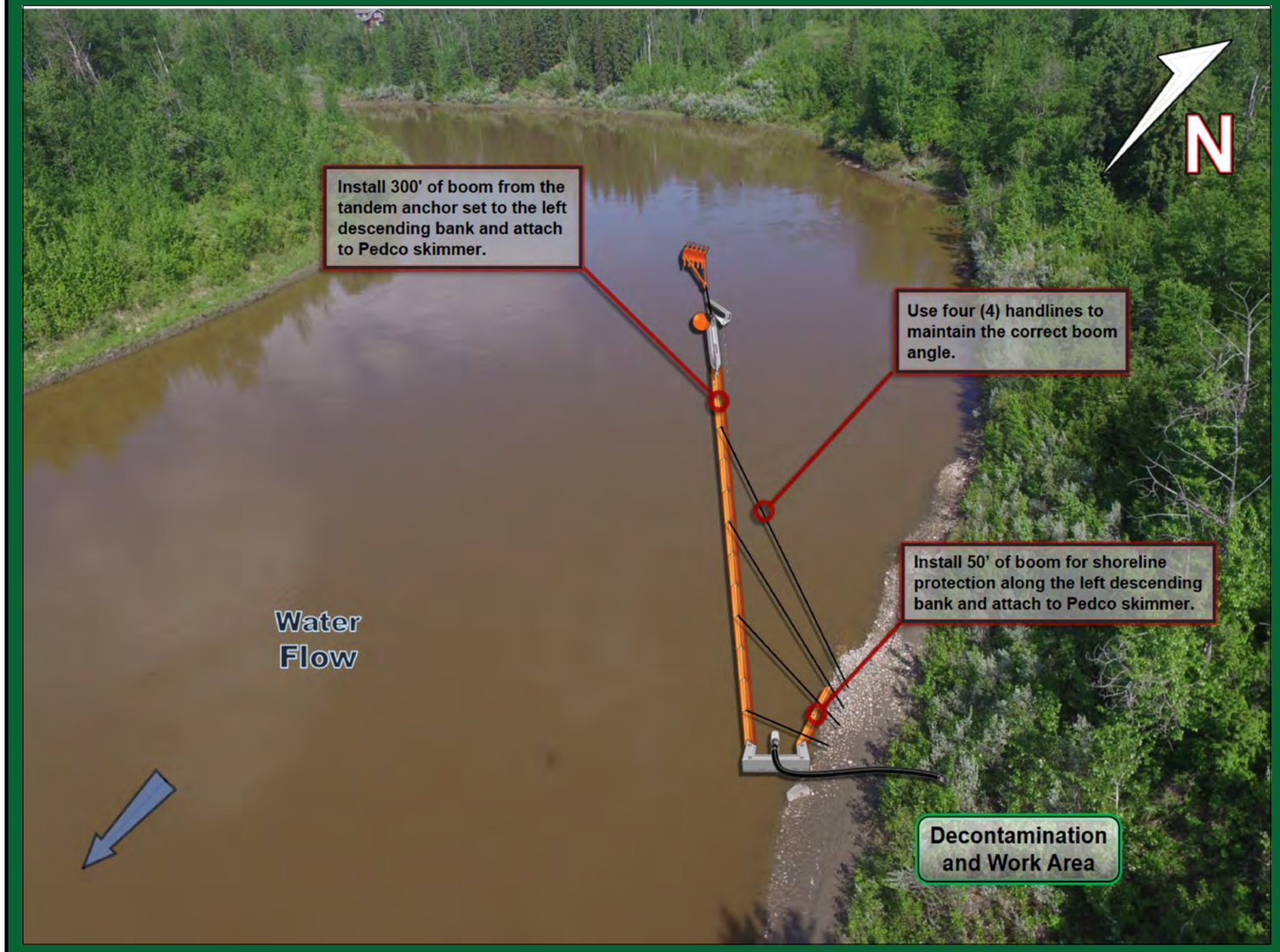
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-01
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07C-01



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 300' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (4) 100' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 75 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	450'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., cottontail, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp.)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., white-breasted nuthatch, woodpecker spp.)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-16
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 07D-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.982130	
	Long:	-114.410420	
Elevation	637 m		
Upstream Valves:	**Line 01:**	STATION CHECK	
Downstream Valves:	**Line 01:**	K117A	
Control Point:	**Upstream** CP 07D-01	**Downstream** N/A	
Nearest KM Post:	**Line 01** KP 113		

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		90 m	
Depth		Unknown	
Flow Velocity		3.0 km / hr	
FlowType		Frequently confined low-moderate velocity run structure	

Waterbody description:

Frequently confined low-moderate velocity along long flat run, with main current along actively eroding LDB. Boat launch located along gradually sloping low grade access trail onto mud bar along inside river bend, where boat launch becomes very soft and muddy into shallow water. Slips/trips/falls hazard along very soft, muddy foreshores. Occasional floating logs and woody debris during medium and high water, with shallow bars present along RDB during low water. High turbidity at time of survey.

Logistical Information:

Road Access/Type:	- Access off of Township Road 580, 2.0 km through private land down a vehicle path. - Matting required to establish all weather access.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located at a private campground on the right descending bank. - 15 m x 15 m area. - Matting required to establish all weather access.	
	Lat: 53.98154	Long: -114.41119
Site Comments:	- Private gated access to the boat launch. - Access the boat launch through two private land parcels with separate owners. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Access through private campground, public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 10 km
- Turn left onto AB-765 N (signs for AB 765 N / Darwell) for 24.2 km, past Darwell
- Turn right onto AB-43 S (signs for Edmonton) for 19.4 km
- At Gunn, Turn left onto Grizzly Trail / AB-33 N (signs for Barrhead / Swan Hills) for 28 km
- After Birch Cove, Turn left onto Township Rd 580 for 2.1 km and continue on private road until Pembina Riverbank
- Destination is Pembina River, northwest of Lac La Nonne Natural Area
- Total Distance = 85.3 km
- Total Travel Time = 79 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-16

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07D-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.981110	
	Long: -114.414880	
Elevation:	643 m	
Land and Resource Use:	Private Land. Recreational.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** CP 07C-01	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 113	

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		77 m	
Depth		Unknown	
Flow Velocity		3.0 km/hr	
FlowType		Frequently confined low-moderate velocity run structure	

Waterbody description:
Frequently confined low-moderate velocity along flat run, with main current closer to RBD. There are occasional stranded logs and woody debris near RDB and overhanging trees and shrubs, as well as floating logs and woody debris during medium and high water and shallow bars potentially present during low water. High turbidity at time of survey.

Shoreline Information

Bank Height:
3 m along RDB; 1 to 2 m along LDB

Shoreline Composition and Slope:
RDB steep to vertical/overhanging with soft, muddy foreshores and level, forested backshore. Variable, steep to gradually sloping along LDB, with riparian margins.

Shoreline Vegetation:
Young to mature riparian margins composed predominantly of poplar, with understory of mixed shrubs (e.g., dogwood, alder, willow, wild rose, saskatoon); grasses, horsetail, meadow rue, goldenrod, false and two-leaved Solomon's seal, bedstraw, wild vetch.

Channel / Bank Forms:
Bed and banks predominantly composed of silts and sands

Shoreline Comments:
CP accessed along low grade access along forested setting to an open, level grassy work area above collection, which is accessed down steep 3 m high exposed bank. Fine sediments at the base of RDB become slippery near water line; approach with caution. Canada thistle occurs sporadically along the access trail.

Logistical Information:

Staging Area Location:	- A staging area can be located at a private camping spot on the right descending bank. - 15 m x 15 m area. - Matting required to establish all weather access.	
	Lat: 53.98154	Long: -114.41119
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 3 m x 3 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Private campground located at staging area and along access route to the control point. - The control point and staging area are located on private land. - Landowner permission required before accessing control point. - Low impact access recommended.	
Road Access/Type:	- Access is off of Township Road 580, 2.0 km through private land down a vehicle path. - Matting required to establish all weather access.	
Boat Access:	- Main boat access from BL 07D-01. - Refer to BL 07D-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Private campground at staging area.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; important migratory corridor to upstream spawning areas of the Pembina River Watershed; deep pool with areas of instream/shoreline cover provide good rearing and overwintering potential.
- Riparian and forest nesting birds in young to mature poplar dominated riparian margins of LDB and RDB.
- Evidence of beaver activity (e.g., chutes, willow cuttings).
- Exposed muddy foreshores and areas of grass-shrub dominated vegetation along banks provide shorebird feeding and nesting habitat. Waterbird habitat.
- Infrequent boating and fishing.
- Cropland beyond riparian margins of LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Private access, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for approximately 10 km
- Turn left onto AB-765 N (signs for AB 765 N / Darwell) for 24.2 km, past Darwell
- Turn right onto AB-43 S (signs for Edmonton) for 19.4 km
- At Gunn, Turn left onto Grizzly Trail / AB-33 N (signs for Barrhead / Swan Hills) for 28 km
- After Birch Cove, Turn left onto Township Rd 580 for 2.1 km and continue on private road until Pembina Riverbank
- Destination is boat launch onto Pembina River, northwest of Lac La Nonne Natural Area
- Total Distance = 85.1 km
- Total Travel Time = 79 minutes calculated at 65 km/hr

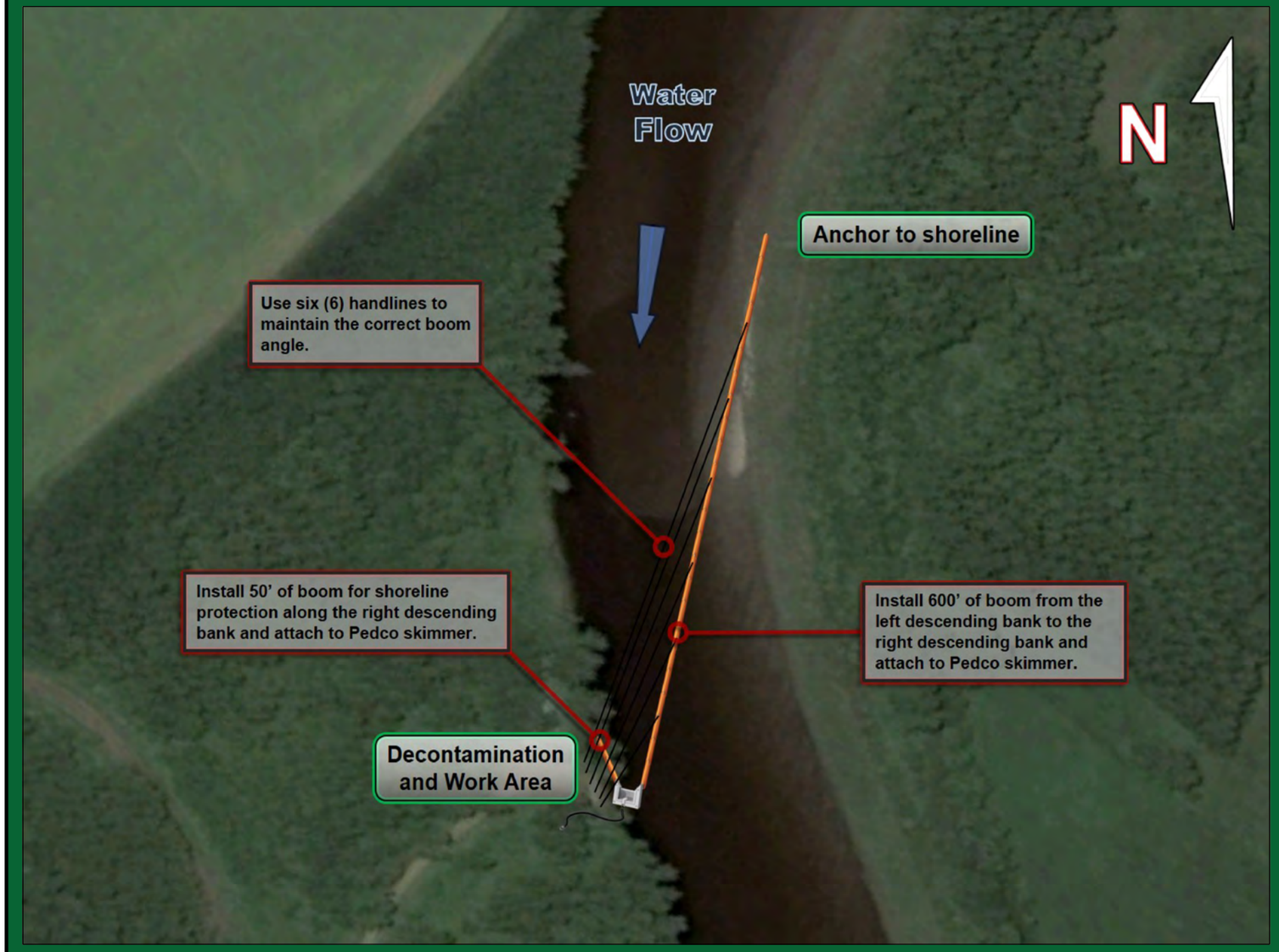
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-16
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 07D-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	750'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp.)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, white-breasted nuthatch, woodpecker spp.)

Implementation Strategy:

- Install 600' of 6" x 6" hard containment boom from the left descending bank at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 200' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 85 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 08-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.600578	
	Long:	-115.005687	
Elevation	779 m		
Upstream Valves:	**Line 01:**	STATION CHECK	
Downstream Valves:	**Line 01:**	K117A	
Control Point:	**Upstream** CP 08-01	**Downstream** CP 08-02	
Nearest KM Post:	**Line 01** KP 117		

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		61 m	
Depth		Unknown	
Flow Velocity		4.8 km/hr	
FlowType		Confined moderate velocity riffle and run structure	

Waterbody description:

Confined moderate velocity riffle and run structure. Boat launch located along inside bend where river shallows with lower current along gradually sloping sand/gravel dominated shoreline. Current and depth increases closer to LDB, where the bank and approach is being actively eroded. Be aware of shallow boulders. Boat launch located in Pembina River Provincial Park along a popular beach and put-in/pull-out area for tubers and rafters. Moderate-high turbidity during survey.



Logistical Information:

Road Access/Type:	- Access off of Highway 16A through Pembina River Provincial park, 100 m down a walking trail to Pembina River. - Matting required to establish all weather access.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in Pembina River Provincial Park Day Use area. - 10 m x 30 m area. - All weather access is established.	
	Lat: 53.60154	Long: -115.00507
Site Comments:	- The boat launch is located within Pembina River Provincial Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular angling, water sports and recreational boat area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast moving water body, use caution around the shoreline.
- The control point is located within Pembina River Provincial Park, public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 16.5 km
- Enter Entwistle via AB-16A W ramp and keep right to merge onto AB-16A W for 2.5 km
- Turn right into Pembina River Provincial Park (50 Ave), then take immediate left towards south parking lot
- Destination is eastbank of Pembina River, adjacent to Day Use Area parking lot close to bridge over Pembina River
- Total Distance = 20.6 km
- Total Travel Time = 19 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.599940	
	Long: -115.005520	
Elevation:	722 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** STATION CHECK	
Downstream Valves:	**Line 01:** K117A	
Control Point:	**Upstream** N/A	**Downstream** CP 08-02
Nearest KM Post:	**Line 01** KP 117	

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		89 m	
Depth		Unknown	
Flow Velocity		4.8 km/hr	
FlowType		Confined moderate velocity riffle and run structure	

Waterbody description:
Confined moderate velocity riffle and run structure. CP located along outside bend of river, where gradual sloping sandy collection area descends into shoreline eddy, increasing in current beyond eddy and downstream, where there is a log jam and overhanging tree hazard. Be aware of shallow boulders. Moderate-high turbidity during survey.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
gradual sloping stable sandy LDB with elevated, level shrubby backshore area along old access trail becoming steep downstream and along forested approach.

Shoreline Vegetation:
Mixedwood forest (poplar, spruce, aspen, birch); mixed shrubs (e.g., red-osier dogwood, alder, willow); diverse understory including sarsaparilla, meadow rue, wild strawberry, northern bedstraw, twisted stalk, northern bedstraw, scouring rush, horsetail.

Channel / Bank Forms:
RDB composed predominantly of sands, gravels and cobbles; LDB composed of silts and sands, cobbles and boulders. Bed composed of mixed sands, gravels, cobbles and boulders.

Shoreline Comments:
Collection area accessed from paved pull-out area off highway, along overgrown access road with narrow trail down to gradually sloping sandy beach area that becomes steep downstream of collection along actively eroding bank/approach on outside river bend. RDB along along popular public beach and picnic area.

Logistical Information:

Staging Area Location:	- A staging area can be located in Pembina River Provincial Park. - 10 m x 30 m area. - All weather access is established.	
	Lat: 53.60154	Long: -115.00507
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 4 m x 20 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Popular recreational angeling and water sports area. - Recreational boat traffic in the control point area. - Gated access to control point. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access is off of 50 Avenue, 120 m down a vehicle trail to the control point. - Matting required to establish all weather access.	
Boat Access:	- Main boat access from BL 08-01. - Refer to BL 08-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

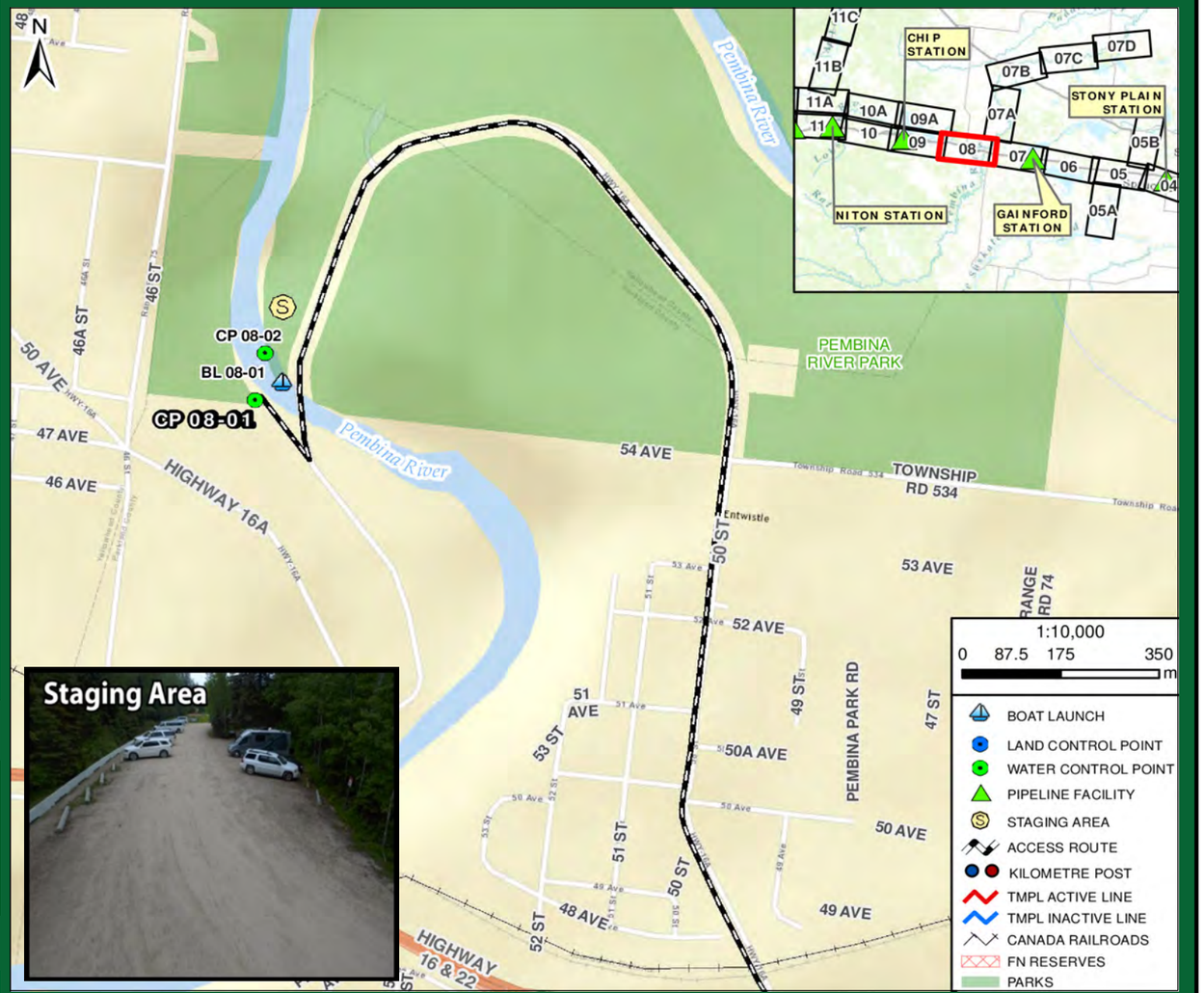
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Riffle and run structure of predominanly gravels and cobbles provides good spawning potential for salmonids; important migratory corridor to upstream spawning areas of the Pembina River Watershed; deeper areas with instream/shoreline cover closer to LDB provide moderate rearing and overwintering potential.
- Riparian, forest and cavity nesting birds in mature mixedwood forests of LDB and RDB.
- Environment Canada Stream Gauging Station along RDB 200 m downstream.
- Evansburg Trail located along paved access road off highway used to access CP; occasional public use of sandy beach shoreline on LDB.
- RDB located along popular, well maintained picnicking area in Pembina River Provincial Park, with collection and work area located along a popular beach and put-in/pull-out area for tubers and rafters.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 16.5 km
- Enter Entwistle via AB-16A W ramp and keep right to merge onto AB-16A W for 2.5 km
- After Pembina River Provincial Park (50 Ave), pulloff after bridge and walk adjacent to river
- Destination is westbank of Pembina River, adjacent to bridge over Pembina River
- Total Distance = 20.5 km
- Total Travel Time = 19 minutes calculated at 65 km/hr

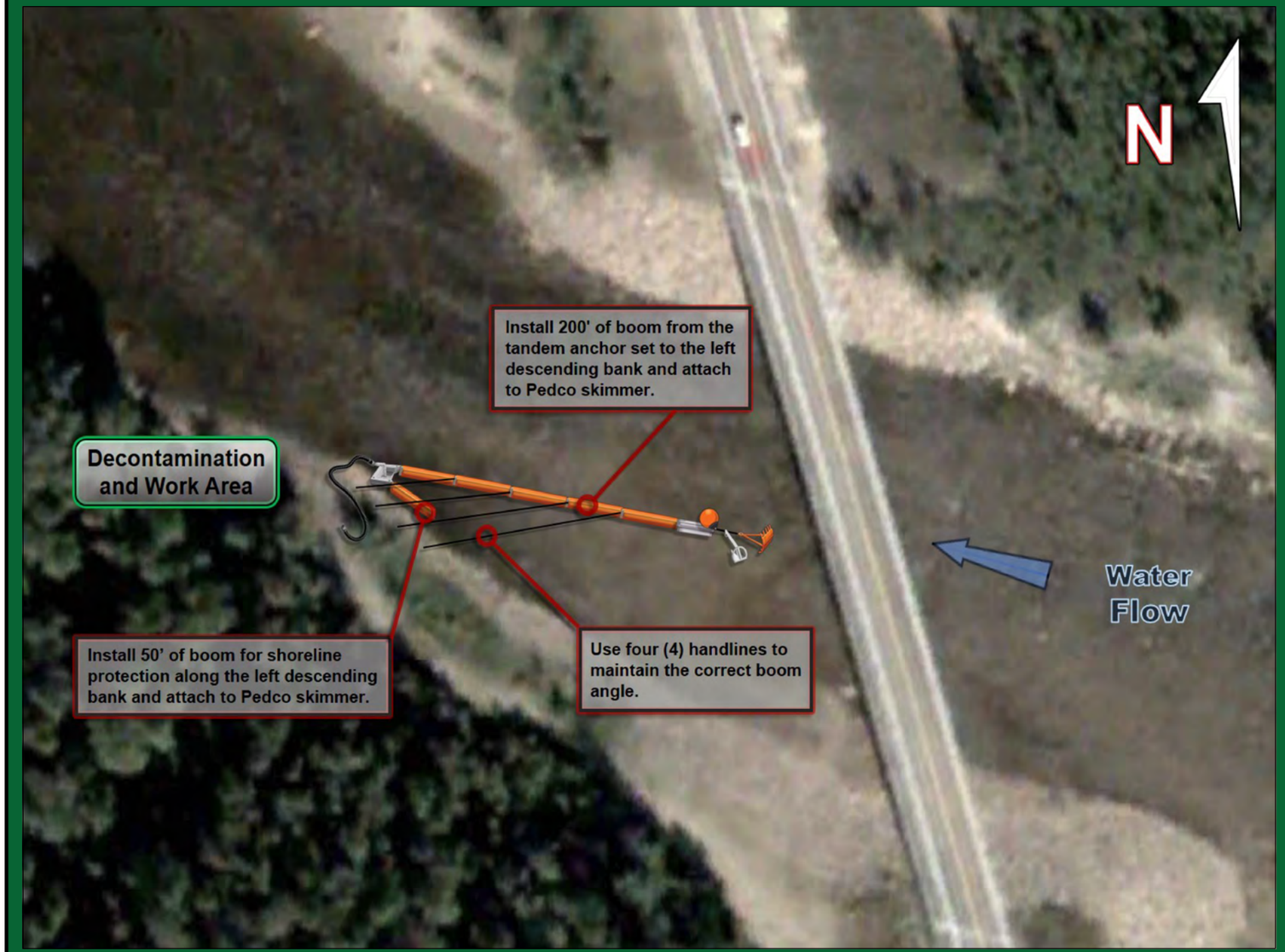
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	350'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp.)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., white-breasted nuthatch, woodpecker spp.)

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 200' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (4) 100' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 50 m ice slot from the middle of the river at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.600740	
	Long:	-115.005390	
Elevation:	716 m		
Land and Resource Use:	Crown Land. Pembina River Provincial Park.		
Upstream Valves:	**Line 01:**	STATION CHECK	
Downstream Valves:	**Line 01:**	K117A	
Control Point:	**Upstream** CP 08-01		**Downstream** CP 07A-01
Nearest KM Post:	**Line 01** KP 117		

Waterbody Information:

Waterbody Name: Pembina River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		60 m	
Depth		Unknown	
Flow Velocity		4.8 km/hr	
FlowType		Confined moderate velocity riffle and run structure	

Waterbody description:
Confined moderate velocity riffle and run structure. CP located along inside bend where river shallows with lower current along gradually sloping public beach. Current and depth increases closer to LDB, where the bank and approach is being actively eroded. Be aware of shallow boulders. Moderate-high turbidity during survey.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
Gradual sloping stable RDB along public beach with forest backshore, network of trails and parking; very steep bank and approach along most of LDB; more gradual upstream

Shoreline Vegetation:
Mixedwood forest (poplar, spruce, aspen, birch); mixed shrubs (e.g., red-osier dogwood, alder, willow); diverse understory including sarsaparilla, meadow rue, wild strawberry, dogbane, twisted stalk, scouring rush, horsetail.

Channel / Bank Forms:
RDB composed predominantly of sands, gravels and cobbles; LDB composed of silts and sands, cobbles and boulders. Bed composed of mixed sands, gravels, cobbles and boulders.

Shoreline Comments:
Collection area accessed along trail from day use parking area, down gradually sloping beach. Actively eroding bank/approach along outside bend of LDB; with abundant instream and overhanging logs and trees.

Logistical Information:

Staging Area Location:	- A staging area can be located in Pembina River Provincial Park. - 10 m x 30 m area. - All weather access is established.	
	Lat: 53.60154	Long: -115.00507
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Access to control point is from Pembina River Provincal Park. - Recreational boat traffic in control point area. - Gated access to control point. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access is off of 50 Ave through the Pembina River Provincial Park. - All weather access is established.	
Boat Access:	- Main boat access from BL 08-01. - Refer to BL 08-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

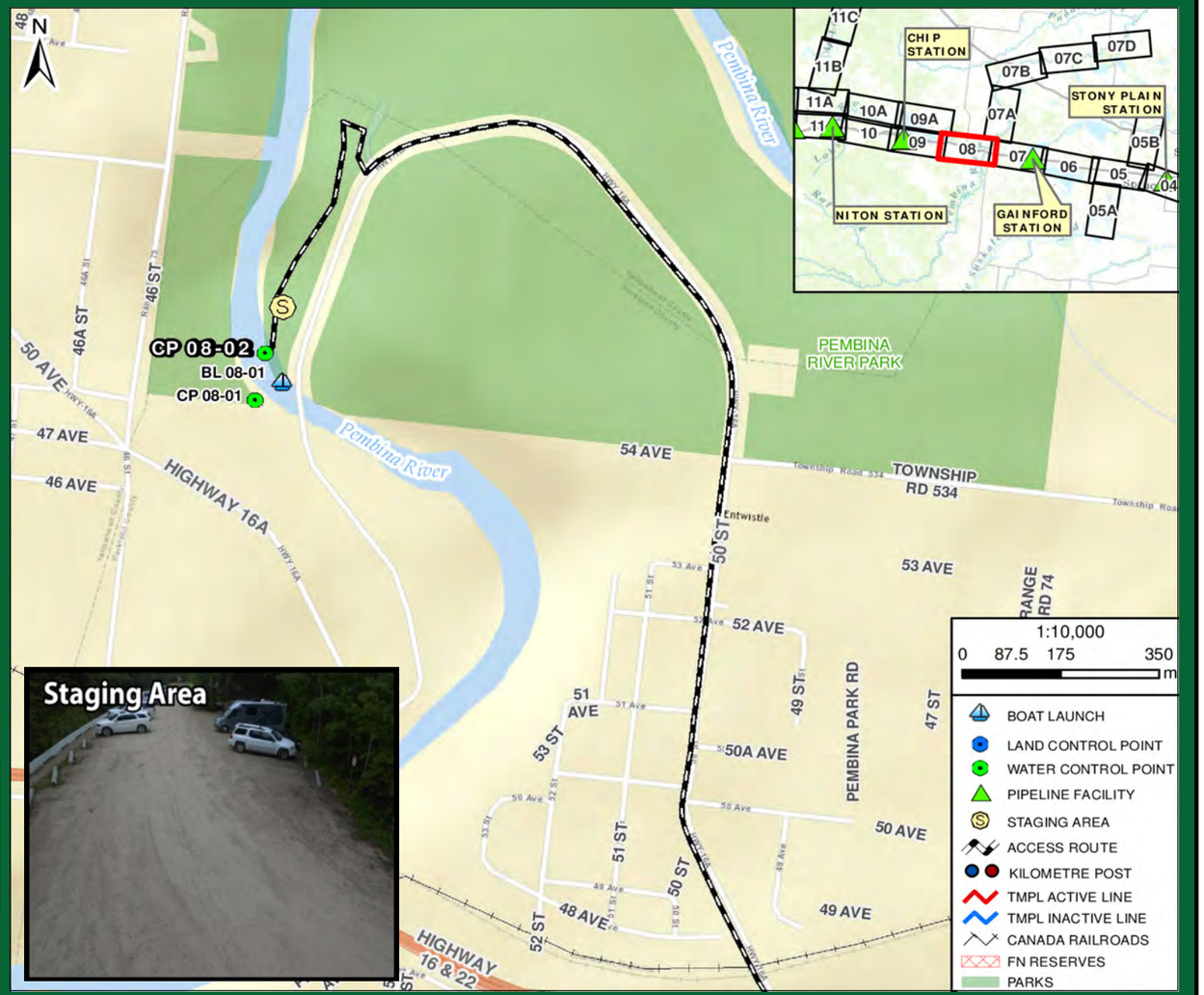
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Riffle and run structure of predominantly gravels and cobbles provides good spawning potential for salmonids; important migratory corridor to upstream spawning areas of the Pembina River Watershed; deeper areas with instream/shoreline cover closer to LDB provide moderate rearing and overwintering potential.
- Riparian, forest and cavity nesting birds in mature mixedwood forests of LDB and RDB.
- There is an Environment Canada Stream Gauging Station along RDB approximately 200 m downstream.
- CP located at popular, well maintained picnicking area in Pembina River Provincial Park, with collection and work area located along a popular beach and put-in/pull-out area for tubers and rafters.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Access from Pembina River Provincial Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 16.5 km
- Enter Entwistle via AB-16A W ramp and keep right to merge onto AB-16A W for 2.5 km
- Turn right into Pembina River Provincial Park (50 Ave), then take immediate left towards south parking lot
- Destination is east bank of Pembina River, adjacent to Day Use Area parking lot close to bridge over Pembina River
- Total Distance = 20.5 km
- Total Travel Time = 19 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-02



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 200' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to shoreline.
- Install (3) 100' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 65 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	350'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	6	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp.)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., white-breasted nuthatch, woodpecker spp.)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-02

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.607030	
	Long: -115.021140	
Elevation:	748 m	
Land and Resource Use:	Private Land. Forested.	
Upstream Valves:	**Line 01:** K117B	
Downstream Valves:	**Line 01:** K125	
Control Point:	**Upstream** N/A	**Downstream** CP 07A-01
Nearest KM Post:	**Line 01** KP 119	

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Drainage

WATER LEVEL:	Low	Medium	High
Width		1.5 m	
Depth		0.8 m	
Flow Velocity		4.1 km/hr	
FlowType		Unnamed seasonal drainage with run and pool structure	

Waterbody description:

Below collection, drainage flows into 1.2 m diameter culvert, where abundant woody debris has collected, possibly resulting in occasional impoundment and increased water levels on upstream side of road, as indicated by LDB up to 1 m above water levels at time of survey. Submerged sedges suggest seasonal flow regime, potentially becoming dry or frozen to bottom during winter. High turbidity at time of survey.

Shoreline Information

Bank Height:
0.6 to 1 m

Shoreline Composition and Slope:
Variable, often steep to vertical/overhanging but stable grass-sedge dominated banks with up to 2 m high uneven approaches in young aspen forest near pasture on LDB.

Shoreline Vegetation:
Young aspen forest, transitioning to pasture along LDB; patches of shrubs, predominantly wild rose and willow; abundant grasses and sedges, less frequent vetch, horsetail, Canada anemone, meadow rue, dandelion.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by fines, with concrete riprap downstream around culvert; bed composed predominantly of fines.

Shoreline Comments:
Collection area accessed from private drive along uneven terrain with with up to 2 m, grass-sedge dominated approaches and frequently overhanging but stable banks. Slips/trips/falls hazards along uneven ground and banks obscured by dense vegetation.

Logistical Information:

Staging Area Location:	- The staging area is located on private land along the access to the control point. - 10 m x 10 m area. - Matting required to establish all weather access.	
	Lat: 53.60683	Long: -115.02077
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point and staging area are located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Range Road 75A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

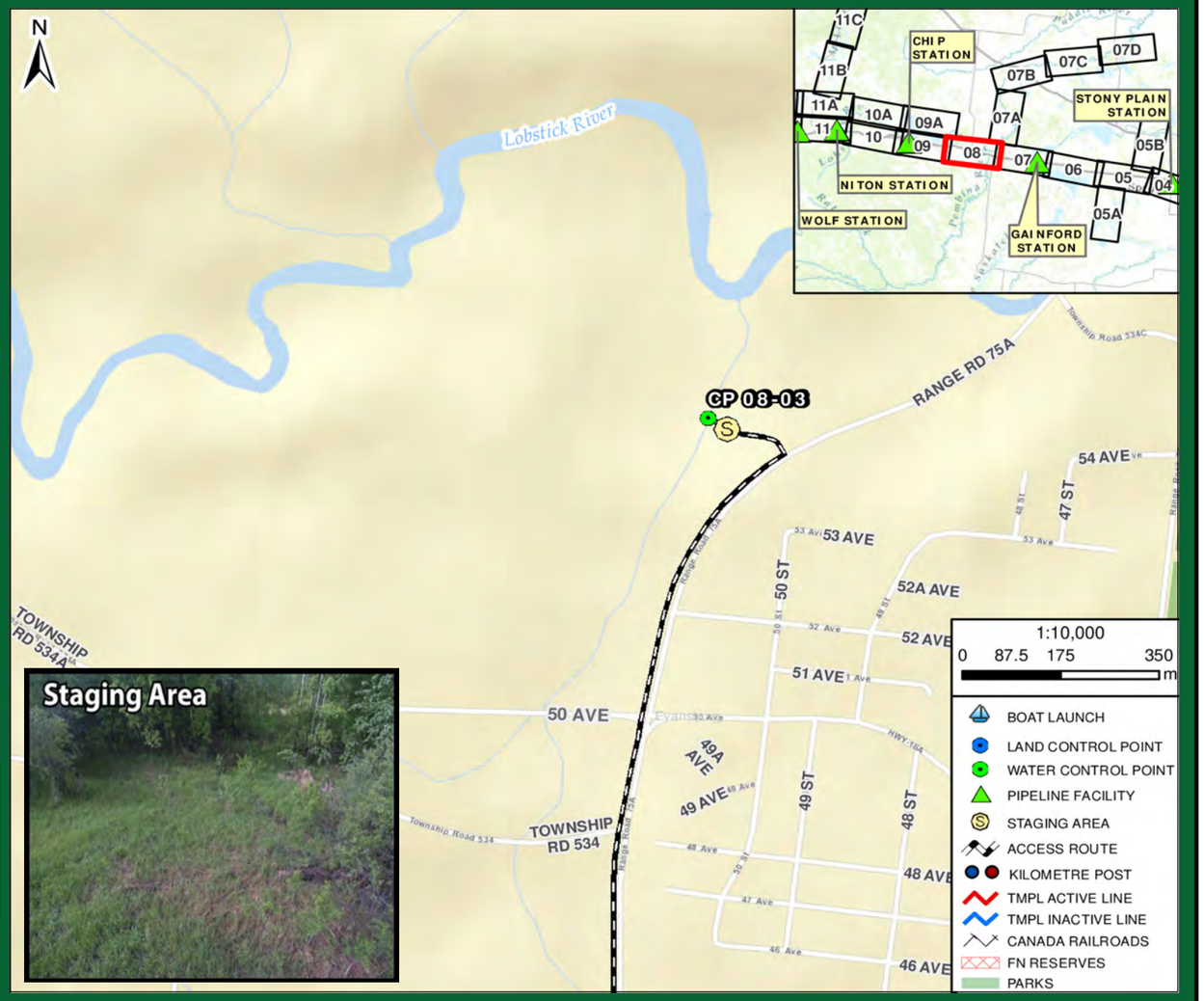
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; low potential for fish habitat due to seasonal flow regime and potential upstream/downstream barrier to migration.
- Young deciduous forest with shrubs and saturated sedge dominated areas provide riparian nesting habitat and amphibian habitat.
- Located near horse and cattle pastures and rural residences.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 19.2 km
- At Evansburg, Turn right onto Range Rd 75 for 1.6 km
- Turn left onto private road for 160 m, about 400 m past 52 Ave
- Destination is creek culvert over unnamed watercourse
- Total Distance = 21.6 km
- Total Travel Time = 20 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-02
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	2	12” x 15’ Culvert
1	Safety Watch	1	Trackhoe
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	5 Yards	Earthen Material or 80 Sandbags
1	Trackhoe Operator	1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp.
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, merlin)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., white-breasted nuthatch, woodpecker spp.)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (2) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 150' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 2.0 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-02

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.599900	
	Long: -115.081730	
Elevation:	791 m	
Land and Resource Use:	Crown Land. Highway 16A and Range Road 82 Right-of-Way.	
Upstream Valves:	**Line 01:** K117B	
Downstream Valves:	**Line 01:** K125	
Control Point:	**Upstream** N/A	**Downstream** CP 07A-01
Nearest KM Post:	**Line 01** KP 123	

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Drainage

WATER LEVEL:	Low	Medium	High
Width		2.0 m	
Depth		0.5 m	
Flow Velocity		3.3 km/hr	
FlowType		Unnamed seasonal drainage with run and pool structure	

Waterbody description:

Containment and collection located immediately downstream of confluence of two drainages with similar flow regimes; may be convergence of same forked drainage (could not be confirmed). Below collection, drainage flows into 2 m diameter culvert under paved road. Submerged sedges indicate seasonal flow regime, potentially becoming dry or frozen to bottom during winter. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1 m

Shoreline Composition and Slope:
Variable, often steep to vertical/overhanging but stable grass-sedge dominated banks with up to 2.5 m high uneven approaches vegetated with mixed young poplar/shrubs.

Shoreline Vegetation:
Young poplars transitioning to mature mixedwood (poplar, spruce) upstream of containment; patches red raspberry, wild rose, willow, dogbane; dense grasses, sedges, horsetail; less frequent meadow reu, Canada anemone, dandelion, fireweed, vetch.

Channel / Bank Forms:
Banks composed predominantly of oganics underlain by fines; bed composed predominantly of fines with occasional gravels and cobbles

Shoreline Comments:
Collection area accessed along open grass-sedge dominated road easement along which is a saturated seepage area; down 2 m variable, steep but stable approaches to overhanging/vertical, stable banks. Slips/trips/falls hazards along uneven ground and banks obscured by dense vegetation, as well as fallen trees from old beaver cuttings and stranded woody debris across channel.

Logistical Information:

Staging Area Location:	- The staging area is located on Range Road 82. - 20 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.59984	Long: -115.08251
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 16A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

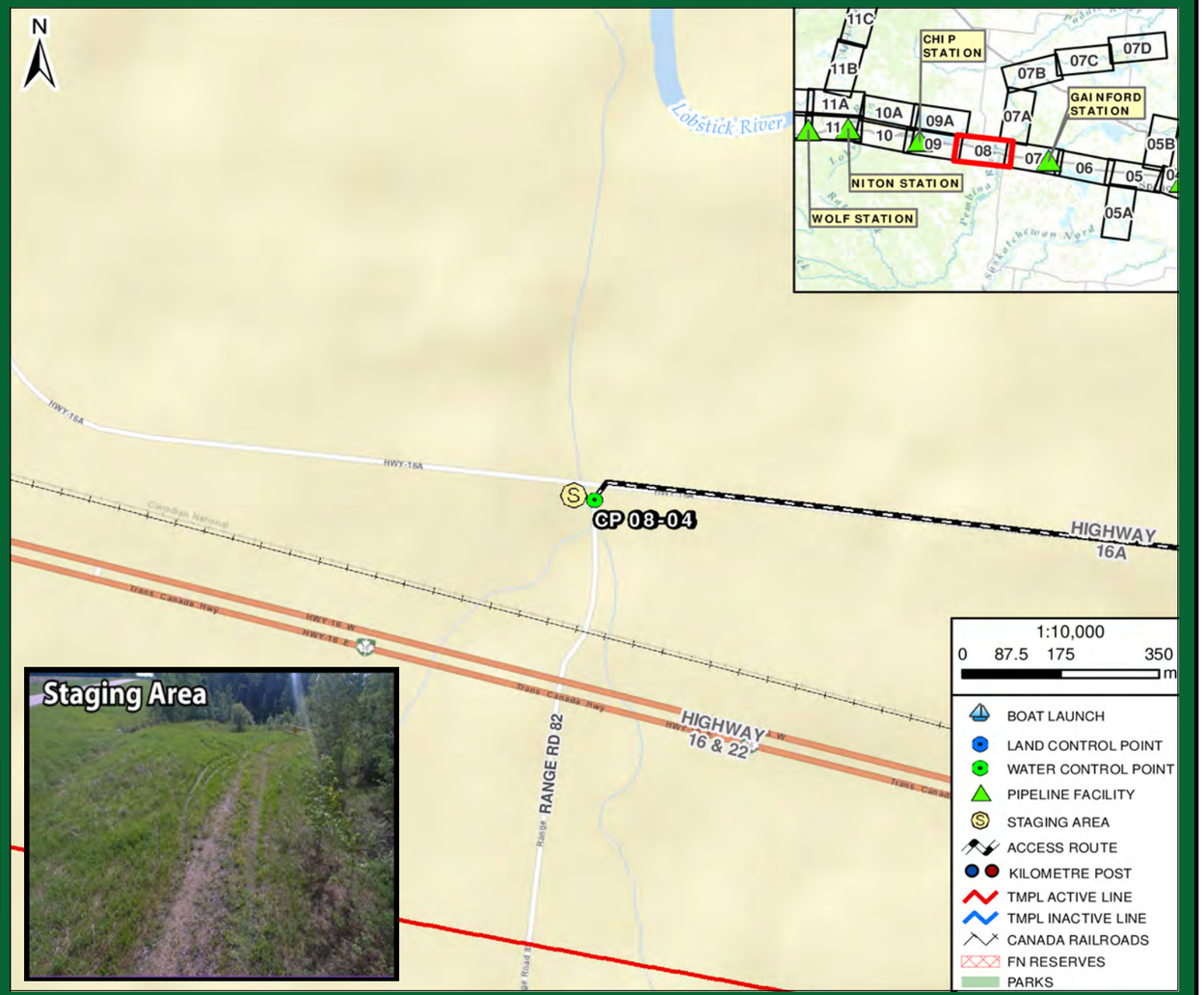
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; low potential for fish habitat due to seasonal flow regime and potential upstream/downstream barriers to migration.
- Young poplars and mixed shrubs with saturated sedge dominated areas provide riparian nesting habitat and amphibian habitat.
- Mature mixedwood forest upstream provides forest and cavity nesting habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep cut banks, use caution around the shoreline.
- Public may be present. Overhead power lines running adjacent to the staging area.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 21.7 km
- Past Evansburg, Turn right onto Range Rd 81 for 600 m, then turn left onto Highway AB-16A for 1.6 km
- Destination is creek culvert over unnamed watercourse, at Range Road 82 intersection
- Total Distance = 24.4 km
- Total Travel Time = 23 minutes calculated at 65 km/hr

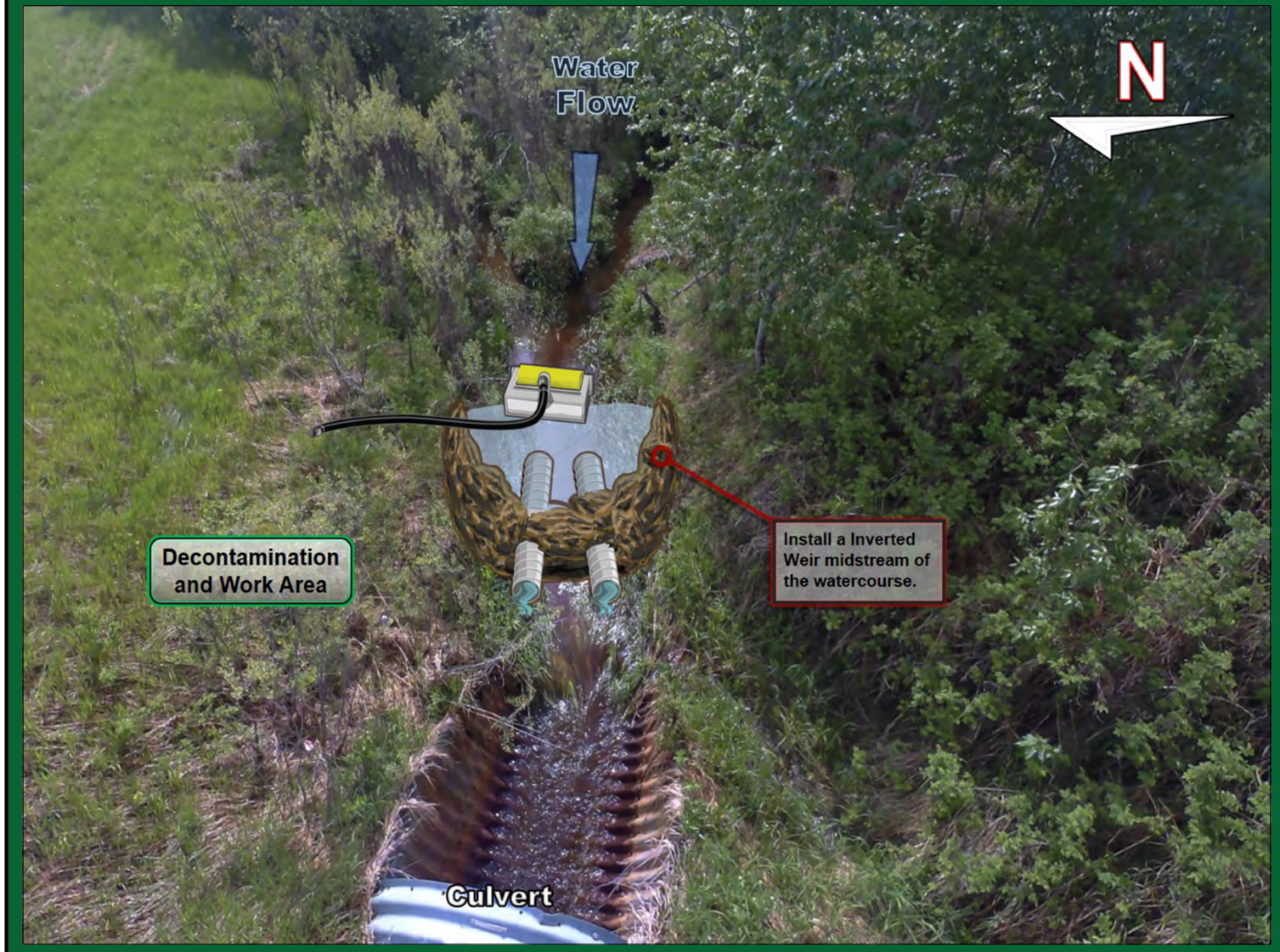
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-02
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	2	12” x 15’ Culvert
1	Safety Watch	1	Trackhoe
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	15 Yards	Earthen Material or 200 Sandbags
1	Trackhoe Operator	1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp.
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, merlin)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., white-breasted nuthatch, woodpecker spp.)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (2) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 150' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 2.5 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-02

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-05

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.604620
	Long:	-115.126970
Elevation:	776 m	
Land and Resource Use:	Crown Land. Highway 16A Road Right-of-Way.	
Upstream Valves:	**Line 01:** K117B	
Downstream Valves:	**Line 01:** K125	
Control Point:	**Upstream** N/A	**Downstream** CP 08-06
Nearest KM Post:	**Line 01** KP 126	

Waterbody Information:

Waterbody Name: Unnamed Watercourse

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		1.2 m	
Flow Velocity		0.75 km/hr	
FlowType		Unnamed confined creek with marginal flow	

Waterbody description:

Unnamed confined creek with marginal flow on downstream side of 2 m by 2 m concrete road culvert, where creek forms a small 6 m wide, 1.2 m deep pool along containment before forming narrow, riffle and pool channel downstream of collection area. Depth and volume under medium water conditions indicate perennial flow, but with very low to intermittent flow during sever drought or winter. High turbidity at time of survey.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
Variable, often steep to vertical/overhanging but stable grass-sedge dominated banks with open often saturated work area along seepage below gradual road easement.

Shoreline Vegetation:
Young poplar along LDB; patches and isolated shrubs (e.g., willow, wild rose); predominantly dense sedges and grasses along RDB (e.g., brome, bluejoint, reed canarygrass), less frequent horsetail, vetch; Canada anemone, palmate coltsfoot.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by fines; bed composed predominantly of fines.

Shoreline Comments:
Collection area accessed along gradually sloping 5 to 6 m high road easement to open grass-sedge dominated, level work area located on a saturated seepage area along ditchline of RDB; with collection along overhanging/vertical, stable banks. Slips/trips/falls hazards along soft ground and banks obscured by dense vegetation. Low density weeds along road easement (e.g., Canada thistle, common tansy).

Logistical Information:

Staging Area Location:	- The staging area can be located along Highway 16A. - 5 m x 40 m area. - All weather access is established. -Traffic control recommended.	
	Lat: 53.60423	Long: -115.12685
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Steep access to the control point. - The control point is surrounded by private land, and in close proximity to a residences.	
Road Access/Type:	- Access off of Highway 16A. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

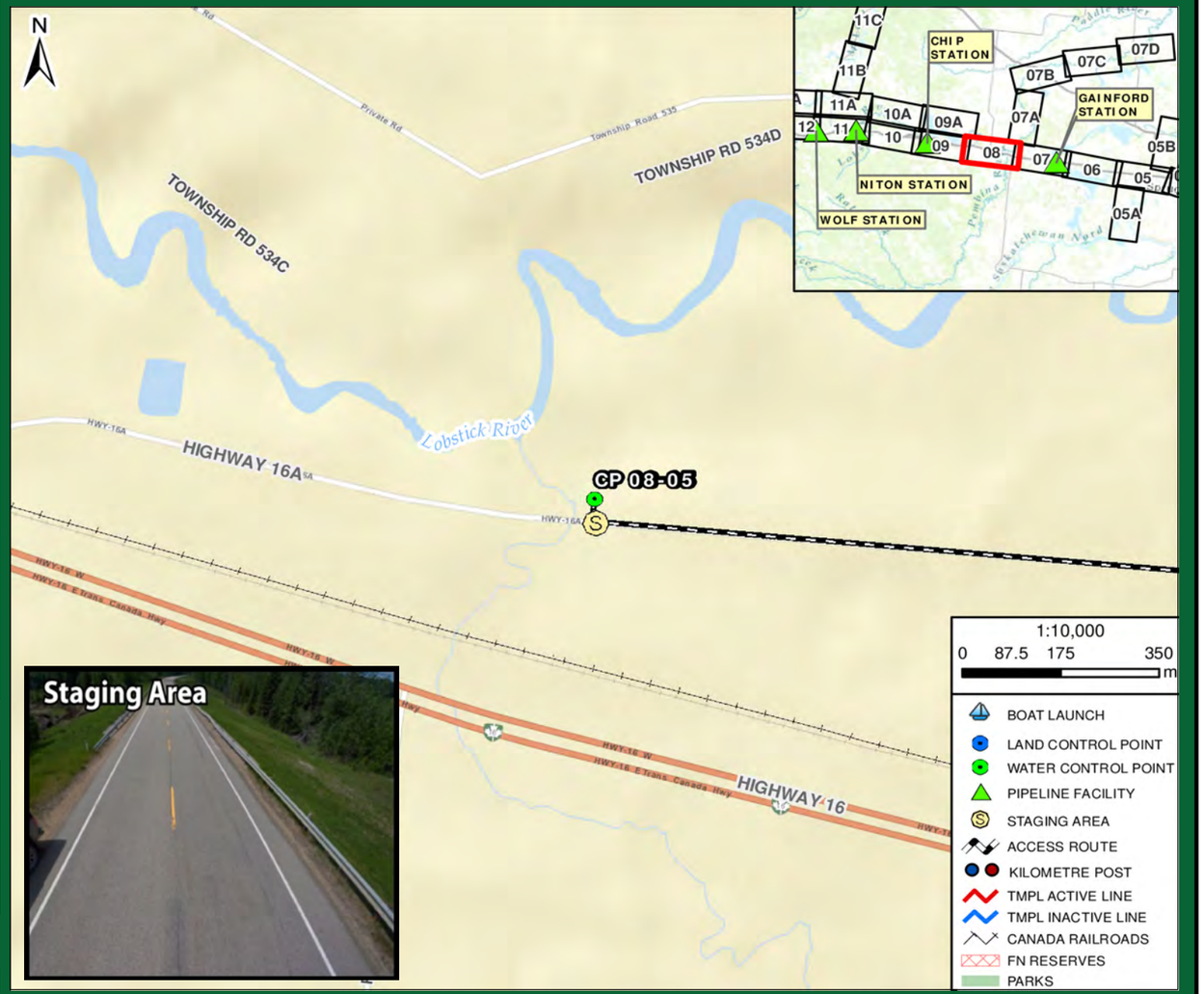
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; poor spawning potential due to abundant fines; open pool along containment provides moderate rearing and overwintering habitat.
- Riparian/shrub nesting habitat; waterbird habitat.
- Amphibian habitat along sedge dominated seepage area.
- Active barn swallow nesting observed in concrete culvert.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Public may be present. Overhead power lines located at the control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 24.9 km
- At Styal, Turn right onto AB-22/Cowboy Trail for 650 m (sign for Mayerthorpe)
- Turn left onto AB-16AA W (signs for Alberta 16A W) for 1.3 km
- Destination is creek culvert over unnamed watercourse, on private land
- Total Distance = 27.6 km
- Total Travel Time = 25 minutes calculated at 65 km/hr

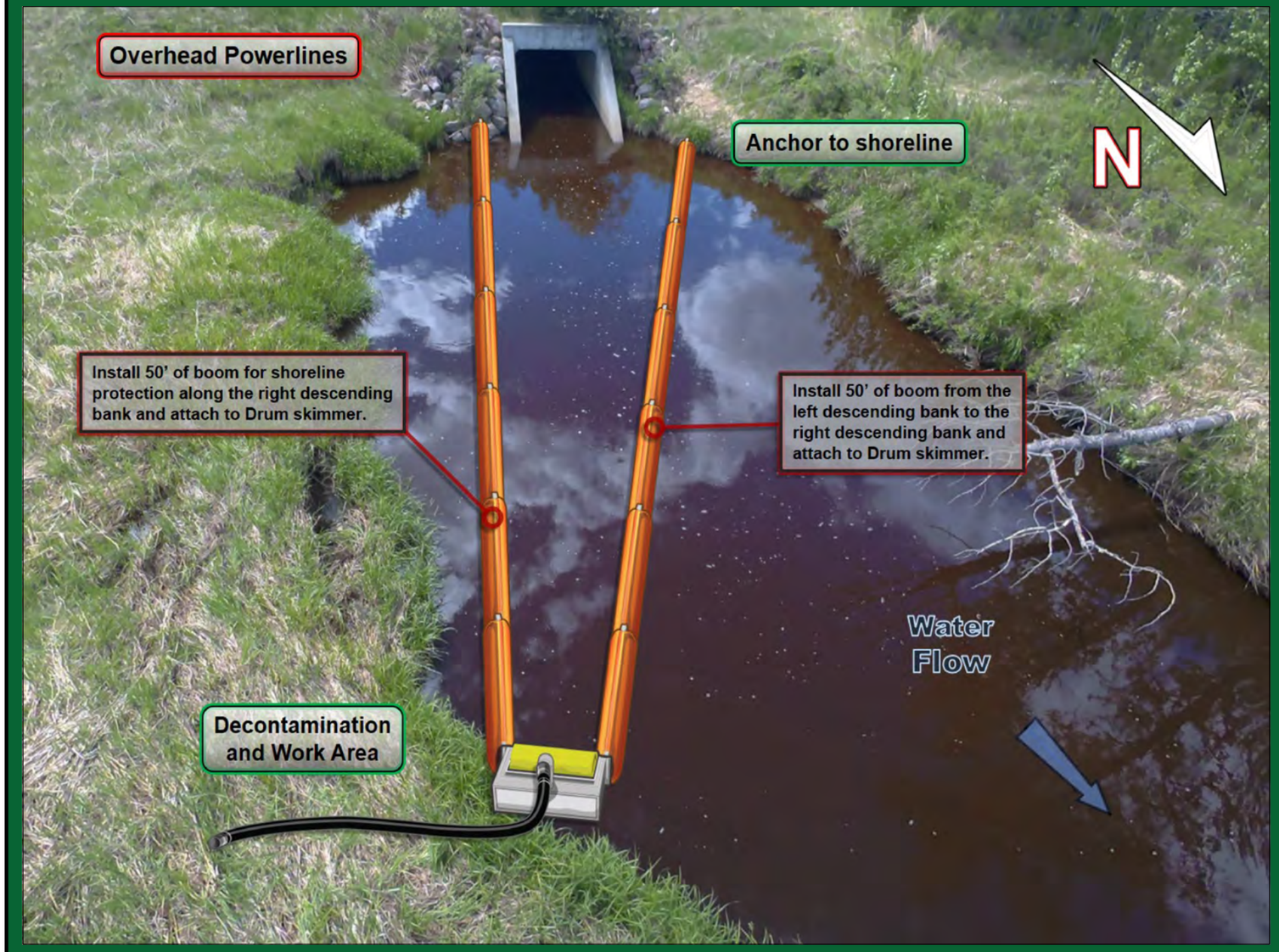
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-02
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-05



Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare)
- Amphibians (e.g., Western toad, wood frog, chorus frog)
- Waterbirds (e.g., common goldeneye, mallard, merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), barn swallow
- Raptors (e.g., Cooper's hawk, red-tailed hawk, northern harrier, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), blue heron
- Shorebirds and grassland birds (e.g., Wilson's snipe, sandpiper spp., Vesper sparrow, Savannah sparrow, meadowlark)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-06

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.612590	
	Long: -115.106170	
Elevation:	776 m	
Land and Resource Use:	Crown Land. Highway 22 Road Right-of-Way.	
Upstream Valves:	**Line 01:** K117B	
Downstream Valves:	**Line 01:** K125	
Control Point:	**Upstream** CP 08-07	**Downstream** CP 07A-01
Nearest KM Post:	**Line 01** KP 124	

Waterbody Information:

Waterbody Name: Lobstick River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		19 m	
Depth		Unknown	
Flow Velocity		3.1 km/hr	
FlowType		Frequently confined moderate velocity run and riffle structure	

Waterbody description:

Containment and collection located along a flat U-shaped run, bankfull at time of survey, downstream of bridge with 4 m clearance. Occasional floating logs and woody debris during medium and high water; flattened grasses and sediment deposits above LDB suggest occasional flooding events, where low lying backshore areas may become saturated or shallow submerged. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1.8 to 2 m along LDB; 1 to 1.5 m along RDB

Shoreline Composition and Slope:
LDB vertical/overhanging, densely vegetated with grasses, into up to 1.8 m water, with level to gradually sloping open meadow backshore; steep 2 to 3 m tree/shrub RDB.

Shoreline Vegetation:
Open meadow along LDB with patches and isolated willow, red raspberry; abundant grasses (e.g., brome, bluejoint, reed canarygrass), less frequent sedges, horsetail, vetch; dandelion, wild strawberry. Young mixedwood forest and shrubs along RDB (e.g., spruce,

Channel / Bank Forms:
Banks composed predominantly of organics underlain by fines; bed composed predominantly of fines with occasional gravels and cobbles.

Shoreline Comments:
Collection area from paved road down low grade access trail on open, gradually sloping grassy meadow to level work area along top of vertical/overhanging bank, which is stable but obscured by dense grasses into up to 1.8 m deep. Collection and containment located along buried pipeline crossing. Isolated occurrences of Canada thistle along backshore LDB.

Logistical Information:

Staging Area Location:	- A staging area can be located along the left descending bank. - 45 m x 50 m area. - Matting required to establish all weather access.	
	Lat: 53.61293	Long: -115.10625
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Highway 22. - All weather access is established.	
Boat Access:	- Main boat access from BL 09A-01. - Refer to BL 09A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 09-01. - Refer to BL 09-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; migratory corridor to upstream spawning areas of Lobstick River Watershed; deep water and areas of instream and shoreline cover provide good rearing and overwintering habitat.
- Riparian/shrub nesting habitat; waterbird habitat.
- Potential pasture/hay lands beyond riparian margins of RDB.
- Navigable river with occasional boating and fishing, as well as shoreline fishing along LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 24.9 km, continuing past Evansburg
- At Styal, Turn right onto AB-22/Cowboy Trail for 1.5 km (sign for Mayerthorpe)
- Destination is bridge over Lobstick River, just before crossing Township Rd 535
- Total Distance = 27.2 km
- Total Travel Time = 25 minutes calculated at 65 km/hr

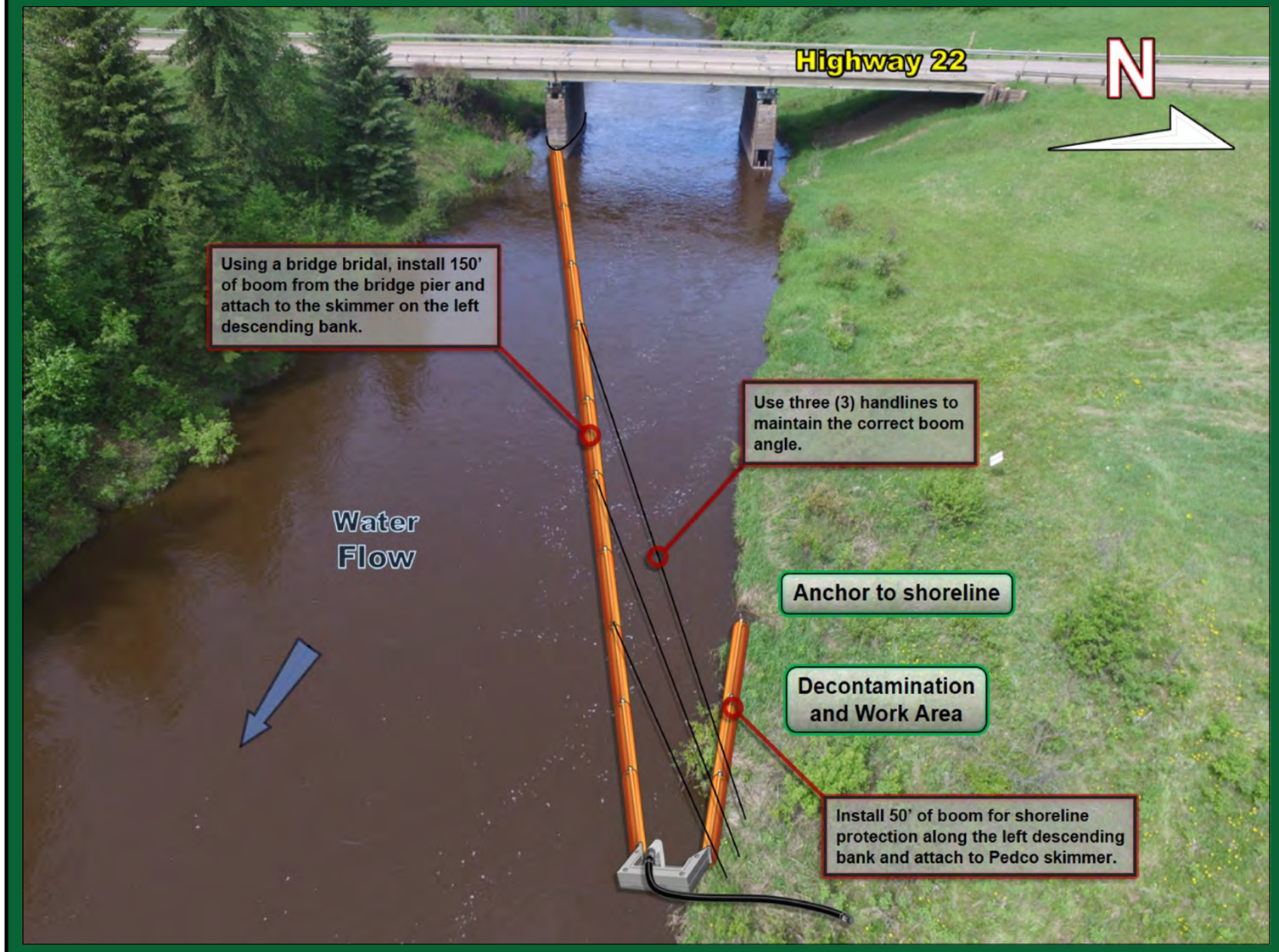
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-06



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	6	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Bridge Pier Bridle
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a Bridge Pier Bridle on the pier closest to the right descending bank.
- Install 100' of 6" x 6" hard containment boom from the Bridge Pier Bridle at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (3) 100' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 25 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian/wetland nesting birds (e.g., marsh wren, common yellowthroat, warbler spp., flycatcher spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, northern harrier, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Shorebirds and grassland birds (e.g., Wilson's snipe, sandpiper spp., Vesper sparrow, Savannah sparrow, meadowlark)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-31

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-07

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.616020	
	Long: -115.230000	
Elevation:	790 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 09A-01	**Downstream** CP 08-06
Nearest KM Post:	**Line 01** KP 132	

Waterbody Information:

Waterbody Name: Lobstick River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		28 m	
Depth		Unknown	
Flow Velocity		3.4 km/hr	
FlowType		Frequently unconfined low-moderate velocity run structure	

Waterbody description:

Wetland margins and gradual sloping backshores in agricultural setting, with collection on upstream side of road bridge with 2.5 m clearance. Murky water with instream algae and submergent vegetation indicate poor water quality, susceptible to nutrient loading and low oxygen levels, particularly during summer months. Occasional floating logs and woody debris during medium and high water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1 m

Shoreline Composition and Slope:
Banks are gradually sloping but poorly defined, composed of soft, saturated organic substrate with gradually sloping approaches.

Shoreline Vegetation:
Occasional poplar seedlings, saplings and willows; predominantly dense grasses (e.g., brome, bluejoint, reed canarygrass) and cattail patches; horsetail, vetch, dandelion, clover along road.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines; with boulder riprap along bridge abutments.

Shoreline Comments:
Collection area accessed down steep grassy road approach to gradually sloping poorly defined bank of mixed boulder riprap and organic substrate. Upstream, shoreline becomes very soft and saturated along wetland margins with gradually sloping grass dominated backshores. Instream substrate very soft.

Logistical Information:

Staging Area Location:	- A staging area can be located along Range Road 92. - 5 m x 50 m area. - All weather access is established. - Traffic control recommended. Lat: 53.61598 Long: -115.2298	
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Range Road 92. - All weather access is established.	
Boat Access:	- Main boat access from BL 09A-01. - Refer to BL 09A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 09-01. - Refer to BL 09-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable in low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

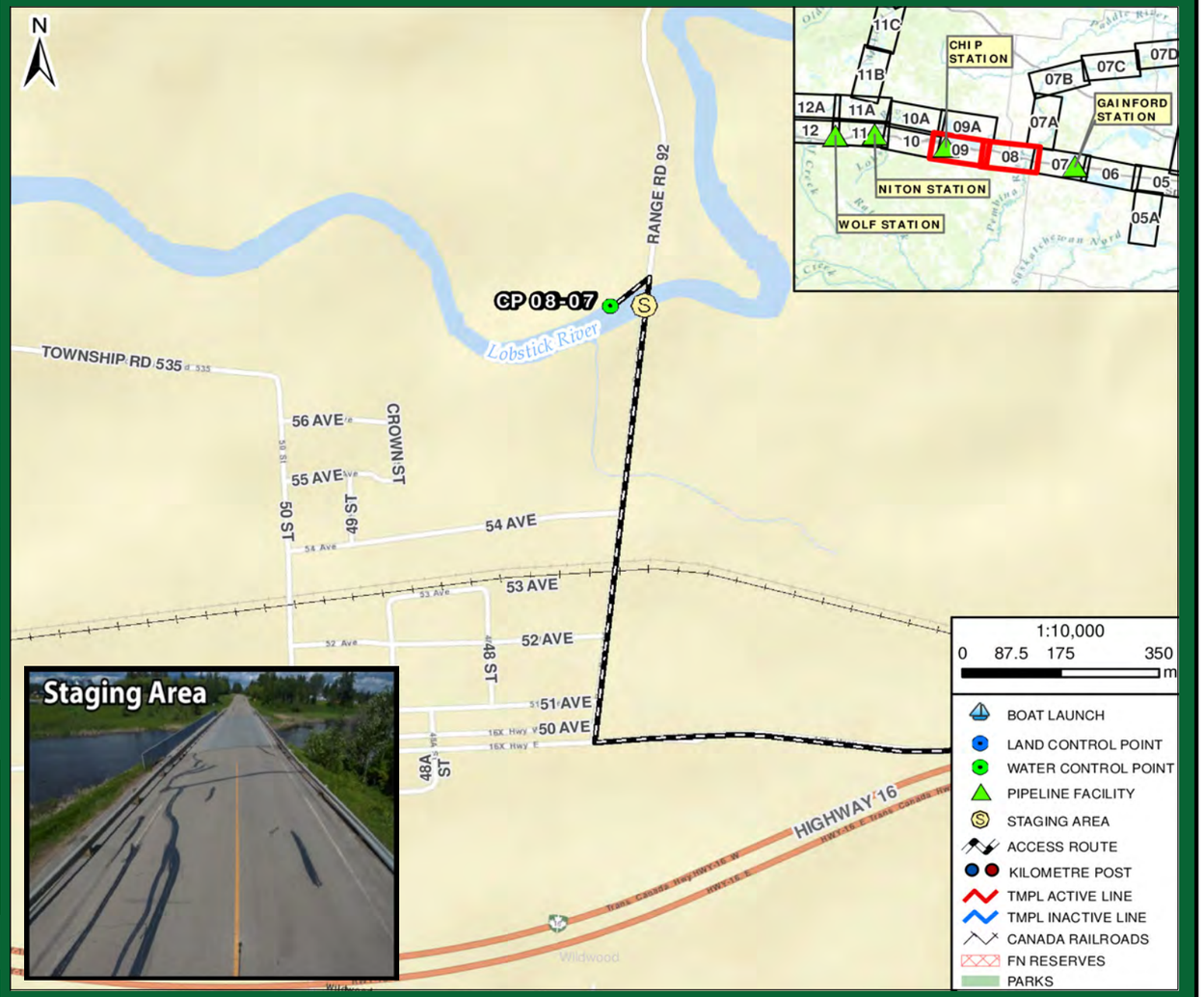
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; migratory corridor to upstream spawning areas of Lobstick River Watershed; deep water and areas of instream and shoreline cover provide moderate rearing and overwintering habitat.
- Mixed grasses provide grassland and shorebird nesting habitat.
- Wetland bird nesting habitat; waterbird habitat.
- Amphibian breeding habitat along wetland margins.
- Hay/pasture lands along backshore LDB and RDB.
- Located in the Community of Wildwood.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

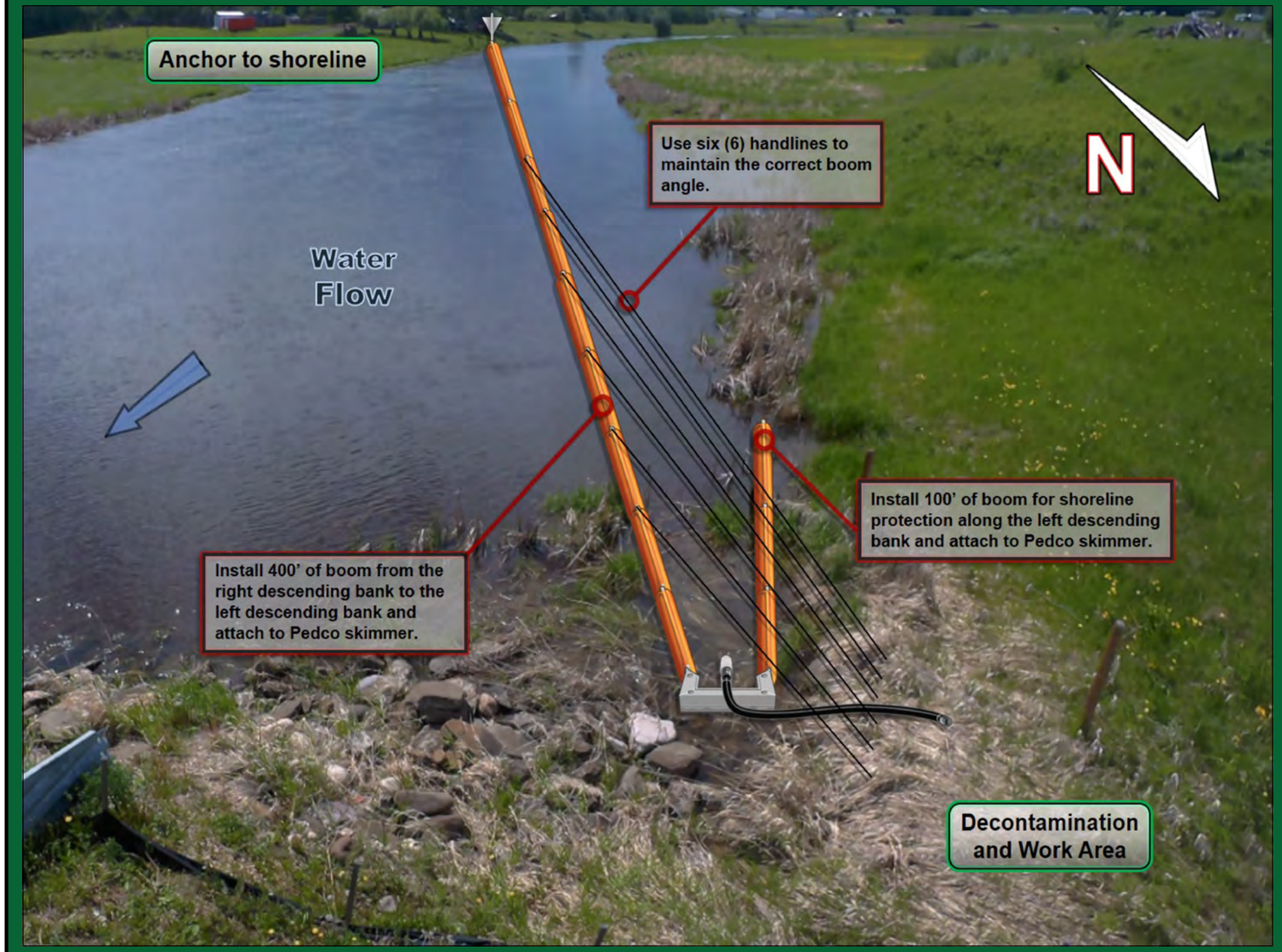
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 32.2 km
- At Wildwood, take slight right (signs for Wildwood, Green Court) for 1 km
- Turn right onto Range Rd 92 for 800 m
- Destination is bridge over Lobstick River
- Total Distance = 34.8 km
- Total Travel Time = 32 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-31
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 08-07



Implementation Strategy:

- Install 400' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 100' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 35 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare)
- Amphibians (e.g., Western toad, wood frog, chorus frog)
- Waterbirds (e.g., common goldeneye, mallard, merganzer, teal spp., lesser scaup, grebe spp., coot)
- Wetland nesting birds (e.g., marsh wren, common yellowthroat, red-winged blackbird, sora)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, northern harrier, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), blue heron
- Shorebirds and grassland birds (e.g., Wilson's snipe, sandpiper spp., Vesper sparrow, Savannah sparrow, meadowlark)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 09-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.629870	
	Long: -115.475480	
Elevation	801 m	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K160	
Control Point:	**Upstream** CP 09-07	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 149	

Waterbody Information:

Waterbody Name: Lobstick River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		30 m	
Depth		Unknown	
Flow Velocity		0.5 km/hr	
FlowType		Frequently confined low velocity run structure	

Waterbody description:

Boat launch located on low velocity stretch of river with long run, accessed via a private drive adjacent to rural public road. Boat launch is gradually sloping, but narrow and low grade with ruts and muddy soft banks surrounded by dense shrubs. There is a small seasonal drainage along ditchline adjacent to boat launch. Located in mixed forested and rural residential/agricultural setting with small private docks scattered along river and a private farm and residence downstream along backshore RDB.



Logistical Information:

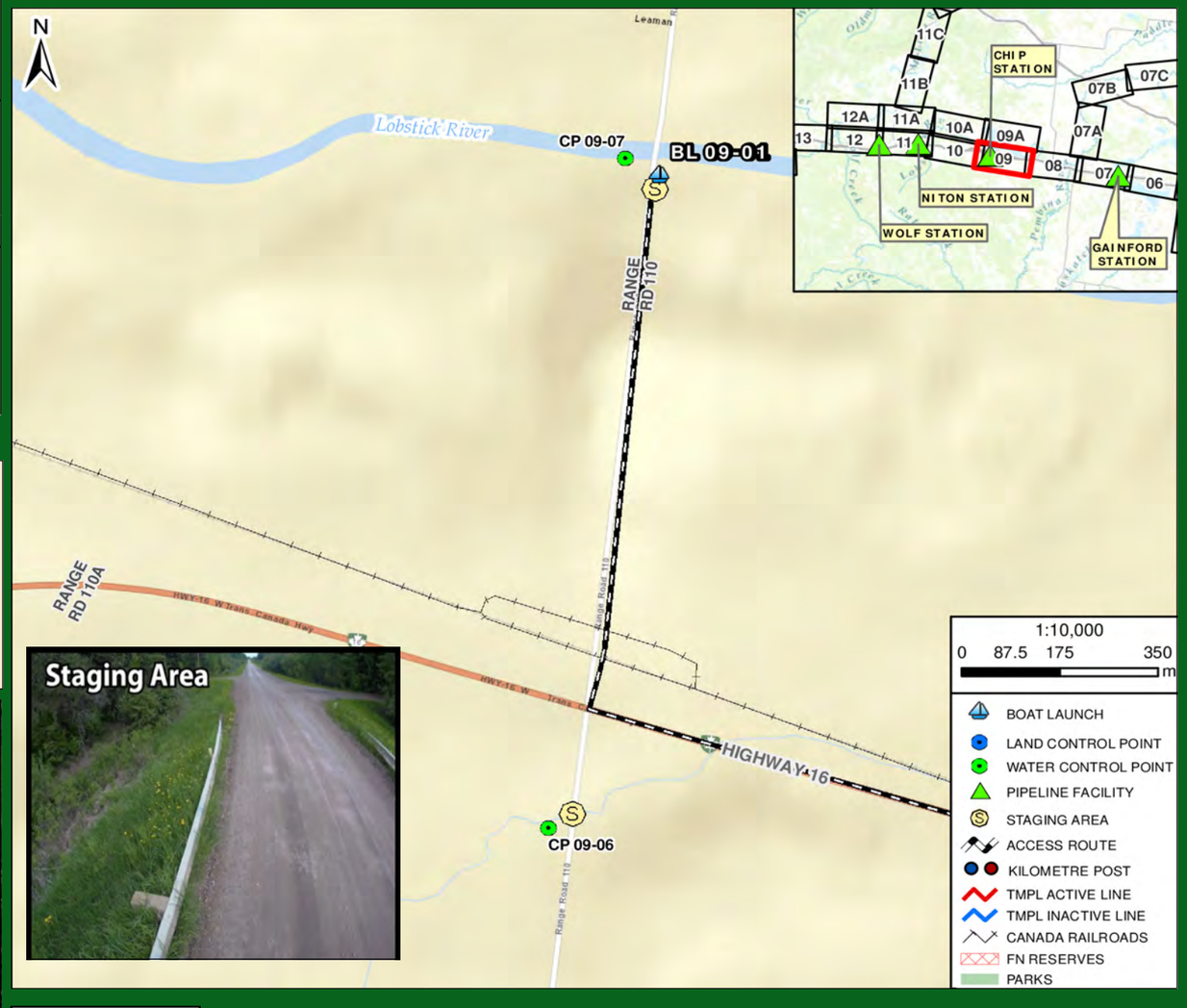
Road Access/Type:	- Access off of Range Road 110. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located along Range Road 110. - 5 m x 40 m area. - All weather access is established.	
	Lat: 53.62949	Long: -115.47557
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular angling and recreational boating area. - The boat launch is surrounded by private land and residences. - A narrow bridge located directly upstream of the control point. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, use caution around the shoreline.
- Public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 49.9 km
- At Leaman, Turn right onto Range Rd 110 for 1 km (sign for Range Rd 110 Leaman Rd
- Destination is creek culvert/bridge over Lobstick River outflow from Chip Lake
- Total Distance = 51.7 km
- Total Travel Time = 48 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-02

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.604050	
	Long: -115.269940	
Elevation:	786 m	
Land and Resource Use:	Crown Land. Highway 16 Road Right-of-Way.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 135	

Waterbody Information:

Waterbody Name: Unnamed Watercourse

Waterbody Type: Drainage

WATER LEVEL:	Low	Medium	High
Width		7 m	
Depth		1.2 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unnamed seasonal drainage with marginal, deep flow	

Waterbody description:
Unnamed seasonal drainage with marginal, deep flow coursing along lowland sedge-shrub-grass dominated wetland and open meadow habitat upstream of cement highway culverts. Channel is up to 1.5 m deep, near bankfull at time of survey, with occasional floating logs and woody debris during medium and high water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1.2 to 1.5 m

Shoreline Composition and Slope:
Often steep along RDB, vertical/overhanging on LDB; poorly defined in areas with saturated, stable but uneven margins composed of soft, saturated organic substrates.

Shoreline Vegetation:
Isolated poplar, spruce, tamarack, birch saplings; mature poplar along backshore LDB; willow patches and abundant sedges and grasses, less frequent cattail, soopalallie, red-osier dogwood, gooseberry, horsetail, dandelion, clover, wild strawberry.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines.

Shoreline Comments:
Collection area accessed off gradually sloping, open grass and sedge dominated highway easement to vertical/overhanging LDB, poorly defined in areas with soft saturated organic substrate. Instream substrate very soft. There is a power line crossing located approximately 6 m above containment.

Logistical Information:

Staging Area Location:	- The staging area can be located along Highway 16 on the left descending bank in the ditch. - 15 m x 50 m area. - Matting required to establish all weather access. -Traffic control recommended.	
	Lat: 53.60405	Long: -115.27055
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

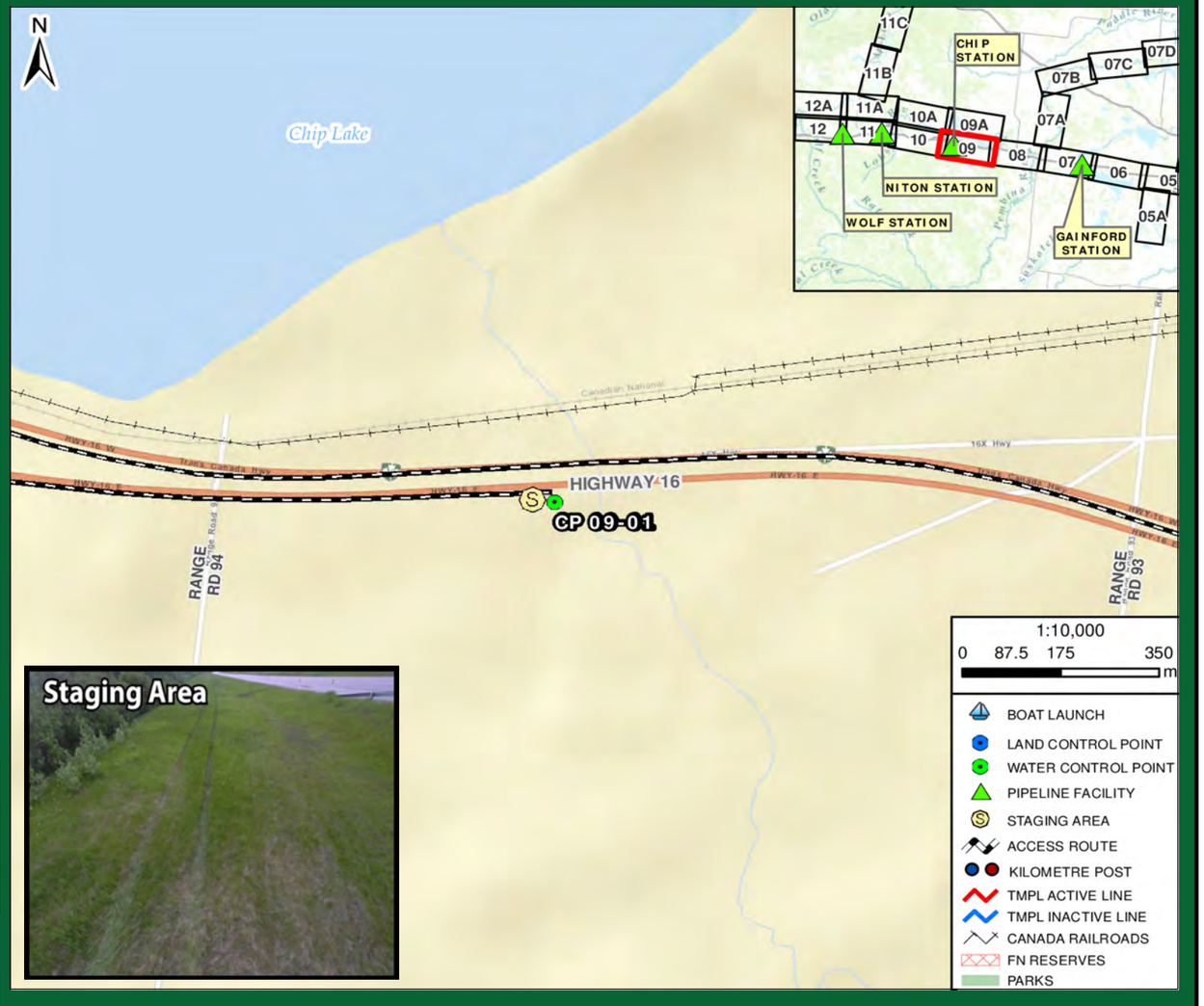
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; deep water and areas of instream and shoreline cover provide moderate rearing and overwintering habitat.
- Shorebird, grassland, wetland and riparian shrub nesting habitat, and amphibian breeding habitat along sedge-shrub-grass dominated wetland and open meadow complex upstream of highway and containment.
- Recent shrub cuttings indicate upstream beaver activity.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven shoreline, use caution.
- Public may be present. Overhead power lines located at this control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

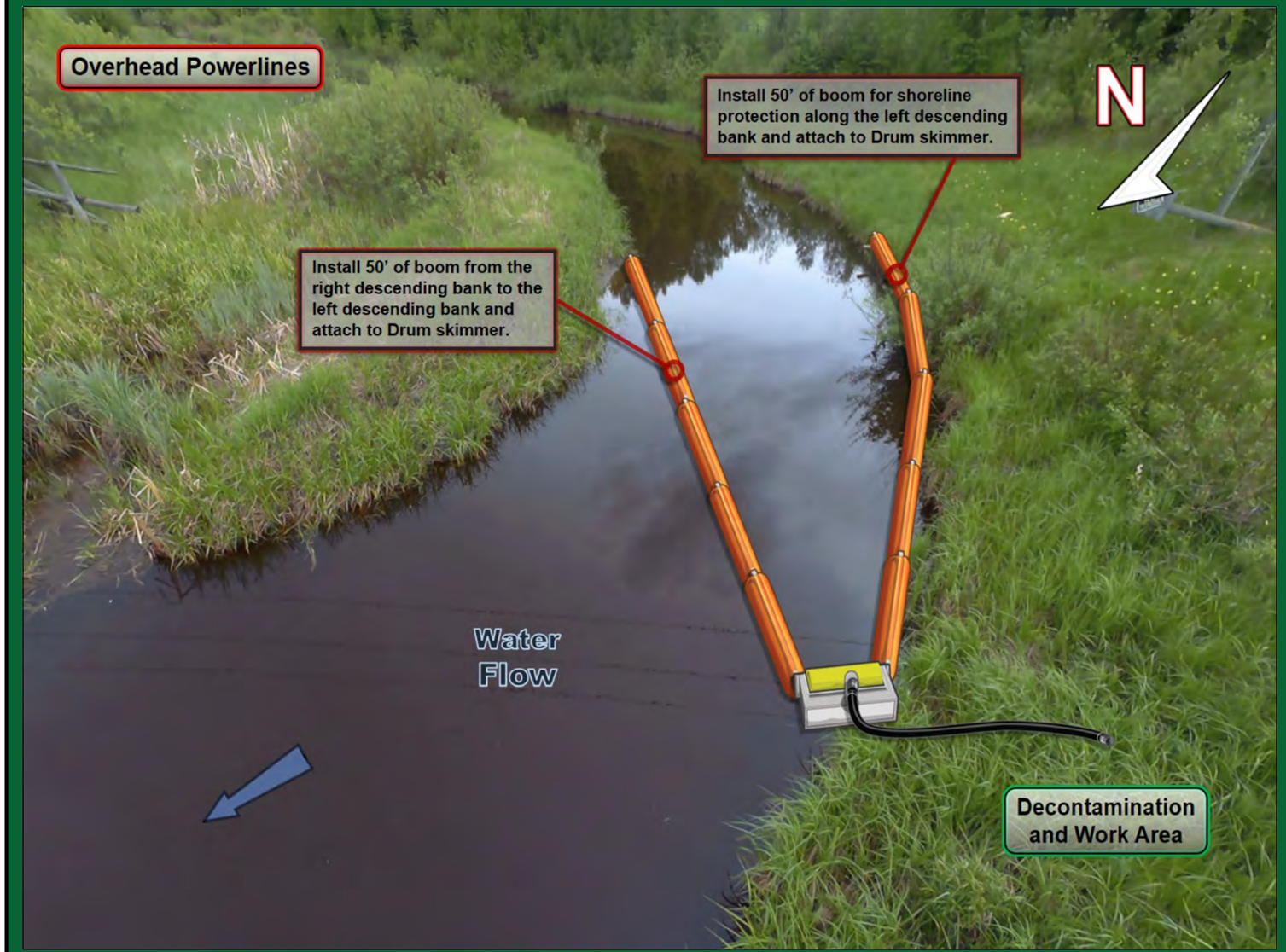
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 38.2 km
- After Wildwood, Turn left onto Range Rd 95 for 300 m (to make u-turn)
- Turn left at the 1st cross street onto AB-16 for 2.3 km
- Destination is creek culvert over unnamed watercourse to Chip Lake
- Total Distance = 41.6 km
- Total Travel Time = 38 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-02
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 9 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Wetland birds (e.g., sora, common yellowthroat, marsh wren, red-winged blackbird, rusty blackbird)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.610000	
	Long: -115.328860	
Elevation:	784 m	
Land and Resource Use:	Crown Land. Highway 16 and CN Rail Right-of-Way.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 139	

Waterbody Information:

Waterbody Name: Unnamed Watercourse

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		7 m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unnamed seasonal U-shaped drainage with low velocity flow	

Waterbody description:

Deep (up to 1.2 m) watercourse along elevated grass-sedge dominated meadows between highway and railway, entering Chip Lake downstream of 2.5 m wide railway culvert. There is an old, overgrown breached beaver dam upstream of containment that if re-built would result in increased water levels up to 1.2 m. Susceptible to marginal to intermittent flow, indicated by sedges along bed. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
1.5 to 2 m

Shoreline Composition and Slope:
Banks typically vertical to overhanging, typically stable, vegetated with dense tall grasses with elevated (up to 1) open grass-sedge dominated backshores.

Shoreline Vegetation:
Abundant grasses (e.g., brome, bluejoint, reed canarygrass) and sedges, isolated willow and less frequent horsetail, meadow rue, cow parsnip, alfalfa, dandelion. Dense young mixedwood forest and shrubs beyond open backshores of LDB and RDB.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines.

Shoreline Comments:
Accessed along gradually sloping low grade access road to elevated open grass-sedge dominated wet meadow (staging area) between highway and railway on RDB. From there, collection accessed down 1 m stable approach to a narrow, level work area densely vegetated with tall grasses above overhanging/vertical banks. Slips/trips/falls hazard from obscured banks and very soft instream substrate. Patches of thistle and common tansy along backshore RDB.

Logistical Information:

Staging Area Location:	- The staging area can be located on the right descending bank. - 40 m x 40 m area. - Matting required to establish all weather access. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site.	
	Lat: 53.60987	Long: -115.32861
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

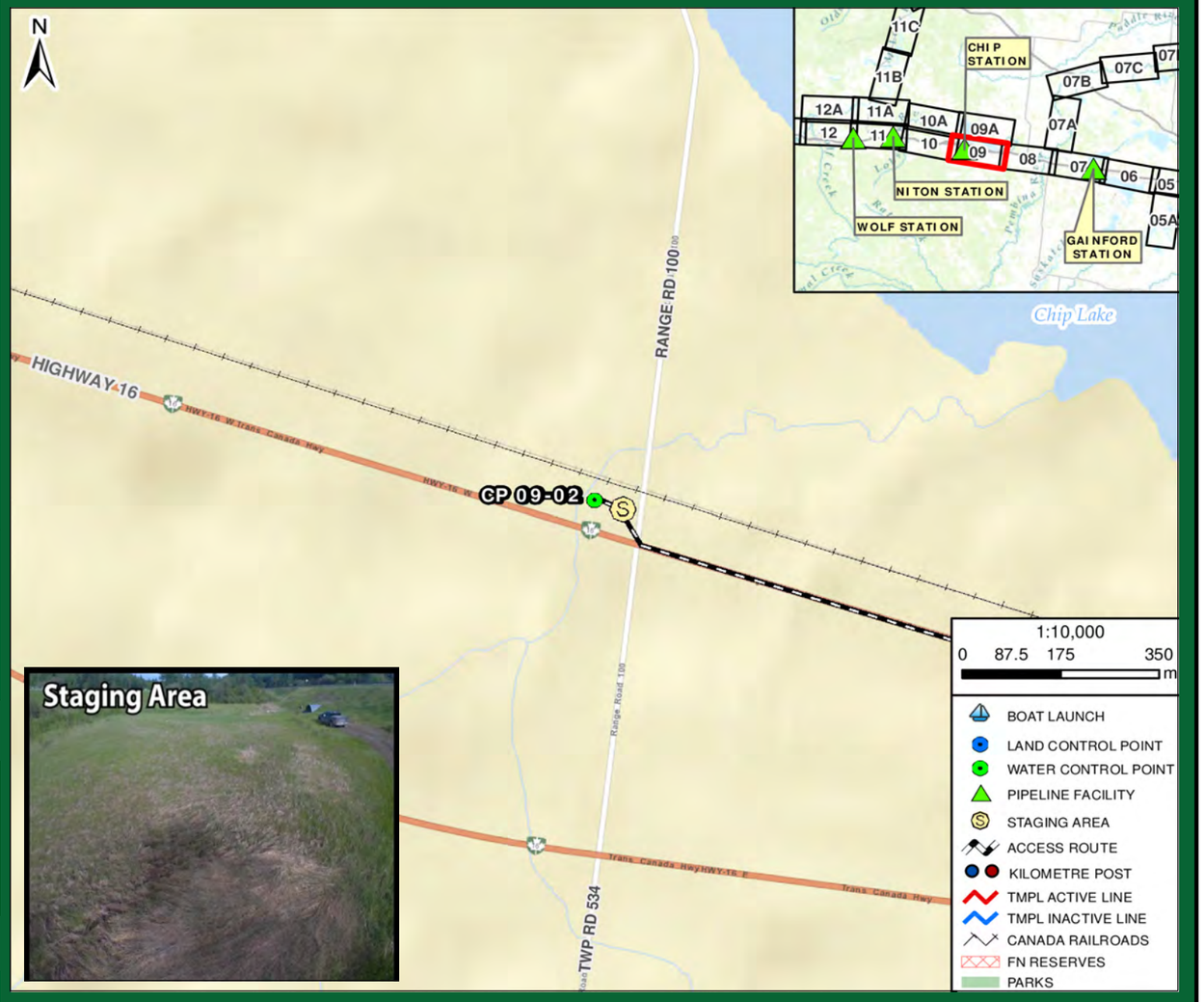
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; deep water and areas of instream and shoreline cover provide moderate rearing and overwintering habitat.
- Grassland and wetland nesting habitat, and amphibian habitat along grass-sedge dominated wet meadows; waterbird habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven shoreline, use caution.
- Public may be present. Underground facilities along staging area.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

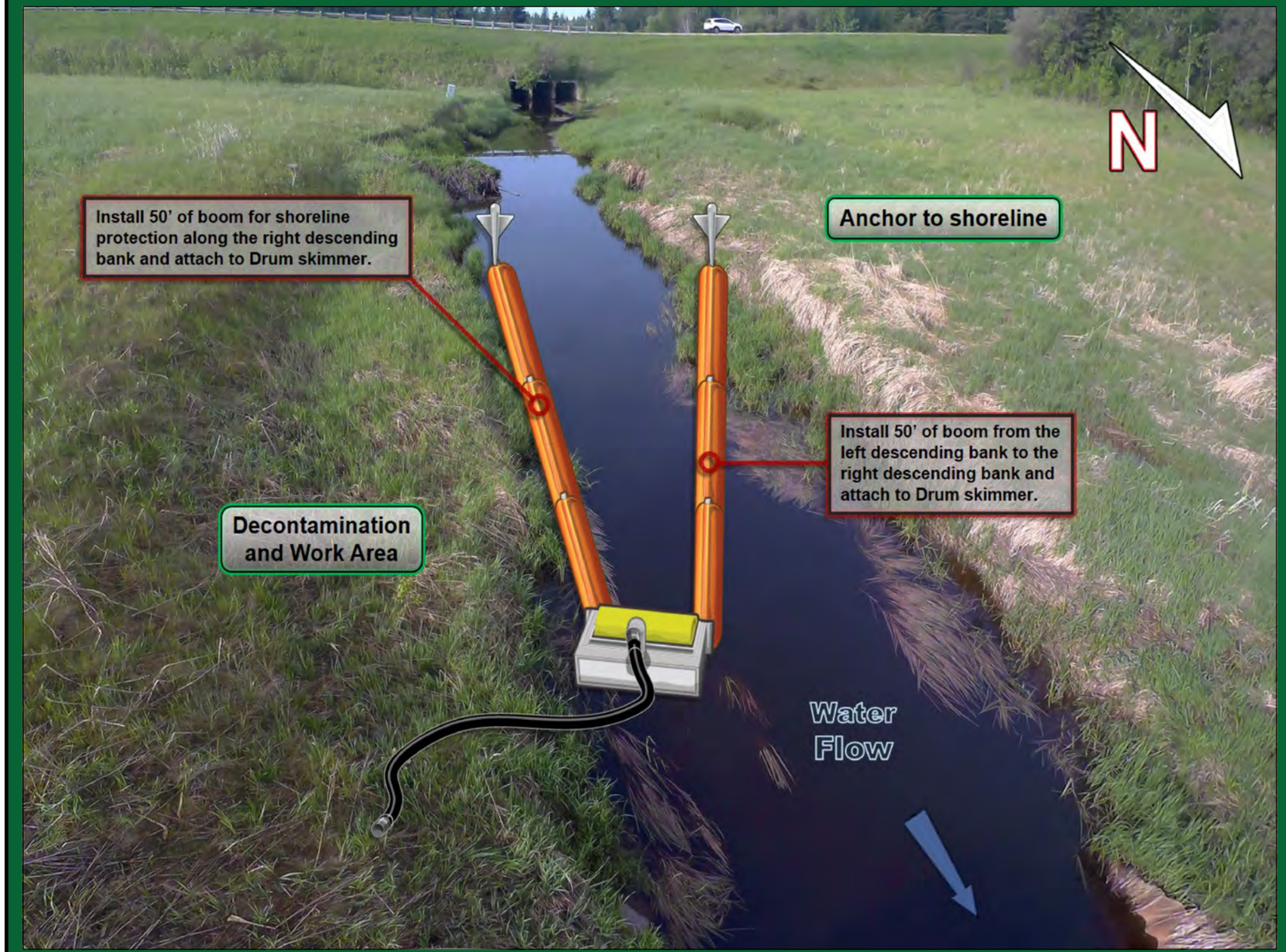
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 40 km
- Turn right on Range Rd 100 and pulloff to left in 75 m
- Destination is railway culvert over unnamed watercourse to Chip Lake
- Total Distance = 40.8 km
- Total Travel Time = 38 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Grassland birds (e.g., Vesper sparrow, Savannah sparrow, meadowlark, horned lark), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Wetland birds (e.g., sora, common yellowthroat, marsh wren)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 9 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-10

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.633250	
	Long: -115.362680	
Elevation:	788 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 142	

Waterbody Information:

Waterbody Name: Unnamed watercourse
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		16 m	
Depth		Unknown	
Flow Velocity		<0.5 km/hr	
FlowType		Unnamed seasonal drainage	

Waterbody description:
Unnamed meandering seasonal drainage with low velocity, deep flow coursing along lowland sedge-grass-cattail dominated wetland, mixewood forest, and elevated grazing pasture. The watercourse enters Chip Lake downstream of the CP. The channel is up to 1 m deep, approximately 0.5 m below the top of the bank at the time of survey. High turbidity at the time of survey.

Shoreline Information

Bank Height:
0.5 to 1 m

Shoreline Composition and Slope:
Marginally steep along RDB; stable and heavily vegetated with open pasture on a slightly elevated backshore. LDB poorly defined, gradually sloping wetland margins and forest.

Shoreline Vegetation:
Narrow belt of dense shrubs (e.g. willow, red-osier dogwood, wild rose) and isolated cattails-sedges along RDB. Cattail-sedge-canary reedgrass dominated wetland complex along LDB transitioning to mixedwood forest.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines.

Shoreline Comments:
Accessed along gradually sloping low grade access road to elevated open grass grazing pasture (staging area) on private land. Collection is accessed down a 0.5 to 1 m marginally sloped, stable, densely vegetated bank from a level work area. Slips/trips/falls hazard from obscured banks and very soft instream substrate. The RDB is a poorly defined wetland complex with a young to mature mixedwood forest on the backshore.

Logistical Information:

Staging Area Location:	- The staging area can be located along the right descending bank in a farmers field. - 100 m x 100 m area. - Matting required to establish all weather access.	
	Lat: 53.63329	Long: -115.36241
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Gated access to the staging area and control point. - The control point and staging area are located on private land. - Landowner permission required before accessing control point and staging area. - Electric fence surrounding pasture, may need to be de-energized for control point installation.	
Road Access/Type:	- Access off of Range Road 101, 700 m through a pasture. - Matting required to establish all weather access.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

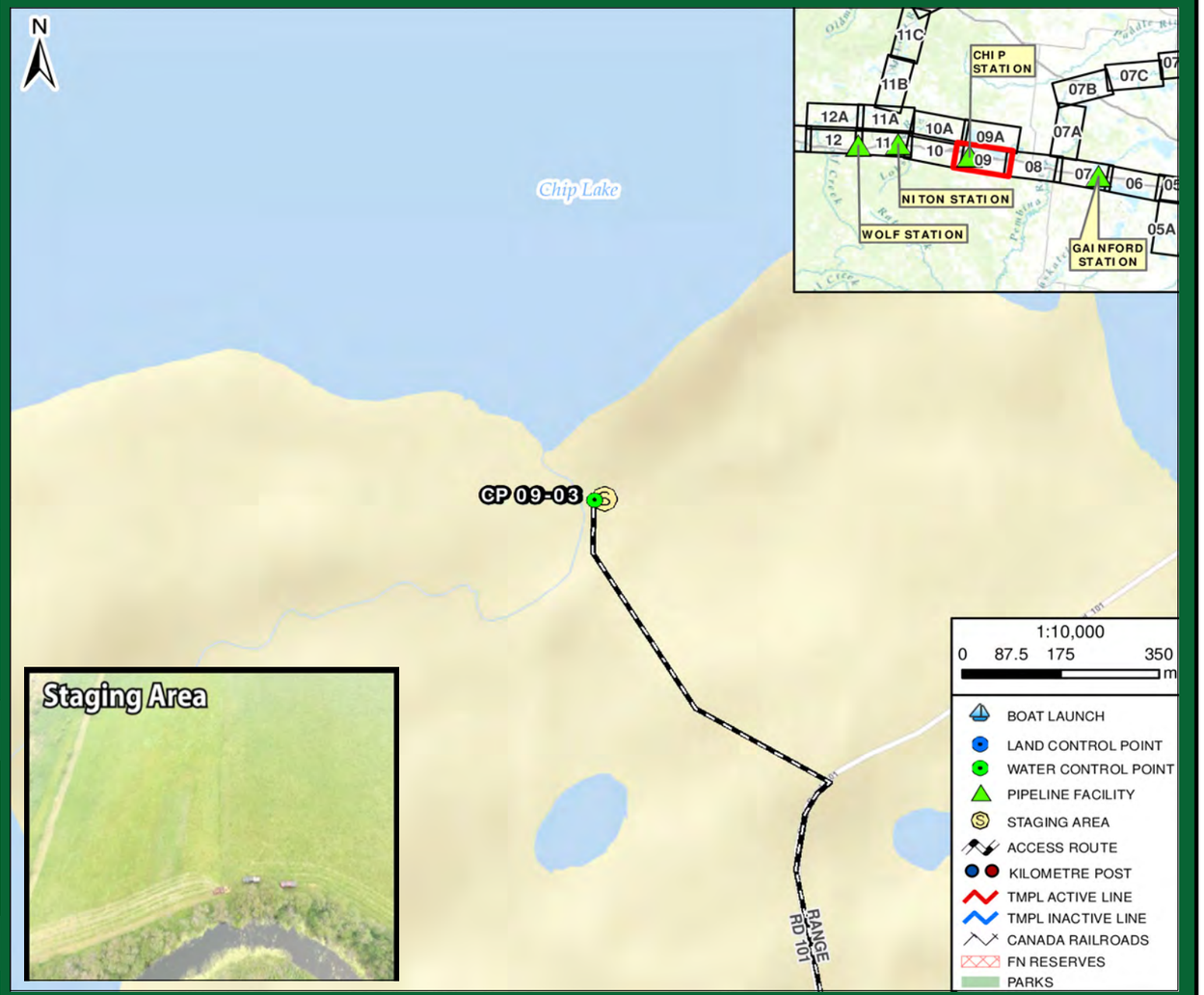
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; deep water and areas of instream and shoreline cover provide moderate rearing and overwintering habitat.
- Shorebird, grassland, wetland and riparian shrub nesting habitat, and amphibian breeding habitat along sedge-grass-cattail dominated wetland.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Soft ground conditions, use caution around the shoreline.
- Be aware of wildlife in the area, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

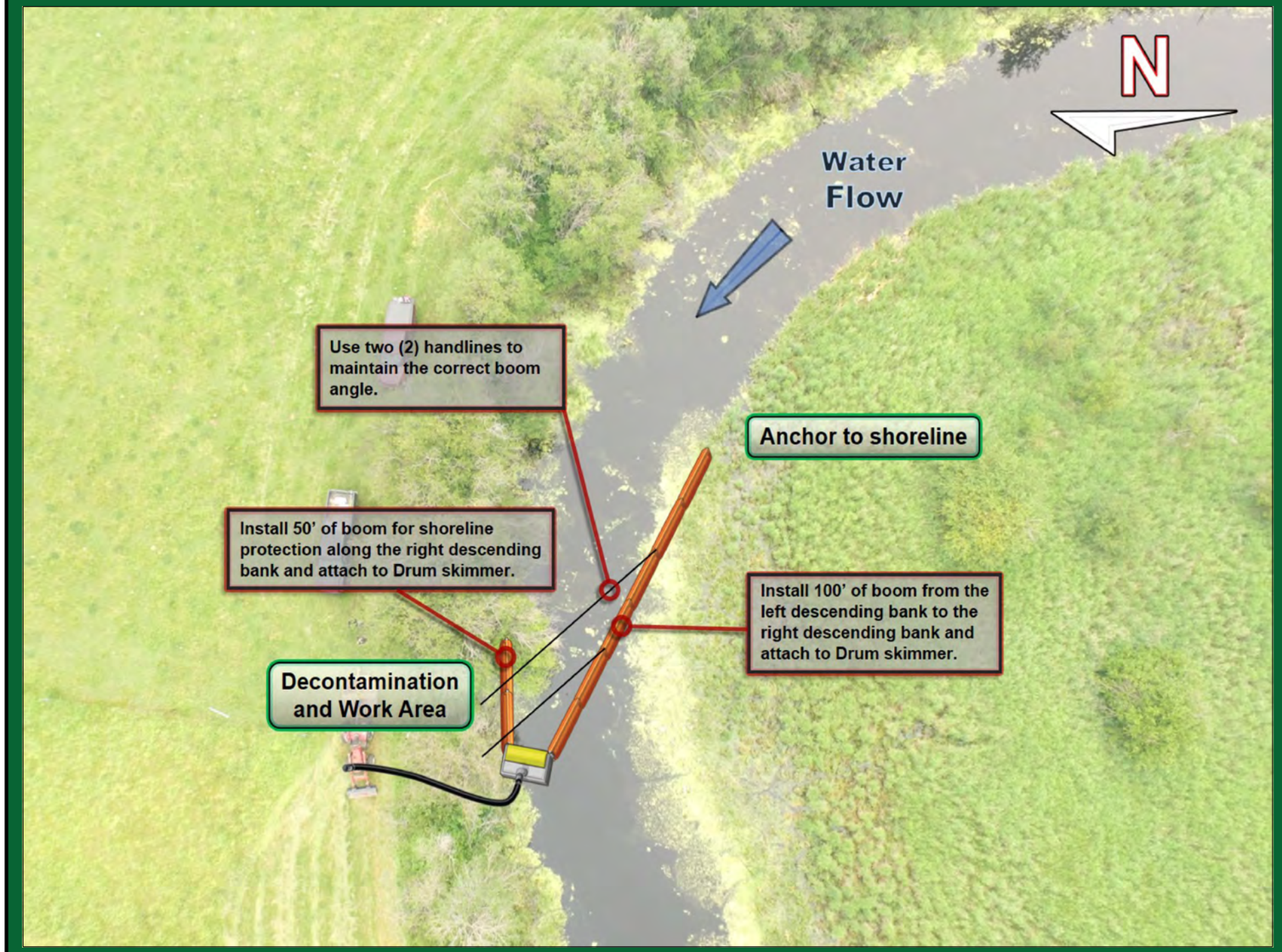
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 41.5 km
- Turn right onto Range Rd 101 for 1 km
- At T-intersection, continue straight (slight left) onto Range Rd 101A/Township Rd 540A for 973 m towards Chip Lake
- Destination is access on foot on private land, a creek culvert over unnamed watercourse outflow from Chip Lake
- Total Distance = 45.1 km
- Total Travel Time = 42 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-07-10
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		1 / 50'	Power Pack / Hydraulic Line
		4	50' Handline and Bridle
		1	Vacuum Truck
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 20 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare)
- Amphibians (e.g., Western toad, Canadian toad, wood frog, chorus frog)
- Raptors (e.g., bald eagle, osprey), owls (e.g., long-eared owl, short-eared owl)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren), blue heron
- Waterbirds (e.g., common goldeneye, mallard, teal spp., grebe spp., northern shoveler, lesser scaup, coot)
- Grass and shorebirds (e.g., Savanna sparrow, horned lark, long-billed curlew, upland sandpiper, spotted sandpiper, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.615570	
	Long: -115.426180	
Elevation:	797 m	
Land and Resource Use:	Crown Land. Highway 753 Right-of-Way.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 146	

Waterbody Information:

Waterbody Name: Unnamed Watercourse

Waterbody Type: Drainage

WATER LEVEL:	Low	Medium	High
Width		4.5 m	
Depth		0.7 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unnamed seasonal drainage with marginal, shallow flow	

Waterbody description:

Unnamed seasonal drainage with marginal, shallow flow coursing along mixed forest and wetland margins dominated by black spruce, tamarack, sedges and willow upstream of 0.6 m wide road culvert. Open water area up to 0.6 m deep at time of survey susceptible to intermittent flow or frozen to bottom conditions during winter. Low-moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.6 to 0.8 m

Shoreline Composition and Slope:
Poorly defined banks range from vertical to gradually sloping with soft, saturated organic margins with gradual, stable open approach off road easement.

Shoreline Vegetation:
Conifer dominated forest of black spruce and tamarack, occasional poplar; abundant willows along forested margins; abundant sedges, grasses (e.g., brome, bluejoint), horsetail, occasional marsh marigold, dandelion, clover.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines.

Shoreline Comments:
Collection area accessed along narrow gradually sloping road easement to poorly defined, frequently saturated sedge dominated banks, with very soft instream organic substrate.

Logistical Information:

Staging Area Location:	- The staging area can be located along Highway 753. - 5 m x 40 m area. - All weather access is established. -Traffic control recommended.	
	Lat: 53.61552	Long: -115.42645
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 753. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

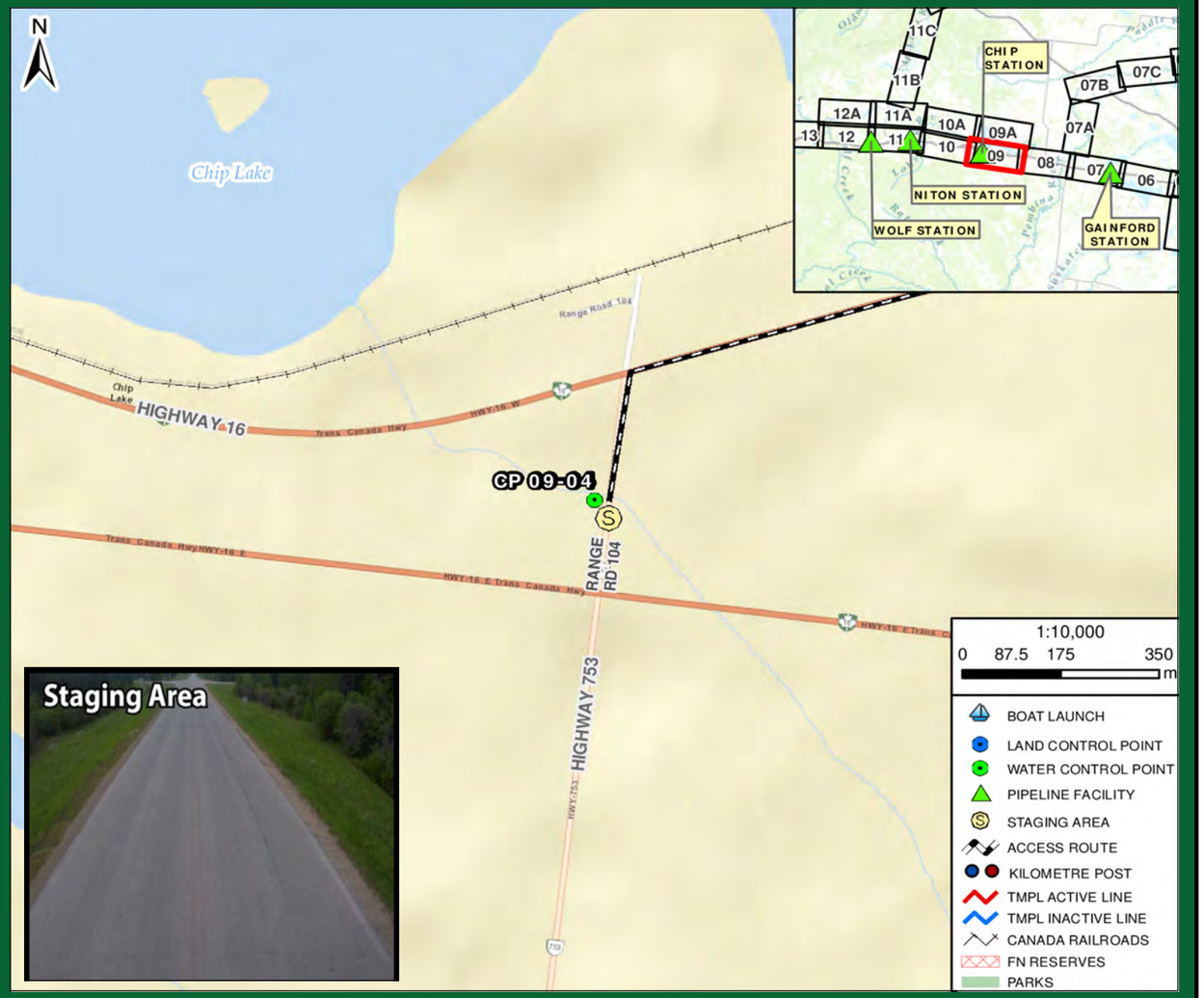
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; areas of instream and shoreline cover provide moderate rearing habitat; low overwintering habitat due to shallow water (up to 0.6 m) susceptible to frozen to bottom and low oxygen conditions.
- Sedges and willows provide riparian/wetland nesting bird habitat.
- Amphibian breeding habitat in stagnant ponded and saturated areas along shoreline.
- Conifer forest nesting bird habitat.
- There is an active beaver dam on downstream side of road.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present. Overhead power lines located at this control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

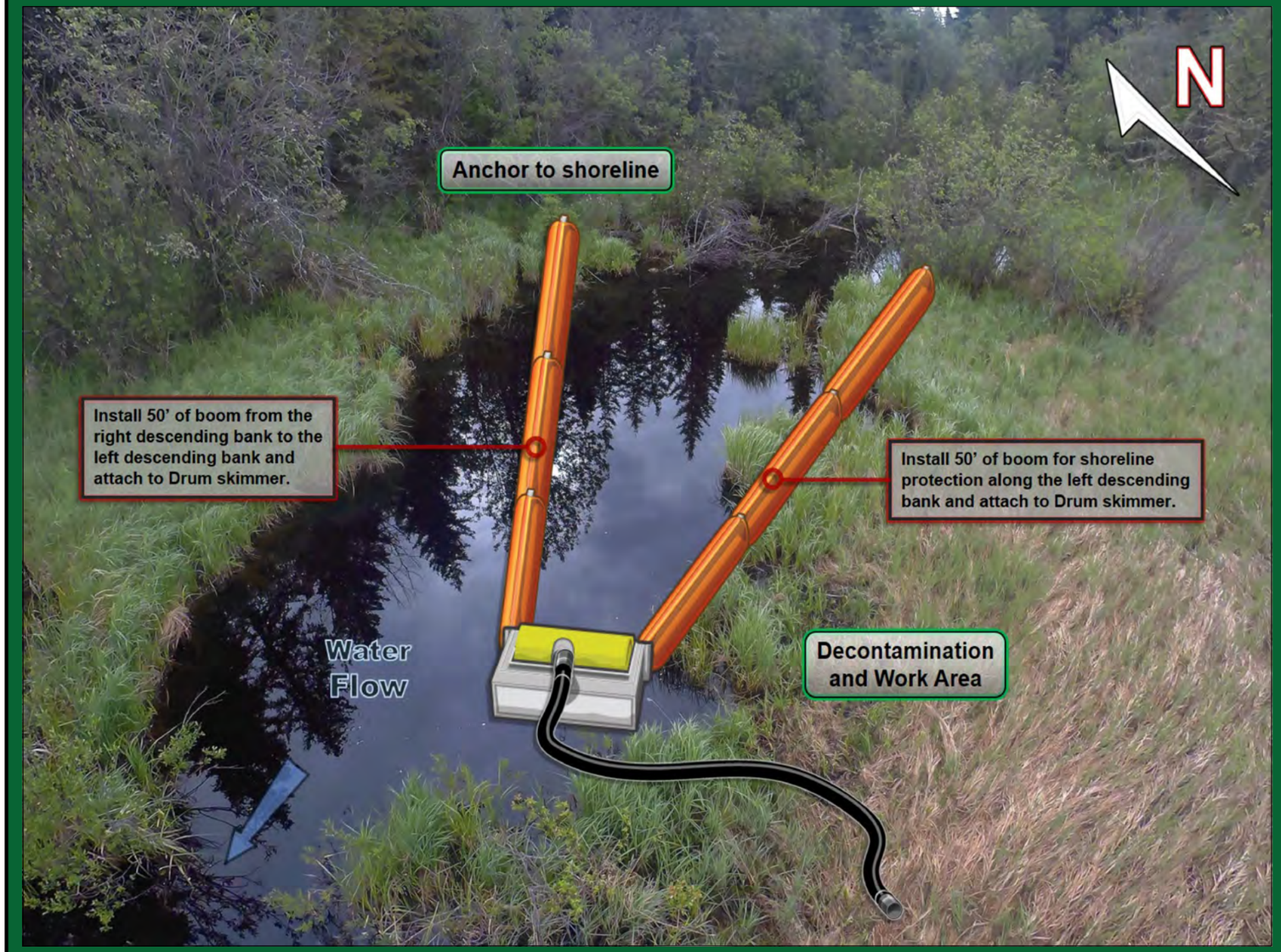
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 46.6 km
- Turn left onto AB-753 S for 250 m (signs for Cynthia, Lodgepole)
- Destination is creek culvert over unnamed watercourse inflow to Chip Lake
- Total Distance = 47.6 km
- Total Travel Time = 44 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), wetland birds (e.g., sora, common yellowthroat, marsh wren)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker spp.)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 6 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-05

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.617630	
	Long: -115.449080	
Elevation:	797 m	
Land and Resource Use:	Crown Land. Highway 16 Right-of-Way.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 147	

Waterbody Information:

Waterbody Name: Unnamed Watercourse

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		16 m	
Depth		1.2 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unnamed seasonal drainage with marginal deep (up to 1.2 m) flow	

Waterbody description:

Flows along downstream extent of wetland complex, before entering 0.8 m and 0.5 m diameter highway culverts. There is a stagnant backwater channel / drainage ditch along LDB upstream of collection and on the upstream side of old, overgrown breached beaver dam. Woody debris accumulations at culverts cause increased water levels; may be natural accumulation or result of beaver activity. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
Variable, 1.5 to 2.5 m

Shoreline Composition and Slope:
Banks vary in height from 1.5 m up to 2.5 m along former beaver dam, are typically steep to vertical/overhanging with sedge dominated margins and uneven open backshores.

Shoreline Vegetation:
Sparse trees, occasional willows and patches of red raspberry; abundant sedges and grasses (e.g., bluejoint); less frequent horsetail, meadow rue, fireweed, dandelion, Canada anemone.

Channel / Bank Forms:
Bed and banks composed predominantly of organics and embedded woody debris along former beaver dam; underlain by fines.

Shoreline Comments:
Collection area accessed between gradually sloping, open highway easement and saturated / open water ditchline drainage. Variable steep to overhanging/vertical banks often obscured by tall grasses, creating slips/trips/falls hazard. Banks become elevated and very uneven along old overgrown, breached beaver dam across containment. Be aware that instream substrate is very soft.

Logistical Information:

Staging Area Location:	- The staging area can be located along Range Road 105. - 5 m x 40 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.61773	Long: -115.45103
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation. - A small rubber hull work boat can be utilized to help transport personnel from the left descending bank to the right descending bank.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

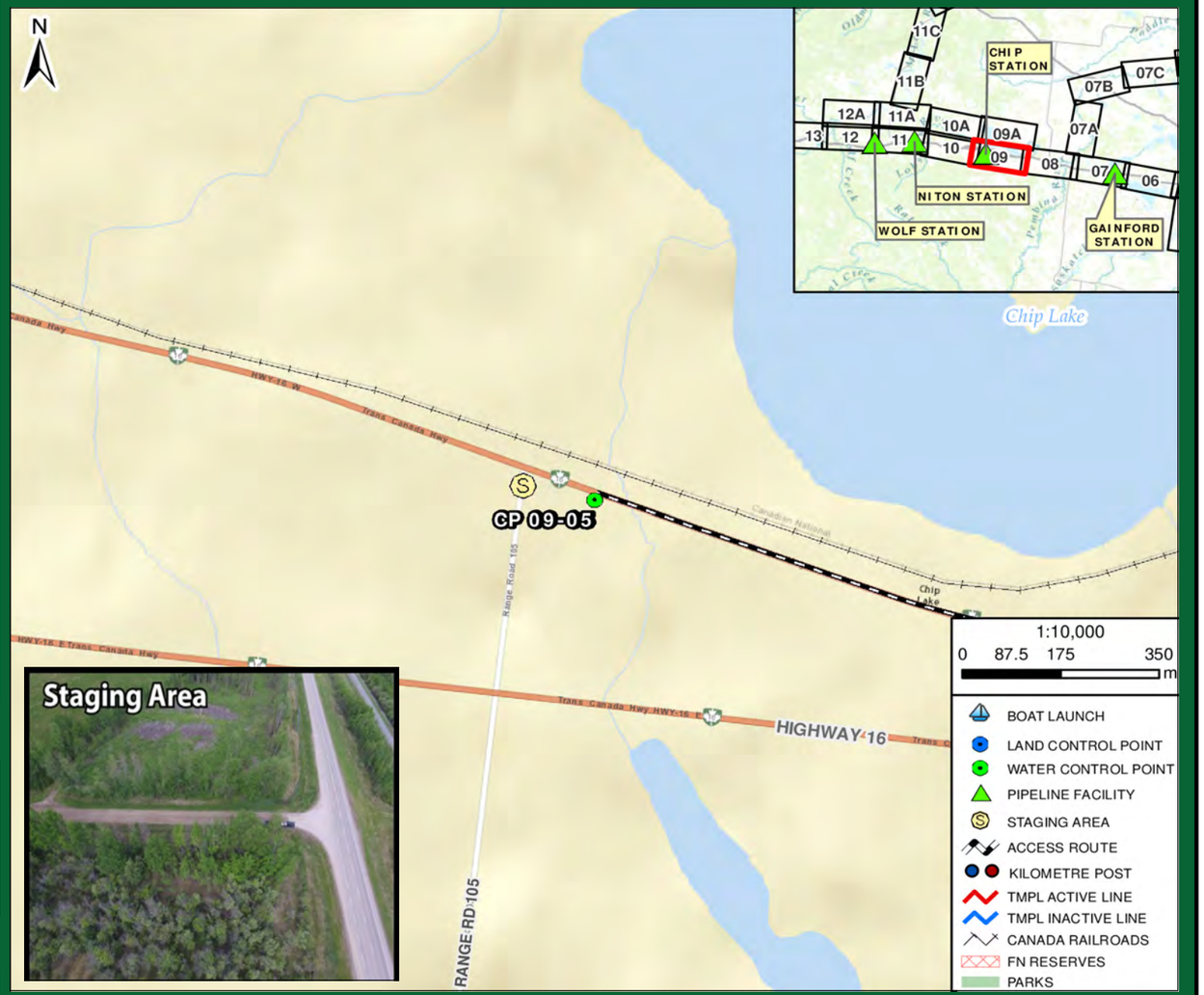
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; deep water and areas of instream and shoreline cover provide moderate rearing and overwintering habitat.
- Waterbird and wetland habitat.
- Amphibian habitat along ponded and saturated areas.
- Waterbird habitat.
- Active osprey nest on downstream side of highway.
- Evidence of historical beaver activity (overgrown, breached beaver dam); but woody debris accumulations at culverts may indicate an active beaver presence.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

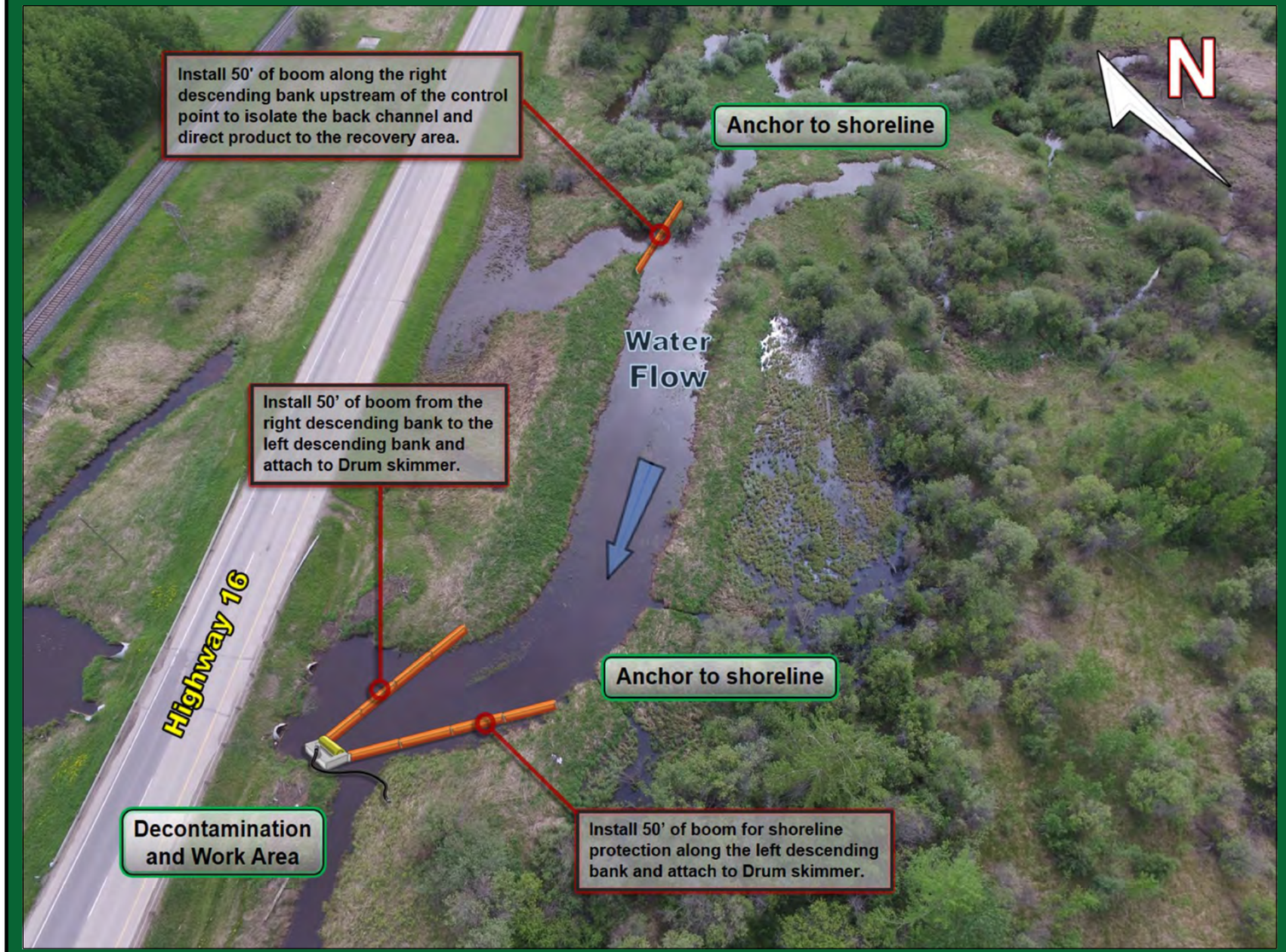
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 47.6 km
- Just before Range Rd 105, pulloff from highway onto grass embankment, where water creek is visible from highway
- Destination is creek culvert/bridge over unnamed watercourse entering Chip Lake
- Total Distance = 48.9 km
- Total Travel Time = 45 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-05



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Install 50' of 6" x 6" hard containment boom upstream of the control point to isolate a back channel and keep product flowing to the recovery point along the left descending bank.
- Recover product with a Drum skimmer, 300' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 6 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Wetland birds (e.g., sora, common yellowthroat, marsh wren, red-winged blackbird, rusty blackbird)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-06

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.618780	
	Long: -115.475780	
Elevation:	804 m	
Land and Resource Use:	Crown Land. Range Road 110 Right-of-Way.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K160	
Control Point:	**Upstream** N/A	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 149	

Waterbody Information:

Waterbody Name: Unnamed Watercourse

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		7 m	
Depth		1.0 m	
Flow Velocity		1.0 km/hr	
FlowType		Unnamed creek with low velocity run and pool structure	

Waterbody description:

Located downstream of former beaver complex (recently removed beaver dam upstream of containment, evidence by exposed unvegetated shorelines up to 1 m above water level at time of survey). Downstream of collection, creek flows under clearspan bridge with 1.5 m clearance. There is a narrow, stagnant backwater channel / drainage along ditchline of LDB upstream of collection. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
Variable, 1.5 to 2.5 m

Shoreline Composition and Slope:
Banks vary in height from 0.7 to 1.1 m, typically steep to vertical/overhanging with sedge dominated margins and uneven backshores; gradual sloping muddy foreshores on RDB.

Shoreline Vegetation:
Isolated overhanging spruce tree across from collection with mixed live and dead willow, wild rose along backshore; young willow and poplar seedlings/saplings along backshore LDB; Abundant grasses (e.g., bluejoint), sedges; less frequent horsetail, rue, cow parsnip.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines

Shoreline Comments:
Collection area accessed down narrow, steep but stable 1.5 m high gravel road shoulder to level collection area above 0.8 m vertical/overhanging bank at base of road shoulder. Banks are variable, often uneven elsewhere with level open wet meadow along backshore LDB and shrub dominated backshore along RDB. Slips/trips/falls hazard along frequent observed banks with soft muddy foreshores and instream substrate. Abundant Canada thistle along road shoulder.

Logistical Information:

Staging Area Location:	- The staging area can be located along Range Road 110. - 5 m x 40 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.61892	Long: -115.47571
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Range Road 110. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Narrow bridge located directly downstream of the control point.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines; small pools, potential perennial flow and abundant instream and shoreline cover provide moderate rearing and overwintering habitat.
- Wetland habitat, riparian/shrub nesting habitat, waterbird habitat, amphibian breeding habitat along stagnant ponded and saturated areas; evidence of recent beaver activity (recently breached beaver dam upstream of containment); exposed muddy banks upstream of breached dam with open backshores provide shorebird feeding and nesting habitat.
- Animal farms and pastures downstream side of bridge along backshore.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

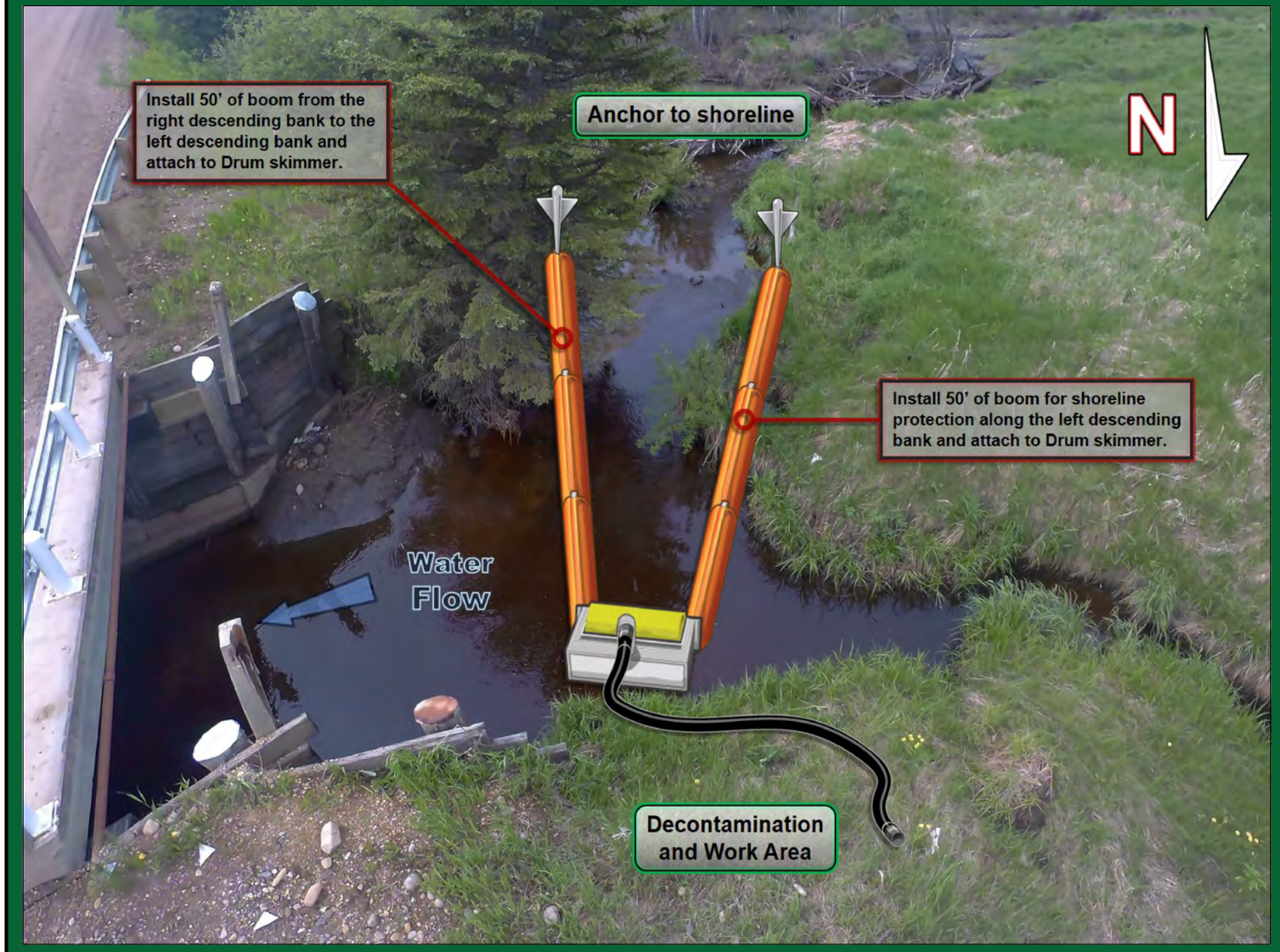
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 49.9 km
- At Leaman, Turn left onto Range Rd 110 for 230 m (sign for Range Rd 110 Leaman Rd)
- Destination is bridge over unnamed watercourse
- Total Distance = 50.9 km
- Total Travel Time = 47 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-06



Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a portable tank or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install an 8 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Wetland birds (e.g., sora, common yellowthroat, marsh wren, red-winged blackbird, rusty blackbird)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-07

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.630050	
	Long: -115.475780	
Elevation:	801 m	
Land and Resource Use:	Private Land. Recreational.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K160	
Control Point:	**Upstream** CP 10A-02	**Downstream** CP 09A-01
Nearest KM Post:	**Line 01** KP 149	

Waterbody Information:

Waterbody Name: Lobstick River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		30 m	
Depth		Unknown	
Flow Velocity		0.5 km/hr	
FlowType		Frequently confined low velocity run structure	

Waterbody description:

River flows along long, strait run with low velocity flow in a mixed forested and agricultural setting consisting of small private animal farms and pastures. Downstream of collection, river flows under clearspan bridge with 1.8 m clearance. There is a narrow, stagnant backwater channel / drainage along ditchline of LDB upstream of collection. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.7 to 1.1 m

Shoreline Composition and Slope:
Banks vary in height from 0.7 to 1.1 m, typically gradually sloping with saturated margins along LDB, more variable along RDB with level open forest dominated backshores.

Shoreline Vegetation:
Mature spruce forest situated with open pasture understory along LDB, abundant shrubs (e.g., willow, wild rose) along RDB; sedges, grasses and dandelion with less frequent meadow rue, horsetail, cow parsnip.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines

Shoreline Comments:
Collection area accessed down narrow, steep but stable 1.5 m high shrubby gravel road shoulder to gradually sloping, saturated bank and collection area. Banks generally gradually sloping and frequently saturated along margins with level forested backshores and open understories. Slips/trips/falls hazard along soft, saturated banks with soft muddy foreshores and instream substrate. Boat launch located downstream side of bridge (BL 09 -01).

Logistical Information:

Staging Area Location:	- The staging area can be located along Range Road 110. - 5 m x 40 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.62949	Long: -115.47557
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Narrow bridge located at control point. - Traffic control recommended. - The control point is located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Range Road 110. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 09-01. - Refer to BL 09-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is surrounded by private land with residences within close proximity.	

Decontamination Area:

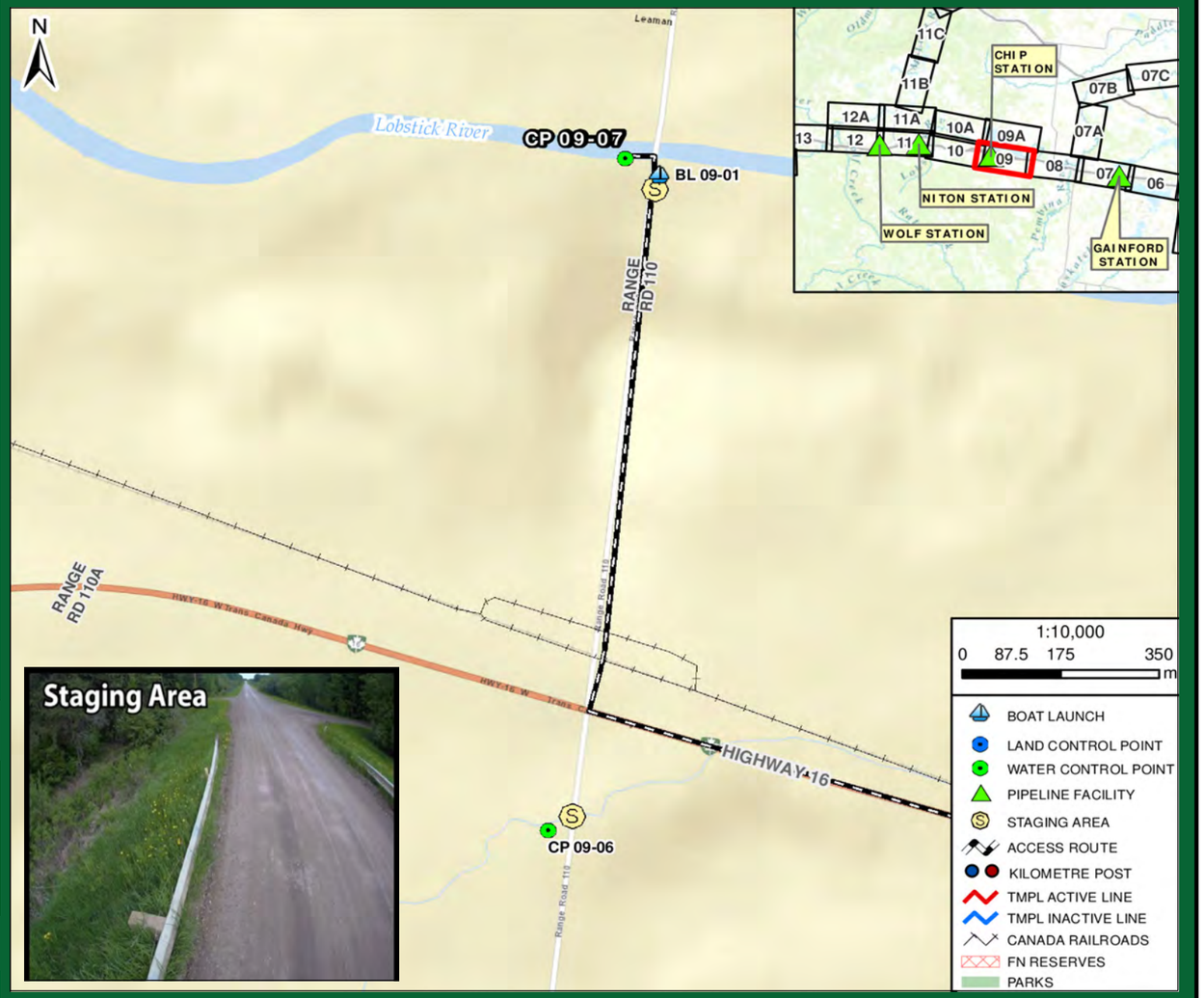
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; perennial flow with areas of deeper water and shoreline cover provide moderate rearing and overwintering potential.
- Riparian/shrub and forest nesting habitat; amphibian habitat; waterbird habitat.
- There are rural residences in area with small private docks infrequently scattered along river.
- Located along rural residential road in mixed forested and agricultural setting with animal farms and pastures along backshore forested area of LDB and downstream of bridge along both backshores.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 49.9 km
- At Leaman, Turn right onto Range Rd 110 for 1 km (sign for - Range Rd 110 Leaman Rd)
- Destination is bridge over Lobstick River inflow to Chip Lake
- Total Distance = 51.8 km
- Total Travel Time = 48 minutes calculated at 65 km/hr

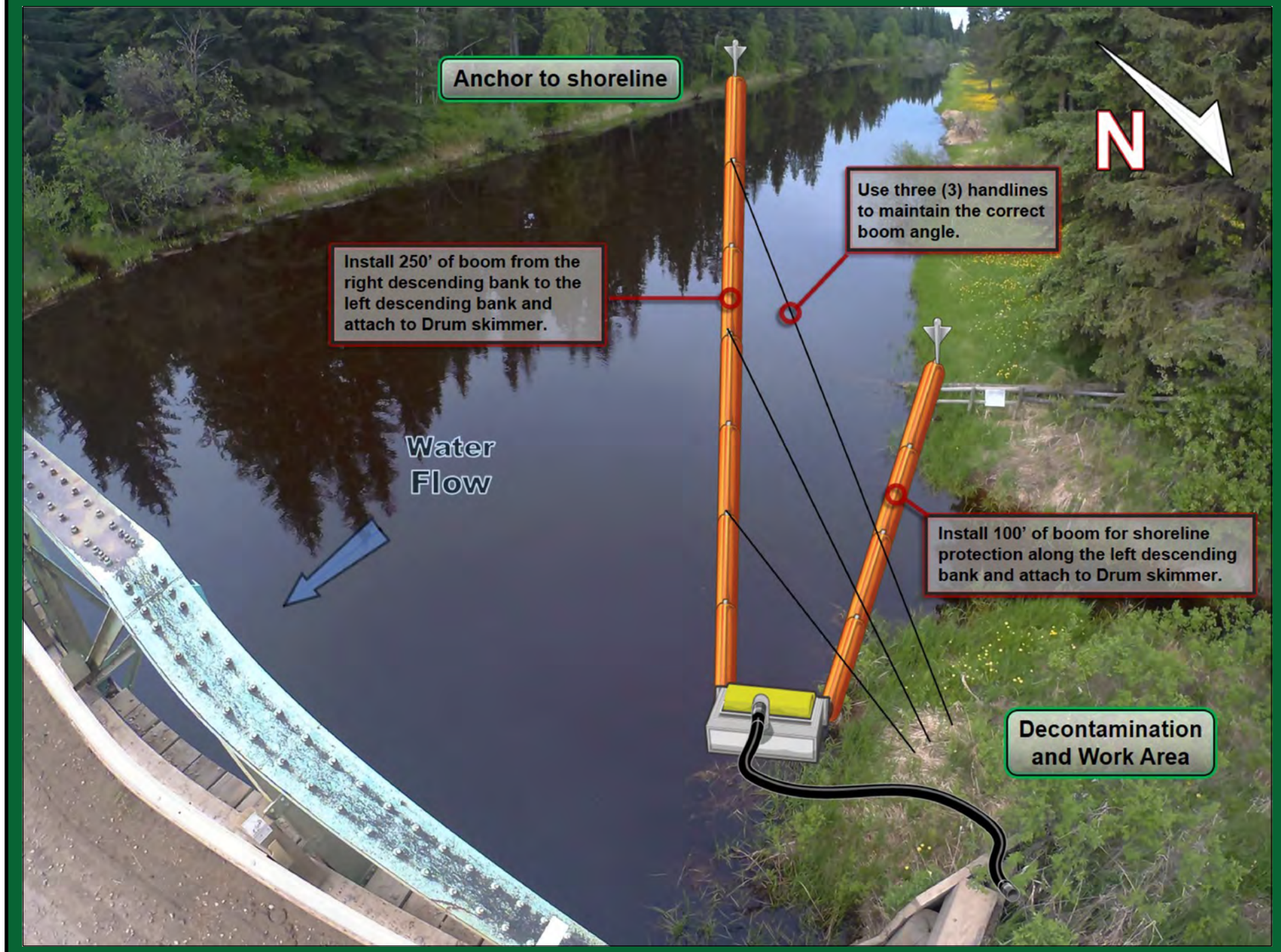
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09-07



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	450'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	6	100' Handline Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 100'	Power Pack / Hydraulic Line
		2	Work Boat
14	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 250' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install (2) 100' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 35 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl), shorebirds (e.g., Wilson's snipe, sandpiper spp., spotted sandpiper, killdeer)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker spp.)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 09A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.667170
	Long:	-115.351700
Elevation	797 m	
Upstream Valves:	**Line 01:**	K125
Downstream Valves:	**Line 01:**	UV-0001
Control Point:	**Upstream**	**Downstream**
	N/A	N/A
Nearest KM Post:	**Line 01**	
	KP 142	

Waterbody Information:

Waterbody Name: Chip Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		3100 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Public boat launch located in deciduous forest setting along very gradual slope composed of compacted fines, gravels and cobbles into shallow water, with an open compacted parking area along backshore. Chip Lake is a popular recreational boating and fishing lake, with mixed residential properties and forested lands along shoreline, as well as the Ravine Community Campground along backshore of boat launch. Lake is prone to summer blue-green algae blooms.



Logistical Information:

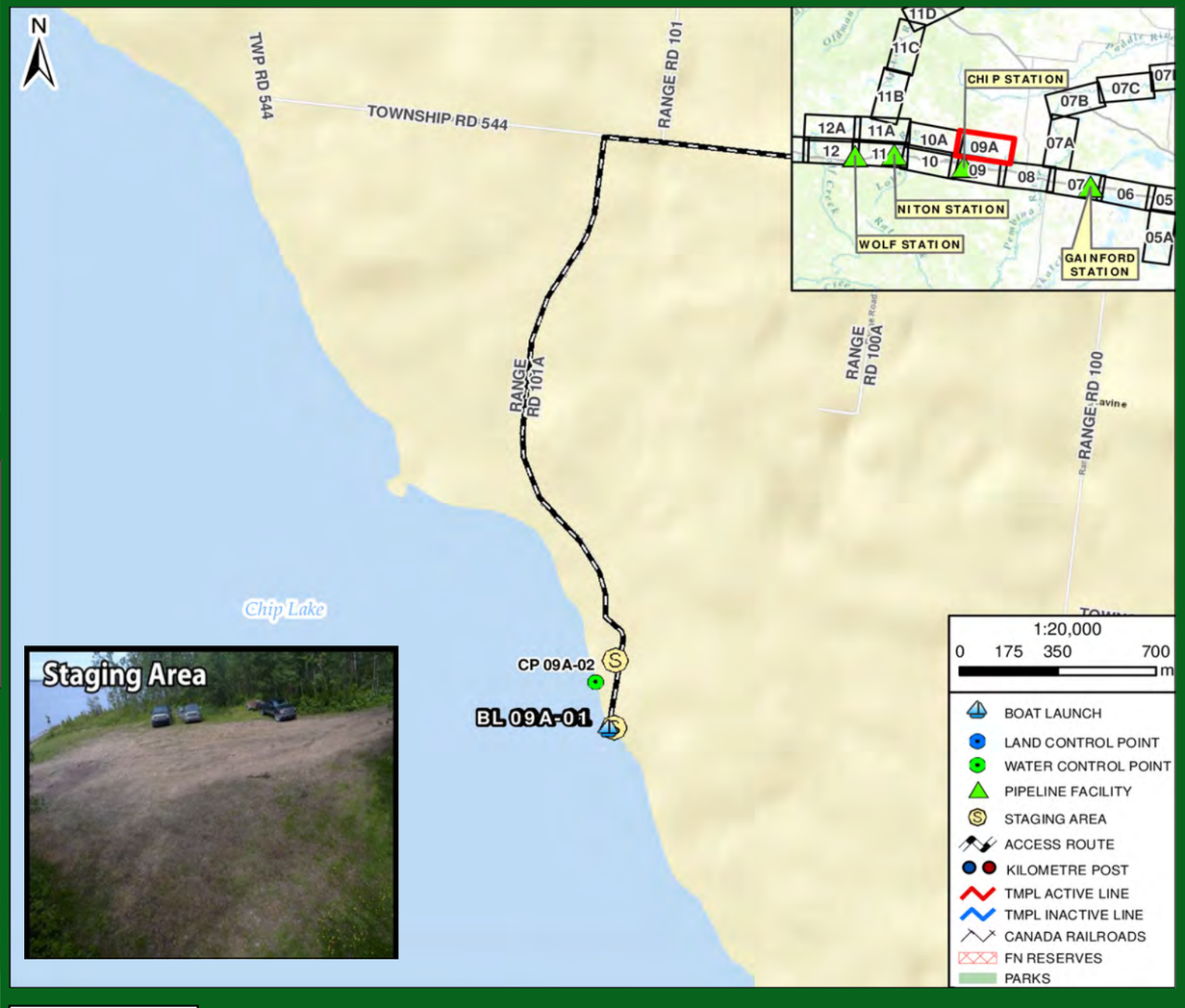
Road Access/Type:	- Access off of Range Road 101A through Chip Lake Municipal Recreation Area. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located within Chip Lake Recreation Area. - 15 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.66724	Long: -115.35139
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular angling and recreational boating area. - The boat launch is located within Chip Lake Municipal Recreation Area, security recommended. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large waterbody with wind driven wave action, use caution around the shoreline and when operating small vessels.
- The boat launch is located within Chip Lake Municipal Recreation Area, public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 32.2 km
- At Wildwood, take slight right (signs for Wildwood, Green Court) for 1 km
- Turn right onto Range Rd 92 for 8.7 km
- Turn left onto Township Rd 544 for 8.3 km
- Turn left onto Range Rd 101A for 2.1 km, towards the end of the road
- Destination is boat launch to Chip Lake, from Chip Lake Park
- Total Distance = 53.4 km
- Total Travel Time = 49 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-03

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.648795	
	Long: 115.371779	
Elevation:	790 m	
Land and Resource Use:	Crown Land. Chip Lake.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 143	

Waterbody Information:

Waterbody Name: Chip Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		3100 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Chip Lake is a popular fishing destination among locals and contains a varied, often shallow shoreline with abundant submergent vegetation (e.g., milfoil), wetland margins and mixedwood forest, with sporadic residential and agricultural properties along lakeshore. Prone to seasonal blue-green algae blooms during summer months. Prevent spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Shoreline Information

Bank Height:
1 m

Shoreline Composition and Slope:
Variable, typically gradually sloping banks with shallow extensive foreshores often composed of soft organic substrate.

Shoreline Vegetation:
young to mature mixedwood forest of poplars, aspens and spruce; mixed shrubs (e.g., willow, wild rose, alder, red-osier dogwood); grasses, cattails, bulrush, sedge.

Channel / Bank Forms:
Banks composed of variable mixed stranded organic debris and fines to boulders; bed composed predominantly of organics and fine sediments.

Shoreline Comments:
Lake contains abundant submergent vegetation, particularly milfoil, along variable soft to stable gradually sloping margins often treed to water edge with frequent stranded organic debris.

Logistical Information:

Staging Area Location:	- The staging area can be located at Chip Lake Municipal Recreation Area boat launch. - 15 m x 30 m area.	
	Lat: 53.66724	Long: 115.35139
Work Area Location / Comments:	- The work area can be located on the northeast shoreline. - 15 m x 30 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Staging and work area located in Chip Lake Recreation Area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Control point accessed by boat.	
Boat Access:	- Main boat access from BL 09A-01. - Refer to BL 09A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 09-01. - Refer to BL 09-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including walleye, pike and perch.
- Abundant mixedwood and aspen dominated forest habitat; cattail-bullrush dominated wetland margins; waterbird breeding and migratory staging habitat for numerous species, including pelican.
- Chip Lake is a popular local fishing lake, particularly during summer months, with less frequent recreational boating activities than other lakes in area (e.g., Wabamun Lake).
- Lakeshore is predominantly forested, with sparse residences and small scale agricultural activities (e.g., pasture, hay).
- Ravine Community Campground along backshore of boat launch (BL 09A-01).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Large waterbody with varying waves dependent on wind conditions, use caution when operating boats.
- Popular angeling and recreational lake, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

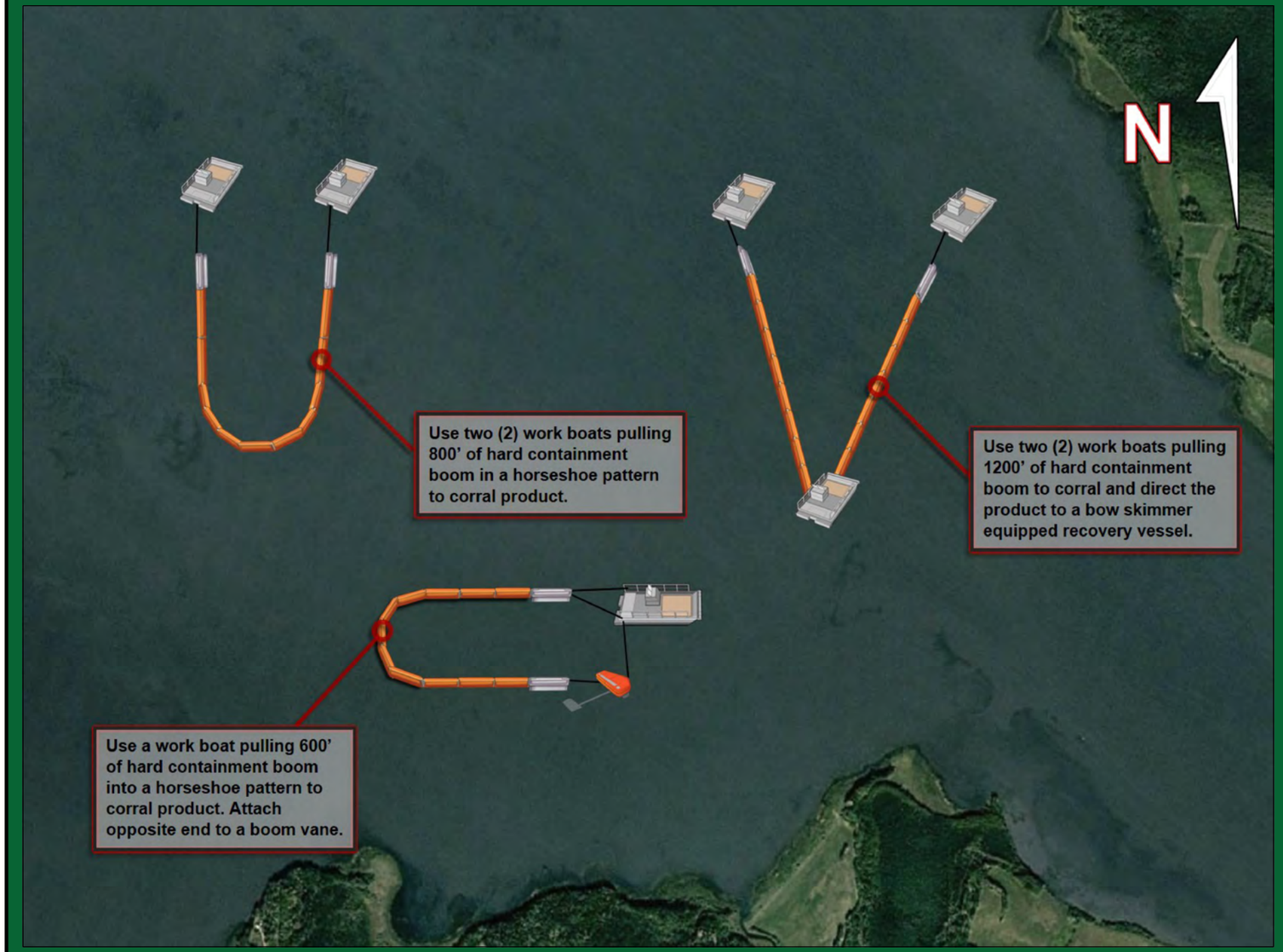
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 32.2 km
- At Wildwood, take slight right (signs for Wildwood, Green Court) for 1 km
- Turn right onto Range Rd 92 for 8.7 km
- Turn left onto Township Rd 544 for 8.3 km
- Turn left onto Range Rd 101A for 2.1 km, towards the end of the road
- Destination is Chip Lake, from boat launch at Chip Lake Park
- Total Distance = 55.7 km
- Total Travel Time = 51 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	500'	Tow Rope
6	Boat Captain	1 / 100'	Power Pack / Hydraulic Line
12	Boat Crew	1	Vacuum Truck
		5	Work Boat
		1500'	18” x 12” Hard Containment Boom
		1	1.0 m Boom Vane
		6	Tow Bridle
		1	Bow Skimmer Equipped Work Boat
28	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

On-Water Recovery Techniques:
Corralling (This technique can be done with one boat, utilizing a 1.0 m deep draft boom vane, 600' of 18" x 12" hard containment boom):
- Use (2) work boats, pulling 800' of 18" x 12" hard containment boom in a horseshoe pattern to corral the product.
- Slowly bring product to shoreline recovery area.
- Attach the 18" x 12" hard containment boom ends to the shoreline using shoreline pins or trees. Recover product with Drum Skimmer directly to vacuum truck.

On-Lake Recovery:
- Use (2) work boats, pulling 1200' of 18" x 12" hard containment boom to corral and direct the product to bow skimmer equipped recovery vessel.
- Connect trailing ends of boom to bow of skimming vessel.
- Recover product with bow skimmer into on board containment. Transfer product at staging area or boat launch for disposal.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren, rusty blackbird)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., loon, grebe spp., northern shoveler, lesser scaup, coot), blue heron
- Pelican, tundra and trumpeter swan, common tern, gull spp.
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-05-30

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09A-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.668690	
	Long: -115.352690	
Elevation:	794 m	
Land and Resource Use:	Crown Land. Chip Lake Municipal Recreation Area.	
Upstream Valves:	**Line 01:** K125	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 142	

Waterbody Information:

Waterbody Name: Chip Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		3300 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Chip Lake is a popular fishing destination among locals and contains a varied, often shallow shoreline with abundant submergent vegetation (e.g., milfoil), wetland margins and mixedwood forest, with sporadic residential and agricultural properties. Prone to seasonal blue-green algae blooms during summer months. Prevent the spread of invasive species, such as zebra muscles, quagga muscles and Eurasian milfoil.

Shoreline Information

Bank Height:
Up to 2 m along built-up bank; 1 m east and west

Shoreline Composition and Slope:
Variable, steep to vertical areas along man-made bank; but typically gradually sloping, stable adjacent foreshores of organic debris and boulders with steep treed approaches.

Shoreline Vegetation:
Submergent vegetation (e.g., milfoil) and grasses along bank, with open grassy backshore area, with poplar and aspen dominated forest to the east and west.

Channel / Bank Forms:
Bank composed of mixed substrate ranging from fines and organic debris to large boulders; bed predominantly composed of organics and fine sediments.

Shoreline Comments:
CP located along gradually sloping, stable grassy day use / picnic area overlooking lake; with vertical to steep built-up 1.5 m bank into shallow water containing abundant submergent vegetation (e.g., milfoil). Forest lands east and west of collection with open boulder dominated shorelines and stranded organic debris.

Logistical Information:

Staging Area Location:	- The staging area can be located along Lakeshore Road. - 20 m x 25 m area. - All weather access is established.	
	Lat: 53.66949	Long: -115.35177
Work Area Location / Comments:	- The work area can be located in Chip Lake Municipal Recreation Area on the northeast shoreline. - 15 m x 30 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point is located in Chip Lake Municipal Recreation Area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Range Road 101A through Chip Lake Municipal Recreation area. - All weather access is established.	
Boat Access:	- Main boat access from BL 09A-01. - Refer to BL 09A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 09-01. - Refer to BL 09-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

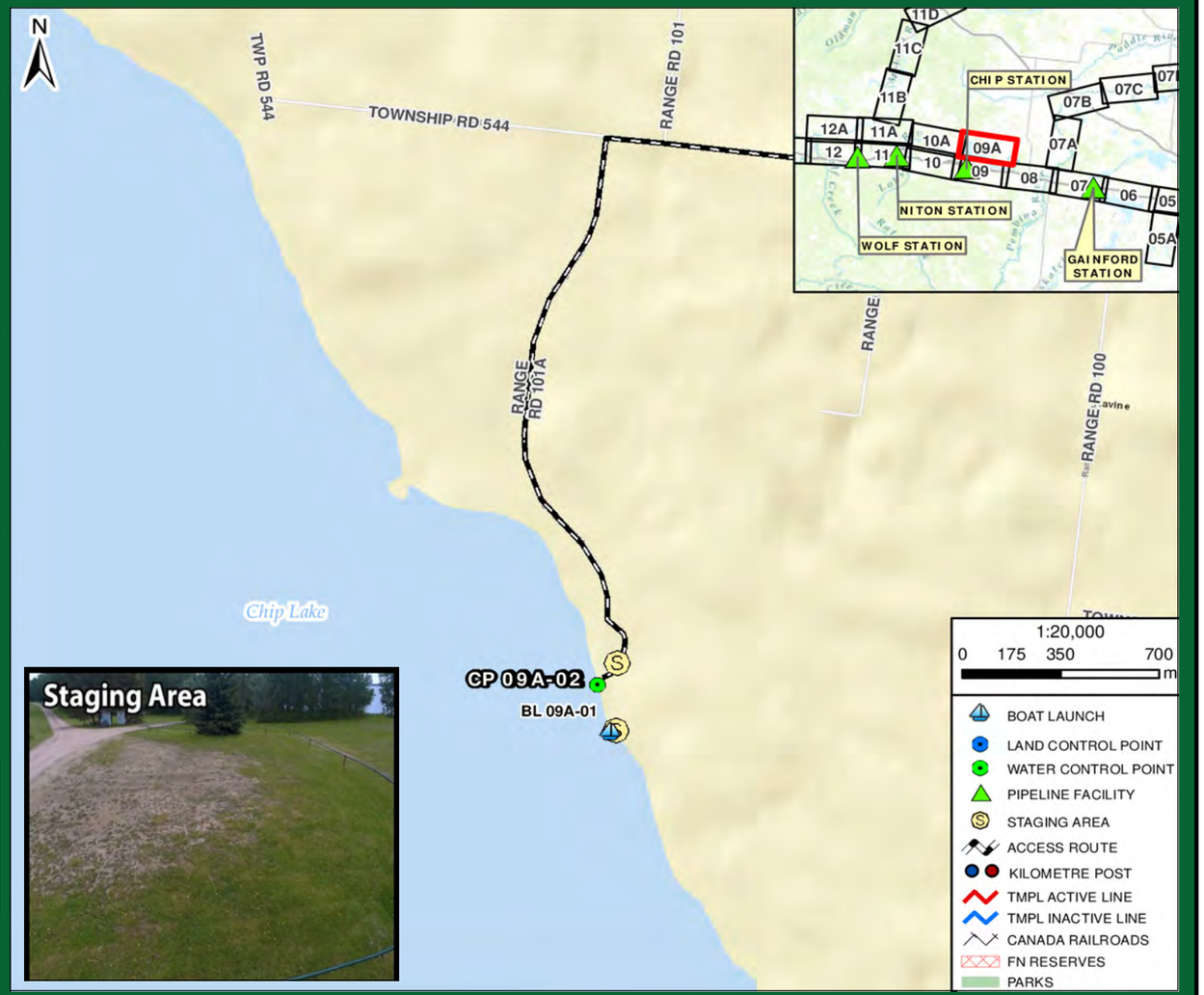
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including walleye, pike and perch. Abundant mixedwood and aspen dominated forest habitat; cattail-bullrush dominated wetland margins; waterbird breeding and migratory staging habitat for numerous species, including pelican; shorebird feeding and nesting habitat.
- Chip Lake is a popular local fishing lake, particularly during summer months, with less frequent recreational boating activities than other lakes in area (e.g., Wabamun Lake). Lakeshore is predominantly forested, with sparse residences and small scale agricultural activities (e.g., pasture, hay).
- CP located in deciduous forest setting and open grassy day use and picnic area along shoreline associated with Ravine Community Campground above forested approach, also containing playground 100 m northwest.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft ground conditions, use caution around the shoreline.
- Chip lake Municipal Recreation Area, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 32.2 km
- At Wildwood, take slight right (signs for Wildwood, Green Court) for 1 km
- Turn right onto Range Rd 92 for 8.7 km
- Turn left onto Township Rd 544 for 8.3 km
- Turn left onto Range Rd 101A for 2.1 km, towards the end of the road
- Destination is Chip Lake, from Chip Lake Park
- Total Distance = 53.3 km
- Total Travel Time = 49 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-05-30
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 09A-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	350'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	500'	Tow Rope
4	Boat Captain	1 / 100'	Power Pack / Hydraulic Line
8	Boat Crew	1	Vacuum Truck
		4	Work Boat
		1500'	18” x 12” Hard Containment Boom
		1	1.0 m Boom Vane
		4	Tow Bridle
22	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., perch, walleye, pike)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Riparian nesting birds (e.g., sparrow spp., warbler spp., flycatcher spp.)
- Wetland nesting birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren, rusty blackbird)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., loon, grebe spp., northern shoveler, lesser scaup, coot), blue heron
- Pelican, tundra and trumpeter swan, common tern, gull spp.
- Shorebirds (e.g., Wilson's snipe, long-billed dowitcher, sandpiper spp., greater and lesser yellowlegs)

Implementation Strategy:

On-Water Recovery Techniques:
Corralling (This technique can be done with one boat, utilizing a 1.0 m deep draft boom vane, 600' of 18" x 12" hard containment boom):
- Use (2) work boats, pulling 800' of 18" x 12" hard containment boom in a horseshoe pattern to corral the product.
- Slowly bring product to shoreline recovery area.
- Install 250' of 6" x 6" hard containment boom for shoreline protection along the north east shoreline.
- Attach the 18" x 12" hard containment boom ends to the shoreline using shoreline pins or trees. Recover product with Drum Skimmer directly to vacuum truck.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-04

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.618420	
	Long: -115.647740	
Elevation:	815 m	
Land and Resource Use:	Crown Land. Range Road 121 Road Right-of-Way.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K160	
Control Point:	**Upstream** N/A	**Downstream** CP 10A-01
Nearest KM Post:	**Line 01** KP 160	

Waterbody Information:

Waterbody Name: Brule Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		7 m	
Depth		0.9 m	
Flow Velocity		1.0 km/hr	
FlowType		Frequently confined low velocity run and riffle structure	

Waterbody description:

Frequently confined low velocity run and riffle structure along spruce dominated forest with open meadows and shrub patches. Creek is likely perennial, and bank characteristics and exposed sediment bars downstream of collection suggest high water may reach up to 1 m beyond water level at time of survey. There are frequent overhanging and fallen trees upstream and down of containment and recovery. Low turbidity during survey.

Shoreline Information

Bank Height:
1.2 to 1.8 m

Shoreline Composition and Slope:
RDB varied, typically steep, more gradual at collection with level open backshore work area; LDB generally overhanging/vertical, prone to erosion/slumping during high water.

Shoreline Vegetation:
Low density young to mature spruce dominated forest with occasional pine, tamarack, poplar; willow, red raspberry, twinberry, red-osier dogwood; grasses, sedges; horsetail, cow parsnip, vetch, false Solomon's seal, wild strawberry, meadow rue, fireweed.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by fines with occasional cobbles on LDB; med composed of fine sediments with localized pockets of gravels and cobbles.

Shoreline Comments:
Collection area accessed along low grade road ending above bank, below which is the collection area along a narrow vegetated foreshore area into shallow water, which likely becomes submerged during high water. CP appears to be located at remnant ford or bridge crossing where old, overgrown road bed continues on opposite side (no longer vehicle accessible due to overhanging 1.8 m LDB).

Logistical Information:

Staging Area Location:	- The staging area can be located on the Range Road 121 Road allowance. - 20 m x 20 m area. - Matting required to establish all weather access. - Minor site preparation required (brushing).	
	Lat: 53.61826	Long: -115.64758
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area. - Low impact access recommended.	
Road Access/Type:	- Access off of Range Road 121, 250 m down road allowance. - Matting required to establish all weather access. - Minor site preparation required (brushing).	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

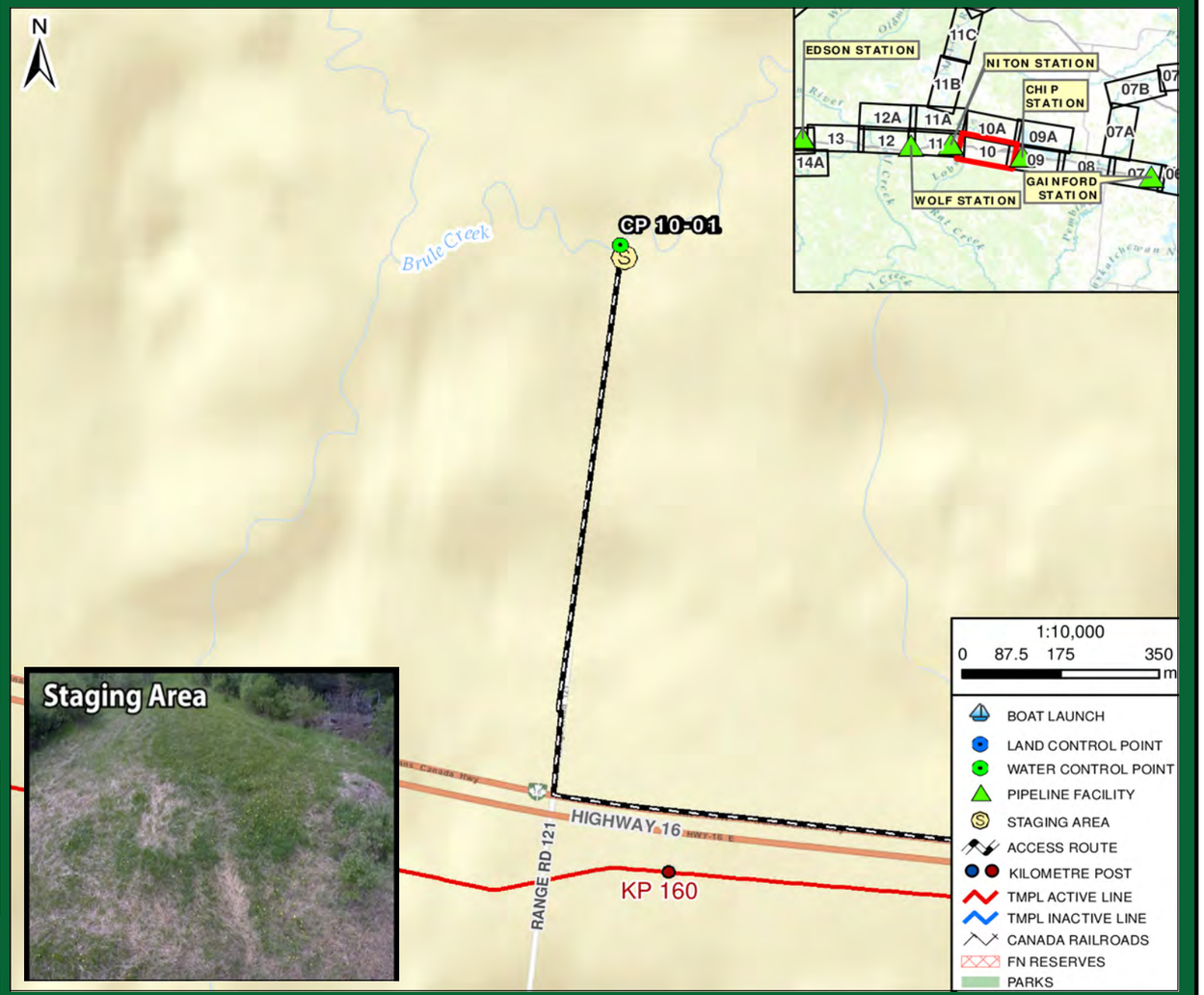
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Localized areas of gravel and cobbles and increased current provide moderate spawning potential; perennial flow and watercourse complexity (e.g., e.g., woody debris, pools and eddies, overhead cover) suggest moderate to high rearing and overwintering potential.
- CP located along habitat mosaic of mixed spruce dominated forest, open meadows and shrublands, as well as exposed sediment bars and banks downstream of collection, providing waterbird habitat, amphibian habitat, conifer forest habitat, cavity nesting habitat, grassland and shorebird nesting habitat and riparian nesting habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 61.8 km
- Turn right onto Range Rd 121 for 1 km (signs for Diamond Wood R.V. Resort)
- Destination is bridge over Brule Creek
- Total Distance = 63.7 km
- Total Travel Time = 59 minutes calculated at 65 km/hr

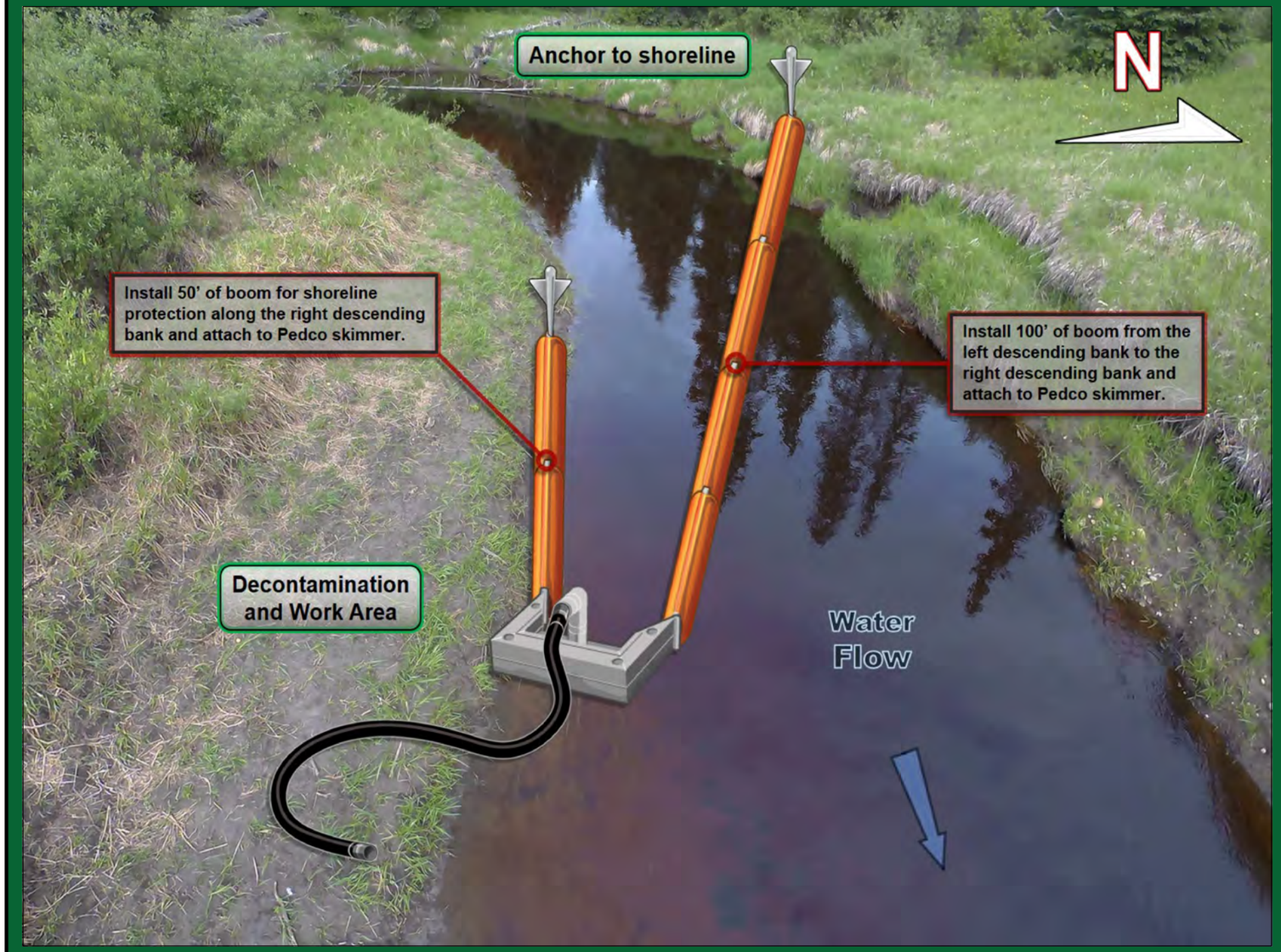
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-04
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
1	Low Impact Recovery Unit Operator	4	50' Handline Bridle
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
		1	Low Impact Recovery Unit
11	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (1) 50' handline from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 10 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl), forest birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp.)
- Grassland and shorebirds (e.g., spotted sandpiper, meadowlark, horned lark, killdeer, Savannah sparrow, upland sandpiper)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-04

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.651740	
	Long: -115.770380	
Elevation:	830 m	
Land and Resource Use:	Crown Land. Range Road 130 Road Right-of-Way.	
Upstream Valves:	**Line 01:** K160	
Downstream Valves:	**Line 01:** STATION BLOCK	
Control Point:	**Upstream** N/A	**Downstream** CP 10A-03
Nearest KM Post:	**Line 01** KP 169	

Waterbody Information:

Waterbody Name: Lobstick River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		0.8 m	
Flow Velocity		1.0 km/hr	
FlowType		Frequently confined low velocity run structure	

Waterbody description:

Frequently confined low velocity run structure. Along containment, river flows under clearspan bridge with 4 m clearance with dense overhanging shrubs along both banks and approaches, with occasional instream woody debris. Flattened grasses, sediment deposits and water lines along bridge suggest infrequent high water events may occur up to 1.5 m beyond water levels at time of survey. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1.2 m

Shoreline Composition and Slope:
Banks typically steep to vertical/overhanging with steep 3 to 4 m approaches densely vegetated with tall shrubs; level open grassy area along backshore RDB.

Shoreline Vegetation:
Poplar, spruce seedlings/saplings; dense shrubs (e.g., willow, dogwood, wild rose, red raspberry, choke cherry, dogbane); grasses (e.g., brome, timothy, bluegrass); horsetail, clover, dandelion, thistle, tansy, baneberry, rue, goldenrod, fireweed, cow parsnip.

Channel / Bank Forms:
Banks composed of organics underlain by fines with boulder riprap along bridge abutments; bed composed predominantly of fines with occasional gravels, cobbles and boulders.

Shoreline Comments:
Collection area accessed from open grassy area (staging area) adjacent to road, down steep 3 to 4 m high approach densely vegetated with shrubs down to steep to overhanging banks. Abundant weeds along backshores and adjacent to road, including thistle sp., common tansy, timothy and stinkweed.

Logistical Information:

Staging Area Location:	- The staging area can be located along the right descending bank. - 20 m x 40 m area. - Matting required to establish all weather access.	
	Lat: 53.65191	Long: -115.77023
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Range Road 130. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is surrounded by private land.	

Decontamination Area:

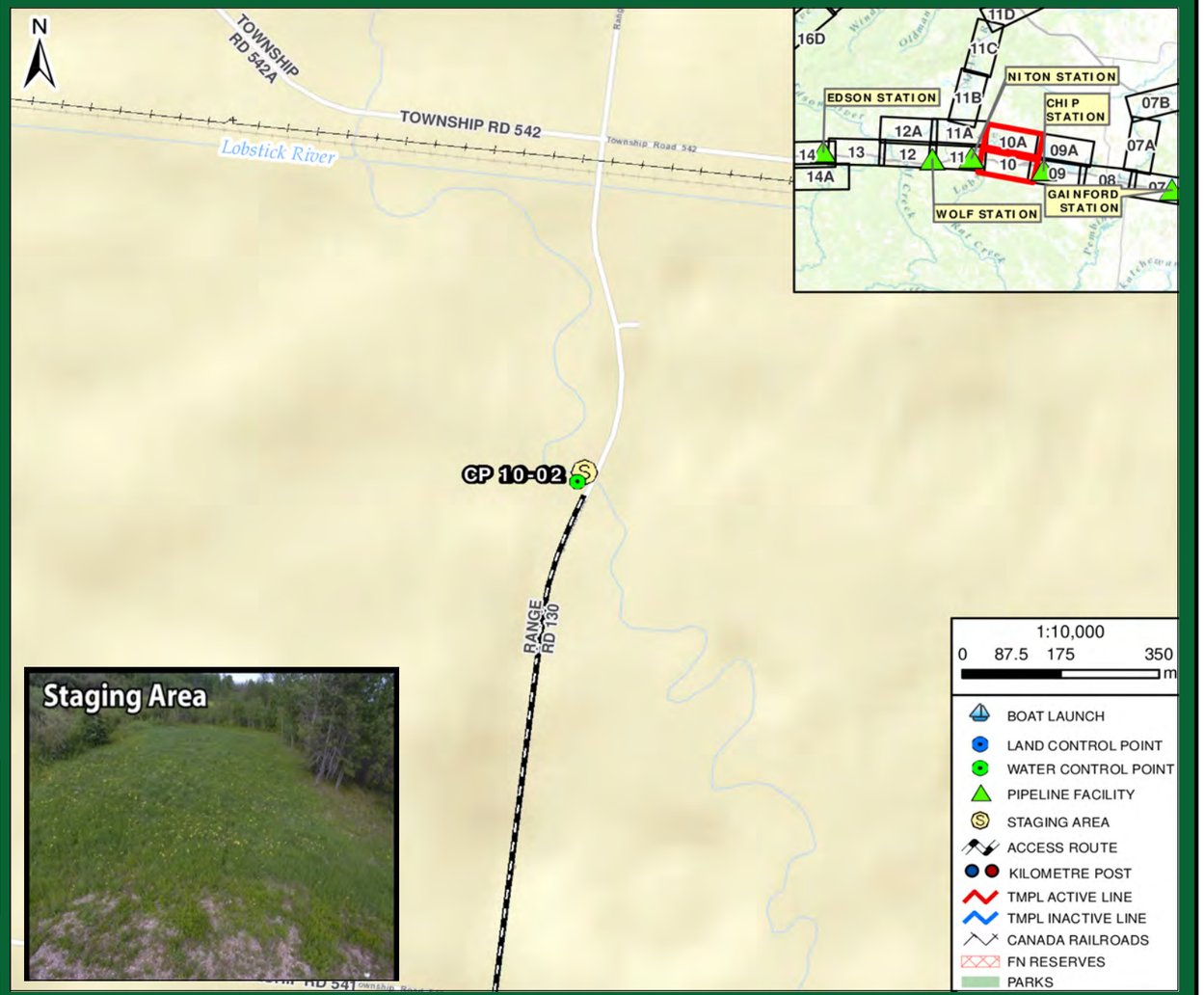
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines; perennial flow with areas of deeper water and shoreline cover provide moderate rearing and overwintering potential.
- Dense tall shrubs along margins provide excellent shrub/riparian nesting habitat.
- Located along paved secondary road with younger poplars along backshores, croplands and pasture on the upstream side of bridge.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present. Overhead power lines at control point and staging.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

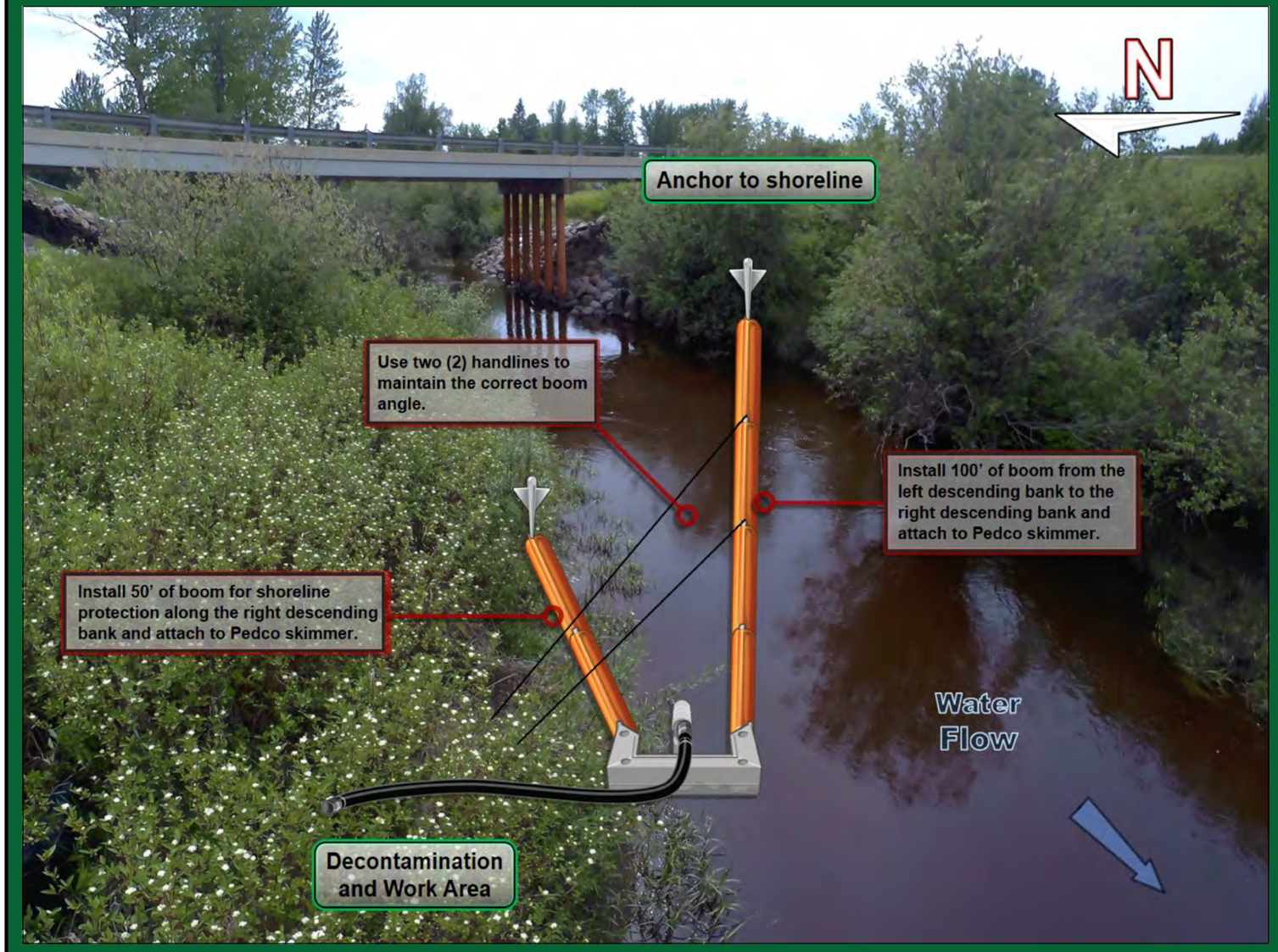
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 70.1 km
- Turn right onto Range Rd 130 (Niton Junction) for 3.8 km
- Destination is bridge over Lobstick River, south of Township Rd 542
- Total Distance = 74.9 km
- Total Travel Time = 69 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-04
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	50' Handline Bridle
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 15 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Wetland birds (e.g., sora, common yellowthroat, marsh wren, red-winged blackbird, rusty blackbird)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-04

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.654480	
	Long: -115.607620	
Elevation:	798 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K160	
Control Point:	**Upstream** CP 10A-03	**Downstream** BL 09-01
Nearest KM Post:	**Line 01** KP 158	

Waterbody Information:

Waterbody Name: Brule Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		8 m	
Depth		1.0 m	
Flow Velocity		1.5 km/hr	
FlowType		Frequently confined low velocity run and pool structure	

Waterbody description:
Frequently confined low velocity run and pool structure along a diverse habitat setting containing open water and wetland areas dominated by sedges and willows, grassland pastures and meadows, conifer forest patches and old growth poplars. Downstream of collection, creek flows under clearspan bridge with 1.5 m clearance. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
Banks are variable and poorly defined in areas with uneven backshores of elevated shrub-grass dominated areas, low lying ponded areas and backwaters, and treed areas.

Shoreline Vegetation:
Grassland pasture along backshores with forest patches of mixed spruce, tamarack, pine, poplar on RDB, old growth and dead standing poplar on LDB; willow, rose, twinberry; grass (e.g., bluejoint, reed canarygrass, managrass), sedges, horestail, cow parsnip, vetch.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines

Shoreline Comments:
Collection area accessed from rural gravel road along stable but very uneven terrain densely vegetated with grasses, sedges and willows to steep but stable 1 m high collection area with open grassland pasture along backshore. Banks are highly variable, often saturated along margins with backwaters as well as and ponded/saturated areas along backshore. Be aware there is a barbed wire fence adjacent to road.

Logistical Information:

Staging Area Location:	- The staging area can be located along Township Road 541A. - 8 m x 20 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.65463	Long: -115.60726
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Township Road 541A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Narrow bridge located at the control point.	

Decontamination Area:

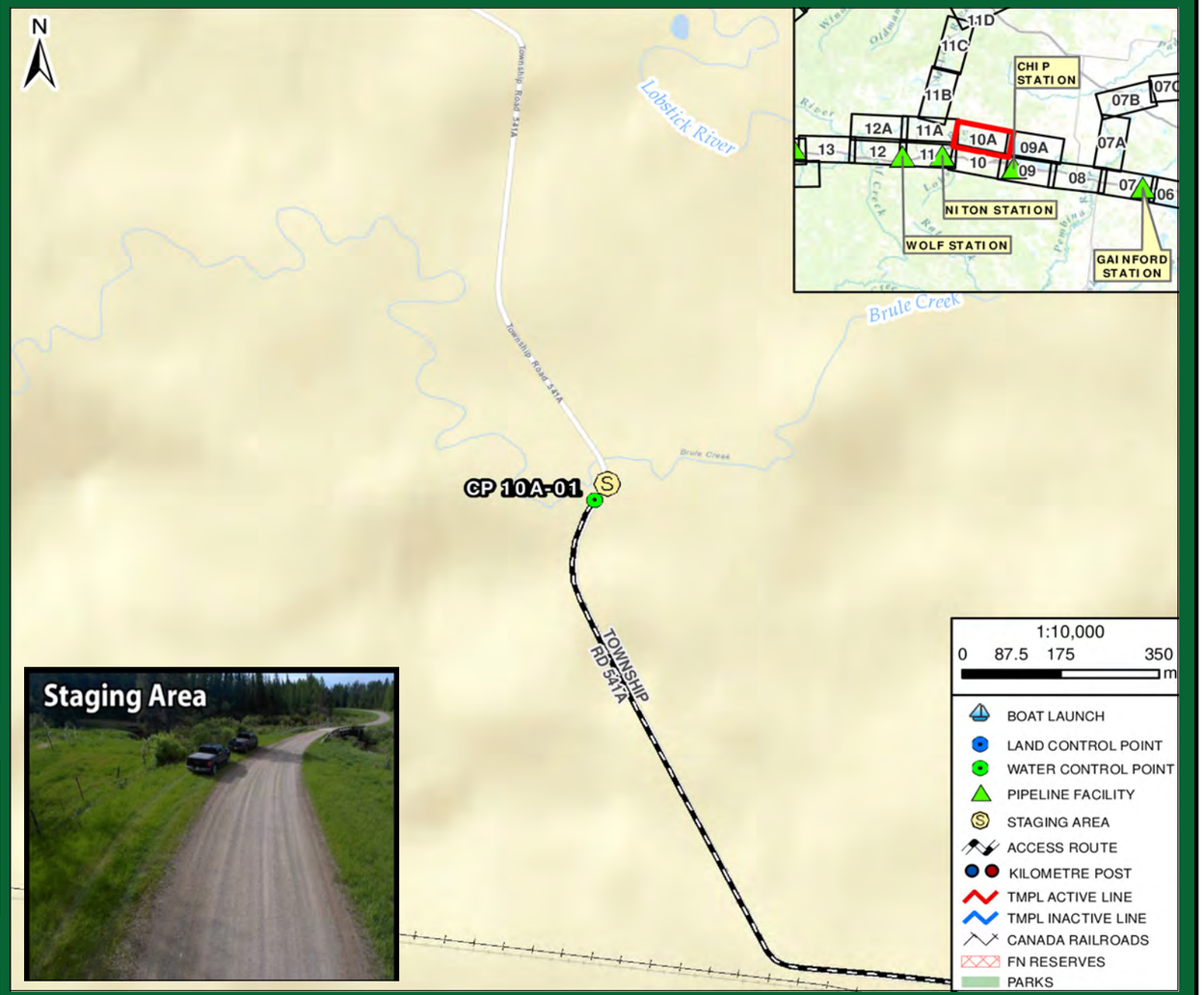
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines and organics; perennial flow with areas of deeper water and shoreline cover provide moderate to high rearing and overwintering potential.
- CP located in diverse habitat mosaic of mixed conifer forest, old growth poplar, grassy meadows and wetlands, providing waterbird habitat, amphibian habitat; conifer forest habitat, cavity nesting habitat, grassland nesting habitat, wetland/shrub habitat and shorebird habitat.
- Common nighthawk observed during survey.
- Located along rural gravel road with horse pasture along backshore of LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

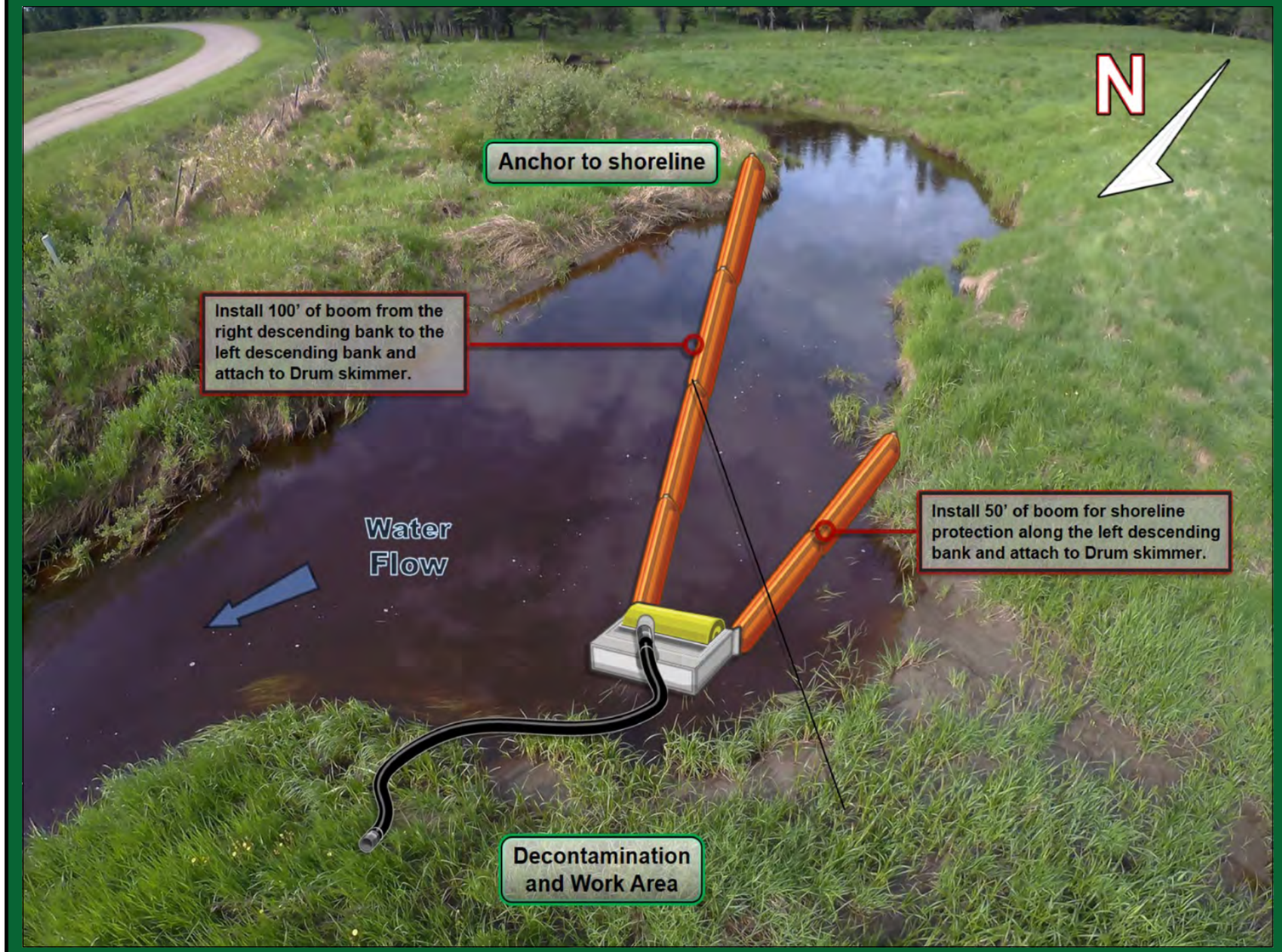
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 57.7 km
- Turn right onto AB-751 N (sign for Mackay) for 3.7 km
- Turn left onto Township Rd 541A for 1.1 km and Continue (as it bends right) onto Range Rd 115A for 1.1 km
- Destination is bridge over Brule Creek
- Total Distance = 64.6 km
- Total Travel Time = 60 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-04
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	50' Handline Bridle
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install (1) 50' handline from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 10 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), common nighthawk
- Owls (e.g., short-eared owl, long-eared owl), forest birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp.)
- Grassland and shorebirds (e.g., spotted sandpiper, meadowlark, horned lark, killdeer, Savannah sparrow, upland sandpiper)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-04

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10A-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.662620	
	Long: -115.585920	
Elevation:	778 m	
Land and Resource Use:	Crown Land. Highway 751 Road Right-of-Way.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K160	
Control Point:	**Upstream** CP 10A-03	**Downstream** CP 09-07
Nearest KM Post:	**Line 01** KP 156	

Waterbody Information:

Waterbody Name: Lobstick River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		1.0	
Flow Velocity		2.5 km/hr	
FlowType		Frequently confined low velocity run structure	

Waterbody description:

Frequently confined low velocity run structure along agricultural setting. Along containment, river flows under clearspan bridge with 4 m clearance. Flattened grasses, sediment deposits and organic debris snags along fence adjacent to bank suggest infrequent high water events may occur up to 1.5 m beyond water levels at time of survey. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1.2 m

Shoreline Composition and Slope:
Banks typically steep, but stable above often becoming more vertical, muddy were submerged; moderately steep along road approaches, becoming level along pasture.

Shoreline Vegetation:
Isolated poplar and willow, patches of wild rose and dogbane; abundant grasses (e.g., bluejoint, brome, fescue), sedge, vetch, goldenrod, horsetail, clover, thistle.

Channel / Bank Forms:
Bed and banks composed predominantly of organics underlain by fines; with boulder riprap along bridge abutments.

Shoreline Comments:
Collection area accessed down grassy road easement to top of steep but stable bank. There is a burred utility crossing, overhead power line crossing and barbed wire fences extending to water edge on both sides of river immediately downstream of collection. Patches of thistle sp.

Logistical Information:

Staging Area Location:	- The staging area can be located along Highway 751. - 5 m x 40 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.66298	Long: -115.58621
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 751. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is surrounded by private land. - A bridge is located directly upstream of the control point.	

Decontamination Area:

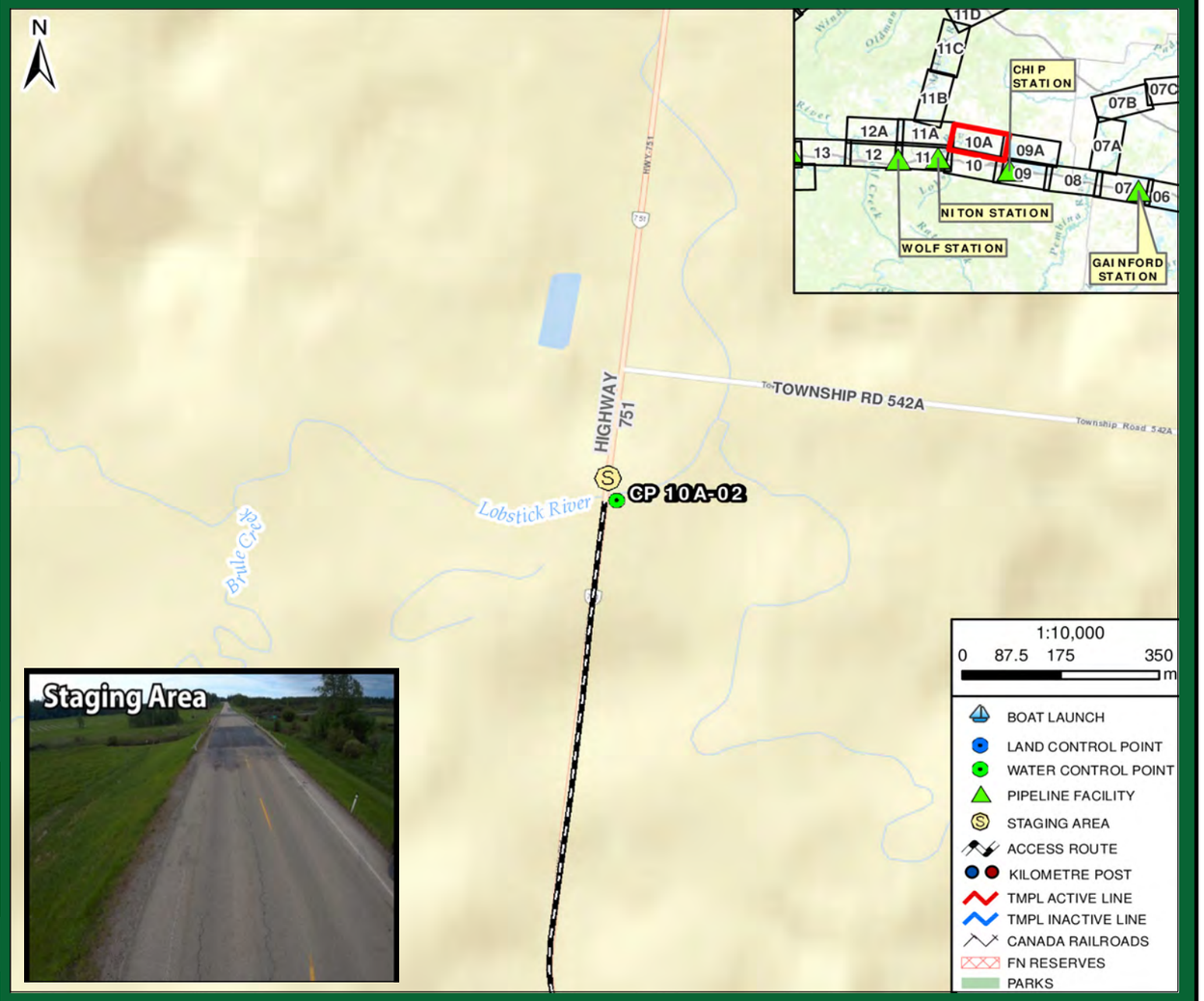
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines; perennial flow with areas of deeper water and shoreline cover provide moderate rearing and overwintering potential.
- Riparian/shrub and grassland nesting habitat; waterbird habitat.
- There is an open water wetland with sedge-cattail-willow margins along elevated backshore of RDB on upstream side of bridge.
- Barn swallows observed during survey (potentially nesting under bridge).
- Located along paved secondary road in agricultural setting with pastures along both backshores downstream of collection and upstream side of bridge on LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present. Overhead power lines present at this control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

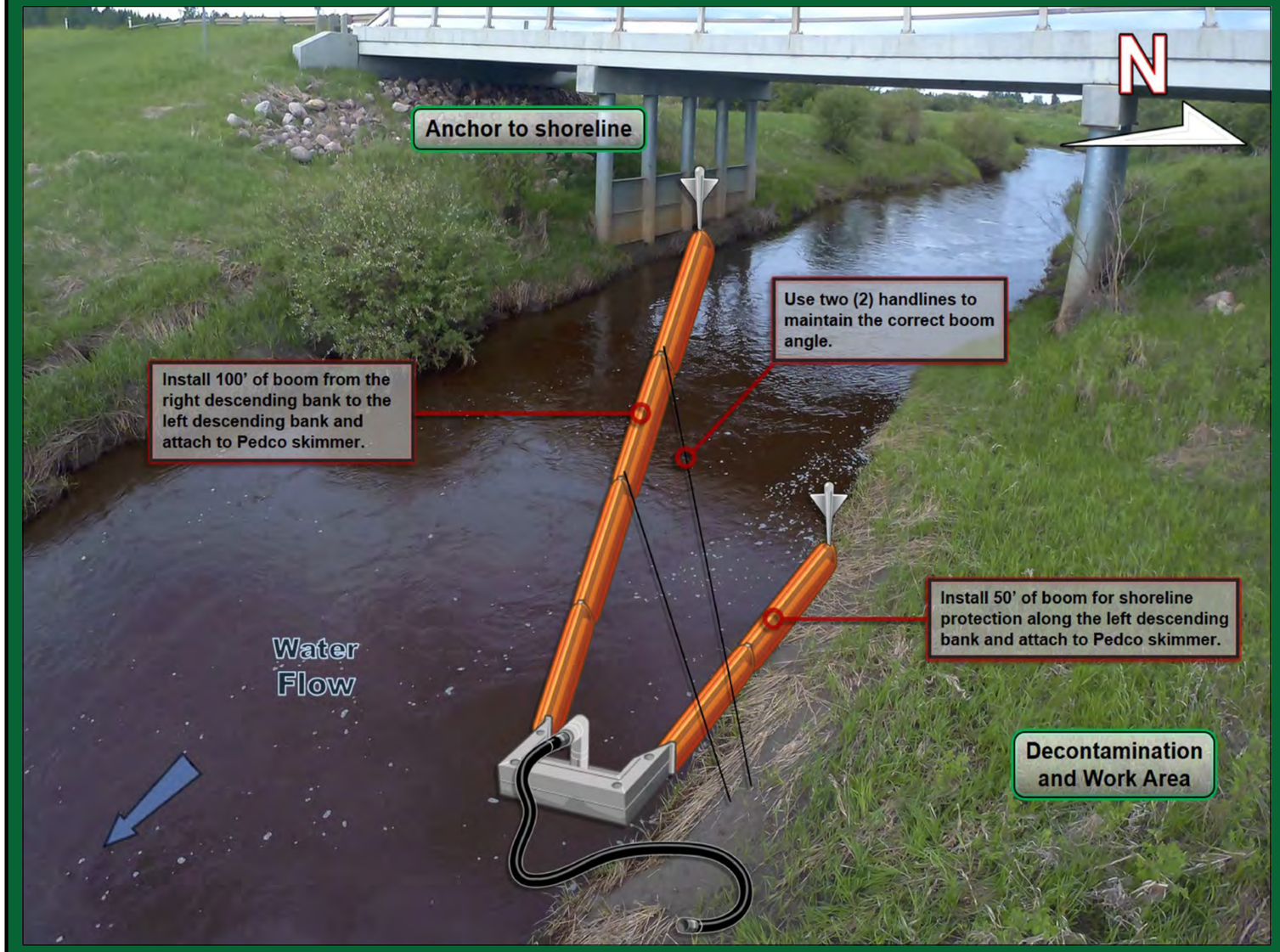
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 57.7 km
- Turn right onto AB-751 N for 5.8 km, past MacKay
- Destination is bridge over Lobstick River
- Total Distance = 64.4 km
- Total Travel Time = 59 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-04
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10A-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	50' Handline Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron, barn swallow
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl), forest birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp.)
- Grassland and shorebirds (e.g., spotted sandpiper, meadowlark, horned lark, killdeer, Savannah sparrow, upland sandpiper)

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 15 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-04

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10A-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.686150	
	Long: -115.736670	
Elevation:	821 m	
Land and Resource Use:	Crown Land. Range Road 130 Road Right-of-Way.	
Upstream Valves:	**Line 01:** K160	
Downstream Valves:	**Line 01:** STATION BLOCK	
Control Point:	**Upstream** CP 10-02	**Downstream** CP 10A-02
Nearest KM Post:	**Line 01** KP 169	

Waterbody Information:

Waterbody Name: Lobstick River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		12 m	
Depth		0.8 m	
Flow Velocity		1.0 km/hr	
FlowType		Confined low velocity run structure	

Waterbody description:
Confined low velocity run structure. Containment and collection located along long run under clearspan bridge with 4 m clearance. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1.2 m

Shoreline Composition and Slope:
Banks well defined, typically steep, but stable above often becoming more vertical, muddy along submerged areas; moderately steep along road approaches.

Shoreline Vegetation:
Mature spruce dominated forest on LDB; spruce dominated approach on RDB with open level pasture above; young willows, wild rose patches, dogbane, red raspberry; abundant grasses (e.g., bluejoint, brome, fescue), sedge, vetch, horsetail, clover, thistle, tansy.

Channel / Bank Forms:
Banks composed of organics underlain by fines with occasional gravels and cobbles and boulder riprap at bridge abutments. Bed composed of mixed fines, gravels and cobbles with occasional boulders.

Shoreline Comments:
Collection area accessed down grassy road easement to top of steep but stable bank. There is an overhead power line crossing above collection and open pasture lands above steep, treed approach on RDB on downstream side of bridge. Frequent weeds, predominantly thistle sp. and common tansy.

Logistical Information:

Staging Area Location:	- The staging area can be located along Range Road 130. - 5 m x 40 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.68649	Long: -115.73679
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Range Road 130. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is surrounded by private land.	

Decontamination Area:

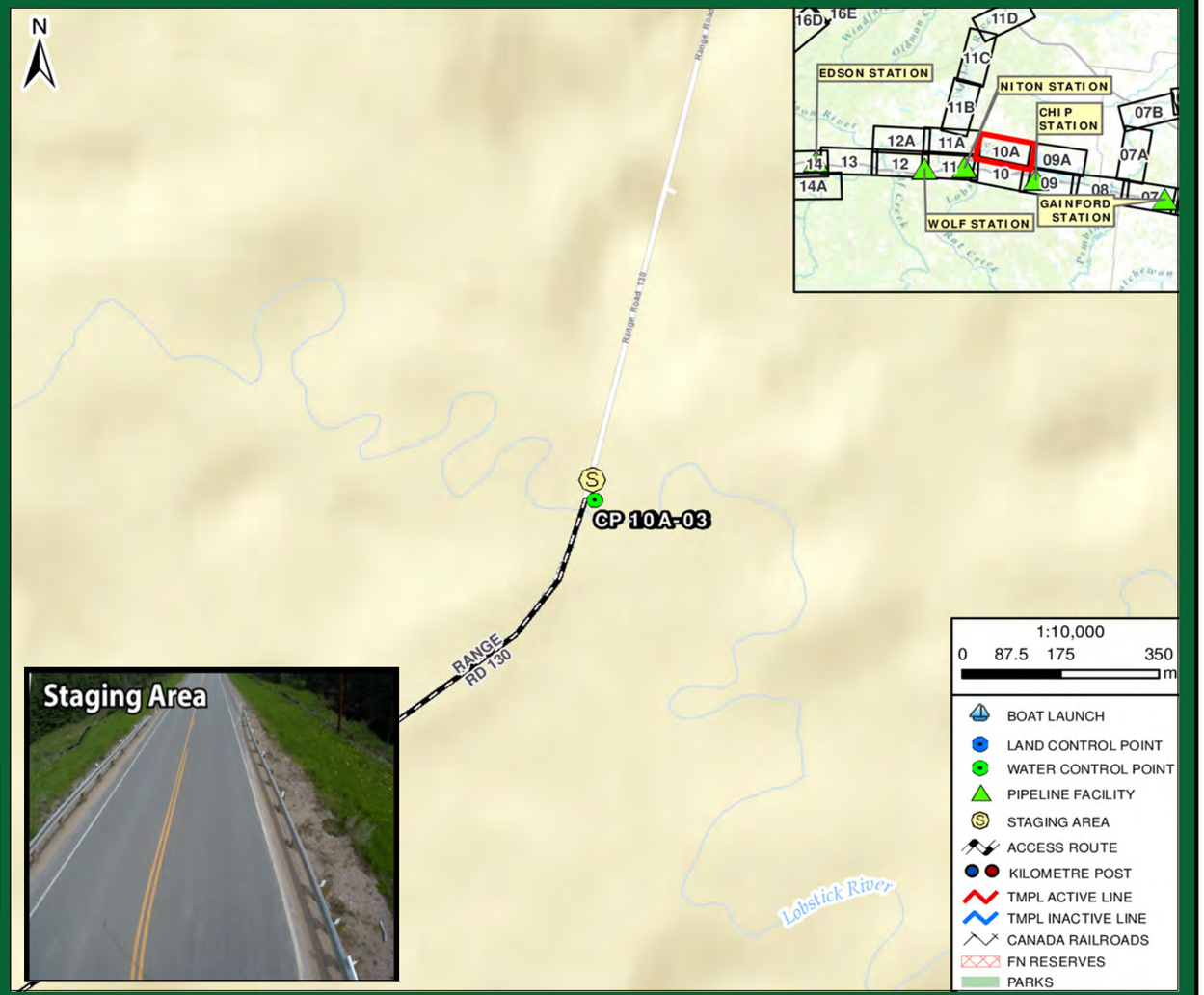
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines; perennial flow with areas of deeper water and shoreline cover provide moderate rearing and overwintering potential.
- Waterbird habitat, amphibian habitat, conifer forest and cavity nesting habitat.
- Located along paved secondary road in mixed forested and agricultural setting with open pasture along treed approach of RDB and spruce dominated forest along LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present. Overhead power lines present at this control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 70.1 km
- Turn right onto Range Rd 130 for 5.2 km
- Continue straight as it becomes Range Rd 125B for 1.3 km
- Continue straight as it becomes Township Rd 543A for 1.1 km (passing large industrial operation)
- Continue straight as it becomes Range Rd 124A for 1 km, until it crosses river
- Destination is bridge over Lobstick River
- Total Distance = 79.7 km
- Total Travel Time = 74 minutes calculated at 65 km/hr

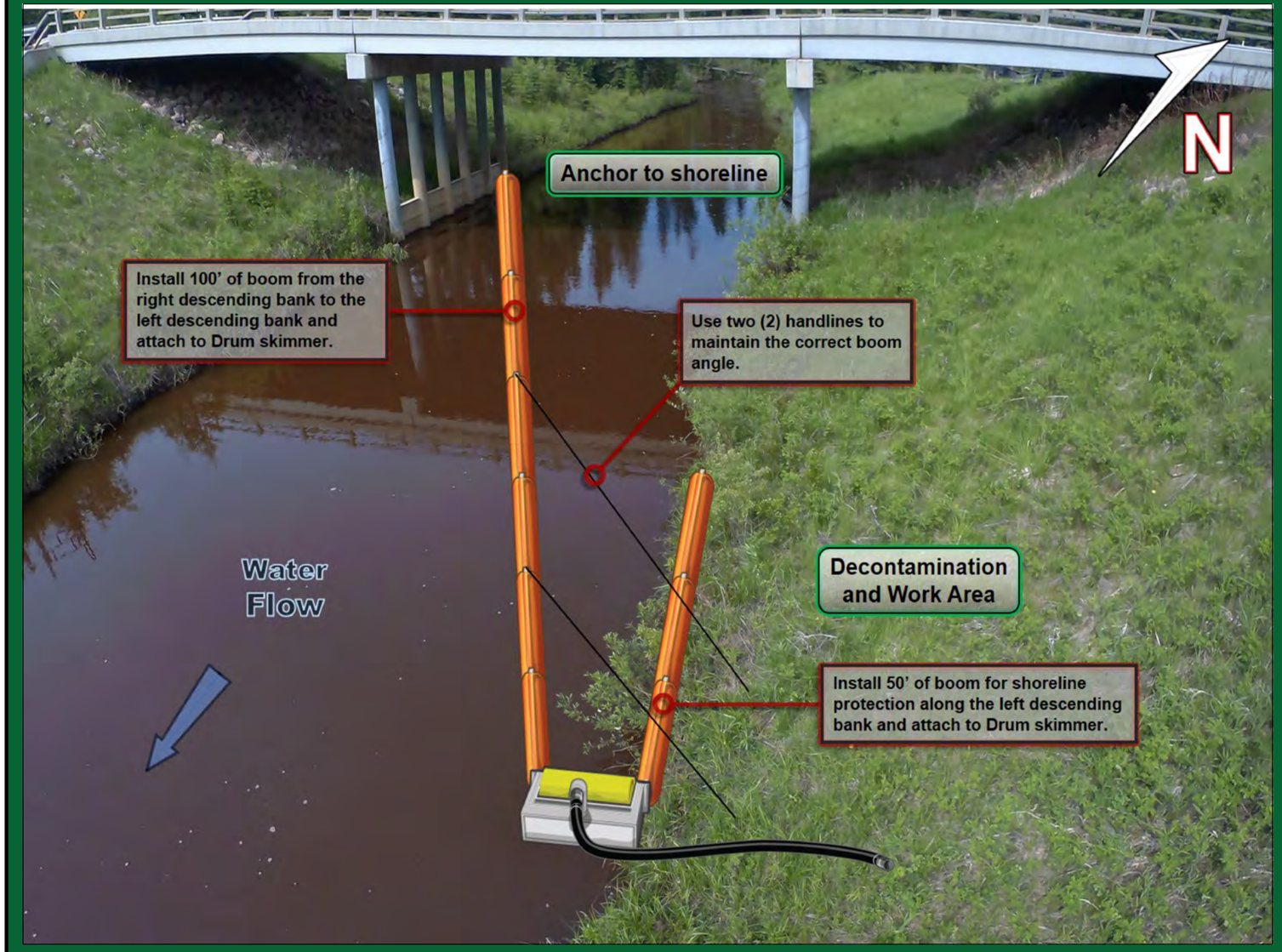
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-04
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 10A-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1 / 50'	Power Pack / Hydraulic Line
		4	50' Handline Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install (2) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or Low Impact Recovery Unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 25 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl), forest birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp.)
- Grassland and shorebirds (e.g., spotted sandpiper, meadowlark, horned lark, killdeer, Savannah sparrow, upland sandpiper)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-05

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.648930	
	Long: -115.893390	
Elevation:	832 m	
Land and Resource Use:	Crown Land. Range Road135 Road Right-of-Way.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** CP 11A-01
Nearest KM Post:	**Line 01** KP 177	

Waterbody Information:

Waterbody Name: Carrot Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		12 m	
Depth		1.0 m	
Flow Velocity		1.6 km/hr	
FlowType		Frequently confined low velocity run and pool structure	

Waterbody description:

Containment located along run underneath road bridge with 4 m clearance, with max depth along defined thalweg near RDB up to 1 m deep at time of survey and exposed sand/mud foreshore along LDB across from collection; occasional overhanging shrubs and stranded woody debris along both banks. Depth and volume indicate creek likely flows year-round, but may become intermittent during drought or winter months.

Shoreline Information

Bank Height:
1 to 1.5 m along RDB; 0.8 to 1.2 along LDB

Shoreline Composition and Slope:
RDB generally steep to vertical but vegetated and stable with moderately steep approach from open pasture/hay lands; LDB gradual downstream of bridge, steeper upstream.

Shoreline Vegetation:
Isolated saplings and young spruce and poplar; low density willows, raspberry patches, infrequent red-osier dogwood, gooseberry, wild rose; mixed grasses, sedges and horsetail; less frequent clover, dandelion, goldenrod, meadow rue, vetch, thistle sp.

Channel / Bank Forms:
Bank composed of organics underlain by fines with boulders around bridge bridges; bed composed of sands and fine sediment with pockets of gravels, cobbles and boulders.

Shoreline Comments:
Collection area accessed from rural gravel road down 5 m high moderately steep grass dominated approach to steep/vertical, but stable bank along outside creek bend. Slips/trips/falls hazard along muddy, steep to vertical banks and foreshores, and occasional boulder riprap near bridge.

Logistical Information:

Staging Area Location:	- The staging area can be located on the right descending bank. - 20 m x 40 m area. - Matting required to establish all weather access.	
	Lat: 53.64912	Long: -115.89365
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Range Road 135. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

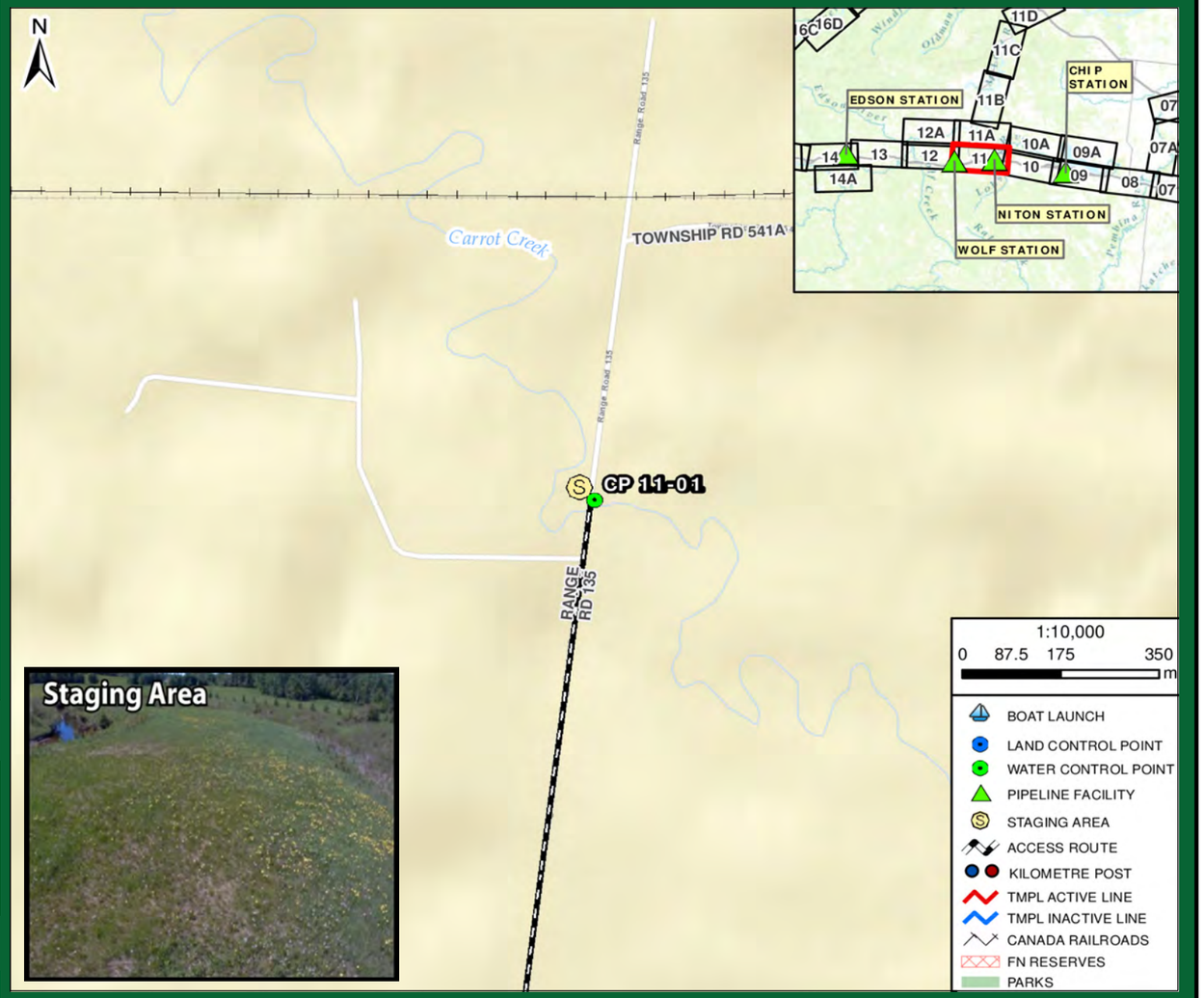
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and lack of sufficient current; perennial watercourse with occasional instream and overhanging cover provide low to moderate rearing potential; generally shallow water (max depth 1 m at time of survey) provides low overwintering potential.
- Shrubs with open grasslands and exposed foreshore areas provide good riparian, shorebird and grassland nesting bird habitat.
- CP located on private, open pasture/hay lands.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

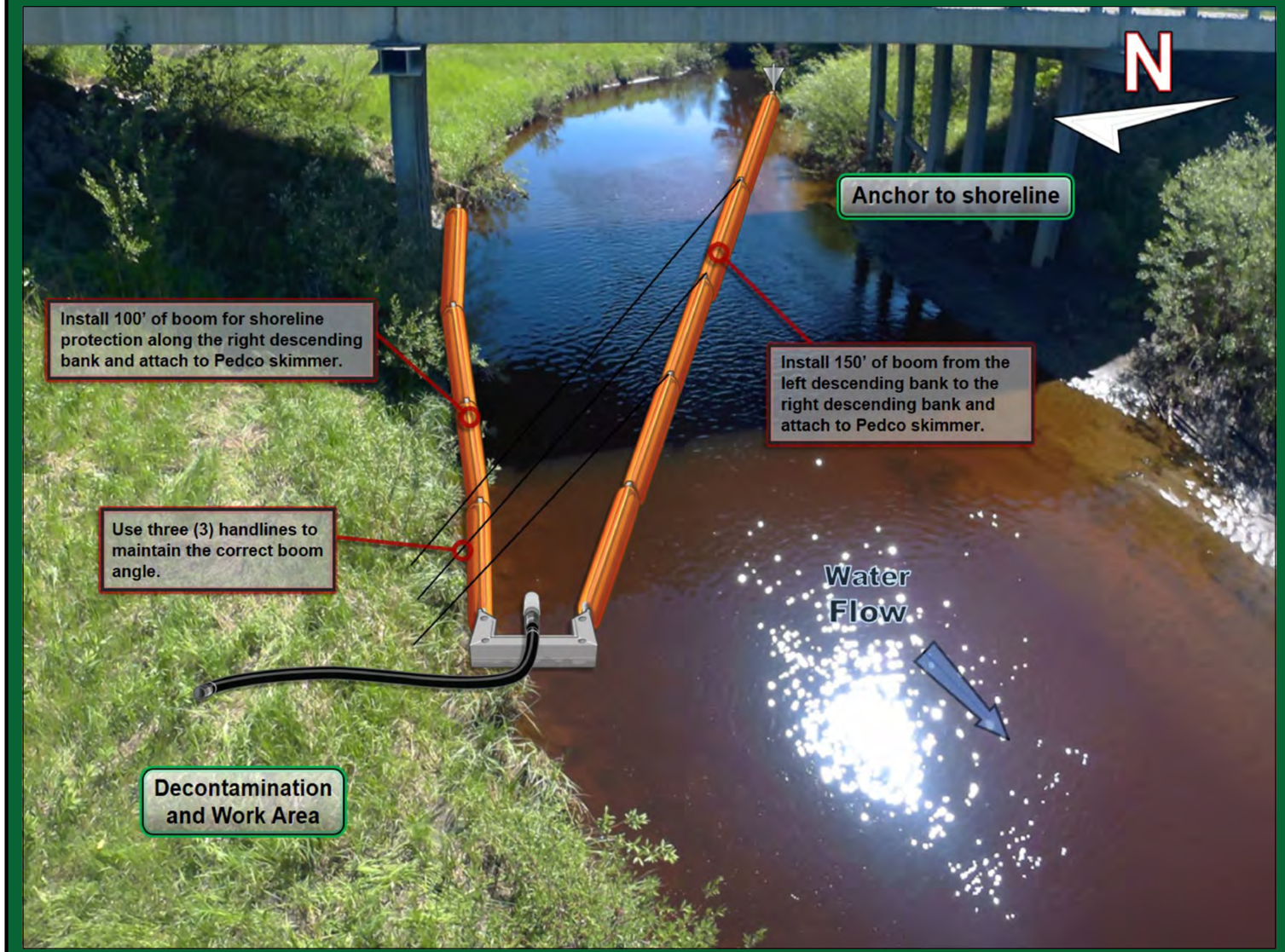
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 75.9 km
- Turn right (with left "jog") onto Township Rd 534B for 900 m
- Turn right onto Range Rd 134 for 1.8 km
- Turn left onto Township Rd 540 for 1.5 km
- Turn right onto Range Rd 135 for 2.3 km
- Destination is bridge over Carrot Creek
- Total Distance = 83.3 km
- Total Travel Time = 77 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-05
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11-01



Implementation Strategy:

- Install 150' of 6" x 6" hard containment boom from the left descending bank at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (3) 50' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 15 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	350'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		6	50' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), common nighthawk
- Owls (e.g., short-eared owl, long-eared owl)
- Grassland and shorebirds (e.g., spotted sandpiper, meadowlark, horned lark, killdeer, Savannah sparrow, upland sandpiper)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-04

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.611130
	Long:	-115.967370
Elevation:	855 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:**	STATION BLOCK
Downstream Valves:	**Line 01:**	UV-0001
Control Point:	**Upstream** N/A	**Downstream** CP 11A-03
Nearest KM Post:	**Line 01** KP 181	

Waterbody Information:

Waterbody Name: January Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		9 m	
Depth		1.1 m	
Flow Velocity		<0.5 km/hr	
FlowType		Frequently unconfined marginal velocity run structure	

Waterbody description:
Creek courses along lowlying wetland area containing sedge dominated margins, narrowing near collection along highway easement before flowing under clear span bridge with 2.5 m clearance. Flattened grasses, sediment deposits and water line along bridge suggest high water may occur up to 1 m above water levels at time of survey. May become stagnant during drought conditions or frozen to bottom during winter.

Shoreline Information

Bank Height:
0.8 to 1.5 along LDB; 1.2 to 1.8 along RDB.

Shoreline Composition and Slope:
Poorly defined, variable often saturated becoming gradual sloping, steeper upstream, while RDB steep, variable but stable around collection.

Shoreline Vegetation:
Tamarack dominated forest; willows, soopallalie, twinberry; grasses along highway easement, sedges along watercourses with patches of cattail.

Channel / Bank Forms:
Banks composed of organics underlain by fines; bed composed predominantly of fine sediment.

Shoreline Comments:
Collection area accessed from open, level grass dominated highway easement to variable, steep but stable bank up to 1.8 m high into soft instream substrate. Upstream of collection transitions to low lying sedge dominated wetland margins frequently saturated, becoming inundated during high water.

Logistical Information:

Staging Area Location:	- The staging area can be located along Highway 32 in the ditch. - 25 m x 25 m area. - Matting required to establish all weather access.	
	Lat: 53.61087	Long: -115.96735
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access directly off of Highway 32. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

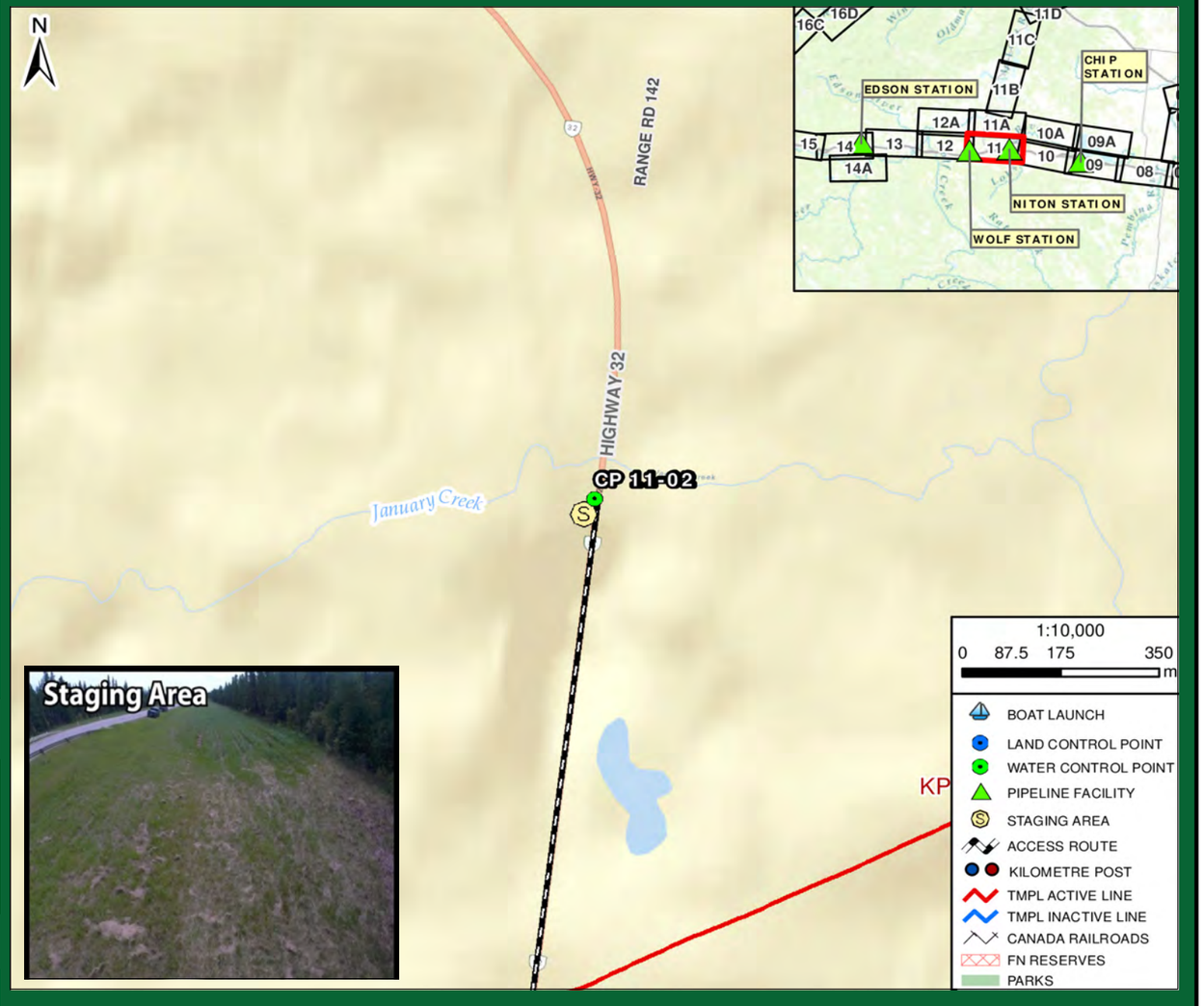
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and organics and lack of sufficient current; areas of deeper water and wetland habitat along margins provides moderate rearing habitat potential; low overwintering potential due to low oxygen and potential frozen to bottom conditions.
- Waterbird habitat, amphibian habitat, wetland habitat, conifer forest habitat, riparian/shrub nesting habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 1.3 km
- Destination is bridge over January Creek
- Total Distance = 85.6 km
- Total Travel Time = 79 minutes calculated at 65 km/hr

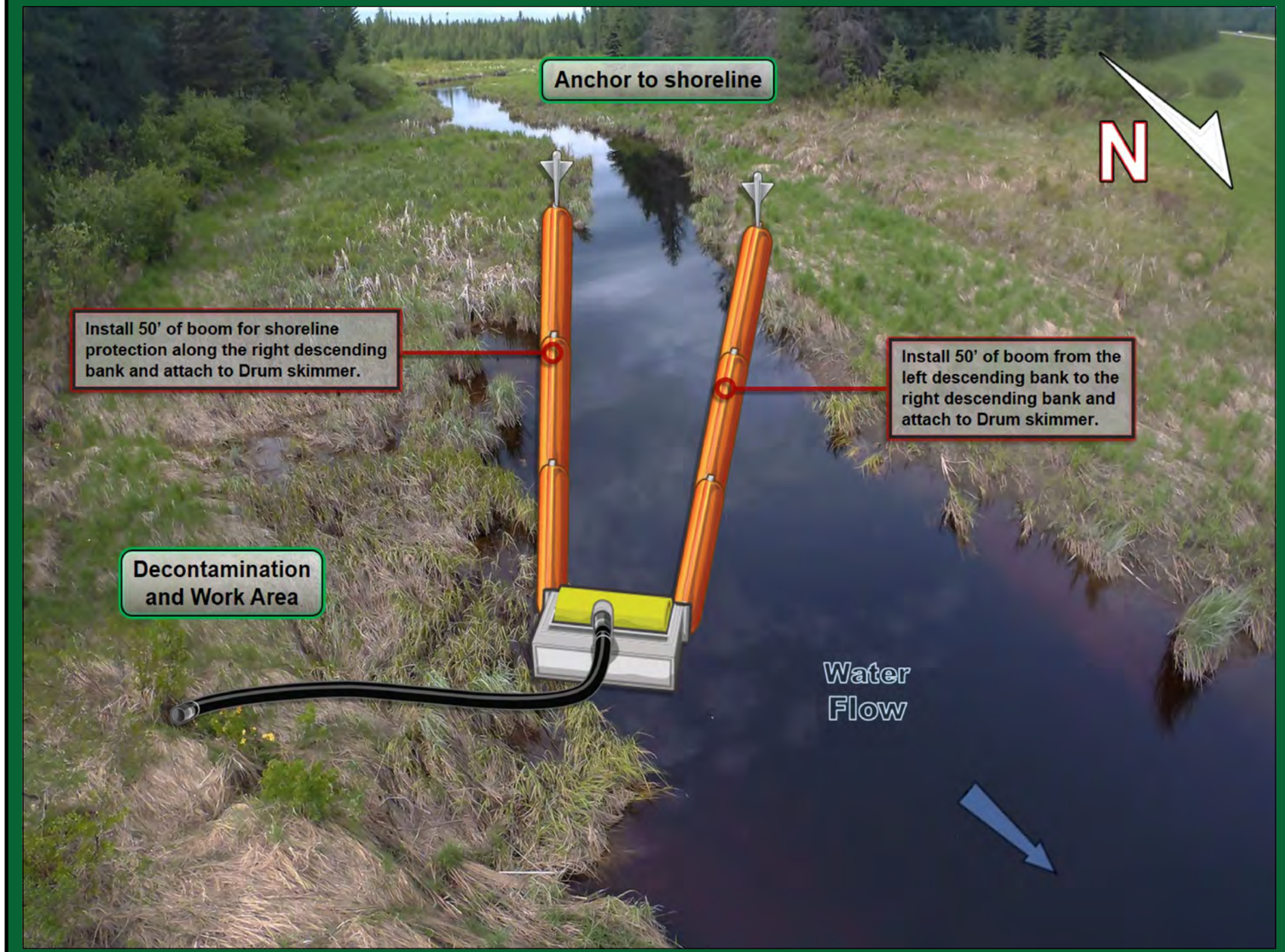
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-04
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11-02



Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), common nighthawk
- Owls (e.g., short-eared owl, long-eared owl), forest birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp.)
- Grassland and shorebirds (e.g., spotted sandpiper, meadowlark, horned lark, killdeer, Savannah sparrow, upland sandpiper)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-07
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 11A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.712170	
	Long:	-115.989900	
Elevation	797 m		
Upstream Valves:	**Line 01:**	STATION BLOCK	
Downstream Valves:	**Line 01:**	UV-0001	
Control Point:	**Upstream** CP 11A-06	**Downstream** CP 11D-01	
Nearest KM Post:	**Line 01** KP 180		

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		85 m	
Depth		Unknown	
Flow Velocity		1.0 km/hr	
FlowType		Frequently confined low velocity run structure	

Waterbody description:

Boat launch located along extensive, level open backshore area composed of compacted fine sediment and gravels; frequently used as an informal picnic/day use area and boat launch. Boat launch located along gradually sloping shoreline into shallow water with marginal current along inside river bend. Open backshore area likely becomes partially inundated during typical high water events. Low-moderate turbidity at time of survey.



Logistical Information:

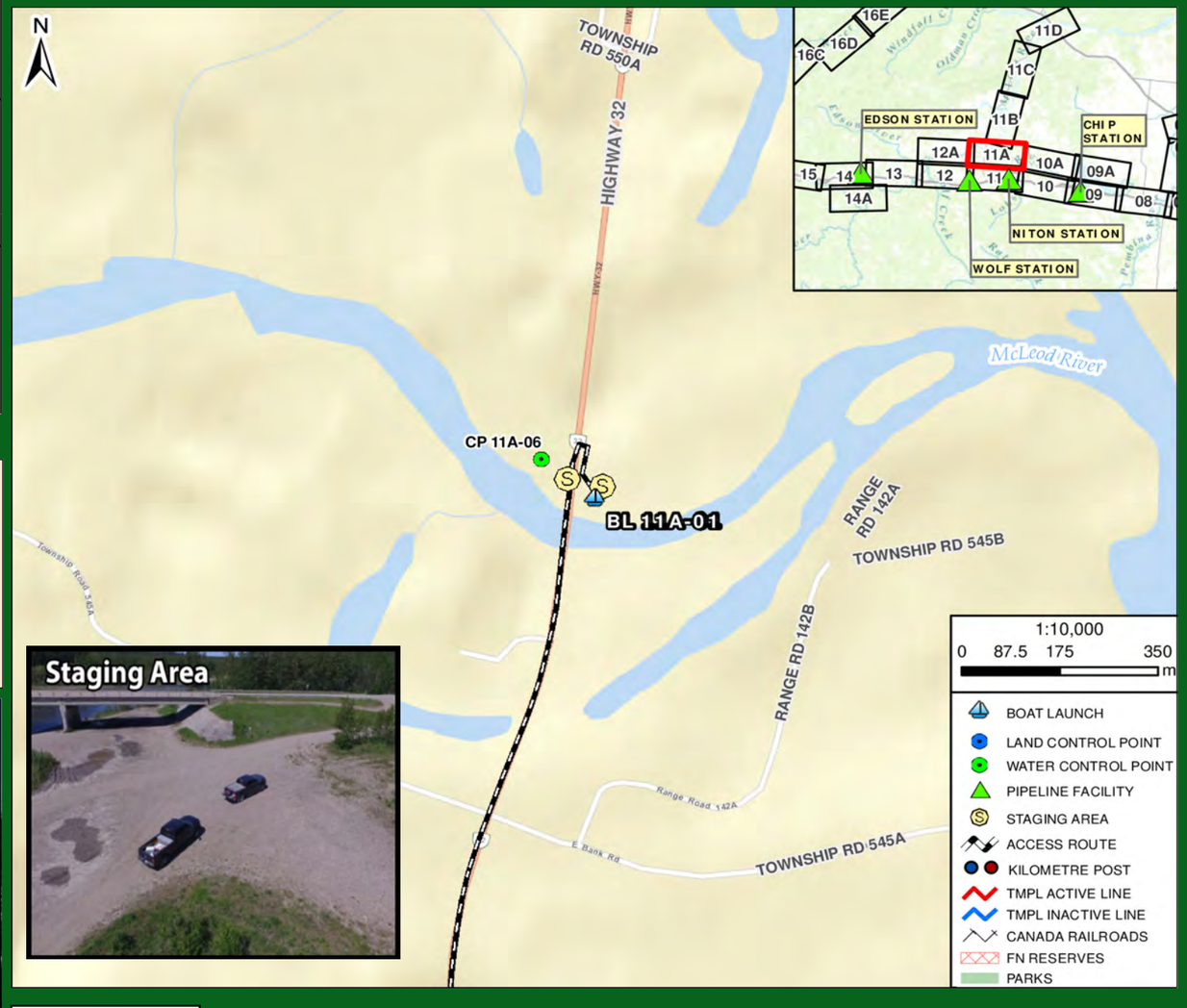
Road Access/Type:	- Access off of Highway 32. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located along the left descending bank. - 30 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.71238	Long: -115.98978
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - This is a popular angling and recreational boating area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 13.2 km (passing Peers)
- Pull off of highway at McLeod River bridge towards river access
- Destination is boat launch area beside bridge at McLeod River
- Total Distance = 97.7 km
- Total Travel Time = 90 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-05

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.682170	
	Long: -115.940030	
Elevation:	813 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 11-01	**Downstream** CP 11A-02
Nearest KM Post:	**Line 01** KP 178	

Waterbody Information:

Waterbody Name: Carrot Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		9 m	
Depth		1.6 m	
Flow Velocity		2.0 km/hr	
FlowType		Frequently confined marginal velocity run and riffle structure	

Waterbody description:

Containment located along long deep (up to 1.8 m) forested run containing frequent overhanging trees and shrubs and stranded woody debris along banks. Downstream of collection, creek flows under clear span bridge with 2 m clearance, where it shallows along a short stretch of riffles. Depth and volume indicated creek likely flows year-round. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
1.2 to 1.8 m

Shoreline Composition and Slope:
Mixed riprap and fines at collection; upstream, banks variable but mostly steep, often covered in moss, becoming vertical near water line, comprised of exposed fines, roots.

Shoreline Vegetation:
Spruce forest along LDB with isolated poplar and birch; mixed shrubs (e.g., willow, alder, wild rose, raspberry), more dense along RDB with isolated spruce and poplar; mixed grasses, sedges and horsetail; occasional clover, dandelion, goldenrod, Canada anemone.

Channel / Bank Forms:
Banks composed of mixed organics, fines and riprap near bridge, predominantly fine sediment upstream; bed composed of mixed substrate ranging from mostly fine sediments to pockets of gravels and cobble with occasional boulders.

Shoreline Comments:
Collection area accessed from private road down 1 m high wooden retainment wall associated with bridge becoming steep and uneven down 2 m slope comprised of mixed grasses and boulder riprap to steep sloping, but stable bank. Mixed bed substrate ranging from fines to boulders is quite firm and stable. Slips/trips/falls hazard along muddy, steep to vertical banks and foreshores, and loose boulder riprap.

Logistical Information:

Staging Area Location:	- The staging area can be located on the left descending bank. - 15 m x 30 m area. - Matting required to establish all weather access. - The staging area is located on private land.	
	Lat: 53.68214	Long: -115.94058
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located on private land. - Landowner permission required before accessing control point. - Gated access to the control point and staging areas.	
Road Access/Type:	- Access off of Range Road 141A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

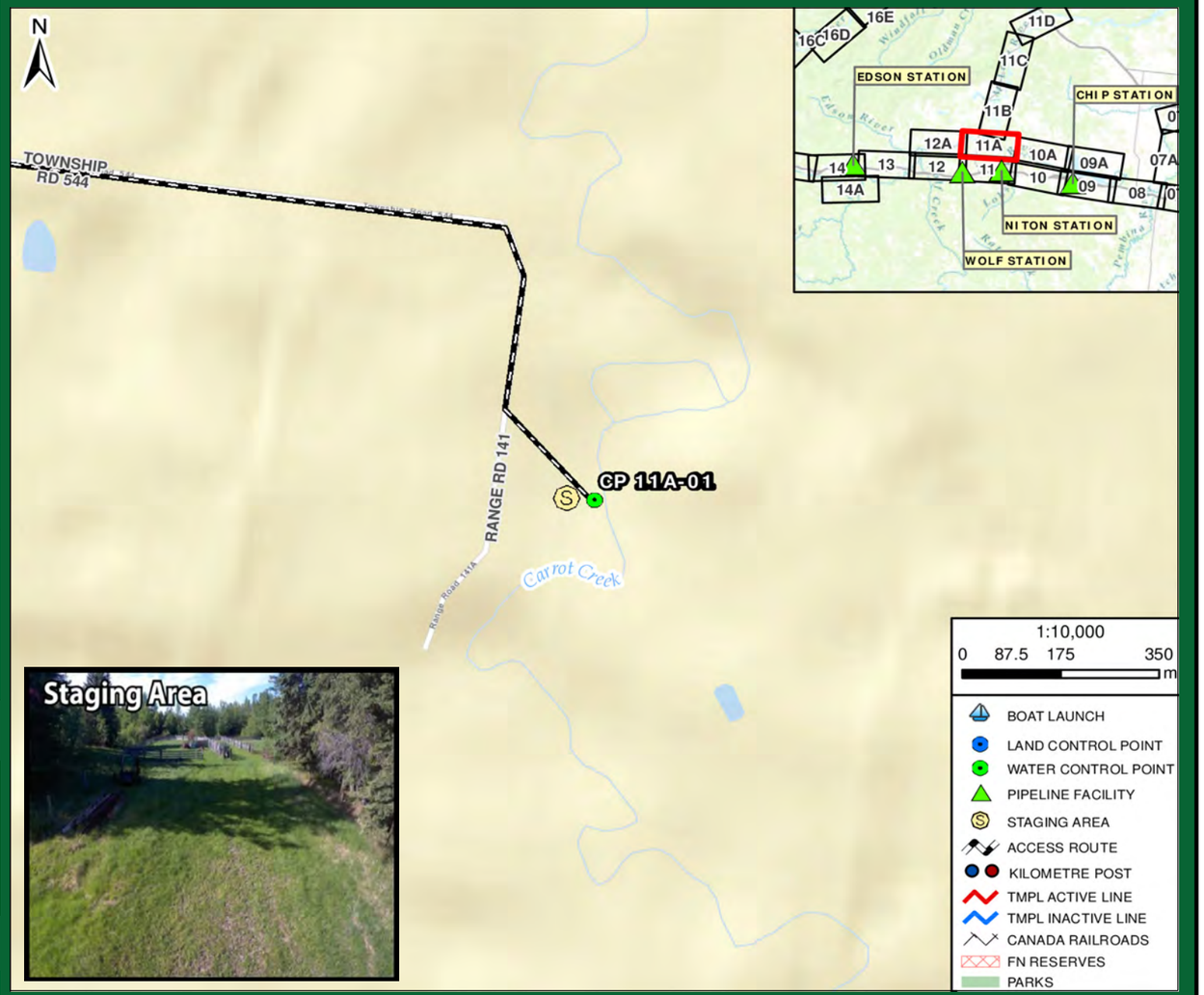
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and lack of sufficient current; perennial watercourse with deep pools and runs (up to 1.8 m) and instream and overhead cover provides moderate rearing and overwintering habitat potential.
- Mixedwood forest with shrubby margins provide good forest, cavity and riparian/shrub nesting habitat.
- CP is located on private land with open pasture areas along backshore RDB and downstream of bridge.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Private land, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

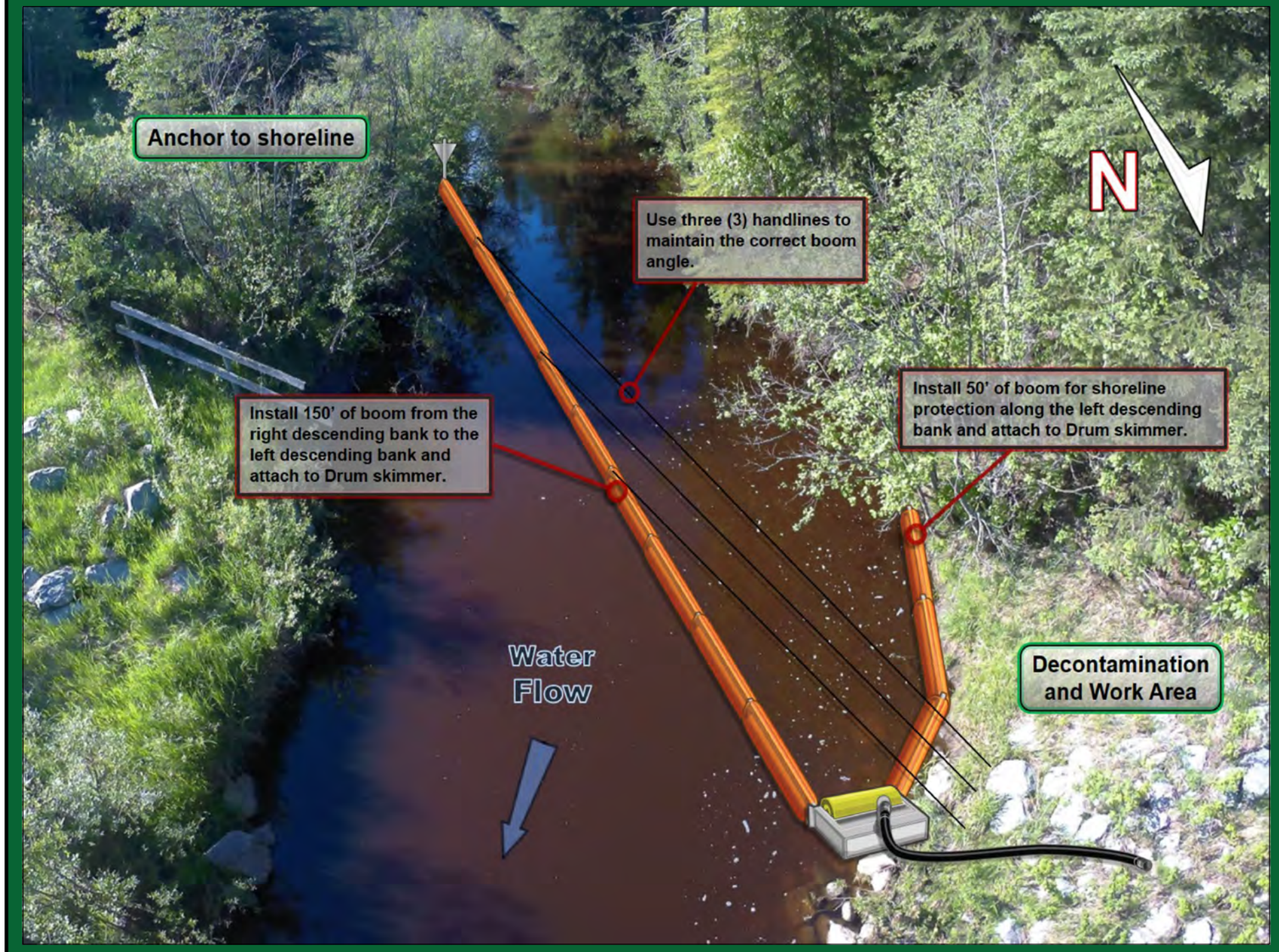
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 10.3 km (passing Peers)
- Turn right onto Township Rd 544/ Township Rd 543A for 3.5 km
- Township Rd 544 turns right and becomes Range Rd 141 for 360 m
- Take left fork on private road towards private bridge crossing Carrot Creek
- Destination is bridge at Carrot Creek
- Total Distance = 98.6 km
- Total Travel Time = 91 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-05
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		6	50' Handline and Bridle
		1	Vacuum Truck
		1 / 100'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp., vireo spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp., chickadee spp.)

Implementation Strategy:

- Install 150' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install (3) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 13 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-07

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.710260	
	Long: -115.962010	
Elevation:	801 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 11A-01	**Downstream** CP 11D-01
Nearest KM Post:	**Line 01** KP 178	

Waterbody Information:

Waterbody Name: Carrot Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		20 m	
Depth		Unknown	
Flow Velocity		0.5 km/hr	
FlowType		Frequently confined marginal velocity run structure	

Waterbody description:

CP located at confluence of McLeod River, located 5 m downstream, where creek enters along a deep outside bend with moderate-high velocity (up to 6 km/h). Creek appears deep along containment and collection; depth could not be confirmed due to turbidity. Abundant stranded logs and woody debris along upstream extent of containment. Shoreline characteristics indicate typical high water up to 1 m above levels during survey

Shoreline Information

Bank Height:
1.2 to 1.8 m

Shoreline Composition and Slope:
Predominantly steep along RDB with level open backshore; overhanging along LDB with dense shrubs, often overhanging.

Shoreline Vegetation:
Young willow along RDB with open short grasses along backshore; mature poplar and occasional spruce along backshore LDB with dense young to mature willows; sedge, horsetail along banks, predominantly grasses above.

Channel / Bank Forms:
Bed and banks predominantly composed of organics and fines; frequent exposed roots and embedded woody debris along LDB.

Shoreline Comments:
Collection area accessed down gradual to moderately steep low grade access road from rural gravel road down to open grassy level backshore area at confluence with McLeod River, from which collection is accessed down 1.5 m high moderately steep, exposed but stable bank, becoming soft and muddy along water line. Be aware of active bank erosion and slumping along RDB of McLeod River immediately downstream of confluence.

Logistical Information:

Staging Area Location:	- The staging area can be located on the right descending bank. - 10 m x 25 m area. - Matting required to establish all weather access.	
	Lat: 53.71022	Long: -115.96169
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Low impact access recommended.	
Road Access/Type:	- Access off of East Bank Road. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat due to abundant fines and marginal current; deep water around McLeod River confluence and areas of instream/overhead cover provide good rearing and overwintering habitat.
- Riparian nesting habitat.
- Waterbird habitat.
- Shorebird habitat.
- CP located at informal, infrequently used fishing and day use/camp site area along open grassy backshore area of RDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

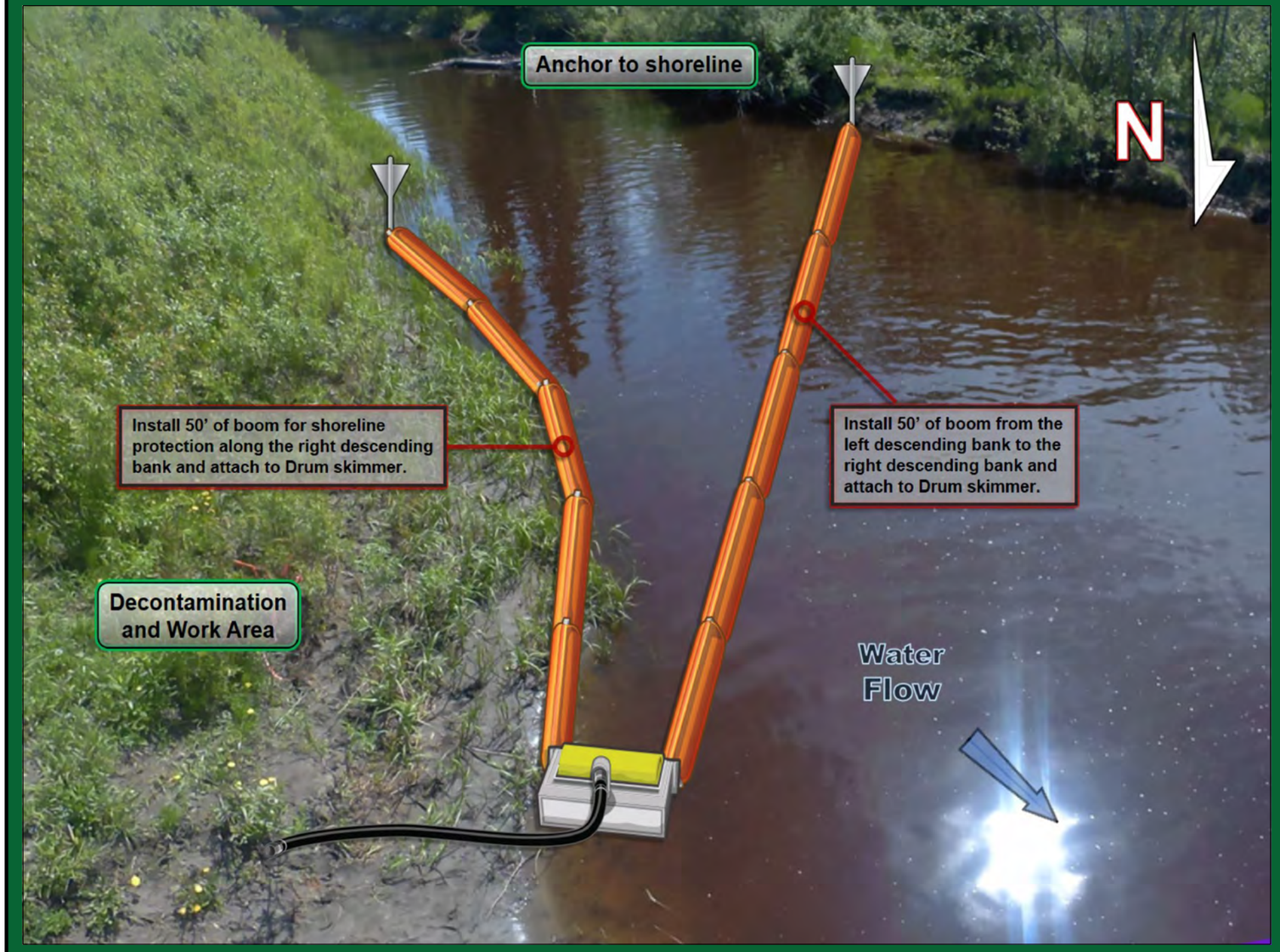
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 12.5 km
- Past Peers and before river bridge, Turn right onto E Bank Rd / Township Rd 545A for 2.1 km
- Pulloff left towards cleared pathway adjacent to creek
- Destination is Carrot Creek, before it enters McLeod River
- Total Distance = 99.2 km
- Total Travel Time = 92 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-07
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 100'	Power Pack / Hydraulic Line
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp., vireo spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl), shorebirds (e.g., sandpiper spp., killdeer, Wilson's snipe)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp., chickadee spp.)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 25 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-05

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.666030	
	Long: -115.994480	
Elevation:	840 m	
Land and Resource Use:	Crown Land. Town of Peers.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 11A-05	**Downstream** CP 11A-04
Nearest KM Post:	**Line 01** KP 180	

Waterbody Information:

Waterbody Name: January Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		6 m	
Depth		0.7 m	
Flow Velocity		0.6 km/hr	
FlowType		Frequently unconfined marginal velocity run structure	

Waterbody description:

Creek courses through community of Peers along a sinuous, shrub-dominated channel, flowing under clear span bridge with 2.5 m clearance. Flattened grasses, sediment deposits and water lines along bridge suggest high water may occur up to 1 m above water levels at time of survey. Creek may become stagnant during drought conditions or frozen to bottom during winter. Low-moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1.2 m

Shoreline Composition and Slope:
Both banks variable, but predominantly steep with occasional overhanging areas with soft but stable substrate becoming muddy along water line, with steep stable approach

Shoreline Vegetation:
Submergent vegetation (e.g., aquatic grasses, duckweed); dense willows and isolated red-osier dogwood along LDB; tall grasses (e.g., bluejoint, managrass, brome), sedges and horsetail; occasional clover, dandelion, common tansy, Canada anemone

Channel / Bank Forms:
Banks composed of organics underlain by fines; bed composed of mixed substrate ranging from mostly fine sediments to pockets of gravels and cobble with occasional boulders.

Shoreline Comments:
Collection area accessed from a level grassy, maintained (mowed) backshore on RDB, down steep 2.5 m high approach densely vegetated with tall grasses and sedges to collection area along stable but soft bank into shallow (up to 0.7 m) water. Mixed bed substrate ranging from fines to boulders is quite firm and stable. LDB approach is more gradually sloping, but densely vegetated with mature willows. Slips/trips/falls hazard along muddy, steep banks and foreshores.

Logistical Information:

Staging Area Location:	- The staging area can be located on the right descending bank. - 15 m x 35 m area. - Matting required to establish all weather access. - Staging area located at the Peers Hotel, security recommended.	
	Lat: 53.66604	Long: -115.99432
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The staging area is located on private property. - Landowner permission required before using staging area. - The control point and staging area are located in the Town of Peers.	
Road Access/Type:	- Access off of Willow Drive. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

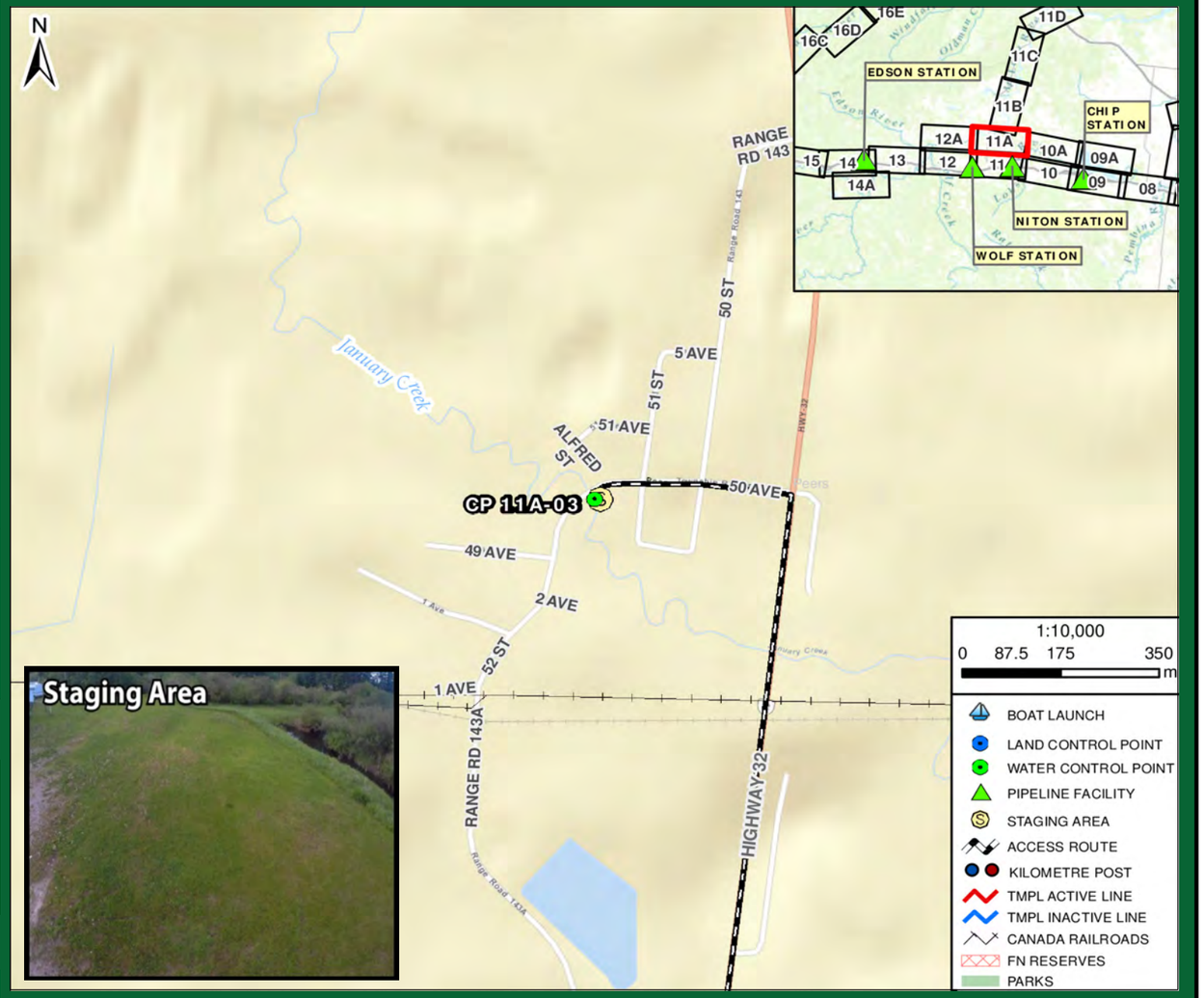
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and organics and lack of sufficient current; areas of deeper water and instream and overhead cover provide moderate rearing habitat potential; low overwintering potential due to low oxygen and potential frozen to bottom conditions.
- Dense mature willows, tall sedges and grasses and exposed muddy banks provide good habitat potential for riparian/shrub nesting birds, shorebirds and amphibians.
- Located in the Community of Peers.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- The control point and staging area are located in the Town of Peers, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

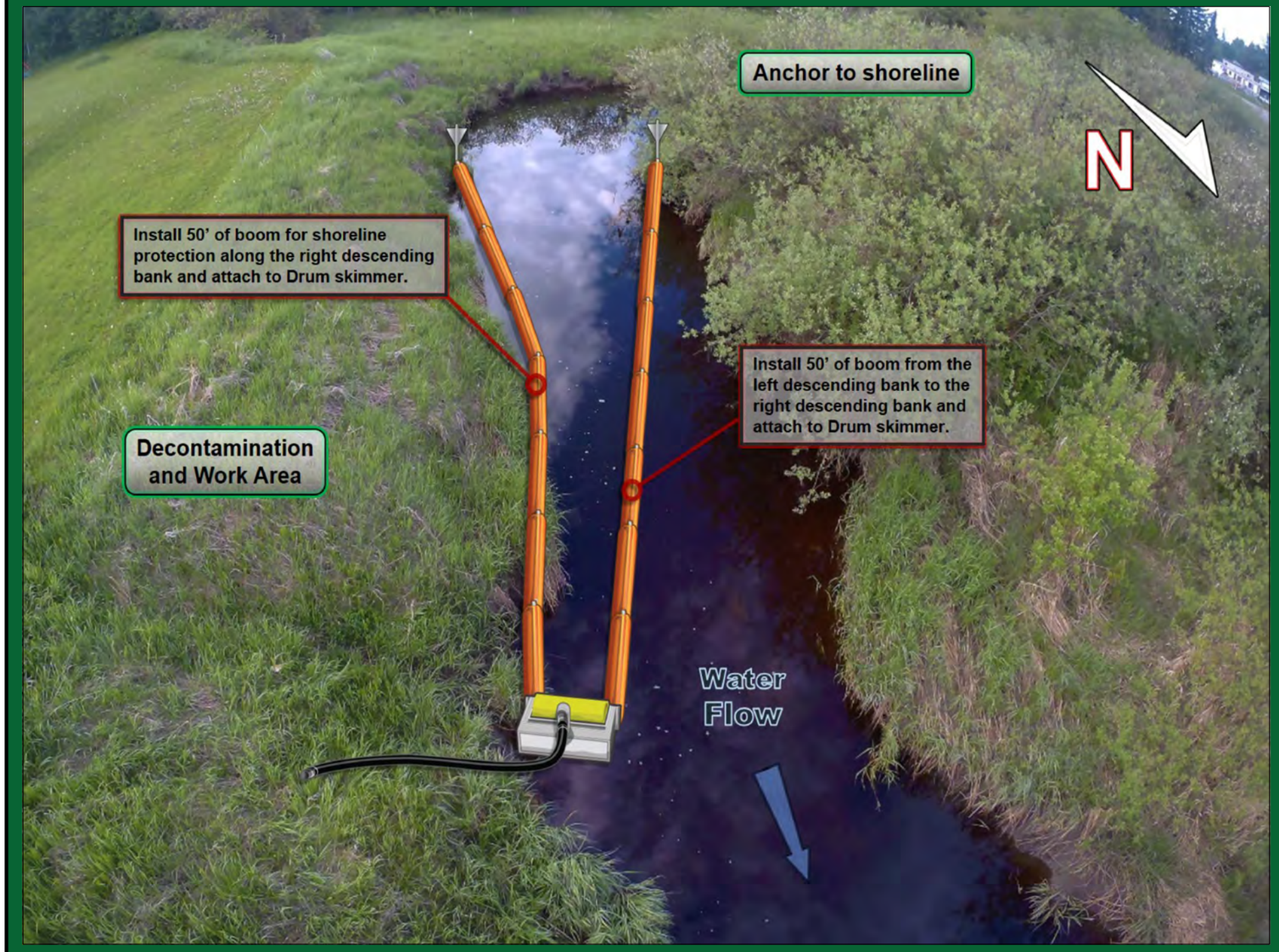
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 8 km
- At Peers, Turn left onto Township Rd 542A for 350 m as you pass residential area and approach creek
- Destination is bridge at January Creek, just as road becomes Range Rd 143A
- Total Distance = 92.7 km
- Total Travel Time = 86 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-05
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp., vireo spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owl spp. (e.g., short-eared owl, long-eared owl)
- Wetland birds (e.g., sora, common yellowthroat, marsh wren, red-winged blackbird, rusty blackbird)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install an 8 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-05

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-04

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.699380
	Long:	-116.052760
Elevation:	814 m	
Land and Resource Use:	Crown Land. Range Road 145A Road Right-of-Way.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 11A-03	**Downstream** CP 11A-05
Nearest KM Post:	**Line 01** KP 190	

Waterbody Information:

Waterbody Name: January Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		6 m	
Depth		0.5 m	
Flow Velocity		2.5 km/hr	
FlowType		Frequently unconfined low velocity run and riffle structur	

Waterbody description:

Creek courses along a sinuous, shrub-dominated lowland with frequent side channels and depressed areas along backshore that may become saturated or inundated during high water. Frequent overhanging shrubs and stranded woody debris along both banks, and exposed muddy foreshore areas upstream of collection. Creek may become stagnant during drought conditions or frozen to bottom during winter. Low-moderate turbidity.

Shoreline Information

Bank Height:
1 to 1.5 along RDB; 0.8 to 1.2 along LDB

Shoreline Composition and Slope:
Both banks variable, but predominantly steep to vertical/overhanging, higher along RDB and often obscured by dense grasses and sedges, with level but very uneven backshores.

Shoreline Vegetation:
Isolated poplar saplings, moderately dense shrubs; mostly willow and alder with occasional red-osier dogwood, raspberry and wild rose; tall grasses (e.g., bluejoint, managrass, reed canarygrass), sedges, horsetail; less frequent cow parsnip, rue, bluebells

Channel / Bank Forms:
Banks composed of organics underlain by fines and exposed roots and woody debris; bed composed of mixed substrate ranging from mostly fine sediments to pockets of gravels and cobble with occasional boulders.

Shoreline Comments:
Collection area accessed along shrub and tall grass-sedge dominated riparian margins of LDB to variable gradual to vertical/overhanging banks often obscured by vegetation and stranded woody debris piles. RDB is more elevated and often vertical/undercut with frequent exposed roots and stranded woody debris. Slips/trips/falls hazard along uneven terrain; obscured, variable banks with chutes; and hidden beaver cuttings along backshore.

Logistical Information:

Staging Area Location:	- The staging area can be located along Township Road 145A. - 5 m x 50 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.69957	Long: -116.05309
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Range Road 145A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is surrounded by private land.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Pockets of gravels and cobbles along riffle and run structure provide good spawning habitat potential; eddies, pools and abundant instream and overhead cover provide moderate rearing habitat; low overwintering potential due to low oxygen and potential frozen to bottom conditions.
- Abundant shrubs, tall sedges and grasses and exposed muddy banks provide good habitat potential for riparian/shrub nesting birds, shorebirds, wetland birds and amphibians.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present. Overhead power lines present at the staging and control point areas.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

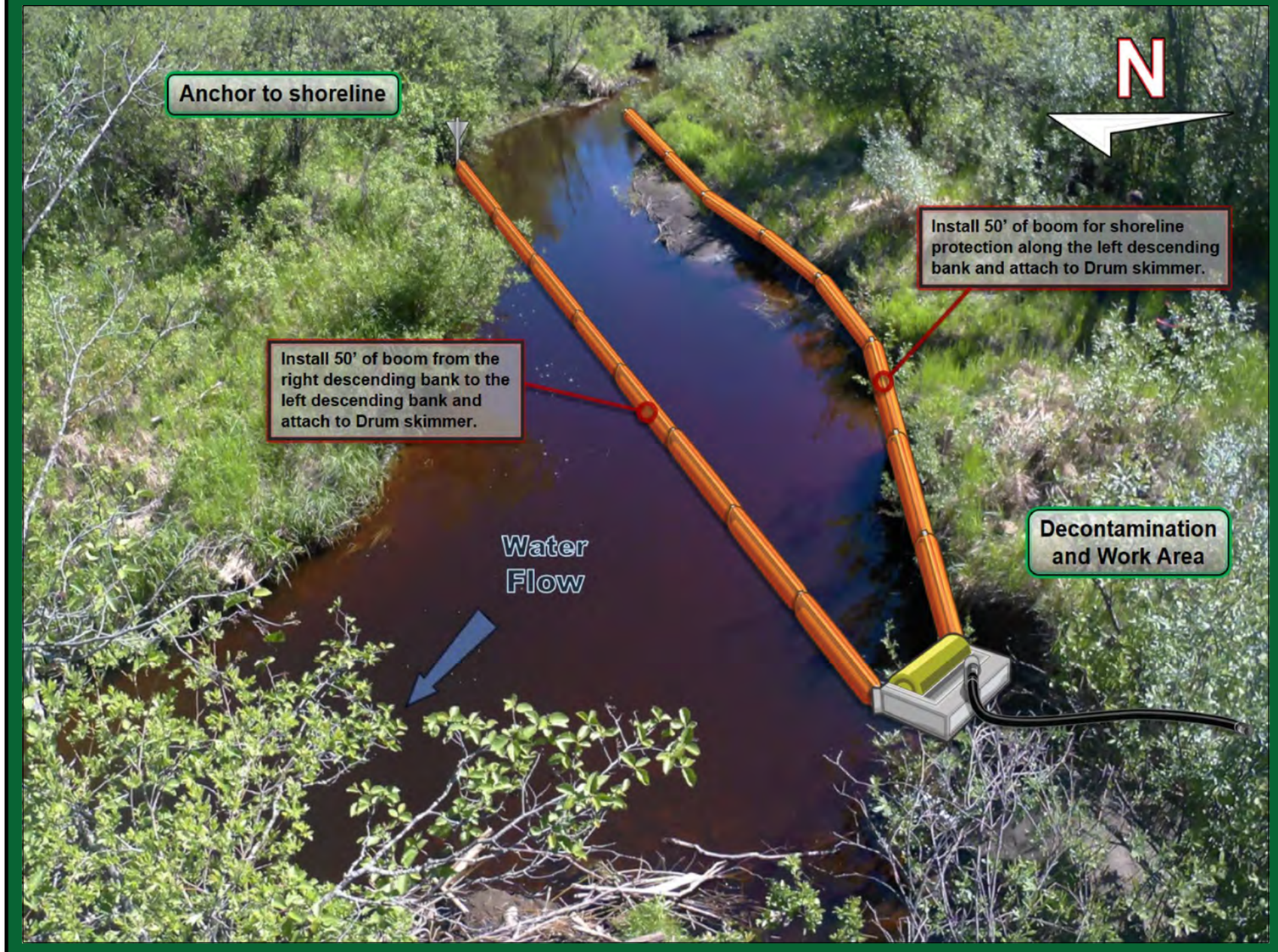
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 10.3 km (passing Peers)
- Turn left onto Township Rd 544 for 4 km
- Turn right onto Range Rd 145A for 1.4 km
- Destination is highway pull off at January Creek
- Total Distance = 100.1 km
- Total Travel Time = 92 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-05
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-04



Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install an 8 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 100'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp., vireo spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl), shorebirds (e.g., sandpiper spp., killdeer, Wilson's snipe, lesser yellowlegs)
- Wetland birds (e.g., sora, common yellowthroat, marsh wren, red-winged blackbird)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-16

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-05

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.720950	
	Long: -116.041440	
Elevation:	809 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 11A-04	**Downstream** CP 11A-06
Nearest KM Post:	**Line 01** KP 180	

Waterbody Information:

Waterbody Name: January Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width			11 m
Depth			1.2 m
Flow Velocity			<0.5 km/hr
FlowType			Frequently confined low velocity run

Waterbody description:

CP located at the confluence with McLeod River. Creek courses along a sinuous, mature poplar and shrub-dominated forested with frequently overhanging trees and shrubs and steep to vertical, often obscure banks. Creek broadens and slows along containment, becoming deeper near LDB. May become stagnant or intermittent during drought conditions or frozen to bottom during winter. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
1 to 1.5 m along RDB; 1.5 to 2.5 m along LDB

Shoreline Composition and Slope:
Banks variable, but predominantly steep to vertical/overhanging, higher along LDB and often obscured by dense grasses, shrubs and woody debris with level forested backshore

Shoreline Vegetation:
Mature and isolated dead standing poplars; dense shrubs (e.g., alder, wild rose, red-osier dogwood, red-raspberry, twining honeysuckle); dense mixed grasses, sedges and horsetail; less frequent meadow rue, creamy peavine, false Solomon's seal.

Channel / Bank Forms:
Banks composed of organics underlain by fines and exposed roots and woody debris; bed composed predominantly of organics and fines with less frequent gravels and cobbles.

Shoreline Comments:
CP accessed via narrow wildlife trail along forested setting, extending 50 m from cropland to confluence with McLeod River. Collection area accessed down a steep 2 m high bank, stable but very densely vegetated with grasses, shrubs with stranded woody debris along foreshore. RDB is lower, generally overhanging. Slips/trips/falls hazard along soft instream substrate and along obscured, variable banks and hidden beaver cuttings along backshore.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank in a cultivated field. - 100 m x 100 m area. - Matting required to establish all weather access.	
	Lat: 53.72114	Long: -116.04208
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 3 m x 3 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Gated access. - The control point and staging area are located on private land. - Landowner permission required before accessing control point. - Access from agricultural land.	
Road Access/Type:	- Access off of Range Road 145A, 810 m through private land across cultivated fields. - Matting required to establish all weather access.	
Boat Access:	- A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the left descending bank to the right descending bank.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

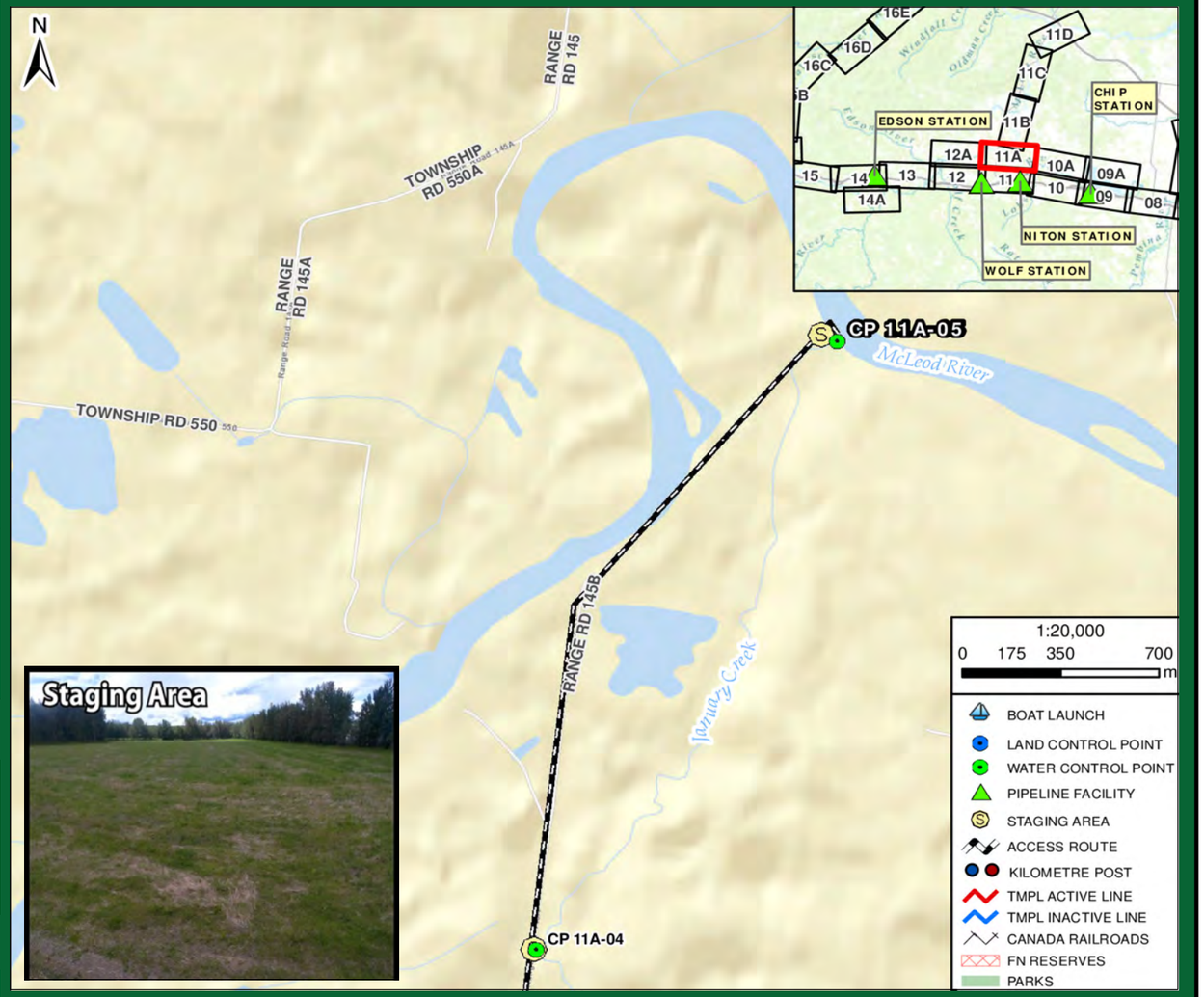
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to lack of current and abundant fines; abundant instream and overhead cover and proximity to McLeod River 10 m downstream provide good rearing potential; low to moderate overwintering due to low oxygen and potential for intermittent flow and/or frozen to bottom conditions.
- Dense shrubs and mature and dead standing poplar and exposed muddy foreshore areas provide good habitat potential for riparian/shrub nesting birds, forest/cavity nesting birds, amphibians and shorebirds.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven shoreline, use caution.
- Private access, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

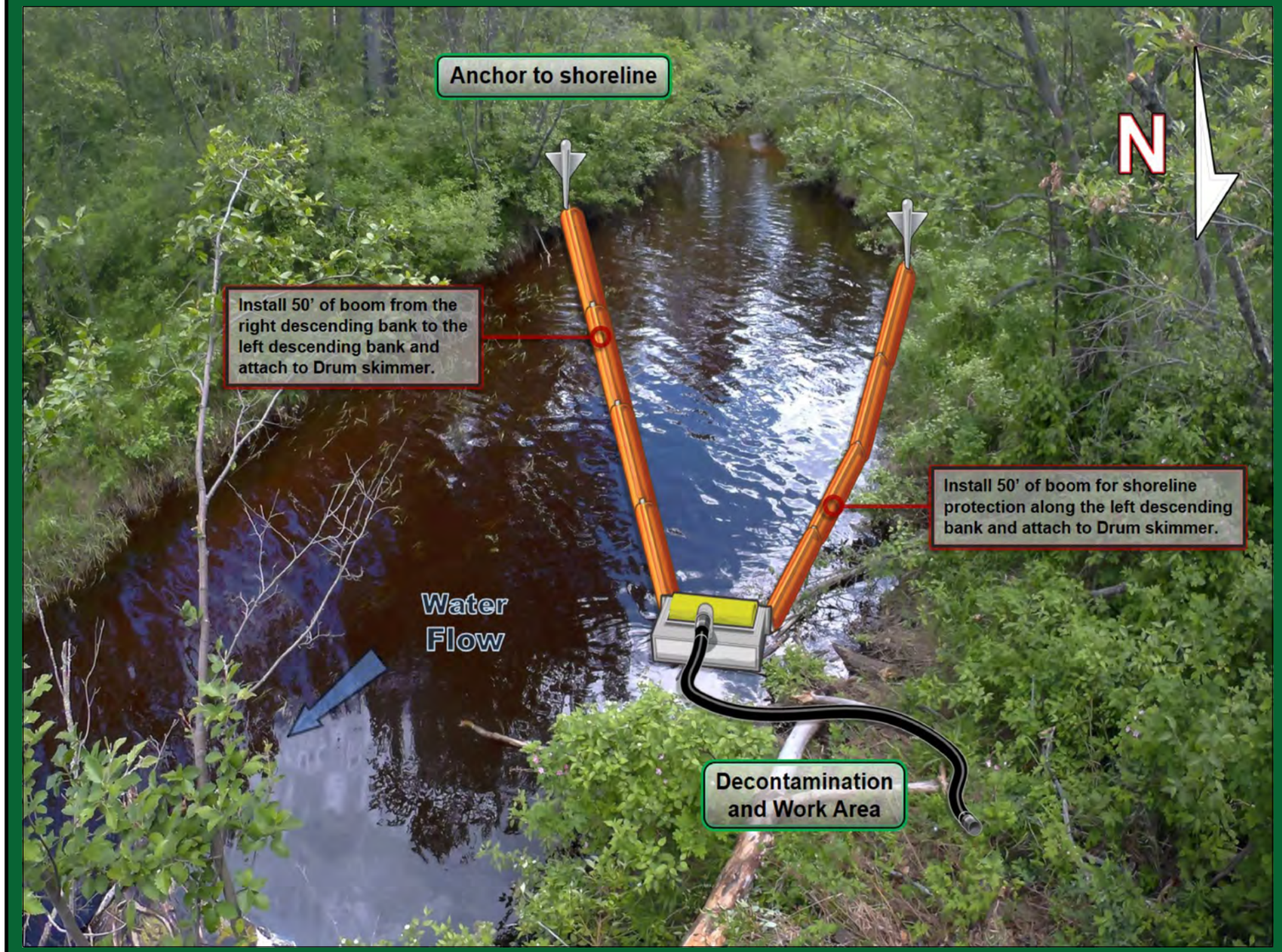
'- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 10.3 km (passing Peers)
- Turn left onto Township Rd 544 for 4 km
- Turn right onto Range Rd 145A/b for 2.5 km
- Continue thru private land / cultivated field towards January Creek
- Destination is January Creek, about 1.5 km upstream towards island
- Total Distance = 103 km
- Total Travel Time = 95 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-16
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-05



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Small Rubber Hull Work Boat
		250'	Rope
		1	Vacuum Truck
		1 / 100'	Power Pack / Hydraulic Line
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp., vireo spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp., chickadee spp.)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 15 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-07

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-06

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.712700	
	Long: -115.991550	
Elevation:	797 m	
Land and Resource Use:	Crown Land. Highway 32 Road Right-of-Way.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 12A-01	**Downstream** CP 11D-01
Nearest KM Post:	**Line 01** KP 180	

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		78 m	
Depth		Unknown	
Flow Velocity		4.0 km/hr	
FlowType		Frequently confined moderate velocity run and riffle structure	

Waterbody description:
Collection located on outside river bend, with overhanging trees and sweepers along actively eroding LDB upstream of collection; while RDB is depositional bar often inundated during high water. Potential navigation hazards along shallow/exposed river bed during low water along upstream extent of containment. Shoreline characteristics indicate typical high water up to 1.2 m above water levels at time of survey.

Shoreline Information

Bank Height:
Poorly defined along RDB; up to 2.5 m along LDB

Shoreline Composition and Slope:
LDB vertical/overhanging upstream of collection, becoming stable moderately steep but variable at collection and downstream; RDB gradually sloping along sediment/gravel bar.

Shoreline Vegetation:
Mature and dead standing poplar and shrub (e.g., willow, wild rose, red-osier dogwood) dominated riparian margins upstream, becoming more sparse around collection and downstream with vetch, grass, goldenrod along backshore.

Channel / Bank Forms:
LDB composed of mixed fines, gravels, cobbles and boulders at and downstream of collection; fine sediment upstream of collection. RDB composed predominantly of fines and gravels. Bed composed of cobbles and boulders, pockets of fines and gravels.

Shoreline Comments:
Collection accessed from below bridge along variable, often steep but stable approach to moderately steep gravel dominated bank containing large boulders along deep shoreline eddy on the downstream end of outside river bend. Above collection there is a level, open grassy work area. RDB poorly defined along gradually sloping shoreline. Be aware, forested bank upstream of collection is overhanging, up to 2.5 m high. Slips/trips/falls hazard along large boulder riprap downstream of collection.

Logistical Information:

Staging Area Location:	- A staging area can be located along the left descending bank. - 25 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.71244	Long: -115.99073
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and water sports area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 32. - All weather access is established.	
Boat Access:	- Main boat access from BL 11A-01. - Refer to BL 11A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

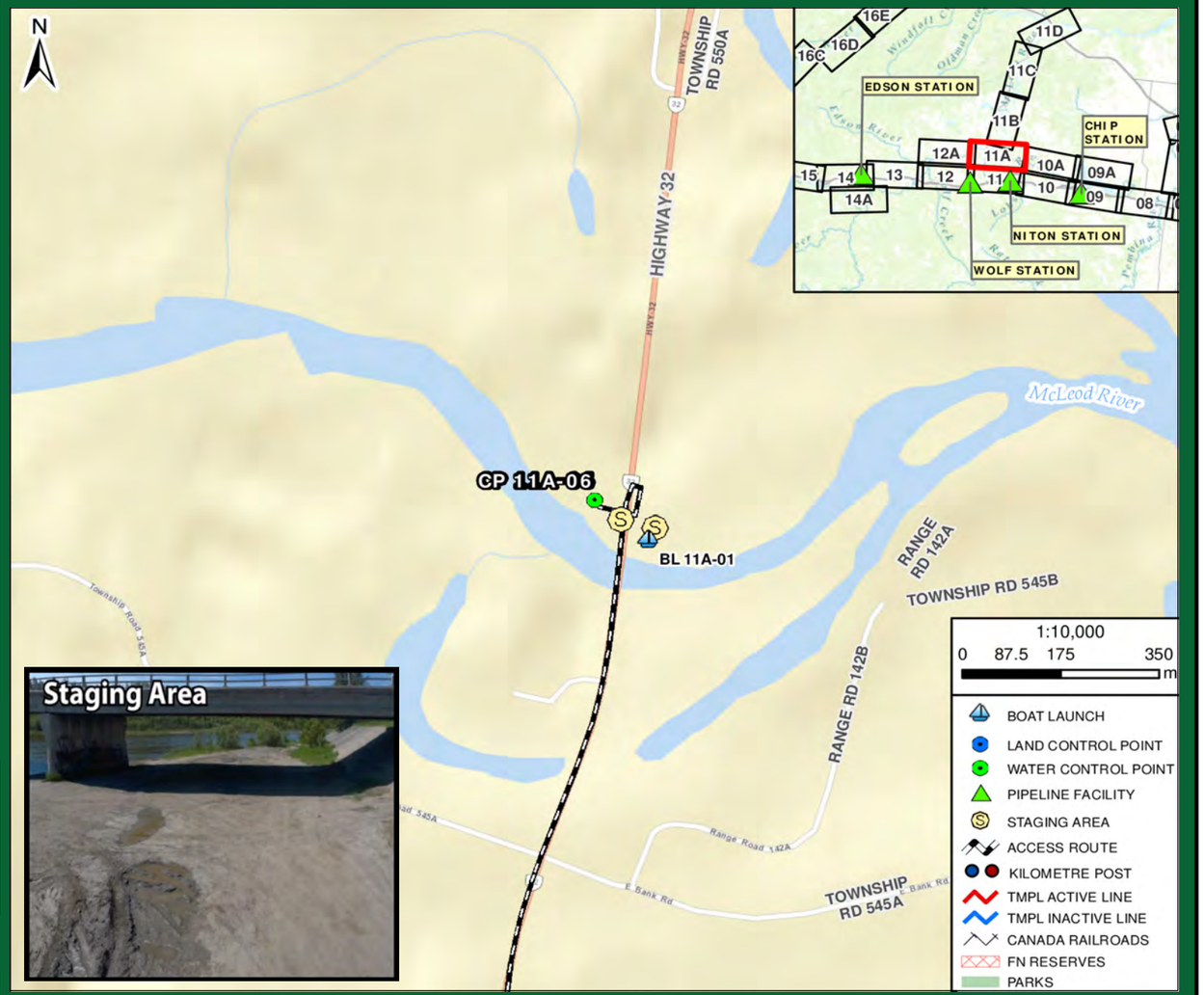
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current along riffle-run with pockets of gravels and cobbles provide good spawning potential; deep shoreline eddiess and instream/overhead cover along LDB provide good rearing and overwintering habitat potential; important migratory corridor to upstream spawning areas of McLeod River Watershed.
- Cavity nesting habitat in dead standing poplars upstream of collection.
- Riparian nesting habitat.
- Shorebird nesting habitat along inside river bend.
- Frequently used informal picnic/day use area and boat launch along LDB along extensive open, bare sand/gravel bar at highway bridge (likely becomes submerged during high water).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Control point accessed from the Quality Inn, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 83.3 km
- Turn right onto AB-32 N (sign for Peers, Whitecourt) for 13.2 km (passing Peers)
- Pull off of highway at McLeod River bridge towards river access
- Destination is bridge at McLeod River
- Total Distance = 97.7 km
- Total Travel Time = 90 minutes calculated at 65 km/hr

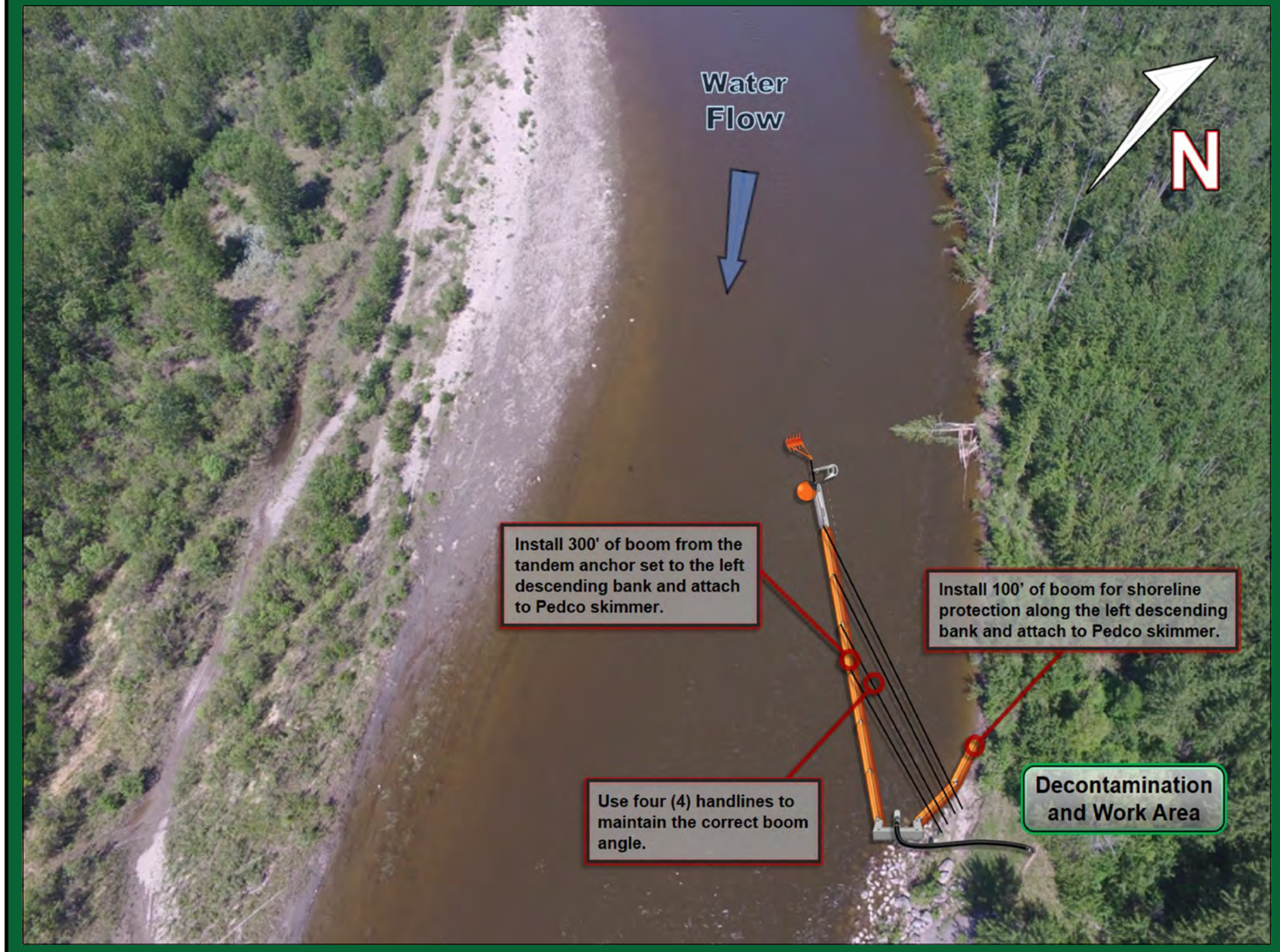
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-07
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11A-06



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 300' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose directly to a portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 50 m ice slot from the middle of the river at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	500'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp., vireo spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl), shorebirds (e.g., sandpiper spp., killdeer)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp., chickadee spp.)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-07
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 11D-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	54.150120	
	Long:	-115.701880	
Elevation	690 m		
Upstream Valves:	**Line 01:**	STATION BLOCK	
Downstream Valves:	**Line 01:**	UV-0001	
Control Point:	**Upstream**	**Downstream**	
	CP 11D-01	N/A	
Nearest KM Post:	**Line 01**		
	KP 175		

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		166 m	
Depth		Unknown	
Flow Velocity		0.5 km/hr	
FlowType		Frequently confined marginal velocity flat run structure	

Waterbody description:

Frequently used, well maintained public boat launch gradually sloping, composed of concrete with level open gravel backshore parking area. Marginal current at boat launch into relatively deep water approximately 15 m upstream of confluence with Athabasca River, which flows along a high velocity (up to 8 km/h) flat run. Boat launch is located at recreational site containing picnic tables and playground, and is the site of an annual jet boat racing event. Signage present to prevent spread whirling disease, invasive species.

Logistical Information:

Road Access/Type:	- Access off of River Boat Park Road. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in the Parking lot of River Boat Park. - 100 m x 100 m area. - All weather access is established.	
	Lat: 54.14976	Long: -115.70525
Site Comments:	- Security is needed to keep out all nonessential personnel. - This is a popular angling and recreational boating area. - The boat launch is located at the confluence of the McLeod River and the Athabasca River. - The boat launch is located within River Boat Park. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area is to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, use caution around the shoreline.
- The boat launch is located within River Boat park, public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto AB-757 N (signs for Magnolia/Sangudo) for 35.3 km
- Passing Sangudo, turn left onto AB-43 N / AB-757 N (signs for Grande Prairie) for 64.2 km
- In Whitecourt, Turn right onto River Boat Park Rd for 1.35 km (past Sagitawah RV Park) towards boat launch
- Destination is boat launch with river access to McLeod River
- Total Distance = 110.5 km
- Total Travel Time = 102 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-07

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11D-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 54.139480	
	Long: -115.697940	
Elevation:	702 m	
Land and Resource Use:	Private Land. Commercial.	
Upstream Valves:	**Line 01:** STATION BLOCK	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** CP 11A-06	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 175	

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		155 m	
Depth		Unknown	
Flow Velocity		3.8 km/hr	
FlowType		Frequently confined moderate velocity run and riffle structure	

Waterbody description:
CP located between rail bridge downstream and highway bridge downstream, both with 6 -8 m clearance. Generally even depth and current across channel, with occasional floating logs and woody debris during high water. Potential shallow boulders and cobble bars, which may become exposed during low water. Bank characteristics suggest typical high water mark up to 1 m above water levels at time of survey.

Shoreline Information

Bank Height:
1.5 m

Shoreline Composition and Slope:
Moderately steep vegetated approaches along banks transitioning from steep banks to gradual at base and along foreshores; backshore RDB is an open paved parking lot.

Shoreline Vegetation:
Young to mature poplar along riparian margins with areas of dense shrubs (predominantly willow); sedges and scouring rush along bank transitioning to horsetail, grass, clover, vetch and less frequent vegetation (e.g., goldenrod, aster, common tansy).

Channel / Bank Forms:
Mixed fine sediment, gravels and cobbles with occasional boulders along banks; predominantly cobbles along bed with matrix of fines, gravels and occasional boulders.

Shoreline Comments:
Collection area accessed from paved hotel parking lot down 4 m moderately steep grass-shrub dominated approach, becoming more gradual along stable foreshore/bank area of mixed fines, gravels and cobbles.

Logistical Information:

Staging Area Location:	- A staging area can be located in the Quality Inn parking lot. - 50 m x 80 m area. - All weather access is established.	
	Lat: 54.13936	Long: -115.69704
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and water sports area. - The control point and staging area are located on private land. - Landowner permission required before accessing control point. - The control point is located in the town of Whitecourt.	
Road Access/Type:	- Access off of 49 Avenue. -All weather access is established.	
Boat Access:	- Main boat access from BL 11D-01. - Refer to BL 11D-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

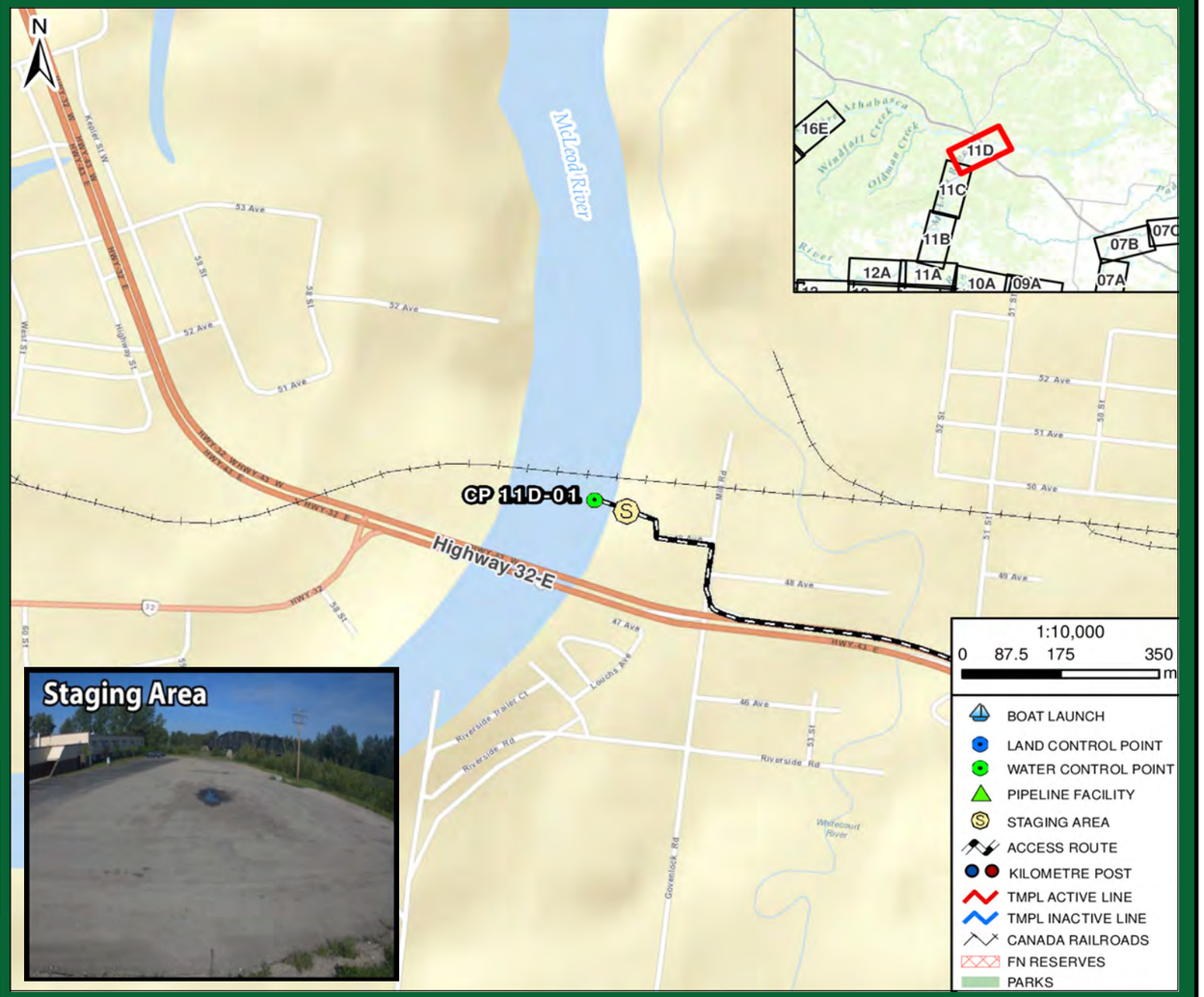
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current and pockets of gravels and cobbles provide moderate spawning potential; shoreline and instream cover, sufficient depth and year-round volume provide moderate rearing and overwintering habitat; important migratory corridor to upstream spawning areas of the McLeod River Watershed.
- Shrub dominated riparian margins and exposed foreshore areas provide good riparian and shorebrid nesting bird habitat. Waterbird habitat.
- Colony of nesting cliff swallows under both railway and highway bridges.
- Occasional fishing and boating.
- There is a hotel located above the forested bank/approach along RDB.
- Located in the Community of Whitecourt.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Control point accessed from the Quality Inn, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

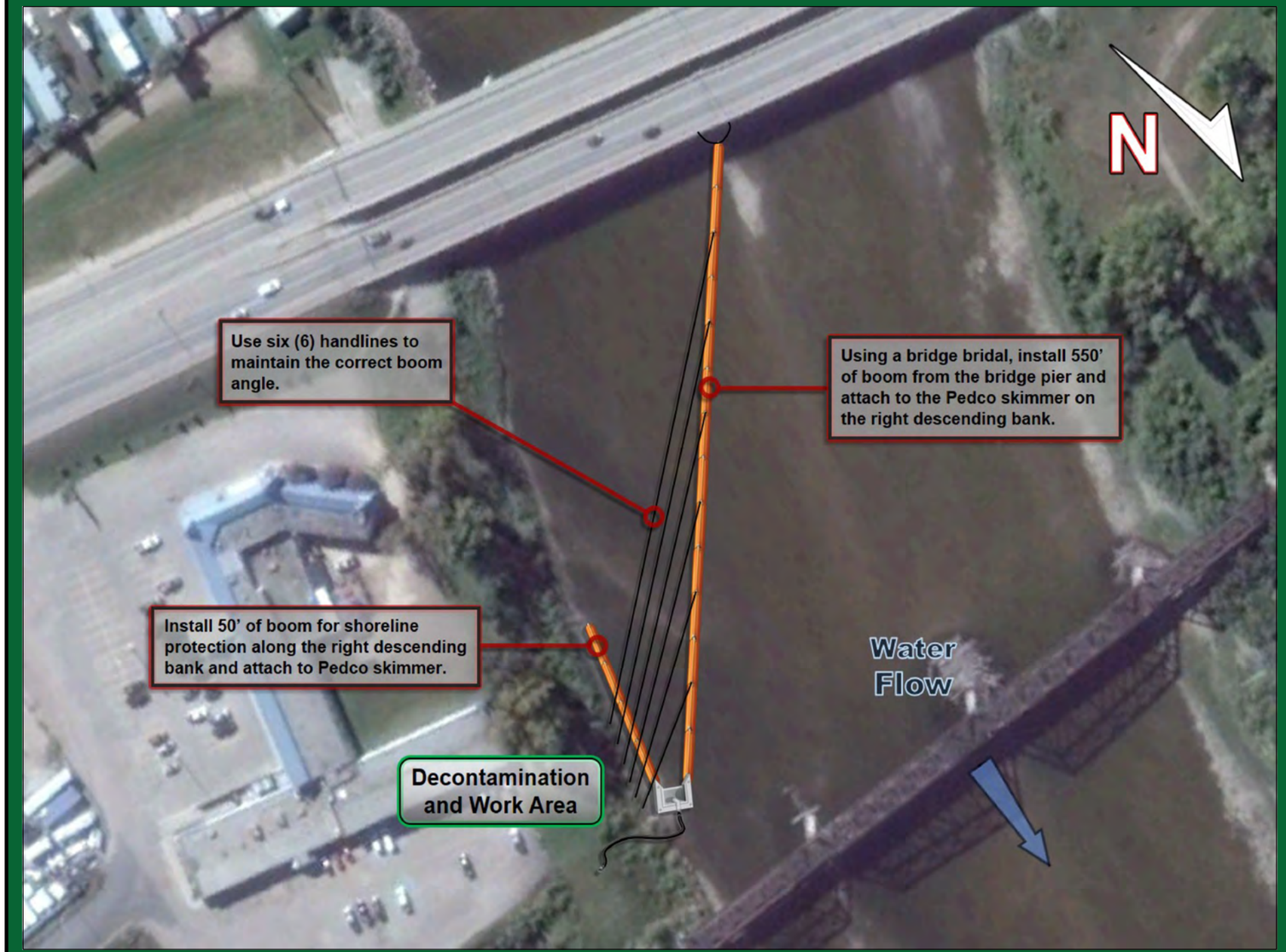
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto AB-757 N (signs for Magnolia/Sangudo) for 35.3 km
- Passing Sangudo, turn left onto AB-43 N / AB-757 N (signs for Grande Prairie) for 62.4 km
- In Whitecourt, Turn right onto Rivers Ave for 170 m
- Turn left onto 49 Ave for 100 m, into the Quality Inn Whitecourt hotel parking
- Destination is McLeod River, accessed behind the Quality Inn building
- Total Distance = 107.7 km
- Total Travel Time = 99 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-07
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 11D-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	700'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a bridge pier bridel on the middle bridge pier.
- Install 550' of 6" x 6" hard containment boom from the bridge pier bridle at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 200' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install an 80 m ice slot from the middle of the river at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, bull trout, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp., vireo spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey)
- Owls (e.g., short-eared owl, long-eared owl), shorebirds (e.g., sandpiper spp., killdeer, Wilson's snipe)
- Forest and cavity nesting birds (e.g., thrush spp., tree swallow, finch spp., nuthatch spp., woodpecker sp., chickadee spp.)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.598190	
	Long: -116.272790	
Elevation:	881 m	
Land and Resource Use:	Private Land. Recreational.	
Upstream Valves:	**Line 01:** K202	
Downstream Valves:	**Line 01:** K205	
Control Point:	**Upstream** N/A	**Downstream** CP 12A-02
Nearest KM Post:	**Line 01** KP 203	

Waterbody Information:

Waterbody Name: Wolf Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		21 m	
Depth		1.0 m	
Flow Velocity		1.8 km/hr	
FlowType		Frequently confined low velocity flat run structure	

Waterbody description:

CP located along outside river bed containing large boulder riprap and frequent overhanging shrubs upstream of collection along forested approach. Downstream of collection, instream boulder riprap is often shallow and exposed near LDB. Occasional floating logs and woody debris during high water. Shoreline characteristics suggest occasional high water events above bankfull (up to 1 m above levels at time of survey).

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
LDB is typically vertical/overhanging, transitioning to steep/gradual along boulder riprap near collection; RDB often steep, exposed muddy banks with level treed backshore.

Shoreline Vegetation:
Young to mature spruce dominated forest with isolated poplar; mixed shrubs (e.g., willow, alder, soopolallie, wild rose); sedge along bank transitioning to grasses, vetch, peavine, horsetail, bluebells, wild strawberry, meadow rue.

Channel / Bank Forms:
LDB composed of boulders transitioning to fines upstream; RDB predominantly fine sediment. Bed composed of boulders and occasional cobbles transitioning to fine sediment upstream.

Shoreline Comments:
Collection area accessed down steep 5 m high approach from highway easement lined with large, rounded boulder riprap. Upstream of collection; approach is treed, stable, and is recommended access route to avoid hazardous, loose boulders. Upstream from collection, steep to vertical banks are muddy and soft, decending into 0.8 m deep water, with depth increasing mid-channel. Note, there is a single, low overhead power line crossing at collection area approximately 4 m above the bank and channel.

Logistical Information:

Staging Area Location:	- The staging area can be located on the left descending bank in the ditch. - 10 m x 40 m area. - Matting required to establish all weather access.	
	Lat: 53.59832	Long: -116.27328
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - All weather access is established.	
Site Restrictions:	- A guard rail will need to be removed to access the staging area. - The upstream end of the control point is located on private land. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Township Road 534. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - A privately owned campground is located on the right descending bank.	

Decontamination Area:

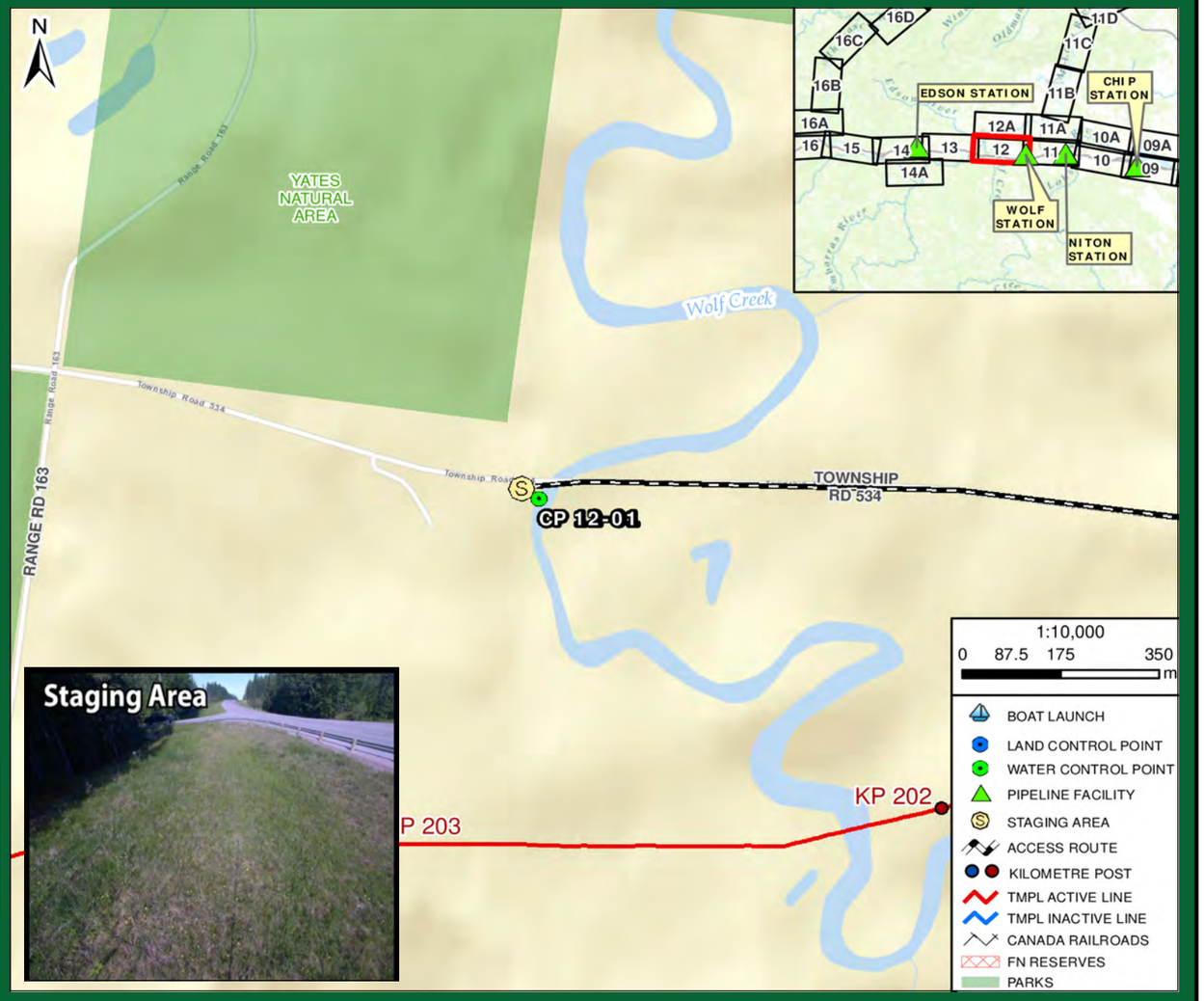
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due abundant fines and lack of current; shoreline and instream cover, perennial flow with areas of deep water provide good rearing and overwintering habitat.
- Forest nesting, riparian nesting and shorebird nesting habitat.
- Waterbird habitat.
- Navigable river with potential canoeing, kayaking; occasional fishing.
- Environment Canada Hydrometric Monitoring Station along RDB on upstream side of bridge.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

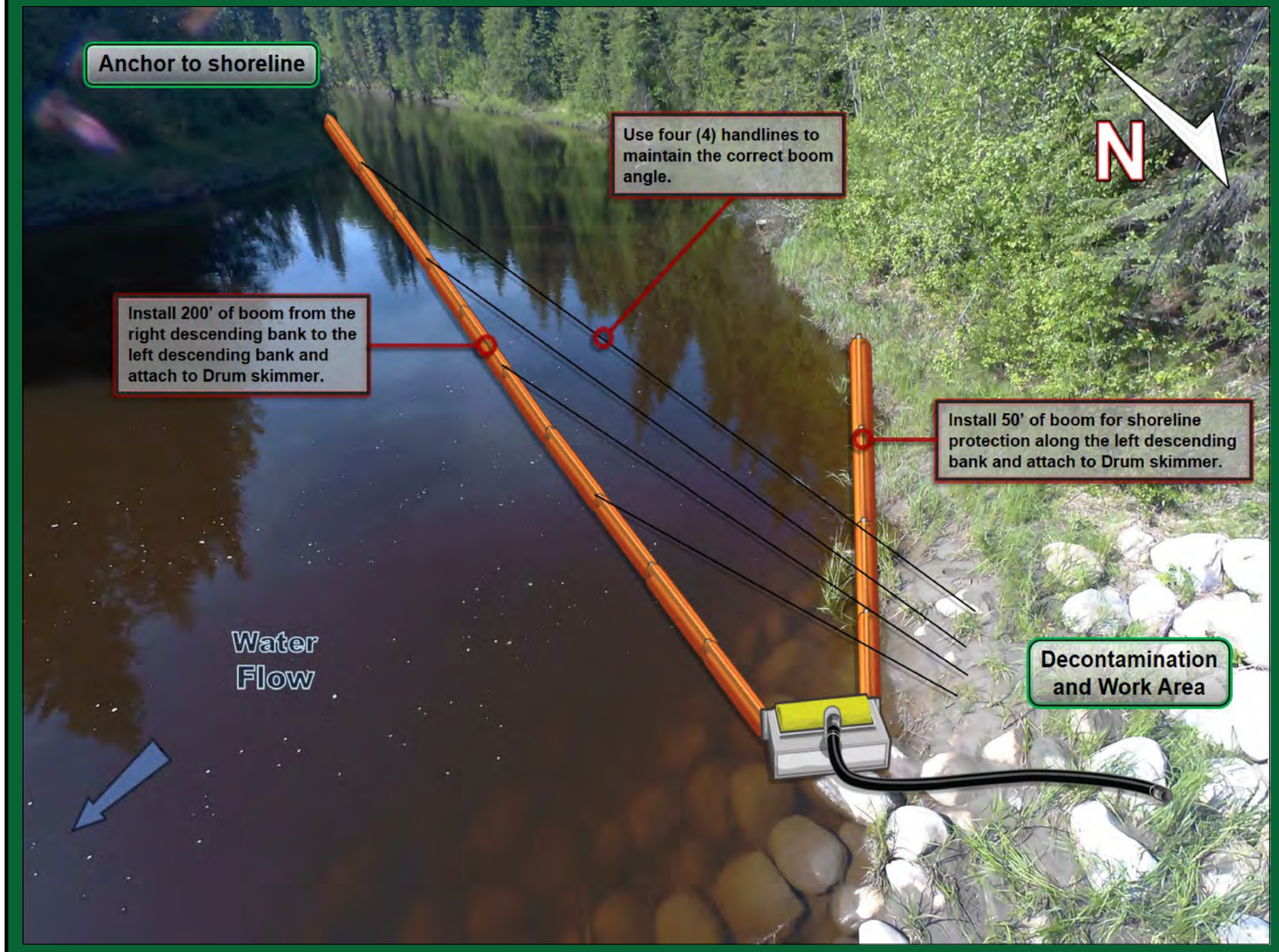
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 100 km
- Turn right onto Range Rd 155A for 650 m
- Continue onto Range Rd 160A/160B for 1.8 km
- Turn left onto Township Rd 534 for 2.8 km
- Destination is bridge over Wolf Creek, just past Wild Rose Campground
- Total Distance = 106.4 km
- Total Travel Time = 98 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	350'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		8	100' Handline and Bridle
		1	Vacuum Truck
		1 / 100'	Power Pack / Hydraulic Line
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, bull trout, Arctic grayling, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup, grebe spp., coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, Wilson's snipe)

Implementation Strategy:

- Install 200' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install (4) 100' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 25 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.581340	
	Long:	-116.335230	
Elevation:	865 m		
Land and Resource Use:	Crown Land. Highway 16 Road Right-of-Way.		
Upstream Valves:	**Line 01:**	K206	
Downstream Valves:	**Line 01:**	24B	
Control Point:	**Upstream** CP 13-05	**Downstream** CP 12A-02	
Nearest KM Post:	**Line 01** KP 206		

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		98 m	
Depth		Unknown	
Flow Velocity		2.0 km/hr	
FlowType		Frequently confined moderate velocity run and riffle structure	

Waterbody description:
Frequently confined moderate velocity run and riffle structure with even current across channel. Instream areas along riffle section on upstream extent of containment often shallow, becoming exposed during low water. Occasional overhanging trees and shrubs, and floating logs and woody debris during high water. Bank characteristics suggest high water mark up to 1.2 m above water levels at time of survey. Low-moderate turbidity.

Shoreline Information

Bank Height:
1.5 to 2 m

Shoreline Composition and Slope:
LDB variable, typically gradual foreshores becoming moderately steep but stable; gradual foreshores become steep to vertical/overhanging along 15 m high approaches on RDB.

Shoreline Vegetation:
Young to mature poplar/aspen dominated forest with spruce along RDB; mature and dead standing poplar and aspen on riparian approaches of LDB; patches/isolated willow, alder, dogbane, wild rose, vetches, grasses; sedge and scouring rush along foreshores.

Channel / Bank Forms:
Banks composed predominantly of sands and silts with occasional cobbles and boulders; bed composed predominantly of cobbles and boulders with pockets of gravels and finer substrate.

Shoreline Comments:
Collection area accessed from highway easement down gradual becoming moderately steep grass dominated 20 to 30 m high approach to gradually sloping bank/foreshore under highway bridge. Navigation hazards posed by concrete bridge piers, and shallow and exposed boulders during low/medium water.

Logistical Information:

Staging Area Location:	- A staging area can be located along Highway 16, 120 m down the ditch. - 20 m x 80 m area. - Matting required to establish all weather access.	
	Lat: 53.58131	Long: -116.33656
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and water sports area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16 east bound, 120 m down the ditch.. - Matting required to establish all weather access. - Traffic control recommended.	
Boat Access:	- Main boat access from BL 12A-01b. - Refer to BL 12A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 11A-01. - Refer to BL 11A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

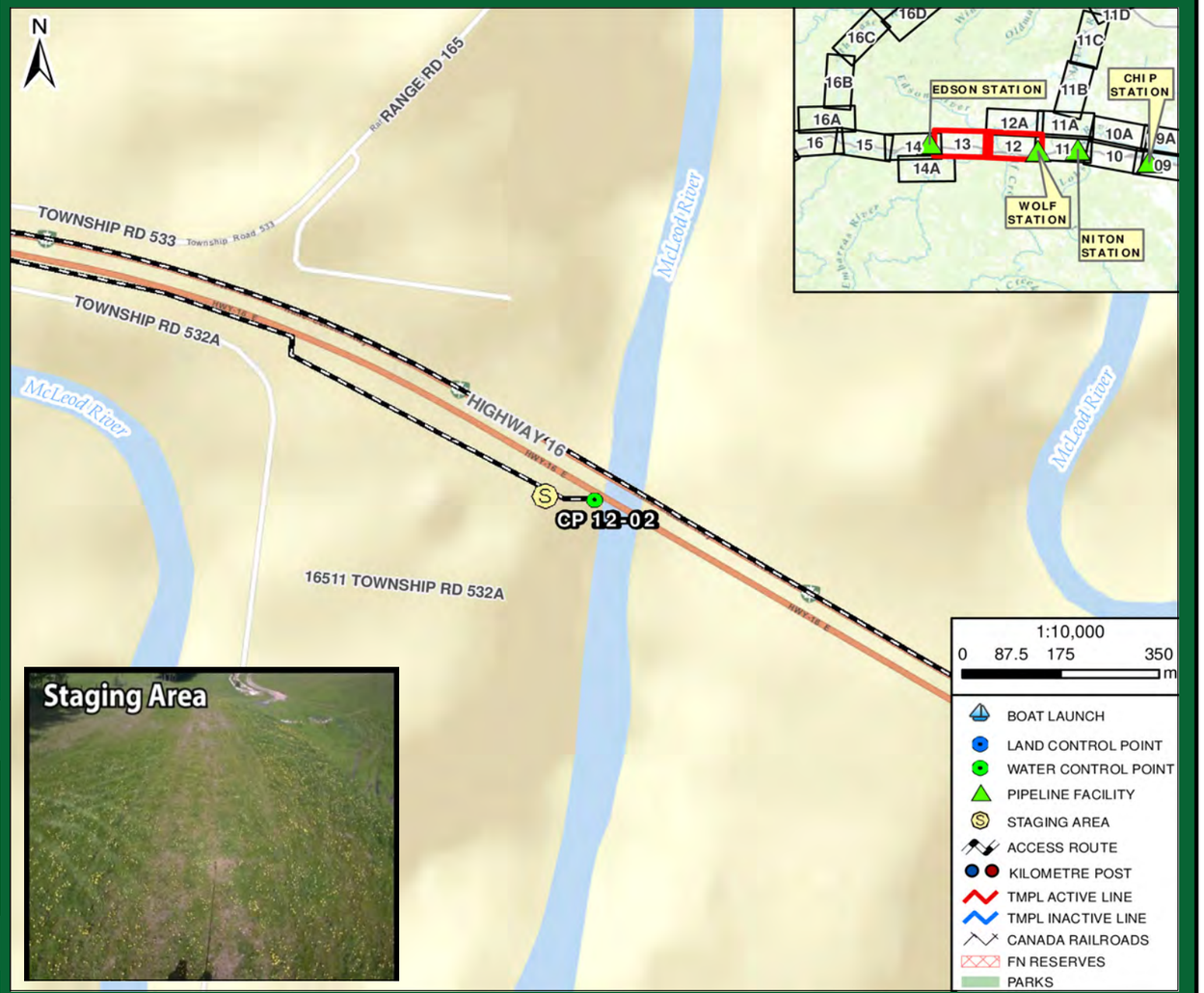
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current, presence of gravels and cobbles provide moderate spawning potential; shoreline and instream cover, areas of sufficient depth and year-round volume provide moderate rearing and overwintering habitat; important migratory corridor to upstream spawning areas of the McLeod River Watershed.
- Mature and dead standing trees, shrubs and exposed foreshore areas provide good riparian, shorebird and forest/cavity nesting bird habitat.
- Large nesting colony of cliff swallows under highway bridge.
- Occasional fishing and boating.
- Low density residential along backshore LDB above forested approach.
- Located within the Town of Edson.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

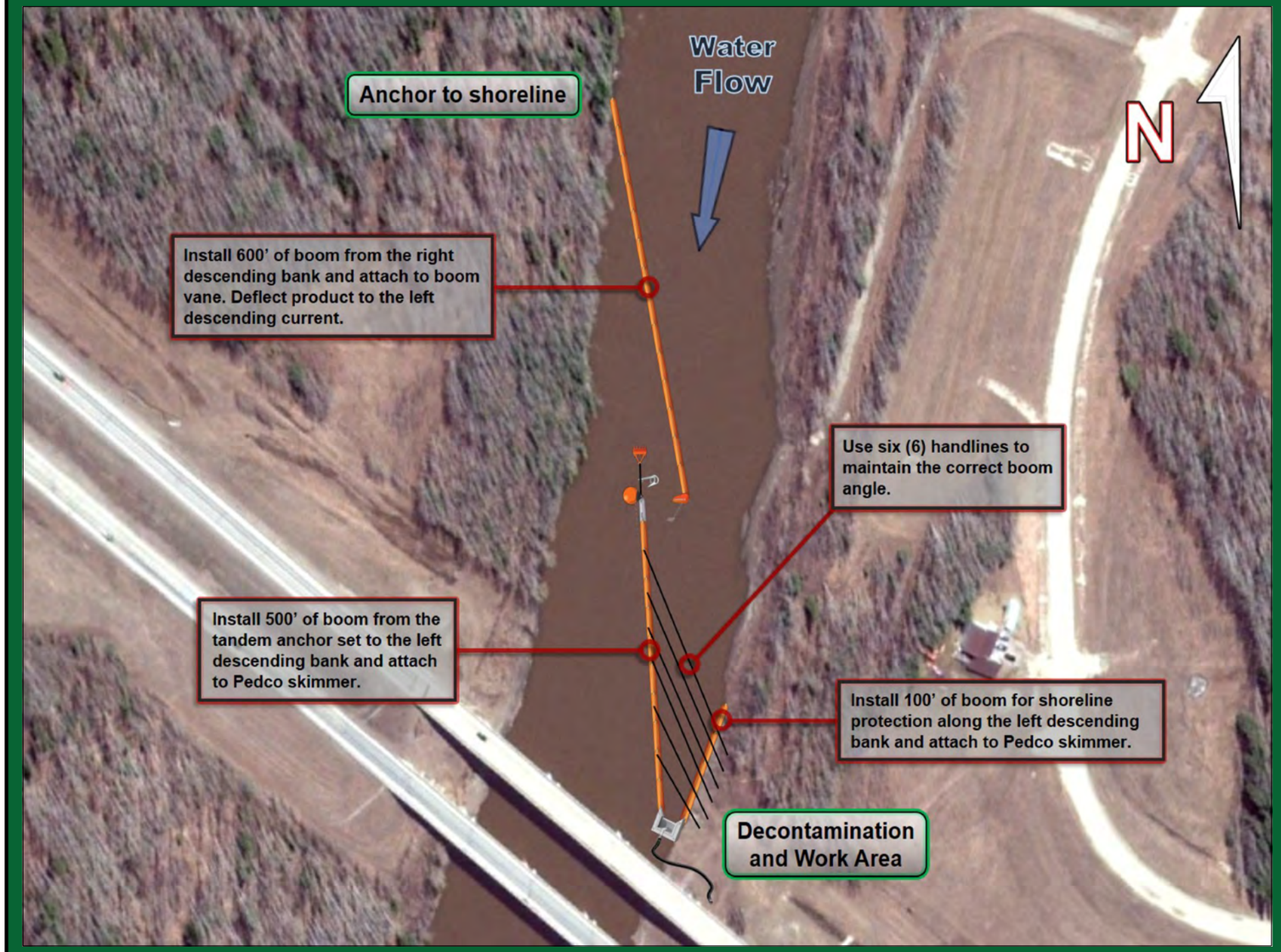
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 110.5 km
- Before Edson, make a u-turn (at the left turn onto Range Rd 170) and continue on AB-16 East for 1.7 km
- Destination is bridge over McLeod River below, at highway gravel pull off to the right
- Total Distance = 113.1 km
- Total Travel Time = 104 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12-02



Implementation Strategy:

- Install 600' of 6" x 6" hard containment boom from the right descending bank and attached to a 1.0 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 500' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 200' of rigid suction hose with a portable tank and pump or vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 120 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1300'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	350'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 1	Rake Anchor / Sarca Anchor
		1	1.0 m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Workboat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), cliff swallow, blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-16

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12-03

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.621840
	Long:	-116.345650
Elevation:	870 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:**	K206
Downstream Valves:	**Line 01:**	24B

Control Point:	**Upstream** CP 13-02	**Downstream** CP 12A-03
Nearest KM Post:	**Line 01** KP 208	

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		7 m	
Depth		0.4 m	
Flow Velocity		0.6 km/hr	
FlowType		Frequently confined with low velocity run structure	

Waterbody description:
Frequently confined unnamed watercourse with low velocity run structure along broad, open grassland ravine on upstream side of 2 m diameter highway culvert. Shoreline characteristics suggest typicial high water up to 0.6 m above water levels at time of survey. Watercourse is shallow (up to 0.4 m), may become intermittent or stagnant during drought or winter months, or frozen to bottom. High turbidity during survey.

Shoreline Information

Bank Height:
0.6 to 0.8 m along RDB; 1 to 1.6 m along LDB

Shoreline Composition and Slope:
LDB is variable, typically vertical/overhanging, often obscured by dense sedges; RDB is steep becoming gradual with exposed muddy foreshore; open gradual sloped backshore

Shoreline Vegetation:
Isolated young willow and soopolallie with dense sedges along bank transitioning to grasses along upland areas with less frequent horsetail, common blue-eyed grass, vetch, bluebells, tall buttercup.

Channel / Bank Forms:
Banks composed of organics underlain by fines, bed composed predominantly of fines (i.e., mud).

Shoreline Comments:
Collection area accessed down gradually sloping highway easement to steep grassy bank becoming gradual along soft, muddy foreshore area. Along LDB, banks are often vertical/overhanging and obscured by dense grasses and sedges, while foreshores and instream substrate is very soft, muddy.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank in a cleared area. - 25 m x 25 m area. - Matting required to establish all weather access. - Minor site preparation required (brushing).	
	Lat: 53.62146	Long: -116.34619
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Range Road 165B, 100 m through private land. - Matting required to establish all weather access.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

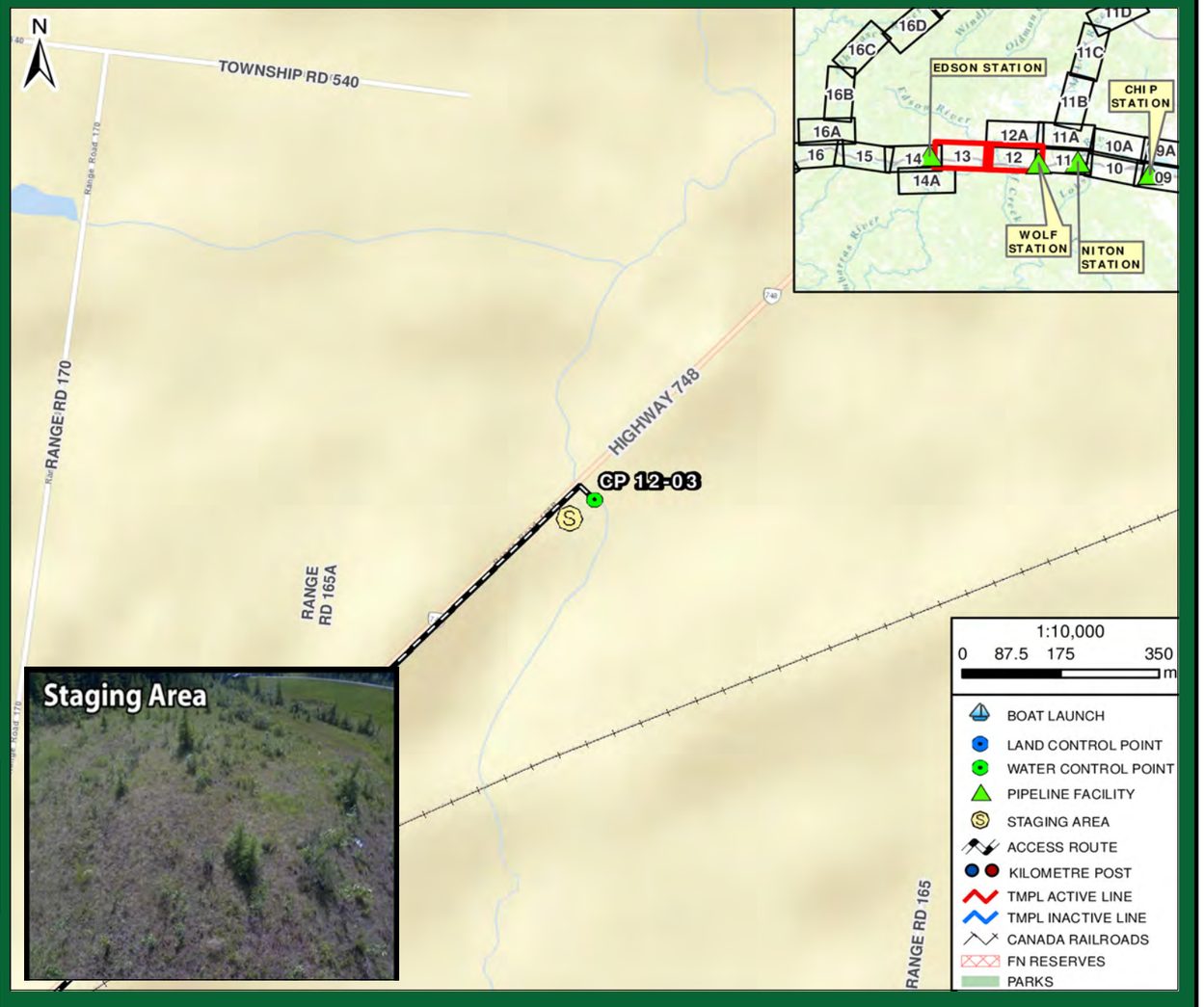
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due abundant fines and lack of current; shallow depth and lack of shoreline/instream cover provide low rearing and overwintering habitat.
- Grassland nesting bird habitat.
- Amphibian habitat along sedge dominated margins and stagnant shoreline areas.
- Waterbird habitat.
- Residents above 100 m north above grassland ravine.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Private access, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

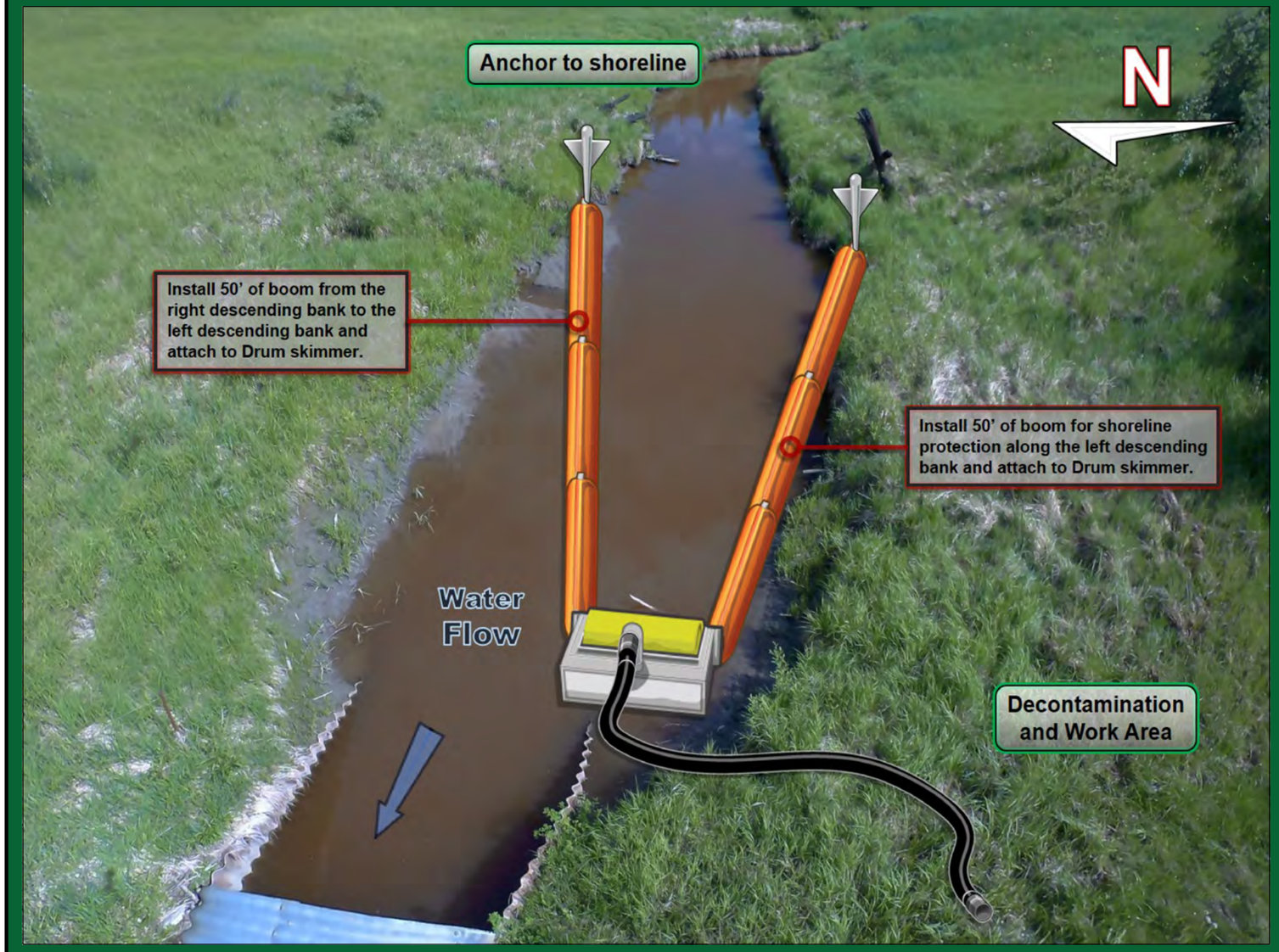
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 112.5 km
- In Edson, Turn right onto 25 St (signs for AB-748 N) for 1.5 km
- Turn right onto AB-748 E (for 3.8 km), nearby "Full Throttle Oil Field Services"
- Destination is highway pull off to road culvert over unnamed watercourse
- Total Distance = 118.4 km
- Total Travel Time = 109 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-16
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., northern shoveler, lesser scaup), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), common nighthawk
- Owls (e.g., short-eared owl, long-eared owl)
- Grassland birds (e.g., meadowlark, horned lark, Savannah sparrow, upland sandpiper)
- Shorebirds (e.g., spotted sandpiper, killdeer, Wilson's snipe, lesser yellowlegs)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 9 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-03
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 12A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.696150	
	Long:	-116.160820	
Elevation	820 m		
Upstream Valves:	**Line 01:**	UV-0001	
Downstream Valves:	**Line 01:**	K202	
Control Point:	**Upstream**	**Downstream**	
	CP 12A-02	BL 11A-01	
Nearest KM Post:	**Line 01**		
	KP 194		

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		105 m	
Depth		Unknown	
Flow Velocity		2.0 km/hr	
FlowType		Confined moderate velocity run structure	

Waterbody description:

Confined moderate velocity run structure, with main current along mid-channel. Boat launch located at decommissioned river ferry crossing; wide, well maintained, gradually sloping into shallow low velocity water, composed of compacted sands, gravels and cobbles. Occasional overhanging trees and shrubs upstream and down, and floating logs and woody debris during high water. Bank characteristics suggest high water mark up to 1.4 m above water levels at time of survey. Low-moderate turbidity at time of survey.



Logistical Information:

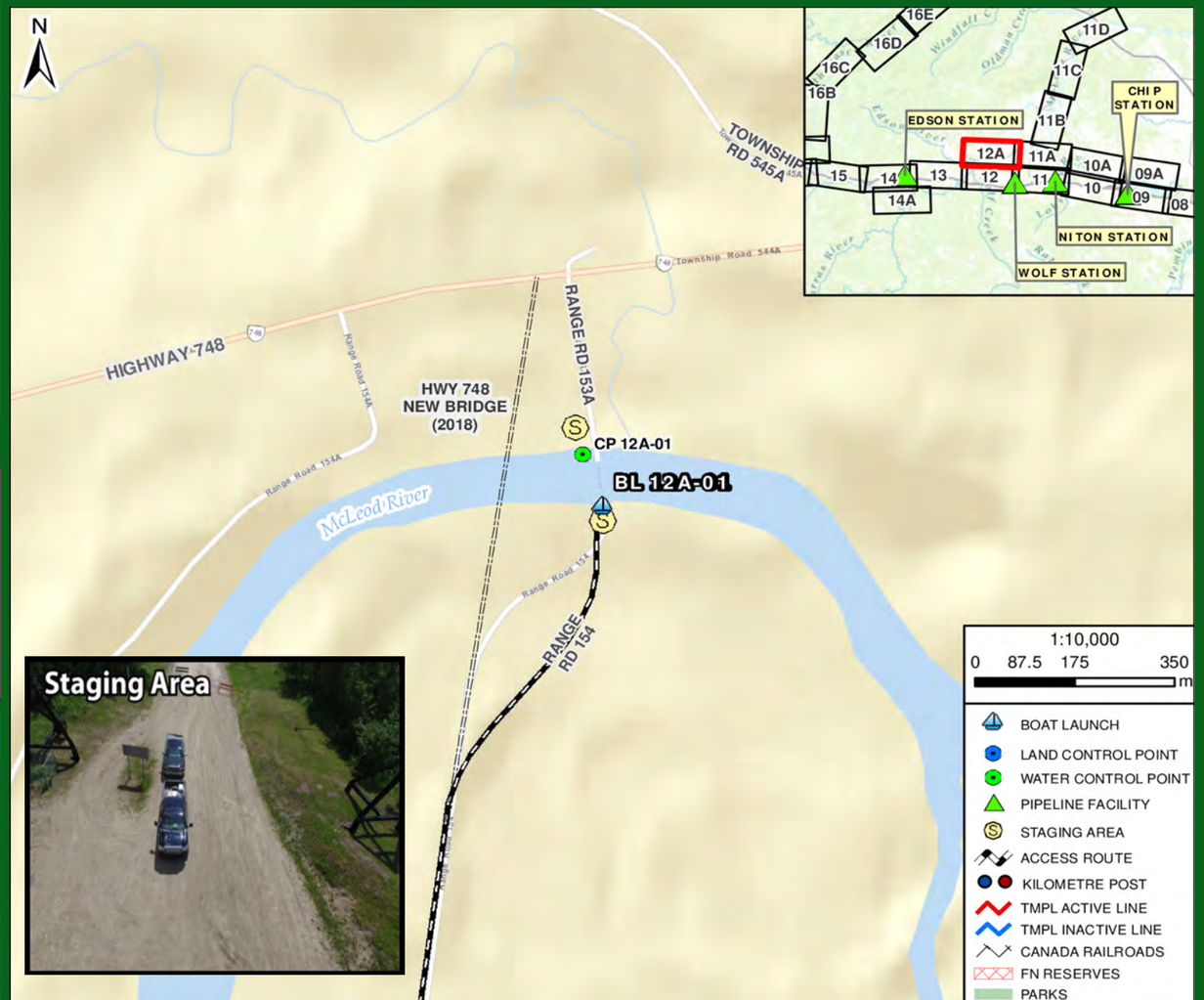
Road Access/Type:	- Access off of Range Road 154 at Rosevear Ferry Crossing. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located on the right descending bank at the ferry crossing. - 25 m x 60 m area. - All weather access is established.	
	Lat: 53.69592	Long: -116.16078
Site Comments:	- Popular angling and recreational boat area. - Boat launch located at Rosevear Ferry Crossing. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, install a boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 96.9 km
- After Sang Lake, turn right onto Range Rd 154 (as it becomes Range Rd 153A) for 13 km
- Destination is boat launch to McLeod River, accessible via Rosevear ferry crossing
- Total Distance = 111.1 km
- Total Travel Time = 103 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-01

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.697070	
	Long: -116.161220	
Elevation:	821 m	
Land and Resource Use:	Crown Land. Rosevear Ferry Crossing.	
Upstream Valves:	**Line 01:** UV-0001	
Downstream Valves:	**Line 01:** K202	
Control Point:	**Upstream** CP 12A-02	**Downstream** CP 11A-05
Nearest KM Post:	**Line 01** KP 194	

Waterbody Information:

Waterbody Name: McLeod River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		105 m	
Depth		Unknown	
Flow Velocity		3.5 km/hr	
FlowType		Confined moderate velocity run structure	

Waterbody description:

CP located at decommissioned river ferry crossing, with main current along mid-channel, with depth and velocity decreasing near both shorelines. Confluence of Turtle Creek located 50 m downstream from collection. Occasional floating logs and woody debris during high water. Bank characteristics suggest high water mark up to 1.4 m above water levels at time of survey. Low-moderate turbidity at time of survey.

Shoreline Information

Bank Height:
1.5 to 2 m

Shoreline Composition and Slope:
LDB gradually sloped along on/off ramp, becoming steep to vertical upstream, with gradual foreshores; Upstream from on/off ramp, RDB variable, often steep but stable.

Shoreline Vegetation:
Mixedwood forest of spruce, poplar and aspen along LDB; poplar/aspen dominated forest along RDB; mixed shrubs (e.g., willow, alder, red-osier dogwood); mixed herbaceous species (e.g., grass, sedge, horsetail, vetch, false solomon's seal).

Channel / Bank Forms:
Concrete on/off ramp at collection, with banks becoming predominantly sands and silts with occasional cobbles and boulders; bed composed of fine sediments with pockets of gravels, cobbles and boulders.

Shoreline Comments:
Collection area accessed from on/off ramp along decommissioned ferry crossing. Upstream, LDB becomes steep to vertical, 2 m high along lower extent of containment up to 20 m high near upper extent of containment along eroding hillside, but with gradual foreshore area at base. Boat launch (BL 12A-01) is located on the RDB on/off ramp, with variable gradual to steep banks and level forested backshore upstream. Note, there are overhead hazards from cable crossings associated with ferry.

Logistical Information:

Staging Area Location:	- A staging area can be located in the Rosevear Ferry parking lot. - 25 m x 50 m area. - All weather access is established.	
	Lat: 53.69738	Long: -116.16184
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. -All weather access is established.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling, camping and water sports area. - Gated Access. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Range Road 154. -All weather access is established.	
Boat Access:	- Main boat access from BL 12A-01. - Refer to BL 12A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 11A-01. - Refer to BL 11A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

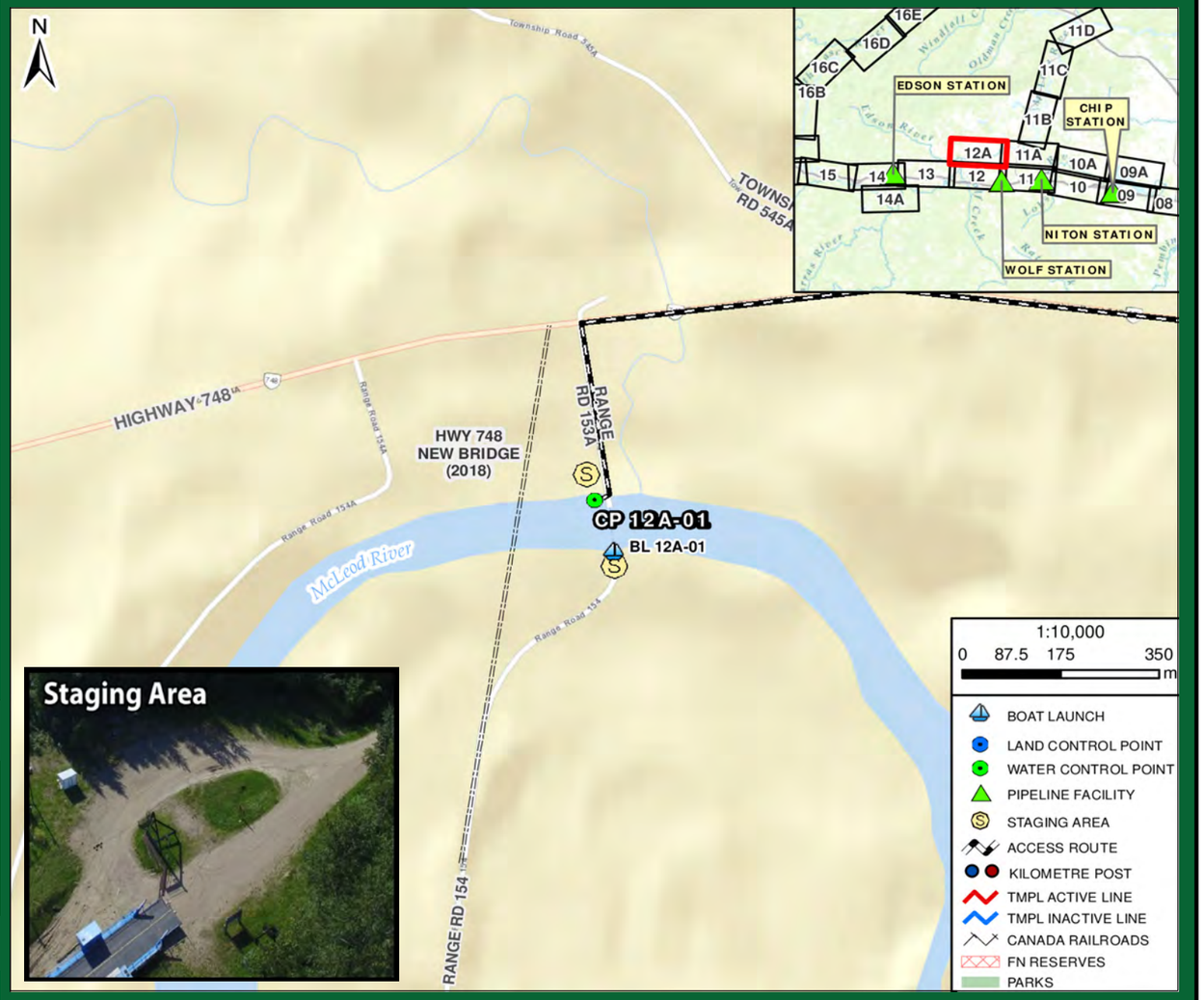
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

Areas of sufficient current and pockets of gravels and cobbles provide moderate spawning potential; shoreline and instream cover, sufficient depth and year-round volume provide moderate rearing and overwintering habitat; important migratory corridor to upstream spawning areas of the McLeod River Watershed. Mature and dead standing trees, shrubs and exposed foreshore areas provide good riparian, shorebrid and forest/cavity nesting bird habitat. There is a beaver lodge along LDB 50 m upstream of collection area. Occasional fishing and boating. CP located at former (recently decommissioned) river ferry crossing, with a bridge under construction at time of survey approximately 250 m upstream. There is an Environmental Canada Hydrometric Monitoring Station approximately 30 upstream from collection along LDB. Turtle Creek Campground located downstream from collection (set back 100 m from river).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Trout Creek Campground along access, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

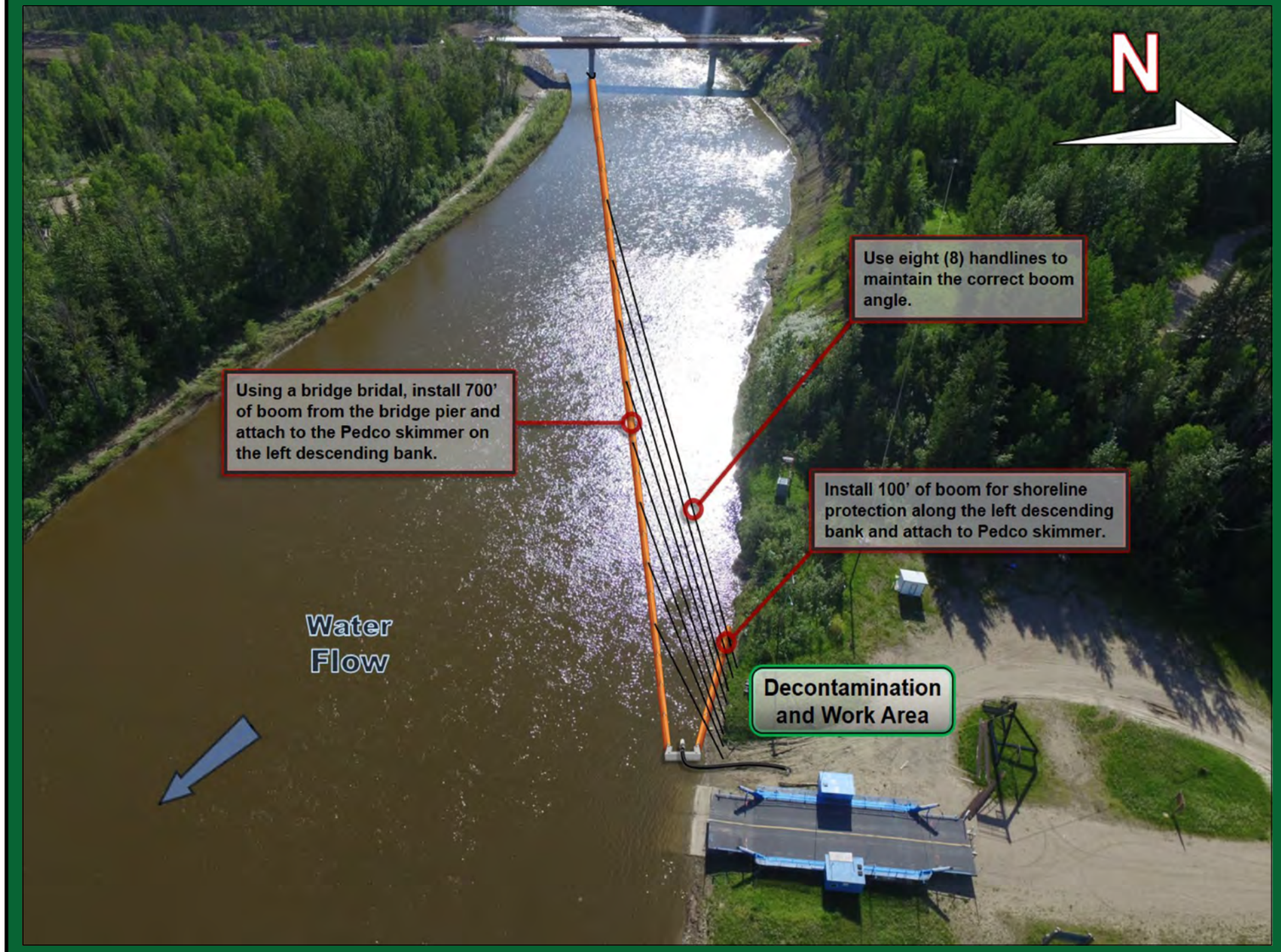
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 82.8 km
- Turn right onto AB-32 N for 16.9 km
- Turn left onto AB-748 W (signs for Edson) for 15.3 km, as it turns into Township Road 545/544A
- Turn left onto Range Rd 154, as it approaches the ferry crossing (closed)
- Destination is McLeod River, accessible via Rosevear ferry crossing
- Total Distance = 117.6 km
- Total Travel Time = 109 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-01
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	900'	6" x 6" Hard Containment Boom
1	Safety Watch	20	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	16	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Work Boat
		1	Bridge Pier Bridle
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, Wilson's snipe)

Implementation Strategy:

- Install a bridge pier bridle on the right descending bridge pier.
- Install 700' of 6" x 6" hard containment boom from the bridge pier bridle at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (8) 250' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 60 m ice slot from the middle of the river at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-05

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12A-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.646070
	Long:	116.270120
Elevation:	839 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:**	K202
Downstream Valves:	**Line 01:**	K205
Control Point:	**Upstream** CP 12-02	**Downstream** CP 12A-01
Nearest KM Post:	**Line 01** KP 200	

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		105 m	
Depth		Unknown	
Flow Velocity		3.5 km/hr	
FlowType		Frequently confined moderate velocity flat run structure	

Waterbody description:

Frequently confined moderate velocity flat run structure, with even current across channel. There is a small fluvial fan compose of mixed cobbles, gravels and fines immediately downstream of collection. Occasional overhanging trees and shrubs, and floating logs and woody debris during high water. Bank characteristics suggest high water mark up to 1.2 m above water levels at time of survey. Low-moderate turbidity.

Shoreline Information

Bank Height:
1.5 to 2 m

Shoreline Composition and Slope:
Gradual foreshores become steep to vertical/overhanging along 20 m RDB approaches; LDB variable, gradual to overhanging, forested with level agricultural backshore.

Shoreline Vegetation:
Mixedwood forest of spruce, poplar and aspen along RDB; mature poplar along LDB; mixed shrubs (e.g., alder, willow, soopolallie, wild rose, saskatoon); sedges and spiked rush along foreshores, predominantly grasses along approaches.

Channel / Bank Forms:
Banks composed predominantly of sands and silts with occasional cobbles and boulders; bed composed predominantly of cobbles mixed in with fine sediments, gravels and boulders.

Shoreline Comments:
Collection area accessed from rural gravel road along 40 m long, narrow gradual to steep trail to fluvial fan along shoreline associated with the confluence of an unnamed seasonal drainage. Upstream and downstream, gradually sloping foreshore areas become steep to vertical along 15 to 20 m high forested and exposed approaches. Along LDB, mature poplar dominated margins transition to cropland along backshore. Be aware of downstream overhanging tree hazards at the top of vertical/overhanging approaches.

Logistical Information:

Staging Area Location:	- A staging area can be located along Township Road 541. - 5 m x 25 m area. - All weather access is established.	
	Lat: 53.6466	Long: 116.26996
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and water sports area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Range Road 154. -All weather access is established.	
Boat Access:	- Main boat access from BL 12A-01. - Refer to BL 12A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 11A-01. - Refer to BL 11A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

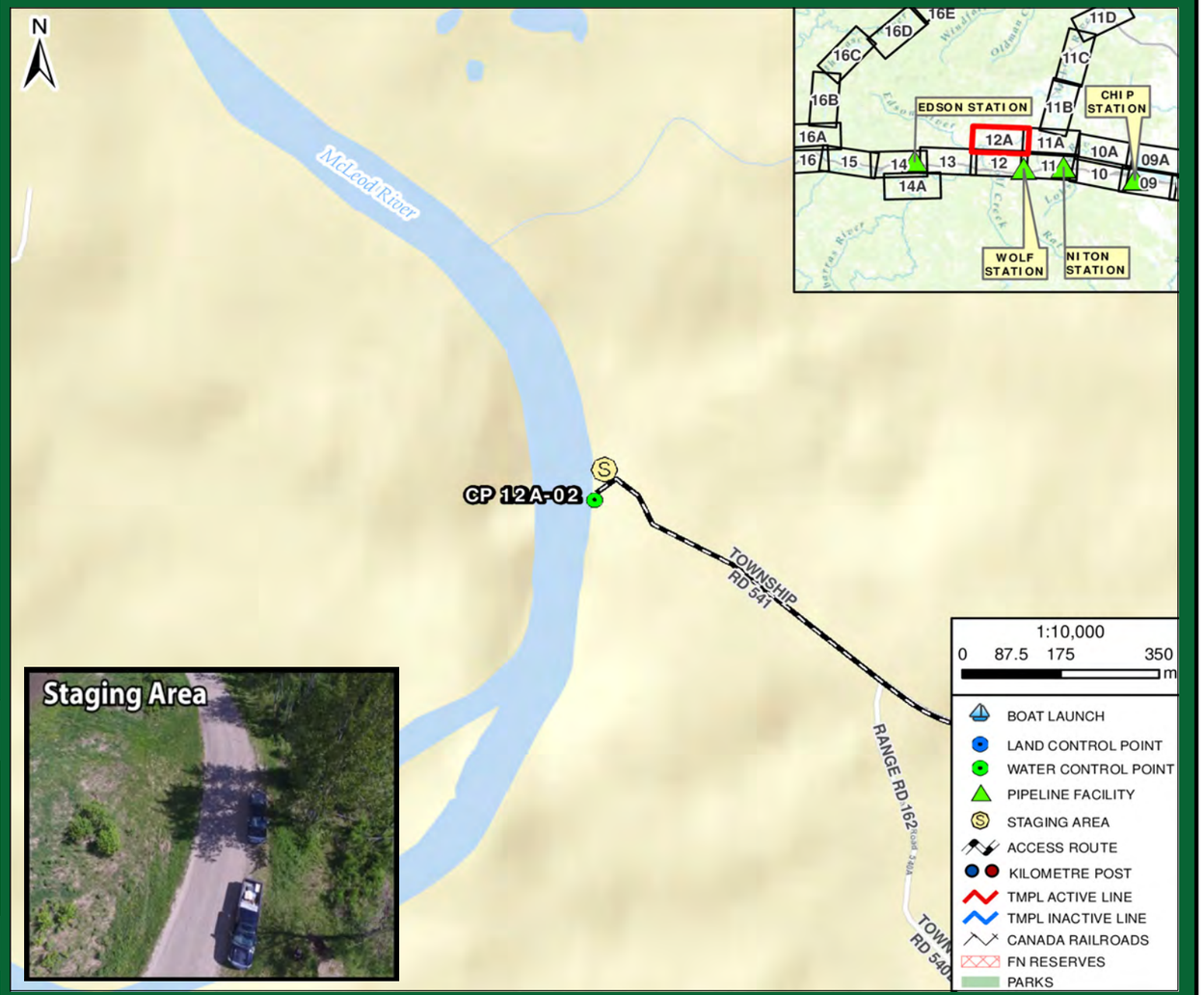
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current, presence of gravels and cobbles provide moderate spawning potential; shoreline and instream cover, sufficient depth and year-round volume provide moderate rearing and overwintering habitat; important migratory corridor to upstream spawning areas of the McLeod River Watershed.
- Mature and dead standing trees, shrubs and exposed foreshore areas provide good riparian, shorebrid and forest/cavity nesting bird habitat.
- Occasional fishing and boating.
- Cropland along backshore LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

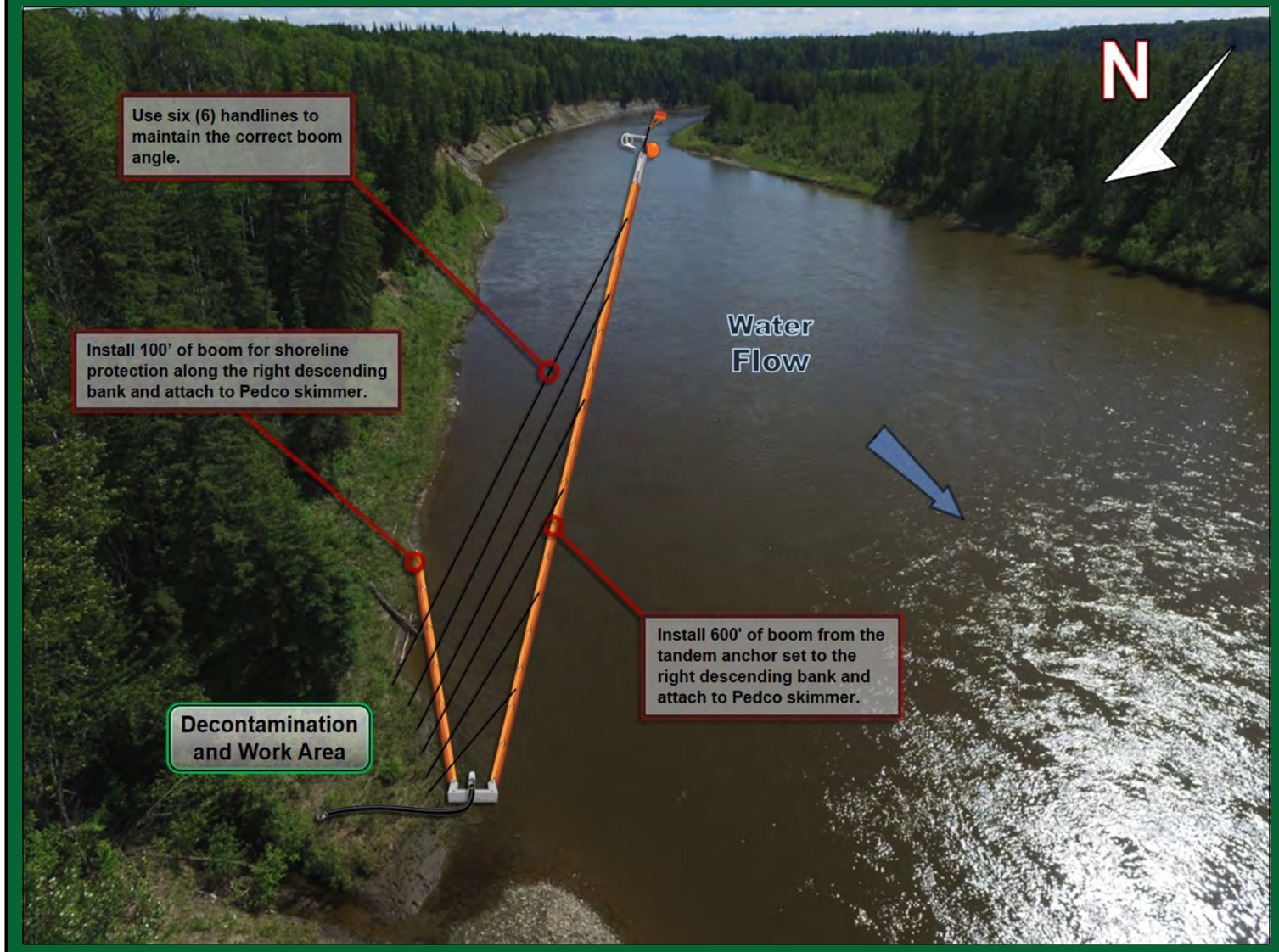
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 100.1 km
- Turn right onto Range Rd 155A for 650 m
- Continue as it becomes Range Rd 160A/160B for 1.8 km
- Turn left onto Township Rd 534 for 500 m
- Turn right at the 1st cross street onto Range Rd 161 for 3.3 km
- Continue as it becomes Range Rd 161A for 1.8 km and turn left onto Township Rd 541A for 1.5 km to riverbank
- Destination is McLeod River river access at road pull off
- Total Distance = 110.9 km - Total Travel Time = 102 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-05
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12A-02



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 600' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 350' of rigid suction hose to a portable pump and tank. Utilize vacuum truck to empty the portable tank.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 60 m ice slot from the middle of the river at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	800'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	350'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Workboat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12A-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.662270	
	Long: -116.287900	
Elevation:	808 m	
Land and Resource Use:	Crown Land. Highway 748 Road Right-of-Way.	
Upstream Valves:	**Line 01:** K206	
Downstream Valves:	**Line 01:** 24B	
Control Point:	**Upstream** N/A	**Downstream** CP 12A-01
Nearest KM Post:	**Line 01** KP 201	

Waterbody Information:

Waterbody Name: Edson River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		21 m	
Depth		0.5 m	
Flow Velocity		4.0 km/hr	
FlowType		Frequently confined moderate velocity run and riffle structure	

Waterbody description:

.Containment located downstream of highway bridge along shallow (up to 0.5 m) riffle and short run section of river, containing frequent shallow boulders and overhanging shrubs. Occasional floating logs and woody debris during high water. Bank characteristics suggest high water mark up to 0.6 m above water levels at time of survey. Low-moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.3 to 0.6 m

Shoreline Composition and Slope:
LDB is typically gradually sloping, moss covered and stable; more often steep to vertical along RDB but low; level riparian margins dominated by shrubs and young poplar.

Shoreline Vegetation:
Young to mature poplar dominated riparian margins transitioning to mature mixedwood along backshore; mixed shrubs (e.g., willow, alder, red-osier dogwood); sedge, moss and scouring rush along bank transitions to grasses, vetch, creamy peavine, horsetail, rue.

Channel / Bank Forms:
Banks composed of organics (e.g., moss) underlain by sands, silts and occasional cobbles and boulders; bed composed predominantly of cobbles and boulders with less frequent fines and gravels.

Shoreline Comments:
Collection area accessed down gradually sloping approach from highway, then downstream along level, shrub dominated riparian area to low (0.3 m), stable bank along shallow (up to 0.5 m) run. Slips/trips/falls hazard along slippery instream boulders and moss covered banks.

Logistical Information:

Staging Area Location:	- The staging area can be located along Highway 748 on the left descending bank. - 5 m x 50 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.66272	Long: -116.28899
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Narrow bridge located at staging area.	
Road Access/Type:	- Access directly off of Highway 748. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

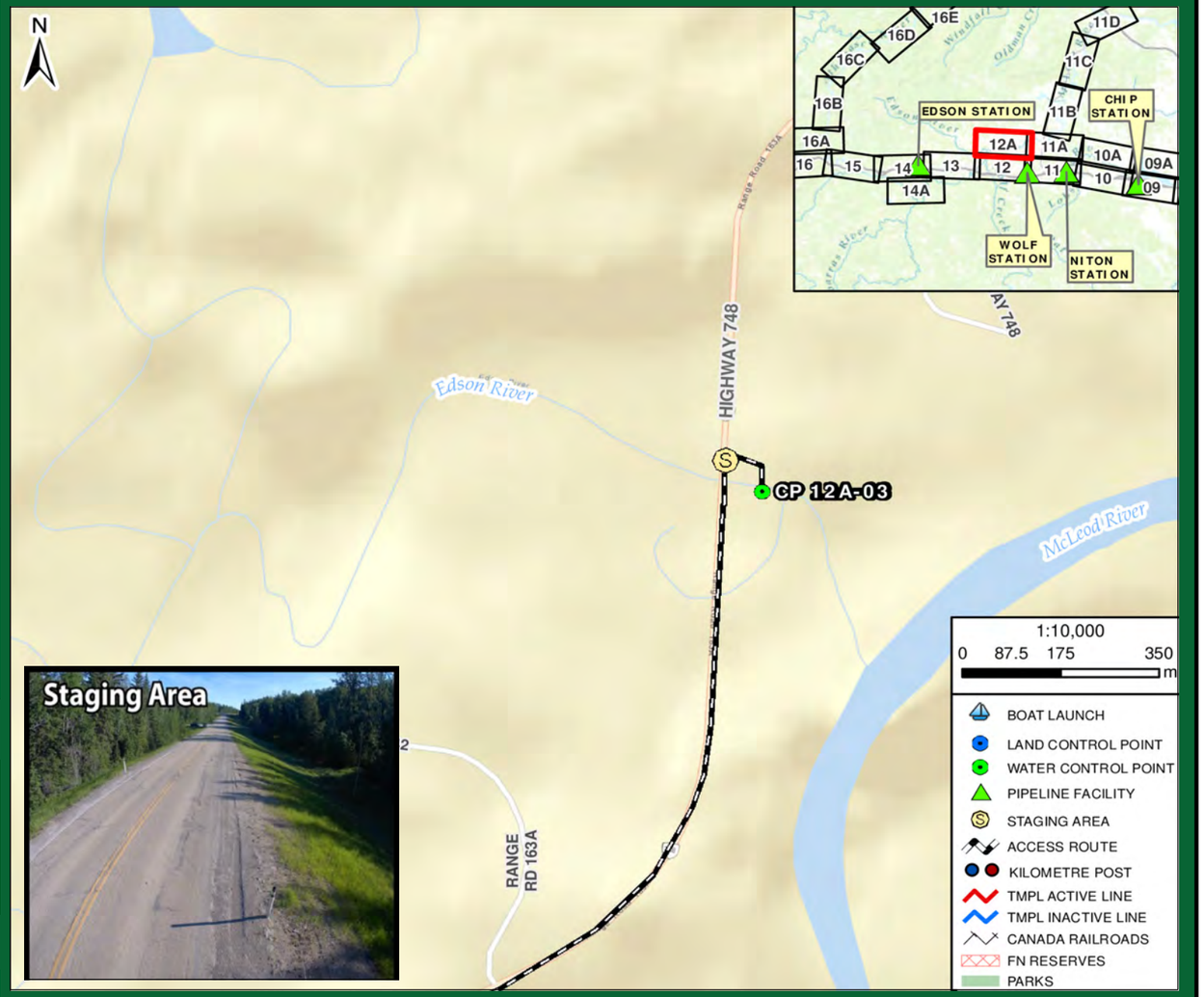
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current, presence of clean gravels and cobbles provide moderate to high spawning potential; shoreline and instream cover and perennial flow provide moderate rearing and overwintering habitat; important migratory corridor to upstream spawning areas of the Edson River Watershed.
- Mature poplars, abundant shrubs and gradual open sedge-moss-rush dominated banks and exposed foreshore areas provide good forest/cavity nesting, riparian nesting and shorebird nesting habitat.
- Navigable river with potential canoeing, kayaking; occasional fishing.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline with fast water conditions, use caution.
- Private land, public may be present, use caution with overhead power lines.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

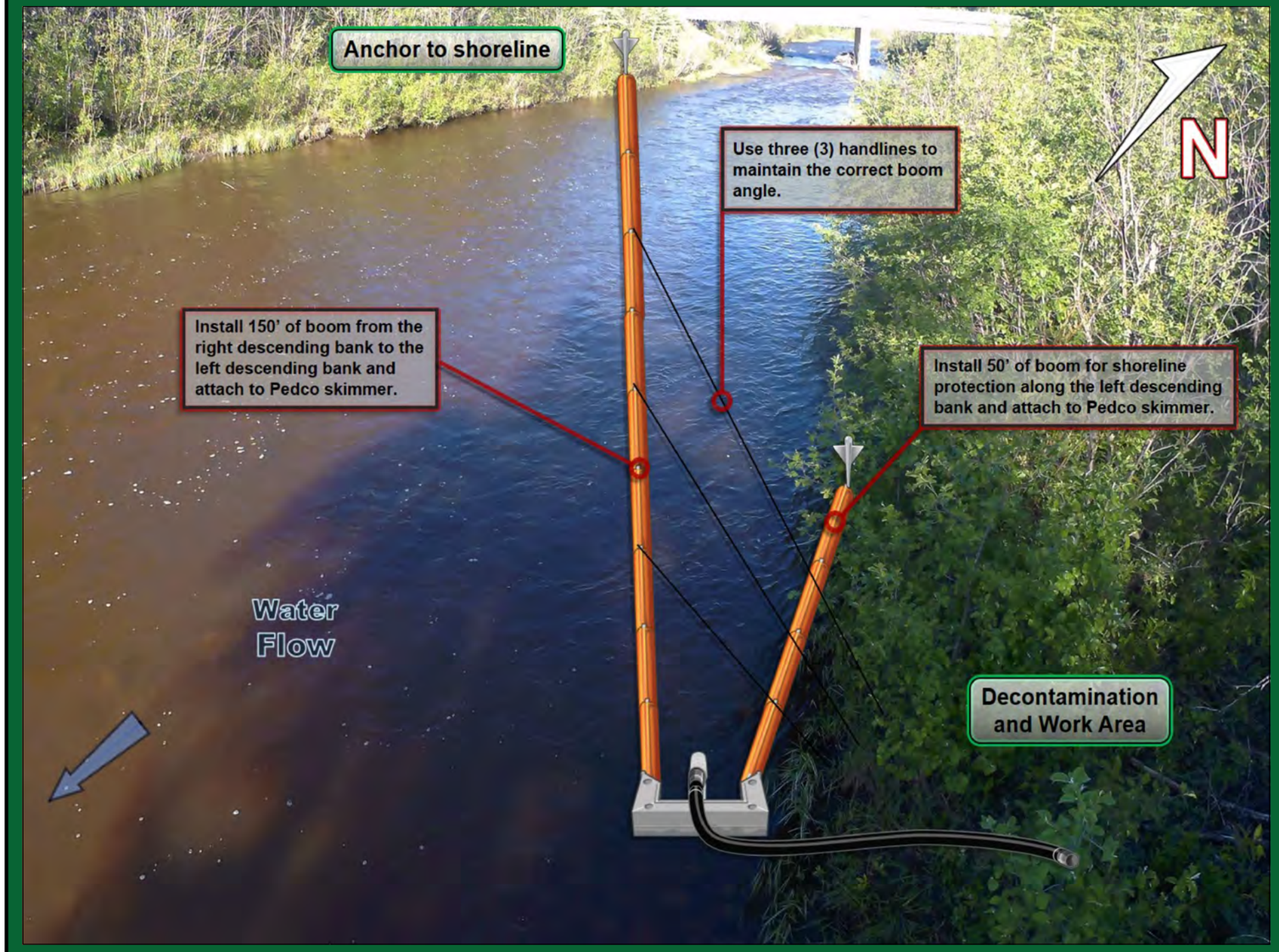
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 112.5 km
- In Edson, turn right onto 25 St (signs for AB-748 N) for 1.5 km
- Turn right onto AB-748 E for 9.9 km
- Destination is highway pull off to bridge at Edson River (before it connects to McLeod River)
- Total Distance = 124.5 km
- Total Travel Time = 115 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 12A-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		6	50' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, Wilson's snipe)

Implementation Strategy:

- Install 150' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (3) 50' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 25 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.579460
	Long:	-116.441610
Elevation:	916 m	
Land and Resource Use:	Crown Land. Town of Edson.	
Upstream Valves:	**Line 01:**	K206
Downstream Valves:	**Line 01:**	24B
Control Point:	**Upstream** N/A	**Downstream** CP 13-02
Nearest KM Post:	**Line 01** KP 215	

Waterbody Information:

Waterbody Name: Bench Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		5 m	
Depth		0.4 m	
Flow Velocity		<0.5 km/hr	
FlowType		Seasonal drainage with marginal flow	

Waterbody description:

Creek is likely seasonal at CP, containing marginal flow and shallow, up to 0.5 m depth, coursing along open city park in downtown area of Edson. Watercourse may become dry/intermittent or frozen to bottom during winter. Collection area located on upstream side of pedestrian bridge with 2 m clearance, beyond which watercourse flows into open pond containing fountain. Low-moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.3 to 0.6 m

Shoreline Composition and Slope:
Both banks typically vertical/overhanging, but stable, composed of mowed grasses with level to gradual open backshores.

Shoreline Vegetation:
isolated pine, spruce and willow along backshore; mowed grasses

Channel / Bank Forms:
Banks composed of organics (e.g., grass, sod) underalin by fine sediment; bed composed of organics and fines sediment with occasional cobbles and boulders.

Shoreline Comments:
Collection area accessed along undulating, open mowed city park to low, stable vertical/overhanging banks.

Logistical Information:

Staging Area Location:	- The staging area can be located on the parking lot of the Galloway Station Museum and Tourist Travel Station. - 30 m x 60 m area. - All weather access is established. - Security recommended.	
	Lat: 53.57912	Long: -116.4427
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point located in Galloway Station Museum and Tourist Travel Station park.	
Road Access/Type:	- Access off of 55 street. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; poor fish habitat potential at CP due to shallow, seasonal flow with lack of instream/overhead cover and organic/fine substrate.
- Located at Galloway Station Museum and Travel Centre and RCMP Centennial Park; a popular municipal park in downtown Edson containing extensive, open mowed grasses, picnic tables and an outdoor amphitheater.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline with fast water conditions, use caution.
- Galloway park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

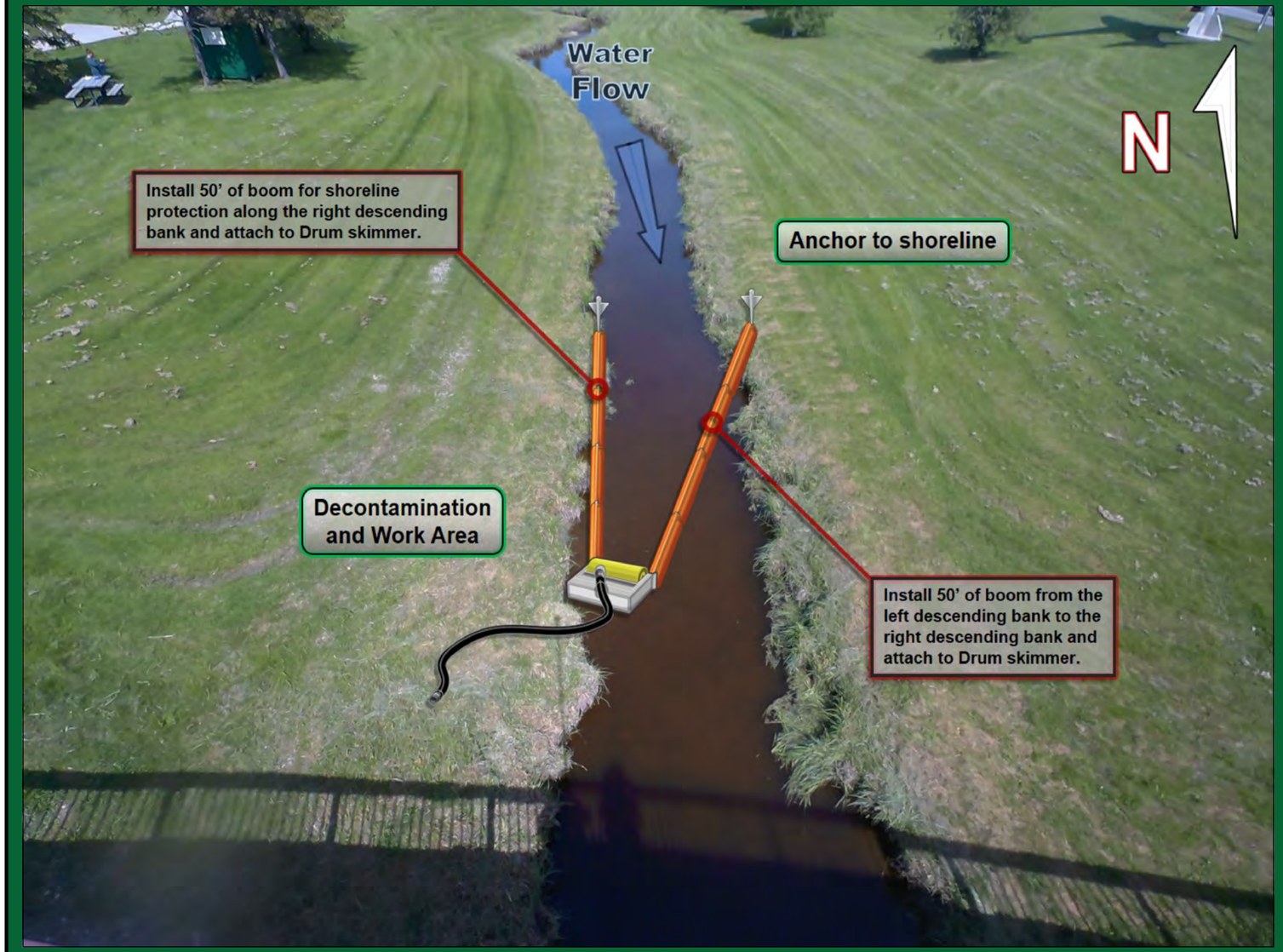
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 116.5 km
- In Edson, turn left onto 54 St for 140 m and park beside open greenspace, opposite Sobeys
- Access via pathway onto open greenspace park behind to the Galloway Station Museum
- Destination is walking bridge over unnamed creek
- Total Distance = 117.3 km
- Total Travel Time = 108 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	3" x 3" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	250'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Powerpack \ Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 3" x 3" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 3" x 3" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 250' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 6 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, rainbow trout, brook stickleback, fathead minnow)
- Deer, coyote, red fox, black bear
- Small mammals (e.g.,vole spp., skunk, hare, bat spp., squirrel)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard)
- Raptors (e.g., Cooper's hawk, red-tailed hawk), owls (e.g., short-eared owl, long-eared owl)
- Urban birds (e.g., house sparrow, crow, magpie, starling, mourning dove, pigeon)
- Canada geese

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.562500	
	Long:	-116.409550	
Elevation:	904 m		
Land and Resource Use:	Private Land. Forested.		
Upstream Valves:	**Line 01:**	K206	
Downstream Valves:	**Line 01:**	24B	
Control Point:	**Upstream** CP 13-03	**Downstream** CP 13-05	
Nearest KM Post:	**Line 01** KP 212		

Waterbody Information:

Waterbody Name: Bench Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		10m	
Depth		1.0 m	
Flow Velocity		<0.5 km/hr	
FlowType		Seasonal drainage with marginal flow and wetland complex	

Waterbody description:

Creek likely seasonal at CP, with marginal flow at time of survey, coursing along sedge-willow dominated wetland complex. Containment located along open water area impounded by a small, active beaver dam at collection area. Downstream, creek flows into 1.8 m diameter culvert under rural road. There is backwater channel/drainage upstream of collection. May be stagnant or intermittent during drought and/or winter.

Shoreline Information

Bank Height:
Poorly defined in areas, 0.5 to 0.8 m

Shoreline Composition and Slope:
Banks low, often steep but poorly defined, frequently saturated, densely vegetated with sedges; riprap downstream of dam; open level bare ground adjacent to road.

Shoreline Vegetation:
Moderately dense willows, abundant sedges, cattail patches and grasses along elevated areas.

Channel / Bank Forms:
Bed and banks predominantly composed or organics underlain by fines.

Shoreline Comments:
Collection located on upstream side of small, active beaver dam, creating open water area with marginal current and poorly define, frequently saturated sedge dominated margins. Downstream of beaver dam, watercourse lined with small-medium rounded boulder riprap and there is a barbed wire fence across channel before flowing into 1.8 m diameter culvert. Slips/trips/falls hazard along soft, saturated banks and instream substrate, and along uneven backshore containing saturated and ponded water areas.

Logistical Information:

Staging Area Location:	- The staging area can be located along Range Road 172. - 5 m x 30 m area. - All weather access is established.	
	Lat: 53.56242	Long: -116.40936
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is located on private land. - Landowner permission required before accessing control point. - Barbwire fence located at control point.	
Road Access/Type:	- Access off of Range Road 172. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

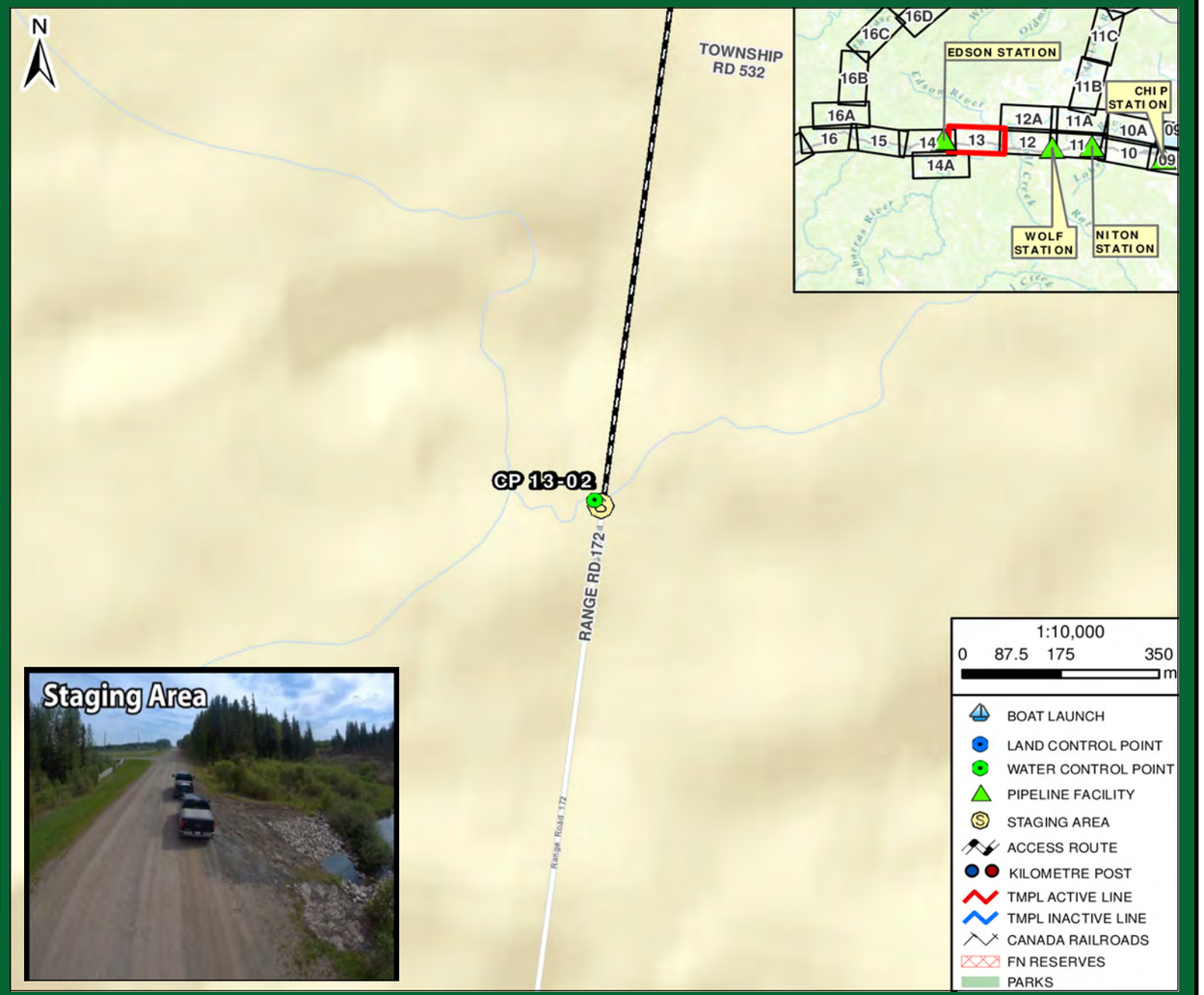
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and lack of current; open ponded areas and instream/overhead cover provide moderate to high rearing habitat; low to moderate overwintering habitat due low oxygen and potential frozen to bottom conditions.
- Located along sedge-willow dominated wetland complex with frequent open water and saturated areas, and occasional dead standing trees, providing waterbird and shorebird nesting habitat, cavity nesting habitat, wetland/shrub nesting habitat, and amphibian breeding and overwintering habitat.
- Small beaver dam at CP and shrub cuttings suggest active beaver population.
- Located adjacent to high-grade rural gravel road.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 112 km, towards Edson
- Turn left onto 37 St for 68 m
- Follow road as it turns right and becomes Golf Course Rd / 40 St for 1.3 km
- Continue south on Range Rd 172 for 1.9 km (passed the Edson RV and Campground)
- Destination is culvert over unnamed watercourse
- Total Distance = 117.2 km
- Total Travel Time = 108 minutes calculated at 65 km/hr

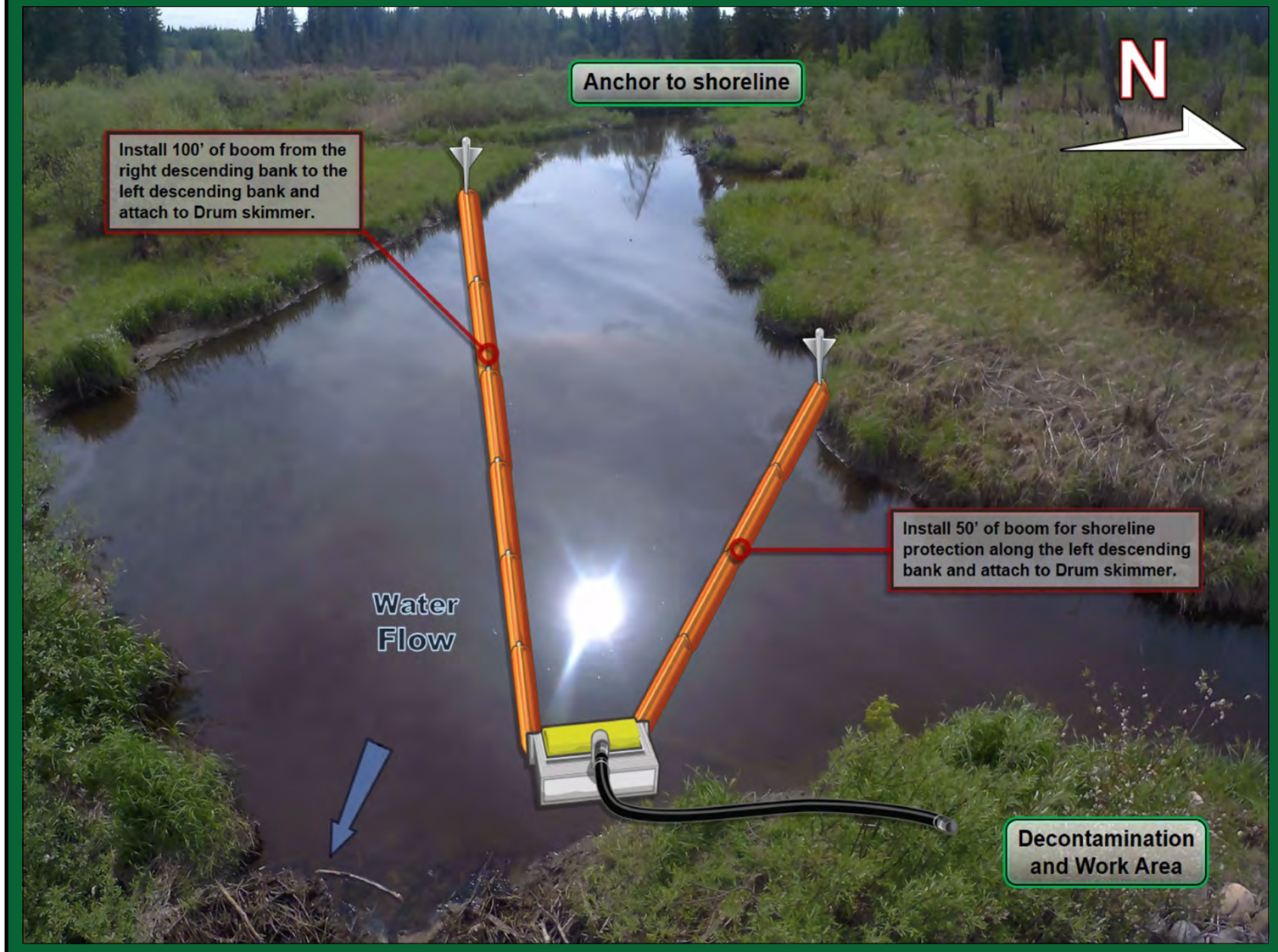
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		Rope	250'
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, rainbow trout, brook stickleback, fathead minnow)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog, chorus frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, bufflehead, coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker spp., chickadee spp.)
- Wetland birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 13 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.564540	
	Long: -116.606020	
Elevation:	929 m	
Land and Resource Use:	Private Land. Forested.	
Upstream Valves:	**Line 01:** K206	
Downstream Valves:	**Line 01:** 24B	
Control Point:	**Upstream** N/A	**Downstream** CP 13-04
Nearest KM Post:	**Line 01** KP 226	

Waterbody Information:

Waterbody Name: Little Sundance Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		5 m	
Depth		0.4 m	
Flow Velocity		3.0 km/hr	
FlowType		Confined moderate velocity riffle and run structure	

Waterbody description:

Sufficient volume and channel characteristics suggest perennial flow, however, typically shallow (up to 0.4 m at time of survey), instream substrate likely becomes exposed during low water. There are frequent overhanging trees, stranded logs and woody debris upstream of containment as creek flows along forested setting, upstream of 3 m diameter culvert. Typical high water 0.3 above levels at time of survey. Low turbidity.

Shoreline Information

Bank Height:
0.2 to 0.5 m

Shoreline Composition and Slope:
Banks often steep along riprap, becoming overhanging upstream, but typically low and stable. Backshores become level, open with tree saplings and young shrubs.

Shoreline Vegetation:
Spruce, tamarack and poplar seedings and saplings; mature conifer forest upstream containment; young willows, with isolated scrub birch, gooseberry; submergent vegetation, mixed plants (e.g., horsetail, bluebell, rue, vetch); sedges along water edge.

Channel / Bank Forms:
Banks composed of boulders around culvert, predominantly organics upstream (sod); bed composed predominantly of cobbles and boulders, often covered in submerged vegetation/algae, less frequent fines, gravels.

Shoreline Comments:
Collection area accessed from open grassy moderately steep rural gravel road approach to boulder riprap and sod covered bank/collection area. Note there is an overhead hazard above culvert from barbed wire fence spanning the 2 to 3 m high approaches, approximately 3 m above channel. Slips/trips/falls hazard along riprap and along approach above culvert where there are numerous, spaced metal stakes ranging from 0.3 to 1 m high, possibly for measuring slope stability and movement.

Logistical Information:

Staging Area Location:	- The staging area can be located along Range Road 184. - 5 m x 50 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.56437	Long: -116.60564
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point is located on private land. - Landowner permission required before accessing control point. - A barbed wire fence is located at the control point.	
Road Access/Type:	- Access off of Range Road 184. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response.	

Decontamination Area:

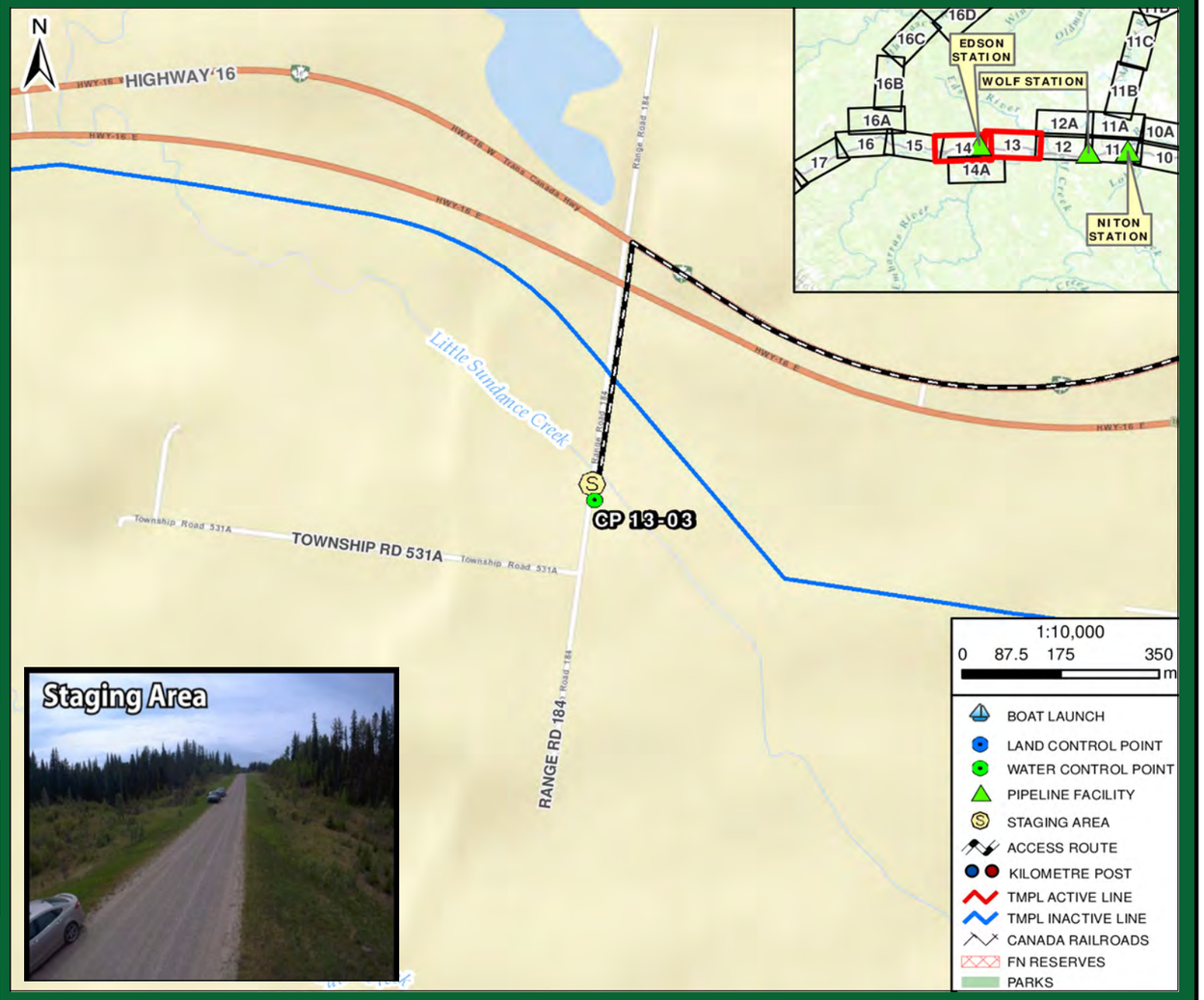
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current, low turbidity with pockets of gravels and cobbles provide moderate spawning habitat potential, though limited in areas due to the presence of abundant submergent vegetation; low rearing and overwintering potential along containment due to shallow depth and lack of instream/overhead cover.
- Riparian/shrub nesting birds.
- Mature spruce-tamarack dominated forest habitat upstream of containment.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

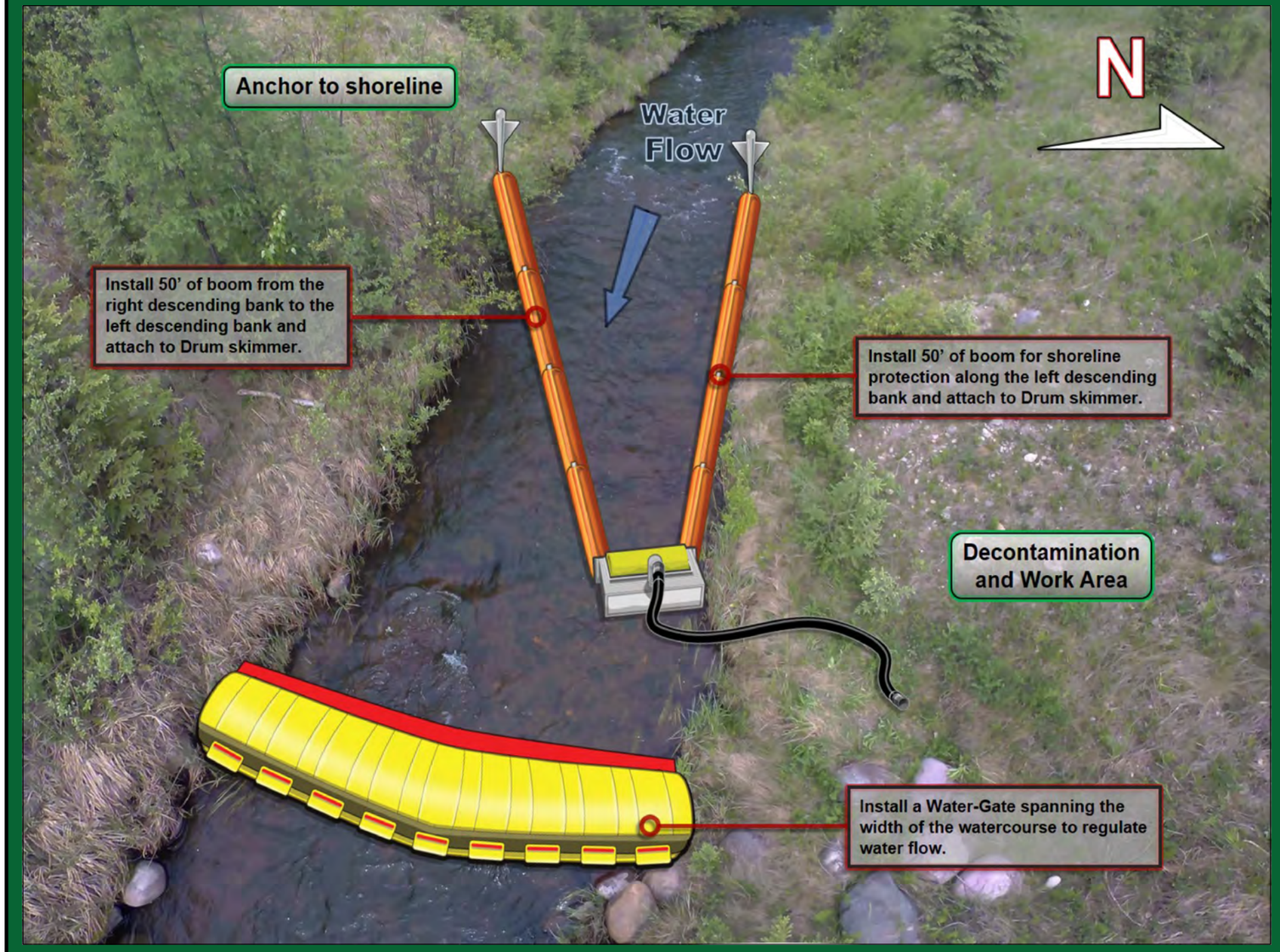
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 127.5 km, past Edson
- Turn left onto Range Rd 184 for 500 m
- Destination is locatred at a culvert over Little Sundance creek
- Total Distance = 128.9 km
- Total Travel Time = 119 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-03



Implementation Strategy:

- Install a Watergate Dam spanning the width of the watercourse backing up surface water and increasing water depth to aid in product recovery.
- Be sure to regulate water depth and monitor changing flow rates. Do not allow water levels to breach bank lines and augment cleanup efforts.
- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 7 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
8	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		Rope	250'
		1	Vacuum Truck
		1	20' Watergate Dam
		1 / 50'	Power Pack / Hydraulic Line
12	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.554540	
	Long: -116.588340	
Elevation:	910 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** K206	
Downstream Valves:	**Line 01:** 24B	
Control Point:	**Upstream** CP 13-03	**Downstream** CP 13-05
Nearest KM Post:	**Line 01** KP 226	

Waterbody Information:

Waterbody Name: Sundance Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		14 m	
Depth		0.5 m	
Flow Velocity		2.0 km/hr	
FlowType		Confined low velocity flat run	

Waterbody description:

Confined low velocity flat run along containment along downstream side of 5 m diameter highway culvert with 4 m clearance, lined along banks with coarse boulder riprap. Along containment, there are man-made cobble lined highway drainage ditches constructed to water edge along both sides of creek (dry at time of survey). Downstream, creek flows along natural, mixed forest-shrub setting with run and riffle structure.

Shoreline Information

Bank Height:
0.6 to 0.8 m

Shoreline Composition and Slope:
Moderately steep, stable grassy approaches to low, stable soft bank at collection, transitioning to rounded cobbles and coarse boulder riprap upstream around culvert.

Shoreline Vegetation:
Isolated pine and spruce along approaches, becoming more frequent downstream; patches of young willow and alder along RDB; submergent vegetation (e.g., milfoil), sedges, horsetail, scouring rush along bank; moss, grass, clover, alfalfa, dandelion.

Channel / Bank Forms:
Banks composed or organics underlain by fines transitioning upstream to cobbles and coarse boulders; bed composed predominantly of organics and fines with cobbles and boulders.

Shoreline Comments:
Collection area accessed open, moderately steep 30 m high highway easement to low grassy bank at collection, transitioning to cobbles and boulder riprap upstream around culvert. Slips/trips/falls hazard along loose, steep boulder riprap lining culvert.

Logistical Information:

Staging Area Location:	- The staging area can be located on the left descending bank in the ditch. - 15 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.55476	Long: -116.58807
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Highway 47. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

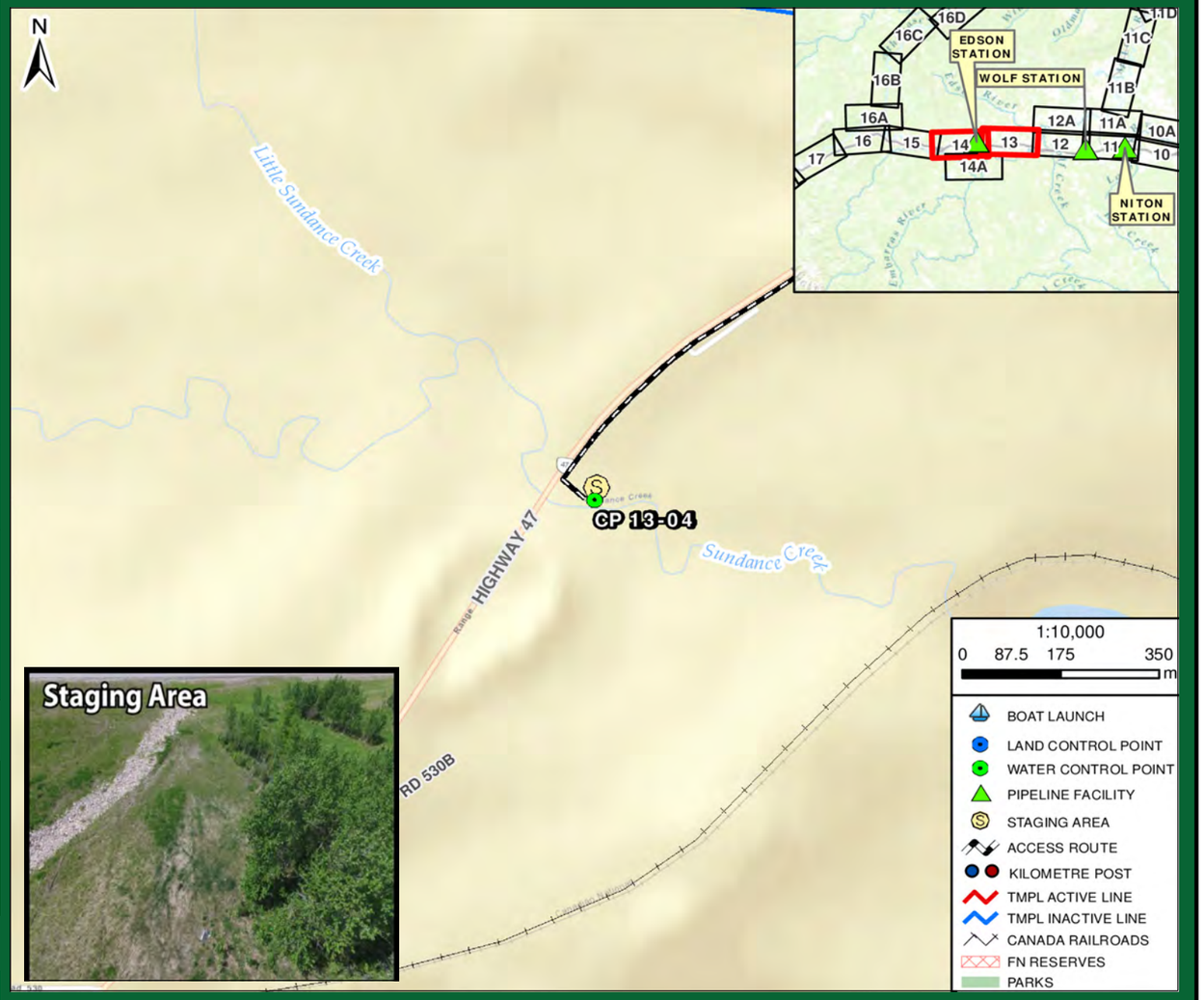
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and lack of current; low rearing and overwintering potential due to lack of instream/shoreline cover, shallow depth.
- Waterbird and shorebird habitat.
- Forest, riparian and shorebird nesting habitat downstream of CP.
- Amphibian habitat along sedge margins downstream of collection.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 125.5 km, past Edson
- Turn left onto AB-47 S (sign for Robb) for 1.9 km, passing West Fraser Edson (Forest Products)
- Destination is culvert over Sundance creek
- Total Distance = 128.6 km
- Total Travel Time = 119 minutes calculated at 65 km/hr

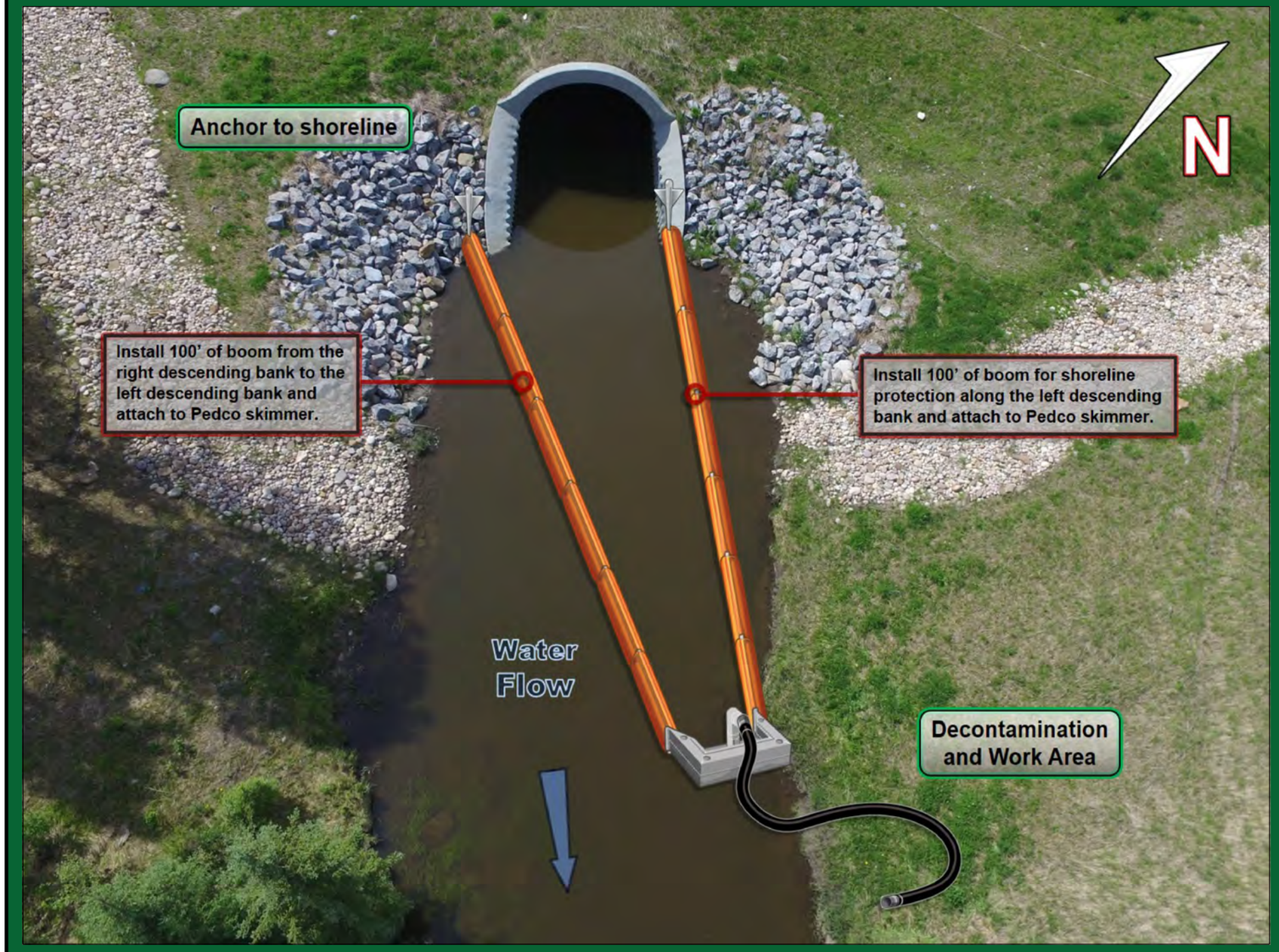
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, rainbow trout, Arctic grayling, bull trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog, chorus frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker spp., chickadee spp.)
- Shorebirds birds (e.g., spotted sandpiper, killdeer)

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 16 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-06

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-05

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.547500
	Long:	-116.545630
Elevation:	906 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:**	K206
Downstream Valves:	**Line 01:**	24B
Control Point:	**Upstream** CP 14A-02	**Downstream** CP 12-02
Nearest KM Post:	**Line 01** KP 221	

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		77 m	
Depth		Unknown	
Flow Velocity		2.0 km/hr	
FlowType		Frequently confined low velocity flat run structure	

Waterbody description:

Frequently confined low velocity flat run with even current across channel. Depth difficult to determine due to turbidity, and instream areas may become shallow or exposed during low water. Occasional overhanging trees and shrubs along RDB, and floating logs and woody debris during high water. Bank characteristics suggest high water mark up to 1.2 m above water levels at time of survey.

Shoreline Information

Bank Height:
1.5 to 2 m

Shoreline Composition and Slope:
Steep forest approaches along RDB with dense shrubs along steep bank, more gradual along muddy foreshores; dense shrubs, tree patches along LDB, becoming hay/pasture.

Shoreline Vegetation:
Mature spruce, isolated poplar with open shrub dominated areas along margins (e.g., willow, alder, wild rose); mixed mosses, sedges, scouring rush, horsetail, grasses.

Channel / Bank Forms:
Banks composed predominantly of sands and silts with occasional cobbles and large boulders; bed composed predominantly of fine sediments with pockets of cobbles and boulders.

Shoreline Comments:
Collection area accessed from gravel road along pipeline right-of-way down moderately steep open vegetated 20 m high approach, becoming narrow with carved out steps down bank to a small open foreshore area composed of mixed soft substrate and large boulders. Slips/trips/falls hazard along steep, mossy and muddy banks and foreshores. Be aware, gravel road downstream of collection experiences frequent industrial traffic.

Logistical Information:

Staging Area Location:	- A staging area can be located along the right descending bank. - 20 m x 25 m area. - Matting required to establish all weather access.	
	Lat: 53.54711	Long: -116.54564
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 2 m x 2 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and water sports area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Range Road 181A. -All weather access is established. - Radio controlled road. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 14A-01. - Refer to BL 14A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 14-01. - Refer to BL 14-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. -Narrow single lane bridge water crossing located at this control point.	

Decontamination Area:

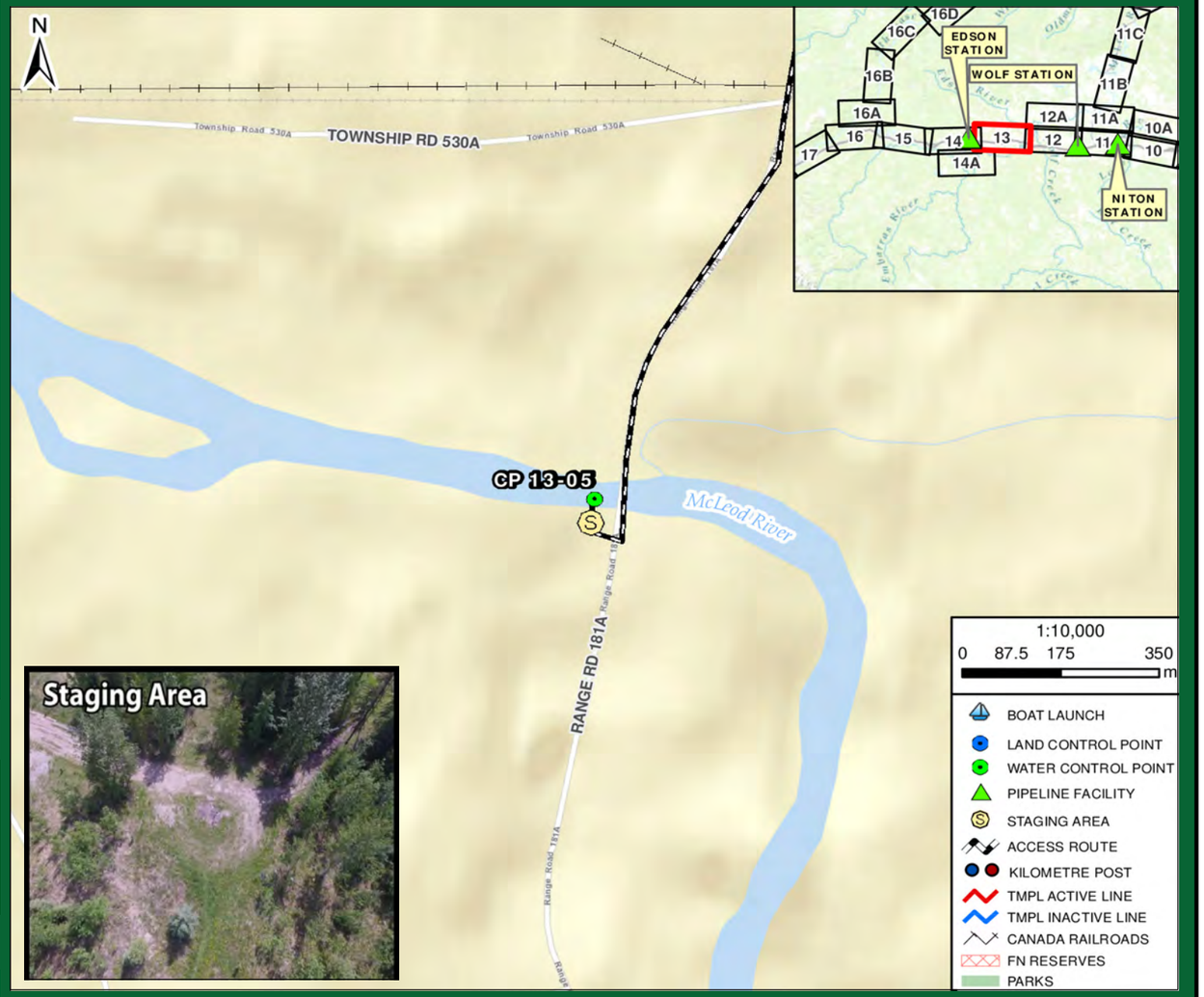
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and lack of current; shoreline and instream cover, sufficient depth and year-round volume provide moderate to high rearing and overwintering habitat; important migratory corridor to upstream spawning areas of the McLeod River Watershed.
- Mature and dead standing trees, shrubs and exposed foreshore areas provide good riparian, shorebird and forest/cavity nesting bird habitat.
- Colony of cliff swallows nesting under bridge.
- Occasional fishing and boating.
- There is a low grade / off-road vehicle trail and informal camp/day use site along pipeline right-of-way above approach on RDB.
- Open pasture/hay land beyond tree/shrub dominated margins of LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline. Underground facilities at the staging area and control point.
- Public may be present. Overhead power lines along access to staging area and control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

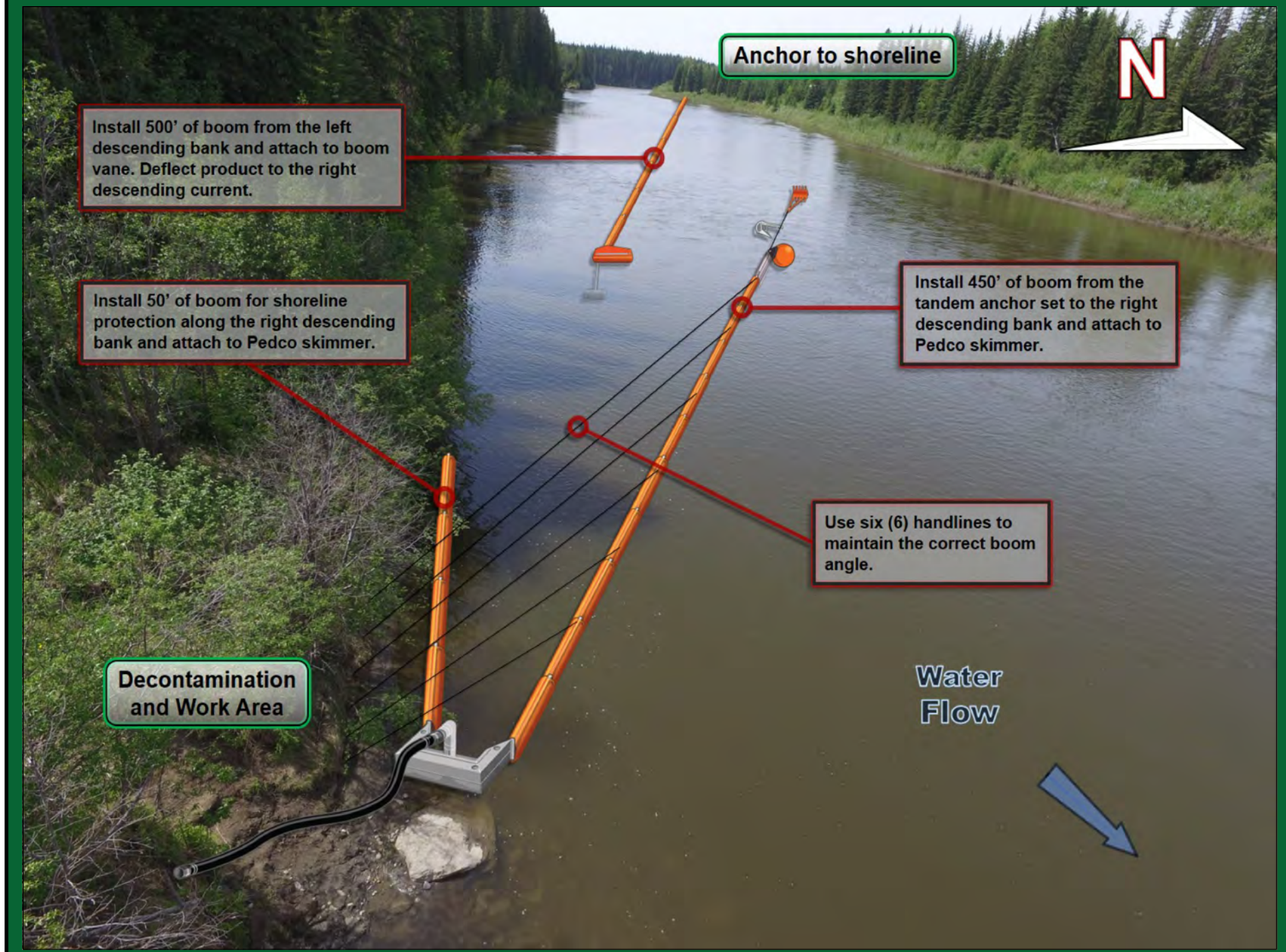
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 122.5 km, past Edson
- Turn left onto Range Rd 181A for 2.6 km, passing Repsol O&G Edson Gas Plant
- Destination is bridge over McLeod River
- Total Distance = 126.3 km
- Total Travel Time = 117 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-06
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 13-05



Implementation Strategy:

- Install 500' of 6" x 6" hard containment boom from the left descending bank and attached to a 0.50 m boom vane to deflect product to right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 450' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose. Recover with a portable vacuum pump and tank. Utilize a vacuum truck to empty portable tanks as needed.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 90 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1200'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 1	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Workboat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.), cliff swallow
- Shorebirds (e.g., sandpiper spp., killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-08
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 14-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.529353	
	Long:	-116.799365	
Elevation	951 m		
Upstream Valves:	**Line 01:** KL241		
Downstream Valves:	**Line 01:** KL251		
Control Point:	**Upstream** N/A	**Downstream** CP 14-05	
Nearest KM Post:	**Line 01** KP 241		

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		43 m	
Depth		Unknown	
Flow Velocity		6.2 km/hr	
FlowType		Frequently unconfined mod-high velocity run/low rapids	

Waterbody description:

Boat launch located on extensive gravel bar along inside bend of LDB. Main current and thalweg closer to RDB. Bank characteristics suggest high water typically up to 1 m above levels at time of survey, with most of the gravel bar becoming inundated. Despite road closure, gravel bar complex remains accessible for informal recreational activities (e.g., fishing, picnicking, camping). Occasional boating (e.g., kayak, jet boat, drift boat), with navigability somewhat restricted by swift current, rapid areas and shallow depths.



Logistical Information:

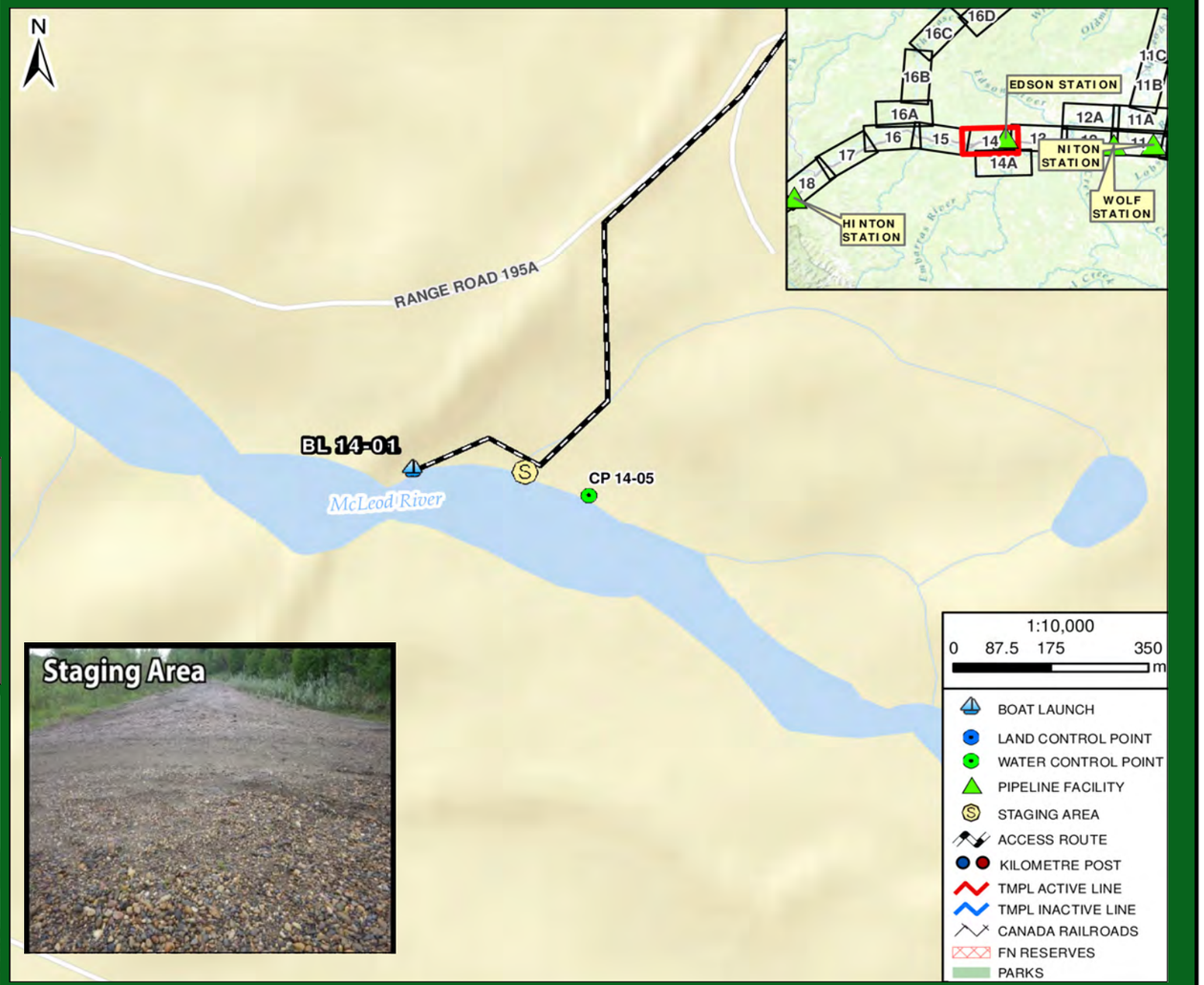
Road Access/Type:	- Access off of Range Road 195, 530 m down LOC 003382. - Matting required to establish all weather access. - Security is needed to keep out all nonessential personnel.	
Comms:	**Cell Phone Coverage** - No cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located along the left descending bank. - 20 m x 40 m area. - Matting required to establish all weather access. - Minor site preparation required.	
	Lat: 53.529534	Long: -116.796323
Site Comments:	- Popular angling, camping and recreational boat area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required. - A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, install a boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 130 km
- At Marlboro, Turn right onto Range Rd 265A for 240 m
- Continue as it becomes Range Rd 195A for 200 m
- Turn right to stay on Range Rd 195A, heading south for 2 km towards riverbank
- Destination is McLeod River, access through gated private road
- Total Distance = 133.2 km
- Total Travel Time = 123 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-08

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.572840	
	Long:	-116.650180	
Elevation:	929 m		
Land and Resource Use:	Crown Land. Forested.		
Upstream Valves:	**Line 01:**	24Q	
Downstream Valves:	**Line 01:**	KL241	
Control Point:	**Upstream** CP 14-02		**Downstream** CP 13-04
Nearest KM Post:	**Line 01** KP 229		

Waterbody Information:

Waterbody Name: Sundance Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		16 m	
Depth		0.8 m	
Flow Velocity		1.0 km/hr	
FlowType		Frequently confined marginal velocity flat run	

Waterbody description:

Frequently confined marginal velocity flat run along containment on upstream side of two, 2.5 m diameter culverts. Though marginal, main current and thalweg closer to RDB; with LDB containing exposed muddy, partially vegetated foreshore area. Creek flows along willow dominated lowland area; during high water events, backshores may become saturated, with localized flooding/ponding. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.5 to 1 m

Shoreline Composition and Slope:
Banks often steep to overhanging, poorly defined and soft/saturated along RDB, with elevated open backshore. Similar along LDB, but lacking approach slopes.

Shoreline Vegetation:
Sparse spruce and poplar seedlings and saplings; predominantly willow, dense along LDB, infrequent along RDB becoming dense upstream along containment; sedges along shoreline; grasses, horsetail, vetch, wild strawberry.

Channel / Bank Forms:
bed and banks composed predominantly of organics and fines.

Shoreline Comments:
Collection area accessed along level open grass-dominated road and powerline easement to 2 to 3 m moderately steep, stable approach to collection area immediately upstream of culvert, becoming more gradual along base above 0.6 m steep to overhanging and very soft, often saturated bank. into 0.5 m deep water at time of survey. Slips/trips/falls hazards along soft organic banks and instream substrate. Be aware, overhead power line hazard across containment 8 to 10 m above channel.

Logistical Information:

Staging Area Location:	- The staging area can be located along Township Road 532B. - 5 m x 50 m area. - All weather access is established. - Traffic control or road closure recommended.	
	Lat: 53.57253	Long: -116.65137
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Township Road 532B. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to abundant fines and lack of current; instream woody debris, marginal flow provide moderate rearing potential; low overwintering potential since creek likely becomes very shallow and stagnant, with potential frozen to bottom conditions.
- Watercourse flows along a broad, willow dominated lowland area, with occasional saturated and ponded areas along backshore, providing excellent shrub/wetland nesting and amphibian habitat.
- Open water and exposed muddy foreshores and sedge-grass-shrub dominated backshores provide waterbird and shorebird nesting habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline, use caution.
- Public may be present. There are overhead power lines at this control point.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

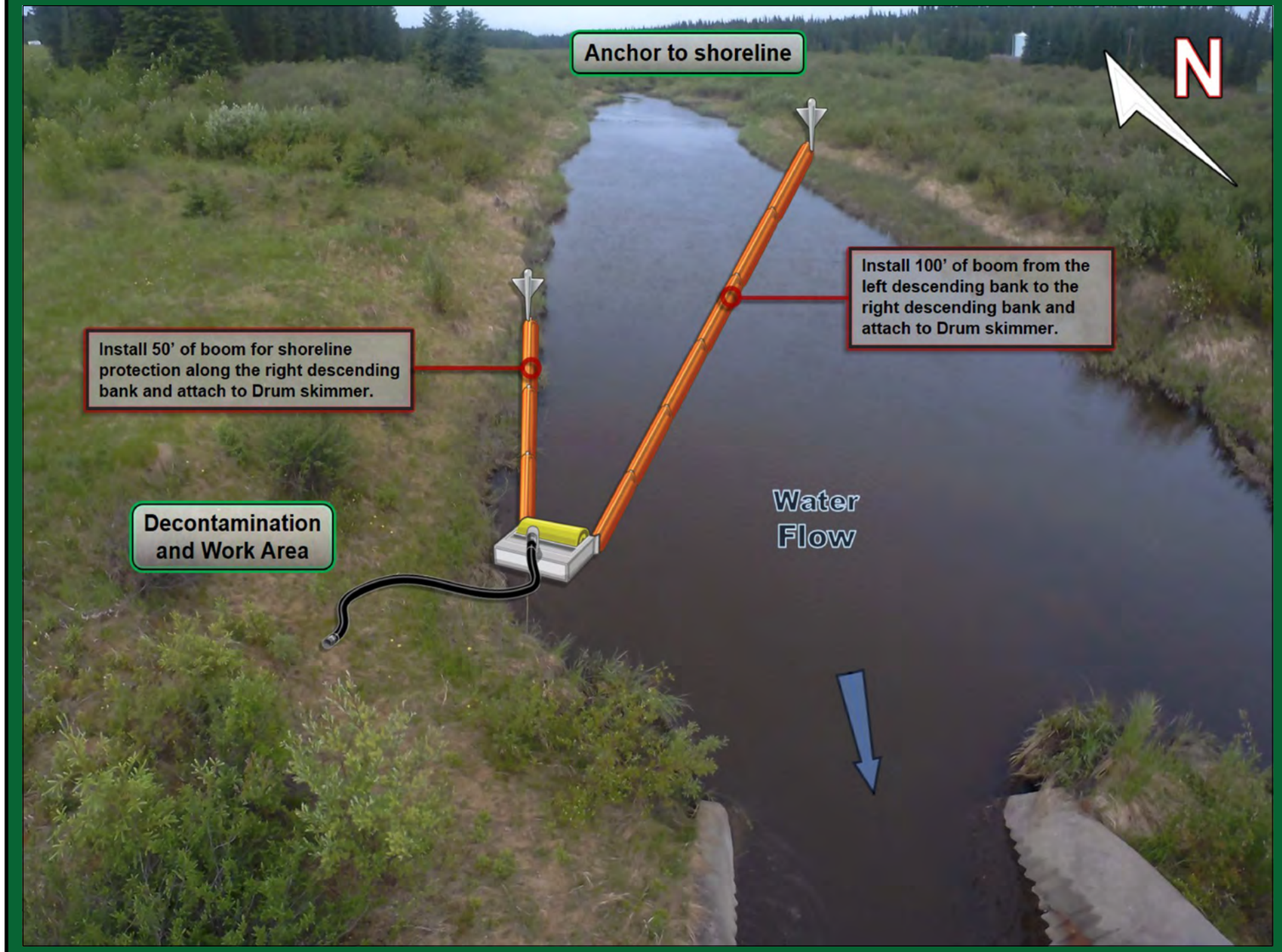
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 128.5 km
- Turn right (signs for Trans Mountain Road / Range Rd 185 / Tervita) for 190 m
- Then turn left onto private road (not Range Rd 185) for 1.4 km
- Destination is a culvert over Sundance creek
- Total Distance = 131.7 km
- Total Travel Time = 122 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-08
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-01



Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 20 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		Rope	250'
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, rainbow trout, brook stickleback, fathead minnow)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog, chorus frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., lesser scaup, bufflehead, coot)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., short-eared owl, long-eared owl)
- Shorebirds (e.g., sandpiper spp., killdeer, Wilson's snipe, long-billed dowitcher)
- Wetland birds (e.g., sora, common yellowthroat, red-winged blackbird, marsh wren)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-08

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.566660	
	Long:	-116.703450	
Elevation:	938 m		
Land and Resource Use:	Crown Land. Forested.		
Upstream Valves:	**Line 01:**	24Q	
Downstream Valves:	**Line 01:**	KL241	
Control Point:	**Upstream** N/A	**Downstream** CP 14-01	
Nearest KM Post:	**Line 01** KP 232		

Waterbody Information:

Waterbody Name: Sundance Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		8 m	
Depth		0.5 m	
Flow Velocity		2.4 km/hr	
FlowType		Frequently confined moderate velocity run and riffle structure	

Waterbody description:

Containment below clearspan bridge with 2 m clearance supported by vertical wooden bridge abutments. Along containment, main current and thalweg closer to RDB; with LDB containing shallow foreshore areas at collection underneath bridge. Creek flows along mature/old growth spruce forest, with frequent overhanging/fallen trees upstream and downstream of containment and collection. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.5 to 1 m

Shoreline Composition and Slope:
Upstream and downstream of bridge, banks typically steep to overhanging, stable but often observed by dense vegetation with mixed open, shrubby and forested backshores.

Shoreline Vegetation:
Seedling/saplings transitioning to mature/old growth spruce forest with less frequent tamarack upstream and down of road shoulder; moderately dense mixed shrubs (e.g., willow, soopolallie, wild rose); sedges, grass, horsetail, vetch, false solomon's seal, clover.

Channel / Bank Forms:
Banks predominantly composed of organics underlain by fines; bed composed of gravel and cobbles with occasional boulders and increased fine sediments along foreshores and eddies.

Shoreline Comments:
Collection area located on LDB below narrow, moderately steep open grassy 2 to 3 m high approach from rural gravel road immediately downstream of bridge. Foreshore area along LDB is gradual transitioning to steep to vertical/overhanging banks. Slips/trips/falls hazard along soft organic banks often obscured by vegetation. There is an Environment Canada Hydrometric Monitoring Station located along RDB on upstream side of bridge.

Logistical Information:

Staging Area Location:	- The staging area can be located along the left descending bank in a camping area. - 10 m x 35 m area.	
	Lat: 53.56702	Long: -116.70368
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Range Road 192. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - Popular camping area. - The control point is located at a narrow bridge crossing.	

Decontamination Area:

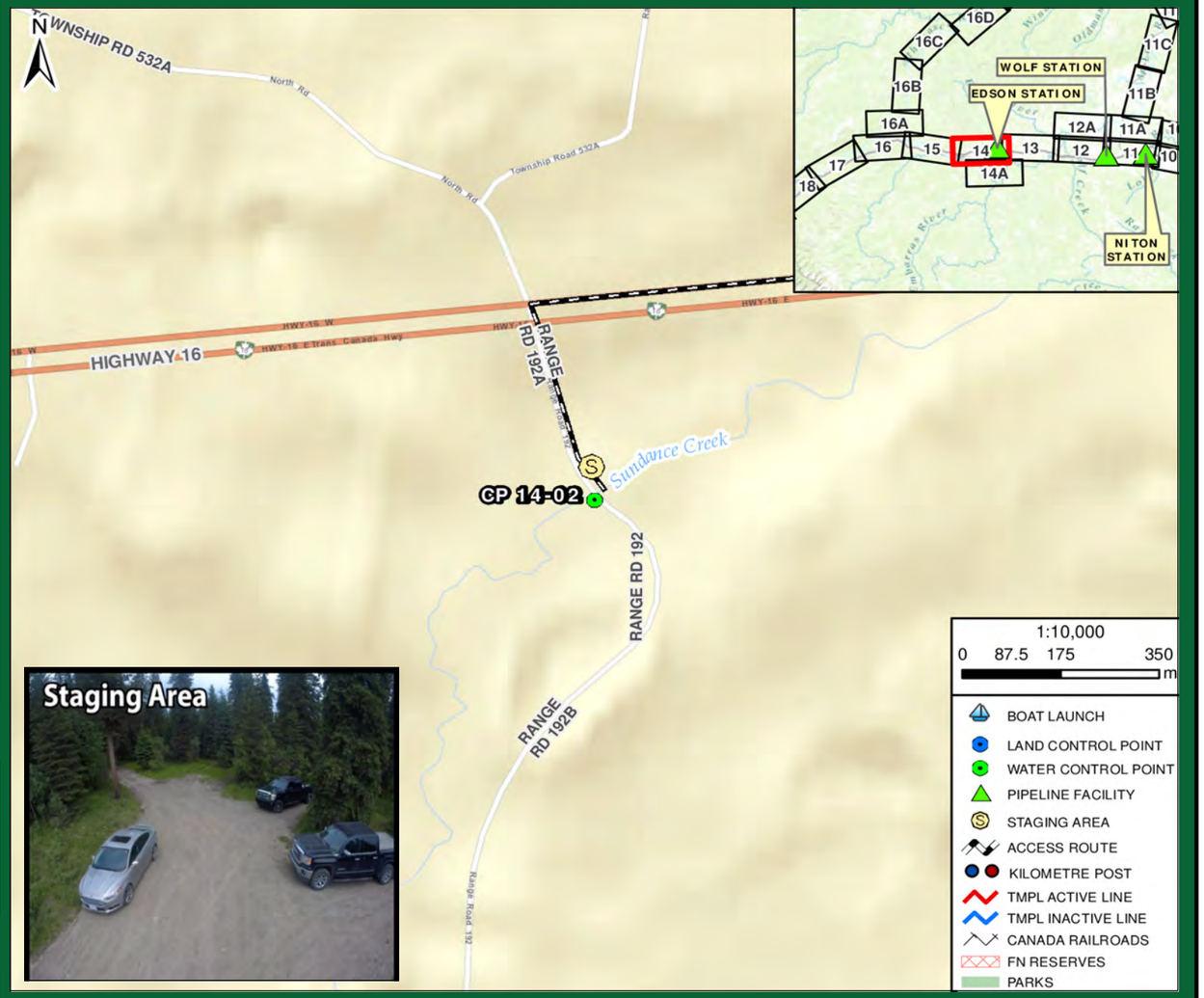
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Good channel complexity with riffle and run structure, pockets of gravels and cobbles, deeper eddies and instream/shoreline cover along old growth forested setting provides moderate to good spawning, rearing and overwintering habitat potential.
- Watercourse flows along old growth spruce dominated forest upstream and downstream of bridge, providing old forest bird habitat, cavity nesting habitat and riparian/shrub nesting habitat.
- There is an informal camp site area along backshore LDB on downstream side of bridge.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

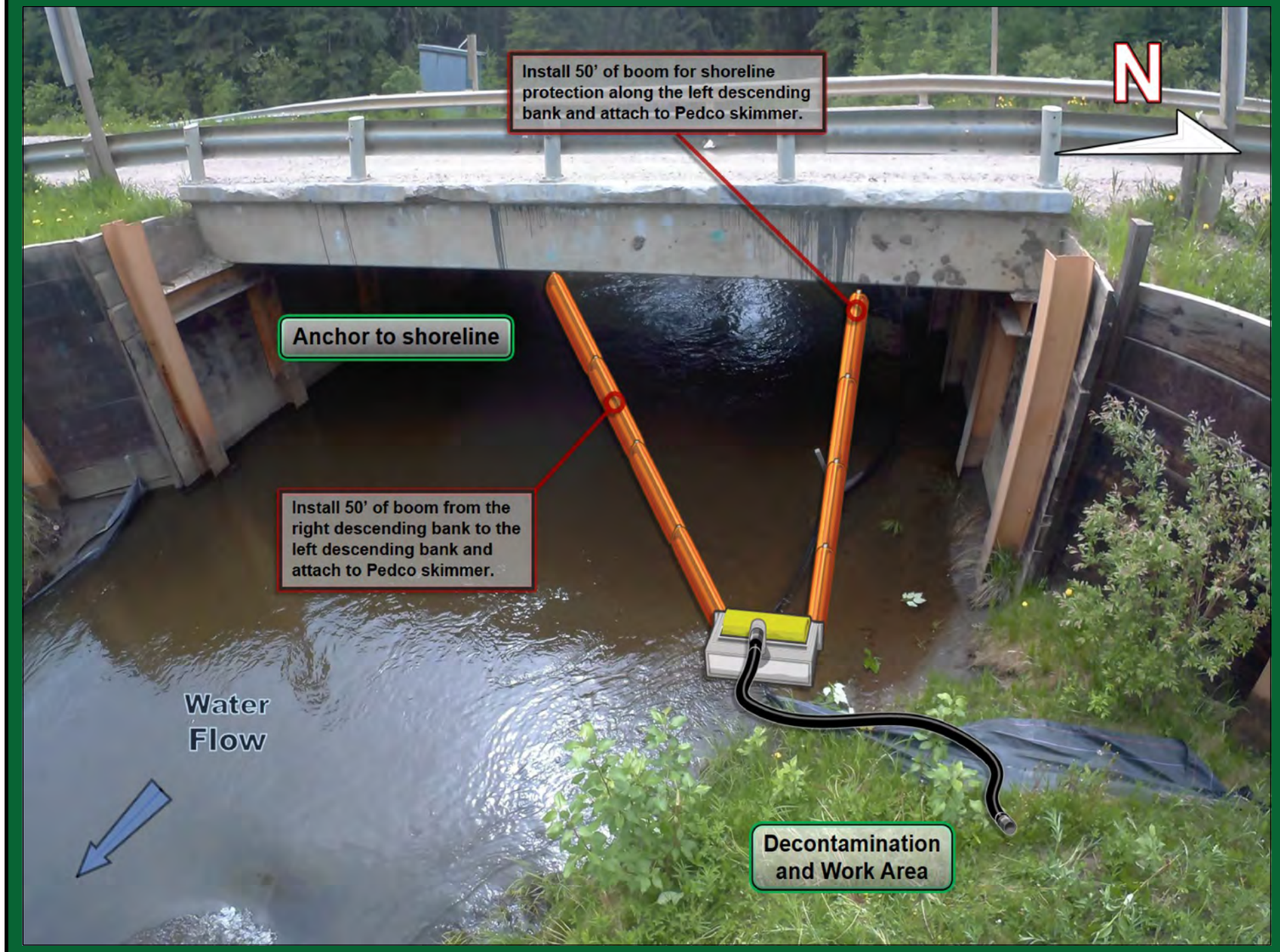
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 134.5 km
- After Hornbeck Creek Provincial Recreation Area, turn left onto Range Rd 192A (sign for Bickerdike Road) for 390 m
- Destination is bridge over Sundance creek
- Total Distance = 135.8 km
- Total Travel Time = 125 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-08
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		Rope	250'
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, merlin), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper., killdeer)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install an 10 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-10

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.525730	
	Long: -116.719490	
Elevation:	966 m	
Land and Resource Use:	Crown Land. Agricultural.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL241	
Control Point:	**Upstream** N/A	**Downstream** CP 14A-01
Nearest KM Post:	**Line 01** KP 235	

Waterbody Information:

Waterbody Name: Annabel Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		330 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Annabel lake is a small, remote waterbody with mature mixed forested areas along the backshore (e.g. aspen, poplar and spruce), and wetland margins. The lake is bordered by crown land/grazing leases; there are no surrounding residential areas.

Shoreline Information

Bank Height:
0.5 to 1 m

Shoreline Composition and Slope:
Variable, typically moderately sloping banks with shallow foreshores. LDB poorly defined with a large wetland complex along the shoreline.

Shoreline Vegetation:
mature to old growth mixedwood forest of poplars, aspens and spruce; isolated shrubs (e.g., willow and wild rose); abundant grasses and sedges.

Channel / Bank Forms:
Bed and banks composed predominantly of fine sediments with sand and mixed gravels.

Shoreline Comments:
The shoreline is moderately sloping and generally stable transitioning to shallow water containing abundant submergent vegetation (e.g. sedge, grasses). Access to collection is along a gated low grade access road through crown land.

Logistical Information:

Staging Area Location:	- The staging area can be located along the access road. - 5 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.52541	Long: -116.71942
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required.	
Site Restrictions:	- Gated access to control point and staging area. - Control point and staging areas are located on a grazing lease. - Peyto Exploration pipeline crossing along access, crossing agreement required.	
Road Access/Type:	- Access off of Highway 194, 2.3 km through a grazing lease. - Matting required to establish all weather access.	
Boat Access:	- A boat launch can be located at the control point.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

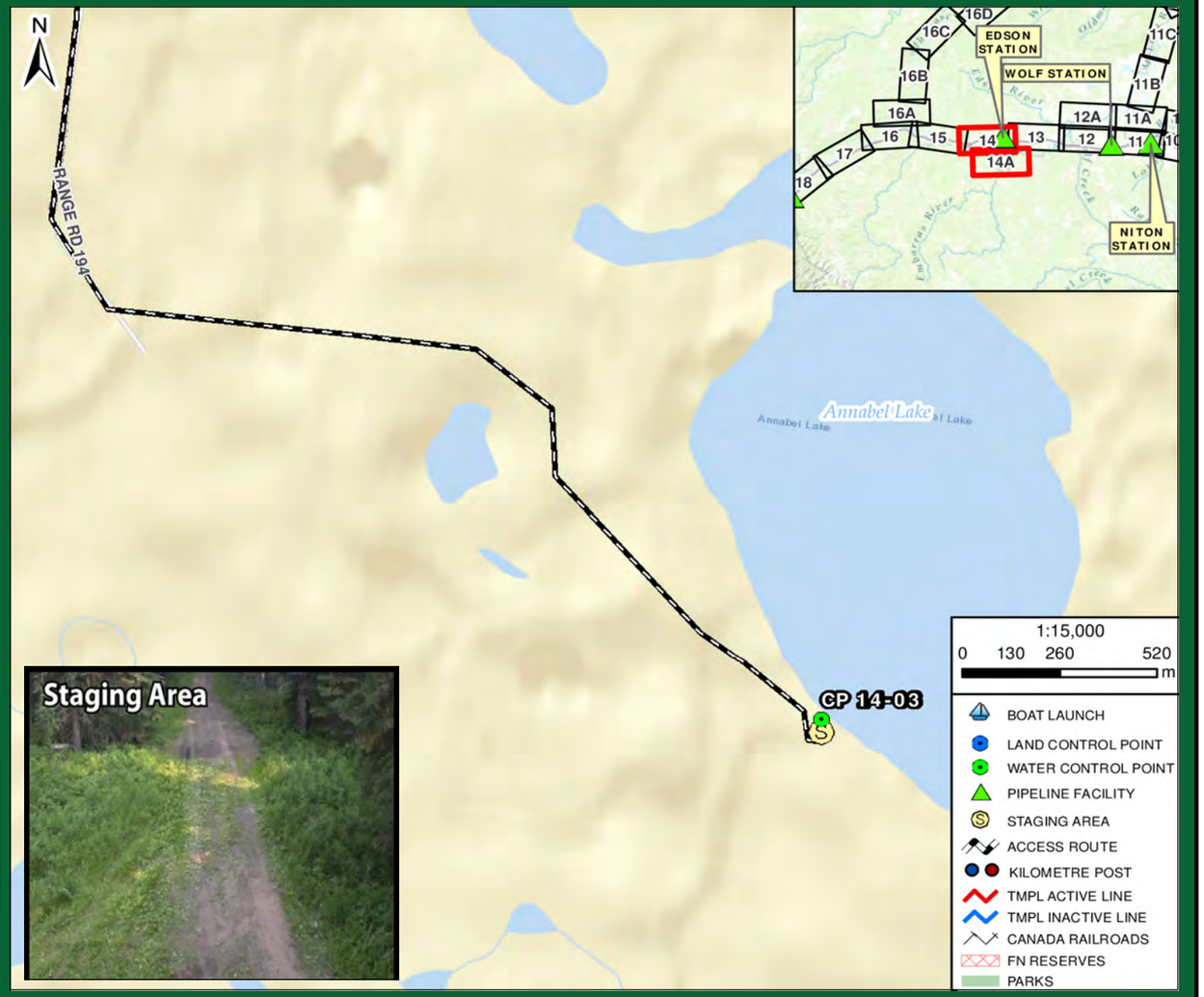
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

Potential fish-bearing and overwintering habitat (e.g. pike and perch) though status could not be confirmed; historical data shows Annabel Lake was stocked with Rainbow Trout in 1952 but no evidence if trout population remains. Abundant mixedwood forest habitat with stands of old growth aspen and spruce providing good habitat for cavity and forest nesting birds; cattail and sedge dominated wetland margins; waterbird breeding and migratory staging. Large wetland complex extending along southeast shoreline, opposite of CP, providing excellent habitat for waterbirds, shorebirds, wetland/riparian birds. The lake is bordered by crown land and grazing leases; potential local recreational users (e.g. angling, canoeing).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, with soft ground conditions. Use caution around the shoreline.
- Control point and staging areas are located on a crown land grazing lease, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

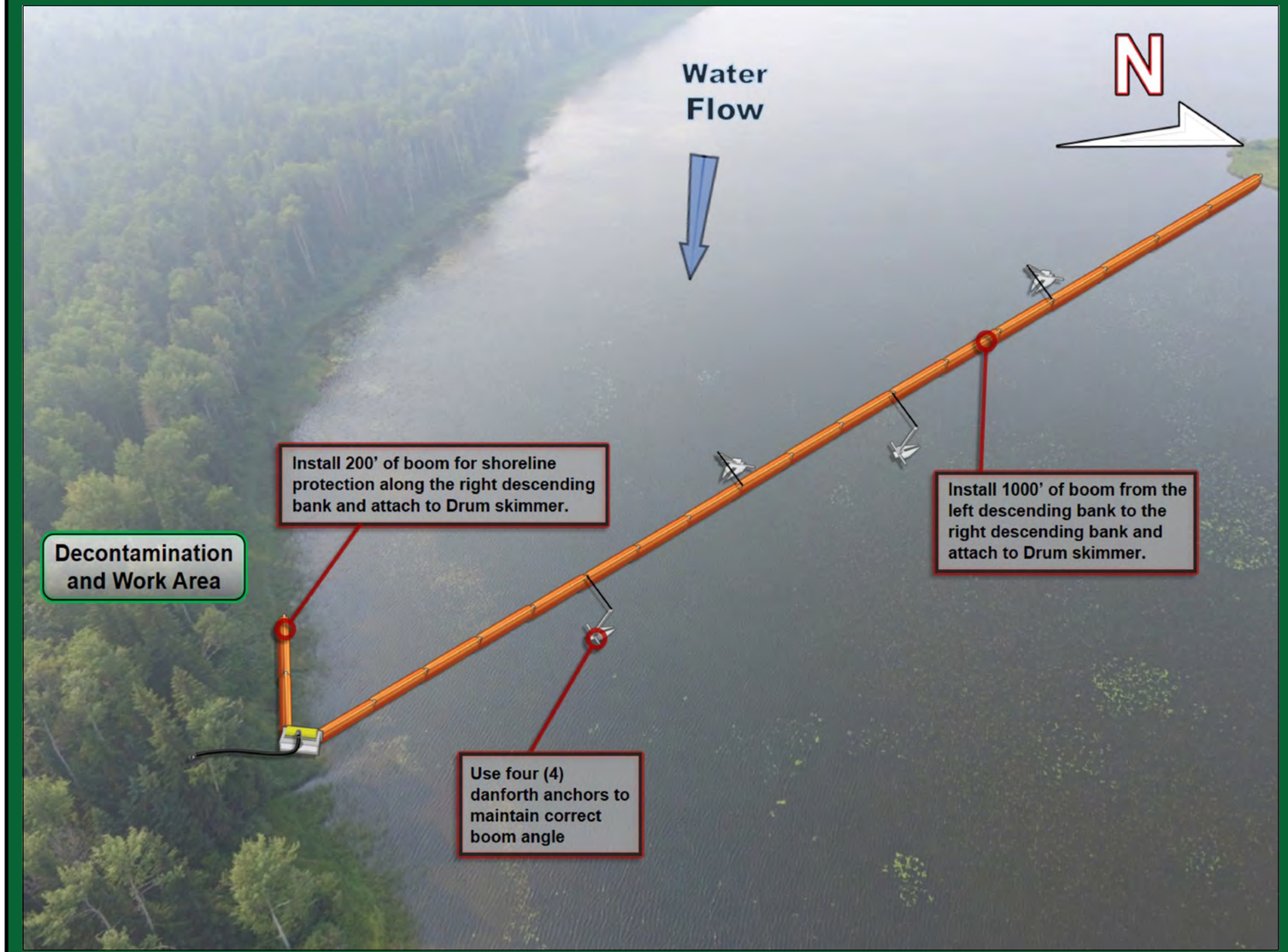
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 131 km
- Near Marlboro, Turn right onto Township Rd 530B for 1.9 km
- Turn right at the 1st cross street onto Range Rd 194 for 2.2 km
- Access through private roads and cleared access to the lake
- Destination is Annabel Lake
- Total Distance = 138.3 km
- Total Travel Time = 128 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-07-10
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-03



Implementation Strategy:

Lake Containment & Recovery Strategy:
- Install 1000' of 6" x 6" hard containment boom from the left descending bank to the right descending bank at the narrow point in the lake to prevent further wind driven product migration.
- Install (4) Danforth anchors (complete with 60' ballast chain and 100' rode line each) from the 6" x 6" hard containment boom at 200' intervals, being sure to use the correct boom recovery angle.
- Install 200' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Wind driven product movement will dictate additional shoreline protection placement and recovery areas along the lake shoreline.

Winter Response:
-Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	1 / 50'	Power Pack / Hydraulic Line
4	Boat Crew	1500'	Rope
		1	Vacuum Truck
		6	Danforth Anchor
		4	100' Rode Line
		4	60' Ballast Chain
		2	Small Work Boat
14	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog), blue heron, tundra and trumpeter swan
- Waterbirds (e.g., common goldeneye, mallard, teal spp., lesser scaup, bufflehead, ring-necked duck, loon, grebe spp.)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Wetland birds (e.g., marsh wren, sora, yellowthroat, red-winged blackbird), shorebirds (e.g., lesser yellowlegs, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-08

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.537950	
	Long: -116.790790	
Elevation:	963 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL241	
Control Point:	**Upstream** N/A	**Downstream** CP 14A-01
Nearest KM Post:	**Line 01** KP 240	

Waterbody Information:

Waterbody Name: Unnamed watercourse

Waterbody Type: Channelized fen

WATER LEVEL:	Low	Medium	High
Width		13 m	
Depth		0.6 m	
Flow Velocity		<0.5 km/hr	
FlowType		Seasonal watercourse along channelized fen	

Waterbody description:

Containment along open water area with marginal flow upstream of 1.2 m diameter culvert. Shoreline poorly defined, with backwater and ponded areas along sedge-willow dominated margins transitioning to mature spruce dominated forest. Bottom of shallow pond (up to 0.6 m) contains abundant submergent vegetation/algae and occasional submerged woody debris. Active beaver dam on upstream extent of containment.

Shoreline Information

Bank Height:
0.3 to 0.5 m

Shoreline Composition and Slope:
Banks around culvert are stable, vegetated along base of the road shoulder, becoming poorly defined, frequent saturated and very soft along sedge-dominated margins.

Shoreline Vegetation:
60 to 70 m wide sedge-willow dominated band along channelized fen, transitioning to mature spruce forest containing tamarack, aspen, lodgepole pine along backshore; Grasses, dandelion, horsetail, fireweed and stinkweed along road shoulder.

Channel / Bank Forms:
Bed and banks composed predominantly of organics and fines.

Shoreline Comments:
Collection area accessed adjacent to culvert from 2 m high moderately steep, grass rural gravel road shoulder. Base of approach along road shoulder forms stable banks around culvert into shallow (0.5 m) water, becoming poorly defined, soft and saturated upstream along sedge margins.

Logistical Information:

Staging Area Location:	- The staging area can be located along Range Road 195A. - 5 m x 50 m area.	
	Lat: 53.53787	Long: -116.79075
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Range Road 195A. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response.	

Decontamination Area:

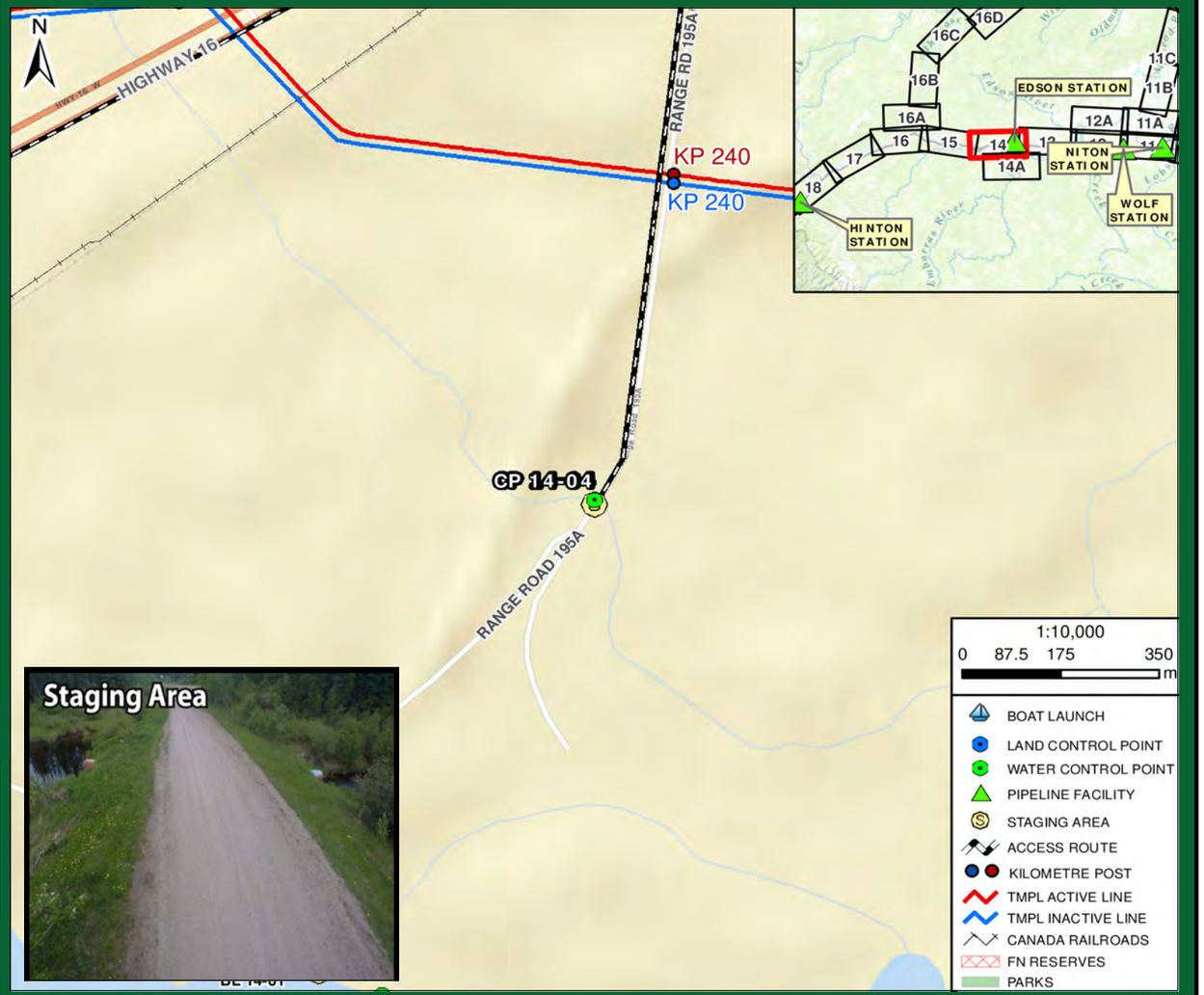
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; poor spawning and overwintering habitat due to abundant fines and shallow depth; moderate rearing potential.
- Sedge-willow dominated channelized fen and open water area and mature spruce dominated forest provide habitat mosaic of shrub/wetland nesting and amphibian habitat, waterbird habitat and forest bird habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

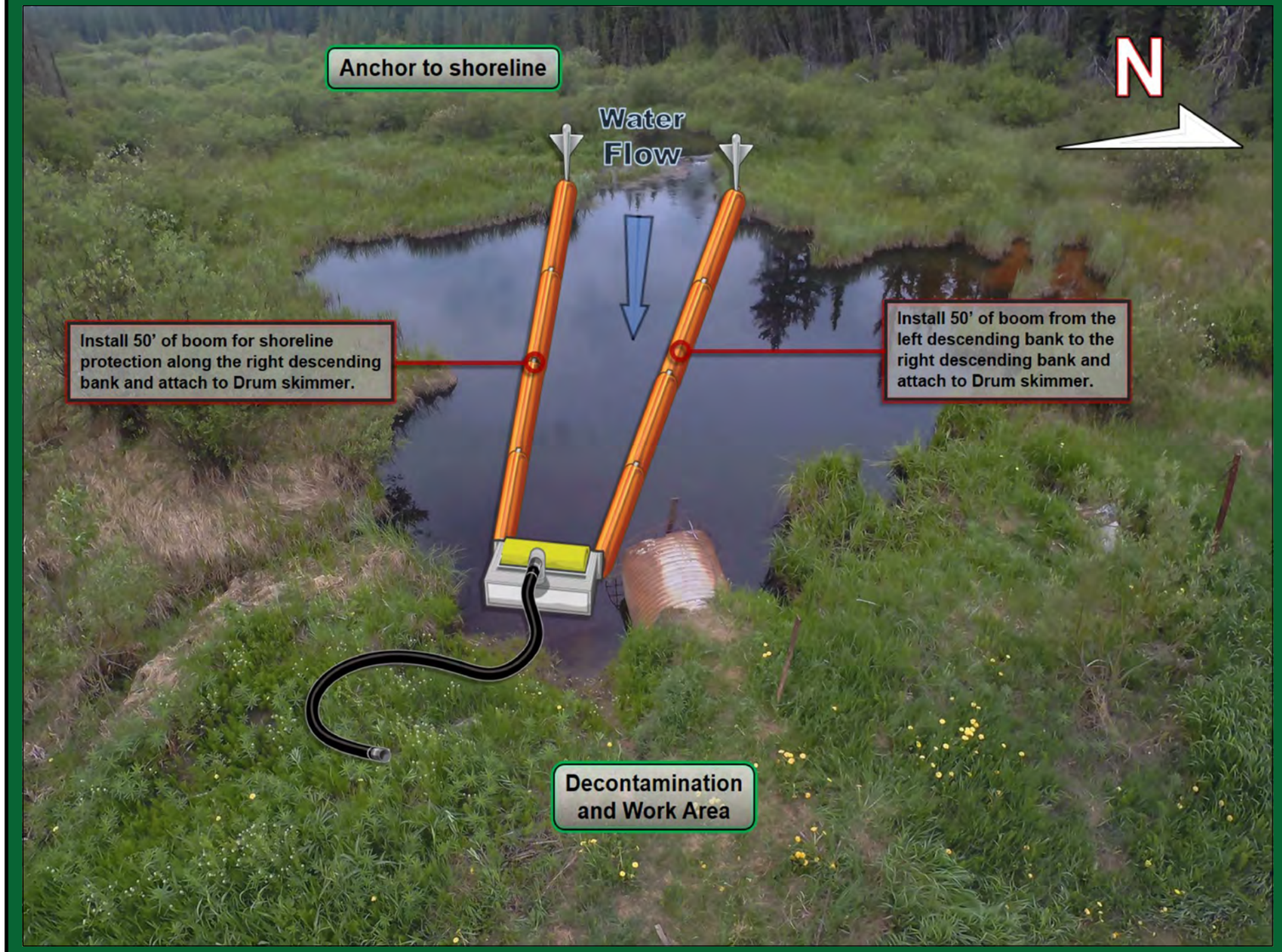
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 130 km
- At Marlboro, Turn right onto Range Rd 265A for 240 m
- Continue as it becomes Range Rd 195A for 200 m
- Turn right to stay on Range Rd 195A, heading south for 1 km
- Destination is culvert over unnamed watercourse
- Total Distance = 132 km
- Total Travel Time = 122 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-08
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-04



Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Ensure the containment is not so close to the culvert that it allows containments to pass under.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 16 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power pack / Hydraulic line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, rainbow trout, brook stickleback, fathead minnow)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., lesser scaup, bufflehead, ring-necked duck, northern shoveler), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, merlin), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Wetland birds (e.g., marsh wren, sora, yellowthroat, meadowlark), shorebirds (e.g., lesser yellowlegs, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-08

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-05

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.529550	
	Long:	-116.793650	
Elevation:	951 m		
Land and Resource Use:	Crown Land. Forested.		
Upstream Valves:	**Line 01:**	KL241	
Downstream Valves:	**Line 01:**	KL251	
Control Point:	**Upstream** N/A		**Downstream** CP 14A-01
Nearest KM Post:	**Line 01** KP 240		

Waterbody Information:

Waterbody Name: McLeod River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		38 m	
Depth		Unknown	
Flow Velocity		6.2 km/hr	
FlowType		Frequently unconfined mod-high velocity run/low rapids	

Waterbody description:

CP located at the east end of an extensive, open sand/gravel bar; there is a backwater channel downstream of containment, also formed from upstream seepage areas along gravel bar. Overhanging trees along eroding RDB and abundant stranded logs and woody debris depositional LDB. Bank characteristics suggest high water typically up to 1 m above levels at time of survey, with most of the gravel bar becoming inundated.

Shoreline Information

Bank Height:
Poorly defined along LDB due to gravel bar; up to 2 m along RDB.

Shoreline Composition and Slope:
LDB typically gradual, composed of loose gravels and cobbles with level, uneven backshore.

Shoreline Vegetation:
LDB sparsely vegetated along gravel bar, with mixedwood forest downstream along outside river bed; young to mature spruce and poplar along RDB with willows, alder, soopolallie, wild rose, grasses.

Channel / Bank Forms:
Banks composed of sands, gravels and cobbles, fines upstream along eroding RDB ; bed predominantly composed clean gravels, cobbles and boulders.

Shoreline Comments:
Collection area accessed along closed medium grade access road (AESRD sign stating road closure) to extensive, partially vegetated gravel bar along inside river bend.

Logistical Information:

Staging Area Location:	- A staging area can be located along the left descending bank. - 20 m x 40 m area. - Matting required to establish all weather access. - Minor site preparation required (brushing).	
	Lat: 53.529534	Long: -116.796323
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - All weather access is established.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling, camping and water sports area. - LOC, access gated and closed to public.	
Road Access/Type:	- Access off of Range Road 195, 530 m down LOC003382. - Matting required to establish all weather access. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Boat Access:	- Main boat access from BL 14-01. - Refer to BL 14-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - No cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

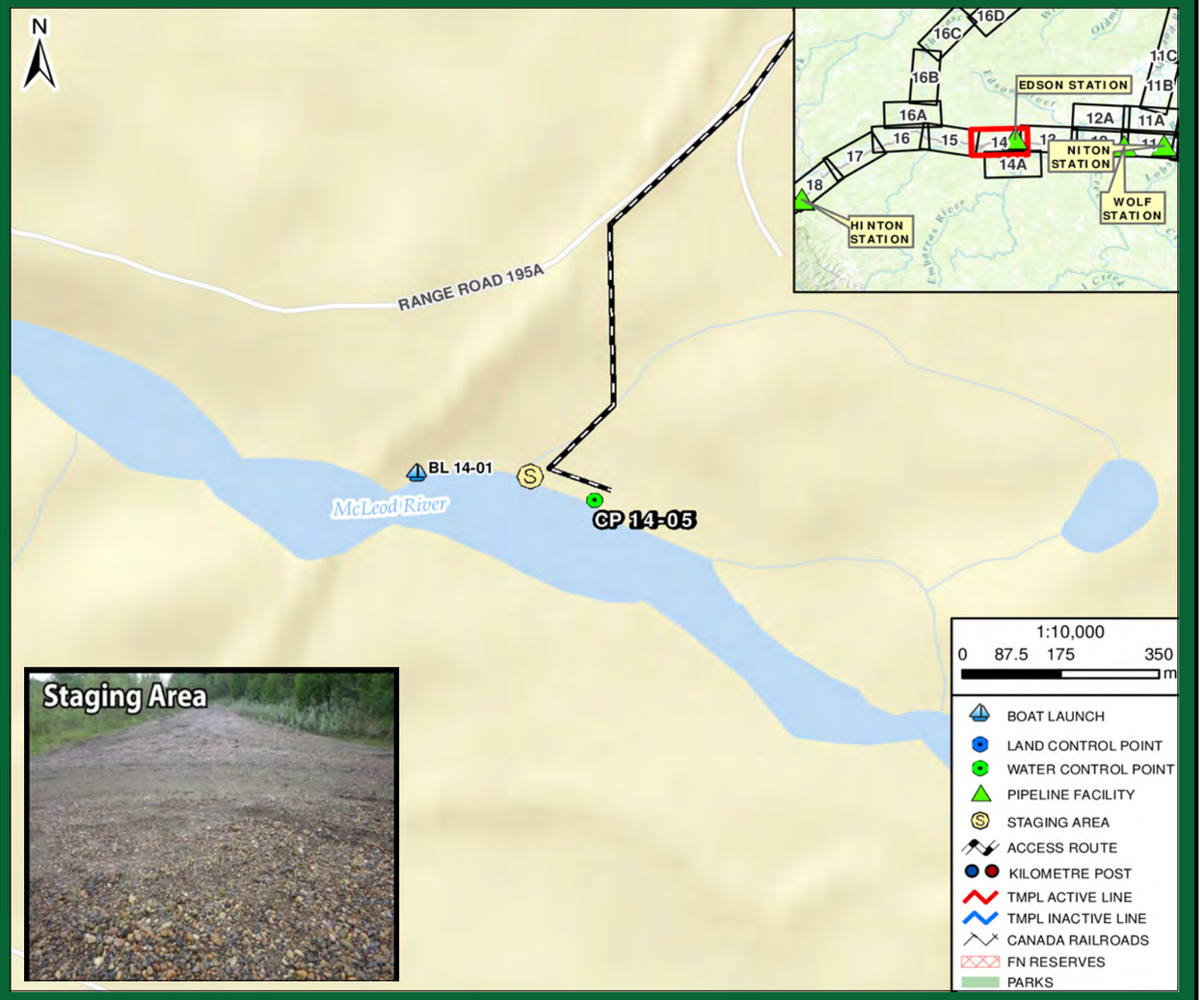
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Runs and riffles with sufficient current, abundant clean gravels and cobbles provide good spawning potential for salmonids; low-moderate rearing/overwintering potential along deeper downstream eddies and backwaters along gravel bar complex; important migratory corridor to upstream spawning areas of the McLeod River Watershed.
- Despite road closure, gravel bar complex remains accessible for informal recreational activities (e.g., fishing, picnicking, camping).
- Occasional boating (e.g., kayak, jet boat, drift boat), with navigability somewhat restricted by swift current, rapid areas and shallow depths.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline. Underground facilities present in the staging area.
- Popular angeling and recreational area, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 130 km
- At Marlboro, Turn right onto Range Rd 265A for 240 m
- Continue as it becomes Range Rd 195A for 200 m
- Turn right to stay on Range Rd 195A, heading south for 2 km towards riverbank
- Destination is McLeod River, through gated private road
- Total Distance = 133.2 km
- Total Travel Time = 123 minutes calculated at 65 km/hr

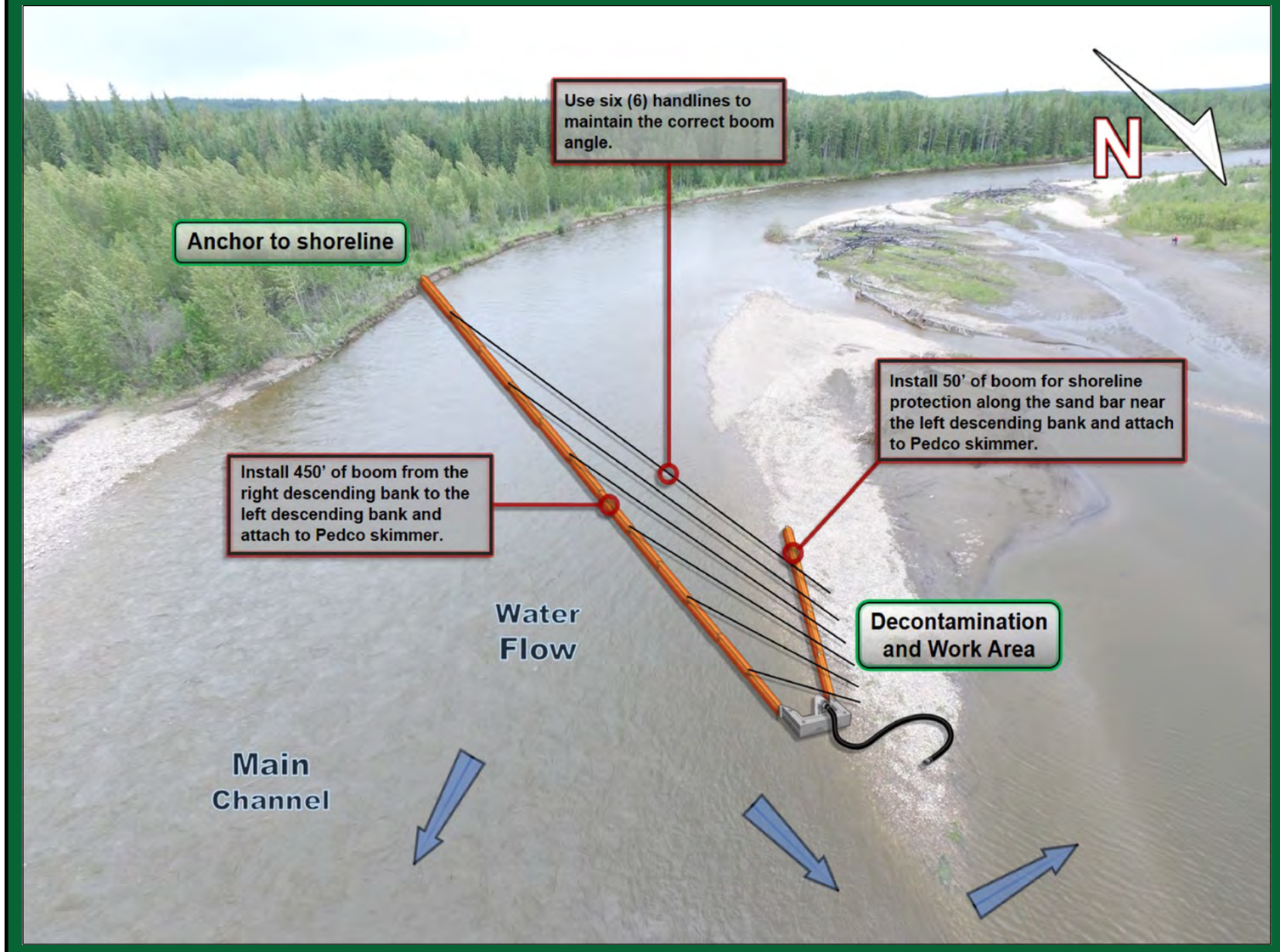
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-08
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14-05



Implementation Strategy:

- Install 450' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose to a portable pump and tank. Utilize a vacuum truck to empty the tanks.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 45 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	600'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Work Boat
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., barred owl, saw-whet owl, boreal owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., sandpiper spp., killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-08
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 14A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.460850
	Long:	-116.618220
Elevation	925 m	
Upstream Valves:	**Line 01:**	24Q
Downstream Valves:	**Line 01:**	KL241
Control Point:	**Upstream** CP 14A-02	**Downstream** CP 13-05
Nearest KM Post:	**Line 01** KP 234	

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		72 m	
Depth		Unknown	
Flow Velocity		1.5 km/hr	
FlowType		Frequently confined low-moderate velocity run and riffle structure	

Waterbody description:

Boat launch located along gradually sloping shoreline into shallow water with marginal current along inside river bend, with extensive, level open backshore area at confluence with Wapiti River. Composed of compacted fine sediment and gravels; surrounding area frequently used as an informal camping/picnic/day use area and boat launch. Low grade, steep access road from main road to boat launch. Open backshore area likely becomes partially inundated during high water. Low-moderate turbidity at time of survey.



Logistical Information:

Road Access/Type:	- Access is off of Highway 47, 200 m through a recreational area down a vehicle path. - Matting required to establish all weather access.	
Comms:	**Cell Phone Coverage** - No cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located along Highway 47. - 20 m x 60 m area. - Matting required to establish all weather access.	
	Lat: 53.46176	Long: -116.61869
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Popular angling, camping and recreational boat area. - The boat launch is located at the confluence of two rivers. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, install a boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present. Overhead power lines present along access route.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 125.5 km, past Edson
- Turn left onto AB-47 S (sign for Robb) for 12.9 km
- Destination is on left pull out before bridge crossing on McLeod River
- Total Distance = 139.7 km
- Total Travel Time = 129 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-16

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14A-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.481980
	Long:	-116.657810
Elevation:	933 m	
Land and Resource Use:	Private Land. Agricultural.	
Upstream Valves:	**Line 01:**	24Q
Downstream Valves:	**Line 01:**	KL241
Control Point:	**Upstream** CP 14-05	**Downstream** CP 14A-02
Nearest KM Post:	**Line 01** KP 234	

Waterbody Information:

Waterbody Name: McLeod River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			50 m
Depth			Unknown
Flow Velocity			3.8 km/hr
FlowType			Frequently confined moderate velocity run structure

Waterbody description:

Frequently confined moderate velocity run structure with main current and defined thalweg along LDB. CP located on the outside river bend along an actively eroding 3 m high sand/silt bank, containing frequent stranded logs and woody debris. There is a confluence of small creek from perched (1 m) culvert immediately downstream of collection. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
Poorly defined along RDB due to gravel bar; up to 3 m along LDB

Shoreline Composition and Slope:
LDB is vertical/overhanging, actively eroding and slumping into deep water with level open backshore; RDB typically gradual, composed of sand and gravels.

Shoreline Vegetation:
RDB transitions from willow and poplar saplings, becoming more mature along backshore; LDB composed of short grasses (actively mowed, grazed) with patches of mature spruce and poplar.

Channel / Bank Forms:
LDB composed of sands and silts; RDB composed of sands and gravels; bed composed predominantly of fines along LDB transitioning to sands, gravels and cobbles closer to RDB.

Shoreline Comments:
Collection area located at the base of a variable, vertical/overhanging 3 m high bank prone to erosion and slumping during medium and high water. Above bank runs private road along mixed forested and open, level pasture lands. Isolated occurrences of white cockle observed.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank. - 15 m x 25 m area. - Matting required to establish all weather access.	
	Lat: 53.48207	Long: -116.65735
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 3 m x 3 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in the control point area. - Gated private access. - The control point and staging areas are located on private land. - Landowner permission required before accessing control point.	
Road Access/Type:	- Access off of Township Road 521A, through private land. - All weather access is established.	
Boat Access:	- Main boat access from BL 14A-01. - Refer to BL 14A-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 14-01. - Refer to BL 14-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - Steep cut banks in control point area.	

Decontamination Area:

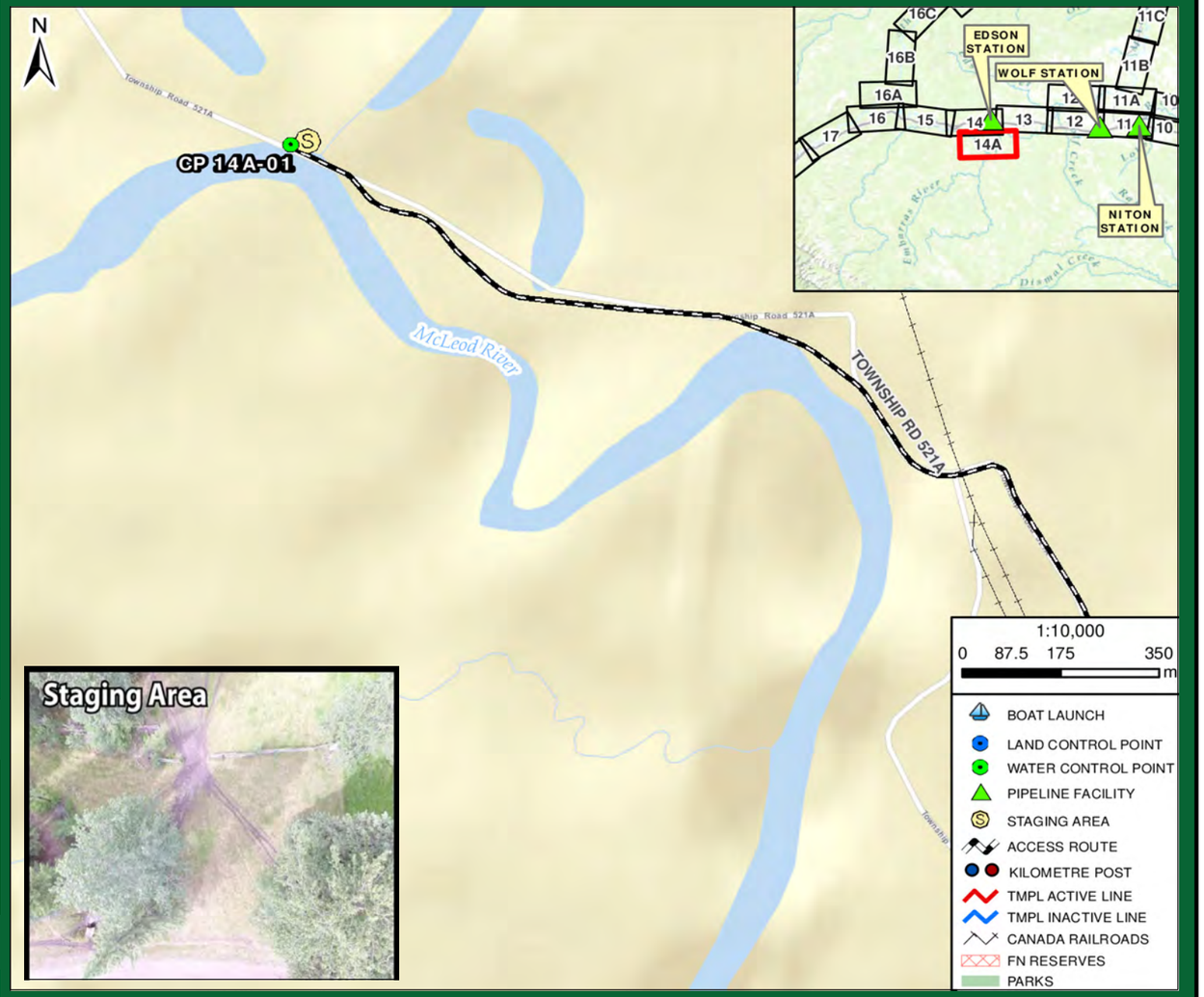
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Runs with sufficient current, pockets clean gravels and cobbles provide good spawning potential for salmonids; low-moderate rearing/overwintering potential along deeper shoreline eddies of LDB; important migratory corridor to upstream spawning areas of the McLeod River Watershed.
- Cavity nesting birds in mature poplars along LDB.
- Riparian nesting birds along RDB.
- Shorebird nesting habitat along RDB.
- Occasional boating (e.g., kayak, jet boat, drift boat).
- Forested and open pasture lands along LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Private access, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

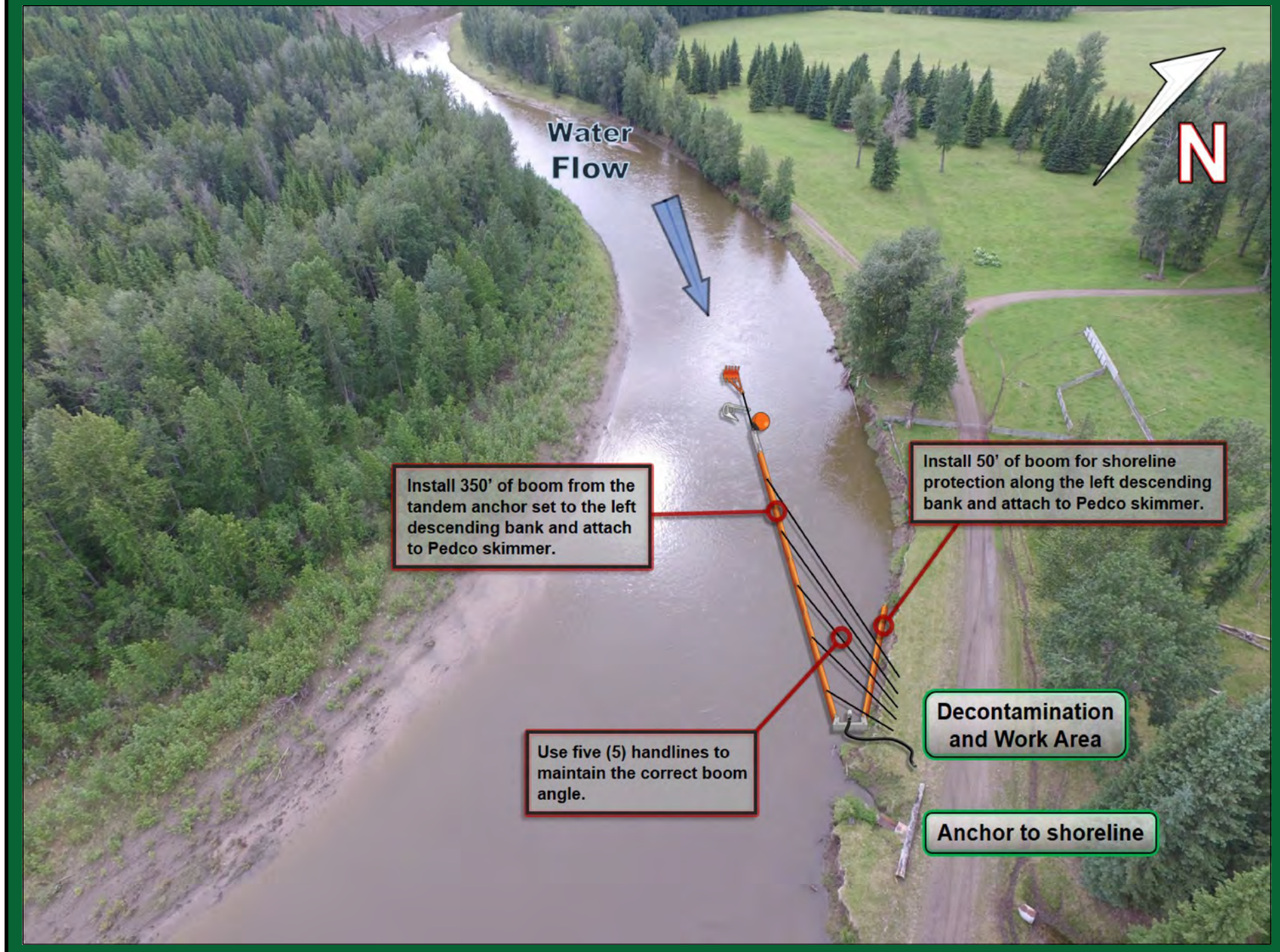
- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 125.5 km, past Edson
- Turn left onto AB-47 S (sign for Robb) for 11.65 km
- Turn right onto Township Rd 521A / Range Rd 185A for 3.6 km
- Destination is McLeod River
- Total Distance = 142 km
- Total Travel Time = 131 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-16
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14A-01



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 350' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (5) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 60 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	500'	6" x 6" Hard Containment Boom
1	Safety Watch	14	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	10	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., barred owl, saw-whet owl, boreal owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., sandpiper spp., killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-08

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14A-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.461160	
	Long: -116.621310	
Elevation:	924 m	
Land and Resource Use:	Crown Land. Highway 47 Road Right-of-Way.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL241	
Control Point:	**Upstream** CP 14A-01	**Downstream** CP 13-05
Nearest KM Post:	**Line 01** KP 234	

Waterbody Information:

Waterbody Name: McLeod River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width		53 m	
Depth		Unknown	
Flow Velocity		3.5 km/hr	
FlowType		Frequently confined low velocity run	

Waterbody description:

CP located 150 m upstream of Wapiti River confluence. River appears deep along containment and collection; depth could not be confirmed due to turbidity. Abundant stranded logs and woody debris along upstream extent of containment. Large log jam caught on middle bridge pier adjacent to collection area. Shoreline characteristics indicate typical high water up to 0.5-1 m above water levels at time of survey.

Shoreline Information

Bank Height:
1.5 to 3 m

Shoreline Composition and Slope:
Predominantly steep along RDB and LDB with gradually steep approach; dense shrubs and trees, often overhanging, immediately upstream and downstream of collection.

Shoreline Vegetation:
Young willow and mixed wood along RDB and LDB with open short grasses along backshore; mature poplar and spruce immediately upstream and downstream with dense young to mature willows; mixed grasses, sedge, horsetail along banks, grass above

Channel / Bank Forms:
Bed and banks predominantly composed of organics and fines; frequent exposed roots and overhanging trees/sweepers along both shorelines.

Shoreline Comments:
Collection area accessed down gradual to moderately steep approach from Highway 47, from which collection is accessed down 3 m high steep, exposed but stable bank, with large boulder rip rap. Be aware of active bank erosion, slumping, overhanging trees and sweepers along RDB of McLeod River immediately upstream and downstream of collection.

Logistical Information:

Staging Area Location:	- A staging area can be located along Highway 47 in the ditch. - 15 m x 50 m area. - Matting required to establish all weather access.	
	Lat: 53.46095	Long: -116.62186
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 3 m x 3 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling, camping and water sports area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 47. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 14A-01. - Refer to BL 14A-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

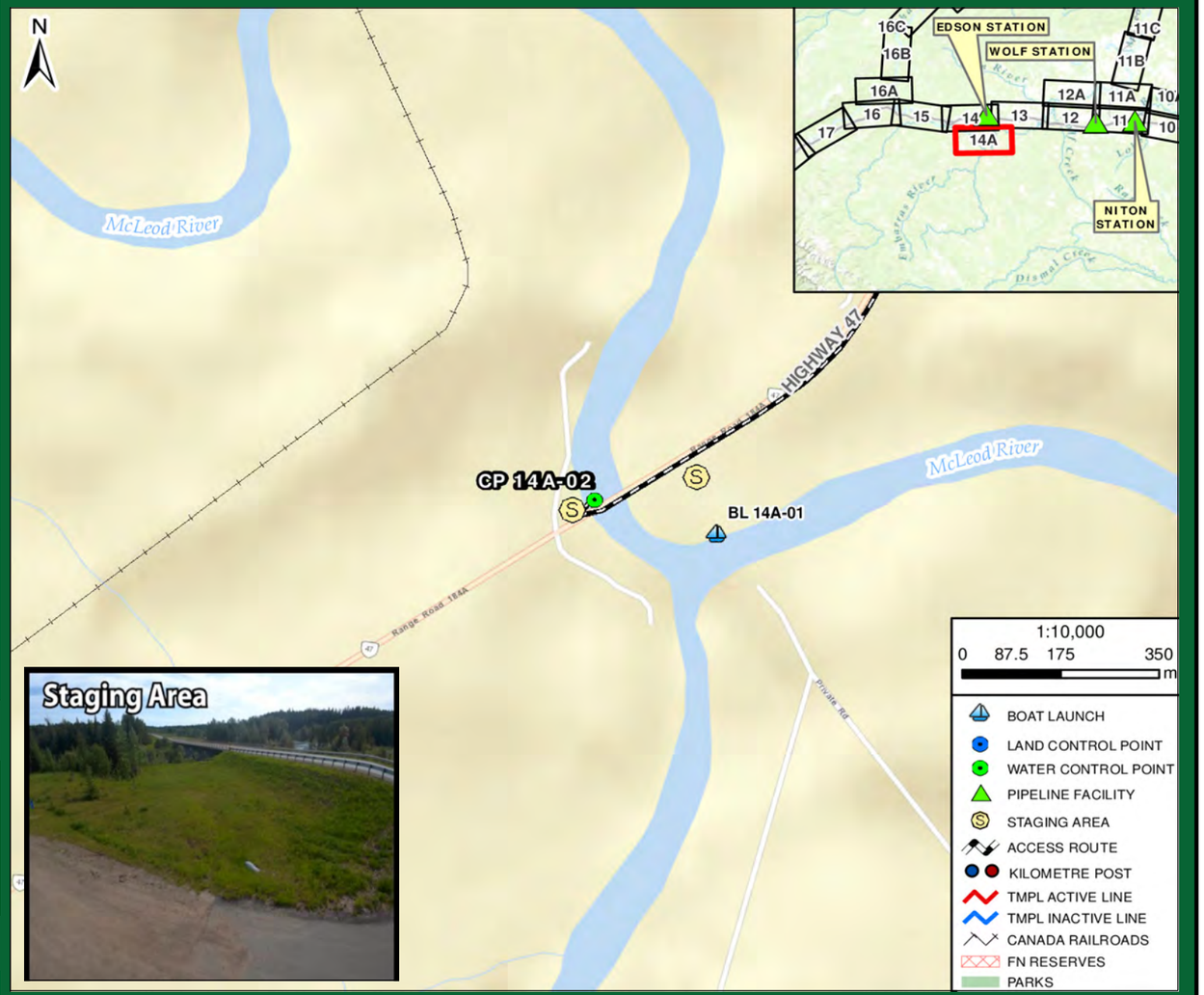
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat at collection due to abundant fines and marginal current; good spawning habitat downstream due to abundant riffle-run and moderate to fast current; deep water and areas of instream/overhead cover provide good rearing and overwintering habitat.
- Riparian nesting habitat.
- Waterbird habitat.
- Shorebird habitat.
- Cliff swallows nesting underneath bridge.
- CP located upstream of informal campground/day use area along LDB, at confluence with Wapiti River.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline. Underground facilities can be found in the staging area.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 125.5 km, past Edson
- Turn left onto AB-47 S (sign for Robb) for 13 km and pull over after bridge
- Destination is bridge over McLeod River
- Total Distance = 139.8 km
- Total Travel Time = 129 minutes calculated at 65 km/hr

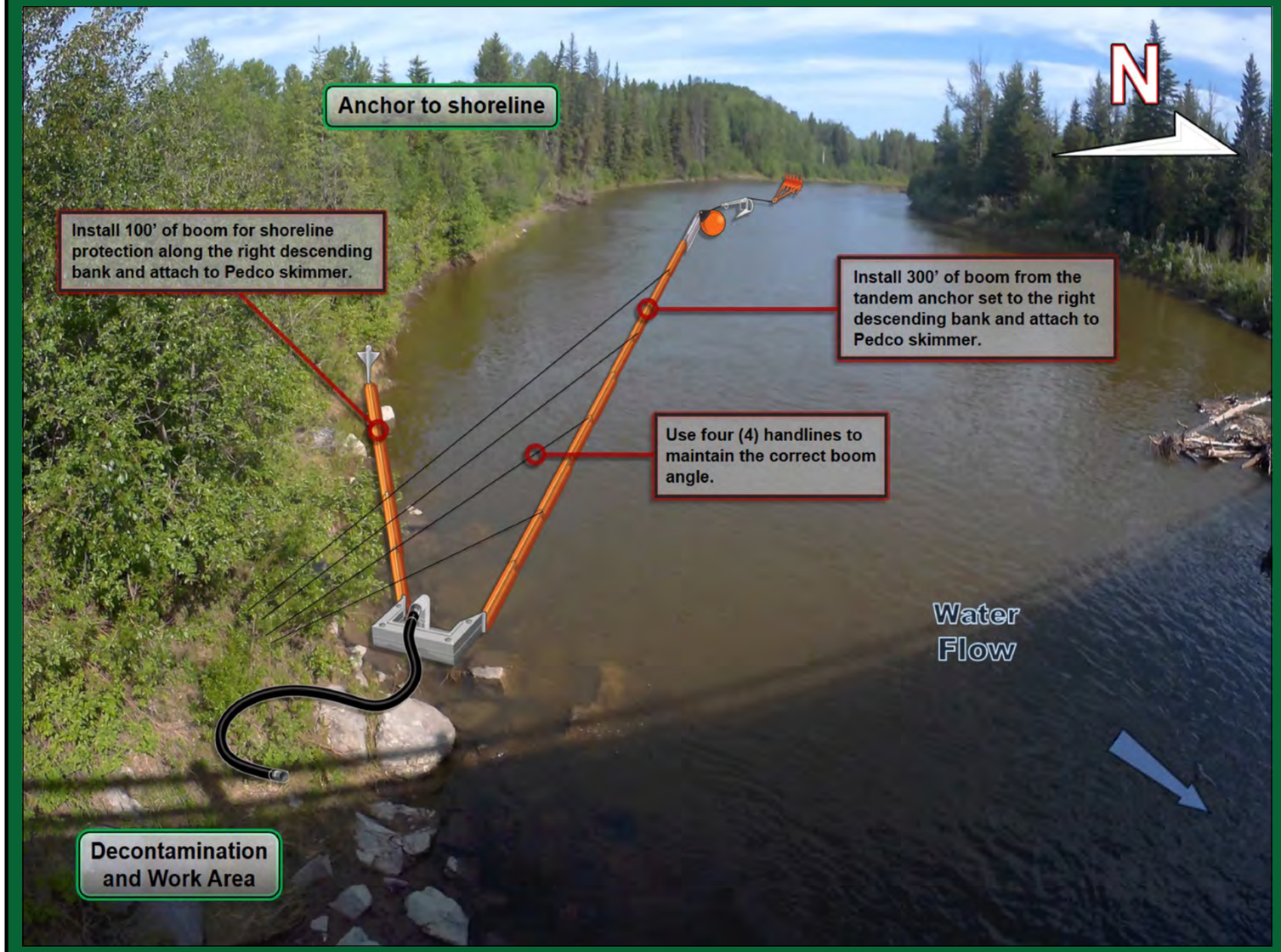
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-08
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 14A-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	700'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Workboat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, bull trout, Arctic grayling, rainbow trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, cougar, bobcat, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron
- Raptors (e.g., Cooper's hawk, red-tailed hawk, bald eagle, osprey), owls (e.g., barred owl, saw-whet owl, boreal owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, nuthatch spp., woodpecker sp., chickadee spp.)
- Shorebirds (e.g., sandpiper spp., killdeer)

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 500' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose to a portable pump and tank. Empty tanks with a vacuum truck.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 70 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-19
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 15-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.555220
	Long:	-117.150970
Elevation	1065 m	
Upstream Valves:	**Line 01:** KL262	
Downstream Valves:	**Line 01:** KL289	
Control Point:	**Upstream** N/A	**Downstream** CP 15-02
Nearest KM Post:	**Line 01** KP 266	

Waterbody Information:

Waterbody Name: Obed Lake
Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		2300 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Boat launch is frequently used, well-maintained with open, level turnaround and parking area; located at Obed Lake Provincial Park campground and day use site. Boat launch is gradually sloping, composed predominantly of compacted sands, gravels and cobbles descending into shallow, clear water. Signage present to prevent the spread of whirling disease.



Logistical Information:

Road Access/Type:	- Access off of Highway 16, through Obed Provincial Park. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in Obed Provincial Park. - 20 m x 20 m area. - All weather access is established.	
	Lat: 53.55476	Long: -117.15163
Site Comments:	- The boat launch is located in Obed Provincial Park campground. - Popular angling, boating and water sports area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be located at the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Access from Obed Provincial Park campground, public may be present.
- Be aware of wildlife in the area.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 104 km
- Turn left onto Range Rd 222A for 300 m towards Obed Lake
- Destination ahead at Obed Lake boat launch
- Total Distance = 104.9 km
- Total Travel Time = 97 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-19

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 15-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.540790	
	Long: -117.081840	
Elevation:	1056 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** KL251	
Downstream Valves:	**Line 01:** KL262	
Control Point:	**Upstream** N/A	**Downstream** CP 15-02
Nearest KM Post:	**Line 01** KP 260	

Waterbody Information:

Waterbody Name: Unnamed Lake

Waterbody Type: Lake Outflow

WATER LEVEL:	Low	Medium	High
Width		140 m	
Depth		Unknown	
Flow Velocity		<0.5 km/hr	
FlowType			

Waterbody description:
CP located on north end of a large open water, sedge-dominated marsh, on the upstream side of an active beaver dam. Water level created by dam is up to 1.5 m above the downstream water level of the unnamed seasonal drainage, which likely becomes stagnant during winter months, as indicated my the margin volume flowing at time of survey.

Shoreline Information

Bank Height:
poorly defined

Shoreline Composition and Slope:
Banks poorly defined with sedge dominated margins; more stable, often saturated along narrow beaver dam extending along north end of wetland and at collection.

Shoreline Vegetation:
Old growth conifer forest along margins (e.g., tamarack, black spruce, englemann spruce, lodgepole pine), isolated poplar, aspen, birch; shrubs along margins, mostly willow, less frequent scrub birch; abundant sedge, less frequent cattail, rush; water lily and milfoil.

Channel / Bank Forms:
Bed and banks composed predominantly of organics.

Shoreline Comments:
CP accessed from highway easement along very uneven, often saturated sedge and willow dominated shoreline with ponded areas below beaver dam, which is often poorly defined and obscured by tall sedges.

Logistical Information:

Staging Area Location:	- A staging area can be located along Highway16 east bound in the ditch. - 15 m x 100 m area. - Matting required to establish all weather access.	
	Lat: 53.5412	Long: -117.08366
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 2 m x 2 m area. - Matting and/or pallets required for all weather access. - 100 m of matting and/or pallets required to access the work area.	
Site Restrictions:	- There are no restrictions to the control point or staging area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16 east bound. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat is required for the control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Minnow sp. observed; provides excellent rearing habitat, however, barrier to migration created by elevated beaver dam 1.5 m above downstream water level.
- CP located on upstream side of active beaver dam on north end of extensive open water sedge dominated wetland with old growth forested margins, providing nesting and migratory staging habitat for waterbirds; amphibian breeding and overwintering habitat; wetland/riparian nesting bird habitat; old forest and cavity nesting habitat; shorebird nesting and feeding habitat; moose habitat.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

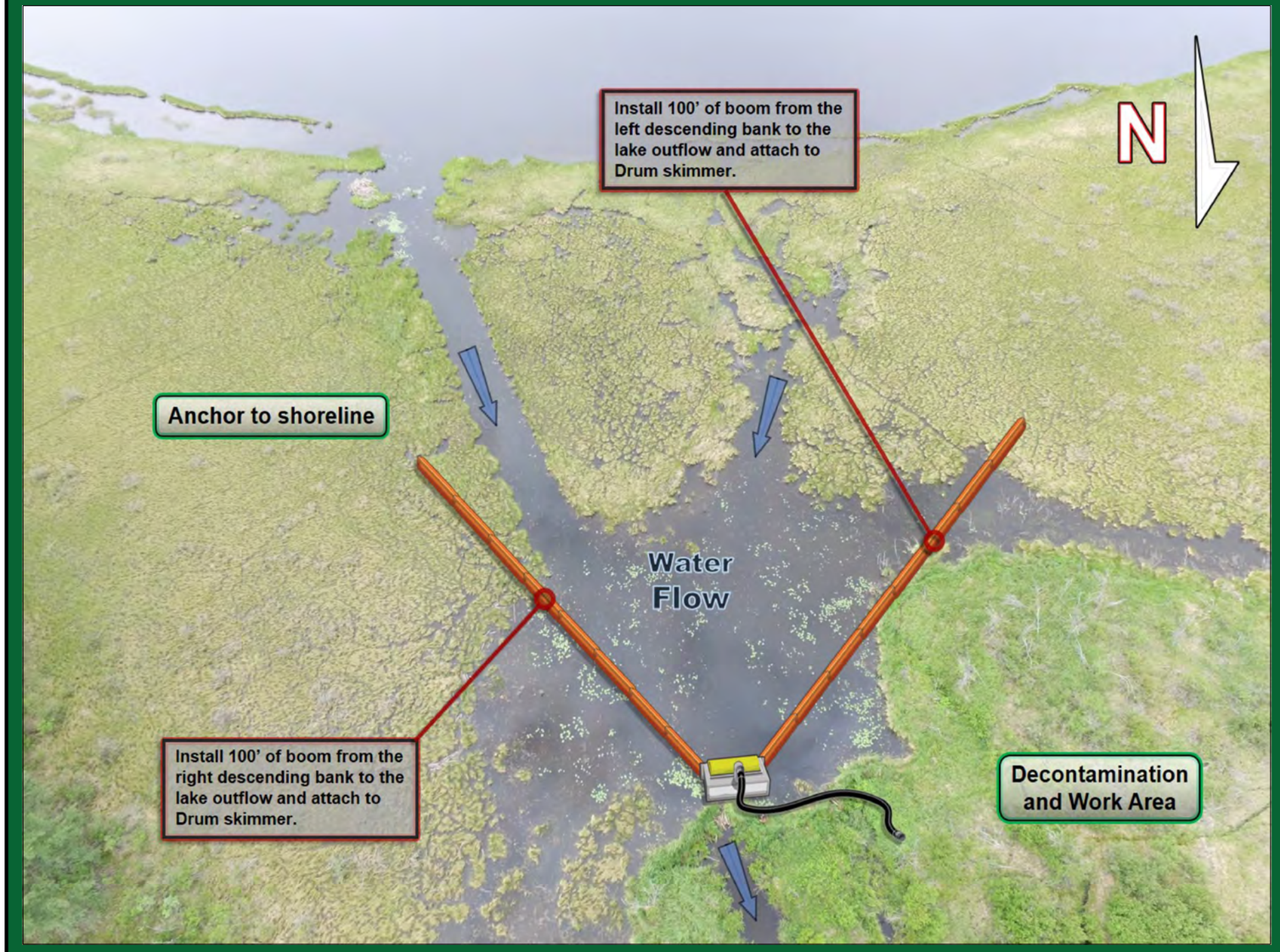
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 109 km
- Pull off from highway (at right turn arrow sign about 2.4 km past Hargwen Rd)
- Destination is road culvert over large unnamed lake adjacent to highway
- Total Distance = 109.9 km
- Total Travel Time = 101 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-19
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 15-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	250'	Rope
		1 / 300'	Power Pack / Hydraulic Line
		1	Vacuum Truck
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the lake outflow and anchor to the shoreline.
- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the lake outflow and anchor to the shoreline.
- Recover product with a Drum skimmer, 300' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
-Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout)
- Deer, moose, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., lesser scaup, bufflehead, ring-necked duck, northern shoveler), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Wetland birds (e.g., marsh wren, sora, yellowthroat, meadowlark), shorebirds (e.g., lesser yellowlegs, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-19

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 15-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.575020
	Long:	-117.088910
Elevation:	1046 m	
Land and Resource Use:	Crown Land. Obed Provincial Park.	
Upstream Valves:	**Line 01:** KL251	
Downstream Valves:	**Line 01:** KL262	
Control Point:	**Upstream** N/A	**Downstream** CP 16A-01
Nearest KM Post:	**Line 01** KP 260	

Waterbody Information:

Waterbody Name: Obed Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		0.5 m	
Flow Velocity		1.5 km/hr	
FlowType		Lake	

Waterbody description:
Frequently confined low velocity riffle and run structure with sedge-rush dominated margins coursing along mature conifer forest setting. Water level appears well regulated by Summit Lake 100 m upstream as well as Obed Lake, and typically clear year round.

Shoreline Information

Bank Height:
poorly defined

Shoreline Composition and Slope:
Banks typically gradual sloping, poorly defined in areas containing abundant sedges and rush; gradually sloping, stable forested backshores.

Shoreline Vegetation:
Mature spruce forest, less frequent lodgepole pine, tamarack; mixed low shrubs (e.g., willow, soopolallie, red-osier dogwood, Labrador tea, alder, scrub birch, saskatoon); sedges, rush, horsetail, lingonberry, orchid, marsh valerian, water lily, marsh marigold.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by mixed fines to cobbles; bed composed of cobbles with less frequent gravels and boulders, fine sediment along low current areas and submerged woody debris.

Shoreline Comments:
CP accessed via pipeline right-of-way, then west along infrequently used access trail/cutline to gradually sloping backshore and bank into shallow water with typically stable substrate. Banks poorly defined in areas densely vegetated with sedges and rushes. Downstream of collection there are several logs across creek (remnants of old bridge).

Logistical Information:

Staging Area Location:	- A staging area can be located along the access. - 30 m x 80 m area. - Matting required to establish all weather access.	
	Lat: 53.58224	Long: -117.08907
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- The Control point and staging areas are located in Obed Provincial Park. - Low impact access recommended. - Radio controlled private road, road use agreement required. - Access down CNRL pipeline Right-of-Way, crossing agreements required.	
Road Access/Type:	- Access off of Talisman West Road, 1.0 km down CNRL pipeline Right-of-Way. - Matting required to establish all weather access.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the left descending bank to the right descending bank.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular camping and angeling area.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current with pockets of clean gravels and cobbles provide good spawning habitat; good rearing habitat along shoreline eddies containing instream and overhead cover; perennial flow downstream of Summit Lake provides moderate overwintering habitat. CP located downstream of Summit Lake along mature conifer forest setting with diverse herbaceous understory and sedge and rush dominated wetland margins, providing excellent habitat for waterbirds, shorebirds, wetland/riparian birds, forest and cavity nesting birds and amphibians. Fresh moose and deer track observed during survey.
- Located in Obed Lake Provincial Park, with infrequent, informal day use, camping and fishing (hike in only); there is a small informal camp site along backshore, accessed via pipeline right-of-way, then west along trail.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline use caution.
- Popular camping and angeling area, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 118 km
- Turn left onto Medicine Lodge Rd / Range Rd 210C for 7.5 km
- Turn left onto Township Rd 534 / 533B / 533A, heading west for 3 km
- Turn left onto Range Rd 214 / 214A and follow road for 4.6 km
- Access on foot to creek flowing from lake through cleared forest, in Obed Lake Provincial Park
- Destination is Obed Creek
- Total Distance = 134.5 km
- Total Travel Time = 124 minutes calculated at 65 km/hr

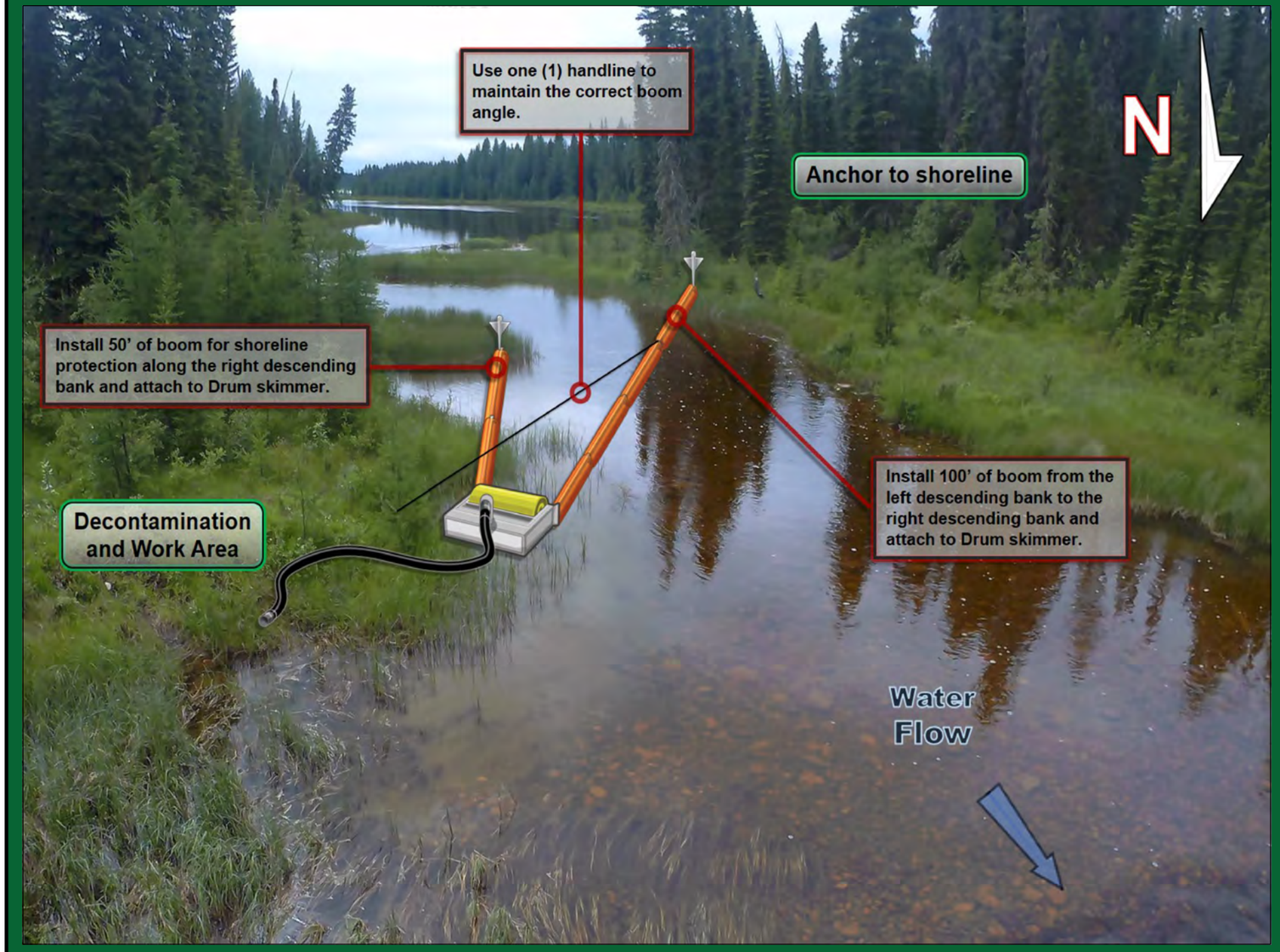
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-19
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 15-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
1	Low Impact Recovery Unit Operator	4	50 ' Handline and Bridle
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
		1	Small Rubber Hull Work Boat
		1	Low Impact Recovery unit
11	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, walleye, brook trout, rainbow trout, bull trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, teal spp., lesser scaup, bufflehead, ring-necked duck, northern shoveler), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Wetland birds (e.g., marsh wren, sora, yellowthroat, meadowlark), shorebirds (e.g., lesser yellowlegs, Wilson's snipe, sandpiper spp)

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (1) 50' handline from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 14 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-17

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.529380	
	Long: -117.358000	
Elevation:	921 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** KL262	
Downstream Valves:	**Line 01:** KL289	
Control Point:	**Upstream** CP 17-01	**Downstream** CP 16B-01
Nearest KM Post:	**Line 01** KP 279	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			125 m
Depth			Unknown
Flow Velocity			5.0 km/hr
FlowType			Freq. confined mod-high velocity flat run structure

Waterbody description:

Frequently confined moderate-high velocity flat run structure along forested setting with even current across width and collection area located along shoreline eddy (depth undetermined due to turbidity). During low and medium water, shallow and exposed bars may become present. CP located upstream of industiral gravel road bridge with 6 m clearance. Be aware of overhanging trees and sweepers along forested banks.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
Banks generally steep, but stable, along boulder rirap downstream of collection; steep to vertical upstream, generally stable; forested to edge with steep slopes along LDB.

Shoreline Vegetation:
Poplar and spruce saplings, willow, alder, wild rose and saskatoon along transmission line right-of-way transitioning to mature spruce dominated forest upstream; grasses, horsetail, vetch, scouring rush, fireweed, goldenrod, false solomon's seal.

Channel / Bank Forms:
Boulder riprap downstream of collection; natural banks composed of organics/fines underlain by cobbles/boulders; bed composition difficult to characterize, likely fines near shore with more gravels, cobbles and boulders mid-river.

Shoreline Comments:
CP accessed down moderately steep open grassy road easement along transmission line right-of-way to bank densely vegetated with 2 m shrubs and tree saplings. Collection area at the base of 1 m steep bank into shoreline eddy, with a stable, gradually sloping, generally open work area. Transition line crosses well above river (20 m). There are isolated occurrences of Canada thistle along LDB.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank along Obed Mountain Road. - 10 m x 40 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 53.52999	Long: -117.35811
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Recreational boat traffic in control point area. - Single lane bridge with a maximum 65 tonne GVW located at the control point. Traffic control recommended. - Obed coal convey located along access and staging area. - Privately owned road, road use agreement required.	
Road Access/Type:	- Access off of Obed Mountain Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 17-01. - Refer to BL 17-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 16B-01. - Refer to BL 16B-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

Runs with sufficient current, abundant gravels and cobbles provide good spawning potential for salmonids; low-moderate rearing/overwintering potential along deeper shoreline eddies containing instream/overhead cover; important migratory corridor to upstream spawning areas of the Athabasca River Watershed. Note, Athabasca River is sensitive to the spread of whirling disease. Mature spruce dominated forest ecosystem in the Rocky Mountain foothills provides habitat for a range of wildlife species, including grizzly bear, wolf, lynx, elk, moose, martin as well as many forest and cavity nesting bird species. Riparian nesting birds. Waterbird and shorebird habitat. Occasional boating and fishing (e.g., canoing, kayaking, drifting, jet boat). Located adjacent to a busy industrial road (e.g., oil and gas servicing and development, forestry, mining).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Public may be present. Overhead power lines in the control point area.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 89.4 km
- Turn left onto Obed Montain Rd for 3.8 km
- Destination is bridge at Athabasca River
- Total Distance = 93.8 km
- Total Travel Time = 87 minutes calculated at 65 km/hr

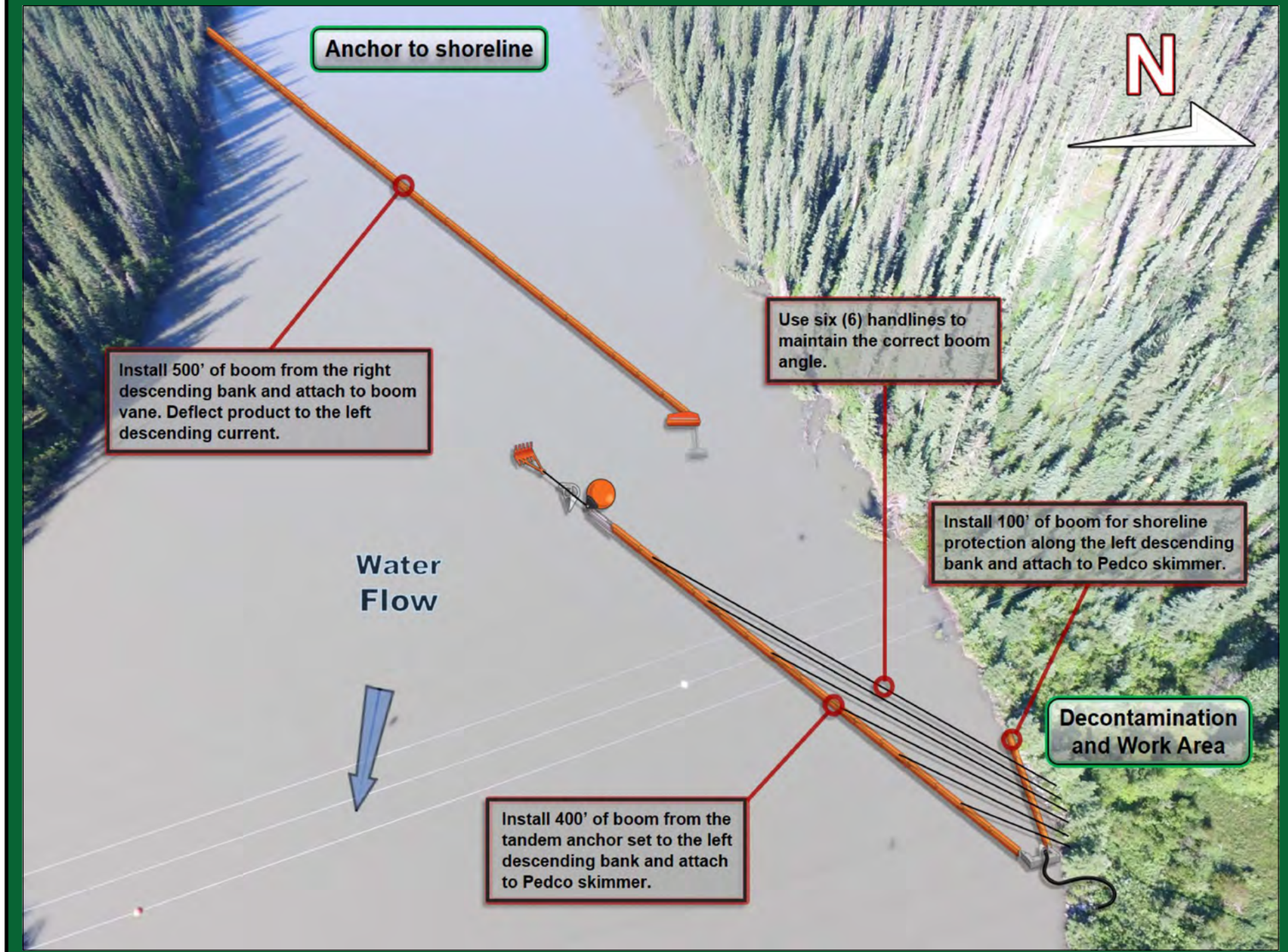
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-17
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1200'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	250'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 1	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, brook trout, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., sandpiper spp., killdeer)

Implementation Strategy:

- Install 500' of 6" x 6" hard containment boom from the right descending bank and attached it to a 0.5 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 400' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 200' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 250' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 70 m ice slot from the middle of the river at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-19

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16A-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.622400	
	Long: -117.142690	
Elevation:	1002 m	
Land and Resource Use:	Crown Land. Forested.	
Upstream Valves:	**Line 01:** KL251	
Downstream Valves:	**Line 01:** KL262	
Control Point:	**Upstream** CP 15-02	**Downstream** CP 16B-01
Nearest KM Post:	**Line 01** KP 267	

Waterbody Information:

Waterbody Name: Obed Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		9 m	
Depth		0.5 m	
Flow Velocity		2.0 km/hr	
FlowType		Confined moderate velocity riffle and run structure	

Waterbody description:

Confined moderate velocity riffle and run structure along forested ravine containing overhanging trees and shrubs and instream woody debris, flowing under clear span bridge downstream of collection, with 3 m clearance. Water level appears well regulated by Summit and Obed lakes upstream, and is typically clear year round.

Shoreline Information

Bank Height:
1 to 1.5 m along LDB; 0.5 m along RDB (poorly defined in areas)

Shoreline Composition and Slope:
LDB typically vertical/overhanging along outside bend, very steep but stable at collection with low density open, forested backshore; RDB more gradual, densely vegetated.

Shoreline Vegetation:
Young to mature spruce, lodgepole pine, tamarack; moderate density mixed shrubs (e.g., willow, scrub birch, twinberry, soopolallie, Labrador tea, wild rose); sedge along margins; mosses, bunchberry, fireweed, grass, horsetail, red paintbrush, peavine, toadflax, rue.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by mixed fines to cobbles; bed composed of boulders and cobbles with less frequent gravels fine sediment along low current areas.

Shoreline Comments:
CP accessed down moderately steep 3 m high grassy road approach becoming steep along 2 m high bank/approach to water shallow water with stable substrate. RDB is poorly defined along inside creek bend, with dense sedges along margins. Backshores generally gradually sloping, forested with open understory containing frequent fallen trees and snags. Be aware, single lane bridge does not contain side rails.

Logistical Information:

Staging Area Location:	- A staging area can be located along the left descending bank along the access. - 15 m x 30 m area. - Matting required to establish all weather access.	
	Lat: 53.62183	Long: -117.1425
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Private access road. - Radio controlled access road. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of 52 West Road. - All weather access is established. - Road use agreement required.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular camping and angeling area.	

Decontamination Area:

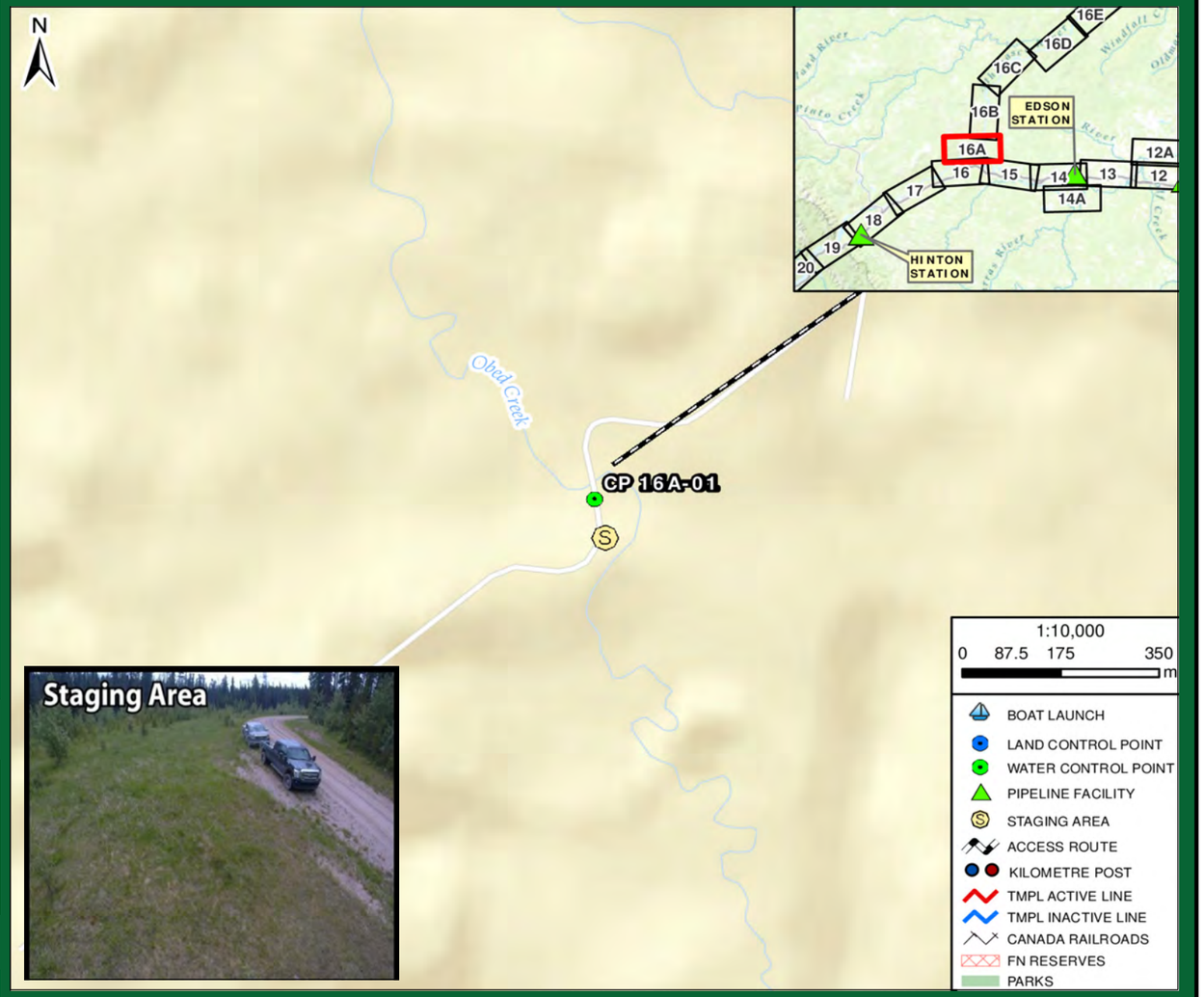
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current with pockets of clean gravels and cobbles provide good spawning habitat; perennial flow, deeper areas and shoreline eddies containing instream and overhead cover provide moderate rearing and overwintering habitat potential.
- Forest and cavity nesting habitat.
- Riparian nesting habitat.
- CP located along industrial gravel road with active logging and oil and gas activity in area.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline use caution.
- Public may be present. Underground facilities at the staging area, do a 4-way sweep and follow all local regulations prior to any ground disturbance.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 5.2 km, and Continue as it changes to E River Rd for 550 m
- Turn left onto Willow Creek Rd for 6.9 km
- Turn right onto Emerson Creek Rd for 40 km
- Turn right onto Medicine Lodge Rd for 4.2 km
- Continue to follow (straight / slight right) on unnamed roads for 4.2 km
- Destination is culvert road crossing of Obed Creek
- Total Distance = 131.8 km - Total Travel Time = 122 minutes calculated at 65 km/hr

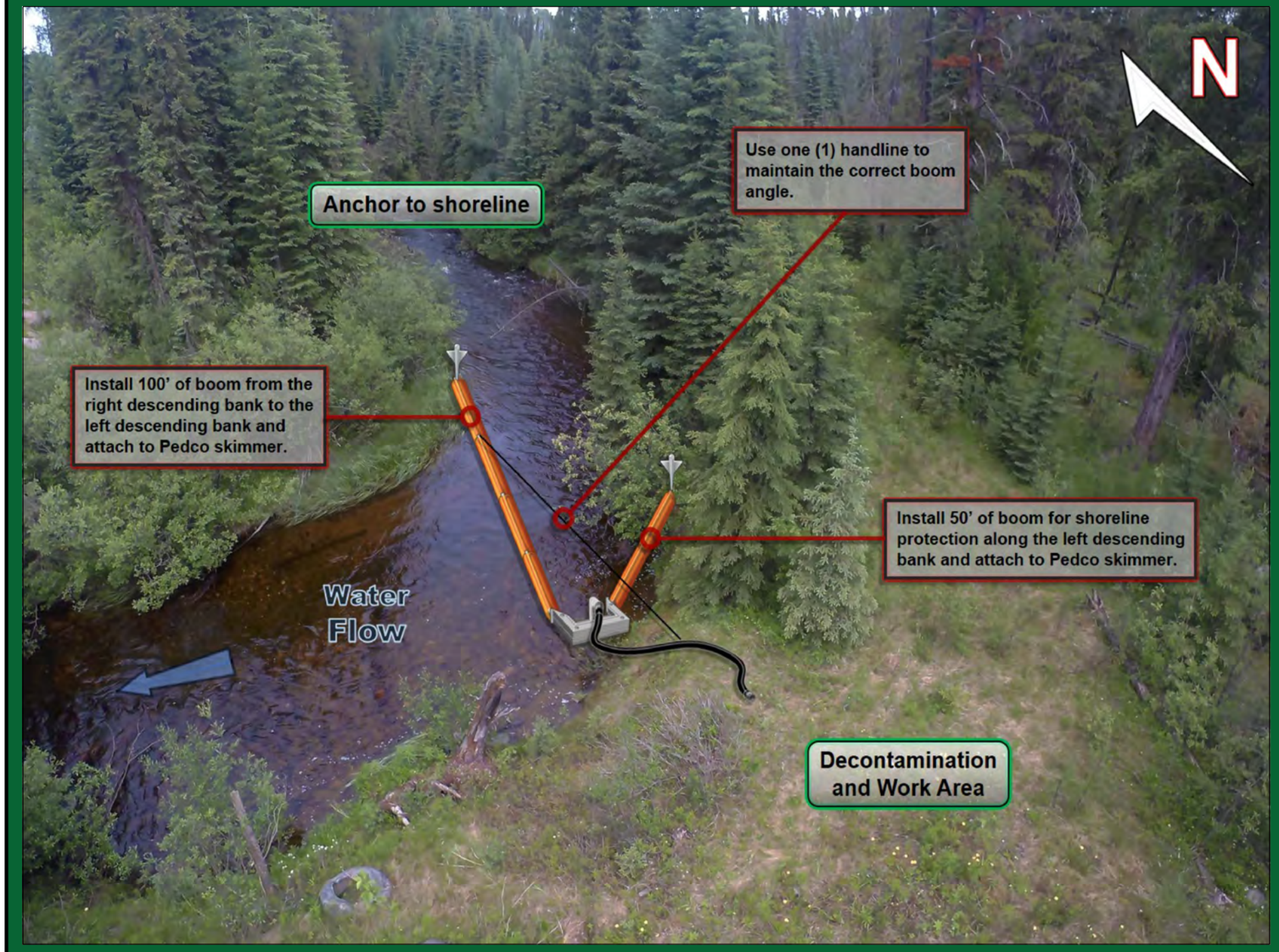
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-19
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16A-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	50 ' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 100' of 6" x 6" hard containment boom from the right descending bank at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (1) 50' handline from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 200' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout)
- Deer, moose, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-17
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 16B-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.703220
	Long:	-117.162930
Elevation	914 m	
Upstream Valves:	**Line 01:** KL251	
Downstream Valves:	**Line 01:** KL262	
Control Point:	**Upstream** CP 16B-01	**Downstream** BL 16E-01
Nearest KM Post:	**Line 01** KP 267	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			125 m
Depth			Unknown
Flow Velocity			5.0 km / hr
FlowType			Frequently confined moderate-high velocity flat run structure

Waterbody description:

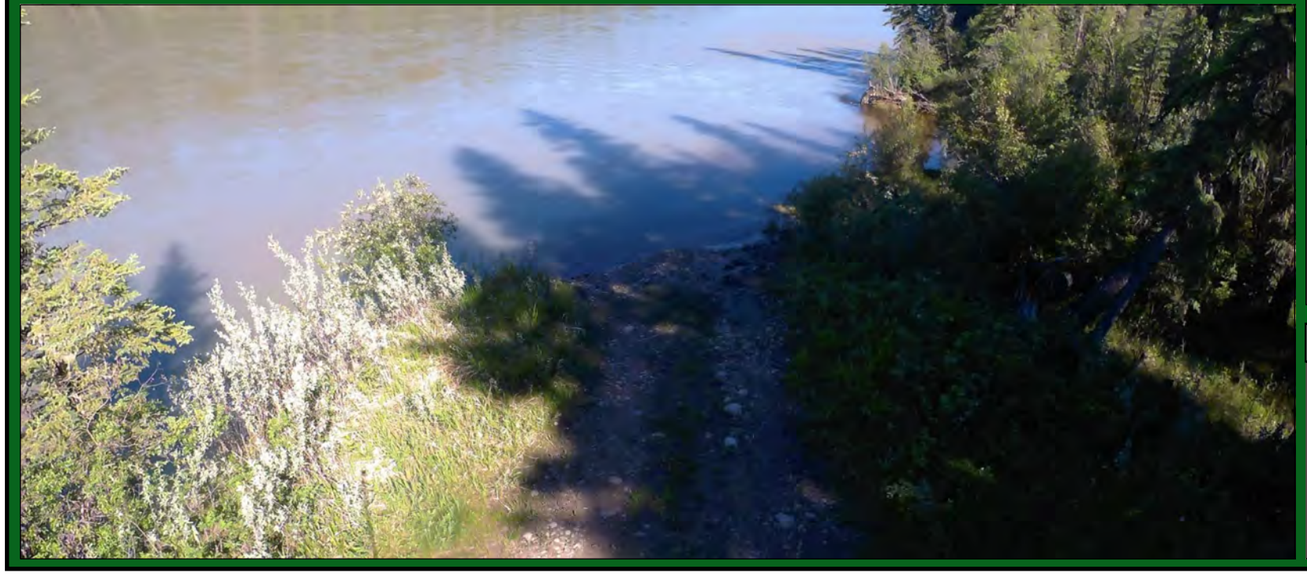
Frequently confined moderate-high velocity flat run structure along forested setting. Boat launch located within Sundance Provincial Park, accessed at the end of a 100 m long low grade road extending along RDB from frequently used industrial gravel road. Boat launch is gradually sloping, composed of fines with embedded gravels and cobbles; with substrate becoming soft along shallow, shoreline eddy immediately upstream of confluence with Sundance Creek. Be aware of overhanging trees and sweepers.

Logistical Information:

Road Access/Type:	- Access off of Emerson Creek Road, 140 m through Sundance Provincial Park - Matting required to establish all weather access.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in Sundance Provincial Park. - 15 m x 15 m area. - Matting required to establish all weather access.	
	Lat: 53.70203	Long: -117.16209
Site Comments:	- The boat launch is located within Sundance Provincial Park. - A single lane bridge is located upstream of he boat launch. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Access from Sundance Provincial Park, public may be present.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 5.2 km and Continue as it changes to E River Rd for 550 m
- Turn left onto Willow Creek Rd for 6.9 km
- Turn right onto Emerson Creek Rd for 39.6 km
- The destination is a small boat launch / river access to Athabasca River
- Total Distance = 121.2 km
- Total Travel Time = 112 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-17

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16B-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.702420	
	Long: -117.162570	
Elevation:	915 m	
Land and Resource Use:	Crown Land. Sundance Provincial Park.	
Upstream Valves:	**Line 01:** KL251	
Downstream Valves:	**Line 01:** KL262	
Control Point:	**Upstream** CP 16-01	**Downstream** BL 16E-01
Nearest KM Post:	**Line 01** KP 267	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			132 m
Depth			Unknown
Flow Velocity			5.0 km/hr
FlowType			Freq. confined mod-high velocity flat run structure

Waterbody description:
CP located along forested setting, becoming more shallow and slowing along collection area. During low and medium water, shallow and exposed bars may become present. CP located downstream of industrial gravel road bridge with 2.5 to 3 m clearance. Confluence of Sundance Creek downstream of boat launch. Be aware of overhanging trees and sweepers banks as well as stranded logs/woody debris at bridge piers.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
Banks variable, often obscured, mostly steep, but stable with vertical/overhanging areas and gradual foreshores, with level backshore along RDB containing BL access road.

Shoreline Vegetation:
Spruce dominated forest with less frequent pine, poplar, aspen; mixed shrubs (e.g., willow, alder, wild rose, saskatoon, soopolallie, shrubby cinquefoil); moss, grass, horsetail, vetch, scouring rush, fireweed, goldenrod, folse Solomon's seal, bedstraw, bunchberry.

Channel / Bank Forms:
Banks predominantly composed of organics underlain by silts and sands with occasion cobbles/boulders; bed composition difficult to characterize, likely fines near shore with more gravels, cobbles and boulders mid-river.

Shoreline Comments:
CP accessed from industrial gravel road down access road extending along RDB in Sundance Provincial Park, with collection located adjacent to road along steep 2 m high narrow forested bank/approach to gradual sand/silt foreshore area along the bottom of the bank. LDB is densely vegetated along bank and backshore with mature spruce and shrubs. Signage present to prevent the spread of whirling disease.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in Sundance Provincial Park. - 15 m x 20 m area. - Matting required to establish all weather access.	
	Lat: 53.70203	Long: -117.16209
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Recreational boat traffic in control point area. - Single lane bridge. Traffic control recommended. - Control point and staging area located in Sundance Provincial Park. - Privately owned road.	
Road Access/Type:	- Access off of Emerson Creek Road. - All weather access is established. - Road use agreement required. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 16B-01. - Refer to BL 16B-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

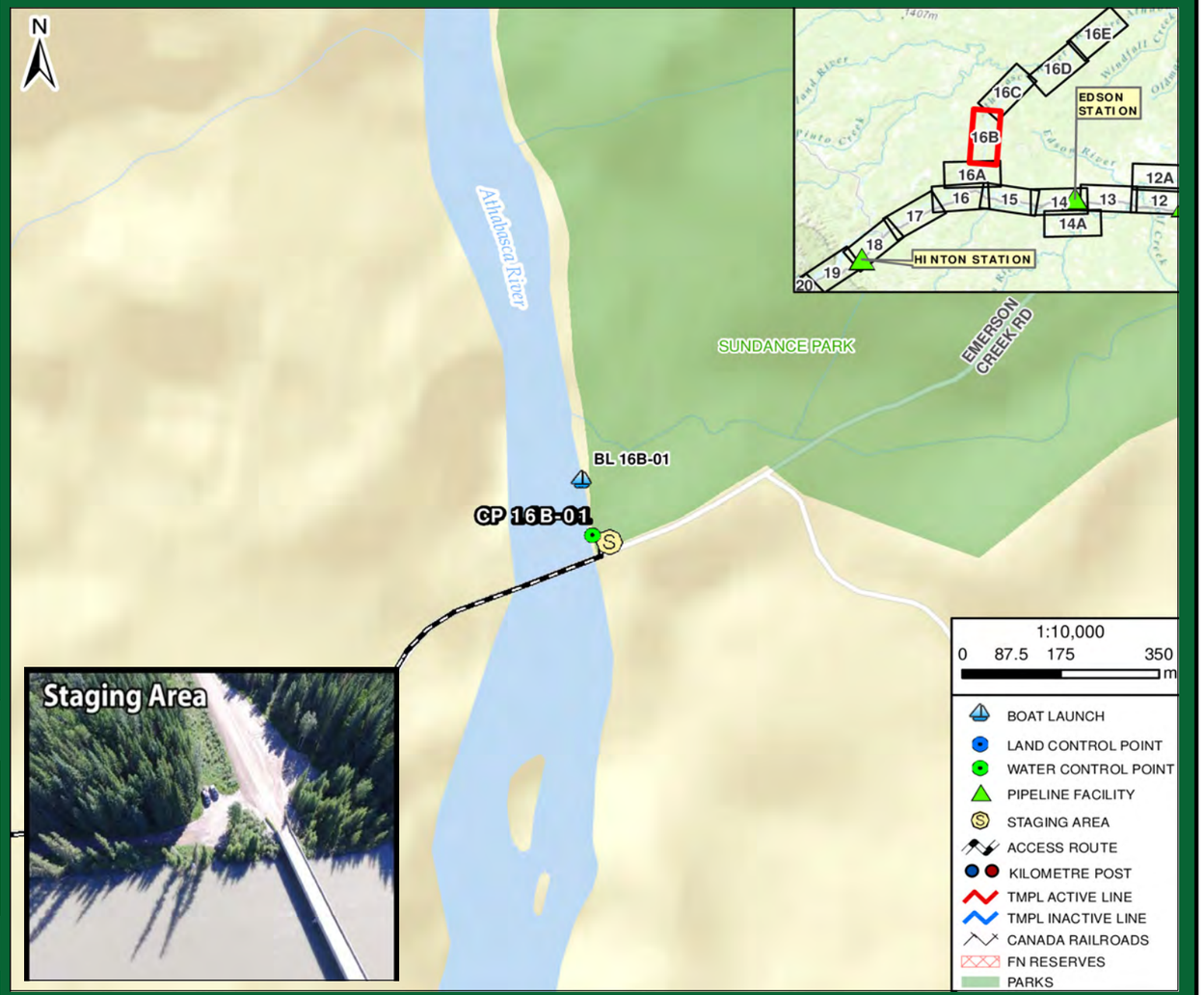
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

Runs with sufficient current, abundant gravels and cobbles provide good spawning potential for salmonids; low-moderate rearing/overwintering potential along deeper shoreline eddies containing instream/overhead cover; important migratory corridor to upstream spawning areas of the Athabasca River Watershed. Mature spruce dominated forest ecosystem in the Rocky Mountain foothills provides habitat for a range of wildlife species, including grizzly bear, wolf, lynx, elk, moose, martin as well as many forest and cavity nesting bird species. Riparian nesting birds. Waterbird and shorebird habitat. Cliff swallow colony nesting under bridge. Located in Sundance Provincial Park, which contains an access road along RDB to boat launch (BL 16B-01). Occasional boating and fishing (e.g., canoing, kayaking, drifting, jet boat). Located adjacent to a busy industrial road (e.g., oil and gas servicing and development, forestry, mining).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Response efforts are taking place within Sundance Provincial Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

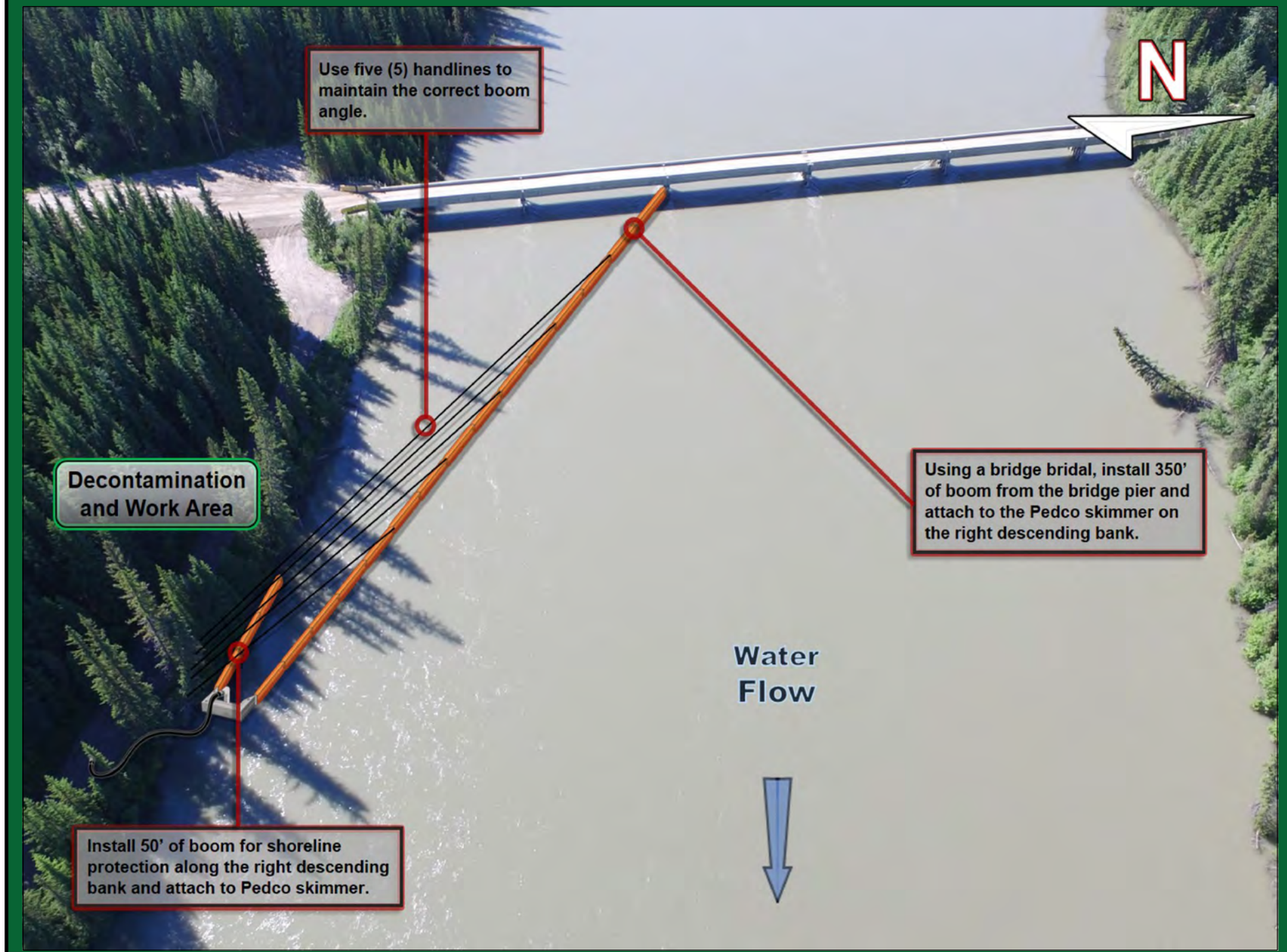
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 5.2 km and Continue as it changes to E River Rd for 550 m
- Turn left onto Willow Creek Rd for 6.9 km
- Turn right onto Emerson Creek Rd for 39.6 km
- Destination is located at a bridge water crossing over the Athabasca River
- Total Distance = 121.2 km
- Total Travel Time = 112 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-17
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16B-01



Implementation Strategy:

- Install a bridge pier bridle on the second bridge pier from the right descending bank.
- Install 350' of 6" x 6" hard containment boom from the bridge pier bridle at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (5) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 75 m ice slot from the middle of the river at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	500'	6" x 6" Hard Containment Boom
1	Safety Watch	14	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	10	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1	Bridge Pier Bridle
		1	Paravane
		2	Work Boat
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), cliff swallow
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-17
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 16E-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	54.152510	
	Long:	-116.595280	
Elevation	792 m		
Upstream Valves:	**Line 01:** KL251		
Downstream Valves:	**Line 01:** KL262		
Control Point:	**Upstream** CP 16E-01	**Downstream** N/A	
Nearest KM Post:	**Line 01** KP 269		

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			120 m
Depth			Unknown
Flow Velocity			5.0 km / hr
FlowType			Frequently confined high velocity rolling run structure

Waterbody description:

Frequently confined high velocity rolling run structure. Boat launch located at frequently used, well-maintained day use site containing open level gravel parking/turnaround area. Boat launch is gradually sloping, transitioning from gravels and cobbles to concrete pad descending into shoreline eddy created by upstream concrete rip rap and built out gravel site. Current becomes very swift beyond eddy. High turbidity at time of survey.

Logistical Information:

Road Access/Type:	- Access off of Highway 947. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located at the boat launch. - 15 m x 15 m area. - All weather access is established.	
	Lat: 54.15254	Long: -116.5956
Site Comments:	- Popular angling, boating and water sports area. - Vehicle bridge located upstream of boat launch and a railway bridge located downstream of the boat launch. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

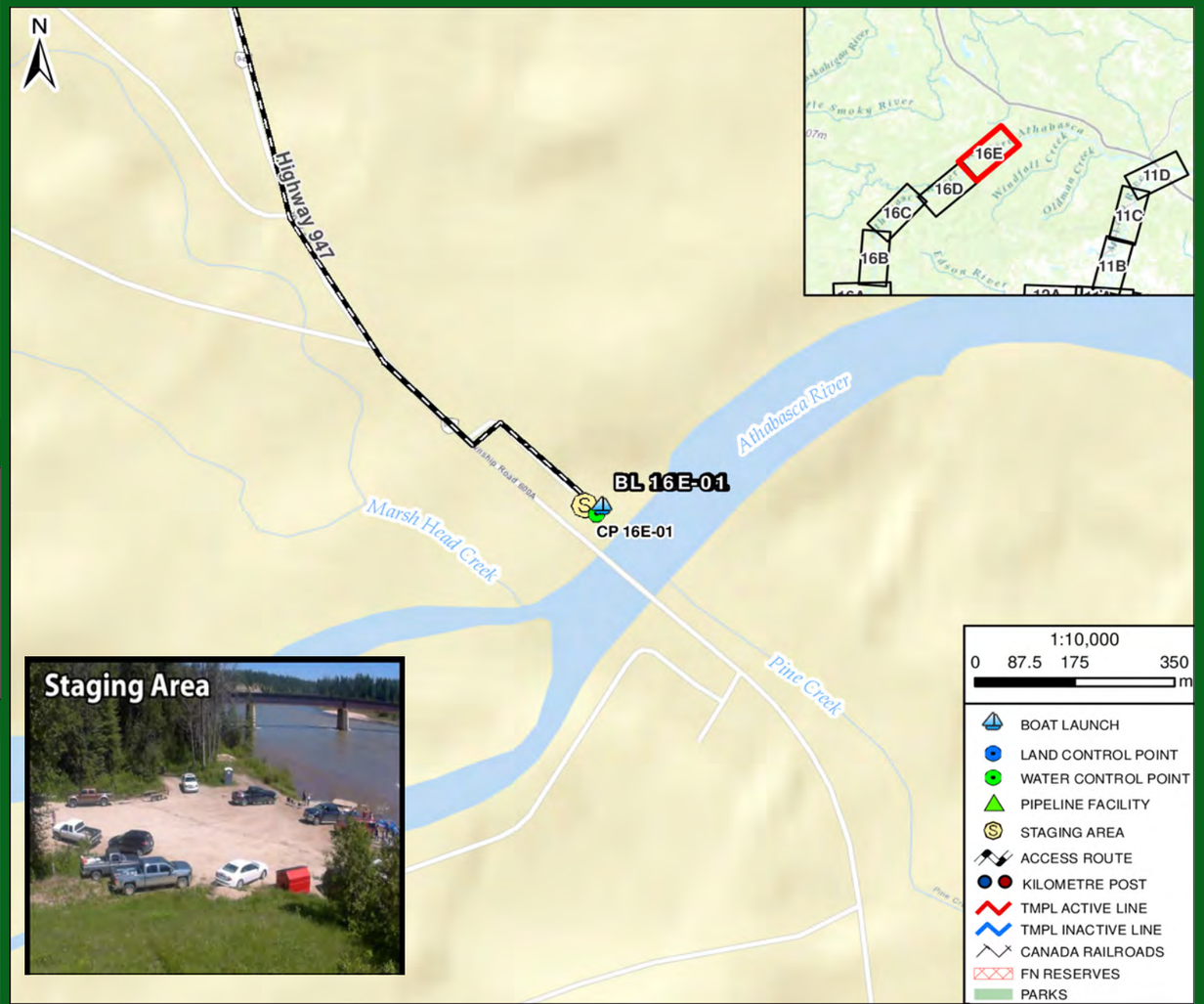
Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A small decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto AB-757 N (signs for Magnolia/Sangudo) for 35.3 km
- Passing Sangudo, turn left onto AB-43 N / AB-757 N (signs for Grande Prairie) for 129 km
- Turn left onto AB-947 W for 20.3 km, passing "A.N.C. Road" on the right
- Destination is left, take highway pull off to boat launch to Athabasca River
- Total Distance = 194.9 km
- Total Travel Time = 180 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-17

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16E-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 54.152160	
	Long: -116.595570	
Elevation:	799 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:** KL251	
Downstream Valves:	**Line 01:** KL262	
Control Point:	**Upstream** CP 16B-01	**Downstream** N/A
Nearest KM Post:	**Line 01** KP 269	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			137 m
Depth			Unknown
Flow Velocity			5.0 km/hr
FlowType			Frequently confined high velocity rolling run structure

Waterbody description:
CP located at often used, well-maintained day use site containing boat launch (BL 16E-01) and open level gravel parking/turnaround area. Along upstream extent of containment there is a forested island, with main current along the north channel. During low and medium water, shallow and exposed bars may become present. CP located downstream of highway bridge with 5 m clearance. High turbidity during survey.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
LDB typically steep with overhanging sod underlain predominantly by loose cobbles with level gravel backshore work area. Banks obscured with veg upstream of highway bridge.

Shoreline Vegetation:
Grasses along top of bank with bare backshore on LDB; transitioning to mixed poplar/spruce dominated forest upstream of highway bridge; mixed shrubs (e.g., willow, alder, wild rose) and plants (e.g., mosses, grasses, horsetail, vetch, goldenrod, bedstraw).

Channel / Bank Forms:
LDB predominantly composed of organics (sod) underlain by cobbles with matrix of fines; bed composition difficult to characterize, likely predominantly cobbles and boulders.

Shoreline Comments:
CP accessed from an open, level gravel day use and boat launch turnaround area downstream of highway bridge, along steep to overhanging up to 1.4 m high cobble dominated bank, becoming more gradual along foreshore.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank in a boat launch parking lot. - 30 m x 30 m area. - All weather access is established.	
	Lat: 54.15254	Long: -116.5956
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - All weather access is established.	
Site Restrictions:	- Recreational boat traffic in control point area. - Popular angeling and water sports area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 947. - All weather access is established.	
Boat Access:	- Main boat access from BL 16E-01. - Refer to BL 16E-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - Vehicle bridge located at the control point, as well as a railway bridge located just downstream of the control point.	

Decontamination Area:

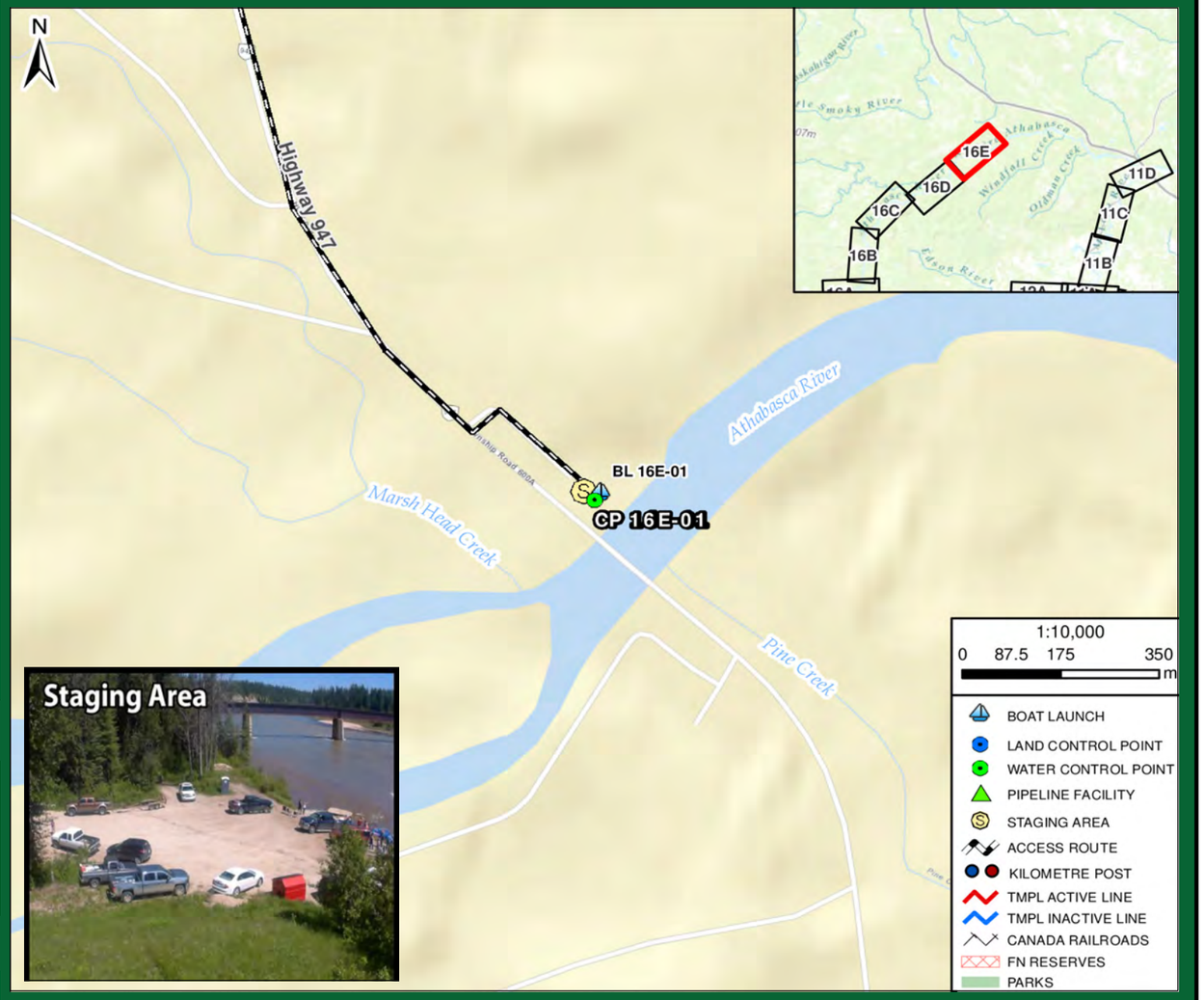
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Runs with sufficient current, abundant gravels and cobbles provide good spawning potential for salmonids; low-moderate rearing/overwintering potential along deeper shoreline eddies containing instream/overhead cover; important migratory corridor to upstream spawning areas of the Athabasca River Watershed. Note, Athabasca River is sensitive to the spread of whirling disease.
- Riparian nesting birds. Waterbird and shorebird habitat.
- Cliff swallow colony nesting under bridge.
- Located at frequently used day use site and boat launch.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Gainford Station, get on Yellowhead Hwy / AB-16 West towards Jasper
- Continue West for 8.5 km
- Turn right onto AB-757 N (signs for Magnolia/Sangudo) for 35.3 km
- Passing Sangudo, turn left onto AB-43 N / AB-757 N (signs for Grande Prairie) for 129 km
- Turn left onto AB-947 W for 20.3 km, passing Sil Industrial Minerals (Fox Creek AB)
- Destination is left highway pull off to Athabasca River
- Total Distance = 194.9 km
- Total Travel Time = 180 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-17
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 16E-01



Implementation Strategy:

- Install 400' of 6" x 6" hard containment boom from the right descending bank of a midstream island and attached to a 0.50 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 250' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product using a Pedco skimmer and 50' rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 80 m ice slot from the middle of the river at a 15° angle to the left descending bank. Recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	800'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	0.5 m Boom Vane
2	Boat Captain	8	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2 / 2	Rake Anchor / Sarca Anchor
		1	Portable Tank
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), cliff swallow
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 17-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.426600
	Long:	-117.559430
Elevation	957 m	
Upstream Valves:	**Line 01:** KL289	
Downstream Valves:	**Line 01:** K296	
Control Point:	**Upstream** CP 17-04	**Downstream** CP 16-01
Nearest KM Post:	**Line 01** KP 296	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			240 m
Depth			Unknown
Flow Velocity			7.0 km / hr
FlowType			Frequently confined moderate velocity run structure

Waterbody description:

Boat launch is frequently used, well-maintained with open, level turnaround and parking area. Boat is gradually sloping, composed predominantly of compacted gravels and cobbles descending into shoreline eddy. There is a busy industrial road bridge approximately 150 m upstream with about 3 m clearance. Moderate-high turbidity at time of survey.

Logistical Information:

Road Access/Type:	- Access off of Willow Creek Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- 40 m x 20 m area. - All weather access is established. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
	Lat: 53.42641	Long: -117.55972
Site Comments:	- A single lane bridge is located upstream of he boat launch. - Popular angling, camping and boating location. Public may be present. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

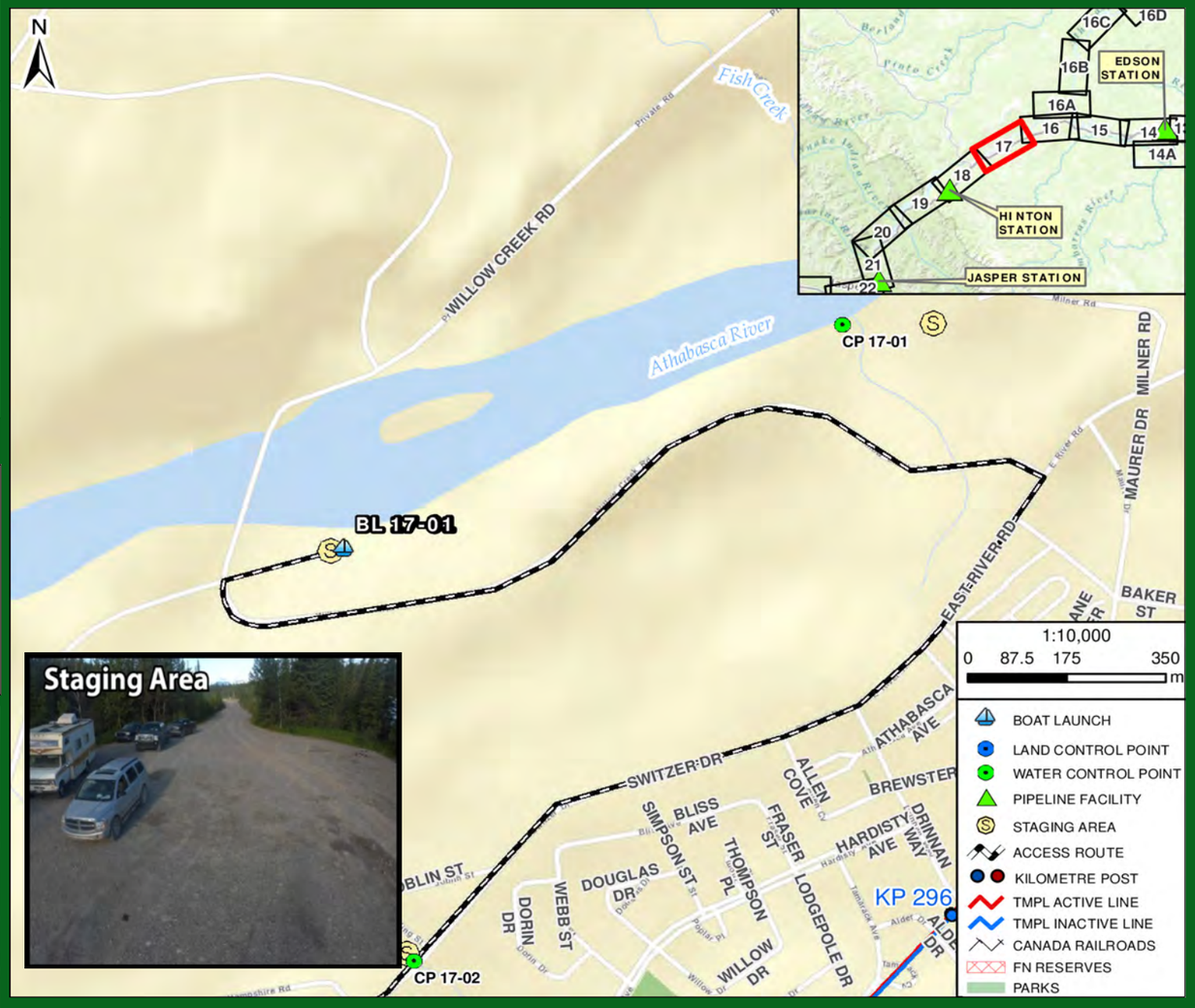
Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present, site security is recommended.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 5.2 km and Continue as it changes to E River Rd for 550 m
- Turn left onto Willow Creek Rd for 1.7 km
- Turn right and pull off into clearing and access alongside Athabasca River
- Destination is boat launch river access to the Athabasca River
- Total Distance = 76.3 km
- Total Travel Time = 70 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.431390	
	Long: -117.547090	
Elevation:	960 m	
Land and Resource Use:	Private Land. Commercial.	
Upstream Valves:	**Line 01:** KL289	
Downstream Valves:	**Line 01:** K296	
Control Point:	**Upstream** N/A	**Downstream** CP 16-01
Nearest KM Post:	**Line 01** KP 295	

Waterbody Information:

Waterbody Name: Cache Percotte Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		13 m	
Depth		0.6 m	
Flow Velocity		<0.5 km/hr	
FlowType		Unconfined riffle and run structure at confluence with Athabasca River	

Waterbody description:

Creek with riffle and run structure becomes unconfined (forked) upstream of confluence with Athabasca River, with collection located immediately downstream of confluence of main channel, where secondary channel enters river 20 m further upstream. There is a shoreline eddy at confluence created by an extended, steep forested approach along the Athabasca River upstream. Frequent overhanging shrubs and trees, stranded logs/debris.

Shoreline Information

Bank Height:
1 to 1.3 m

Shoreline Composition and Slope:
Banks typically vertical to overhanging at confluence, but moderately steep, stable at collection; with level, uneven backshores densely vegetated along riparian margins.

Shoreline Vegetation:
Shrub-dominated ravine containing willow, alder, wild rose, shrubby cinquefoil, transitioning to mature/old growth spruce forest; grasses, horestail, moss, rush, scouring rush; occasional yellow ladyslipper, round-leaved orchid, Canada anemone, bedstraw.

Channel / Bank Forms:
Banks predominantly composed of organics underlain by mixed fines to boulders; bed composed predominantly of boulders with pockets of fines.

Shoreline Comments:
CP accessed from industrial site (trucking and oilfield services yard), down forested and shrub dominated ravine along low grade access trail transitioning to shrubby riparian margins at confluence with the Athabasca River. Banks are stable, but often overhanging/vertical at confluence, with frequently overhanging shrubs and trees.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in Minich Oilfield Services Parking lot. - 20 m x 100 m area. - All weather access is established.	
	Lat: 53.43153	Long: -117.54477
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- Recreational boat traffic in control point area. - Control point and staging are located on private land. - Landowner permission required before accessing control point and staging area. - Low impact access recommended.	
Road Access/Type:	- Access off of Milner Road through Minich Oilfield Services yard, 200 m down a vehicle path. - Matting required to establish all weather access. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation. - The control point can be accessed by boat if necessary from the Athabasca River.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located at the confluence of Cache Percotte Creek, and the Athabasca River.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

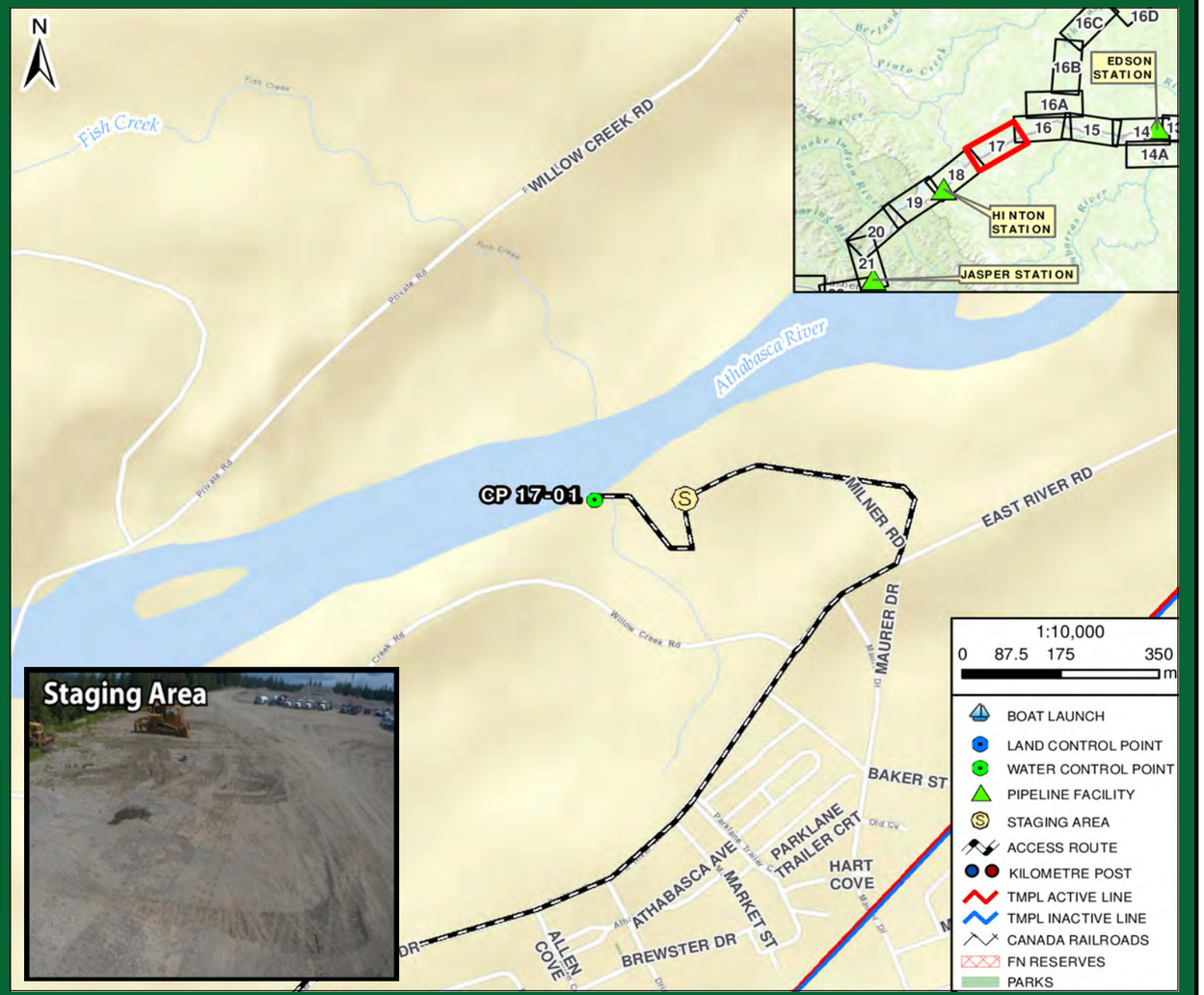
Resources At Risk:

- Confluence located along shoreline eddy containing deeper water areas and abundant instream and overhead cover, providing good rearing and overwintering habitat. Also migratory staging area for salmonids to upstream spawning areas of Cache Perrcotte Creek. Note, Athabasca River is sensitive to the spread of whirling disease.
- Riparian nesting birds; waterbird and shorebird habitat; forest and cavity nesting habitat.

- Mature to old growth spruce dominated forest ecosystem with dense shrub dominated ravine and diverse herbaceous understory provides excellent wildlife habitat.
- Isolated occurrences of yellow lady slipper and round-leaved orchid which are generally considered uncommon with very localized occurrences.
- CP accessed above ravine from industrial site (trucking and oilfield services yard).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Private access, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 5.2 km and Continue as it changes to E River Rd for 550 m
- Turn left onto Milner Rd and into Minich Oilfield Service Yard
- Pullloff into clearing and access alongside Athabasca River
- Destination is creek/river access at Cache Percotte Creek
- Total Distance = 75.1 km
- Total Travel Time = 69 minutes calculated at 65 km/hr

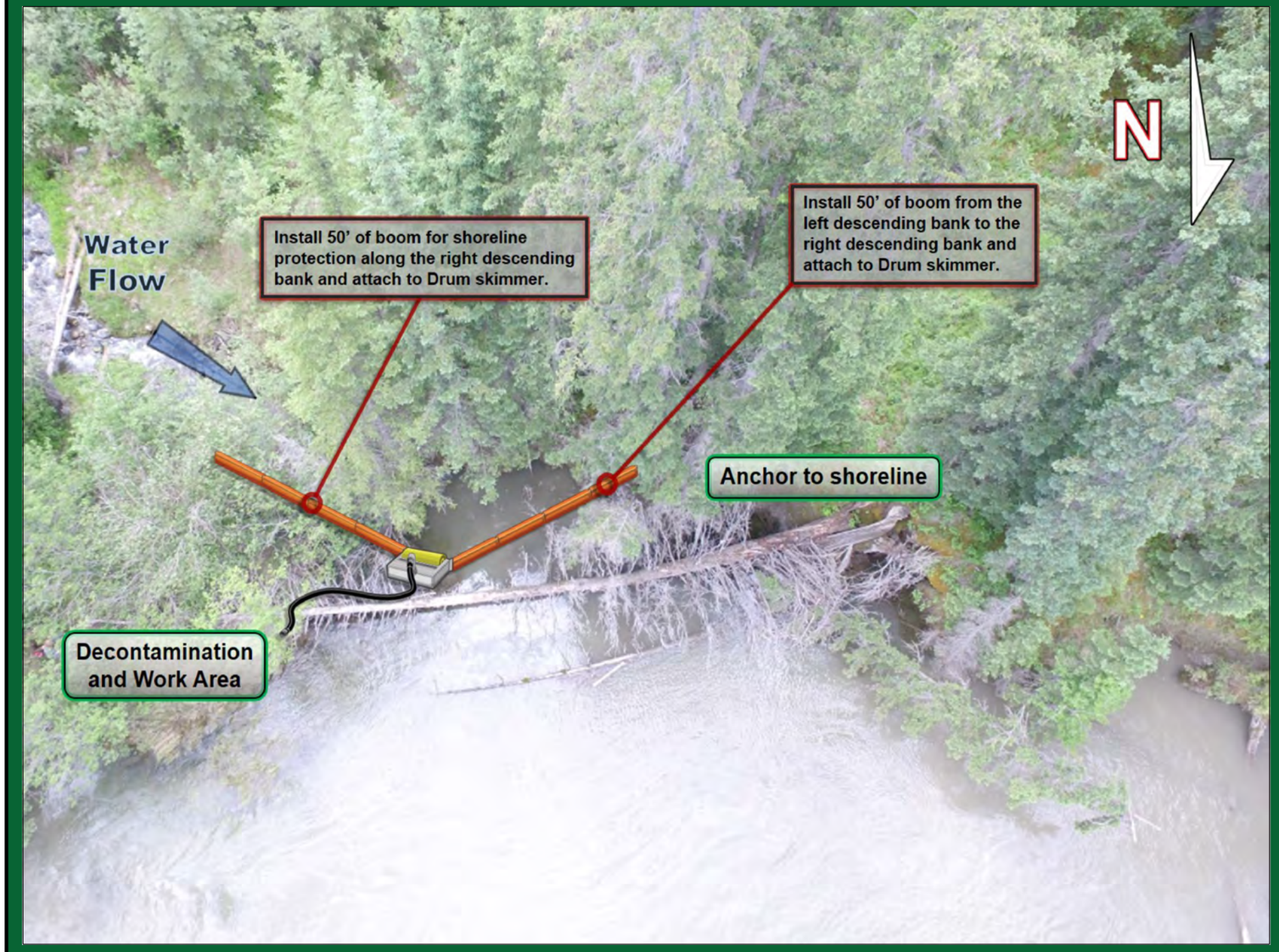
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
1	Low Impact Recovery Unit Operator	250'	Rope
		1	Vacuum Truck
		1	Low Impact Recovery Unit
11	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a portable tank or low impact recovery unit.

Winter Response:
Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 15 m ice slot from the left descending bank at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.419830	
	Long: -117.555890	
Elevation:	990 m	
Land and Resource Use:	Private Land. Commercial.	
Upstream Valves:	**Line 01:** K296	
Downstream Valves:	**Line 01:** 30N	
Control Point:	**Upstream** N/A	**Downstream** CP 17-03
Nearest KM Post:	**Line 01** KP 297	

Waterbody Information:

Waterbody Name: Hardisty Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		7 m	
Depth		0.3 m	
Flow Velocity		5.0 km/hr	
FlowType		Confined moderate-high velocity riffle and run structure	

Waterbody description:

CP located downstream of clear span bridge with 3 m clearance. Channel courses along small vegetated ravine containing commercial/industrial properties along backshore. Clear water at time of survey.

Shoreline Information

Bank Height:
0.3 to 0.6 m

Shoreline Composition and Slope:
RDB typically steep, variable composed of concrete riprap along 3 m approach with level open backshore. LDB gradual becoming steep, with wider, dense vegetated approach.

Shoreline Vegetation:
Poplar saplings, mixed shrubs (e.g., alder, willow, soopolallie, red-osier dogwood) along LDB, becoming sparse along RDB; mountain avens and moss along LDB transitioning to grasses, Canada thistle; predominantly grasses along RDB.

Channel / Bank Forms:
RBD composed predominantly of concrete riprap, LDB composed of mixed fines to cobbles; coir riprap at bridge abutments; bed composed of cobbles with less frequent gravels and boulders, occasional concrete slabs.

Shoreline Comments:
CP accessed from open grassy backshore area associated with commercial property, down 3 m steep, variable approach containing concrete riprap along RDB. Abundant Canada thistle along backshore LDB.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in the Smoker Corner lot. - 20 m x 45 m area. - Matting required to establish all weather access.	
	Lat: 53.41994	Long: -117.55611
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point and staging are located on private land. - Landowner permission required before accessing control point and staging area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of King Street. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located on the downstream side of the Switzer Dr bridge water crossing.	

Decontamination Area:

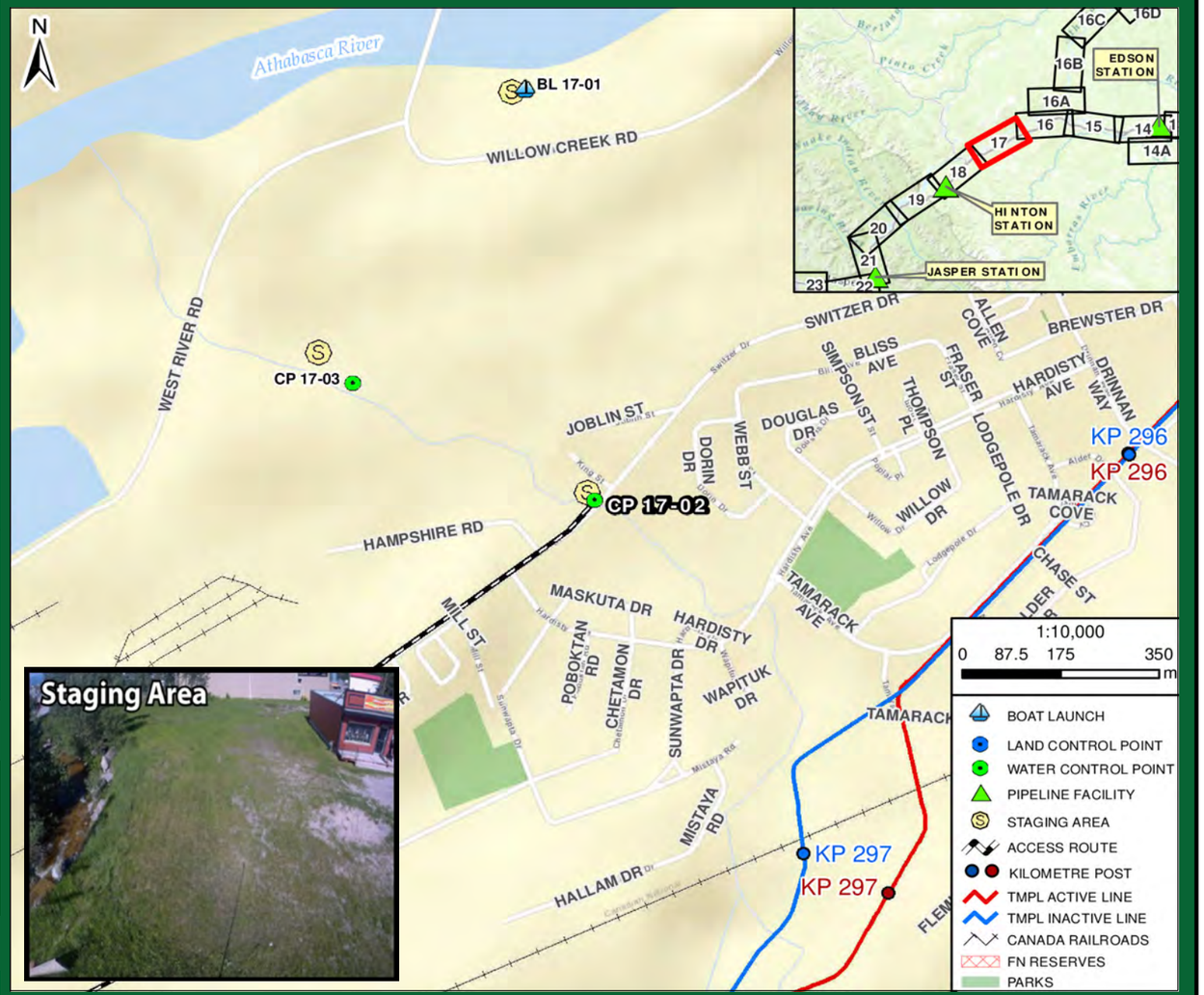
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with pockets of clean gravels, cobbles and riparian cover provide good spawning potential for salmonids; low rearing and overwintering habitat due to swift current and shallow depth.
- Riparian nesting habitat along LDB.
- Located in commercial/industrial area within the Town of Hinton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline use caution.
- Control point and staging areas are located in the town of Hinton. Public may be present, security is recommended.
- Be aware of wildlife in the area. Overhead power lines exist along the access route.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

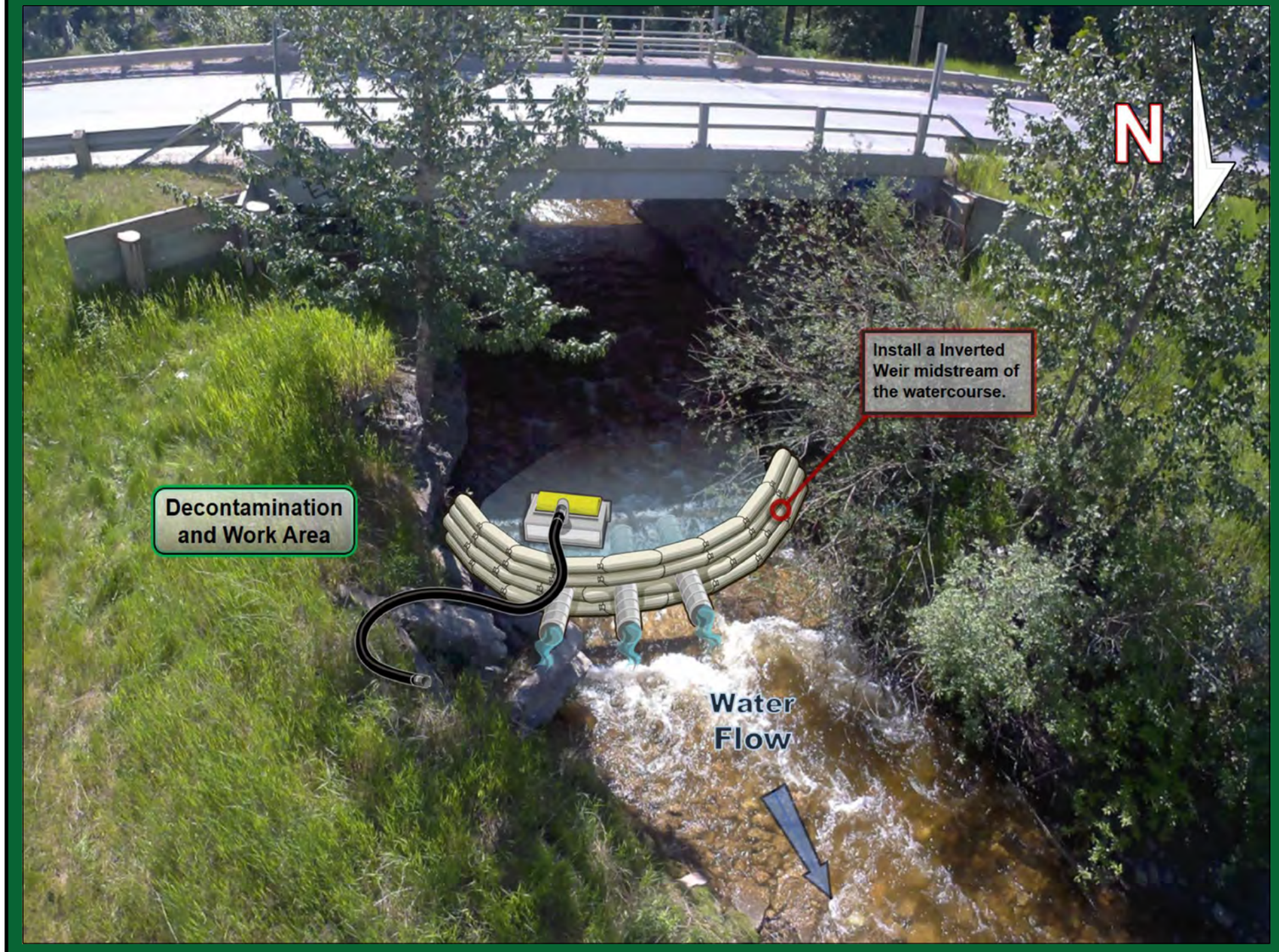
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 4.2 km
- Take right pull off on road to access creek (just before The Brick)
- Alternatively, may also turn left onto King St for access
- Destination is Hardisty Creek
- Total Distance = 73 km
- Total Travel Time = 67 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	Track Hoe
1	Safety Watch	3	12” x 15' Culvert
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	20 Yards	Earthen Material or 150 Sandbags
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout, bull trout)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (3) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 50' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 9 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-03

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.421210
	Long:	-117.562760
Elevation:	976 m	
Land and Resource Use:	Private Land. Commercial.	
Upstream Valves:	**Line 01:**	K296
Downstream Valves:	**Line 01:**	30N
Control Point:	**Upstream** CP 17-02	**Downstream** CP 16-01
Nearest KM Post:	**Line 01** KP 297	

Waterbody Information:

Waterbody Name: Hardisty Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		5 m	
Depth		0.3 m	
Flow Velocity		4.5 km/hr	
FlowType		Frequently unconfined moderate-high velocity riffle and run	

Waterbody description:

CP located along long, riffly run confined by low banks (up to 0.4 m) and elevated shoreline areas below approaches that become inundated during high water, as evident by woody debris and sediment deposits along shoreline. Upstream and downstream, creek is often forked or braided. Clear water at time of survey.

Shoreline Information

Bank Height:
0.3 to 0.4 m

Shoreline Composition and Slope:
RDB typically steep, low and composed of loose cobbles, with elevated shoreline along channel at base man-made approaches; LDB vertical with 20 m steep, variable backshore.

Shoreline Vegetation:
Seedlings, saplings and young spruce, poplar and trembling aspens along approaches; isolated mixed shrubs (e.g., shrubby cinquefoil, alder, wild rose, willow); mosses, grasses, horsetail, rush, alpine milkvetch, salsify, tall buttercup, clover, willowherb, mountain aven

Channel / Bank Forms:
Both banks are predominantly composed of cobbles, also containing exposed roots and organics along LDB; bed composed of cobbles with less frequent gravels and boulders.

Shoreline Comments:
CP accessed from an extensive open, level but uneven grassy cobble-dominated meadow (former industrial site) to steep, 3-4 m man-made approach becoming level along elevated shoreline area along RDB. Approach along LDB is man-made as well, moderately steep up to 20 m high, above which is the Hinton Pulp Mill. Note, CP located on West Fraser Hinton Pulp Mill property (contractor orientation required for site entry). Weeds observed (e.g., Canada thistle, oxeye daisy, tall buttercup).

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in the Hinton Pulp Mill. - 100 m x 100 m area. - Matting required to establish all weather access.	
	Lat: 53.42164	Long: -117.56379
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point and staging are located on the Hinton Pulp Mill. Site safety orientation may be required. - Landowner permission required before accessing control point and staging area.	
Road Access/Type:	- Access off of West River Road through Hinton Pulp Mill. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

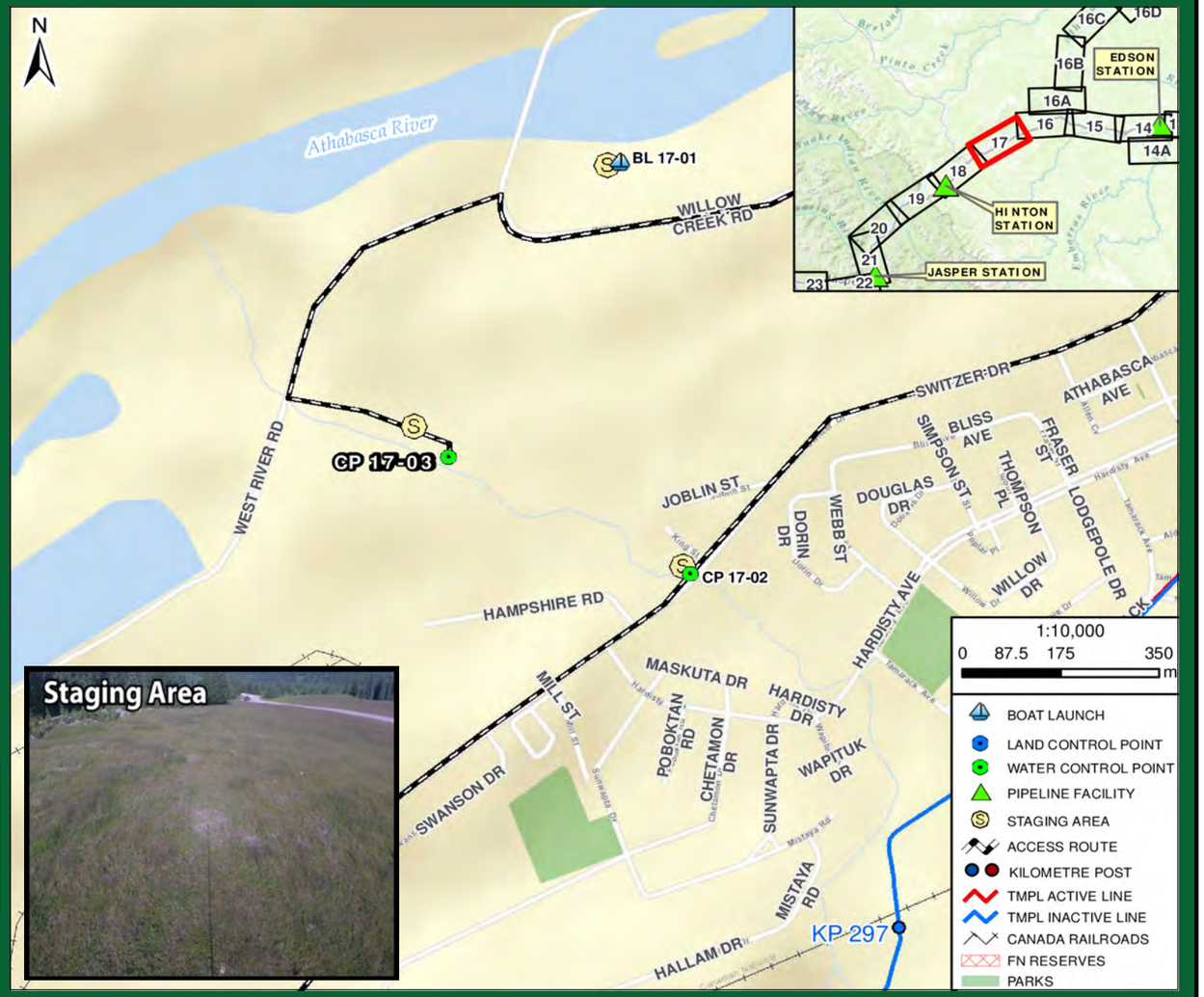
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with pockets of clean gravels, cobbles and riparian cover provide good spawning potential for salmonids; low rearing and overwintering habitat due to swift current and shallow depth.
- Riparian nesting birds.
- Shorebird habitat.
- Herd of elk (10-20) observed along open meadow backshore; well defined wildlife trails to creek and abundant scat suggest herd frequently resides in the area.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Fast water with uneven rocky shorelines, use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, turn right onto Switzer Dr for 5.2 km and continue as it changes to E River Rd for 550 m
- Turn left onto Willow Creek Rd for 2.3 km until you arrive at creek crossing
- Turn left and access via unpaved road thru clearing
- Destination is Hardisty Creek
- Total Distance = 77 km
- Total Travel Time = 71 minutes calculated at 65 km/hr

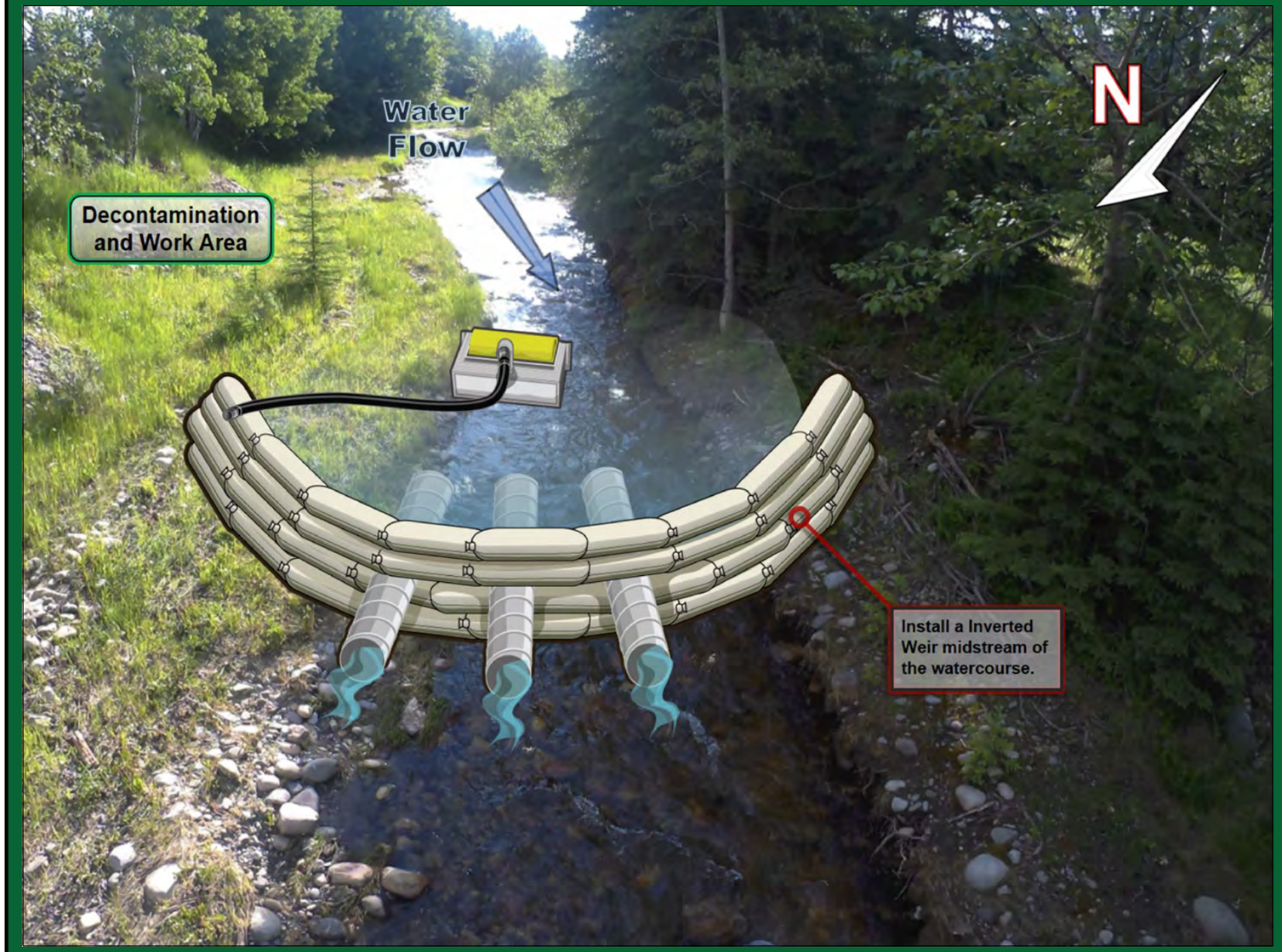
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-03



Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (3) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 100' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 7 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	Track Hoe
1	Safety Watch	3	12” x 15' Culvert
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	30 Yards	Earthen Material or 250 Sandbags
		1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout, bull trout, cutthroat trout)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.410690	
	Long: -117.588990	
Elevation:	964 m	
Land and Resource Use:	Private Land. Commercial.	
Upstream Valves:	**Line 01:** K296	
Downstream Valves:	**Line 01:** 30N	
Control Point:	**Upstream** CP 19-02	**Downstream** CP 16-01
Nearest KM Post:	**Line 01** KP 299	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			175 m
Depth			Unknown
Flow Velocity			4.5 km/hr
FlowType			Freq. confined mod-high velocity flat run structure

Waterbody description:
Frequently confined moderate-high velocity flat run structure along forested setting, with main current along mid-river / near RDB. During low and medium water, shallow and exposed bars may become present. CP located on West Fraser Hinton Pulp Mill property, and pump house serving the mill is located 30 m downstream. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1.5 to 2 m

Shoreline Composition and Slope:
Banks typically vertical/overhanging, more gradual at collection area below gradual sloping approach extending from gravel pump house parking area. LDB densely forested.

Shoreline Vegetation:
Mature and dead standing spruce forest along LDB; mixed young to mature spruce and poplar forest along RDB; low density shrubs (e.g., alder, willow, shrubby cinquefoil, wild rose); grass, moss, rush, horsetail, goldenrod, wild strawberry, blue-eyed grass, yarrow.

Channel / Bank Forms:
Banks predominantly composed of fine sediments with matrix of gravels and cobbles, bed composition difficult to characterize due to turbidity and depth, likely gravels and cobbles with less frequent fines and boulders.

Shoreline Comments:
CP accessed from an open, level gravel parking area used to access the Hinton Pulp Mill pump house, down gradual approach and bank along narrow shoreline eddy. Intake to the pump is is located approximately 30 m downstream from collection. Note, CP located on West Fraser Hinton Pulp Mill property (contractor orientation required prior to entry). Weeds observed along RDB (e.g., oxeye daisy, tall buttercup).

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank. - 20 m x 25 m area. - All weather access is established.	
	Lat: 53.41053	Long: -117.58856
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Recreational boat traffic in control point area. - Control point and staging are located on the Hinton Pulp Mill, site safety orientation may be required. - Landowner permission required before accessing control point and staging areas.	
Road Access/Type:	- Access off of West River Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 17-01. - Refer to BL 17-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 19-01. - Refer to BL 19-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of the water intake.	

Decontamination Area:

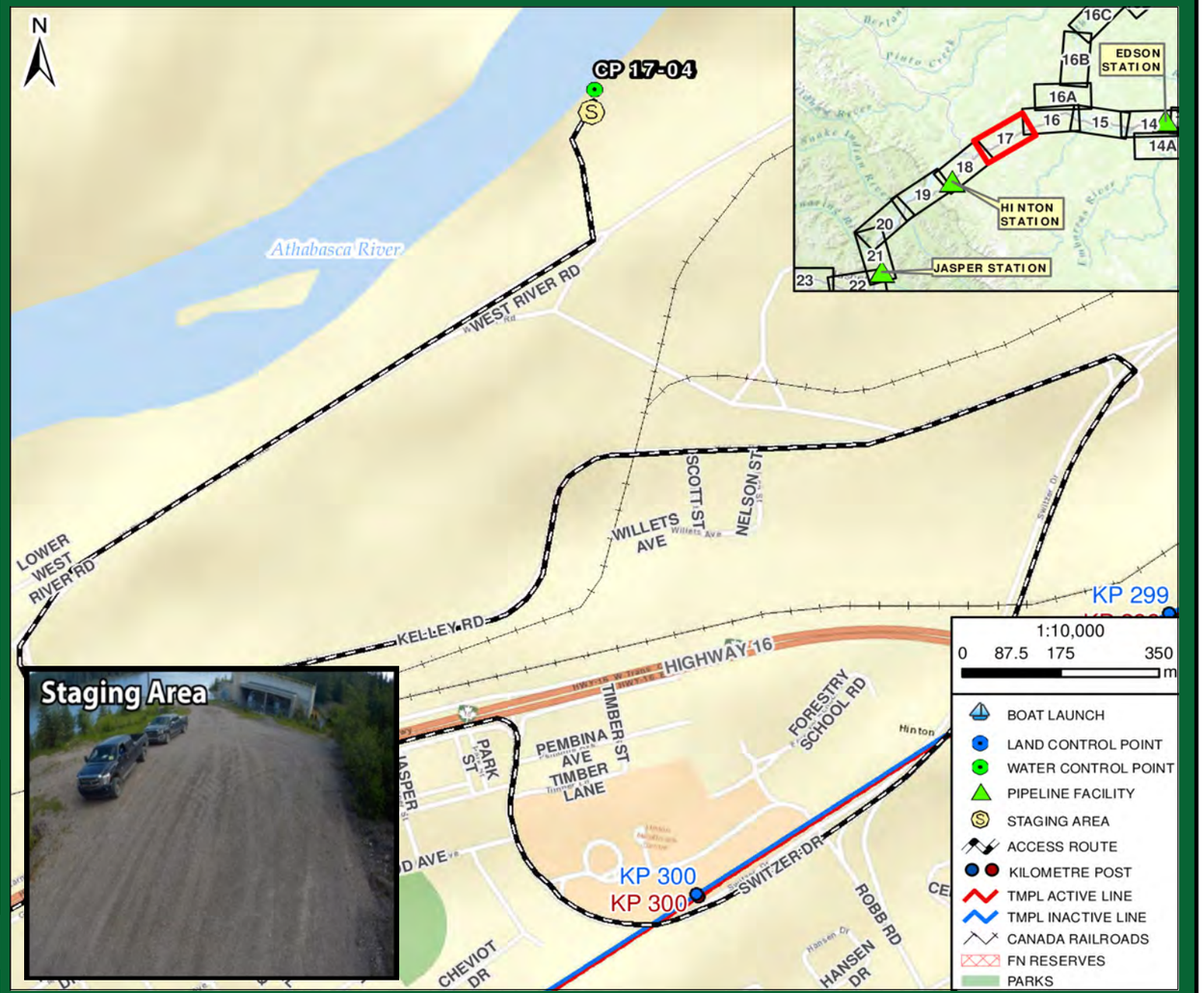
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Runs with sufficient current, abundant gravels and cobbles provide good spawning potential for salmonids; moderate rearing/overwintering potential along deeper shoreline eddies containing instream/overhead cover; important migratory corridor to upstream spawning areas of the Athabasca River Watershed. Note, Athabasca River is sensitive to the spread of whirling disease.
- Riparian nesting birds.
- Waterbird and shorebird habitat.
- Mature spruce dominated forest and dead standing trees along LDB provide forest and cavity nesting habitat.
- Large herd of elk (30-40) observed along access to site.
- Located on West Fraser Hinton Pulp Mill property.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Public may be present. Overhead power lines exist in the control point area.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

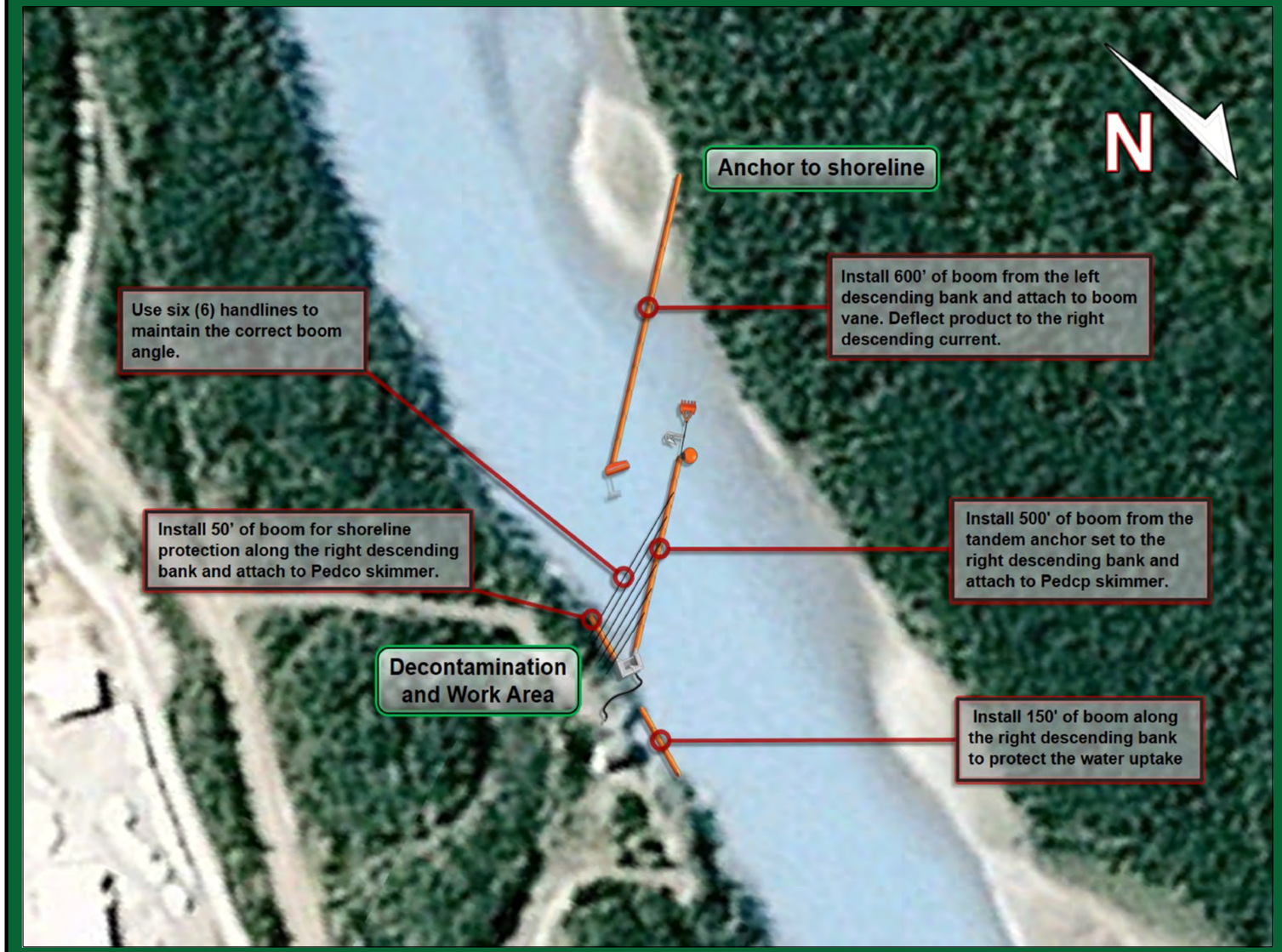
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 2.4 km
- Turn left onto Kelley Rd for 2.9 km
- Continue right onto W River Rd for 1.3 km
- Pull off left towards Athabasca Riverbank
- Destination is Athabasca River
- Total Distance = 75 km
- Total Travel Time = 69 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-04



Implementation Strategy:

- Install 600' of 6" x 6" hard containment boom from the left descending bank and attached to a 0.50 m boom vane to deflect product to right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 500' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.
- Install 150' of 6" x 6" hard containment boom along the right descending bank to protect the water uptake.

Winter Response:
Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 90 m ice slot from the middle of the river at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1500'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2 / 2	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		4	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-05

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.393860
	Long:	-117.604190
Elevation:	1025 m	
Land and Resource Use:	Crown Land. Town of Hinton.	
Upstream Valves:	**Line 01:**	K296
Downstream Valves:	**Line 01:**	30N
Control Point:	**Upstream** N/A	**Downstream** CP 17-06
Nearest KM Post:	**Line 01** KP 301	

Waterbody Information:

Waterbody Name: Happy Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		1.5 m	
Depth		0.3 m	
Flow Velocity		1.0 km/hr	
FlowType		Frequently confined low velocity run along incised channel	

Waterbody description:

Low velocity run, frequently confined along well-defined incised channel with vertical banks averaging 1 m in height, before flowing into sunken 1.6 m diameter culvert, resulting in 1 m waterfall at creek entrance. Sediment deposits above banks suggest creek susceptible to high volume flow and/or result from impoundment due to debris built up at culvert. Shallow (up to 0.3 m), likely intermittent or frozen to bottom in winter.

Shoreline Information

Bank Height:
1 to 1.3 m

Shoreline Composition and Slope:
Both banks well defined, vertical but typically stable, becoming steep near culvert entrance, with moderately steep vegetated ravine approaches.

Shoreline Vegetation:
saplings and young poplar, spruce and aspen; low density willow, wild rose; abundant horsetail, less frequent grasses, false Solomon's seal, northern bedstraw.

Channel / Bank Forms:
Banks composed of organics underlain by fines; bed composed predominantly of gravels with less frequent sands and cobbles

Shoreline Comments:
Channel courses along small vegetated ravine containing commercial/industrial properties along backshore. CP accessed from Forest Heights road down moderately steep 3 m ravine approach, becoming level above vertical bank.

Logistical Information:

Staging Area Location:	- A staging area can be located on the left descending bank along Forest Heights Drive. - 5 m x 40 m area. - All weather access is established.	
	Lat: 53.39382	Long: -117.60434
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 3 m x 3 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- There are no restrictions to the control point or staging area.	
Road Access/Type:	- Access off of Forest Height Drive. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Good cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

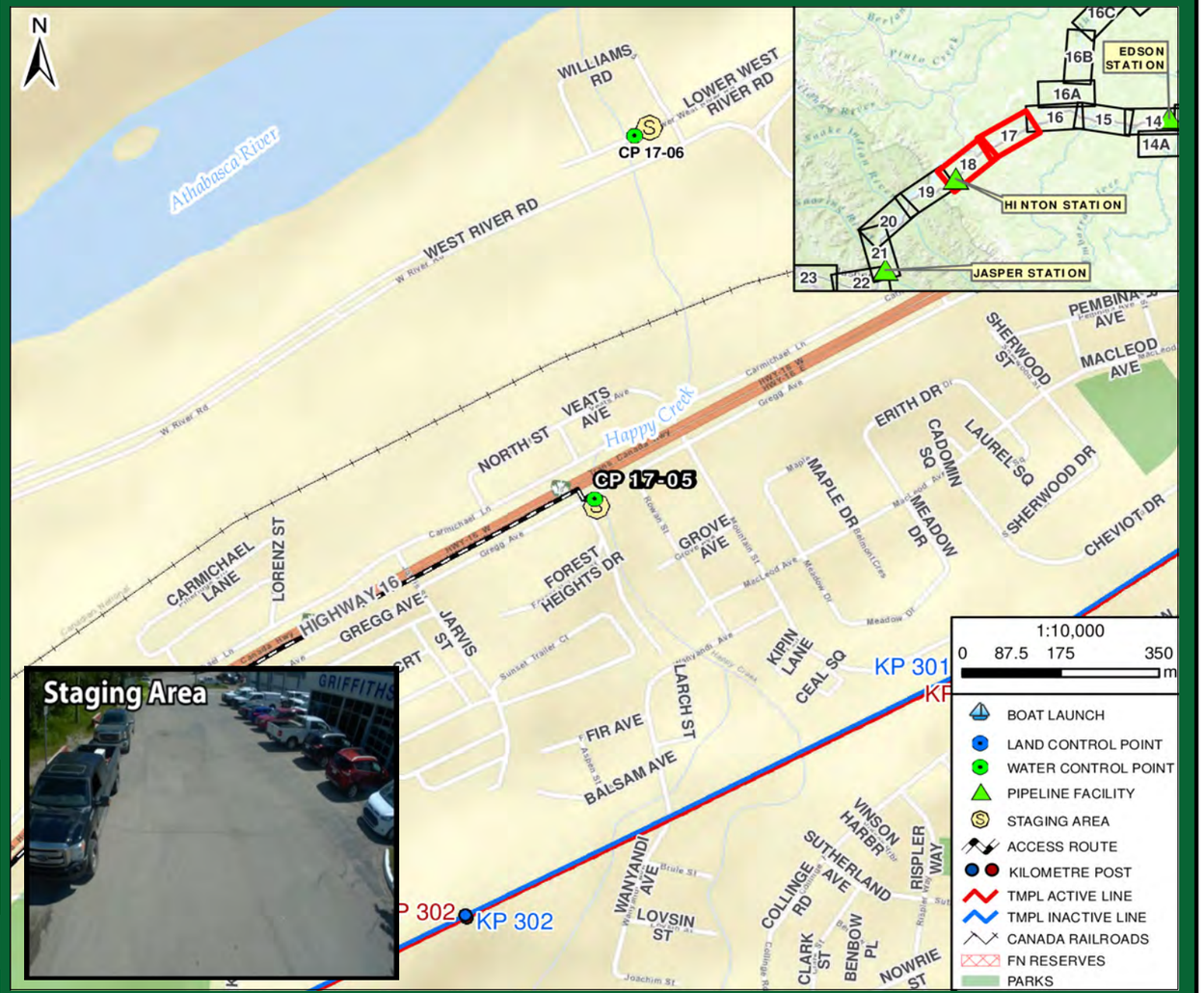
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing status could not be confirmed; potential barriers to migration, including the sunken road culvert that creates a 1 m waterfall at upstream entry point. Sufficient current with pockets of clean gravels, cobbles and riparian cover provide good spawning potential for salmonids; low rearing and overwintering habitat due to shallow depth, potential intermittent or frozen to bottom conditions during winter.
- Located along narrow, forested ravine in otherwise developed area of Hinton, providing habitat for riparian nesting birds and small mammals (e.g., voles, hare).
- Located in commercial/industrial area within the Town of Hinton, adjacent to busy community roads.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven shoreline use caution.
- The control point and staging area are located within the town of Hinton. Public may be present, site security recommended.
- Be aware of wildlife in the area. Overhead power lines exist in the staging area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 67.4 km
- In Hinton, turn right onto Forest Heights Dr for 21 m (towards Griffiths Ford)
- Turn left at the 1st cross street onto Gregg Ave (adjacent to Fountain Tire)
- Destination is Happy Creek
- Total Distance = 67.9 km
- Total Travel Time = 63 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-05



Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (1) 12" x 15' culvert at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 50' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 1.5 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	Track Hoe
1	Safety Watch	1	12" x 15' Culvert
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	5 Yards	Earthen Material or 25 Sandbags
1	Track Hoe Operator	1 / 50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout, bull trout, cutthroat trout)
- Deer, coyote, red fox, black bear, cougar, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-13

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-06

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.400160	
	Long: -117.604870	
Elevation:	974 m	
Land and Resource Use:	Private Land. Commercial.	
Upstream Valves:	**Line 01:** K296	
Downstream Valves:	**Line 01:** 30N	
Control Point:	**Upstream** CP 17-05	**Downstream** CP 17-04
Nearest KM Post:	**Line 01** KP 301	

Waterbody Information:

Waterbody Name: Happy Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width	1.5 m		
Depth	0.1 m		
Flow Velocity	1.8 km/hr		
FlowType	Low velocity frequently confined run along incised channel		

Waterbody description:
Low velocity run, frequently confined along well-defined incised channel with vertical banks averaging 0.5 m in height flowing downstream of culvert under Lower West River road. Creek is shallow (up to 0.3 m), and is likely susceptible to intermittent or frozen to bottom conditions during winter. Clear water at time of survey.

Shoreline Information

Bank Height:
0.5 m

Shoreline Composition and Slope:
Banks well defined, vertical but typically stable, becoming steep near culvert entrance, with moderately steep vegetated ravine approaches; more level around collection.

Shoreline Vegetation:
Saplings and young poplar, spruce and aspen; low density willow, abundant wild rose; abundant horsetail, less frequent grasses, tall buttercup, sweet clover, mixed vetch, goldenrod, fireweed.

Channel / Bank Forms:
Banks composed of organics underlain by fines; bed composed predominantly of cobbles and gravels.

Shoreline Comments:
Channel courses along small vegetated ravine containing commercial/industrial properties along backshore. CP accessed from Lower West River Road down moderately steep 2 m ravine approach, becoming level above vertical bank along RDB.

Logistical Information:

Staging Area Location:	- A staging area can be located along Lower West River Road. - 5 m x 30 m area. - All weather access is established.	
	Lat: 53.40021	Long: -117.60447
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point and staging areas located in the Town of Hinton, public may be present. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - The control point is located on private land. - L/O permission required prior to accessing the control point.	
Road Access/Type:	- Access off of Lower West River Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located on the downstream end of a culvert discharge.	

Decontamination Area:

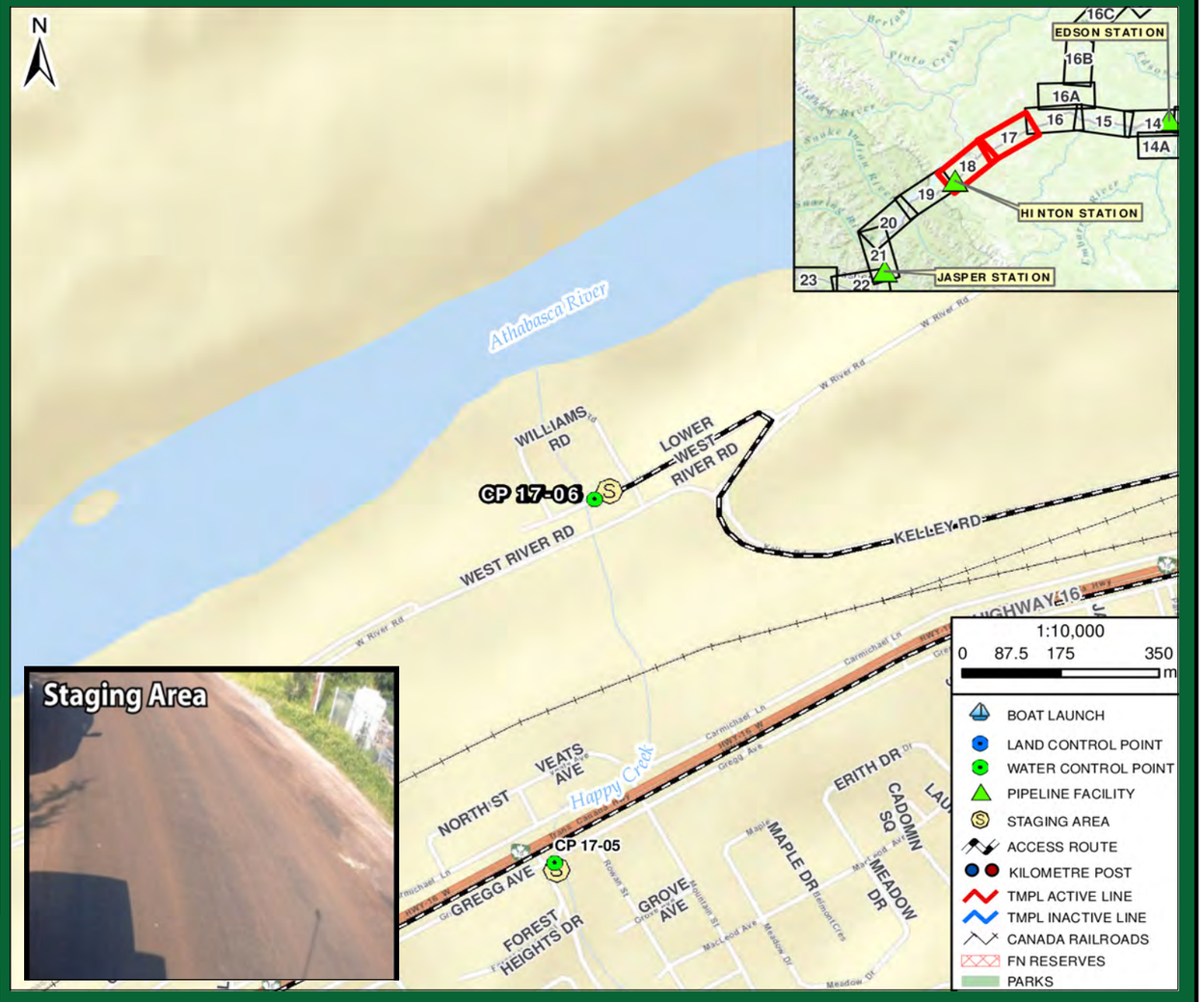
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Abundance of cobbles, clean gravels, lack of fines, riparian cover and sufficient current provide good spawning potential for salmonids; low rearing and overwintering habitat due to shallow depth, potential intermittent or frozen to bottom conditions during winter.
- Located along narrow, forested ravine in industrial area of Hinton, providing habitat for riparian nesting birds and small mammals (e.g., voles, hare).

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep banks, use caution around the shoreline.
- Be aware of wildlife in the area.
- Control point and staging areas are located within the town of Hinton, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 2.4 km
- Turn left onto Kelley Rd for 2.9 km keep right at the Y
- Turn left onto Lower West River Rd for 350 m
- Pull off from road to access creek (opposite Werner Heavy Equipment Repair Ltd)
- Destination is Happy Creek
- Total Distance = 73.9 km
- Total Travel Time = 68 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-13
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 17-06



Implementation Strategy:

- Using earthen material and/or sandbags create a crescent berm spanning the watercourse blocking water flow.
- Install (2) 12" x 15' culverts at the crescent berm bow at a 45° angle from upstream to downstream.
- Create a watertight seal with tarps and/or weighing down pipes with sandbags and/or earthen material.
- The angle of culverts should allow movement of the sub-surface water that has collected behind the crescent berm.
- Pooled surface water behind the crescent berm should remain stagnant.
- Recover product using a Drum skimmer, 50' rigid suction hose directly to a vacuum truck.

*A prefabricated steel Inverted Weir can be used instead of on-site construction.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 2 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1	Track Hoe
1	Safety Watch	2	12” x 15' Culvert
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	5 Yards	Earthen Material or 20 Sandbags
1	Track Hoe Operator	1 /50'	Power Pack / Hydraulic Line
		1	Vacuum Truck
9	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout, bull trout, cutthroat trout)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.378880	
	Long:	-117.651450	
Elevation:	965 m		
Land and Resource Use:	Crown Land. Recreational.		
Upstream Valves:	**Line 01:**	K296	
Downstream Valves:	**Line 01:**	30N	
Control Point:	**Upstream** CP 18-02		**Downstream** CP 17-04
Nearest KM Post:	**Line 01** KP 305		

Waterbody Information:

Waterbody Name: Maskuta Creek

Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		14 m	
Depth		0.4 m	
Flow Velocity		2.5 km/hr	
FlowType		Frequently confined low-moderate velocity riffle and run structure	

Waterbody description:

Containment located along run and tailout, transitioning to shallow riffles downstream. CP located along stretch of creek often forded in several locations by trucks and off-road vehicles, despite signage present informing not to. Clear water at time of survey.

Shoreline Information

Bank Height:
0.3 to 0.5 m

Shoreline Composition and Slope:
Banks typically gradual from motorized vehicle fording, steep elsewhere with often loose substrate; stable gravel backshores.

Shoreline Vegetation:
bare open areas with patches of young poplar and spruce, saplings/seedlings; patches of mixed shrubs (e.g., willow, shrubby cinquifoil, soopollalie); isolated occurrences and patches of yellow mountain aven, moss, oxeye daisy, goldenrod.

Channel / Bank Forms:
Both banks are predominantly composed of gravels and cobbles; bed composed of cobbles with less frequent gravels and boulders.

Shoreline Comments:
CP accessed from open gravel parking/day use area to gradually sloping bare banks becoming steeper, more vegetated upstream.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank. - 15 m x 20 m area. - All weather access is established.	
	Lat: 53.37913	Long: -117.65134
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - All weather access is established.	
Site Restrictions:	- There are no restrictions to the control point or staging area. - Security is recommended to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of West River Road. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular recreational area.	

Decontamination Area:

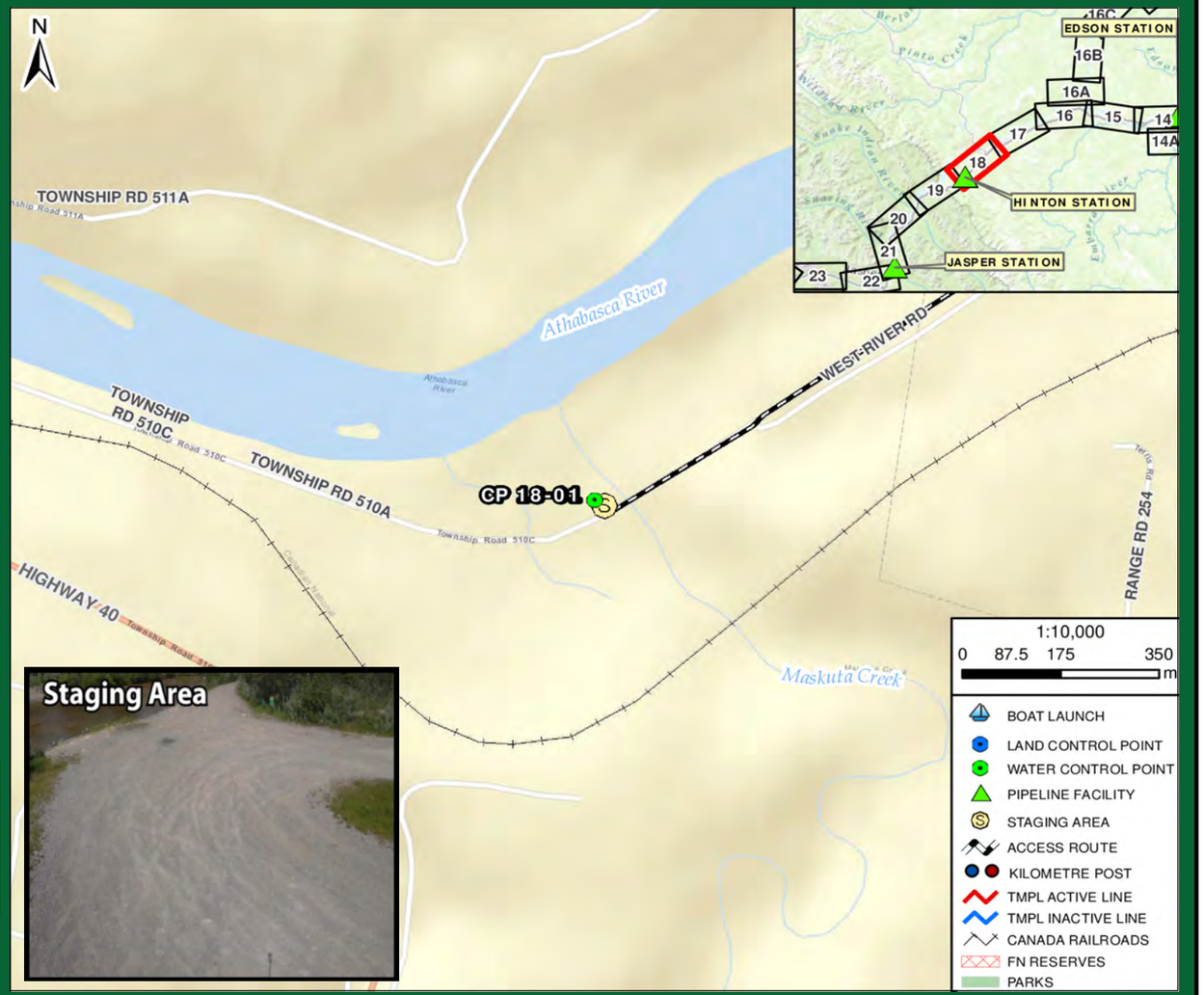
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with pockets of clean gravels, cobbles and riparian cover provide good spawning potential for salmonids; low rearing and overwintering habitat due to swift current and shallow depth.
- Riparian nesting birds.
- CP located at information parking/day use area, with occasional off-road vehicle and pedestrian (e.g., cycling, walking) use along backshore roads, including one extending downstream along RDB.
- There is a private storage/scrap yard upstream along RDB.
- Infrequent boating and fishing (creek often too shallow).
- Located in the Town of Hinton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven rocky shoreline use caution.
- Popular outdoor activity area, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 68.7 km
- In Hinton, Turn right onto Switzer Dr for 1.9 km
- Turn left onto Kelley Rd for 2.2 m
- Take slight left onto W River Rd and continue for 4 km until end of road
- Destination is Maskuta Creek
- Total Distance = 77.6 km
- Total Travel Time = 72 minutes calculated at 65 km/hr

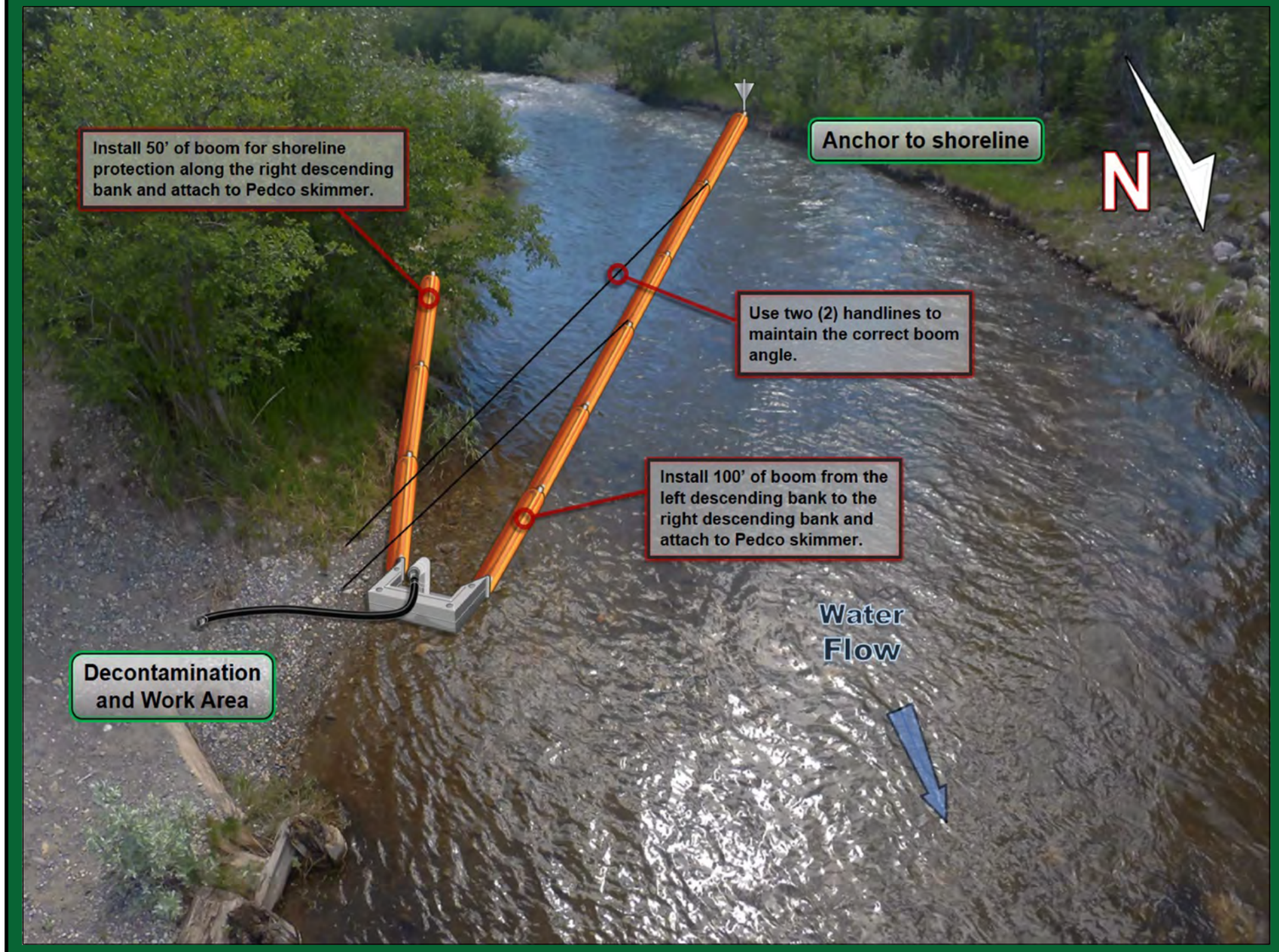
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-01



Implementation Strategy:

- Install 100’ of 3" x 3" hard containment boom from the left descending bank at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (2) 50' handlines from the 3" x 3" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 3" x 3" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 50’ of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 16 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	3" x 3" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	50 ' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.361100	
	Long: -117.650630	
Elevation:	1014 m	
Land and Resource Use:	Crown Land. Highway 16 Road Right-of-Way.	
Upstream Valves:	**Line 01:** K296	
Downstream Valves:	**Line 01:** 30N	
Control Point:	**Upstream** CP 18-03	**Downstream** CP 18-01
Nearest KM Post:	**Line 01** KP 306	

Waterbody Information:

Waterbody Name: Maskuta Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		18 m	
Depth		0.5 m	
Flow Velocity		1.0 km/hr	
FlowType		Frequently confined low-moderate velocity riffle and run structure c	

Waterbody description:
Frequently confined low-moderate velocity riffle and run structure coursing under Yellowhead Highway bridges with 3 m clearance. Containment located along run and tailout, transitioning to riffle chute downstream. Shoreline characteristics suggest typical high water mark up to 0.5 above water levels at time of survey. There is an exposed cobble bar along LDB across from collection. Low turbidity water at time of survey.

Shoreline Information

Bank Height:
0.4 to 0.8 m

Shoreline Composition and Slope:
Banks gradually sloping at ford crossing; becoming steep to overhanging upstream along soft, variable sedge dominated shorelines. Open grassy level/gradual backshore.

Shoreline Vegetation:
Open along highway easement with willow patches along bank, sedges along margins and grass, vetch, dandelion, false Solomon's seal, goldenrod; spruce dominated forest downstream with occasional poplar.

Channel / Bank Forms:
Both banks are predominantly composed of organics; bed composed of cobbles and boulders with less frequent fines and gravels.

Shoreline Comments:
CP accessed along off-road vehicle trail adjacent to highway, with collection located at gradual sloping ford crossing where creek widens, shallows along tailout. Upstream, banks become variable, partially obscured by dense sedges.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in the Highway 16 ditch. - 25 m x 60 m area. - Matting required to establish all weather access.	
	Lat: 53.36147	Long: -117.65002
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- There are no restrictions to the control point or staging area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular angeling and recreational area. - ATV crossing located at the control point.	

Decontamination Area:

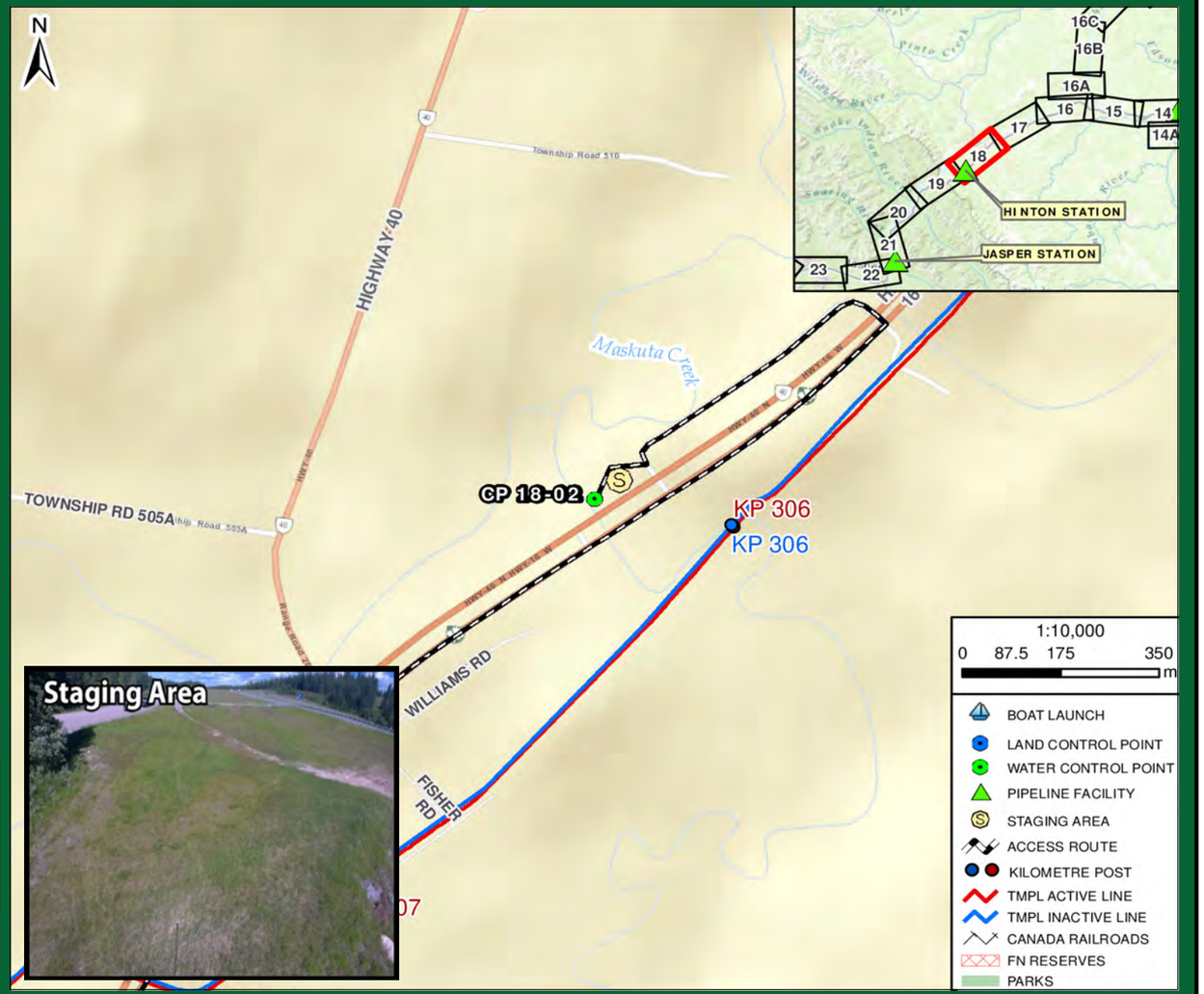
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential due to gravels and cobbles frequently covered in fines due to low current. Moderate rearing and overwintering potential in areas of deeper water along upstream extent of containment.
- There is an off-road vehicle trail and ford crossing at CP along highway easement. Infrequent boating and fishing (creek often too shallow).
- There is a horse pasture along RDB in forested area approximately 50 m downstream.
- Located in the Town of Hinton.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline use caution.
- Public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 63.2 km
- Around Entrance, Turn left onto forestry trunk road at around Range Rd 260
- The Forestry Trunk Rd is east of the CP access
- Access via foot onto, adjacent to highway
- Destination is Maskuta Creek
- Total Distance = 64.3 km
- Total Travel Time = 59 minutes calculated at 65 km/hr

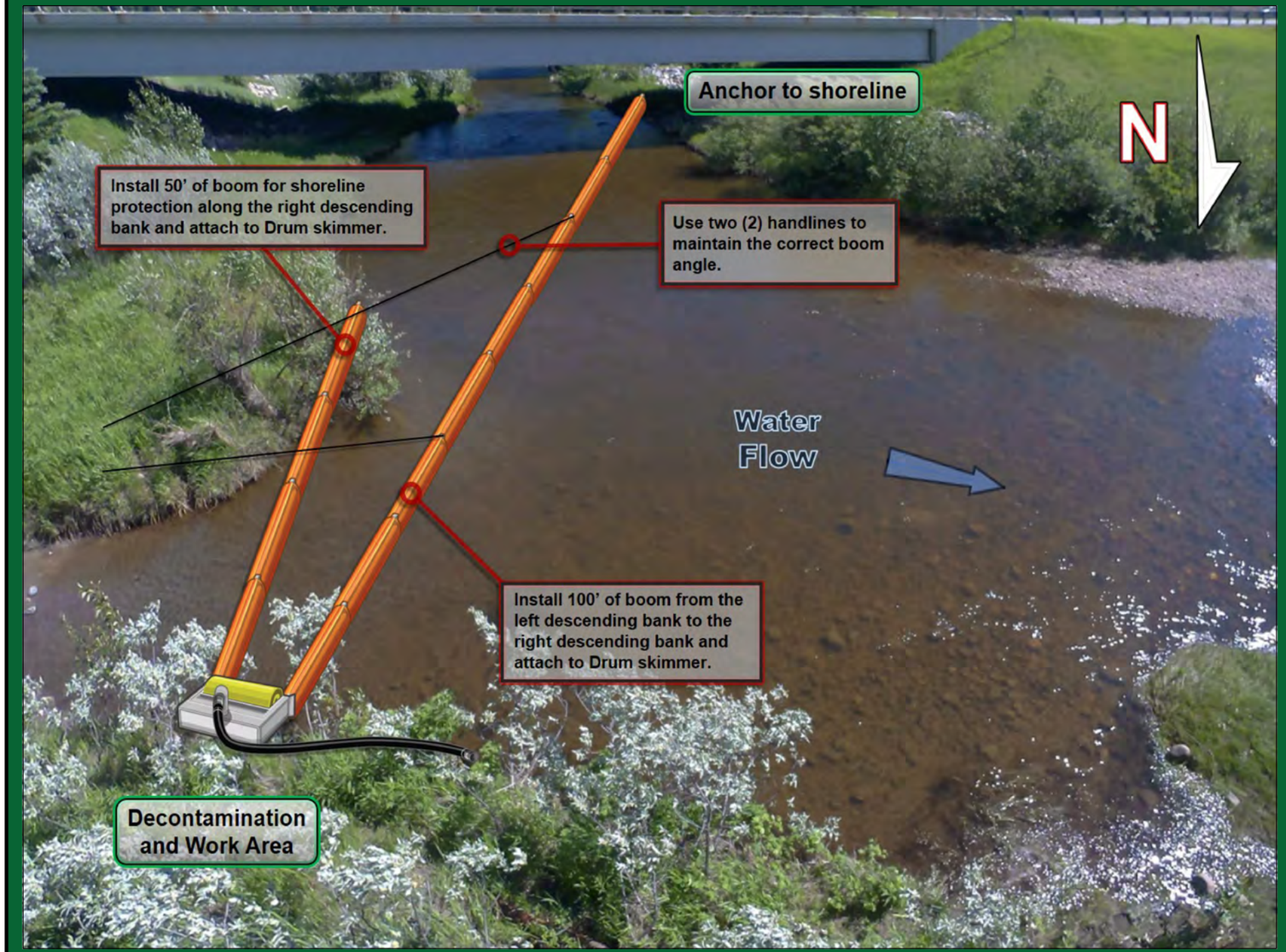
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-02



Implementation Strategy:

- Install 100' of 3" x 3" hard containment boom from the left descending bank at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (2) 100' handlines from the 3" x 3" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 3" x 3" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 250' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 22 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	3" x 3" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	250'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		4	100 ' Handline and Bridle
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-18

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.338990	
	Long: -117.665280	
Elevation:	1027 m	
Land and Resource Use:	Private Land. Recreational.	
Upstream Valves:	**Line 01:** K296	
Downstream Valves:	**Line 01:** 30N	
Control Point:	**Upstream** CP 18-04	**Downstream** CP 18-02
Nearest KM Post:	**Line 01** KP 309	

Waterbody Information:

Waterbody Name: Maskuta Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		10 m	
Depth		1.5 m	
Flow Velocity		1.5 km/hr	
FlowType		Confined low velocity sinuous run	

Waterbody description:

Confined low velocity sinuous run along open ranchland setting. There is a creek confluence at upstream extent of containment. Shoreline characteristics suggest typical high water mark up to 0.5 above water levels at time of survey. Moderate turbidity water at time of survey.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
Bank steep at collection, but typically vertical occasionally overhanging, variable but stable, often obscured by dense grasses and sedges, with stable open backshores.

Shoreline Vegetation:
isolated willow, mature spruce and seedlings along RDB; mature spruce along margins of LDB with willow patches; dense grasses (e.g., brome), sedges along margins, vetch, dandelion, false Solomon's seal, tall buttercup, Canada thistle.

Channel / Bank Forms:
Both banks are predominantly composed of organics; bed composed of fine sediments with submerged woody debris and occasional cobbles.

Shoreline Comments:
CP accessed from gravel road access to campground along gradually sloping 3 m approach densely vegetated with grasses, weeds to collection area along 1 m high steep bank, becoming vertical/overhanging upstream. Slips/trips/falls hazard along variable, obscured grass-sedge dominated banks and soft instream substrate containing submerged woody debris. Weeds present (Canada thistle and tall buttercup along RDB).

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in the KOA - RV storage lot. - 20 m x 120 m area. - Matting required to establish all weather access.	
	Lat: 53.33915	Long: -117.66451
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located on private land. - Landowner permission required before accessing control point. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16, 400 m down a private road. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular angeling location.	

Decontamination Area:

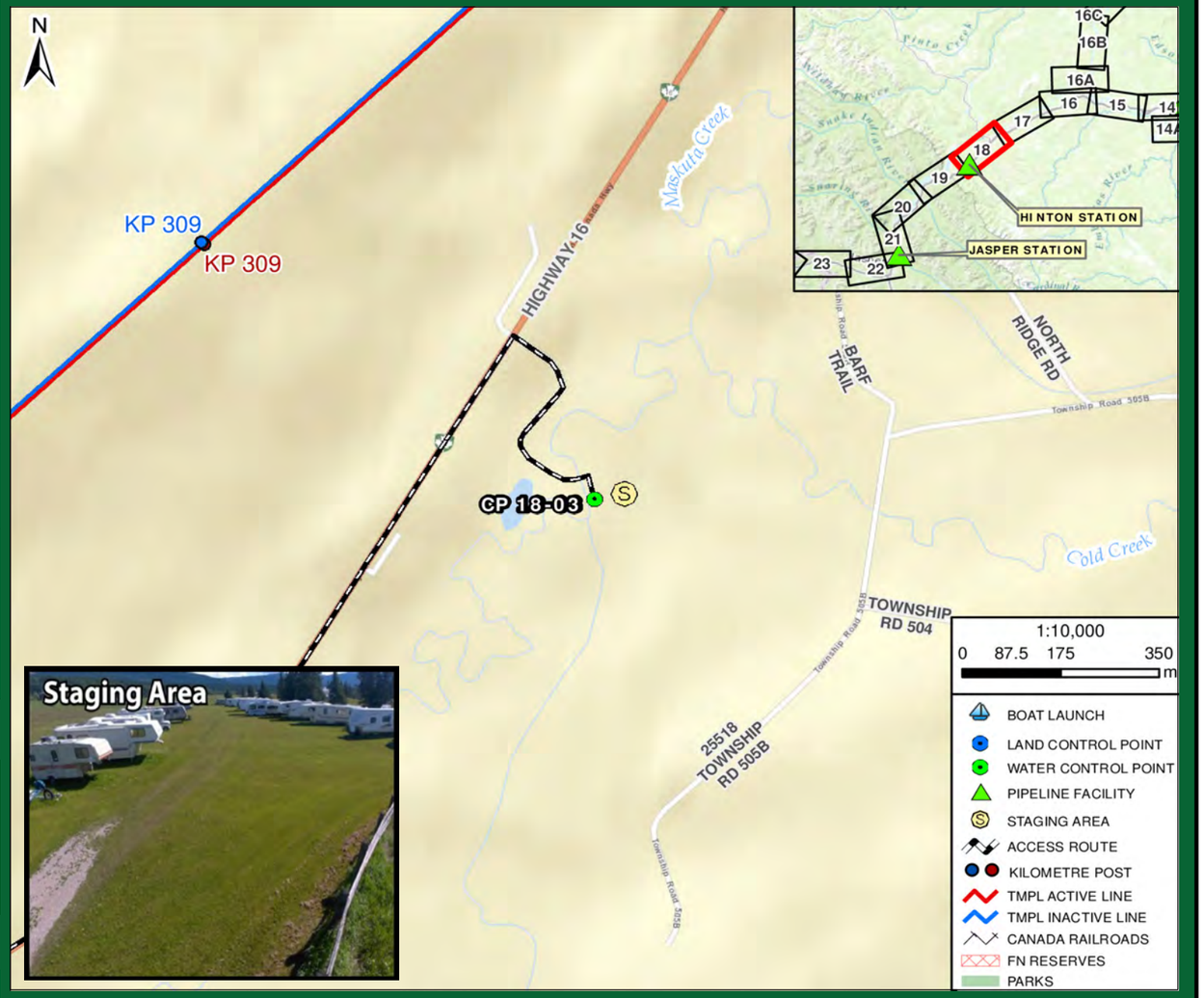
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines, lack of current; sufficient depth, shoreline cover and perennial flow provide moderate to good rearing and overwintering habitat.
- Habitat for water and shorebirds (e.g. sandpiper spp.), grassland birds, and forest and cavity nesting birds.
- Slow moving, open water areas provide good habitat for amphibians.
- KOA campground 200 m east of RDB; long-term camper storage yard along backshore RDB; ranchlands along LDB and downstream of bridge.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Uneven soft shoreline use caution.
- Control point borders KOA campground, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

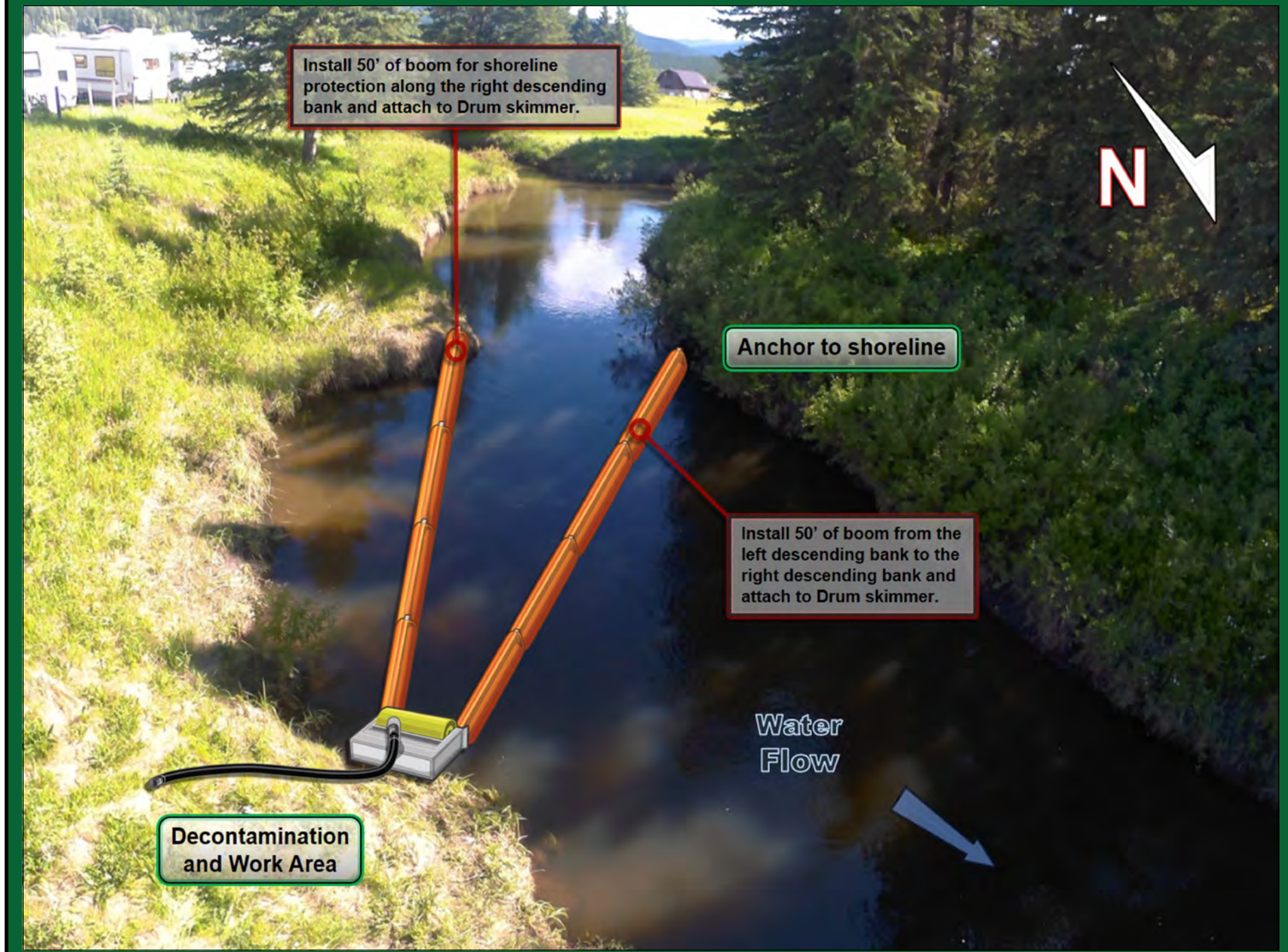
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 60.1 km
- Turn right for 400 m onto "Bar 'f' Ranch House" with creek access, signs to KOA Kampgrounds
- Destination is Maskuta Creek
- Total Distance = 61 km
- Total Travel Time = 56 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-18
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		250'	Rope
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic Line
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install a 12 m ice slot from the left descending bank to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., ring-necked duck, northern shoveler), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer), grassland birds (e.g., Savannah sparrow, horned lark, meadowlark)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-11

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.307570	
	Long: -117.705380	
Elevation:	1008 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:** 30N	
Downstream Valves:	**Line 01:** UV-0001	
Control Point:	**Upstream** N/A	**Downstream** CP 18-03
Nearest KM Post:	**Line 01** KP 313	

Waterbody Information:

Waterbody Name: Maskuta Creek
Waterbody Type: Creek

WATER LEVEL:	Low	Medium	High
Width		6 m	
Depth		1.5 m	
Flow Velocity		<0.5 km/hr	
FlowType		Confined low velocity sinuous run	

Waterbody description:

Confined low velocity sinuous run along semi-private group campground through mature to old growth spruce dominated forest. Beaver dams and large instream stranded logs located downstream. Shoreline characteristics suggest typical high water mark up to 0.5 above water levels at time of survey. Moderate turbidity water at time of survey.

Shoreline Information

Bank Height:
1 to 1.5 m

Shoreline Composition and Slope:
Bank steep with natural steps to collection, vertical and overhanging elsewhere, often obscured by grasses, but stable; with stable open LDB and open forested RDB.

Shoreline Vegetation:
Mature spruce dominated forest along RDB with isolated shrubs (e.g. willow, soopolallie) and dense grasses; isolated mature spruce along margins of LDB with isolated willow; dense grasses, horsetail and sedges along LDB; mowed areas, isolated mature spruce.

Channel / Bank Forms:
Both banks are predominantly composed of organics; bed composed of fine sediments with submerged woody debris and occasional cobbles.

Shoreline Comments:
CP accessed from high grade gravel road to campground along gradually sloping to level approach. Access to collection area along 1 m high steep bank, becoming vertical/overhanging upstream and downstream. Slips/trips/falls hazard along variable, obscured grass-horsetail-sedge dominated banks and soft instream substrate containing submerged woody debris.

Logistical Information:

Staging Area Location:	- The staging area can be located along the left descending bank in the Maskuta Creek Campground. - 25 m x 40 m area. - Matting required to establish all weather access.	
	Lat: 53.30763	Long: -117.70597
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Gated access to the staging area and control point. - The control point and staging area are located within Maskuta Creek Campground.	
Road Access/Type:	- Access off of Highway 16, through Maskuta Creek Campground. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the left descending bank to the right descending bank.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response.	

Decontamination Area:

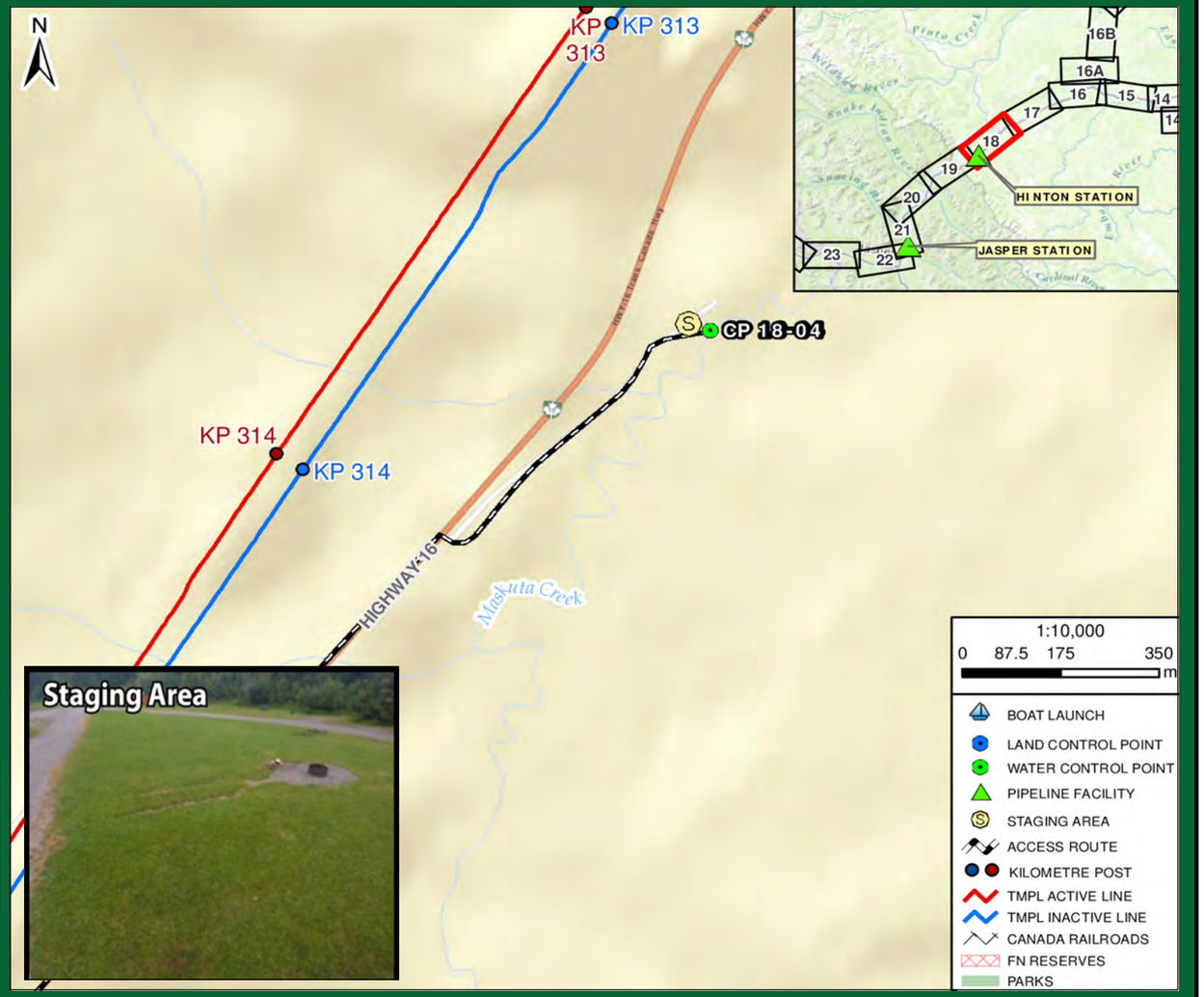
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning potential due to abundant fines, lack of current; sufficient depth, shoreline cover and perennial flow provide moderate to good rearing and overwintering habitat.
- Habitat for water and shorebirds (e.g. sandpiper spp.), grassland birds, and forest and cavity nesting birds.
- Slow moving, open water areas provide good habitat for amphibians.
- CP located in Maskuta Creek campground; campsites extend along LDB.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep banks, use caution around the shoreline.
- Be aware of wildlife in the area.
- The control point and staging area are located within Maskuta Creek Campground, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

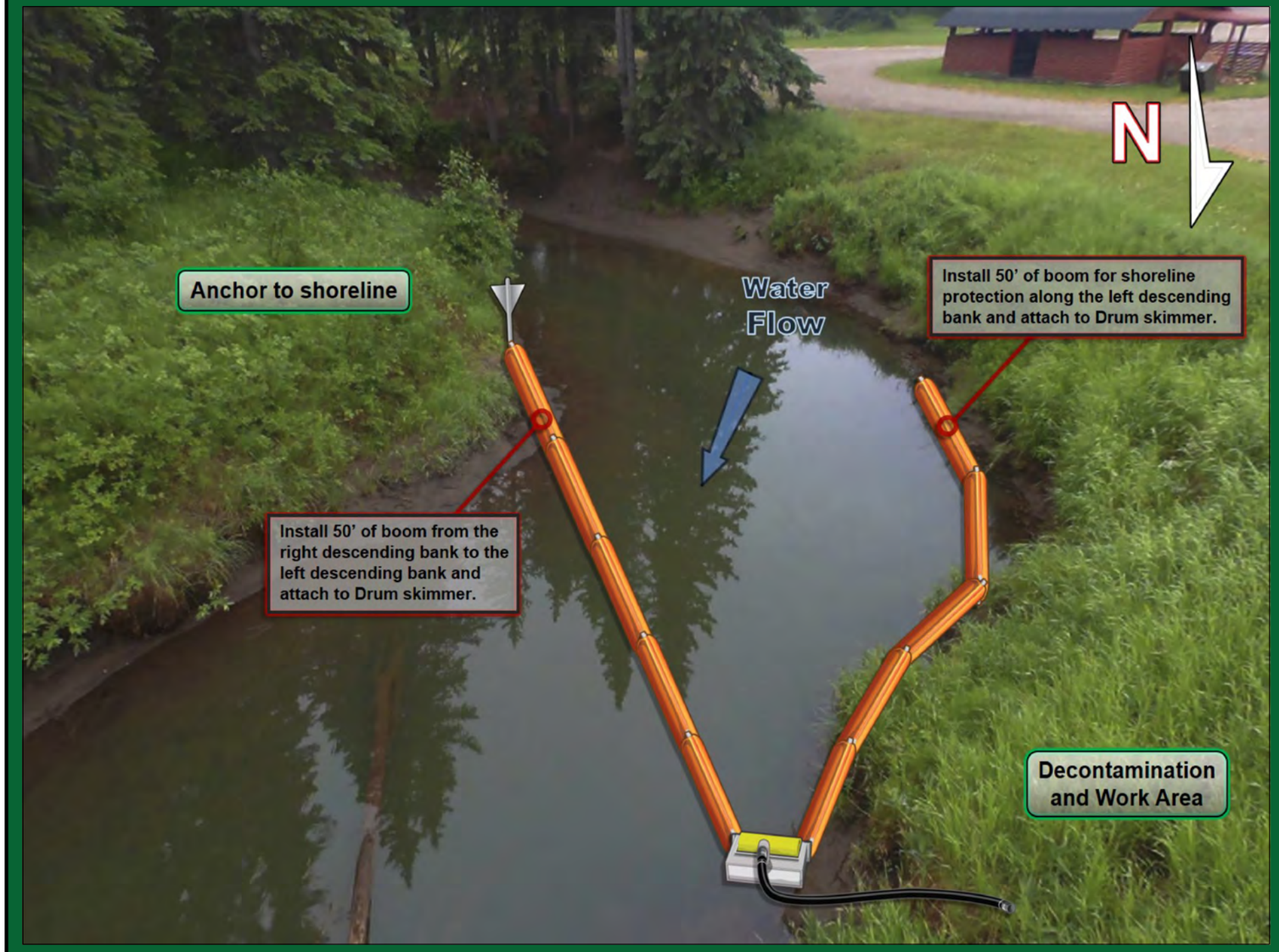
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 55 km
- Turn right for 500 m onto road towards Maskuta Creek Campground
- Destination is Maskuta Creek, accessed on right pathway
- Total Distance = 56 km
- Total Travel Time = 52 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-07-11
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 18-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	200'	6" x 6" Hard Containment Boom
1	Safety Watch	6	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Small Rubber Hull Work Boat
		1 / 50'	Power Pack / Hydraulic Line
		250'	Rope
		1	Vacuum Truck
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, cutthroat trout, Arctic grayling)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., ring-necked duck, northern shoveler), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer), grassland birds (e.g., Savannah sparrow, horned lark, meadowlark)

Implementation Strategy:

- Install 50' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck/portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Pending ice evaluation results, install an 8 m ice slot from the right descending bank to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-22
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 19-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.230090
	Long:	-117.865390
Elevation	989 m	
Upstream Valves:	**Line 01:** KL325	
Downstream Valves:	**Line 01:** KL332	
Control Point:	**Upstream** CP 19-03	**Downstream** CP 19-02
Nearest KM Post:	**Line 01** KP 327	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			60 m
Depth			Unknown
Flow Velocity			2.0 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:

Main current and depth along LDB, where river is confined along an exposed bedrock outcrop. Boat launch is composed of cobbles and gravels gradually sloping into sandy downstream eddy, created in part two large instream riprap boulders on upstream side. Boat launch located at the end of washed out, gated low grade access road to a single camp site and open parking area; camp site mostly used for overnight boat trips (e.g., canoe, raft). Moderate-high turbidity at time of survey. Located in Jasper National Park.

Logistical Information:

Road Access/Type:	- Access off of Highway 16, 3.5 km down a power line / Right-of-Way to the Brule river campground. - Matting required to establish all weather access.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in the Brule Campground area. - 10 m x 25 m area. - Matting required to establish all weather access. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
	Lat: 53.23009	Long: -117.86583
Site Comments:	- The boat launch is located in Jasper National Park. - Gated access to the boat launch. - During high water events the access road may become flooded. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required. - Security recommended.	

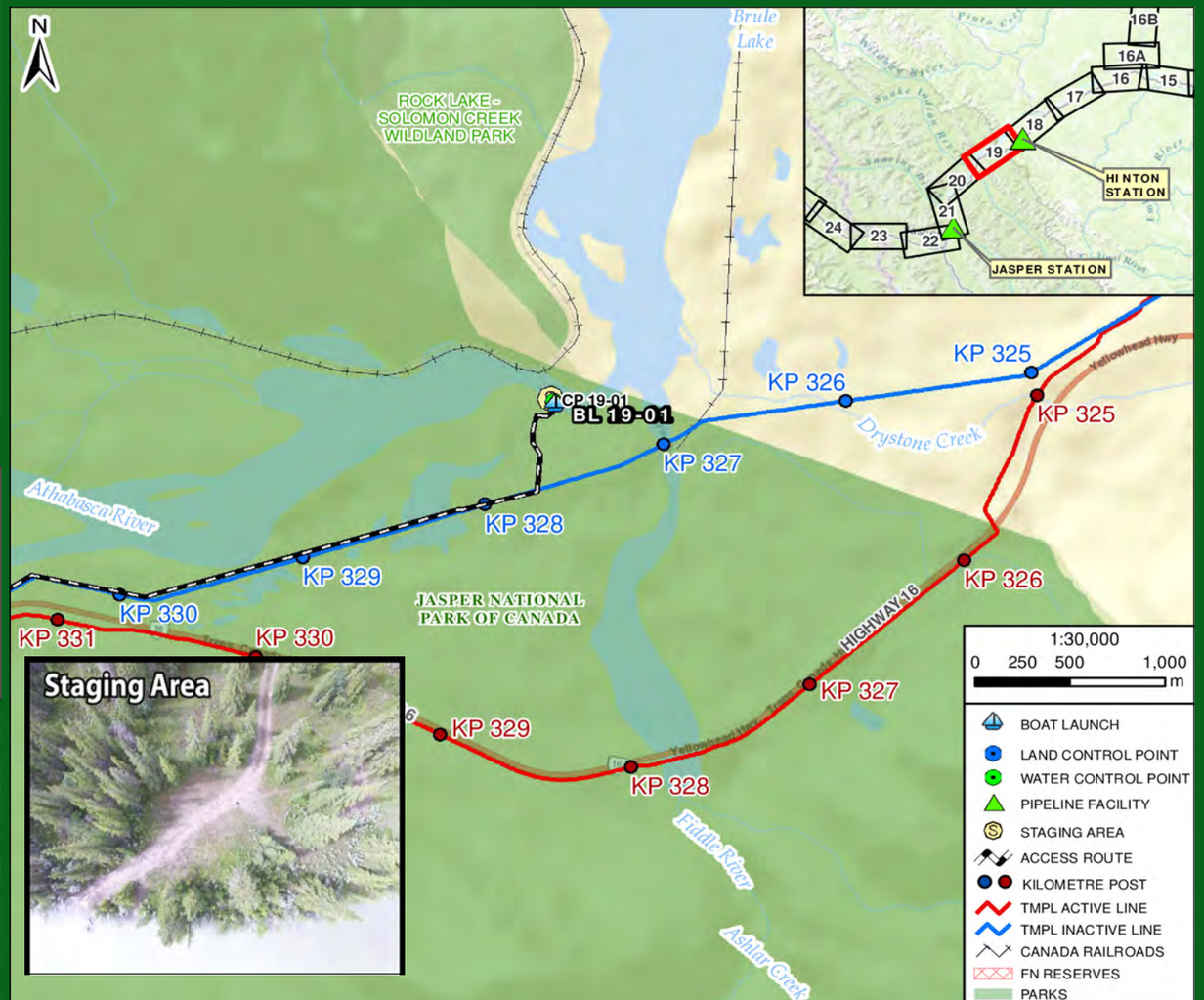
Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- The decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline. Overhead power lines are located along the access route.
- The boat launch is located in Jasper National Park, public may be present. Security recommended.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 37 km
- Near Pocahontas, turn off onto private access/clearing road, heading north towards river for 2 km
- Destination is boat launch onto Athabasca River
- Total Distance = 40.5 km
- Total Travel Time = 37 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-22

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 19-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.230130	
	Long: -117.865520	
Elevation:	990 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL325	
Downstream Valves:	**Line 01:** KL332	
Control Point:	**Upstream** CP 19-03	**Downstream** CP 19-02
Nearest KM Post:	**Line 01** KP 327	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			60 m
Depth			Unknown
Flow Velocity			2.0 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:
Frequently confined low velocity flat run structure with main current and depth along LDB, where river is confined along an exposed, very steep bedrock outcrop. Forested along RDB with occasional overhanging trees and stranded woody debris. There is a small creek confluence downstream of boat launch on RDB, and the confluence with Brule Lake is 500 m downstream. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1.5 to 2.5 m

Shoreline Composition and Slope:
LDB is very steep, uniform along bedrock outcrop; RDB typically low, steep to gradual around collection; overhanging/vertical up to 2.5 m high upstream, with level backshore.

Shoreline Vegetation:
Exposed bedrock along LDB with isolated spruce, kinnikinnick; open young to mature spruce forest along RDB with mixed shrubs (e.g., common juniper, wolf willow, alder, wild rose, soopolallie), moss, vetch, kinnikinnick, mountain aven, wood lily, red paintbrush.

Channel / Bank Forms:
LDB composed of bedrock; RDB composed of organics underlain by fines with less frequent gravels, cobbles along foreshore, and two large boulders on upstream side of boat launch to create eddy; bed transitions from fines to boulders and bedrock near LDB.

Shoreline Comments:
CP accessed along low grade road extending north from TMPL right-of-way, where sections of road washed out by creek, but still accessible with 4x4 vehicle with sufficient clearance. At end of road there is an open cleared area, single camp site and boat launch (CP19-5Hb). Along LDB, there is a railway tunnel through the exposed bedrock outcrop, entrance along upstream extent of containment.

Logistical Information:

Staging Area Location:	- A staging area can be located within the Brule Campground area. - 10 m x 25 m area. - Matting required to establish all weather access.	
	Lat: 53.23009	Long: -117.86583
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel. - Gated access to control point and staging. - During high water events the access road to the campground can become flooded.	
Road Access/Type:	- Access off of Highway 16, 3.5 km down a power line / Right-of-Way to the Brule river campground access. - Matting required to establish all weather access.	
Boat Access:	- Main boat access from BL 19-01. - Refer to BL 19-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 20-01. - Refer to BL 20-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular location for boat based camping.	

Decontamination Area:

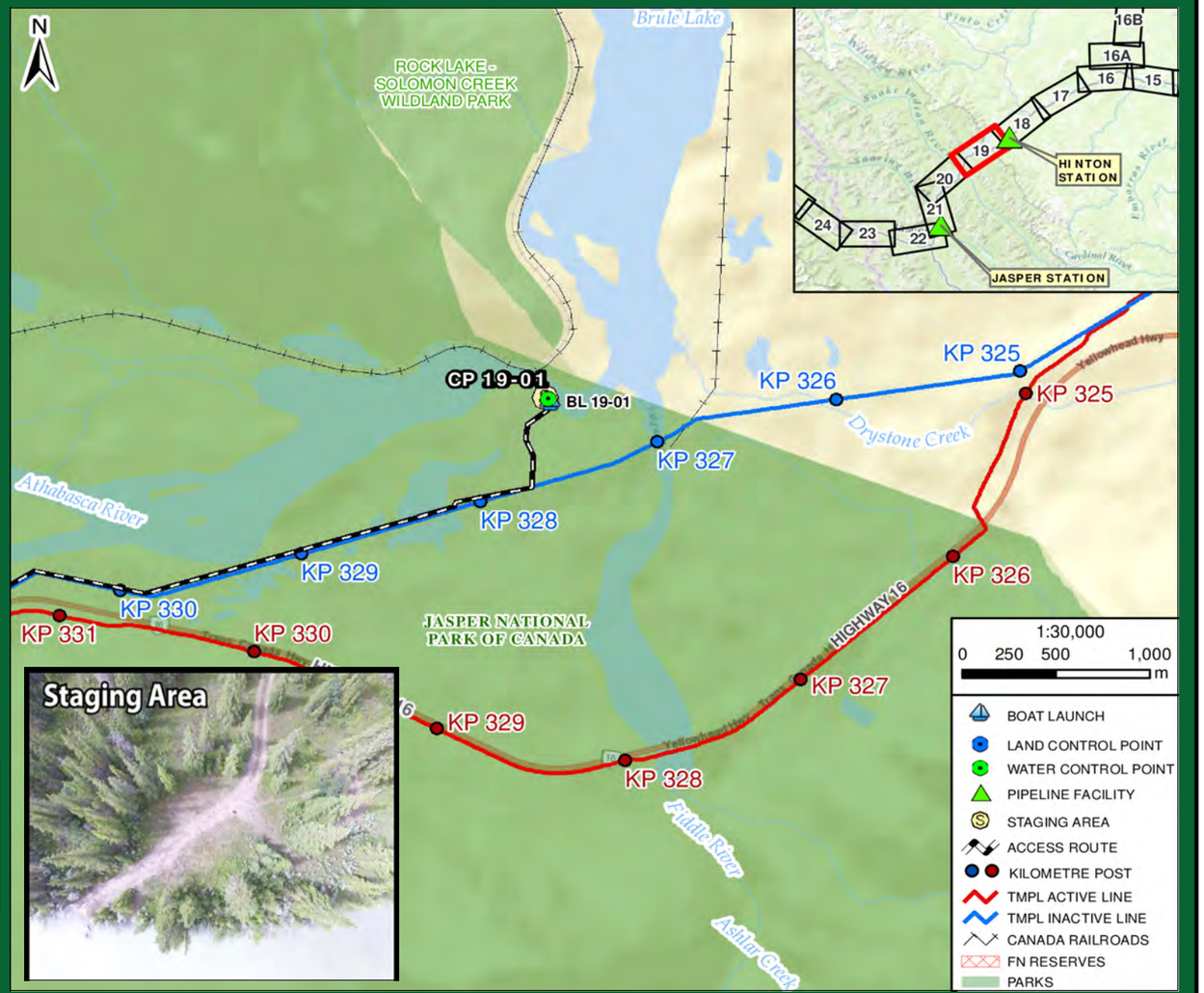
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Mixed hydrology and bank characteristics, with areas of swift current, pockets of gravels and cobbles, deep water eddies and shoreline cover provide moderate spawning, rearing and overwintering habitat for salmonids.
- Forest/cavity and riparian nesting habitat.
- CP located at the end of washed out, gated low grade access road to a single camp site and open parking area containing boat launch composed of mixed sands, gravels and cobbles; camp site likely used for overnight boat trips (e.g., canoe).
- Occasional recreational boating and fishing; Brule Lake accessed from boat launch.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Jasper National Park, public may be present.
- Be aware of wildlife in the area. Overhead power lines along access route.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 37 km
- Near Pocahontas, turn off onto private access/clearing road, heading north towards river for 2 km
- Destination is Athabasca River
- Total Distance = 40.5 km
- Total Travel Time = 37 minutes calculated at 65 km/hr

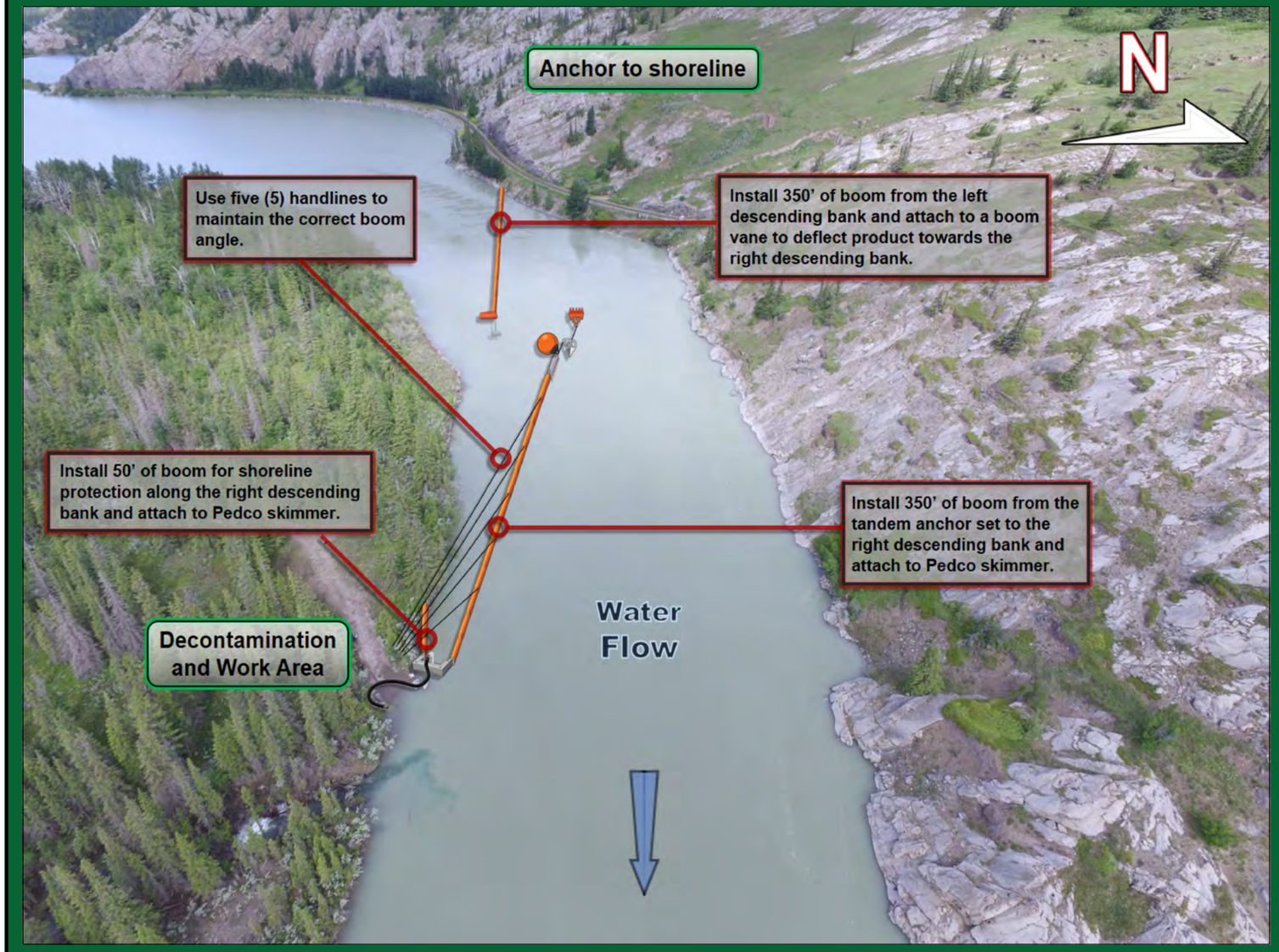
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-22
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 19-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	900'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	10	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 1	Rake Anchor / Sarca Anchor
		1	Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Implementation Strategy:

- Install 350' of 6" x 6" hard containment boom from the left descending bank and attached to a 0.5 m boom vane to deflect product to right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 350' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (5) 200' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product using a Pedco skimmer and 50' rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 40 m ice slot from the middle of the river at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-11

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 19-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.288342	
	Long: -117.852379	
Elevation:	998 m	
Land and Resource Use:	Crown Land. Recreational.	
Upstream Valves:	**Line 01:** KL325	
Downstream Valves:	**Line 01:** KL332	
Control Point:	**Upstream** CP 19-01	**Downstream** CP 17-04
Nearest KM Post:	**Line 01** KP 322	

Waterbody Information:

Waterbody Name: Brule Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width		1900 m	
Depth		Unknown	
Flow Velocity		N/A	
FlowType		Lake	

Waterbody description:

Brule lake is a well confined semi-secluded mountain lake located just outside of Jasper National Park, with mature spruce and shrub dominated mixedwood forest and occasional sand beaches. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
variable (1-100 m)

Shoreline Composition and Slope:
RDB is typically steep to vertical cliffs with open grass dominated, sandy foreshores; LDB typically gradual to steep sloped dominated by forest margins.

Shoreline Vegetation:
mature spruce dominated mixedwood forest with mixed shrubs (e.g. willow, wild rose, red-osier dogwood) along RDB; intermittent willows and patches of mixed grasses, sedges, and horsetail along foreshore from forest margins to waterline.

Channel / Bank Forms:
Bed and banks composed primarily of sand and fine sediments mixed with gravels, cobbles and boulders.

Shoreline Comments:
The lake is a popular low-impact/small vessel (e.g. canoeing, kayaking) destination with abundant multi-use trails (e.g. ATV, horseback, hiking, cross-country skiing) throughout the forested backshores and upland areas and informal/low-impact campsites.

Logistical Information:

Staging Area Location:	- The staging area can be located on the right descending bank in a popular camping area, additional staging available at BL 17-01. - 25 m x 40 m area. - All weather access is established.	
	Lat: 53.30685	Long: -117.80735
Work Area Location / Comments:	- The work area can be located on the left and right descending banks. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Boat access or off road access to Brule Lake only.	
Road Access/Type:	- Access off of Highway 16, down a lease road to the staging area. - All weather access is established. - Control point accessed by boat.	
Boat Access:	- Main boat access from BL 19-01. - Refer to BL 19-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 17-01. - Refer to BL 17-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - Control point is access by boat.	

Decontamination Area:

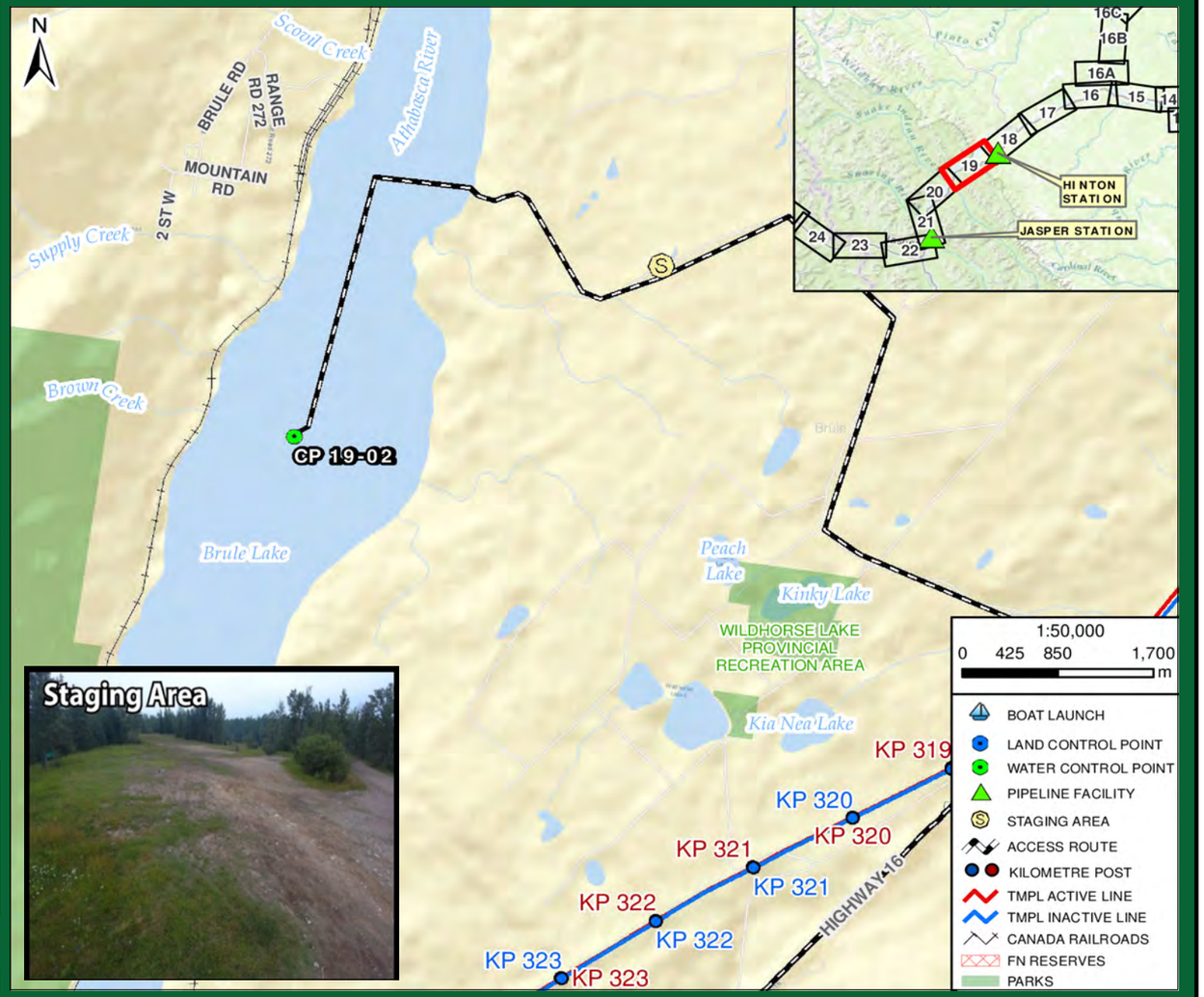
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Fish-bearing with species including bull trout, rainbow trout, mountain whitefish, and Arctic grayling; along the migratory corridor with good spawning habitat up and downstream along Athabasca River.
- Forest/cavity, riparian, and shorebird nesting habitat.
- Navigable lake used by small boats (e.g., kayaks, canoes) with access along the Athabasca River.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Steep banks to Brule Lake, use caution around the shoreline.
- Be aware of wildlife in the area.
- The control point and staging area are located in a popular water sports, angeling, and ATV area. Public may be present, site security is recommended.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 52 km
- Turn left onto private lease road towards Brule Campground River (sign for TMX4)
- Route is towards Staging Area at Brule Campground area and off road access to Brule Lake
- Destination is Brule Lake, accessed thru private lease road access
- Alternative access via boat launch at BL 19-01
- Total Distance = 62.8 km
- Total Travel Time = 68 minutes calculated at 65 km/hr

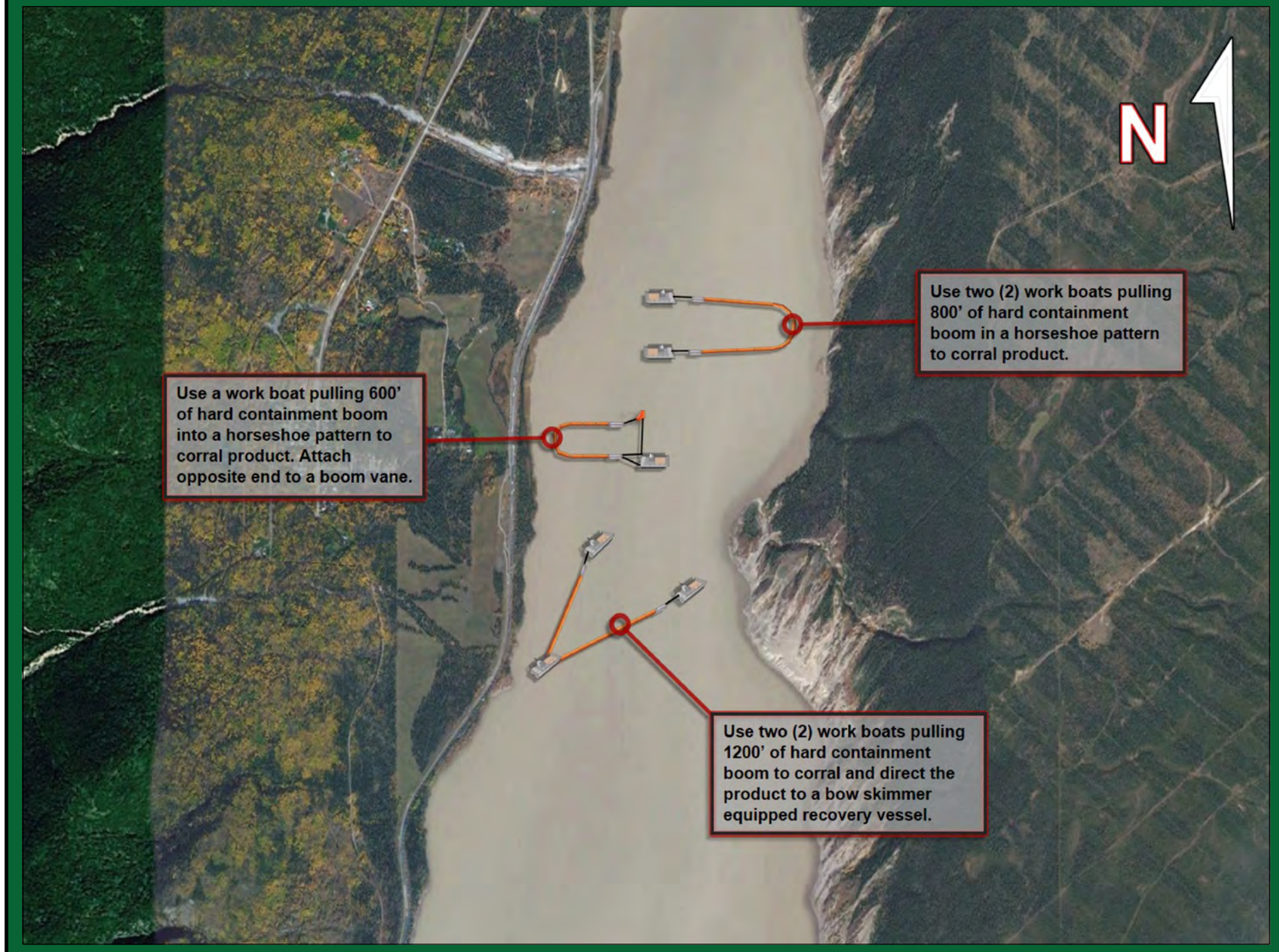
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-11
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 19-02



Implementation Strategy:

On-Water Recovery Techniques:
Corralling (This technique can be done with one boat, utilizing a 1.0 m deep draft boom vane, 600' of 18" x 12" hard containment boom):
- Use (2) work boats, pulling 800' of 18" x 12" hard containment boom in a horseshoe pattern to corral the product.
- Slowly bring product to shoreline recovery area.
- Attach the 18" x 12" hard containment boom ends to the shoreline using shoreline pins or trees. Recover product with Drum Skimmer directly to vacuum truck.

On-Lake Recovery:
- Use (2) work boats, pulling 1200' of 18" x 12" hard containment boom to corral and direct the product to bow skimmer equipped recovery vessel.
- Connect trailing ends of boom to bow of skimming vessel.
- Recover product with bow skimmer into on board containment. Transfer product at staging area or boat launch for disposal.
- Wind driven product movement will dictate shoreline protection placement and recovery areas along the lake shoreline.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	2800'	18” x 12” Hard Containment Boom
1	Safety Watch	1	1.0 m Boom Vane
8	Shoreline Personnel	2	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	1	Bow Skimmer Equipped Work Boat
1	Site Security	1000'	Tow Rope
6	Boat Captain	1 / 50'	Power Pack / Hydraulic Line
12	Boat Crew	6	Tow Bridle
1	Low Impact Recovery Unit Operator	1	Vacuum Truck
		5	Work Boat
		600'	Rigid Suction Hose
		10	Shoreline Pin
		5	Paravane
		1000'	Rope
31	**TOTAL**	1	Low Impact Recovery Unit

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-22

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 19-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.145590	
	Long: -117.981620	
Elevation:	1001 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL339	
Downstream Valves:	**Line 01:** KL353	
Control Point:	**Upstream** CP 20-01	**Downstream** CP 19-01
Nearest KM Post:	**Line 01** KP 341	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			114 m
Depth			Unknown
Flow Velocity			5.0 km/hr
FlowType			Frequently confined moderate velocity run structure

Waterbody description:

Main current and depth closer to LDB, where overhanging bank is actively eroded, evident by slumping substrate and frequent overhanging shrubs. River shallows along RDB along low banks and backshore that may become flooded during infrequent high water events. There is a small flowing side channel downstream of collection, becoming dry during lower water. Outflow of Jasper Lake located approximately 500 m upstream.

Shoreline Information

Bank Height:
Variable along RDB, up to 1 m; 2 to 3 m along LDB

Shoreline Composition and Slope:
LDB is often overhanging, up to 3 m high with level forested backshore. RDB is low, often gradual with level backshore with open areas of scouring rush and dense shrubby areas.

Shoreline Vegetation:
Open spruce forest along LDB with willow, alder along bank; dense wolf willow along RDB with scouring rush transitioning to spruce forest and mixed understory of creeping juniper, common juniper, kinnikinnick, moss, paintbrush, vetch, lady slipper, avens, lily.

Channel / Bank Forms:
Both banks typically composed or fine sediment underlain by cobbles along foreshore; bed composed predominantly of gravels, cobbles and boulders, with fine sediment more abundant along RDB.

Shoreline Comments:
CP accessed from well maintained gravel trail to gradually sloping exposed bank/foreshore area into typically shallow water, with stable cobble dominated substrate.

Logistical Information:

Staging Area Location:	- A staging area can be located in the Jasper House parking lot along Highway 16. - 10 m x 50 m area. - All weather access is established.	
	Lat: 53.14594	Long: -117.97707
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Low impact access recommended. - Access to the control point is down the Jasper House walking path. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16 - All weather access is established.	
Boat Access:	- Main boat access from BL 20-01. - Refer to BL 20-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 19-01. - Refer to BL 19-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - No cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The Jasper House is a popular location for hiking and sight seeing.	

Decontamination Area:

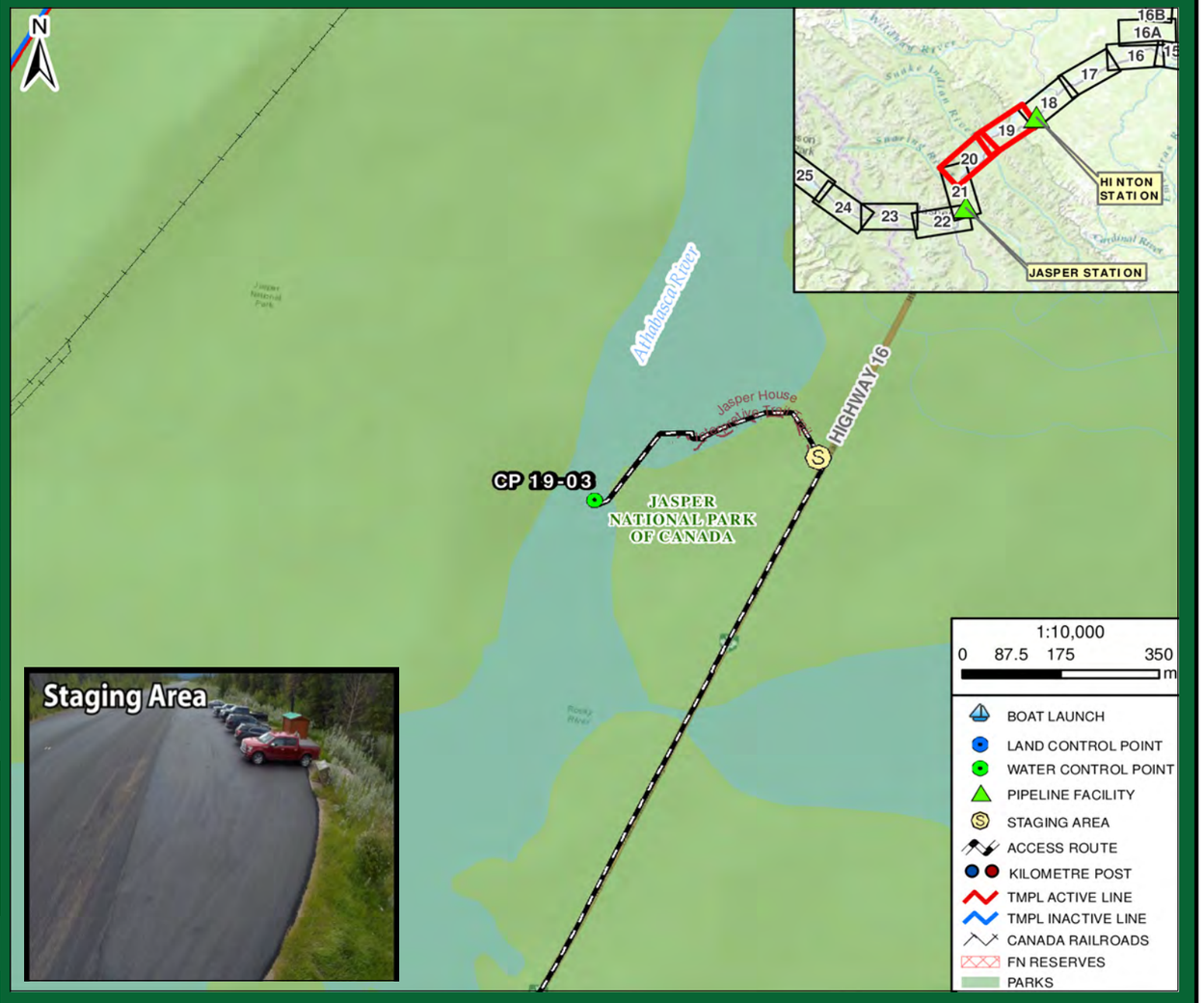
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with abundant clean gravels and cobbles provides good spawning potential for salmonids; low rearing and overwintering habitat.
- Dense shrub patches along RDB provide riparian nesting habitat. Shorebird feeding and nesting habitat along sediment banks/foreshores and shrub dominated level backshores.
- Forest and cavity nesting habitat along LDB. Elk observed during survey.
- CP located at Jasper House National Historic Site, at the end of an approximately 250 m gravel trail from highway rest area to lookout tower overlooking river.
- Occasional recreational boating and fishing, with Jasper Lake located approximately 500 m upstream.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point is within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 27 km
- Near Devona, turn off onto private access/clearing road, heading north towards river for 300 m
- Access is through a walking path to Jasper House from Highway 16
- Destination is Athabasca River
- Total Distance = 27.1 km
- Total Travel Time = 25 minutes calculated at 65 km/hrnutes calculated at 65 km/hr

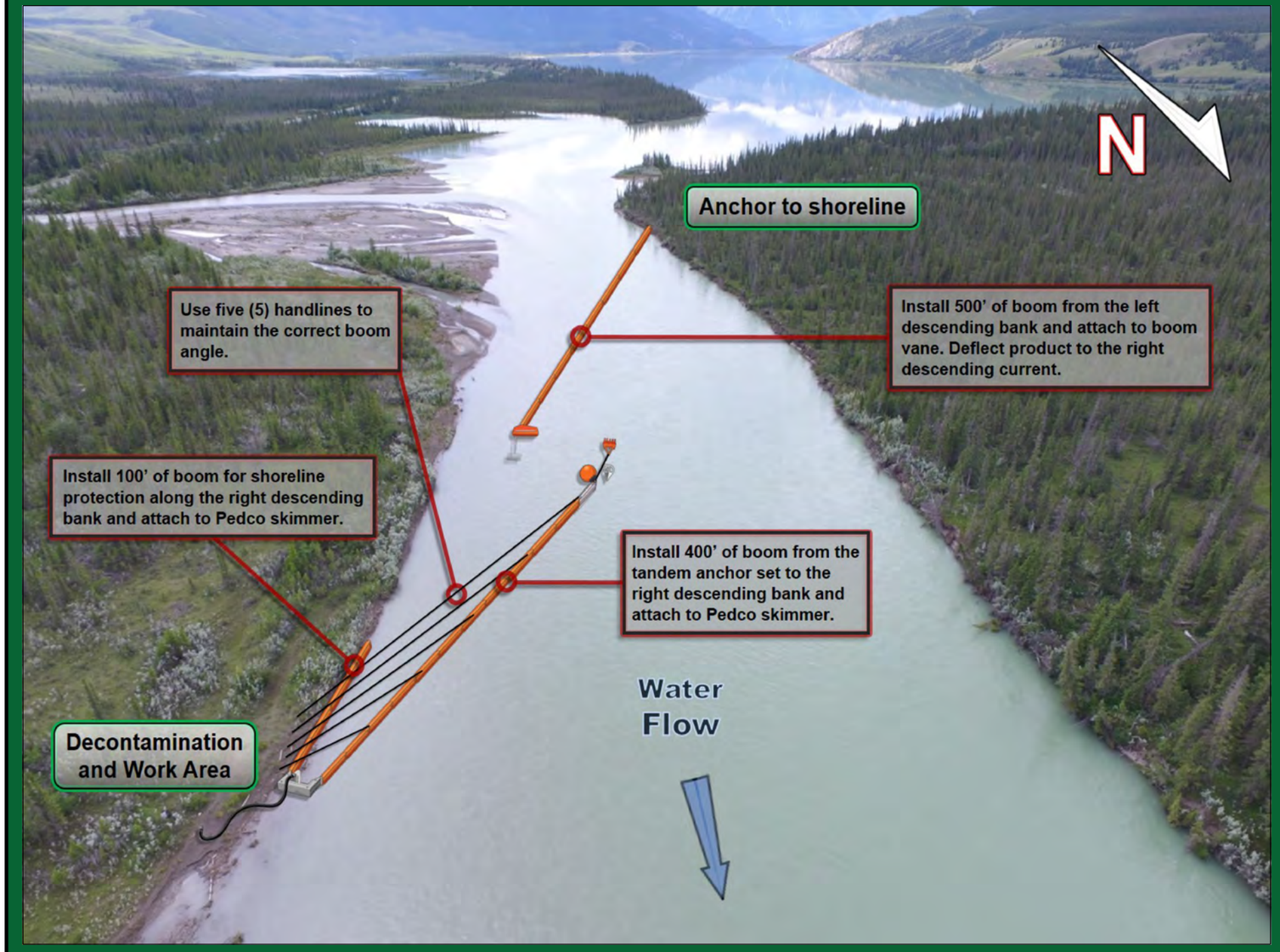
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-22
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 19-03



Implementation Strategy:

- Install 500' of 6" x 6" hard containment boom from the left descending bank and attached to a 0.50 m boom vane to deflect product to right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 400' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (5) 200' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product using a Pedco skimmer and 50' rigid suction hose directly to a portable tank or low impact recovery unit.
- Once product is recovered transport by boat to the nearby control point staging area (Jasper House parking lot) and offload.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 70 m ice slot from the middle of the river at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1200'	6" x 6" Hard Containment Boom
1	Safety Watch	14	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	10	200' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 1	Rake Anchor / Sarca Anchor
		1	0.5m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-22
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 20-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	53.039690
	Long:	-118.090810
Elevation	1041 m	
Upstream Valves:	**Line 01:** KL353	
Downstream Valves:	**Line 01:** K360	
Control Point:	**Upstream** CP 21-03	**Downstream** CP 20-02
Nearest KM Post:	**Line 01** KP 355	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			92 m
Depth			Unknown
Flow Velocity			5.0 km/hr
FlowType			Unconfined (braided) medium velocity run and riffle structure

Waterbody description:

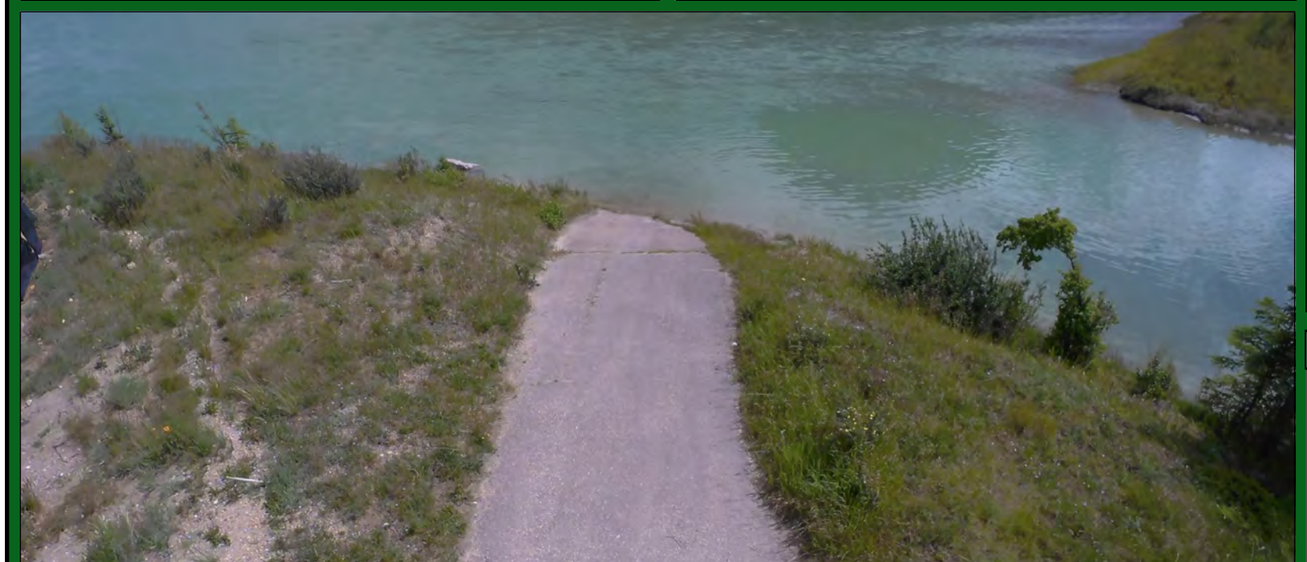
Unconfined (braided) medium velocity run and riffle structure with boat launch located upstream of highway bridge with 2.5 m clearance along shoreline eddy associated with backwater channel. Boat launch extends from gravel rest area down paved ramp, where it becomes eroded near waterline, dropping vertically 0.3 m to natural, gradually sloping but uneven, soft fine sediment substrate with occasional boulders. Moderate-high turbidity at time of survey.

Logistical Information:

Road Access/Type:	- Access directly off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located along the left descending bank in the boat launch parking lot. - 25 m x 40 m area. - All weather access is established. - Security is needed to keep out all nonessential personnel.	
	Lat: 53.03969	Long: -118.09081
Site Comments:	- The boat launch is located within Jasper National Park. - Sharp drop off at the end of the boat launch into the river, blocking required to avoid equipment damage. - The boat launch is located directly upstream of a bridge water crossing. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area to be located at the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point is located within Jasper National Park, public may be present. Security is recommended to keep out all nonessential personnel.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 11.9 km
- Pull off highway at gravel clearing at bridge just before crossing the Athabasca River
- Destination is boat launch just before the bridge adjacent to Morro Peak
- Total Distance = 12.2 km
- Total Travel Time = 11 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-22

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 20-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.088280	
	Long: -118.023230	
Elevation:	1003 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL339	
Downstream Valves:	**Line 01:** KL353	
Control Point:	**Upstream** CP 20-02	**Downstream** CP 19-03
Nearest KM Post:	**Line 01** KP 348	

Waterbody Information:

Waterbody Name: Jasper Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width			1400 m
Depth			Unknown
Flow Velocity			1.0 km/hr
FlowType			Narrow, shallow lake with marginal to low current associated with At

Waterbody description:

Jasper Lake is typically shallow, particularly along south end, situated along a broad, flat valley bottom, and experiences marginal northeast flow (1 km/h at time of survey) associated with Athabasca River. During lower water, lake becomes braided with shallow and exposed sand/gravel bars. Stranded woody debris and eroded strata along banks suggest typical high water 0.5 m above levels at time of survey. Water clear during survey

Shoreline Information

Bank Height:
1 m, poorly defined along gradual shorelines.

Shoreline Composition and Slope:
Much of RDB along 4 to 5 m steep, sandy highway approach become gradual to level along bank and foreshore. LDB often steep along exposed sand dunes and railway riprap.

Shoreline Vegetation:
Frequently exposed sandy banks and approaches with patches and isolated occurrences of spruce, poplar, mixed shrubs (e.g., common juniper, willow, alder, wild rose) and grasses.

Channel / Bank Forms:
Bed and bank substrate is predominantly composed of sands, riprap areas along railway of LDB, less frequent silts and gravels, and possible cobbles along deeper channels with increased current.

Shoreline Comments:
CP accessed along narrow pullout adjacent to highway, down steep, with occasional vertical sections, sandy 3 m approach becoming gradual along lower bank and foreshore composed of stable sandy substrate.

Logistical Information:

Staging Area Location:	- A staging area can be located in a pullout along Highway 16. - 15 m x 30 m area. - All weather access is established.	
	Lat: 53.089766	Long: -118.017409
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point and staging area located in Jasper National Park. - Control point is only feasible in high water conditions. In low water conditions implementation would need to be moved to the main channel. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 20-01. - Refer to BL 20-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 19-01. - Refer to BL 19-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - No cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Lake provides good rearing habitat, low overwintering potential due to typically shallow, braided conditions during winter low water levels.
- Shorebird feeding and nesting habitat along grassy sediment banks/foreshores and exposed bars during lower water.
- Lake provides migratory bird staging habitat.
- Occasional recreational boating and fishing and wildlife and landscape viewing along highway pullouts.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point is within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 19.2 km
- Pull off highway just past Edna Lake and at the beginning of Talbot Lake
- Destination is Jasper Lake, near south end of Talbot Lake
- Total Distance = 19.2 km
- Total Travel Time = 18 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-22
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 20-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1500'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1 / 100'	Power Pack / Hydraulic Line
4	Boat Captain	500'	Tow Rope
8	Boat Crew	1	Vacuum Truck
		4	Small Work Boat
		1	1.0 m Boom Vane
		1500'	18" x 12" Hard Containment Boom
		4	Tow Bridle
		3	Danforth Anchor
		60' / 50'	Ballast Chain / Rode Line
22	**TOTAL**	1	Marker Buoy

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, lesser yellowlegs)

Implementation Strategy:

On-Water Recovery Techniques:
Corralling (This technique can be done with one boat, utilizing a 1.0 m deep draft boom vane, 600' of 18" x 12" hard containment boom):
- Use (2) work boats, pulling 800' of 18" x 12" hard containment boom in a horseshoe pattern to corral the product.
- Slowly bring product to shoreline recovery area.
- Install 500' of 6" x 6" hard containment boom at a 30° angle from a Danforth anchor to the right descending bank and anchor to the shoreline.
- Install 500' of 6" x 6" hard containment boom for shoreline protection along the right descending bank.
- Recover product using a Drum skimmer and 50' rigid suction hose directly to a portable tank or low impact recovery unit.

Note: This technique will only work in high water conditions. In medium and low water conditions the implementation would have to be moved to the main channel.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-11

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 20-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.040040	
	Long: -118.090900	
Elevation:	1008 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL353	
Downstream Valves:	**Line 01:** K360	
Control Point:	**Upstream** CP 21-03	**Downstream** CP 20-01
Nearest KM Post:	**Line 01** KP 355	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			74 m
Depth			Unknown
Flow Velocity			4.5 km/hr
FlowType			Unconfined (braided) medium velocity run and riffle structure

Waterbody description:
Unconfined (braided) medium velocity run and riffle structure with CP located upstream of highway bridge with 2.5 m clearance. Channel forks upstream of CP, with containment located along the west channel. Exposed and shallow bars present during low water. During higher water mid-river island may become submerged. Jasper Lake confluence approximately 4 km downstream. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
Up to 1 m along LDB; up to 3 m along RDB

Shoreline Composition and Slope:
LDB typically gradual, steep in areas composed of loose and stable mixed substrate and riprap at rest area, level backshore; RDB composed of very steep, exposed bedrock.

Shoreline Vegetation:
Sparse, typically spruce, wolf willow, alder, scouring rush, sedges and grasses.

Channel / Bank Forms:
LDB composed of mixed fines to boulders and riprap; RDB composed of bedrock; bed composed predominantly of gravels, cobbles and boulders.

Shoreline Comments:
CP located at rest area on upstream side of bridge. Be aware of loose and slippery boulder riprap.

Logistical Information:

Staging Area Location:	- A staging area can be located along the left descending bank in the boat launch parking lot. - 25 m x 40 m area. - All weather access is established.	
	Lat: 53.03969	Long: -118.09081
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - All weather access is established.	
Site Restrictions:	- Control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 20-01. - Refer to BL 20-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of Highway 16 bridge water crossing.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Mixed hydrology and bank characteristics, with areas of swift current, pockets of gravels and cobbles, backwater areas provide moderate spawning, rearing and overwintering habitat for salmonids.
- Shorebird feeding and nesting habitat along grassy sediment banks/foreshores and exposed bars during lower water.
- Waterbird habitat.
- Occasional recreational boating and fishing; frequent wildlife and landscape viewing from rest area (particularly during summer months).
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep/fast water, use caution around the shoreline.
- Be aware of wildlife in the area.
- Control point and staging area are located in Jasper National Park, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

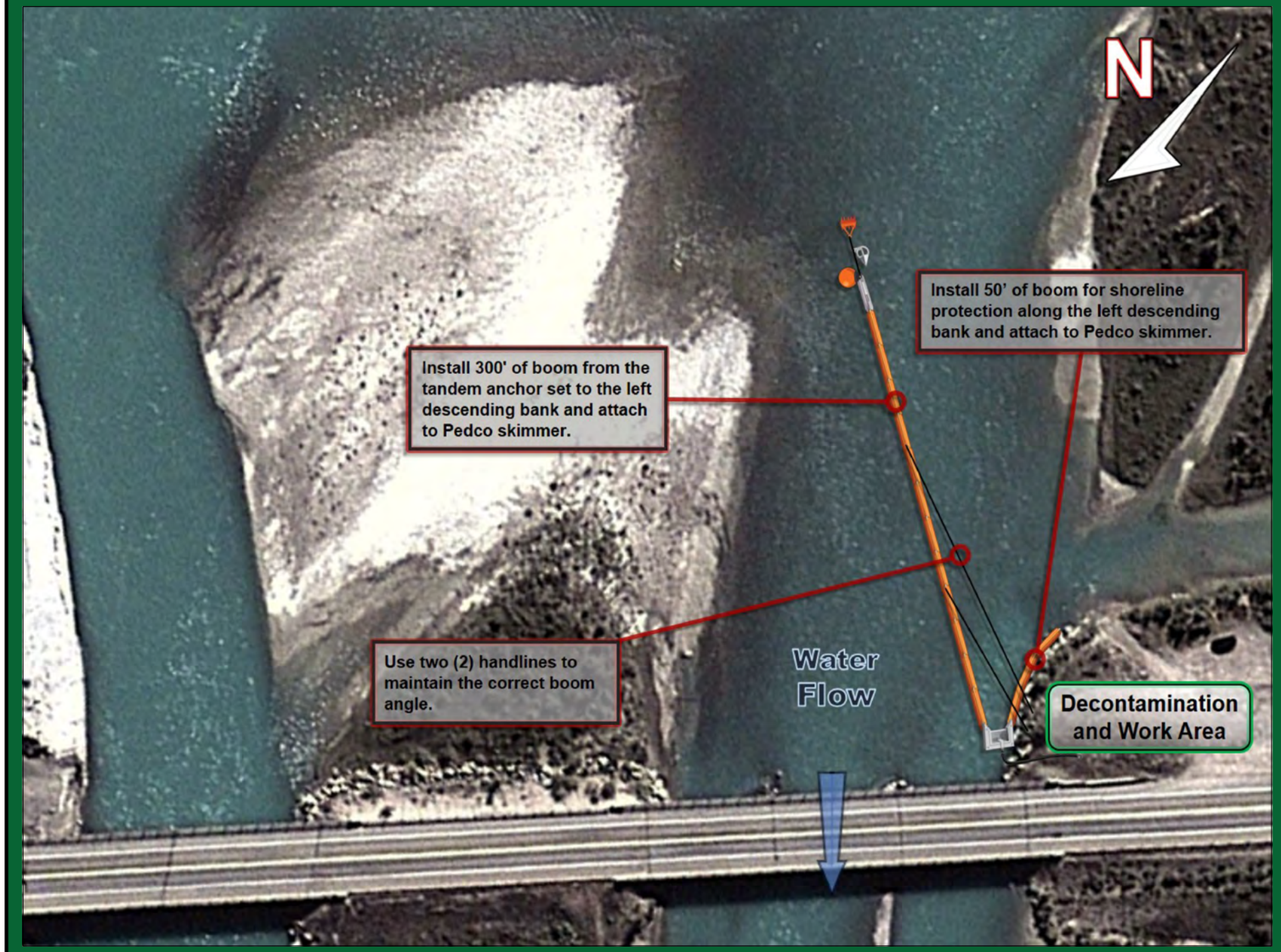
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 11.9 km
- Pull off highway at gravel clearing at bridge just before crossing the Athabasca River
- Destination is the Athabasca River just before the bridge adjacent to Morro Peak
- Total Distance = 12.2 km
- Total Travel Time = 11 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-07-11
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 20-02



Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 300' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (2) 100' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install an 80 m ice slot from an island midstream of the river at a 15° angle to the left descending bank. Recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	450'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	1	Marker Buoy
4	Boat Crew	4	100' Handline and Bridle
		1	Vacuum Truck
		2	Work Boat
		2	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	50' Rode Line
14	**TOTAL**	1	Paravane

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, lesser yellowlegs)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-12

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 20-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.041260	
	Long: -118.088810	
Elevation:	1006 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL353	
Downstream Valves:	**Line 01:** K360	
Control Point:	**Upstream** CP 21-03	**Downstream** CP 20-01
Nearest KM Post:	**Line 01** KP 355	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			48 m
Depth			Unknown
Flow Velocity			4.2 km/hr
FlowType			Unconfined (braided) medium velocity run and riffle structure

Waterbody description:
Unconfined (braided) medium velocity run and riffle structure with CP located upstream of highway bridge with 2.5 m clearance. Channel forks upstream of CP, with containment located along the east channel. Exposed and shallow bars present during low water. During higher water mid-river island may become submerged. Jasper Lake confluence approximately 4 km downstream. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
Up to 1 m along LDB; up to 3 m along RDB

Shoreline Composition and Slope:
LDB typically gradual, steep in areas composed of loose and stable mixed substrate and riprap at rest area, level backshore; RDB composed of very steep, exposed bedrock.

Shoreline Vegetation:
Sparse, typically spruce, wolf willow, alder, scouring rush, sedges and grasses.

Channel / Bank Forms:
LDB composed of mixed fines to boulders and riprap; RDB composed of bedrock; bed composed predominantly of gravels, cobbles and boulders.

Shoreline Comments:
CP located at rest area on upstream side of bridge. Be aware of slippery bedrock descending into deep water.

Logistical Information:

Staging Area Location:	- A staging area can be located along the right descending bank in a rest area parking lot. - 15 m x 80 m area. - All weather access is established.	
	Lat: 53.04178	Long: -118.08779
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - All weather access is established.	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Steep rocky access to the control point from the staging area. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 20-01. - Refer to BL 20-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of a bridge along Highway 16.	

Decontamination Area:

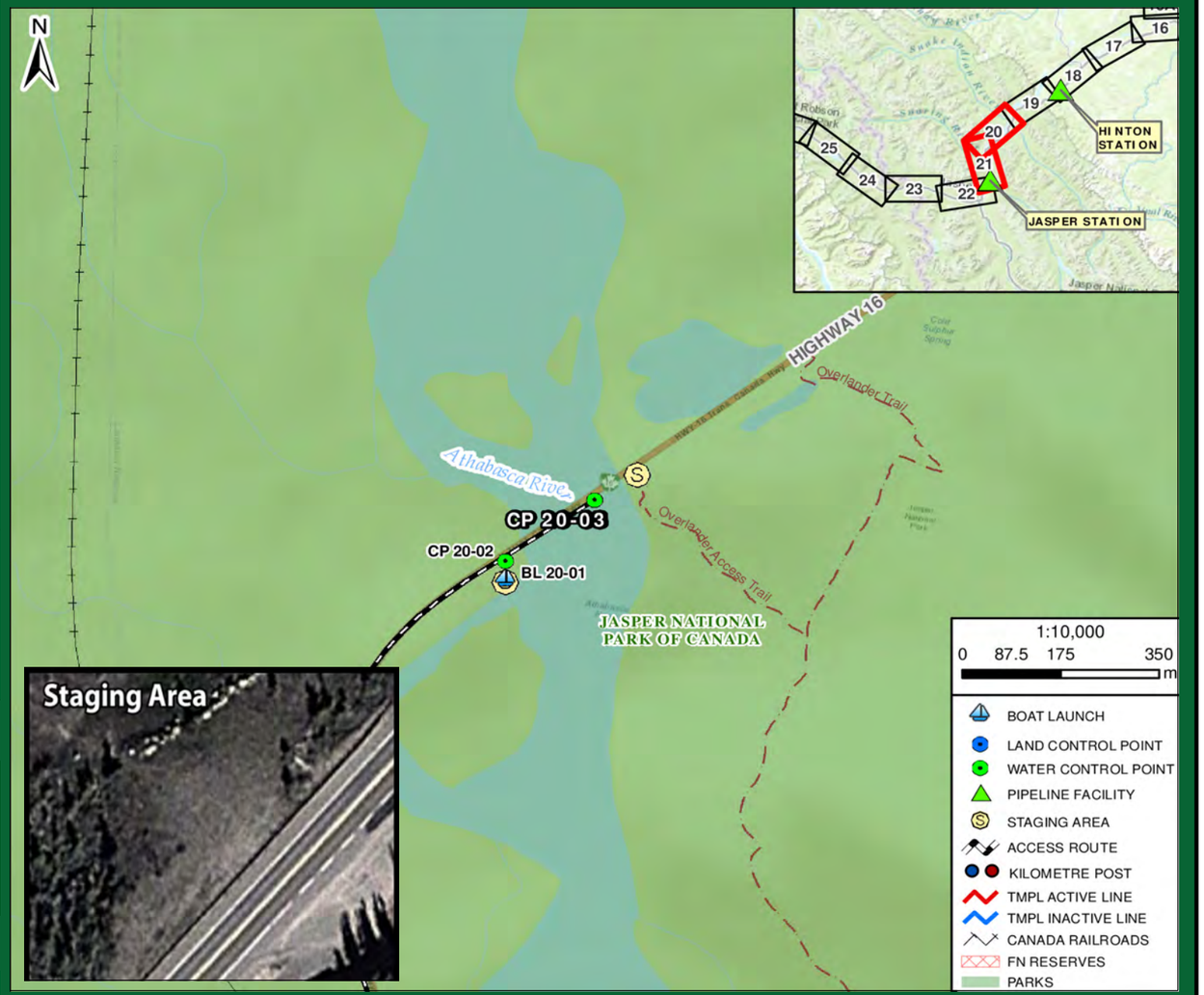
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Mixed hydrology and bank characteristics, with areas of swift current, pockets of gravels and cobbles, backwater areas provide moderate spawning, rearing and overwintering habitat for salmonids.
- Shorebird feeding and nesting habitat along grassy sediment banks/foreshores and exposed bars during lower water.
- Waterbird habitat.
- Occasional recreational boating and fishing; frequent wildlife and landscape viewing from rest area (particularly during summer months).
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Be aware of wildlife in the area.
- The control point and staging area is located within Jasper National Park, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

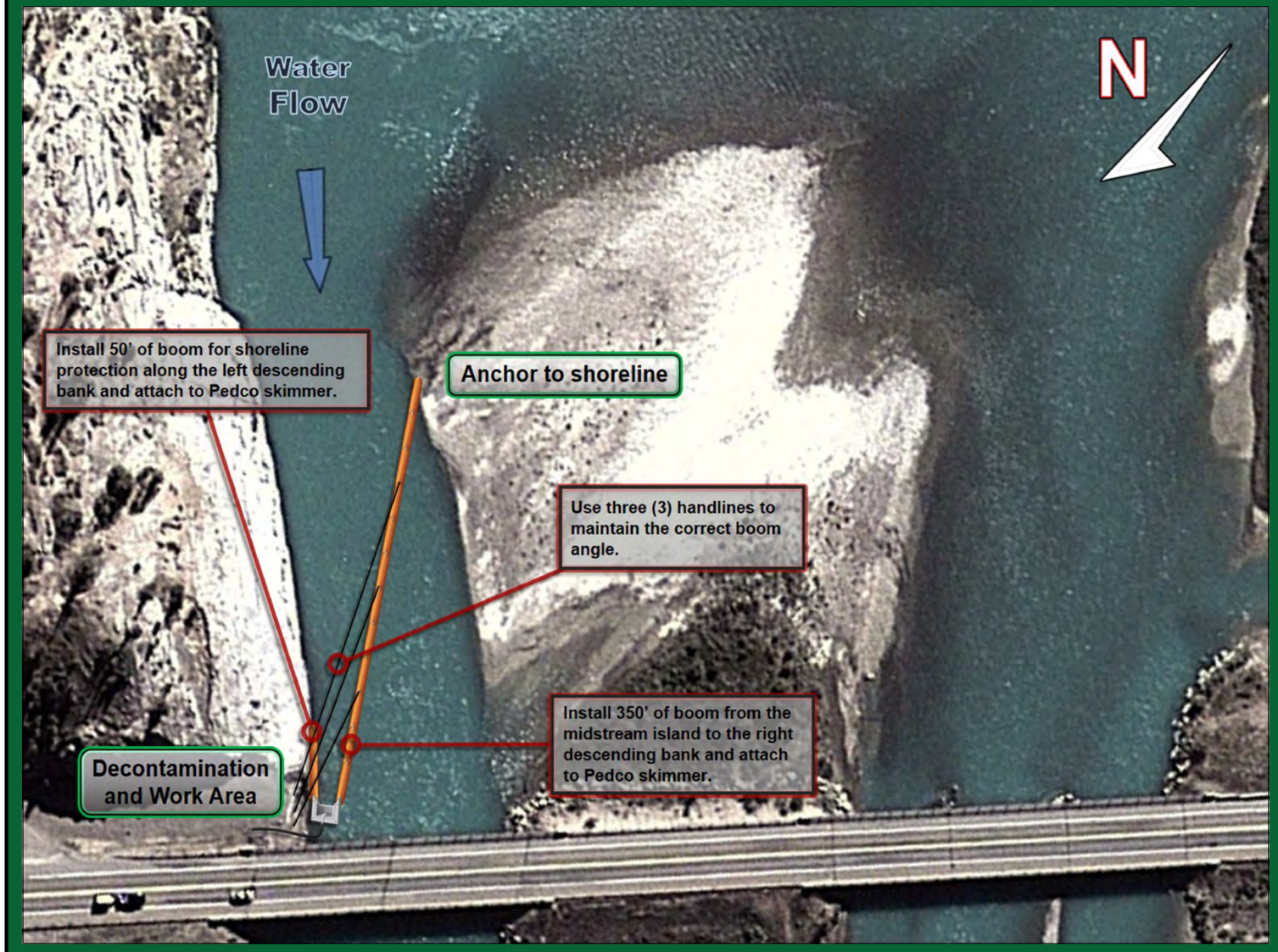
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 11.9 km
- Pull off highway at gravel clearing after crossing the Athabasca River
- Destination is the Athabasca River just after the bridge adjacent to Morro Peak
- Total Distance = 12.2 km
- Total Travel Time = 11 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-07-12
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 20-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	550'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	1	Marker Buoy
4	Boat Crew	6	150' Handline and Bridle
		1	Vacuum Truck
		2	Work Boat
		2	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	50' Rode Line
14	**TOTAL**	1	Paravane

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., skunk, porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck), blue heron
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer, lesser yellowlegs)

Implementation Strategy:

- Install 350' of 6" x 6" hard containment boom from the midstream island at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (3) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 60 m ice slot from the midstream island at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 21-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	52.995960	
	Long:	-118.052640	
Elevation	1007 m		
Upstream Valves:	**Line 01:**	24B	
Downstream Valves:	**Line 01:**	KL363	
Control Point:	**Upstream**	**Downstream**	
	CP 21-03	CP 20-02	
Nearest KM Post:	**Line 01**		
	KP 364		

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			240 m
Depth			Unknown
Flow Velocity			2.5 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:

Frequently confined low velocity flat run structure with even current across width. Boat launch appears infrequently used, accessed along narrow gravel road descending from a group day use/camp site above approach. Boat launch is gradually sloping, typically stable, composed of grasses and gravels, becoming soft, uneven along shallow submerged foreshore. Be aware of shallow submerged sediment bars and stranded logs during low and medium water. Moderate-high turbidity at time of survey.

Logistical Information:

Road Access/Type:	- Access off of Highway 16 through the Jasper Air Field. - All weather access is established.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located in the Picnic/ recreational group area. - 25 m x 50 m area. - Matting required to establish all weather access.	
	Lat: 52.9953	Long: -118.05463
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - The boat launch is located in Jasper National Park. - Gated access to the boat launch. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- The control point is located within Jasper National Park. Public may be present, site security recommended.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 5.9 km
- Turn right at unnamed road (T-intersection) towards the Athabasca Day Use Group Area / Jasper Airport for 1.1 km
- Destination is boat launch to Athabasca River, adjacent to group-use facilities (benches, hut, bbq)
- Total Distance = 7.3 km
- Total Travel Time = 7 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 21-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	52.932770	
	Long:	-118.033680	
Elevation	1012 m		
Upstream Valves:	**Line 01:**	24Q	
Downstream Valves:	**Line 01:**	KL378	
Control Point:	**Upstream** CP 21-04	**Downstream** CP 21-03	
Nearest KM Post:	**Line 01** KP 370		

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			66 m
Depth			Unknown
Flow Velocity			5.0 km/hr
FlowType			Frequently confined moderate-high velocity riffle and run structure

Waterbody description:

Boat launch used for small boats (e.g., kayaks, canoes, drift boats) and rafts, containing open turnaround area along backshore with gated access adjacent to Sixth Bridge trail head access road. Boat launch is gradually sloping, composed of concrete transitioning to silts and sands along shoreline eddy on upstream side of confluence with Maligne River. Be aware of shallow submerged boulders and bars during low and medium water. There is a frequently used pedestrian / horse trail along backshore RDB.

Logistical Information:

Road Access/Type:	- Access off of Maligne Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be constructed within the Sixth bridge parking lot, providing all weather access. - 20 m x 50 m area. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	
	Lat: 52.93327	Long: -118.03067
Site Comments:	- Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Popular angeling and recreational boat area. - The boat launch is located within Jasper National Park. - Gated access to the boat launch. - The boat launch is located at the confluence of the Athabasca River and Maligne River.	

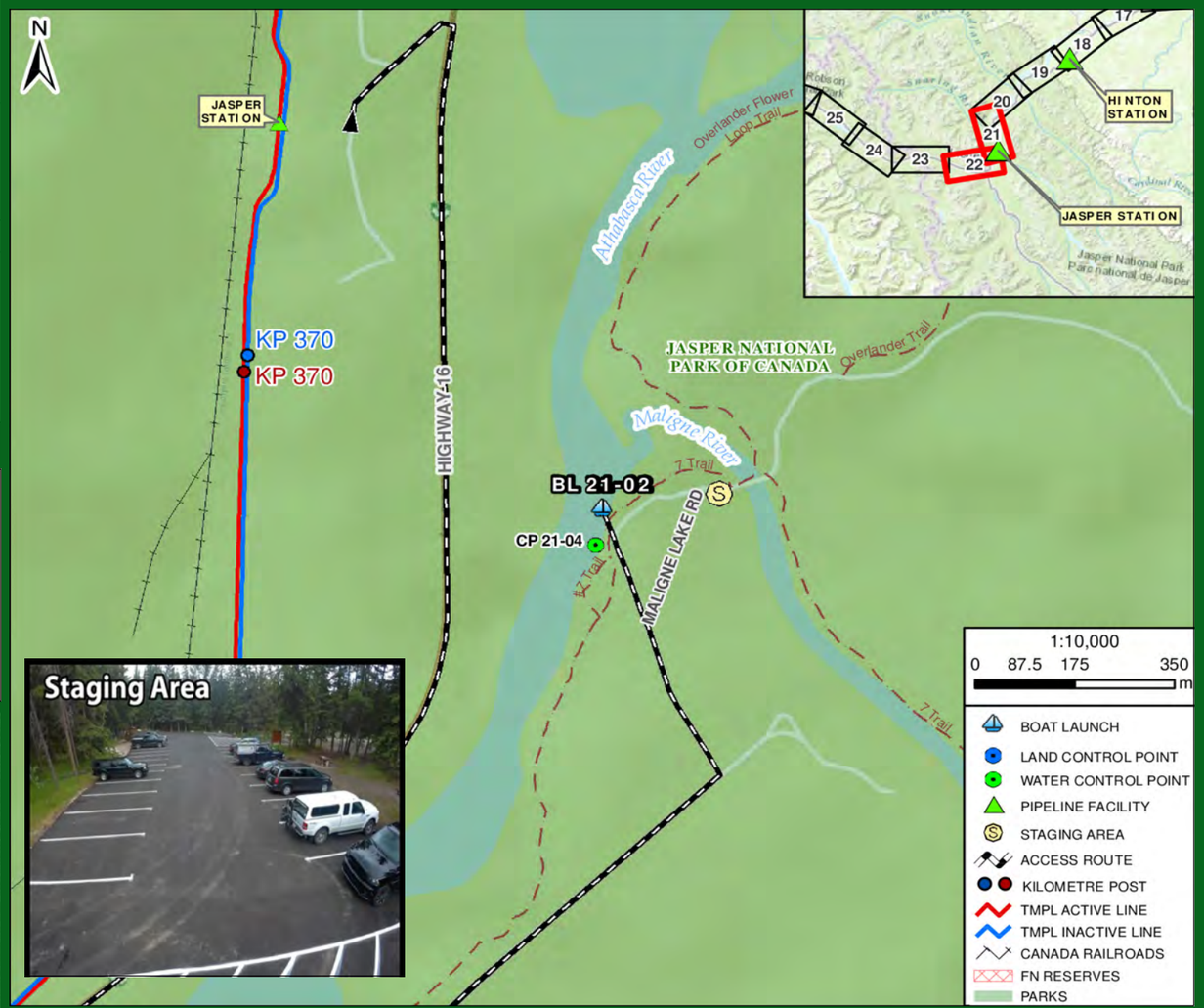
Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point is located within Jasper National Park. Public may be present, site security recommended.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 3.9 km
- Turn left onto Maligne Lake Rd (signs for Maligne Lake Rd / Jasper Park Lodge) for 2.3 km
- Take a left and another left onto the Athabasca River Loop towards the riverbank for 1.2 km, towards Sixth bridge
- Destination is Athabasca River
- Total Distance = 7.8 km
- Total Travel Time = 7 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-06-21

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 53.011200	
	Long: -118.086690	
Elevation:	1017 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL353	
Downstream Valves:	**Line 01:** K360	
Control Point:	**Upstream** N/A	**Downstream** CP 20-02
Nearest KM Post:	**Line 01** KP 360	

Waterbody Information:

Waterbody Name: Snaring River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			35 m
Depth			Unknown
Flow Velocity			11.0 km/hr
FlowType			Frequently confined high velocity rapid-run structure

Waterbody description:
Main current closer to RDB, flowing under road bridge with 1.8 m clearance. River is often braided upstream of containment and there is a small sub-channel upstream of bridge flowing around a cobble bar vegetated with short shrubs and mountain avens. River is very swift during high water, bankfull conditions observed at time of survey. Low-moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.4 to 0.8 m

Shoreline Composition and Slope:
LDB along a cobble dominated island vegetated with low shrubs and mountain avens; RDB ranges from vertical to gradual with boulder dominated, open forest backshore.

Shoreline Vegetation:
young to mature spruce along margins, open understory with occasional willow, alder, soopolallie; mosses, rushes, vetches, yellow mountain avens.

Channel / Bank Forms:
Banks composed predominantly of cobbles and small boulders, often covered in moss along RDB; bed composed of small to large boulders, less frequent cobbles.

Shoreline Comments:
CP accessed from campground along backshore RDB along gradually sloping open, forested approach with frequent exposed small boulders, to low often vertical bank descending directly into swift current (approach with caution).

Logistical Information:

Staging Area Location:	- A staging area can be located within the Snaring Campground. - 20 m x 20 m area. - All weather access is established. - Recommend closing campground if possible during emergency response activities.	
	Lat: 53.01078	Long: -118.08776
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point and staging area located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Snaring Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 21-01. - Refer to BL 21-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 20-01. - Refer to BL 20-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low and medium water conditions. - During high water events this control point is not suitable, rapid water speeds and discharge rates will produce debris that will likely prevent safe implementation of containment strategies. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

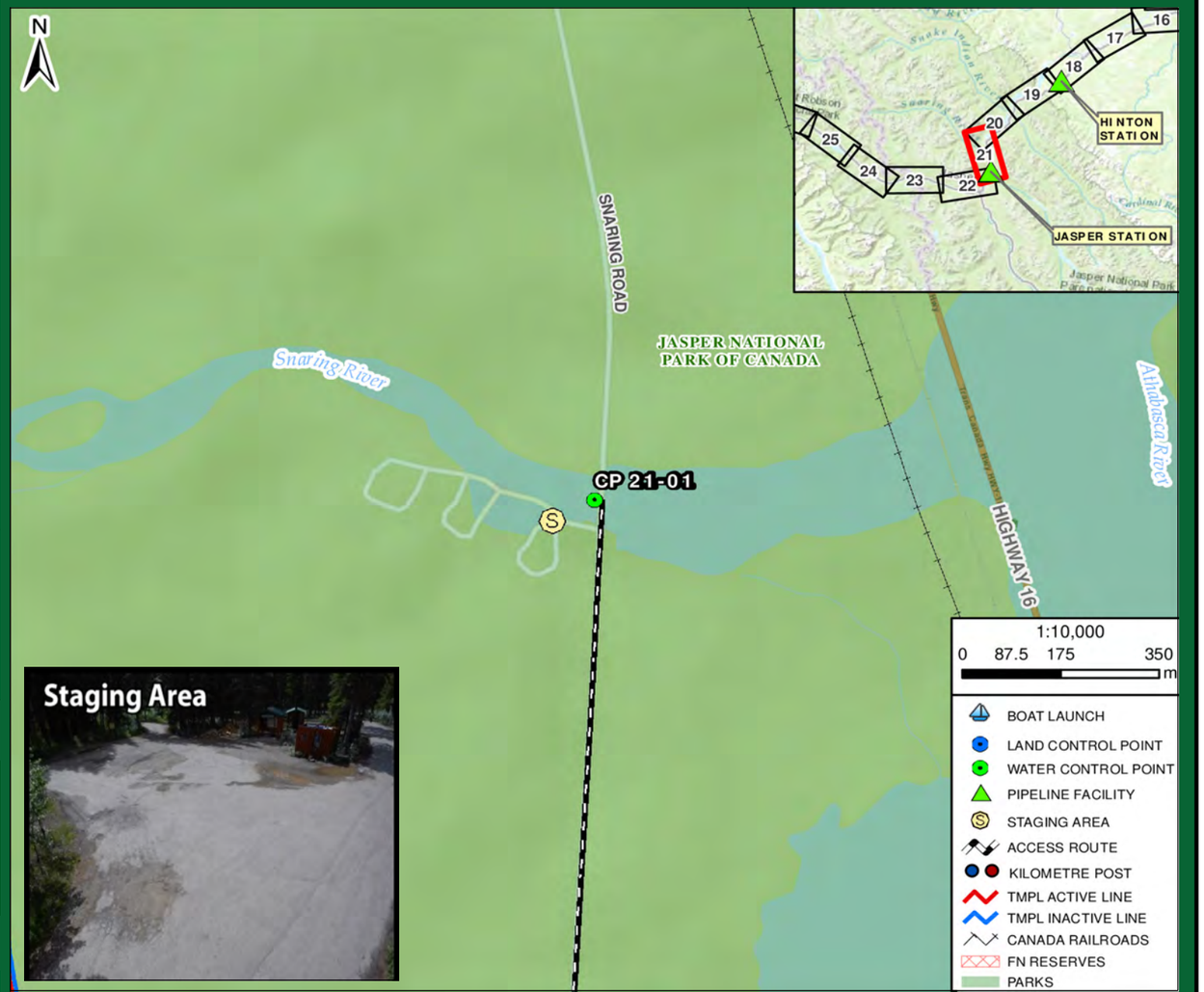
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low fish habitat potential due to swift current; migratory corridor to upstream spawning areas of the Snaring River Watershed.
- Forest and riparian nesting habitat.
- Shorebird nesting habitat and cobble bar complexes.
- Infrequent whitewater boating (e.g., kayaking)
- Snaring River Camground along backshore RDB.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- Response efforts will take place within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 3.7 km
- Turn left onto Snaring Rd for 5.2 km, until the Snaring River Campground
- Destination is bridge over Snaring river feeding into the Athabasca River
- Total Distance = 9.2 km
- Total Travel Time = 8 minutes calculated at 65 km/hr

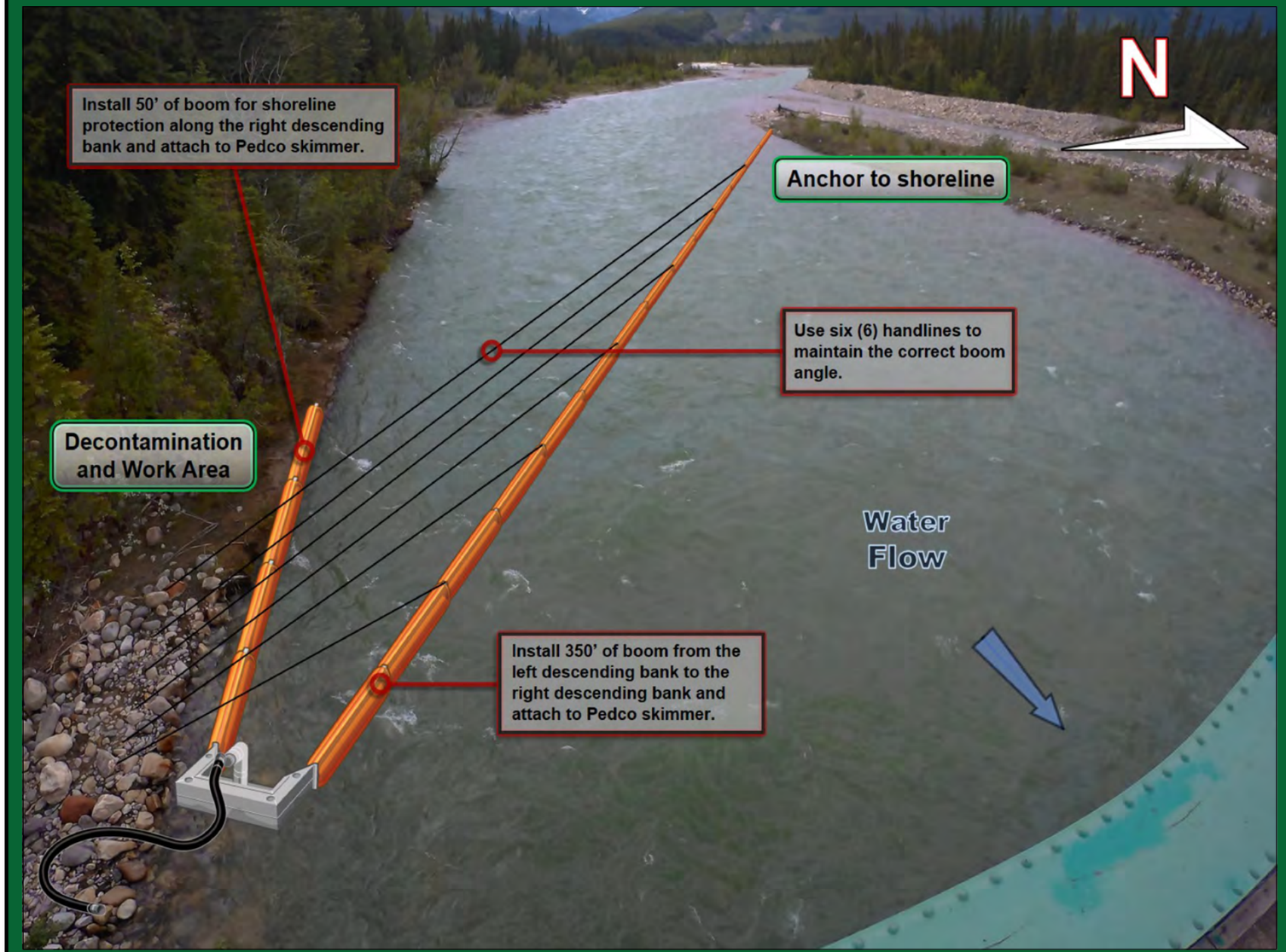
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-01



Implementation Strategy:

- Install 350' of 6" x 6" hard containment boom from the midstream island at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 40 m ice slot from the midstream island at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	500'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Work Boat
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-21

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-02

GPS (NAD 83) Decimal/Degree:	**Lat:**	52.997730
	Long:	-118.084650
Elevation:	1016 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:**	KL363
Downstream Valves:	**Line 01:**	KL360
Control Point:	**Upstream** N/A	**Downstream** CP 20-02
Nearest KM Post:	**Line 01** KP 363	

Waterbody Information:

Waterbody Name: Unnamed Lake

Waterbody Type: Lake

WATER LEVEL:	Low	Medium	High
Width			250 m
Depth			Unknown
Flow Velocity			1.0 km/hr
FlowType			Open water sedge-willow dominated wetland complex

Waterbody description:

In general, wetland is shallow (average depth 1.2 m), containing multiple open water areas and sedge-willow dominated islands and shorelines, with collection located on upstream side of 1.2 m diameter culvert with considerable, likely perennial, volume flow at time of survey. Water level appears well regulated by wetland complex. Clear at time of survey.

Shoreline Information

Bank Height:
Poorly defined along wetland margins; 6 m road approach

Shoreline Composition and Slope:
Road approach is steep, but stable, whereas wetland margins are soft, often saturated and poorly defined.

Shoreline Vegetation:
Dense sedges with willow patches and dead standing black spruce transitioning to black spruce dominated forest.

Channel / Bank Forms:
Banks composed of mixed stable substrate along road approach, organics along natural margins, with mixed mineral and organic bed substrate.

Shoreline Comments:
CP accessed from narrow road pullout, down steep but stable 6 m approach to water edge. Natural wetland margins and bed substrate appear soft, transitioning from sedges and willows to dead standing to live black spruce. Be aware, pullout and road shoulder is narrow and road experiences frequent tourist traffic.

Logistical Information:

Staging Area Location:	- A staging area can be located along the upstream side of Snaring Road. - 5 m x 50 m area. - All weather access is established. - Traffic control recommended.	
	Lat: 52.99773	Long: -118.08446
Work Area Location / Comments:	- The work area can be located at the lake outflow, which consists of a culvert road crossing (Snaring Road). - 2 m x 2 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Snaring Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the right descending bank to the left descending bank.	
Comms:	**Cell Phone Coverage** - No cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

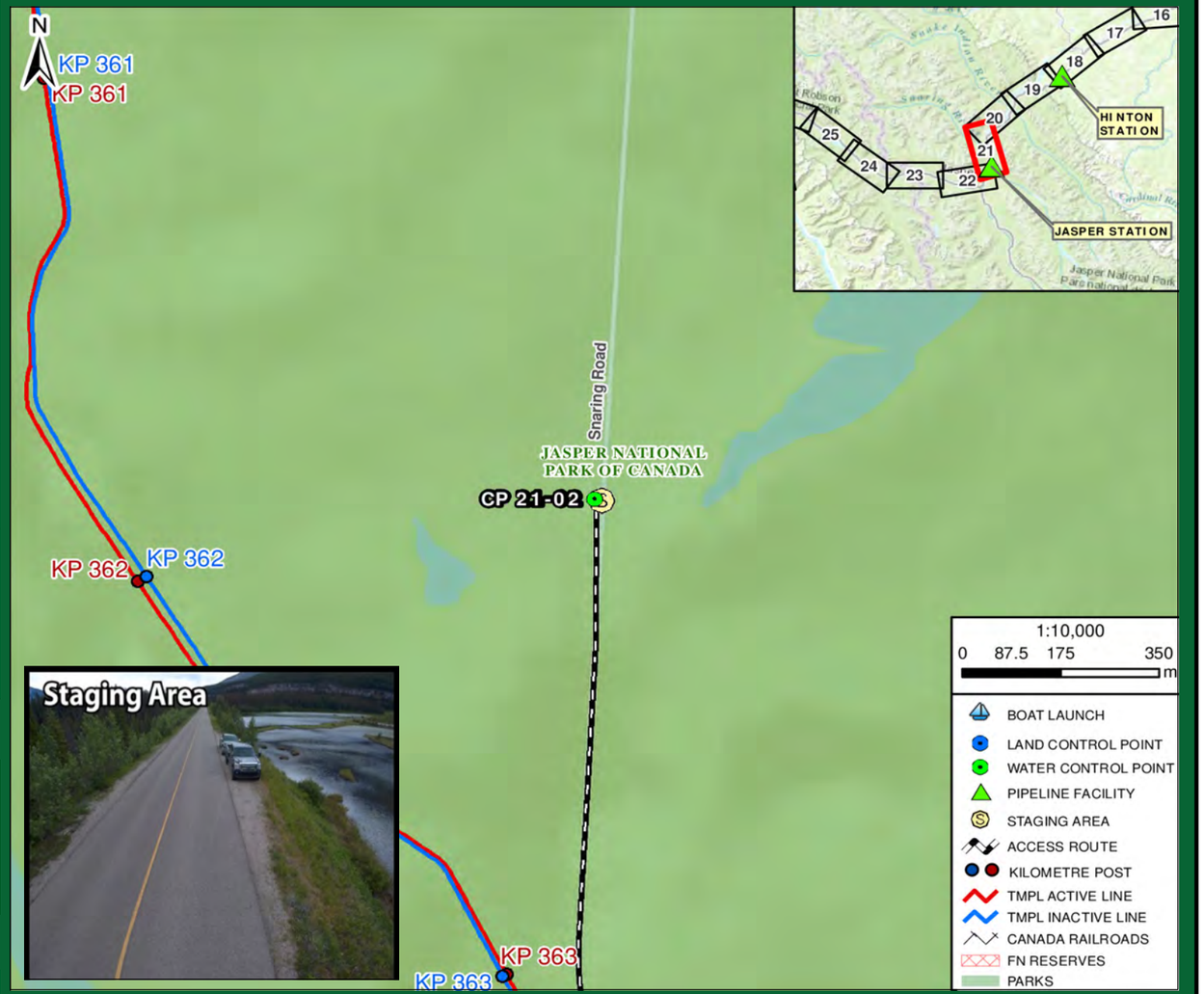
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Open water wetland provides good rearing habitat for salmonids; however, shallow depths limit overwintering.
- Shallow open water sedge-willow dominated wetland complex with forested margins provides habitat for beaver (active lodge on northwest end), waterbird breeding and migratory staging, wetland birds, shorebirds, riparian/shrub nesting birds, forest/cavity nesting birds as well as amphibian breeding and overwintering.
- Tourists often traveling along Snaring River Road to access recreational areas; occasional wildlife viewing from small roadside pullout.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point and staging area are located within Jasper National Park, public may be present.
- Be aware of wildlife in the area. Overhead and underground power lines are present in the control point area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

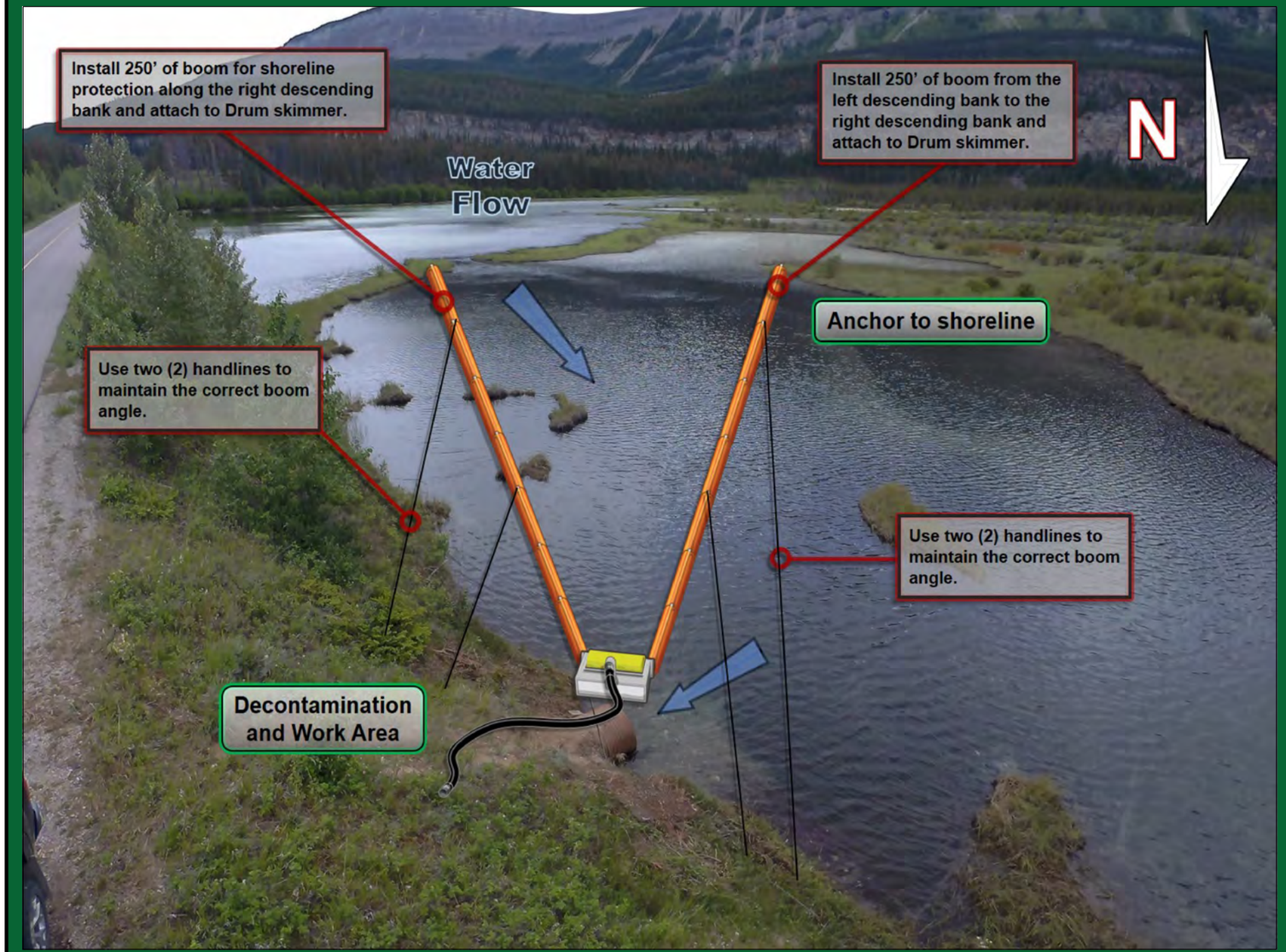
- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 3.7 km
- Turn left onto Snaring Rd for 3.8 km
- Destination is unnamed lake that later connects to the Athabasca River
- Total Distance = 7.9 km
- Total Travel Time = 7 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-02



Implementation Strategy:

- Install 250' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the lake outflow and anchor to the shoreline.
- Install (2) 150' handlines from each of the 6" x 6" hard containment boom strands, secure to the bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 250' of 6" x 6" hard containment boom from the right descending bank, and anchor to the shoreline just above the outflow.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
-Complete ice evaluation, which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, delineate under ice plume and strategically contain product utilizing ice slotting techniques and lake boom installation. Recover product using heated shelters and Drum skimmers.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	600'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		8	150' Handline and Bridle
		1	Vacuum Truck
		1 / 50'	Power Pack / Hydraulic line
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, teal spp., ring-necked duck, bufflehead, loon, grebe spp.)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.)
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Wetland birds (e.g., marsh wren, yellowthroat, sora), shorebirds (e.g., spotted sandpiper, killdeer, lesser yellowlegs, Wilson's snipe)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-21

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-03

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.993870	
	Long: -118.052870	
Elevation:	1007 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** 24B	
Downstream Valves:	**Line 01:** KL363	
Control Point:	**Upstream** CP 21-04	**Downstream** CP 20-02
Nearest KM Post:	**Line 01** KP 364	

Waterbody Information:

Waterbody Name: Athabasca River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			193 m
Depth			Unknown
Flow Velocity			2.5 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:

Frequently confined low velocity flat run structure with even current across width and dense overhanging trees and shrubs along RDB, less frequent along LDB. Be aware of shallow submerged sediment bars and stranded logs during low and medium water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1 to 2 m along RDB; 0.8 to 1.4 m along LDB

Shoreline Composition and Slope:
LDB is typically steep to vertical, with level bench along base of 5 m steep approach composed of mixed stable and loose substrate and open, level backshore area.

Shoreline Vegetation:
Patches of spruce, shrubs (e.g., juniper, soopolallie, willow, cinquefoil) along LDB, dense forest along RDB; mixed veg (e.g., moss, grass, vetch, pussytoe, kinnikinnick, goldenrod, death camas, brown-eyed Susan, wood lily, aster, butterweed, narcissus anemone).

Channel / Bank Forms:
Banks composed of organics underlain by mixed substrates from silts to cobbles; bed composed predominantly of fine sediments with less frequent gravels to boulders.

Shoreline Comments:
CP accessed from open, level backshore area down moderately steep 5 to 6 m approach become level at base, above 1 m bank into slow moving water. LDB is densely forested at the base of mountains.

Logistical Information:

Staging Area Location:	- A staging area can be located in the picnic / recreational use area. - 25 m x 50 m area. - Matting required to establish all weather access.	
	Lat: 52.9953	Long: -118.05463
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - All weather access is established. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point and staging area are located within Jasper National Park, adjacent to the Jasper airfield. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Gated access to control point and staging.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established.	
Boat Access:	- Main boat access from BL 21-01. - Refer to BL 21-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Popular location for weddings and events.	

Decontamination Area:

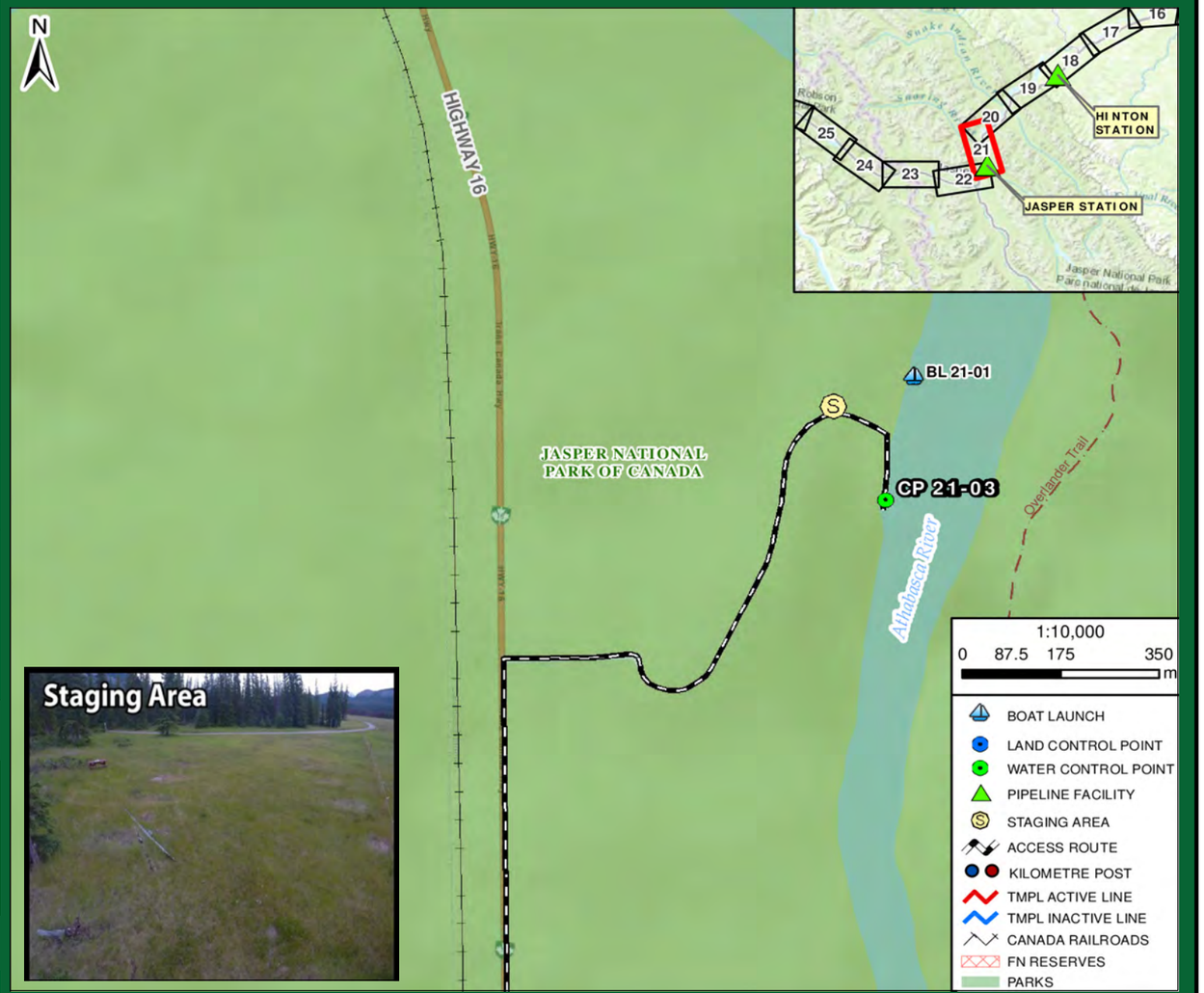
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential for salmonids due to lack of current and abundant fines; areas of deeper water, shoreline and instream cover and low current provide moderate rearing and overwintering habitat potential.
- Forest/cavity, riparian and shorebird nesting habitat.
- CP located at group site with gated access containing multiple picnic tables, a shelter, benches along shoreline and a wedding arch and log pews. Small fixed wing airstrip along open grassland field between group site and highway.
- CP located at the historical site of the Adolphus Moberly Homestead.
- Occasional recreational boating (e.g., canoe, kayak) and rafting.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point and staging area are located within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 East towards Edmonton
- Continue East for 5.9 km
- Turn right at unnamed road (T-intersection) towards the Athabasca Day Use Group Area / Jasper Airport for 1.1 km
- Destination is Athabasca River, adjacent to group-use facilities (benches, hut, bbq)
- Total Distance = 7.3 km
- Total Travel Time = 7 minutes calculated at 65 km/hr

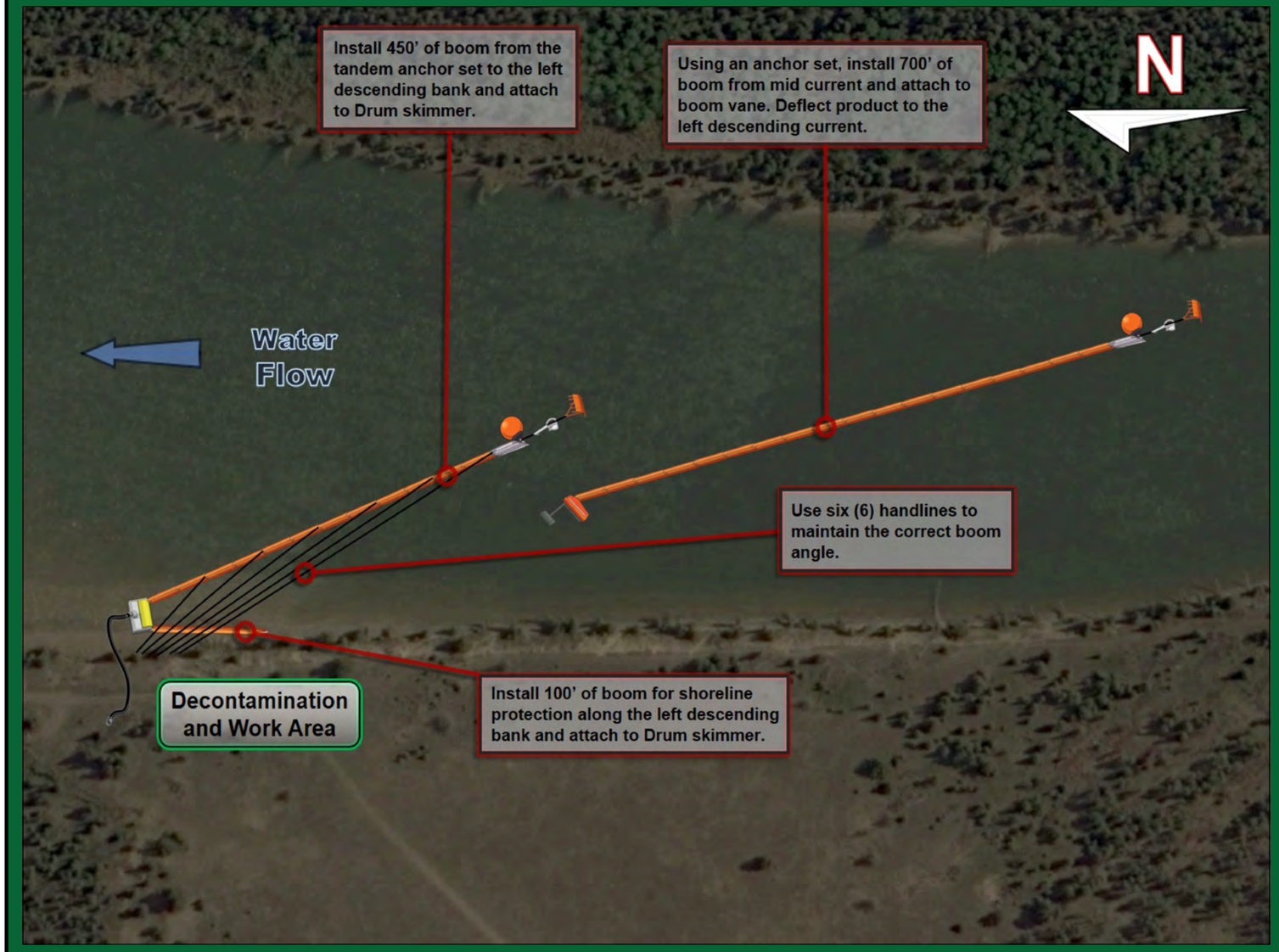
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-03



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	1400'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2 / 2	Rake Anchor /Sarca Anchor
		1	1.0 m Boom Vane
		4 / 2	60' Ballast Chain / Marker Buoy
		1 / 50'	Power Pack / Hydraulic Line
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 700' of 6" x 6" hard containment boom from the tandem anchor and attached to a 1.0 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 450' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or Low Impact Recovery Unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 120 m ice slot from the middle of the river at a 15° angle to the left descending bank. Recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-21

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.932370	
	Long: -118.033710	
Elevation:	1018 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL378	
Control Point:	**Upstream** CP 21-05	**Downstream** CP 21-03
Nearest KM Post:	**Line 01** KP 370	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			69 m
Depth			Unknown
Flow Velocity			5.0 km/hr
FlowType			Freq. confined mod-high velocity riffle and run structure

Waterbody description:

Frequently confined moderate-high velocity riffle and run structure, with main current along mid-river and LDB, containing large eddy and shoreline silt/sand bar upstream of collection on RDB. Confluence with Maligne River located downstream at boat launch (BL 21-02). Be aware of shallow submerged boulders and bars during low and medium water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1.5 to 2 m

Shoreline Composition and Slope:
RDB variable, gradual at collection (boat launch) and upstream sand/silt bar; steep, stable banks elsewhere, open backshore; LDB steep, loose substrate to level forest backshore.

Shoreline Vegetation:
Lodgepole pine dominated forest along LDB with beetle kill trees; spruce dominated forest along RDB; open understory of mixed shrubs (e.g., cinquefoil, soopolallie, common juniper, alder, gooseberry, wolf willow); rush, scouring rush, avens, vetch, kinnickinnick.

Channel / Bank Forms:
RDB composed of silts and sands upstream, composed of mixed fines to cobbles and small boulders elsewhere and along LDB; bed composed of mixed gravels to boulders with silts and sand along RDB eddies.

Shoreline Comments:
CP accessed from gated open gravel turnaround area associated with two boat launches, which are paved to water edge.

Logistical Information:

Staging Area Location:	- A staging area can be located in the Sixth bridge parking lot. - 20 m x 50 m area. - All weather access is established.	
	Lat: 52.93327	Long: -118.03067
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Gated access to the control point.	
Road Access/Type:	- Access off of Maligne Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-01. - Refer to BL 21-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

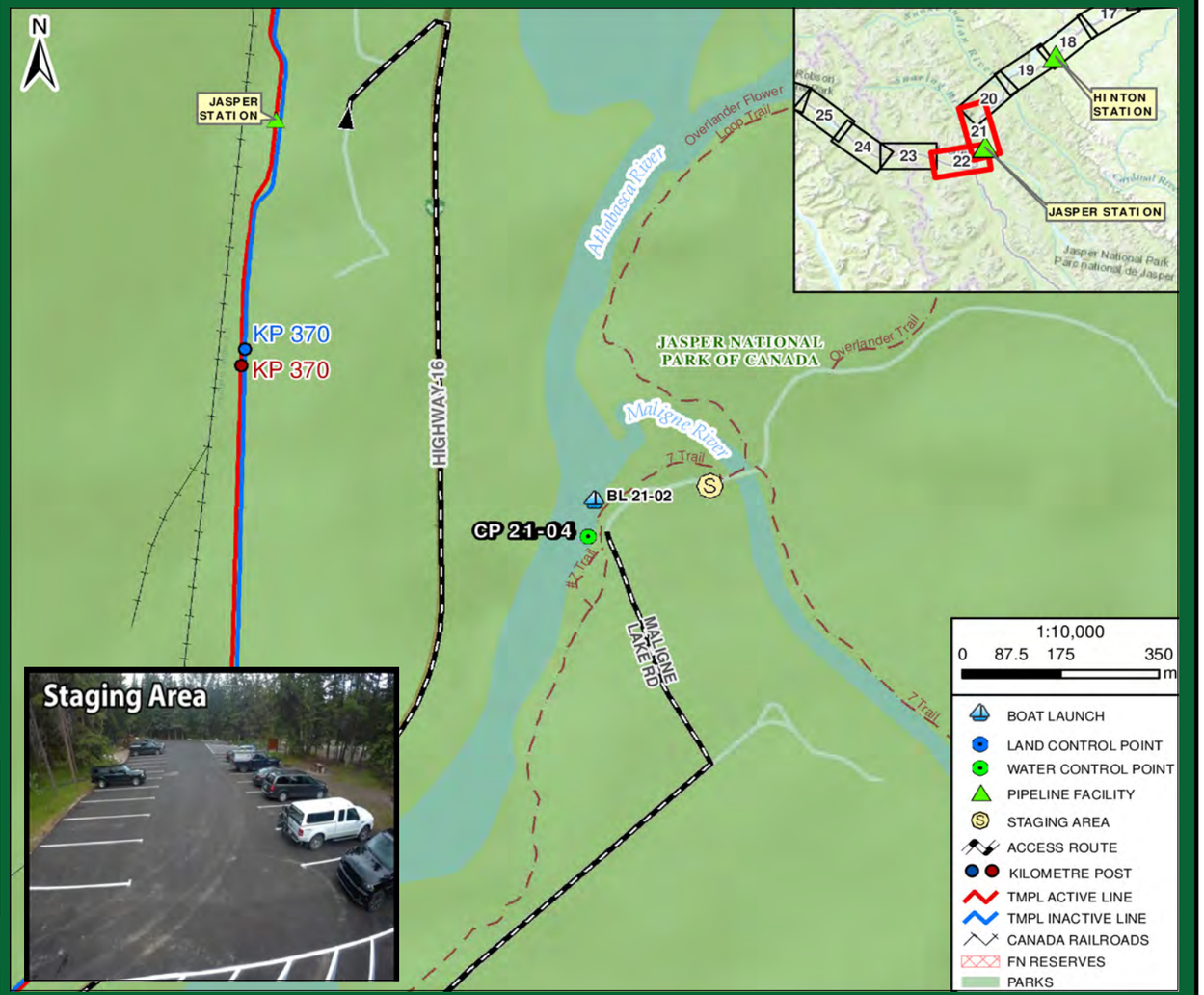
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with abundant gravels and cobbles provide good spawning potential for salmonids; low to moderate overwintering and rearing potential along deeper shoreline eddies and along confluence with Maligne River.
- Forest/cavity and riparian nesting habitat.
- Shorebird feeding and nesting habitat along sand/silt bars of RDB and braided confluence of Maligne River downstream.
- Navigable river, often used by small boats (e.g., kayaks, canoes, drift boats) and rafts; CP located at put-in/pull-out area containing two well-maintained concrete boat launches, with gated access adjacent to Sixth Bridge trail head access road.
- Frequently used pedestrian / horse trail along backshore RDB (between bank and road).
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point and staging area are located within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

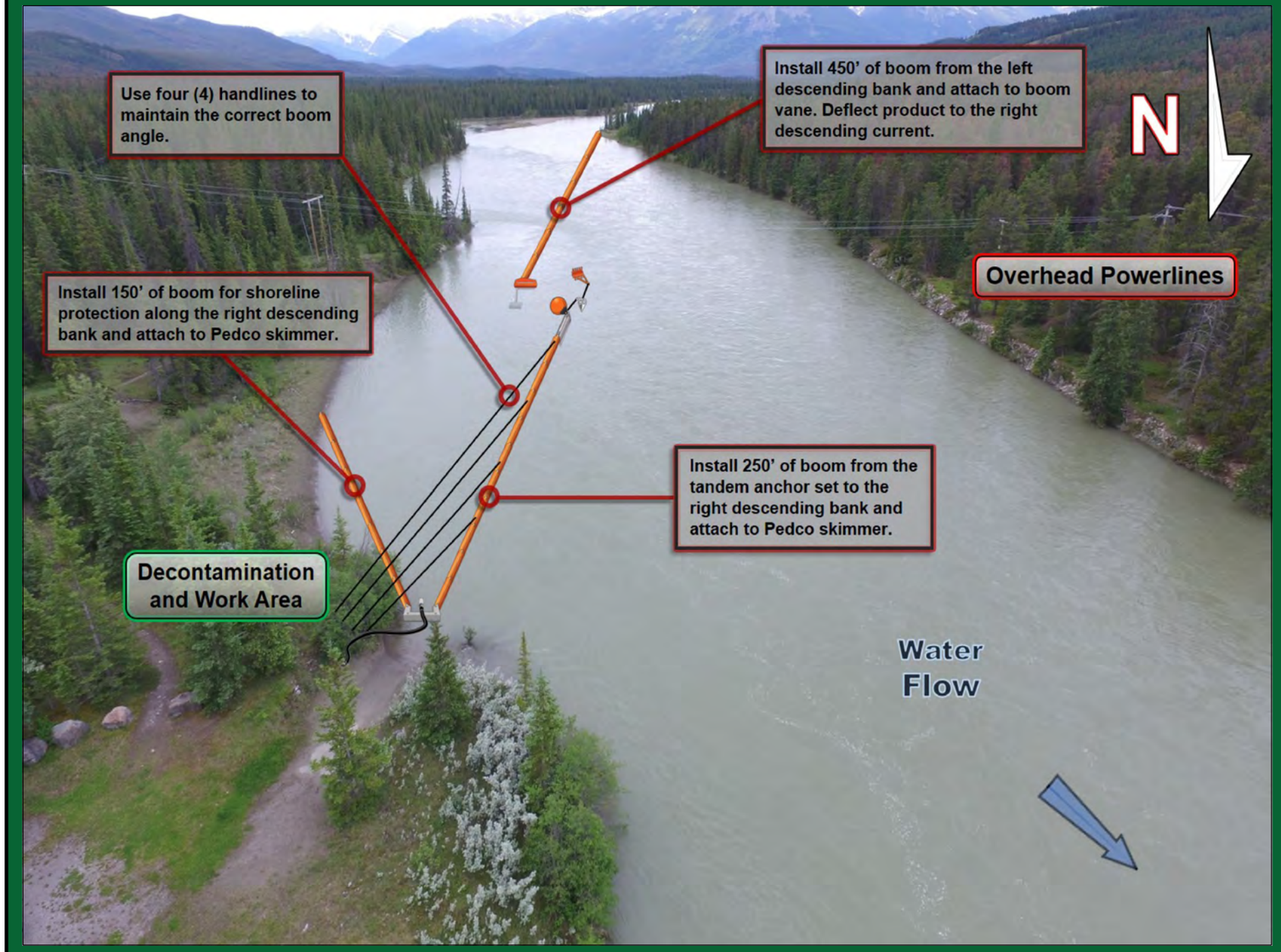
- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 3.9 km
- Turn left onto Maligne Lake Rd (signs for Maligne Lake Rd / Jasper Park Lodge) for 2.3 km
- Take a left and another left in the Athabasca River Loop towards the riverbank for 1.2 km, towards Sixth bridge
- Destination is Athabasca River
- Total Distance = 7.8 km
- Total Travel Time = 7 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	950'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2 / 1	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 450' of 6" x 6" hard containment boom from the left descending bank and attached to a 0.5 m boom vane to deflect product to right descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 250' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 150' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 40 m ice slot from the middle of the river at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-21

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-05

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.909760	
	Long: -118.058820	
Elevation:	1019 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL378	
Control Point:	**Upstream** CP 22-01	**Downstream** CP 21-04
Nearest KM Post:	**Line 01** KP 373	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			69 m
Depth			Unknown
Flow Velocity			7.0 km/hr
FlowType			Confined to unconfined moderate-high velocity riffle-run

Waterbody description:
Confined to unconfined moderate-high velocity riffle and run structure with even current across width. There is instream braiding upstream, consolidating along containment and under road bridge, with 2.2 m clearance. Be aware of shallow submerged boulders and bars during low and medium water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
1 to 1.4 m

Shoreline Composition and Slope:
LDB is typically steep to vertical with level open grass dominated backshore; RDB often vertical/overhanging with forested backshore.

Shoreline Vegetation:
spruce dominated forest with mixed shrubs along RDB; low density spruce with open grassy understory containing low shrubs, predominantly wolf willow, and less frequent milk vetch.

Channel / Bank Forms:
Banks composed of organics underlain by mixed substrates from sands to cobbles; bed composed predominantly of cobbles and boulders

Shoreline Comments:
CP accessed from open gravel rest area at intersection of Maligne Lake Road and Yellowhead Highway down gradually sloping grassy road shoulder to level open work area above steep to vertical 1.2 m bank into swift water. There is an Environment Canada Hydrometric Monitoring Station along LDB downstream side of bridge.

Logistical Information:

Staging Area Location:	- A staging area can be located at the intersection of Highway 16 and Maligne Road. - 20 m x 40 m area. - All weather access is established.	
	Lat: 52.91043	Long: -118.05961
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point and staging area located within Jasper National Park. - Single lane bridge located directly upstream of the control point with a 4.6 m height restriction. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Maligne Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - An Environment Canada hydro-metric station is located downstream of the control point.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with abundant gravels and cobbles provide good spawning potential for salmonids; low rearing and overwintering habitat due to typically shallow depths, swift current, lack of shoreline and instream cover, and typically low food availability.
- Forest/cavity and riparian nesting habitat.
- Navigable river used by small boats (e.g., kayaks, canoes, drift boats) and guided rafting tours.
- Frequent pedestrian use of road bridge to access trail networks in surrounding area.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around shoreline.
- Response efforts will take place within Jasper National Park, public may be present.
- Be aware of wildlife in the area. Overhead and underground utilities are present in the control point area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 3.9 km
- Turn left onto Maligne Lake Rd (signs for Maligne Lake Rd / Jasper Park Lodge) for 120 m
- Destination is bridge over Athabasca River
- Total Distance = 4.3 km
- Total Travel Time = 4 minutes calculated at 65 km/hr

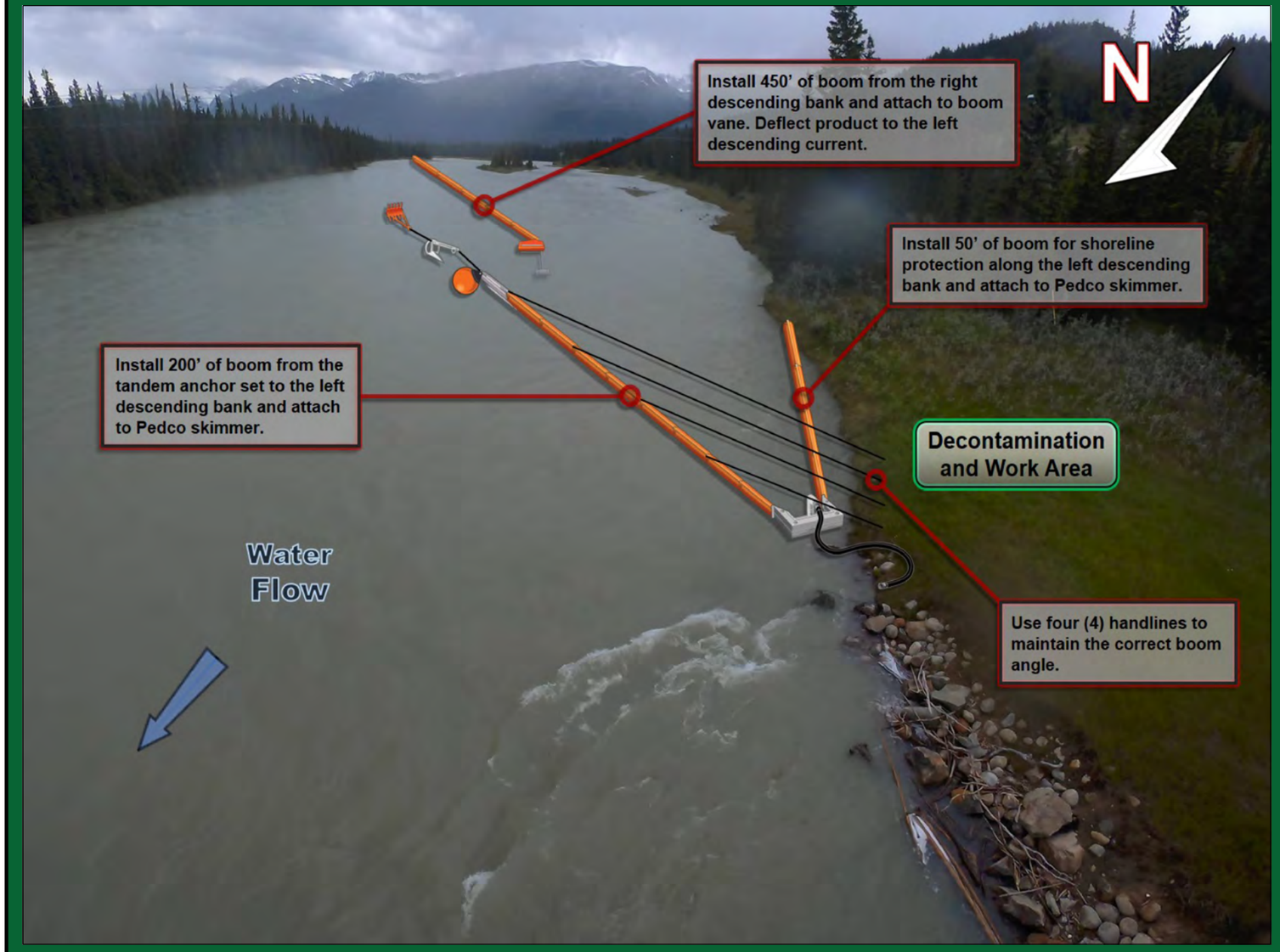
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 21-05



Implementation Strategy:

- Install 450' of 6" x 6" hard containment boom from the right descending bank and attached to a 0.50 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 200' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 200' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 40 m ice slot from the middle of the river at a 15° angle to the left descending bank. Recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	900'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	150' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2 / 1	Rake Anchor / Sarca Anchor
		1	0.5 m Boom Vane
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
BOAT LAUNCH BL 22-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	52.871180
	Long:	-118.062950
Elevation	1037 m	
Upstream Valves:	**Line 01:**	24Q
Downstream Valves:	**Line 01:**	KL378
Control Point:	**Upstream**	**Downstream**
	CP 22-04	CP 22-03
Nearest KM Post:	**Line 01**	
	KP 377	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			86 m
Depth			Unknown
Flow Velocity			1.0 km/hr
FlowType			Confined to unconfined moderate run and riffle structure

Waterbody description:

Boat launch located along shoreline eddy downstream of single lane bridge crossing with 3 m clearance. There are two boat launches, both well-maintained, gradually sloping, stable composed of compacted sands and gravels; associated with frequently used put-in/pull-out area for recreational boats (e.g., canoes, kayaks) as well as guided rafting tours, containing open parking along backshore with frequently used trail networks and day use sites. Moderate-high turbidity at time of survey.

Logistical Information:

Road Access/Type:	- Access off of Old Fort Point Road. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Staging Area Location:	- A staging area can be located along the right descending bank in a parking lot. - 25 m x 35 m area. - All weather access is established. - Security is needed to keep out all nonessential personnel.	
	Lat: 52.87122	Long: -118.06227
Site Comments:	- Popular angeling and recreational boat area. - Boat launch is the end point for rafting and kayaking tours. - The boat launch is located in Jasper National Park. - Single lane bridge located along access with a 26 tonne GVW single vehicle weight limit. - Utilize a safety inspection prior to launch to help ensure all vessels are equipped with all safety and communication devices required.	

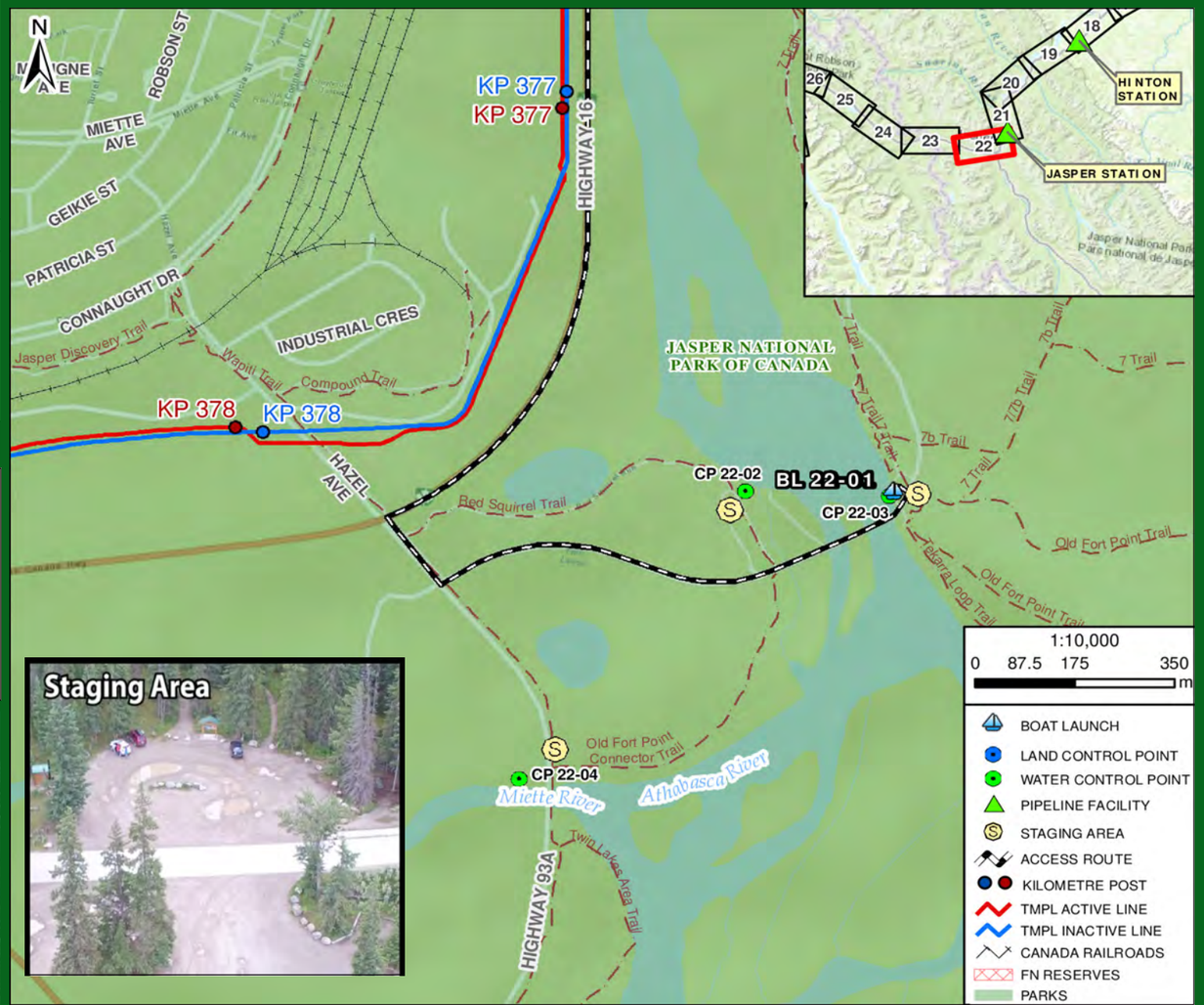
Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- A decontamination area to be installed at the boat launch. Ensure that all boats are inspected and free of invasive species prior to entering the waterway.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.
- Additionally, utilize the boat decontamination area for any vessels leaving the waterway. All vessels should be free of contaminants before they leave the site.



Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The boat launch is located within Jasper National Park, public may be present. Site security recommended.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 9.9 km
- Turn left onto AB-93A S (signs for Icefield Parkway) for 180 m
- Turn left onto Old Fort Point Rd for 1 km and follow to the bridge crossing the river, to parking lot
- Destination is boat launch to Athabasca River, accessed adjacent to hiking trail parking lot
- Total Distance = 10.1 km
- Total Travel Time = 9 minutes calculated at 65 km/hr

GRP DATA SHEET

Date Visited: 2017-07-11

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-01

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.890780	
	Long: -118.063960	
Elevation:	1028 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL378	
Control Point:	**Upstream** CP 22-02	**Downstream** CP 21-05
Nearest KM Post:	**Line 01** KP 375	

Waterbody Information:

Waterbody Name: Athabasca River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			250 m
Depth			Unknown
Flow Velocity			8.4 km/hr
FlowType			Frequently confined moderate run and riffle structure

Waterbody description:
River is wide upstream then becomes braided along extensive cobble bar complex at containment and collection. Water is swift with low rapids around bars. Be aware of shallow submerged boulders and bars, particularly during low and medium water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
0.5 to 1.4 m

Shoreline Composition and Slope:
Banks typically overhanging/vertical, but low with level backshores.

Shoreline Vegetation:
Young spruce, occasional poplar and aspen; patches of shrubs and grasses along bank transitioning to mature spruce forest with open shrubby understory (e.g., cinquefoil, soopolallie, common juniper, wolf willow); kinnickinnick, vetch, peavine, locoweed.

Channel / Bank Forms:
Banks composed predominantly of fine sediments, with boulders upstream and cobbles along foreshores; bed composed predominantly of mixed gravels, cobbles and boulers with silts/sands along lower current areas.

Shoreline Comments:
CP is accessed along a powerline ROW beginning at the Jasper Waste Water Treatment plant, with collection approximately 15 m north on an informal walking path beginning at Pine Bungalows. Upstream and downstream, banks are typically vertical to overhanging with stable grassy margins transitioning to mature spruce forest. Patches of thistle along powerline ROW.

Logistical Information:

Staging Area Location:	- The staging area can be located at the Jasper Wastewater Treatment Plant. - 20 m x 20 m area. - All weather access is established.	
	Lat: 52.89217	Long: -118.06718
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - All weather access is established.	
Site Restrictions:	- Gated access to the staging area and control point. - The staging area is located within Jasper National Park at the waste water treatment plant. - Security is needed to keep out all nonessential personnel. - Very low overhead power along access and at the control point. - Low impact access recommended.	
Road Access/Type:	- Access off of the Jasper Waste Water Treatment Plant road, 180 m down a power line Right-of-Way. - Matting required to establish all weather access.	
Boat Access:	- Main boat access from BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 20-01. - Refer to BL 20-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with abundant gravels and cobbles provide good spawning potential for salmonids; low rearing and overwintering habitat due to typically shallow depths, swift current, lack of shoreline and instream cover, and typically low food availability.
- Forest/cavity and riparian nesting habitat.
- Cottages (Pine Bungalows) along upstream extent containment along LDB, with walking path along backshore.
- Navigable river, often used by small boats (e.g., kayaks, canoes, drift boats) and guided rafting tours.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep/fast water, use caution around the shoreline.
- Be aware of wildlife in the area. Low hanging overhead power lines along access route and at the control point.
- The control point and staging area are located within Jasper National Park, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 5.7 km
- Turn left onto Cottonwood Creek Rd for 550 m towards "Pine Bungalows" and follow Water Treatment Plant road to riverbank
- Destination is Athabasca River, accessed via power line Righ-of-Way
- Total Distance = 6.8 km
- Total Travel Time = 6 minutes calculated at 65 km/hr

TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-11
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	800'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	1	Marker Buoy
4	Boat Crew	8	150' Handline and Bridle
1	Low Impact Recovery Unit Operator	1	Vacuum Truck
		2	Work Boat
		2 / 1	Rake Anchor / Sarca Anchor
		1	Low Impact recovery Unit
		2 / 1	60' Ballast Chain / 50' Rode Line
		1	0.5 m Boom Vane
15	**TOTAL**	1	Paravane

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Implementation Strategy:

- Install 350' of 6" x 6" hard containment boom from the midstream island and attached to a 0.5 m boom vane to deflect product to left descending current.
- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 300' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 90 m ice slot from the middle of the river at a 15° angle to the left descending bank. Recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-11

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.870950	
	Long: -118.066930	
Elevation:	1032 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL378	
Control Point:	**Upstream** CP 22-04	**Downstream** CP 22-01
Nearest KM Post:	**Line 01** KP 378	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			265 m
Depth			Unknown
Flow Velocity			12.5 km/hr
FlowType			Confined to unconfined moderate run and riffle structure

Waterbody description:

Confined to unconfined moderate run and riffle structure. River is confined as it narrows at bridge crossing upstream becoming swift with low rapids, flattening and widening upstream of containment, then braided along extensive cobble bar complex at collection. Be aware of shallow submerged boulders and bars, particularly during low and medium water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1.4 m

Shoreline Composition and Slope:
Banks typically overhanging/vertical, but low with open level backshores; gradually sloping areas on LDB along trail network and turn around area.

Shoreline Vegetation:
Low density mature spruce forest with open understory containing mixed shrubs (e.g., shrubby cinquefoil, soopolallie, common juniper, wolf willow); mosses, grasses, sweet-vetch, milk-vetch, creamy peavine, locoweed, kinnikinnick.

Channel / Bank Forms:
Banks composed predominantly of fine sediments, with boulders upstream and cobbles along foreshores; bed composed predominantly of mixed gravels, cobbles and boulders with silts/sands along lower current areas.

Shoreline Comments:
CP accessed through a gradually sloping gated gravel road (Jasper Park) to open turn around area from Old Fort Point Road. A water intake, chlorine injection building and open backshore trails are located adjacent to the staging area and collection. Upstream and downstream, banks are typically vertical to overhanging with stable gravel/cobble foreshores and an open, often bare understory along backshore LDB associated with trail network.

Logistical Information:

Staging Area Location:	- The staging area can be located along the left descending bank. - 25 m x 40 m area. - Matting required to establish all weather access.	
	Lat: 52.87052	Long: -118.06706
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 10 m x 10 m area. - All weather access is established.	
Site Restrictions:	- Gated access to the staging area and control point. - The control point and staging area are located along a popular hiking / biking trail (Red Squirrel Run) within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Old Fort Point Road. - All weather access is established.	
Boat Access:	- Main boat access from BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low and medium water conditions. - During high flow events the discharge and flow rate make this recovery area unsafe for containment and recovery efforts. - This control point is a viable location for a winter response. - A water uptake is located at this control point.	

Decontamination Area:

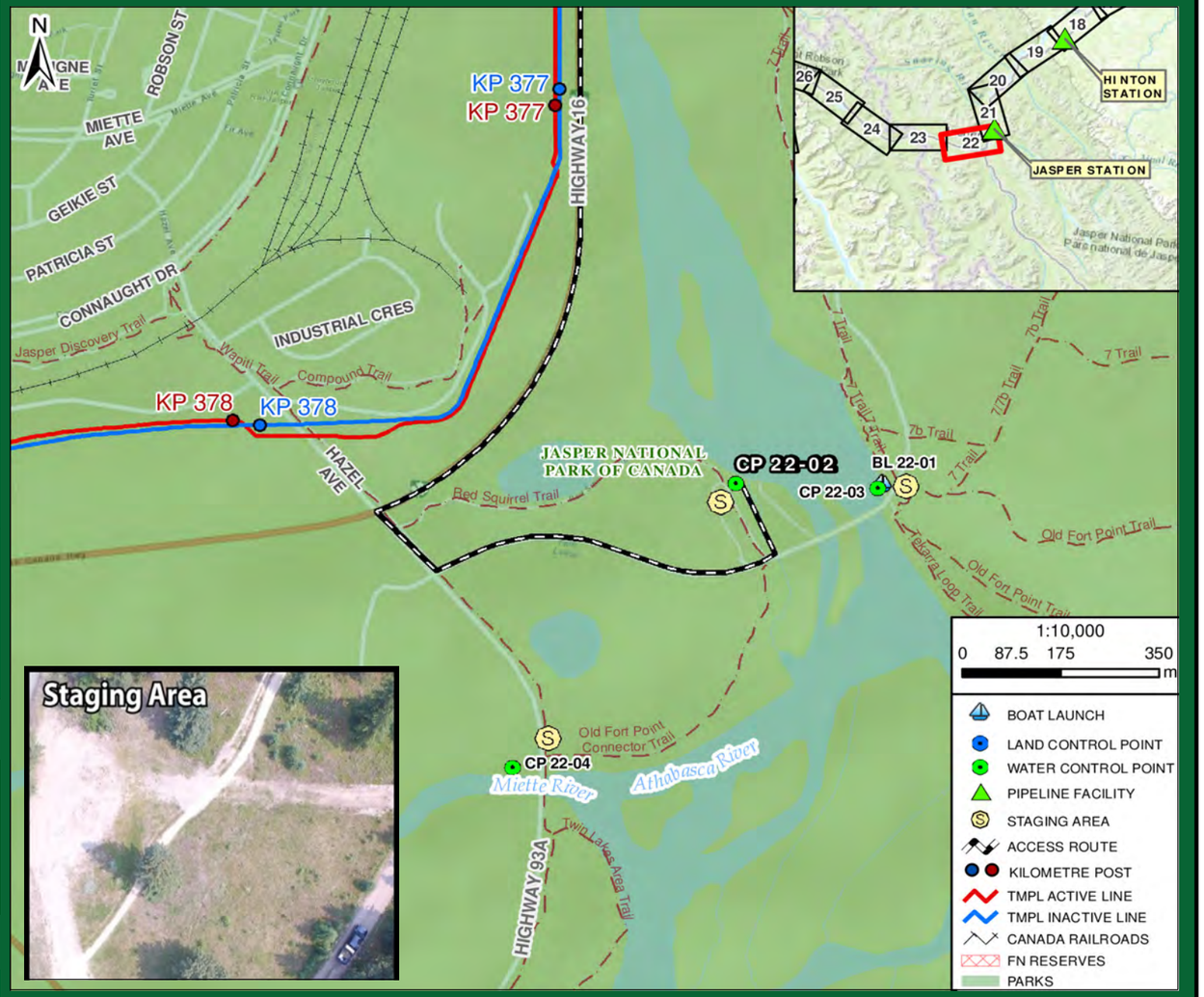
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with abundant gravels and cobbles provide good spawning potential for salmonids; low rearing and overwintering habitat due to typically shallow depths, swift current, lack of shoreline and instream cover, and typically low food availability.
- Forest/cavity and riparian nesting habitat.
- Navigable river, often used by small boats (e.g., kayaks, canoes, drift boats) and guided rafting tours
- CP located at frequently used trail networks along backshore LDB.
- Municipality of Jasper water intake located approximately 15 m upstream of collection.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep/fast water, use caution around the shoreline.
- Be aware of wildlife in the area.
- The control point and staging area are located within Jasper National Park, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 9.9 km
- Turn left onto AB-93A S (signs for Icefield Parkway) for 180 m
- Turn left onto Old Fort Point Rd for 600 m and follow paths to riverbank, before the bridge
- Destination is Athabasca River, accessed via Red Squirrel Run Trail (hiking trail)
- Total Distance = 9.9 km
- Total Travel Time = 9 minutes calculated at 65 km/hr

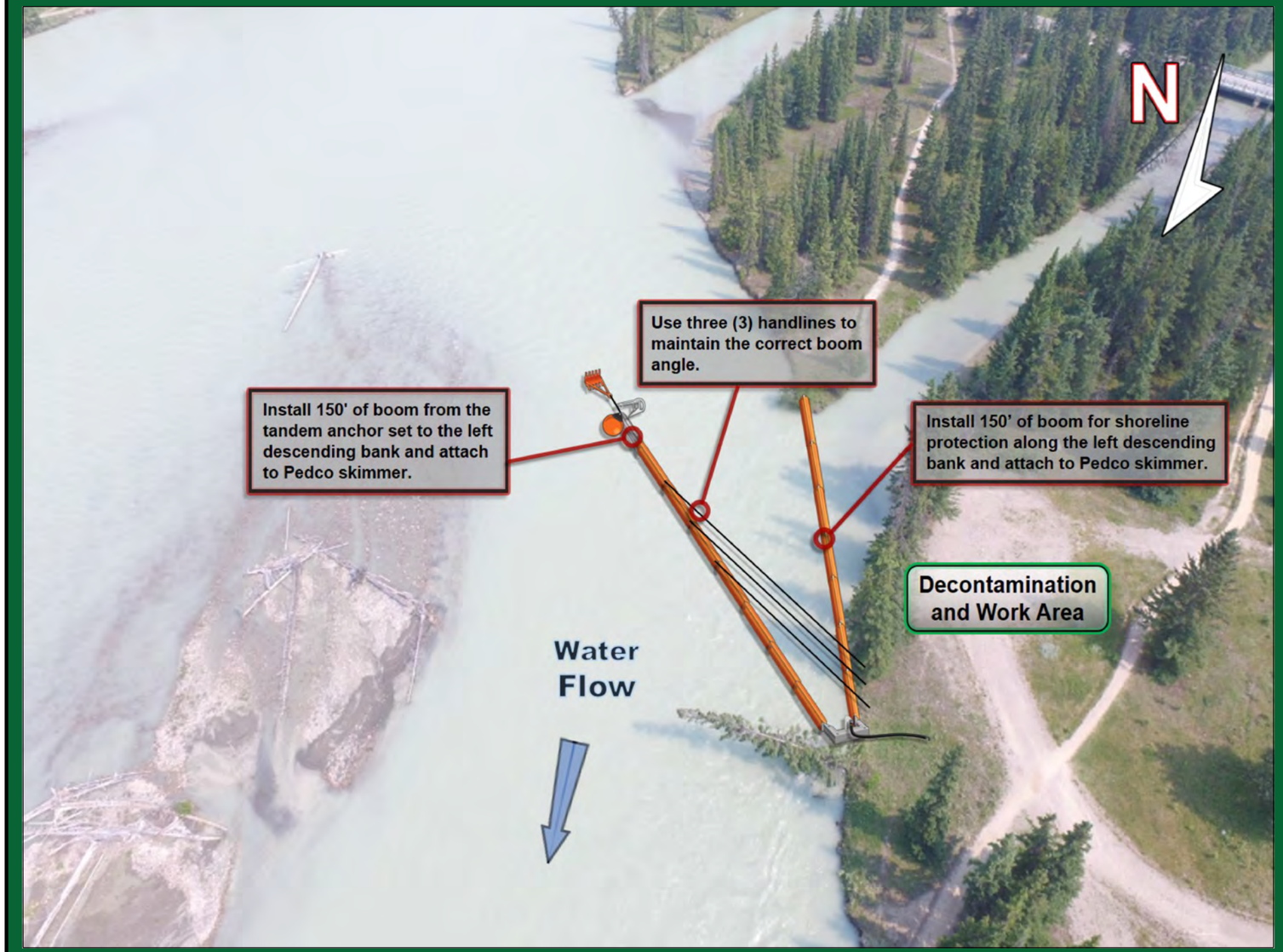
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-07-11
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-02



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	1	Marker Buoy
4	Boat Crew	6	100' Handline and Bridle
		1	Vacuum Truck
		2	Work Boat
		2	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	50' Rode Line
14	**TOTAL**	1	Paravane

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 150' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (3) 100' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 150' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Pedco skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 60 m ice slot from a midstream island at a 15° angle to the left descending bank. Recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-21

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-03

GPS (NAD 83) Decimal/Degree:	**Lat:**	52.872050
	Long:	-118.063740
Elevation:	1039 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:**	24Q
Downstream Valves:	**Line 01:**	KL378

	Upstream	**Downstream**
Control Point:	CP 22-04	CP 22-01
Nearest KM Post:	**Line 01** KP 378	

Waterbody Information:

Waterbody Name: Athabasca River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			240 m
Depth			Unknown
Flow Velocity			6.0 km/hr
FlowType			Confined to unconfined moderate run and riffle structure

Waterbody description:
River is confined as it narrows at bridge crossing, with 3 m clearance, becoming swift with low rapids, flattening and widening along containment, then braided along extensive cobble bar complex downstream of collection. Be aware of shallow submerged boulders and bars, particularly during low and medium water. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
0.8 to 1.4 m

Shoreline Composition and Slope:
Banks typically overhanging/vertical, but low with open level backshores; gradually sloping areas on RDB at put-in/pull-out areas.

Shoreline Vegetation:
Low density mature spruce forest with open understory containing mixed shrubs (e.g., shrubby cinquefoil, soopolallie, common juniper, wolf willow); mosses, grasses, sweet-vetch, milk-vetch, creamy peavine, locoweed, kinnikinnick.

Channel / Bank Forms:
Banks composed predominantly of fine sediments, with boulders upstream and cobbles along foreshores; bed composed predominantly of mixed gravels, cobbles and boulders with silts/sands along lower current areas.

Shoreline Comments:
CP accessed from parking area along level, open backshore trails to gradually sloping put-in/pull-out area. Note, there two other well-maintained, frequently used boat launches upstream along RDB (CP22-8Eb). Upstream and downstream, banks are typically vertical to overhanging with stable gravel/cobble foreshores and an open, often bare understory along backshore RDB associated with trail network.

Logistical Information:

Staging Area Location:	- A staging area can be located along the right descending bank in a parking lot. - 25 m x 35 m area. - All weather access is established.	
	Lat: 52.87122	Long: -118.06227
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security recommended. - Rafting tours use this area for raft retrieval and portage. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - OSCAR cannot cross bridge; access via JasperPark Lodge roads	
Road Access/Type:	- Access off of Old Fort Point Road. - All weather access is established. - Single lane bridge located along access with a 26 tonne GVW single vehicle weight limit. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site.	
Boat Access:	- Main boat access from BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - Winter Response: OSCAR cannot cross bridge, take alternate roads via Fairmont Jasper Park Lodge roads. During winter, route is closed so Personnel/Parks may need to snow plow pathway.	

Decontamination Area:

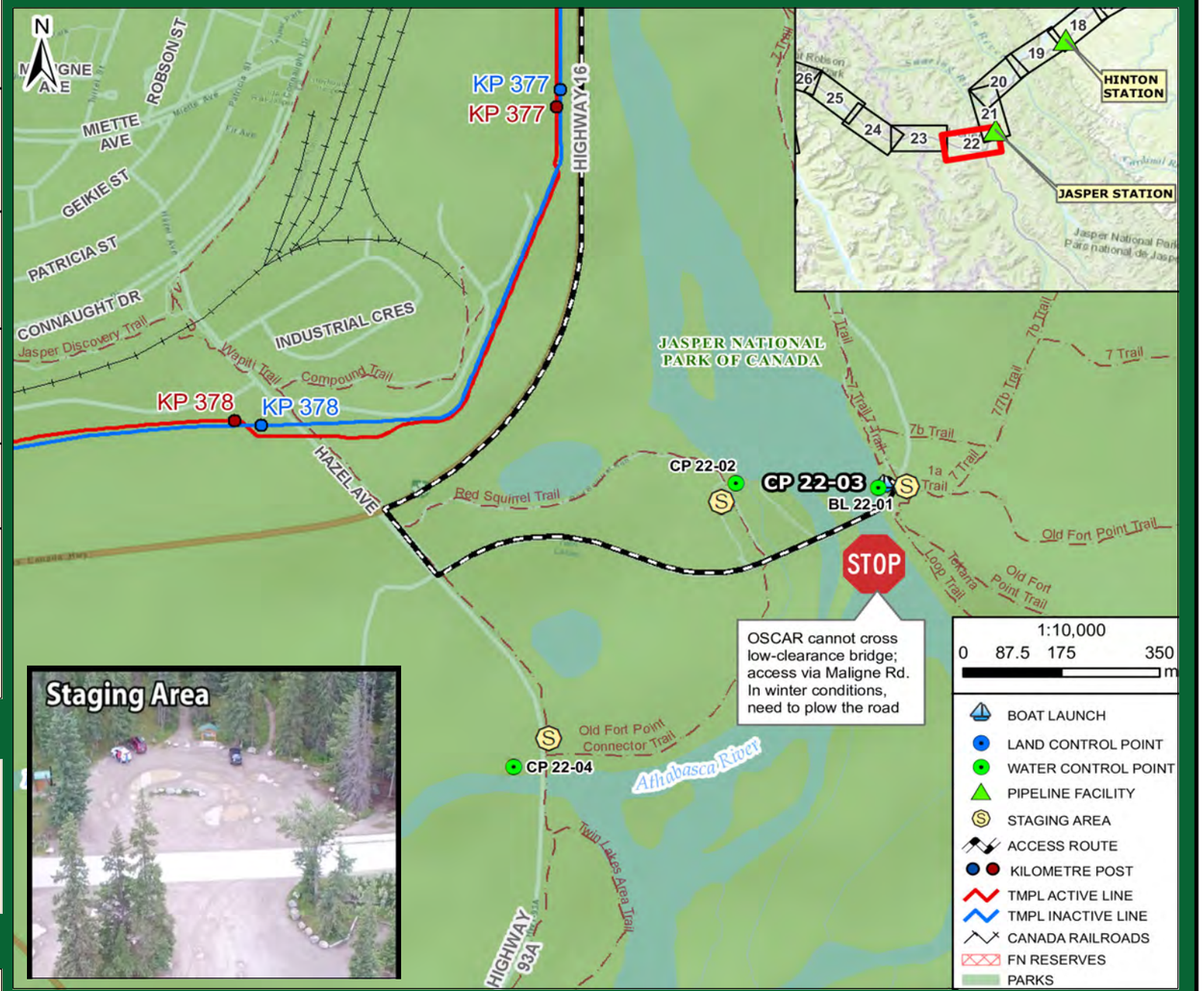
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Sufficient current with abundant gravels and cobbles provide good spawning potential for salmonids; low rearing and overwintering habitat due to typically shallow depths, swift current, lack of shoreline and instream cover, and typically low food availability.
- Forest/cavity and riparian nesting habitat.
- Navigable river, often used by small boats (e.g., kayaks, canoes, drift boats) and guided rafting tours; CP located at put-in/pull-out area, there are two other well-maintained boat launches at upstream parking area.
- Frequently used trail networks and day use site along backshore RDB, with parking areas on both sides of Fort Point Road.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point and staging area are located in Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 9.9 km
- Turn left onto AB-93A S (signs for Icefield Parkway) for 180 m
- Turn left onto Old Fort Point Rd for 1 km and follow to the bridge crossing the river, to parking lot
- Destination is boat launch to Athabasca River, accessed adjacent to hiking trail parking lot
- Total Distance = 10.1 km
- Total Travel Time = 9 minutes calculated at 65 km/hr

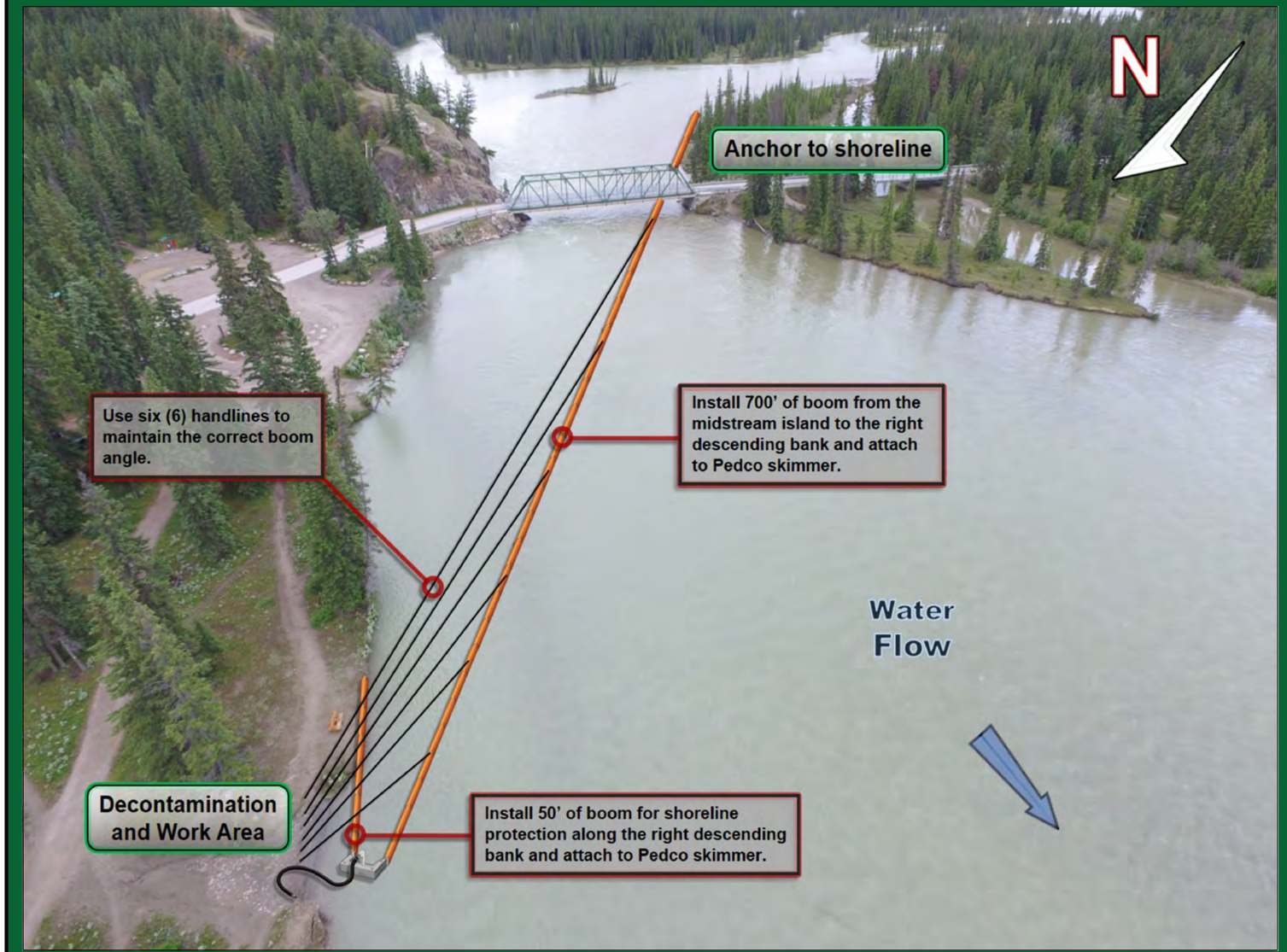
*NOTE - OSCAR cannot cross bridge due to restricted height, must take alternate route from CP 21-05. From Yellowhead Hwy, turn left onto Maligne Rd, then take right onto Old Lodge Rd and follow to Old Fort Point Rd to CP. During winter, route is closed so /Parks may need to snow plow pathway.

RESPONSE

Date Visited: 2017-06-21
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-03



Implementation Strategy:

- Install 700' of 6" x 6" hard containment boom from a midstream island at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (6) 250' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 100' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 300' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 130 m ice slot from the middle of the river at a 15° angle to the right descending bank. Recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	900'	6" x 6" Hard Containment Boom
1	Safety Watch	16	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	300'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	12	250' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Work Boat
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-20

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-04

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.865610	
	Long: -118.071400	
Elevation:	1034 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** 24Q	
Downstream Valves:	**Line 01:** KL378	
Control Point:	**Upstream** CP 22-05	**Downstream** CP 22-03
Nearest KM Post:	**Line 01** KP 378	

Waterbody Information:

Waterbody Name: Miette River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			33 m
Depth			Unknown
Flow Velocity			2.0 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:

River narrows 20 m downstream of collection, becoming swift with low rapids before confluence with Athabasca River downstream of bridge with 4 m clearance. Overhanging Douglas-firs along LDB, dense overhanging shrubs and sweepers along RDB. Low, level backshore along RDB likely becomes inundated during higher water. During low and medium water, instream sediment bars and boulders may become shallow / exposed.

Shoreline Information

Bank Height:
0.8 to 1.4 m

Shoreline Composition and Slope:
LDB is steep to vertical level along top at base of steep 6 m exposed approach; RDB is variable, typically steep to vertical, often muddy; with low, level forested backshore.

Shoreline Vegetation:
Mature Douglas-fir along LDB with open, often bare understory and patches of young alder, willow, wild rose along bank. Spruce dominated forest along RDB with dense alder along bank.

Channel / Bank Forms:
Banks composed predominantly of fine sediments, with occasional embedded boulders along LDB; bed predominantly composed of fine sediments (silt) transitioning to cobbles and boulder along increasing current downstream.

Shoreline Comments:
CP accessed from short access road serving stormwater outfall, to short trail along variable steep 6 m approach becoming level along base directly above steep to vertical 1 m bank. There are mature Douglas-fir trees along LDB approach, otherwise bare with mixed sands to boulders and grasses, where trail continues up above approach. Stormwater outfall is located 20 m downstream of collection along LDB.

Logistical Information:

Staging Area Location:	- A staging area can be located along the left descending bank in a rest area. - 10 m x 30 m area. - All weather access is established.	
	Lat: 52.86618	Long: -118.07059
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- Control point and staging area located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 93a. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of a Jasper sewage lift station.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat due to abundant fines, lack of current; sufficient depth with areas of instream and shoreline cover provide good rearing and overwintering habitat.
- Forest/cavity and riparian nesting habitat.
- Navigable river, often used by small boats (e.g., kayaks, canoes, drift boats).
- Frequent pedestrian use of road to access local trails in area, including one along LDB.
- Confluence with Athabasca River located 100 m downstream.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- This control point is located within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

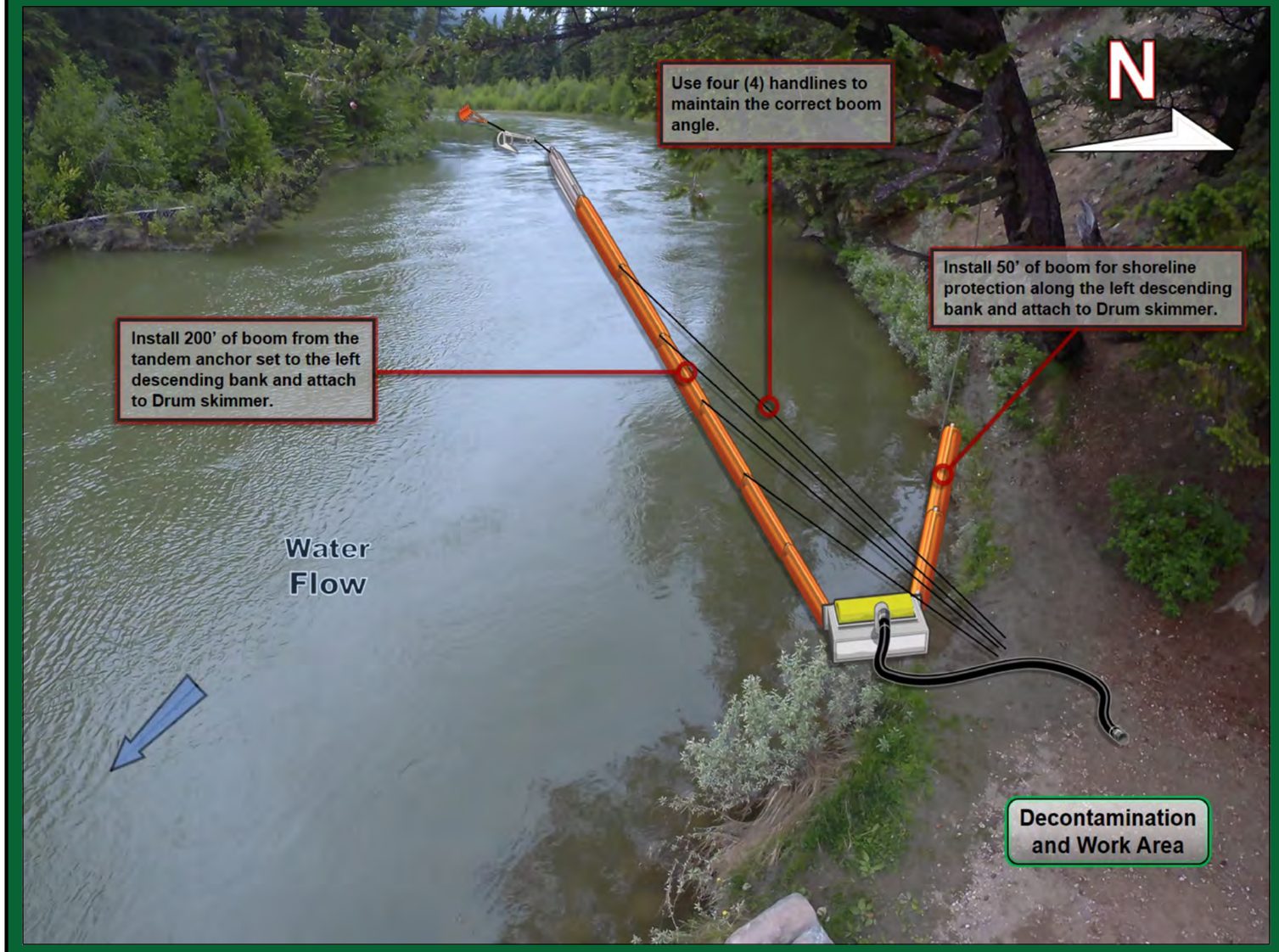
- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 9.9 km
- Turn left onto AB-93A S (signs for Icefield Parkway) for 470 m
- Just before Miette River bridge, turn right towards the riverbank
- Destination is Miette River
- Total Distance = 9.6 km
- Total Travel Time = 9 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-20
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-04



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	350'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2/1	Rake Anchor / Sarca Anchor
		1 / 50'	Power Pack / Hydraulic Line
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 200' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the left descending bank and anchor to the shoreline.
- Install (4) 100' handlines from the 6" x 6" hard containment boom to the left descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 38 m ice slot from the right descending bank at a 15° angle to the left descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-20

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-05

GPS (NAD 83) Decimal/Degree:	**Lat:**	52.862380
	Long:	-118.086510
Elevation:	1030 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL378	
Downstream Valves:	**Line 01:** KL383	
Control Point:	**Upstream** CP 22-06	**Downstream** CP 22-04
Nearest KM Post:	**Line 01** KP 379	

Waterbody Information:

Waterbody Name: Miette River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			30 m
Depth			Unknown
Flow Velocity			2.5 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:

River is sinuous with deep slow current across width before flowing under bridge with 2.5 m clearance. Frequent overhanging trees and shrubs upstream of collection with occasional stranded and submerged logs and woody debris. Low, level backshores may become inundated during above annual average high water levels. During low and medium water, instream sediment bars and boulders may become shallow / exposed.

Shoreline Information

Bank Height:
1.2 to 1.8 m

Shoreline Composition and Slope:
RDB is variable, typically steep to vertical, often muddy; with low, level open grassy backshore becoming forested upstream. Steep to vertical, densely vegetated along LDB.

Shoreline Vegetation:
Open grass dominated RDB and backshore; with young to mature spruce dominated forest upstream and along LDB, with mixed shrubs (e.g., alder, willow, red-osier dogwood).

Channel / Bank Forms:
Bed and banks predominantly composed of fine sediments (silt), with occasional woody debris.

Shoreline Comments:
CP accessed from rest area along open, level grassy highway easement to variable, steep to vertical exposed often muddy RDB, becoming densely vegetated upstream. Slips/trips/falls hazard along muddy banks and soft instream substrate.

Logistical Information:

Staging Area Location:	- A staging area can be located along the right descending bank in a rest area. - 10 m x 65 m area. - All weather access is established.	
	Lat: 52.86214	Long: -118.08568
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 93. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Moderate cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat due to abundant fines, lack of current; sufficient depth with areas of instream and shoreline cover provide good rearing and overwintering habitat.
- Forest/cavity and riparian nesting habitat.
- Navigable river, with open grassy backshore area of RDB used as put-in area for small boats (e.g., kayaks, canoes); parking along rest area 60 m from RDB.
- Frequent pedestrian use of highway to access local trails in area.
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point and staring area are located within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

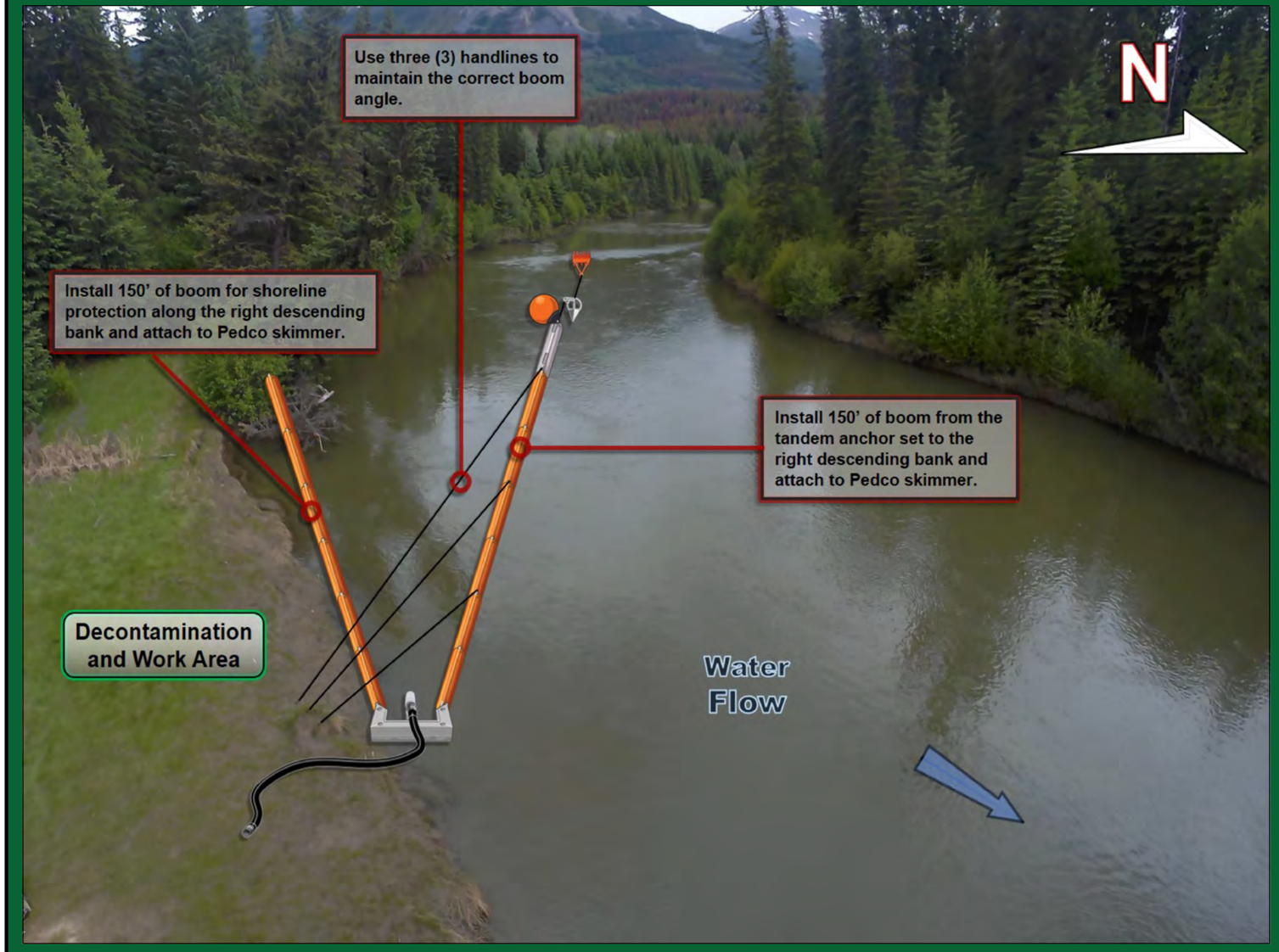
- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 10 km
- Turn left onto AB-93 S (signs for Icefield Parkway) for 650 m
- Destination is Miette River
- Total Distance = 10.9 km
- Total Travel Time = 10 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-20
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-05



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	150'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	6	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
16	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy in middle the river.
- Install 150' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (3) 100' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 150' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 150' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 38 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-20

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-06

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.861480	
	Long: -118.110920	
Elevation:	1044 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL378	
Downstream Valves:	**Line 01:** KL383	
Control Point:	**Upstream** CP 22-07	**Downstream** CP 22-05
Nearest KM Post:	**Line 01** KP 381	

Waterbody Information:

Waterbody Name: Miette River
Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			32 m
Depth			Unknown
Flow Velocity			1.5 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:
River is sinuous, with deep slow current closer to RDB, where overhanging shrubs are common, forming a deep eddy downstream of collection before abruptly meandering north as exposed bedrock is encountered along RDB. During low and medium water, instream sediment bars and boulders may become shallow / exposed. Moderate-high turbidity at time of survey.

Shoreline Information

Bank Height:
Up to 1.5 m

Shoreline Composition and Slope:
RDB typically steep, uneven with some large exposed/submerged boulders transitioning to gradually sloping shale and grass-dominated approach along highway easement.

Shoreline Vegetation:
Dense mature alder, willow, other shrubs (e.g., wild rose, red-osier dogwood, soopolallie, gooseberry) along RDB. Similar shrubs along LDB and backshore with isolated spruce, poplar; abundant grasses, moss on RDB transitions to wild strawberry, oxeye daisy, vetch.

Channel / Bank Forms:
RDB composed of organics, fines and embedded large boulder riprap; LDB predominantly composed of fines; bed composed of fine sediments with less frequent gravels and occasional large boulders near RDB.

Shoreline Comments:
CP accessed from gradually sloping highway easement to 1.5 m steep bank containing shallow, muddy foreshore and deeper water areas, with exposed and partially submerged boulders along shoreline.

Logistical Information:

Staging Area Location:	- A staging area can be located along Highway 16 west bound. - 5 m x 100 m area. - All weather access is established. - Traffic control required.	
	Lat: 52.86131	Long: -118.11079
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Minor site preparation required (brushing).	
Site Restrictions:	- Control point and staging area located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information. - A secondary boat launch can be located at BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

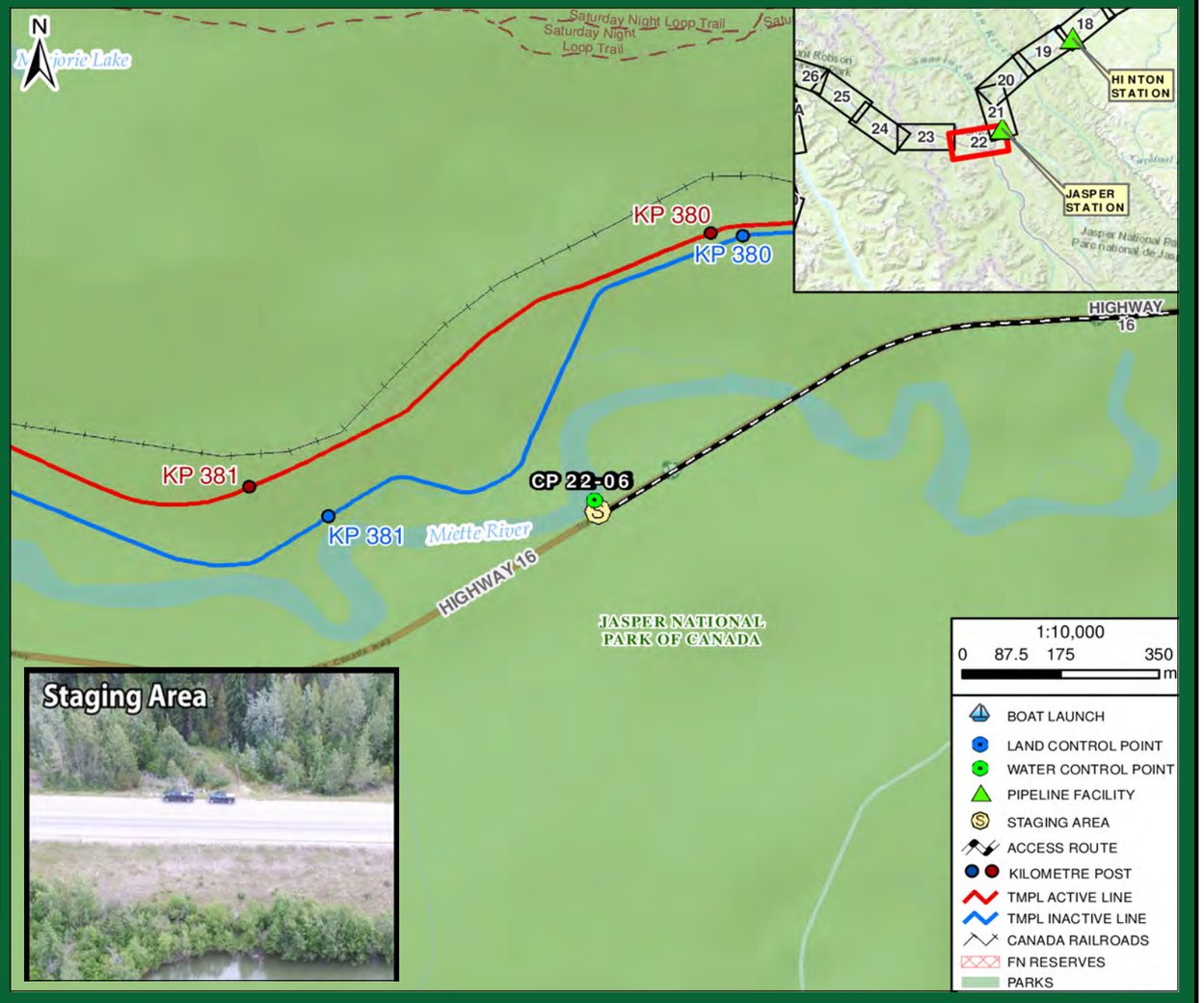
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat due to abundant fines, lack of current; sufficient depth with areas of instream and shoreline cover provide good rearing and overwintering habitat.
- Forest nesting habitat (e.g., thrush spp., finch spp.).
- Dense shrubs provide excellent riparian nesting habitat.
- Shorebird habitat.
- Navigable river with infrequent recreational boating and fishing (e.g., canoe, kayak, drift boat).
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point is located within Jasper National Park,public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

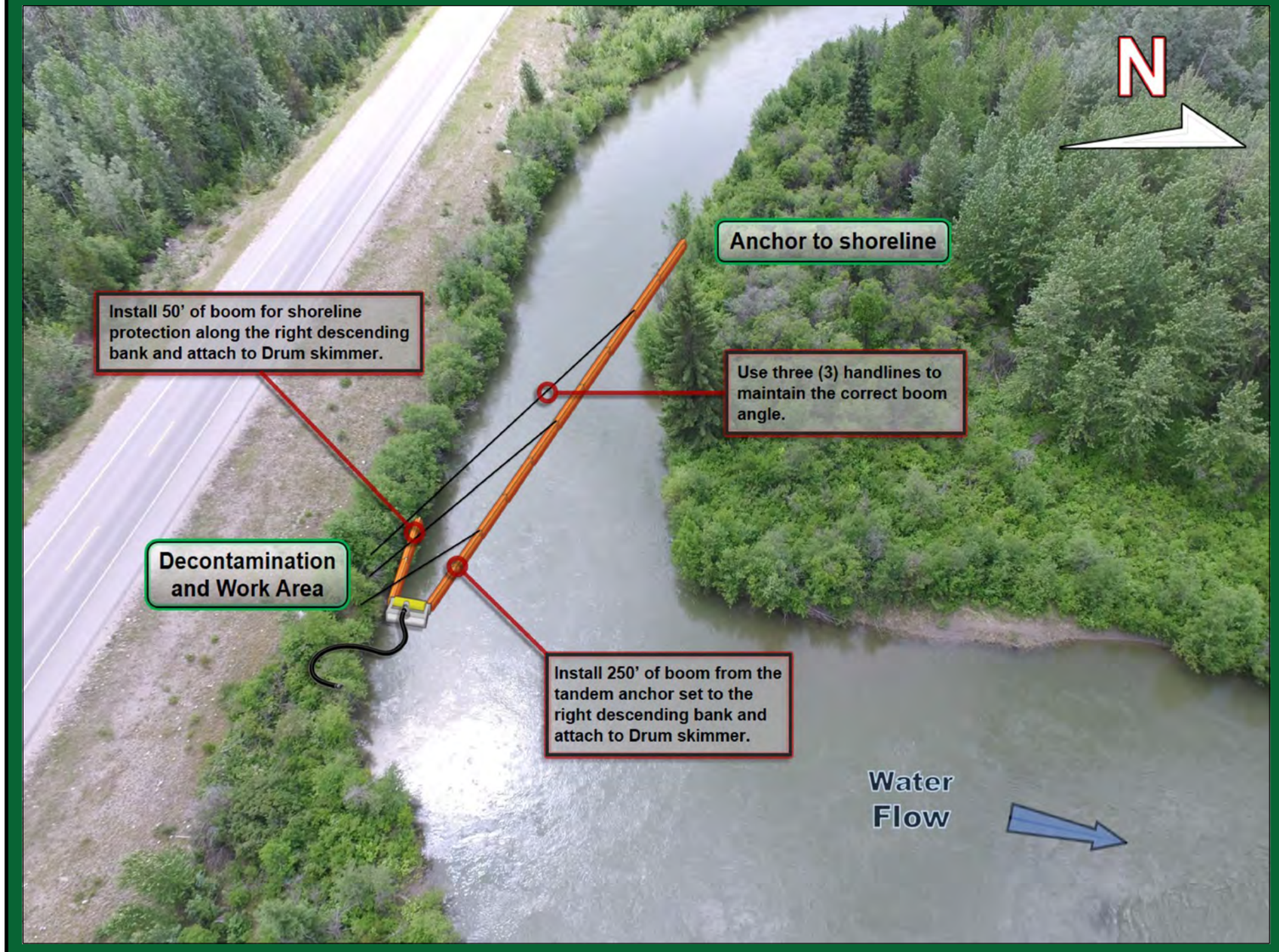
- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 11.4 km
- Pull off from highway, when river is adjacent to highway
- Destination is Miette River
- Total Distance = 11.7 km
- Total Travel Time = 11 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-20
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-06



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
6	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	6	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Work Boat
		1 / 50'	Power Pack / Hydraulic Line
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install 250' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (3) 100' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 38 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-20

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-07

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.857590	
	Long: -118.149830	
Elevation:	1055 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL378	
Downstream Valves:	**Line 01:** KL383	
Control Point:	**Upstream** CP 22-08	**Downstream** CP 22-06
Nearest KM Post:	**Line 01** KP 383	

Waterbody Information:

Waterbody Name: Miette River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			40 m
Depth			Unknown
Flow Velocity			1.5 km/hr
FlowType			Frequently confined low velocity flat run structure

Waterbody description:

River is sinuous, with deep slow current closer to LDB, where overhanging shrubs and instream woody debris are common, becoming marginal, more shallow along RDB, where bank is low, often muddy and poorly defined along sedge dominated areas. Low, level backshores may become inundated during above annual average high water levels. During low and medium water, instream sediment bars may become shallow/exposed.

Shoreline Information

Bank Height:
Poorly defined in areas along RDB, up to 1.2 m; 1 to 1.5 along LDB

Shoreline Composition and Slope:
RDB typically gradual, composed of soft muds, while LDB is steep, grassy and stable; shrub patches along banks becoming dense along forest, open grasses on right-of-way.

Shoreline Vegetation:
sedges, grasses, horsetail, vetch, and willow and alder seedlings and saplings along RDB and TMPL right-of-way, becoming more mature along backshore; spruce dominated forest beyond riparian margins and grass-dominated right-of-way.

Channel / Bank Forms:
Banks composed predominantly of sands and silts, occasional boulder at pipeline crossing; bed composed of similar substrate, with less frequent gravels.

Shoreline Comments:
CP accessed from TMPL right-of-way to river crossing, then downstream along open shoreline and wildlife trail that extends above gradually sloping soft, often muddy bank.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank along a pipeline Right-of-Way. - 40 m x 50 m area. - Matting required to establish all weather access.	
	Lat: 52.85779	Long: -118.15146
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Gated access to staging area.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of a bridge crossing. - There is a large amount of overhanging vegetation along the river.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Poor spawning habitat due to abundant fines, lack of current; sufficient depth with areas of instream and shoreline cover provide good rearing and overwintering habitat.
- Forest, riparian and waterbird nesting habitat.
- Muddy shorelines with open backshores provide shorebird feeding and nesting habitat.
- Well established wildlife trail along banks, with elk and moose track observed during survey.
- Evidence of beaver activity (e.g., shrub cuttings).
- Navigable river with infrequent recreational boating and fishing (e.g., canoe, kayak, drift boat)
- Located in Jasper National Park.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water, use caution around the soft shoreline. Underground facilities are located in the control point area.
- The control point and staging area are located within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

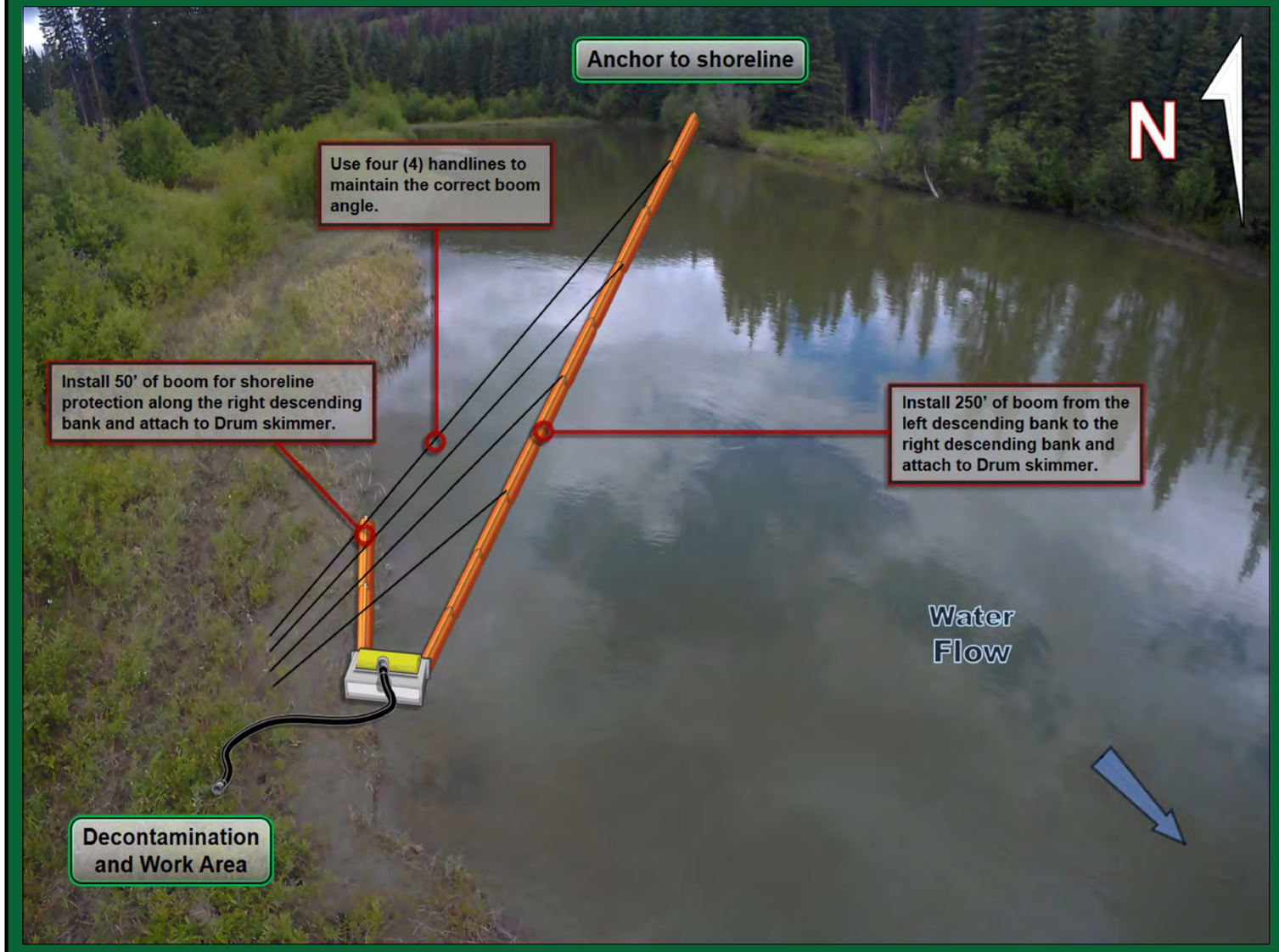
- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 14 km
- Pull off at unnamed road in front of gated road and walk the riverbank
- Destination is Miette River
- Total Distance = 14.3 km
- Total Travel Time = 13 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-06-20
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-07



Implementation Strategy:

- Install 250' of 6" x 6" hard containment boom from the left descending bank at a 30° angle to the right descending bank and anchor to the shoreline.
- Install (4) 150' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Drum skimmer, 200' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 50 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	400'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	200'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	8	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		1 / 100	Power Pack / Hydraulic Line
		2	Work Boat
16	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, bufflehead)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-20

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-08

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.864010	
	Long: -118.222270	
Elevation:	1071 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL383	
Downstream Valves:	**Line 01:** K390	
Control Point:	**Upstream** CP 23-01	**Downstream** CP 22-07
Nearest KM Post:	**Line 01** KP 388	

Waterbody Information:

Waterbody Name: Miette River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			29 m
Depth			Unknown
Flow Velocity			5.5 km/hr
FlowType			Confined moderate-high velocity run and riffle structure

Waterbody description:

Flows along spruce dominated forest setting, containing dense overhanging alder along both banks. CP located along outside river bend, with main current along RDB, becoming shallow along sand/gravel bar on LDB. There are occasional partially submerged stranded logs and woody debris near RDB. Upstream along highway, river is braided, forming a deep eddy area downstream along RDB before merging along containment.

Shoreline Information

Bank Height:
0.5 to 1 m

Shoreline Composition and Slope:
RDB is moderately steep, but low and stable with dense alders, with level open backshore area along trail transitioning to mature forest. LDB obscured by dense shrubs and forest.

Shoreline Vegetation:
Spruce dominated forest; dense mature alder along banks, less frequent willow, soopolallie, red-osier dogwood, wild rose; mixed understory of moss, horsetail, grass, vetch, peavine, bunchberry, Canada anemone, creeping raspberry, columbine, toadflax.

Channel / Bank Forms:
Banks composed predominantly of boulder, exposed and overlain by mosses and grasses; bed composed of boulders and cobbles with less frequent gravels fine sediment along low current areas.

Shoreline Comments:
CP accessed from trail extending along RDB from highway rest area, to low (up to 1 m), moderately steep bank containing dense overhanging alders into swift water along outside bend. LDB obscured, densely vegetated with alder and spruce, with shallow foreshore sand/gravel bar.

Logistical Information:

Staging Area Location:	- A staging area can be located along Highway 16 in a rest stop. - 15 m x 120 m area. - All weather access is established.	
	Lat: 52.86306	Long: -118.22372
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 10 m x 10 m area. - Matting and/or pallets required for all weather access.	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas.	
Road Access/Type:	- Access off of Highway 16. - All weather access is established. - Traffic control recommended to prevent congestion, and allow response crews and resources to enter and exit the site in a safe manner.	
Boat Access:	- Main boat access from BL 21-02. - Refer to BL 21-02 boat launch data sheet for further information. - A secondary boat launch can be located at BL 22-01. - Refer to BL 22-01 boat launch data sheet for further information.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current with pockets of clean gravels and cobbles and riparian cover provide good spawning habitat; perennial flow with abundant overhead cover and deep eddies upstream along outside bend provide moderate rearing and overwintering habitat potential.
- Riparian and conifer forest nesting habitat
- Several elk observed in area during time of survey.
- CP located along informal trail extending along RDB from highway rest area.
- Navigable river with infrequent recreational boating and fishing (e.g., canoe, kayak, drift boat).
- Located in Jasper National Park, with

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point and staging area are located in Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 19 km
- Pull off at the paved highway clearing adjacent to river (with restroom/garbage facilities).
- Google identifies this location as the Yellowhead Pass National Historic Site
- Destination is Miette River, accessed via footpath alongside river
- Total Distance = 19.5 km
- Total Travel Time = 18 minutes calculated at 65 km/hr

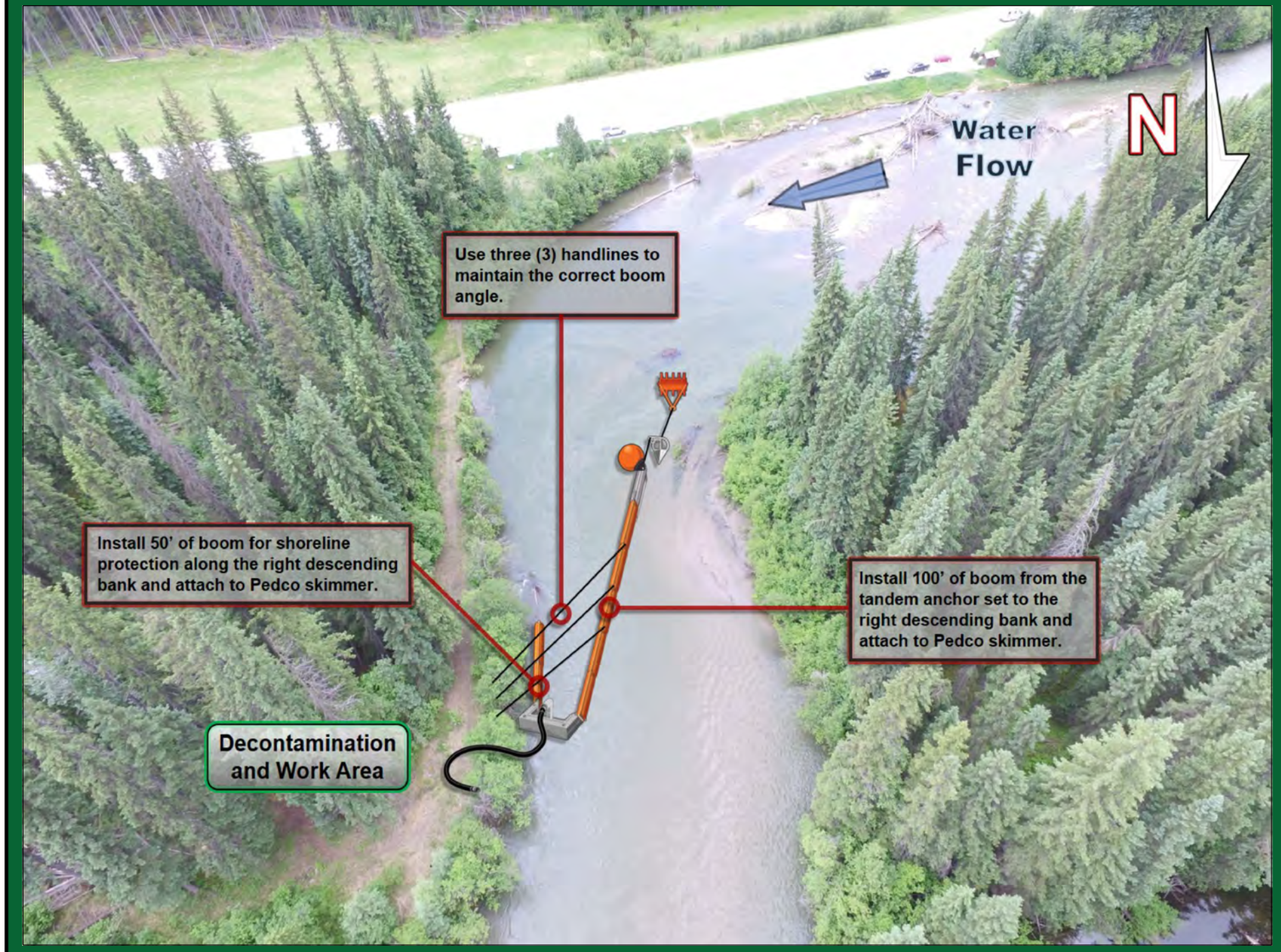
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-20
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 22-08



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	250'	6" x 6" Hard Containment Boom
1	Safety Watch	10	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	350'	Rigid Suction Hose
1	Site Security	1	Portable Tank
2	Boat Captain	6	100' Handline and Bridle
4	Boat Crew	1	Vacuum Truck
		2	Rake Anchor
		1	Sarca Anchor
		2	60' Ballast Chain
		1	Marker Buoy
		1	50' Rode Line
		1	Paravane
14	**TOTAL**	2	Work Boat

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Implementation Strategy:

- Install a tandem anchor set utilizing a Rake and Sarca anchor with 120' of ballast chain (60' each) complete with 50' of rode line and marker buoy.
- Install 100' of 6" x 6" hard containment boom from the tandem anchor set at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (3) 100' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 350' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install a 33 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, Arctic grayling, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), blue heron, American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-07-12

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 23-01

GPS (NAD 83) Decimal/Degree:	**Lat:**	52.878730	
	Long:	-118.322780	
Elevation:	1116 m		
Land and Resource Use:	Crown Land. Jasper National Park.		
Upstream Valves:	**Line 01:**	KL391	
Downstream Valves:	**Line 01:**	K396	
Control Point:	**Upstream** CP 23-02	**Downstream** CP 22-08	
Nearest KM Post:	**Line 01** KP 395		

Waterbody Information:

Waterbody Name: Athabasca River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			18 m
Depth			Unknown
Flow Velocity			1.0 km/hr
FlowType			Confined low velocity flat run structure

Waterbody description:

Confined low velocity flat run structure, with sections of moderate-high velocity rolling-rapid run up and downstream, along conifer dominated forest setting, containing dense overhanging alder and willow along both banks before becoming swift rapids downstream. Moderate turbidity at time of survey.

Shoreline Information

Bank Height:
0.5 m undercut banks with gradual/steep 1 m high approaches.

Shoreline Composition and Slope:
Level forested backshore to gradual, stable 1 m high densely vegetated approach along road above undercut LDB; RDB steep/undercut with level vegetated backshore.

Shoreline Vegetation:
Forest of live and dead standing lodgepole pine, as well as Douglas-fir, spruce and poplar; narrow belt of mature alder and willow along banks with isolated bracted honeysuckle; understory of moss, grass, vetch, horsetail, paintbrush, yarrow, bog orchid.

Channel / Bank Forms:
Banks composed predominantly of organics underlain by mixed fines to cobbles; bed composed of fine sediment along low current areas, with boulders, cobbles and gravels in areas of higher current.

Shoreline Comments:
CP accessed from low grade, gradual old gravel road bordered by forested riparian area, down gradual 1 m high aproach, becoming vertical/undercut banks to slow flowing water. Similar bank characteristics along RDB.

Logistical Information:

Staging Area Location:	- A staging area can be located along the left descending bank. - Access is adjacent to an abandoned bridge crossing. - 5 m x 25 m area. - All weather access is established.	
	Lat: 52.88195	Long: -118.33373
Work Area Location / Comments:	- The work area can be located on the left descending bank. - 5 m x 5 m area. - Matting and/or pallets required for all weather access. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Security is needed to keep out all nonessential personnel and direct deliveries of needed supplies to their prospective areas. - Gated access.	
Road Access/Type:	- Access off of Highway 16, 3 km down a Jasper National Park access road. - All weather access is established.	
Boat Access:	- No boat access at the control point. - A work boat is not required for the control point. - A small rubber hull work boat can be utilized to help transport personnel from the left descending bank to the right descending bank.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established.	

Decontamination Area:

- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Low spawning potential at collection due to abundance of fines; areas up and downstream of sufficient current with pockets of clean gravels and cobbles and riparian cover provide good spawning habitat; perennial flow with abundant overhead cover provide low to moderate rearing and overwintering habitat potential (limited by swift, often shallow current).
- Dead standing mountain pine beetle kill trees provide cavity nesting and foraging habitat (e.g. woodpecker spp., red-breasted nuthatch).
- Forest nesting habitat (e.g., thrush spp., finch spp.).
- Riparian nesting habitat.
- Located in Jasper National Park, with CP located along old access road to warden station.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep water with soft ground conditions, use caution around the shoreline.
- Be aware of wildlife in the area.
- The control point and staging area are located within Jasper National Park, public may be present.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

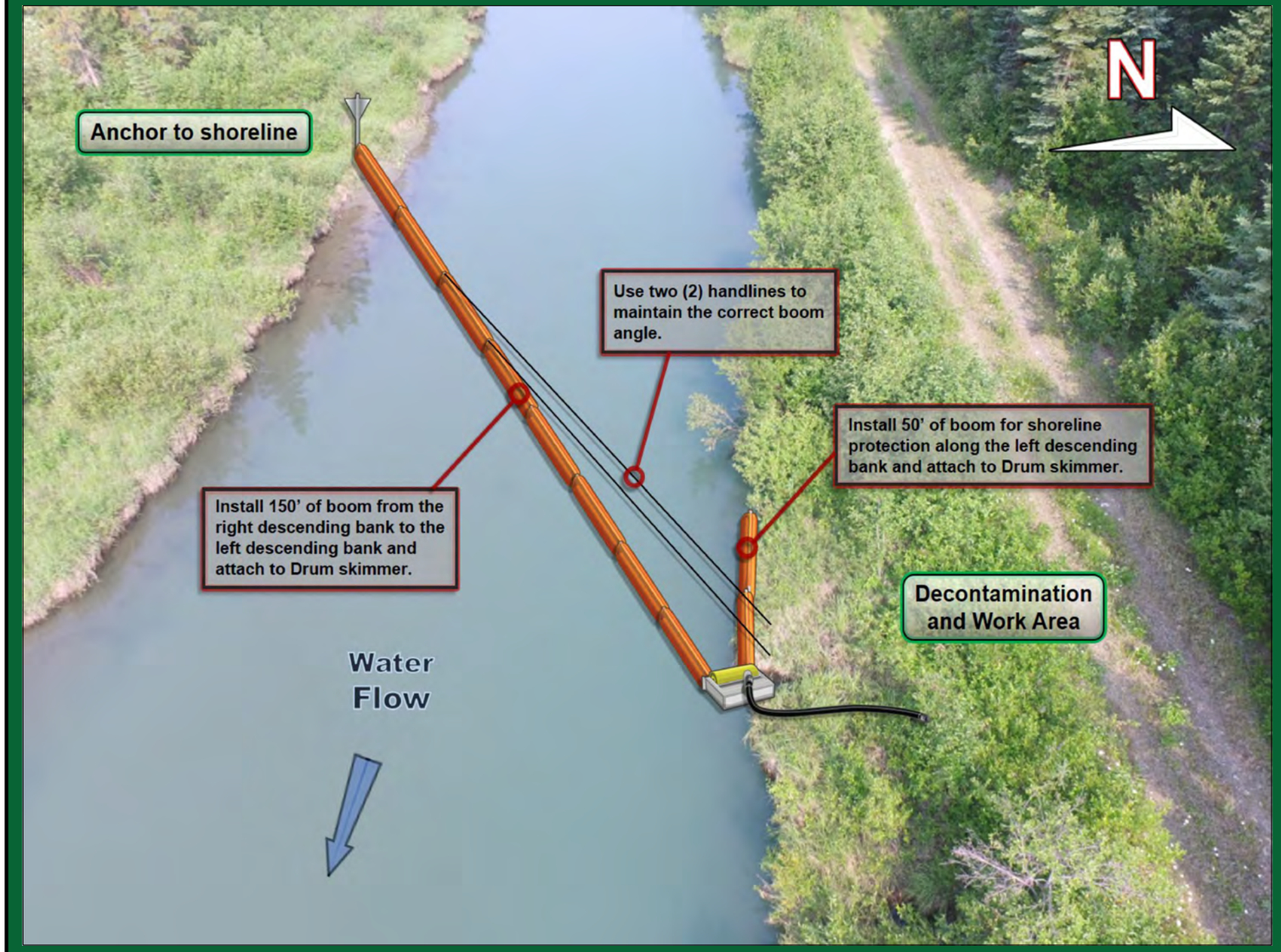
- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 29.6 km
- Turn right at Decoigne Ranger Station (CP 23-02) for 400 m towards road fork
- Turn right along unnamed road parallel to river for 5 km
- Destination is boat launch to Miette River (old bridge is no longer in place)
- Total Distance = 26.4 km
- Total Travel Time = 24 minutes calculated at 65 km/hr

RESPONSE

Date Visited: 2017-07-12
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 23-01



Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	8	Shoreline Pin
6	Shoreline Personnel	1	Drum Skimmer, Transfer Pump
1	Vacuum Truck Operator	50'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		1 / 50'	Power Pack /Hydraulic Line
		4	100' Handline and Bridle
		1	Vacuum Truck
		1	Small Rubber Hull Work Boat
10	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer, harlequin duck)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Implementation Strategy:

- Install 150' of 6" x 6" hard containment boom from the right descending bank at a 30° angle to the left descending bank and anchor to the shoreline.
- Install (2) 100' handlines from the 6" x 6" hard containment boom to the left descending bank to maintain the correct boom angle.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the left descending bank.
- Recover product with a Drum skimmer, 50' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation, which will determine snow cover, ice thickness, water depth, watercourse flow and load bearing capacity. Install a 23 m ice slot from the right descending bank at a 15° angle to the left descending bank. Recover product in the same area as summer operations.

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

GRP DATA SHEET

Date Visited: 2017-06-20

Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 23-02

GPS (NAD 83) Decimal/Degree:	**Lat:** 52.884100	
	Long: -118.390500	
Elevation:	1136 m	
Land and Resource Use:	Crown Land. Jasper National Park.	
Upstream Valves:	**Line 01:** KL400	
Downstream Valves:	**Line 01:** K406	
Control Point:	**Upstream** N/A	**Downstream** CP 23-01
Nearest KM Post:	**Line 01** KP 401	

Waterbody Information:

Waterbody Name: Miette River

Waterbody Type: River

WATER LEVEL:	Low	Medium	High
Width			15 m
Depth			Unknown
Flow Velocity			6.5 km/hr
FlowType			Confined moderate-high velocity rolling run structure

Waterbody description:
Confined moderate-high velocity rolling run structure along conifer dominated forest setting, containing dense overhanging alder along both banks before flowing under clear span bridge with 2 m clearance. Low turbidity at time of survey.

Shoreline Information

Bank Height:
1 to 1.5 m along LDB; 0.5 m along RDB (poorly defined in areas)

Shoreline Composition and Slope:
Level forested backshores becoming steep, but stable along 3 to 4 m high densely vegetated approaches to gradual banks/foreshore area along water edge.

Shoreline Vegetation:
mature forest of live and dead standing lodgepole pine, as well as Douglas-fir, spruce and poplar; dense mature alder along banks; mixed understory of mosses, grasses, vetch, creamy peavine, kinnikinnick, meadow rue, horsetail, wild strawberry.

Channel / Bank Forms:
banks composed predominantly of organics underlain by mixed fines to cobbles; bed composed of boulders and cobbles with less frequent gravels fine sediment along low current areas.

Shoreline Comments:
CP accessed from open level gravel area adjacent to access road and CN railway to forested riparian area on RDB, down steep 3 m high approach, becoming gradual along foreshore area into shallow water that becomes swift mid-river. Similar bank characteristics along LDB.

Logistical Information:

Staging Area Location:	- A staging area can be located on the right descending bank in a parking lot. - 15 m x 20 m area. - All weather access is established.	
	Lat: 52.88383	Long: -118.39039
Work Area Location / Comments:	- The work area can be located on the right descending bank. - 3 m x 3 m area. - All weather access is established. - Minor site preparation required (brushing).	
Site Restrictions:	- The control point and staging area are located within Jasper National Park. - Access is across a CN Rail railway. - Security is needed to keep out all nonessential personnel.	
Road Access/Type:	- Access off of Highway 16, down the Decoigne Ranger Station road. - All weather access is established. - The bridge located at this control point has a 15 tonne single vehicle maximum weight restriction.	
Boat Access:	- No boat access at the control point. - A boat is not required for control point installation.	
Comms:	**Cell Phone Coverage** - Poor cell phone coverage. - Establish communications.	**Radio Coverage** - Two way radios recommended.
Site Comments:	- This control point is suitable for low, medium and high water conditions. - This control point is a viable location for a winter response. - All weather access can be established. - The control point is located directly upstream of a bridge crossing. - There is a large amount of overhanging vegetation along the river.	

Decontamination Area:

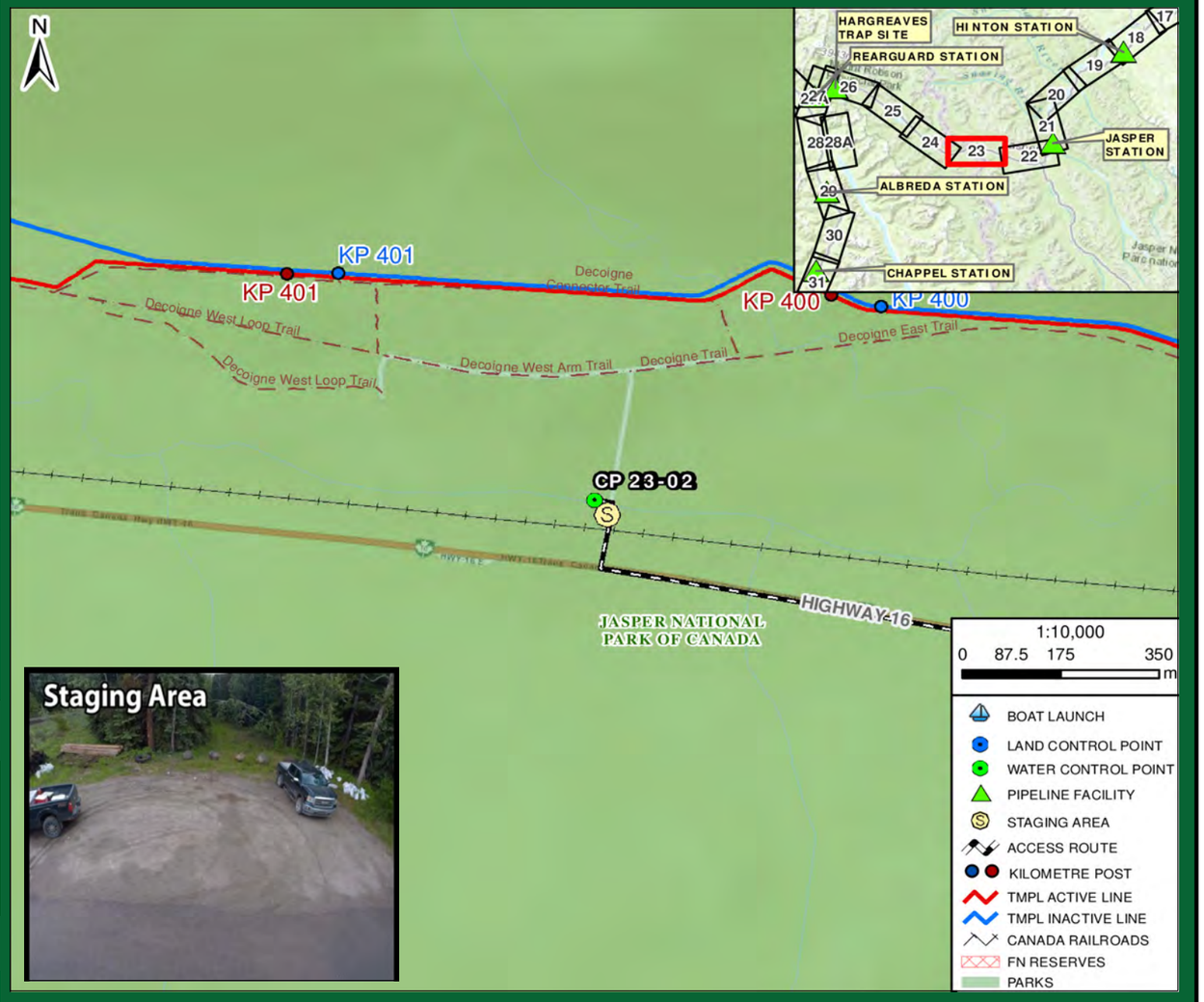
- A decontamination trailer will be required at this control point to prevent cross contamination and migration of impacts.
- Hot, Warm and Cold zones must be established before response operations commence.
- A decontamination area is to be installed at the point of exit from the work area.
- Response personnel will utilize the decontamination area when moving from the Hot to Warm zone.

Resources At Risk:

- Areas of sufficient current with pockets of clean gravels and cobbles and riparian cover provide good spawning habitat; perennial flow with abundant overhead cover provide low to moderate rearing and overwintering habitat potential (limited by swift, often shallow current).
- Dead standing mountain pine beetle kill trees provide cavity nesting and foraging habitat (e.g. woodpecker spp., red-breasted nuthatch).
- Forest nesting habitat (e.g., thrush spp., finch spp.).
- Riparian nesting habitat.
- Located in Jasper National Park, with CP located along access road to nearby trail system and warden station.

Safety Concerns:

- Follow the Incident Safe Approach protocol when first arriving on site. Ensure that a Safety Watch has been appointed. Prior to beginning response operations complete the Initial Site Health & Safety Plan and the Tailgate Meeting/Hazard Assessment Form. Review these documents with all response personnel.
- Deep / fast water, use caution around the shoreline.
- The control point and staging area are located within Jasper National Park, public may be present.
- Be aware of wildlife in the area.
- Product pending, screen for LEL, O2, Benzene and Toluene.



Directions:

- From Jasper Station, get on Yellowhead Hwy / AB-16 West towards Vancouver
- Continue West for 30.6 km
- Turn right at unnamed road (signs for Decoigne Warden Station with lamp post) for 120 m
- Destination is Miette River
- Total Distance = 31.1 km
- Total Travel Time = 29 minutes calculated at 65 km/hr

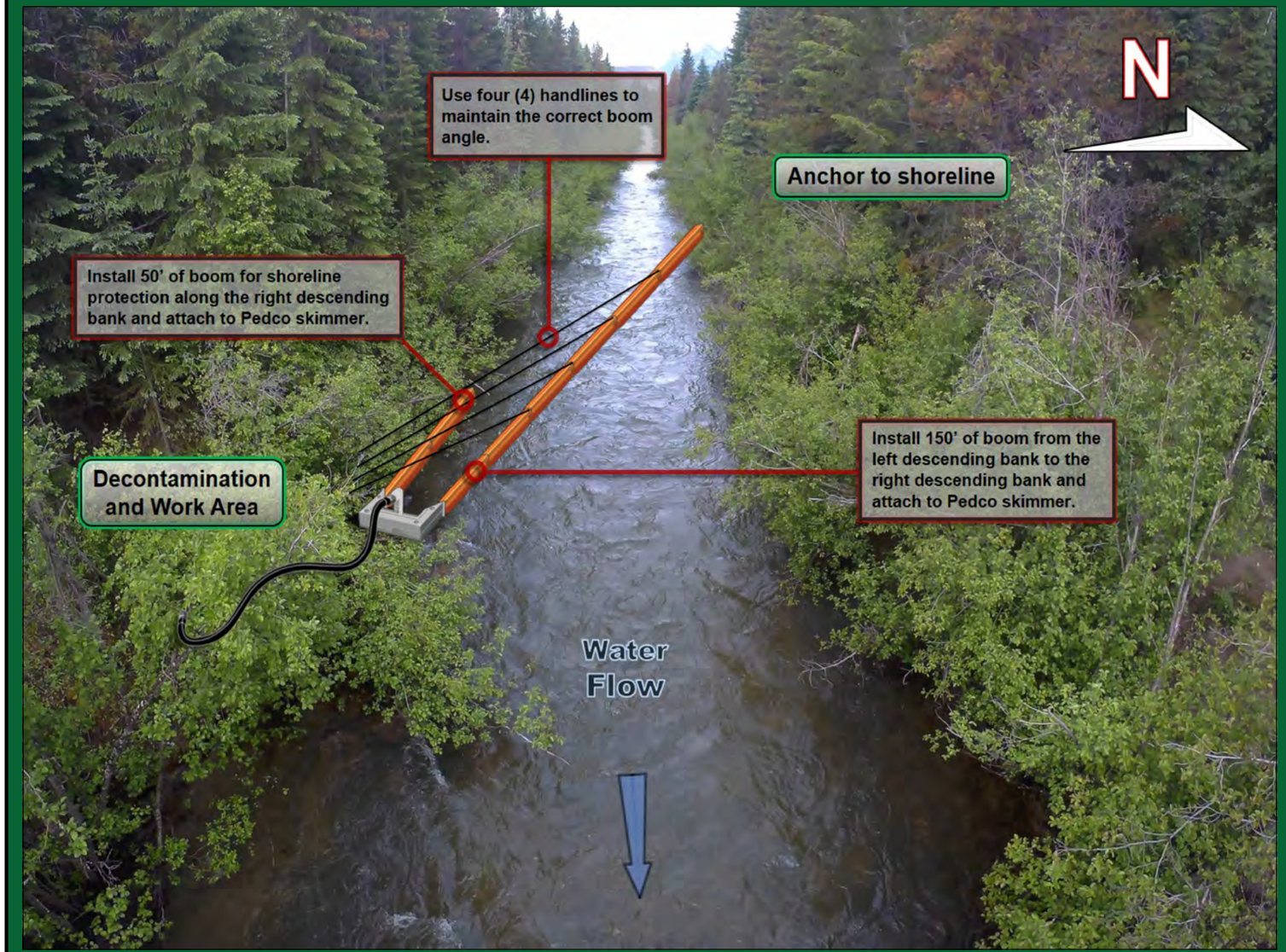
TRANSMOUNTAIN

RESPONSE

Date Visited: 2017-06-20
Date Updated: 2018-10-15

Uncontrolled copy if printed

TRANS MOUNTAIN PIPELINE
ALBERTA DISTRICT
WATER CONTROL POINT CP 23-02



Implementation Strategy:

- Install 150' of 6" x 6" hard containment boom from the left descending bank at a 10° angle to the right descending bank and anchor to the shoreline.
- Install (4) 50' handlines from the 6" x 6" hard containment boom to the right descending bank, being sure to use the correct boom recovery angle for the present surface flow rate.
- Install 50' of 6" x 6" hard containment boom for shoreline protection on the right descending bank.
- Recover product with a Pedco skimmer, 100' of rigid suction hose directly to a vacuum truck / portable tank or low impact recovery unit.

Winter Response:
- Complete ice evaluation which will determine snow cover, ice thickness, water depth, stream flow and load bearing capacity. Pending ice evaluation results, install an 18 m ice slot from the left descending bank at a 15° angle to the right descending bank in the main channel of the watercourse and recover product in the same area as summer operations.

Implementation Resources:

Quantity	Personnel	Quantity	Equipment
1	On-Site Supervisor	300'	6" x 6" Hard Containment Boom
1	Safety Watch	12	Shoreline Pin
4	Shoreline Personnel	1	Pedco Skimmer, Transfer Pump
1	Vacuum Truck Operator	100'	Rigid Suction Hose
1	Site Security	1	Portable Tank
		8	50' Handline and Bridle
		1	Vacuum Truck
8	**TOTAL**		

Equipment Resources:

- Oil Spill Containment and Recovery (OSCAR) trailer
- Boom trailer
- Decontamination trailer
- Wildlife trailer
- Portable washrooms
- Work Boats

Winter Response:
- Winter response trailer

Support / Technical Services:

Incident Management Team
- Additional responders

Multiple contractors specialized in:
- Response Management, Containment & Recovery and Site Logistics
- Aquatics, Wildlife Mitigation and Management
- Site Security
- Incident Command System
- Remediation and Reclamation

Wildlife at Risk:

- Fish spp. (e.g., pike, rainbow trout, bull trout, mountain whitefish)
- Deer, moose, elk, coyote, red fox, black bear, grizzly bear, wolf, cougar, bobcat, lynx, beaver, muskrat, mink
- Small mammals (e.g.,vole spp., porcupine, weasel spp., hare, bat spp.)
- Amphibians (e.g., Western toad, wood frog)
- Waterbirds (e.g., common goldeneye, mallard, common merganzer)
- Riparian nesting birds (e.g., warbler spp., flycatcher spp., sparrow spp.), American dipper
- Raptors (e.g., Cooper's hawk, red-tailed hawk, osprey, bald eagle), owls (e.g., barred owl, saw-whet owl, boreal owl, great grey owl)
- Forest birds (e.g., thrush spp., finch spp., tree swallow, red-breasted nuthatch, woodpecker spp., kinglet spp., chickadee spp.)
- Shorebirds (e.g., spotted sandpiper, killdeer)

Wildlife Mitigation Tactics:

- Consult with the Planning Section in the Incident Command Post for further mitigation tactics for aquatic, avian and ungulate species.
- 7' - 8' high wildlife fence around work area.
- Electric fence around work area (fire ban dependent).
- Maintain a brush free border around site.
- Audio deterrents such as Zon cannons (fire ban dependent) and bird guards.
- Visual deterrents such as pennant flagging, wind socks, mylar tape and kites.
- Silt fence keyed in 0.10 m (if soil permits) or weighed down for potential small burrowing mammals and amphibians.
- Human presence.

8.0 FORMS

- Initial Site Health & Safety Plan
- ICS 201
- Gas Detection Record
- ICS 214
- ICS 211
- Ice Assessment Form

INITIAL SITE HEALTH & SAFETY PLAN

INCIDENT PARTICULARS

Incident Name:	Date/ Time:
Command Post Location:	Site Phone Number:
Product: Est. Vol: m^3	MSDS Available: ☐ Yes ☐ No
ICS 201 Form Initiated: ☐ Yes ☐ No	Person Responsible:
Internal/ External Notifications Made: ☐ Yes ☐ No	Person Responsible:

SITE CHARACTERIZATION

☐ Pipeline	☐ Storage Facility	☐ Truck	☐ Land	☐ Water	☐ Other (please specify)

SITE SECURITY & ACCESS POINTS

Description:

SITE HAZARDS

☐ Fire Explosion	☐ Equipment Operations	☐ Trenching Excavation	☐ Fatigue	☐ Slips, Trips, and Falls
☐ Chemicals	☐ Motor Vehicles	☐ Confined Spaces	☐ Heat Stress	☐ Restricted Work Area
☐ Electrical	☐ Boat Operations	☐ UV Radiation	☐ Cold Stress	☐ Heavy Lifting
☐ Steam/ Hot Water	☐ Helicopter Operations	☐ Overhead/ Buried Utilities	☐ Weather	☐ Drum Handling
☐ Noise	☐ Shore Line Operations	☐ Pumps and Hoses	☐ Visibility	☐ Plants/ Wildlife
				☐ Other:

ATMOSPHERIC MONITORING – INITIAL READING

O_2	%	LEL	%	Other (specify):
H_2S	ppm	Benzene	ppm	

NOTE: Additional results to be recorded in 'Emergency Response/ Safety Watch Log'

CONTROL MEASURES	SITE SETUP		
☐ Source of Release Secured	Communications Established	☐ Yes	☐ No
☐ Site Secured	Hot Zone Established	☐ Yes	☐ No
☐ Valve(s) Closed	Fire Extinguisher Accessible	☐ Yes	☐ No
☐ Energy Sources Locked/ Tagged Out	Decontamination Stations Established	☐ Yes	☐ No
☐ Facility Shut Down	Illumination Equipment Provided	☐ Yes	☐ No
☐ Other:	Medical Surveillance Provided	☐ Yes	☐ No
	Sanitation Facilities Provided	☐ Yes	☐ No

HOT ZONE PPE REQUIREMENTS

General	Other			Respiratory		
☐ Hard Hat	☐ Face Shield	☐ Rubber boots	☐ Leather gloves	☐ SABA/ Air Line w/ Esc		
☐ FR Clothing	☐ Tinted Lens	☐ High Vis. Vests	☐ Nitrile gloves	☐ SCBA to be worn	☐ Cartridge Type	OV
☐ Steel toes	☐ Impact Goggles	☐ PFD's	☐ Rubber gloves	☐ SCBA to be avail. #	☐ Cartridge Type	P(M)-100
☐ Safety Glasses	☐ Chemical Res. Clothing	☐ Safety Harness	☐ Hearing Protection	☐ Air Purifying (full mask)	☐ Cartridge Type	P(M)-100/OV
		☐ FR Rain Gear	☐ FR Tyvek	☐ Air Purifying (half mask)		

WARM ZONE PPE REQUIREMENTS

General	Other			Respiratory		
☐ Hard Hat	☐ Face Shield	☐ Rubber boots	☐ Leather gloves	☐ SABA/ Air Line w/ Esc		
☐ FR Clothing	☐ Tinted Lens	☐ High Vis. Vests	☐ Nitrile gloves	☐ SCBA to be worn	☐ Cartridge Type	OV
☐ Steel toes	☐ Impact Goggles	☐ PFD's	☐ Rubber gloves	☐ SCBA to be avail. #	☐ Cartridge Type	P(M)-100
☐ Safety Glasses	☐ Chemical Res. Clothing	☐ Safety Harness	☐ Hearing Protection	☐ Air Purifying (full mask)	☐ Cartridge Type	P(M)-100/OV
		☐ FR Rain Gear	☐ FR Tyvek	☐ Air Purifying (half mask)		

TRAINING AND REVIEW

Hazwoper Training Records Verified for U.S.A. Operations ☐ Yes ☐ No All Responders have reviewed this Plan ☐ Yes ☐ No

Completed by:

Uncontrolled copy if printed

1. Incident Name	2. Prepared by: (name) Date Time:	INCIDENT BRIEFING ICS 201-OS (pg 1 of 4)

3. Map/Sketch (include maps drawn here or attached, showing the total area of operations, the incident site/area, overflight results, trajectories, Impacted shorelines, or other graphics depicting situational and response status)

Uncontrolled copy if printed

1. Incident Name	2. Prepared by: (name) Date Time:	INCIDENT BRIEFING ICS 201-OS (pg 2 of 4)

4. Initial Incident Objectives

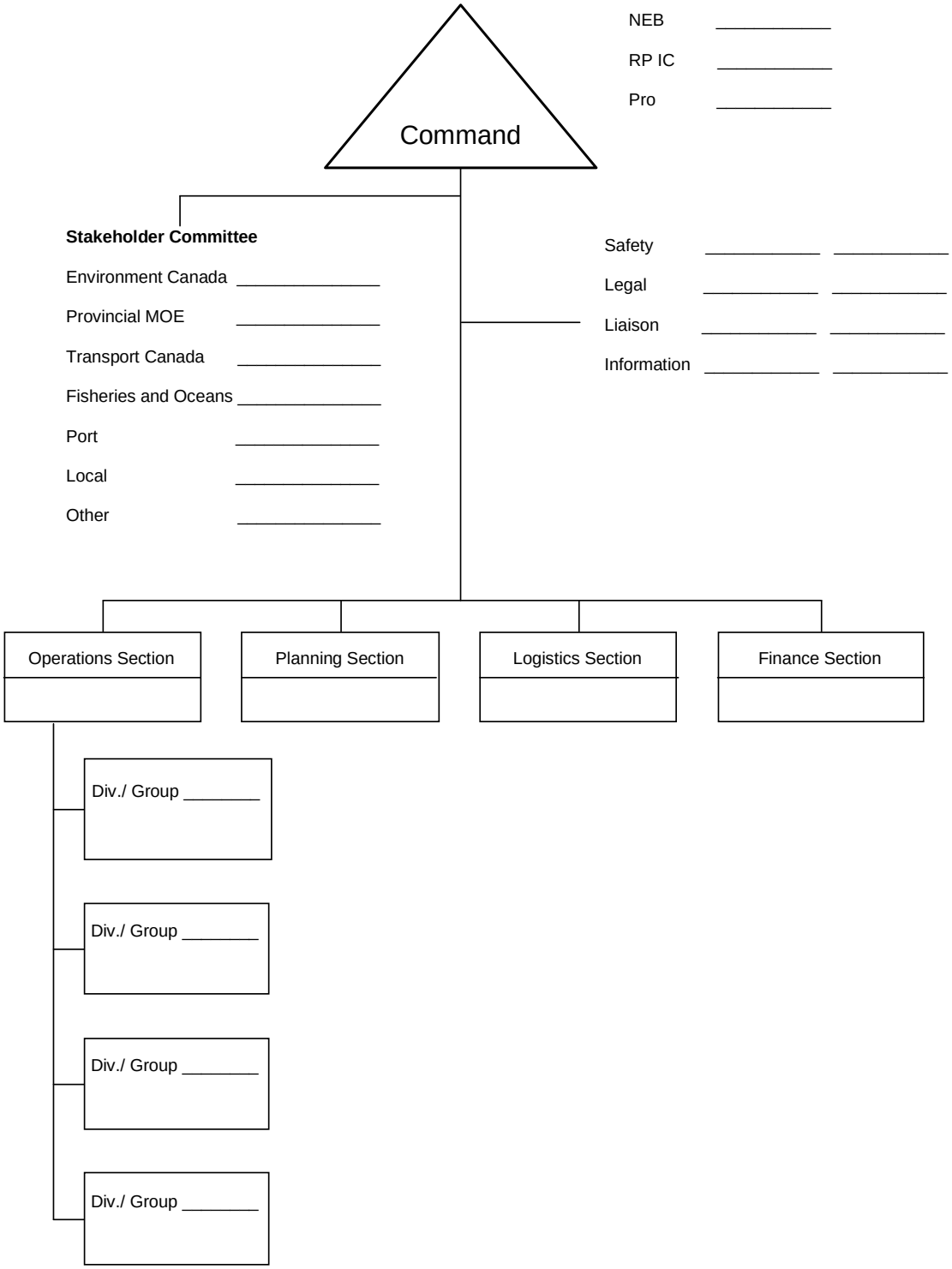
5. Summary of Current Actions

Time	Action/Note

Uncontrolled copy if printed

1. Incident Name	2. Prepared by: (name) Date Time:	INCIDENT BRIEFING ICS 201-OS (pg 3 of 4)

3. Current Organization



Uncontrolled copy if printed

1. Incident Name	2. Prepared by: (name) Date Time:	INCIDENT BRIEFING ICS 201-OS (pg 4 of 4)

7. Resources Summary

Resources Needed	Time Ordered	Resources Identifier	ETA	On-Scene? (X)	NOTES: (Location/Assignment/Status)

GAS DETECTION RECORDS

DATE:	**PAGE NUMBER:**
DATA COLLECTOR:	**OTHER:**

GAS DETECTION EQUIPMENT INFORMATION

MANUFACTURER:	**MANUFACTURER:**
MODEL:	**MODEL:**
SERIAL NUMBER:	**SERIAL NUMBER:**
TYPE:	**TYPE:**
DATE OF LAST CALIBRATION / TEST:	**DATE OF LAST CALIBRATION / TEST:**

			Benzene					
Location	Time	VOC ppm	ppm	STEL	O_2 %	LEL %	H_2S ppm	CO ppm

Uncontrolled copy if printed

UNIT LOG	1. Incident Name	2. Date Prepared	3. Time Prepared
4. Unit Name/Designators	5. Unit Leader (Name and Position)		6. Operational Period

7. Personnel Roster Assigned		
Name	ICS Position	Home Base

8. Activity Log	
Time	Major Events

9. Prepared by (Name and Position)

Uncontrolled copy if printed

1. Incident Name	2. Operational Period (Date / Time) From: To:	3. Check-in Location ☐ Command Post ☐ Other ☐ Staging Area _____ _____	**CHECK-IN LIST (Personnel)** **ICS 211p-OS**

Personnel Check-in Information				**8. Initial Incident Check-In?**	**9. Time**	
4. Name	**5. Company/Agency**	**6. ICS Section / Assignment / Quals.**	**7. Contact Information**	(X)	In	Out
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		
				☐		

10. Prepared by: **Date / Time**	**11. Date / Time Sent to Resources Unit**

Uncontrolled copy if printed

TRANS MOUNTAIN
ICE COVER INSPECTION FORM

Date:	**Location (Control Point):**	**GPS Coordinates:**
Completed by:		
Climate Condition: Calm/Snow/Rain/Wind	List Names of Responders Present or use 211p Form	3)
Visibility Factors: Clear/Fog/Light/Dark	1)	4)
Today's Temperature: _____0 C	2)	5)

Ice Measurement Data		**Control Record**	**Yes**	**No**	**If No a corrective action is required**
Hole Distances Are Measured		Tailgate Meeting Completed			
From the east/north to west/ south shore		Ice Safety Plan Completed			
		Environment River Forecast Reviewed			
Test Hole #	**Ice Depth**	Safety Signs in Correct Position			
#1-	cm/inches	Safety Signs Clean/Visible			
#2-	cm/inches	Barricades in Correct Position			
#3-	cm/inches	Test Holes—Staked & Numbered			
#4-	cm/inches	Work Area Clear of Snow			
#5-	cm/inches	Access Path Surface Visible			
#8-	cm/inches	Unusual or Deep Cracks Observed			
#9-	cm/inches	Water Visible in Cracks			
#10-	cm/inches	Thin Ice On/Near Shoreline			
#14-	cm/inches	Shore Inspection: Water on Surface—Shore Ice Lifting or Bulging—Shore Ice Falling or Dropping—Shore Ice Bulging/Breaking Up Stream—Water on Surface Up Stream			
#15-	cm/inches				
#16-	cm/inches	**Ice Weight Bearing Capacity Data**			
#17-	cm/inches	Yesterday's Load Capacity Rating: _____KG/lbs.			
#18-	cm/inches	Today's Load Capacity Rating: _____KG/lbs.			
#19-	cm/inches	List Potential Problems Developing on Work Area or Up Stream:			
#20-	cm/inches				
#21-	cm/inches	**Gold's Formula - P = A x h^2** where: P is the calculated allowable load in kilograms, A is the selected risk tolerance value, h is the effective thickness of good quality blue/white ice (cm/inches). Refer to Section 4.4.2 of this manual for instructions in completing the formula.			
#22-	cm/inches				
#23-	cm/inches				
#24-	cm/inches				
#25-	cm/inches	**List Name (s) of Persons Notified**			**List Time of Notification**
#26-	cm/inches	1) On-scene Supervisor:			am/pm
#27-	cm/inches	2) Safety Officer (Incident Command):			am/pm
#28-	cm/inches	3) Safety Watch:			am/pm
#29-	cm/inches	4) Rescue Team:			am/pm

Uncontrolled copy if printed

#30-	cm/inches	5)Environment Unit:	am/pm

Site Diagram

Uncontrolled copy if printed