



**PROJECT DESCRIPTION**

**TMX - ANCHOR LOOP  
Hinton, AB to Jackman Hill, BC**

**JULY 25, 2005**

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## 1.0 GENERAL INFORMATION

Terasen Pipelines (Trans Mountain) Inc. (“Terasen Pipelines”) proposes to loop a portion of its existing National Energy Board (“NEB”) regulated oil pipeline system (the “Trans Mountain pipeline” or “Trans Mountain”). This project, referred to as the “TMX - Anchor Loop” or the “Project”, involves the construction of 178 km of 762 mm or 812 mm (30-inch or 32-inch) diameter pipe between a location west of Hinton, Alberta at Kilometre Post (“KP”) 310.1 and a location near Jackman Hill, British Columbia (KP 488.0). The Project also includes installation of new pump stations at two locations elsewhere on the Trans Mountain pipeline. One is located in Alberta at Wolf (KP 186.6), and one in British Columbia at Chappel (KP 556.5).

The Project loops only a small portion of the Trans Mountain pipeline’s 1,146 kilometre length (Figure 1). A pipeline “loop” is a common and widely-used term describing an additional segment of pipeline parallel to and interconnected with an existing pipeline system. The construction of a loop is a method of adding capacity and operational flexibility to an existing pipeline system. The Trans Mountain pipeline system was constructed in 1952-1953. Two loops were added to the system in 1957, bringing the configuration of the pipeline system (other than pump stations) to its present state.

The Trans Mountain system has been modified over the years to accommodate changing markets and customer needs. These modifications have included the addition and removal of pump stations and the construction, de-activation and re-activation of the pipeline loops. The addition of the TMX - Anchor Loop in 2007 – 2008 will de-bottleneck the Trans Mountain pipeline system by alleviating hydraulic constraints on the pipeline system.

The location of the proposed loop is driven by two key factors. First, Terasen Pipelines deferred as long as possible the construction of a loop of this segment of the Trans Mountain system given its location largely within Jasper National Park (JNP) and Mount Robson Provincial Park (MRPP). Up to this point, Terasen Pipelines has been able to successfully expand the capacity of the Trans Mountain system without any significant construction within the two parks. Second, power constraints within both parks effectively preclude increasing the pumping capacity through this segment of the Trans Mountain system.

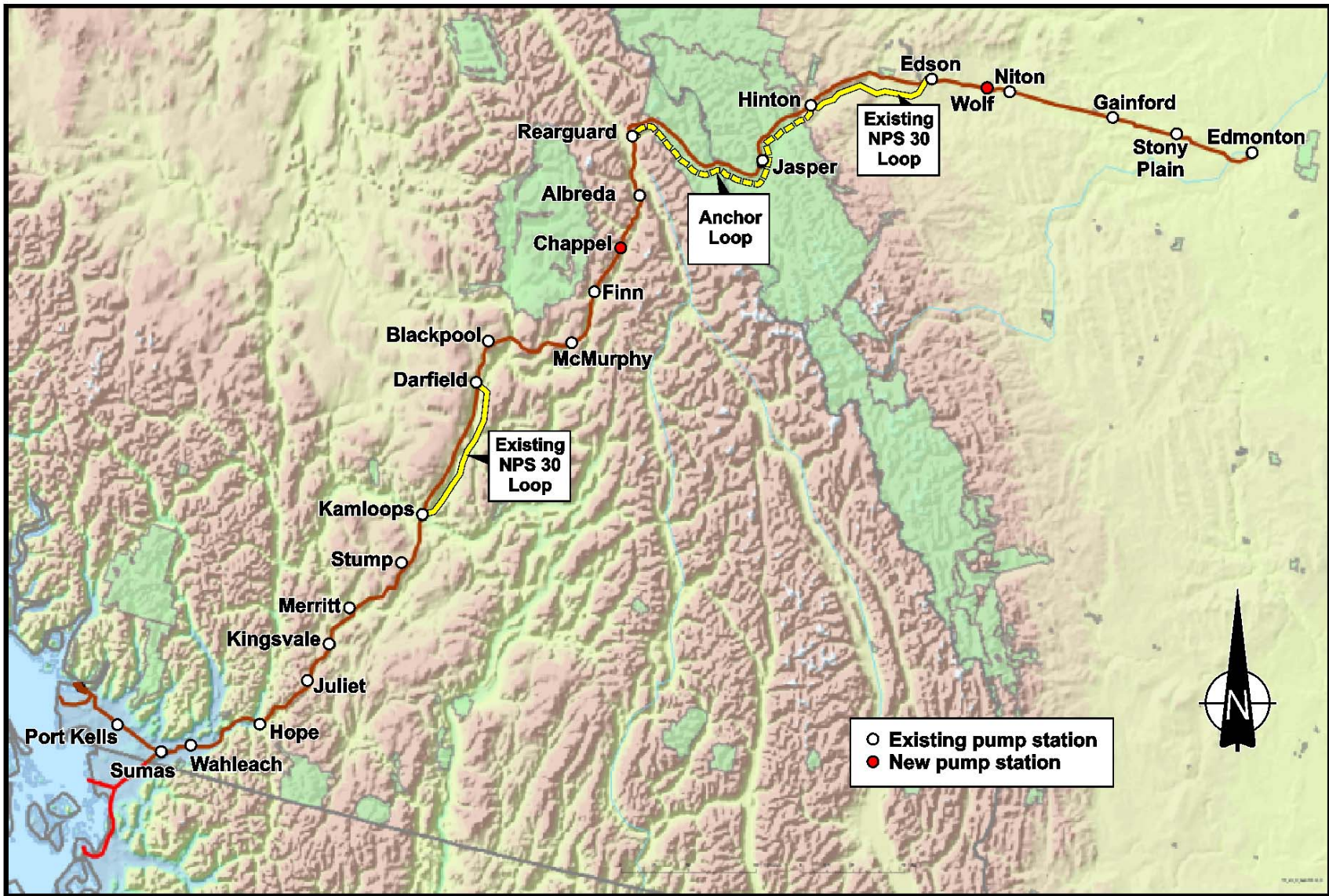


Figure 1 Trans Mountain Pipeline System

## 1.1 Federal Involvement

The proposed pipeline loop will traverse federal, provincial and private lands, including JNP in Alberta and MRPP in British Columbia. New pump stations will be constructed at Wolf (KP 186.6) and Chappel (KP 556.5) (Figure 2). None of the new pump stations will be located in JNP or MRPP.

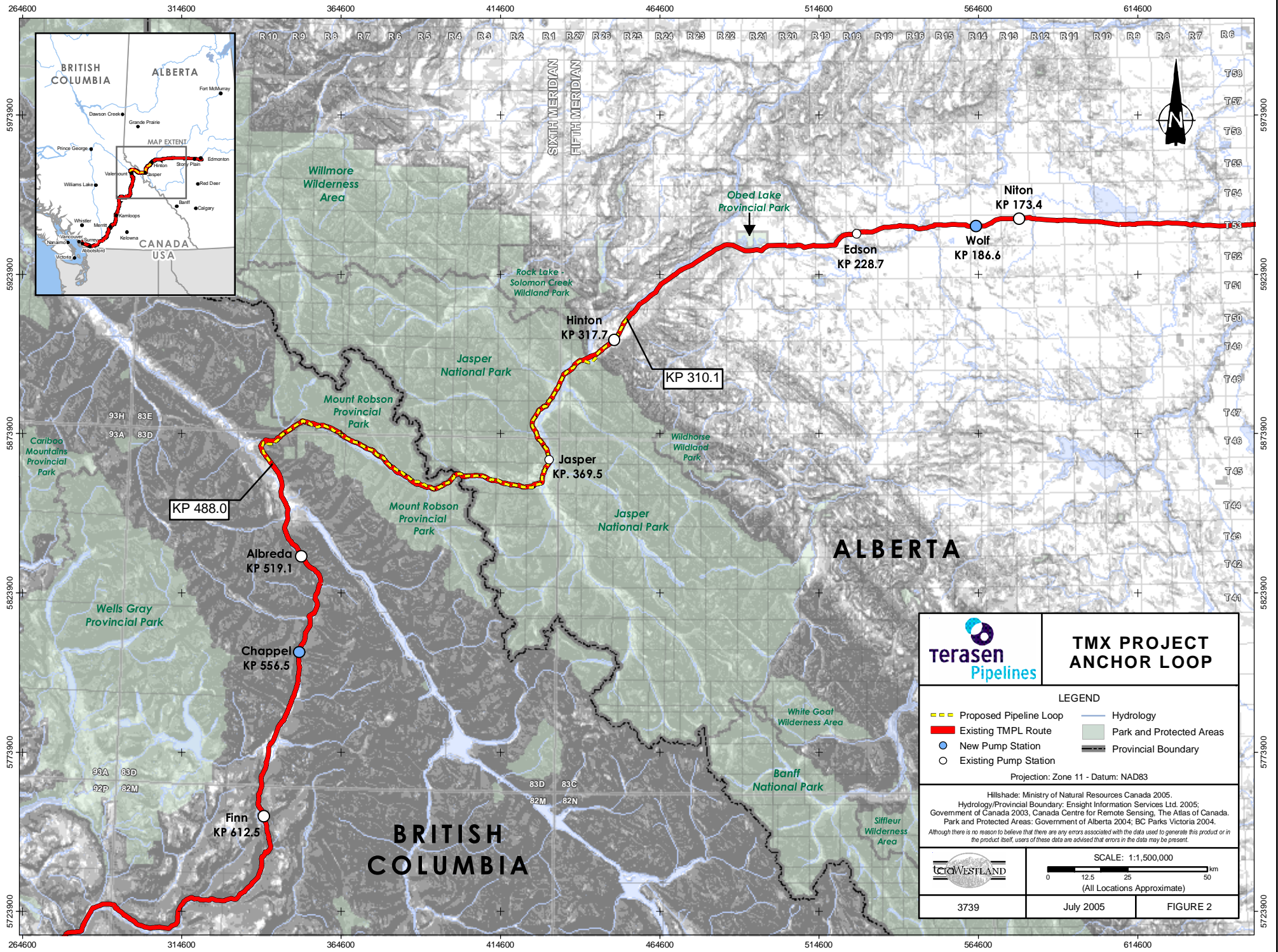
The Project will require an NEB Certificate of Public Convenience and Necessity (CPCN) pursuant to Section 52 of the *National Energy Board Act*. Application to the NEB involves the preparation and filing of an *Environmental and Socio-economic Assessment* (ESA) in accordance with the NEB's *Filing Manual*.

In addition, construction of the loop through JNP triggers the need for an environmental assessment pursuant to the *Canada National Parks Act* and the *Canadian Environmental Assessment Act* (CEAA). Terasen Pipelines is of the view that the Project is not contrary to the JNP Management Plan. As well, the Project does not involve more than 75 km of new right-of-way. Therefore, the CEAA Comprehensive Study List Regulations likely do not require a comprehensive study for the Project. Accordingly, Terasen Pipelines intends to prepare and submit an environmental assessment, written as a screening report, to the Responsible Authorities (RAs).

Since much of the Project is located in JNP, Terasen Pipelines understands that Parks Canada will play a lead role as an RA. Other departments and agencies will also be designated as RA's under the CEAA. Accordingly, Terasen Pipelines understands that Parks Canada, in consultation with other departments and agencies, will determine the scope of the Project, the factors to be assessed, and the scope of the factors to be assessed in the screening report. These Terms of Reference (in preparation) and the NEB *Filing Manual* will guide preparation of the environmental assessment by Terasen.

Additional Federal Authorities (FAs) with regulatory interests associated with the Project may include, as a minimum:

- Canadian Environmental Assessment Agency ("CEA Agency") (CEAA);
- Fisheries and Oceans Canada (DFO) (*Fisheries Act*);
- Transport Canada (*Navigable Waters Protection Act*);
- Environment Canada (*Canadian Environmental Protection Act*, *Species at Risk Act* and *Migratory Birds Convention Act*).



	<b>TMX PROJECT ANCHOR LOOP</b>	
	<b>LEGEND</b>	
Proposed Pipeline Loop	Hydrology	Park and Protected Areas
Existing TMPL Route	New Pump Station	Provincial Boundary
Existing Pump Station		
Projection: Zone 11 - Datum: NAD83		
<small>Hillshade: Ministry of Natural Resources Canada 2005.          Hydrology/Provincial Boundary: Ensign Information Services Ltd. 2005;          Government of Canada 2003, Canada Centre for Remote Sensing, The Atlas of Canada.          Park and Protected Areas: Government of Alberta 2004; BC Parks Victoria 2004.          Although there is no reason to believe that there are any errors associated with the data used to generate this product or in the product itself, users of these data are advised that errors in the data may be present.</small>		
	SCALE: 1:1,500,000 	
	(All Locations Approximate)	
3739	July 2005	FIGURE 2

## 1.2 Authorizations Required

Federal authorizations required for the Project to proceed include:

- CPCN under Section 52 of the *National Energy Board Act*;
- approval under Section 35(2) of the *Fisheries Act* (Minister of Fisheries and Oceans);
- approval under Section 5(1)(a) of the *Navigable Waters Protection Act* (Minister of Transport); and
- all requisite Parks Canada permits and authorizations related to construction.

In addition, all activities within JNP must comply with the *Canada National Parks Act*, the JNP Management Plan, and other relevant Parks Canada policy.

Other federal authorizations that may potentially be required for the Project to proceed include:

- approvals and/or exemptions under Part III and Section 24 of the *Railway Safety Act* and Section 101 of the *Canada Transportation Act* (Canadian Transportation Agency); and
- permit or agreement under Section 73(1) of the *Species at Risk Act* (Environment Canada).

Other provincial regulatory approvals required include:

- Park Use Permit issued by BC Parks under the *BC Park Act*, which is subject to the *BC Environmental Assessment Act*, the *BC Environment and Land Use Act*, the *BC Waste Management Act*, and the *BC Heritage Conservation Act*;
- *BC Heritage Conservation Act* approval (BC Heritage Conservation Branch);
- *Alberta Historical Resources Act* clearance (Alberta Community Development).

Various permits will be required, including:

- Parks Canada research permits and motorized vehicle access permits;
- Permit to conduct Historical Resource Impact Assessment from Parks Canada Cultural Resources Division;
- Special Activity and Scientific Collection permits from Parks Canada;
- Heritage Inspection or Investigation Permit from BC Heritage Conservation Branch;
- Fish collection permits from BC Ministry of Water, Land and Air Protection;

- Fish Research Licence and collection permits from Alberta Sustainable Resource Development;
- Historical Resources Impact Assessment permits from Alberta Community Development Cultural Facilities and Historic Resource Division; and
- Various permits from municipal and provincial authorities pertaining to burning, clearing timber, road crossings, etc.

### 1.3 Distribution of Project Description

This project description has been prepared for submission to the CEA Agency. As part of its role, the CEA Agency will then distribute the project description to other RAs and FAs as appropriate.

Agency	Contact	Authority
Canadian Environmental Assessment Agency Alberta Regional Office Suite 100, Revillon Building 10237-104 Street NW Edmonton, Alberta T5J 1B1 Phone: (780) 422-7705 Fax: (780) 422-6202	Tony Epp Senior Program Officer	Coordinator
Parks Canada P.O. Box 10 Jasper, Alberta T0E 1E0 Phone: (780) 852-6147 Fax: (780) 852-6229	Ifan Thomas Integrated Land Use Policy and Planning	Responsible

Federal agencies or departments may include:

Agency	Authority
Parks Canada	Responsible
National Energy Board	Responsible
Canadian Environmental Assessment Agency	Coordinator
Fisheries and Oceans Canada	Responsible
Transportation Canada	Responsible
Canadian Transportation Agency	Federal
Environment Canada	Federal



## 1.4 Consultation

Terasen Pipelines initiated consultation with respect to the Project in 2004. Initial consultation has been undertaken in a variety of ways, including: a toll-free information line; open houses, information centres and public meetings; a Project newsletter; a Project website; and one-on-one personal contact and group meetings. The consultation program, which is ongoing, has included landowners, First Nations, environmental non-government organizations (ENGOs), responsible, federal and provincial authorities, as well as commercial third parties.

Terasen Pipelines is engaging affected parties in an open, informative and interactive manner that allows identification and consideration of stakeholder views during Project planning and development activities. Representatives from Parks Canada and the Ministry of Water, Land and Air Protection, Parks and Protected Areas Branch (BC Parks) have, and will continue to play, a key role in Project planning and development discussions.

## 1.5 Environmental Assessment

### 1.5.1 *Federal Environmental Assessment*

In addition to the screening report to be prepared in accordance with *CEAA*, an ESA is also required for submission to the NEB. The screening report and ESA will be referred to throughout the remainder of this project description as the environmental assessment, in reference to the complete federal environmental and socio-economic assessment process including both *CEAA* and NEB requirements. The environmental assessment will consider the mandatory factors listed in Section 16 of the *CEAA*, as well as the factors listed in the NEB's Filing Manual, and pertinent issues and concerns identified through regulatory, stakeholder, and public consultation. As mentioned in Section 1.1 above, the CEA Agency and other RA's are currently drafting terms of reference directing the scope of factors to be assessed in the environmental assessment.

Consideration of the following factors in the environmental assessment is mandatory under Section 16 of the *CEAA*:

- the environmental effects of the Project, including the environmental effects of malfunctions or accidents that may occur in connection with the Project and any cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out;
- the significance of the above effects;
- comments from the public that are received in accordance with *CEAA* and its regulations;

- 
- measures that are technically and economically feasible and that would mitigate any significant adverse environmental effects of the Project; and
  - any other matter relevant to the screening report, such as the need for the Project and alternatives to the Project, which the responsible authority may require to be considered.

The environmental assessment will consider the potential effects of the Project within the spatial and temporal boundaries within which the Project may potentially interact with, and have an effect on components of the environment. These boundaries will vary with the issues and factors considered, and will reflect:

- the construction, operation, maintenance, and decommissioning phases of the proposed physical works and/or physical activities;
- the natural variation of a population or ecological or socio-economic component;
- the timing of sensitive life cycle phases in relation to the scheduling of the proposed physical works and/or physical activities;
- the time required for an effect to become evident;
- the time required for a population or ecological or socio-economic component to recover from an effect and return to a pre-effect condition;
- the area directly affected by proposed physical works and/or physical activities; and
- the area within which a population or ecological or socio-economic component functions and within which a project effect may be felt.

The environmental assessment will also consider cumulative environmental effects that are likely to result from the Project in combination with other projects or activities that have been or will be carried out.

### **1.5.2 BC Parks Impact Assessment**

BC Parks will also assess the Project in the context of an application from Terasen Pipelines for a Park Use Permit for that portion of the Project traversing MRPP. Terasen Pipelines continues to work closely with BC Parks to ensure its environmental assessment requirements are met.

## 1.6           Contacts

Terasen Pipelines is the sole proponent of the Project. Should additional information be required to supplement this project description, contact information is provided below.

<b>Contact</b>	<b>Address</b>
Jennifer Scott Senior Legal Counsel Terasen Pipelines	2700, 300 - 5th Avenue S.W. Calgary, Alberta T2P 5J2 Phone: (403) 514-6644 Fax: (403) 514-6622 Email: jennifer.scott@terasen.com
Howard Heffler Advisor, Regulatory and Environmental Planning Terasen Pipelines	2700, 300 - 5th Avenue S.W. Calgary, Alberta T2P 5J2 Phone: (403) 514-6461 Fax: (403) 514-6419 Email: howard.heffler@terasen.com

## 2.0 PROJECT INFORMATION

Terasen Pipelines Inc., the petroleum transportation division of Terasen Inc., operates one of the largest petroleum transportation businesses in North America, including: the Corridor pipeline system (Fort McMurray to Edmonton, Alberta), the Express/Platte pipeline systems (Hardisty, Alberta to the US Rocky Mountain region and the US Midwest), and the Trans Mountain pipeline system (Edmonton, Alberta to Burnaby, British Columbia and Washington State). For over 50 years, Terasen Pipelines Inc. and its predecessors have safely and efficiently operated the Trans Mountain system, which is the only pipeline that carries Alberta crude oil and refined products to the West Coast. The Trans Mountain pipeline system has been modified over the years to accommodate changing markets and customer needs.

### 2.1 Project Components / Structures

The Project involves the construction of 178 km of 762 mm or 812 mm (30-inch or 32-inch) diameter pipe from just west of Hinton, Alberta (KP 310.1) to a location near Jackman Hill, British Columbia (KP 488.0). The project also includes installation of new pump stations at two locations elsewhere on the Trans Mountain pipeline. One is located in Alberta at Wolf (KP 186.6), and one in British Columbia at Chappel (KP 556.5). These pump stations will be permanent facilities. A typical pump station is located within a fenced area on approximately 1 ha of land and contains: pumps and motors housed in a building; an electrical control building; a storage building; and an electrical transformer. In addition, the existing Niton pump station (KP 173.4) will be mothballed and a new scraper trap will be built on the existing right-of-way at Jackman (KP 488.0). The location of the Project is shown in Figure 2.

The width of the existing Trans Mountain pipeline easement through JNP and MRPP is 6 m and 18 m, respectively. Outside the parks, the existing right-of-way is generally 18 m. Temporary workspace will be required at select locations (*e.g.*, for road, rail and watercourse crossings, sharp sidebends, etc.). The width of the proposed construction right-of-way is 25 to 35 m.

Other associated works or activities will include:

- installation and operation of block valves and meter stations along the pipeline;
- installation and operation of Supervisory Control and Data Acquisition (SCADA) system linking the above facilities to control centres;
- construction and operation of a communications system and power supply to service pump stations, meter stations, valve sites and other pipeline facilities; and
- construction, operation and decommissioning of various temporary construction workspace, access roads, work camps and equipment laydown areas.

## 2.2 Project Activities

Pending regulatory approvals, construction of the Project is scheduled to begin in mid-2007, with completion of construction in the third quarter of 2008 (Figure 3). In an effort to minimize environmental and tourism impacts, Terasen Pipelines proposes to schedule right-of-way clearing for fall/winter of 2007 with pipeline construction to take place in summer/fall of 2008. To reduce impacts on tourism in JNP and MRPP as much as possible, Terasen Pipelines intends to schedule construction of pipeline segments adjacent to Highway 16 to occur outside the peak tourist season.

Pipeline construction activities are progressive; therefore, the duration of activity at a given location is relatively short. Consecutive phases of the pipeline construction process are expected to overlap as construction progresses along the right-of-way (*i.e.*, right-of-way preparation, trench excavation, pipeline installation, backfilling and clean-up activities will all be occurring concurrently at different sections of the pipeline).

Pump station and pipeline construction will commence concurrently. Site construction and equipment installation at each pump station is expected to take several months.

In addition to the pipeline easement, pump station lease sites and associated temporary workspace, lands will be required for staging and stockpile sites, equipment storage and borrow pits (to supply fill requirements).

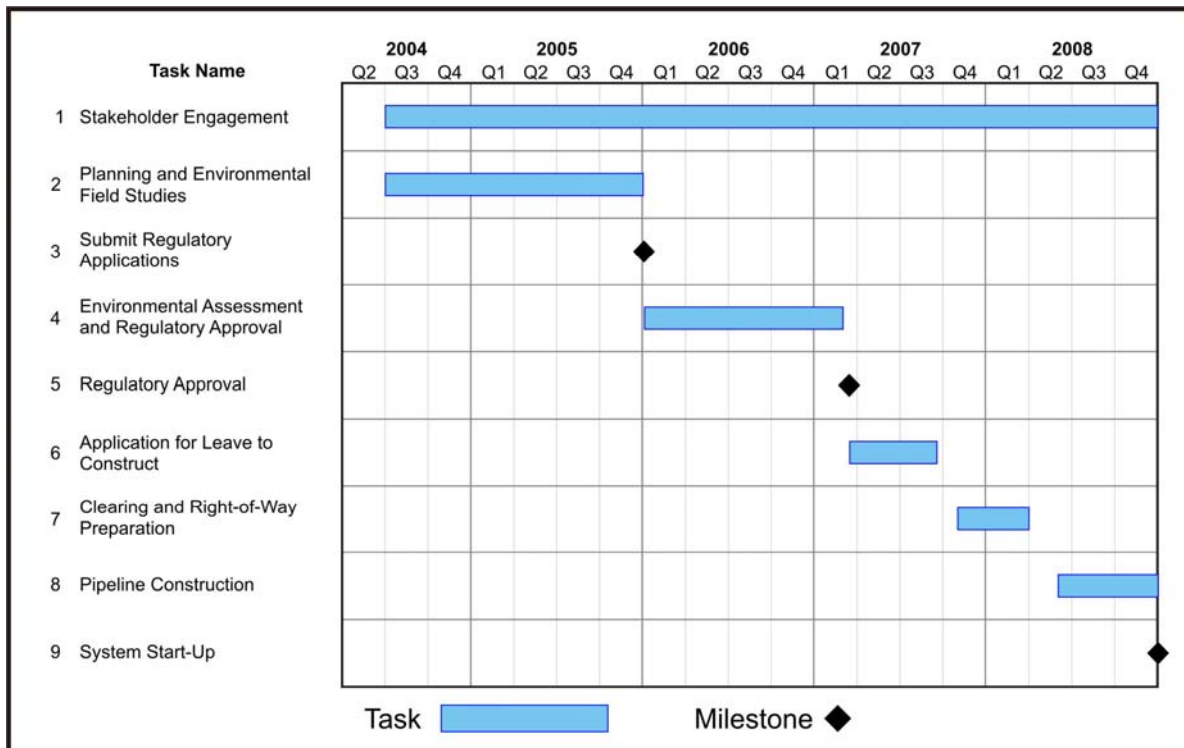


Figure 3 Project Schedule

The following describes standard pipeline and pump station activities, and typical equipment requirements.

### 2.2.1 Pipeline Construction

Construction Phase	Associated Activities
Engineering	The proposed pipeline will be designed and constructed in accordance with all applicable Canadian Standards Association (CSA) standards.
Construction Survey*	<p>Activities include line-of-sight clearing with chain saws, flagging and staking of the boundaries of the construction right-of-way, temporary workspace and facility sites as well as marking trench line and existing utilities. Avoidance areas, such as protected habitats or rare plant communities, will be appropriately fenced or flagged.</p> <p>*NOTE: Engineering and environmental surveys during the environmental assessment phase are done with the appropriate authorizations from Parks Canada and BC Parks, or consent of landowners on private land. These surveys are done with a minimum of environmental impact.</p>
Clearing	Snow, trees, stumps, brush and other vegetation will be generally cleared from the construction right-of-way and extra temporary workspace. Salvageable timber will be cut, decked and hauled to local mills. Non-salvageable vegetative debris will be burned unless required for mulch, corduroy, rollback, etc. Within JNP and MRPP, timber will be salvaged and used in accordance with procedures dictated by Parks Canada and MWLAP. In JNP, organic woody debris from clearing may be suitable for composting if required by Parks Canada. Equipment used during clearing activities will include chainsaws, feller-bunchers or other tree clearing equipment, as well as bulldozers and backhoes.
Topsoil Salvage	Topsoil will be salvaged to ensure that the soil capability is maintained. The width and depth of topsoil salvage depends on the land use, soil conditions, microtopography, regulatory agency requests, and grading requirements. Equipment used during topsoil handling activities includes bulldozers, graders and backhoes.
Grading	Following topsoil salvage, grading will be conducted on irregular ground surfaces (including temporary workspace) to provide a safe work surface. Graders, backhoes and bulldozers will be used for this activity. Blasting may be required where hard bedrock is encountered.
Stringing and Welding	The pipe will be transported by truck from the stockpile sites to the right-of-way. The pipe will be bent, lined-up, welded, joint-coated and inspected prior to being lowered into the trench. Equipment used during stringing and welding activities includes pipe trucks, booms, pick-up trucks, and x-ray or ultrasonic inspection equipment mounted on pick-up trucks.
Trenching	The trench will be excavated using tracked excavators to a depth sufficient to ensure the depth of cover is in accordance or in excess of applicable codes. Depth of cover will generally be 0.85 m. Trenching will generally occur after stringing, bending and welding. Road and railway crossings will be bored.
Lowering-In	The pipe will be lowered into the trench using sideboom tractors. Trench dewatering may be necessary at certain locations during lowering-in (e.g., to ensure acceptable bedding for pipe, to prevent the pipe from floating or for performing tie-in welds).

Construction Phase	Associated Activities
Backfilling	The trench will be backfilled using backhoes, graders, bulldozers or specialized backfilling equipment. Backfill material will generally consist of native trench spoil material. Displaced subsoils will be crowned over the trench to compensate for settlement and after settlement, any excess trench spoil will be feathered out over adjacent portions of the right-of-way.
Testing	The completed pipeline will be pressure tested in sequential segments, using water as the test medium. The water will be drawn from suitable sources and returned to the appropriate watersheds in accordance with permit requirements.
Clean-Up and Reclamation	Final clean-up and reclamation procedures will be initiated following construction, once weather and soil conditions permit, using bulldozers, backhoes and graders. Garbage or debris remaining along the right-of-way will be removed regularly and disposed of in compliance with local regulations. The right-of-way contours will be returned to a stable and maintenance free condition. Compacted subsoils will be ripped and the topsoil replaced. All disturbed upland areas will be seeded with an appropriate seed mix, and special reclamation measures will be applied as required.
Watercourse Crossings	Watercourse crossings along the proposed TMX - Anchor Loop route include the Fiddle, Athabasca, Snaring, Miette, Moose and Fraser rivers. Crossing methods will be decided in consultation with engineering and environmental specialists. Crossing methods typically used during watercourse construction include open cut, isolation ( <i>e.g.</i> , dam and pump, flumes), boring and horizontal directional drill.

### 2.2.2 *Pump Station Construction*

Construction Phase	Associated Activities
Engineering	The proposed pump stations will be designed and constructed in accordance with all applicable CSA standards.
Site Preparation	Initial site preparation will involve surveying, clearing, salvage and storage of topsoil, excavating and removal of unsuitable fill, grading, site drainage, placement and compaction of a gravel surface on work areas, laying of foundation and installation of building support pads. Equipment used during site preparation activities will include chainsaws, feller-bunchers or other timber clearing equipment, as well as bulldozers, backhoes and mowers.
Facility Construction	Installation of new pump stations will entail building new structures, installing pumping equipment, tying new pipe into existing pipelines, pressure testing all piping, testing safety systems and instruments, final commissioning of new equipment and control systems.

### 2.2.3 *Operations and Maintenance*

Scheduling of operations and maintenance will coincide with regular aerial and ground patrol of the existing Trans Mountain pipeline and associated facilities. Operations and maintenance activities along the existing Trans Mountain system will be expanded to include the new Project facilities.

As part of routine operations and maintenance procedures, patrols will be conducted to visually inspect for environmental issues, evidence of pipeline damage, erosion and wash-out areas,

areas of sparse vegetation, damage to permanent erosion control structures, exposed pipe, and other potential problems that may affect the integrity or safe operation of the pipeline and facilities. The operating pipeline will also be regularly inspected by internal in-line inspection tools. In the event that an actual or suspected pipeline integrity problem is identified, the buried pipeline will be exposed and inspected visually. Repairs will be made as needed. Maintenance digs will be conducted in a manner similar to the pipeline construction activities. Flow in the pipeline will be remotely monitored and controlled from Terasen Pipelines' existing control centre at Sherwood Park, Alberta. The pipeline will be maintained from existing bases at Jasper and Blue River. No new pipeline maintenance bases will be required. Terasen Pipelines is an active participant in oil spill and emergency response cooperatives and has detailed emergency response plans. These will be supplemented as needed to suit the Project.

The pipeline right-of-way and areas within the pump station sites that are not required for ongoing operations and maintenance will be specifically managed to revert to a natural vegetative state where feasible. Vegetation control (including weeds), if warranted, will be conducted in accordance with Terasen Pipelines' standard practices for vegetation control, as approved by the appropriate agency.

#### **2.2.4      *Decommissioning and Abandonment***

It is difficult at this time to predict when or how the Project facilities will be decommissioned and abandoned at the end of the Project's useful life. The existing 610 mm outside diameter (O.D.) pipeline has been successfully operating for more than 50 years and will be safe and reliable for many more years if properly maintained. The useful life of the TMX - Anchor Loop will be as long or longer. Decommissioning the Project facilities would be considered at some time in the distant future but cannot be meaningfully described at this time. The pipeline industry has experience with pipeline abandonment and guidance documents are currently available. There are three categories under which pipeline decommissioning and abandonment may fall, namely pipeline removal, abandonment-in-place, and a combination of abandonment-in-place and pipeline removal. These would have to be considered in light of conditions that might prevail at the time of decommissioning. Any decommissioning or abandonment activities will require prior approval by the NEB and other relevant agencies.

### **2.3          *Resources / Materials Requirements***

#### **2.3.1      *Energy and Water Requirements***

Energy requirements for Terasen's existing Jasper pump station are supplied by ATCO Electric, which generates electrical power using a natural gas fired power plant for JNP. Natural gas is supplied by ATCO Gas. Both of these systems are nearing capacity, therefore Terasen Pipelines



will develop appropriate measures to ensure excessive demand is not placed on the energy supply in Jasper. Existing energy supply infrastructure near Wolf and Chappel is expected to meet additional energy requirements for the new pump stations.

The environmental assessment will address water requirements and proposed sources as well as potential impacts, cumulative effects and proposed mitigation.

Withdrawal and return of water for hydrostatic testing will be undertaken in consultation with appropriate regulators, including DFO, Parks Canada, BC Parks, the BC Ministry of Water, Land and Air Protection, Alberta Environment, and Alberta Sustainable Resource Development. All applicable regulations, guidelines and codes of practice relating to water withdrawal and discharge will be adhered to.

### **2.3.2      *Excavation and Fill Requirements***

Excavation for pipeline construction in addition to the trench line will include bellholes and grading of steep slopes or uneven terrain. Requirements for additional excavation will be addressed in the environmental assessment. Fill may be required along the proposed pipeline route where rock cannot be replaced directly over the pipeline. Grading and contouring will also be required at the proposed pump stations, in addition to importing gravel. The environmental assessment will address specific needs for excavation and fill and potential sources, in addition to any associated environmental effects and proposed mitigation.

### **2.3.3      *Toxic and Hazardous Materials***

Specific identification of hazardous substances, potential impacts, spill prevention and emergency contingencies will be addressed in the environmental assessment. Hydrocarbons and hydraulic fluids are the primary toxic materials to be used during construction of the Project. Activities associated with Project construction that may involve other toxic substances include welding and weld testing, hydrostatic testing, and horizontal directional drill / bore and punch crossings. Once in the operations phase, hazardous materials associated with the Project will be limited to leaks or accidental releases of the product being conveyed in the pipeline (hydrocarbons), and with leaks or spills associated with maintenance equipment. Terasen Pipelines has a number of systems in place (including, its pipeline integrity management, SCADA, aerial and ground patrol, and emergency response systems) to both prevent incidents and ensure rapid and effective response to spills of hazardous materials.

## 2.4 Waste Disposal

Waste will be controlled according to Terasen Pipelines' waste management plan, to be filed with the Project application. Storage and transportation of waste material will be conducted in accordance with the Transportation of Dangerous Goods, Workplace Hazardous Materials Information System ("WHMIS"), and any other provincial regulations. Waste will be collected daily during the construction phase of the Project, and will be disposed of at landfill sites appropriate for the nature of the waste.

## 3.0 PROJECT SITE INFORMATION

### 3.1 Project Location

The proposed loop is approximately 178 km in length, of which 16 km traverse Alberta Crown land (KP 310 to KP 326), 80 km traverse federal lands within JNP (KP 326 to KP 406), 60 km are within MRPP (KP 406 to KP 466) and 22 km traverse BC Crown land (KP 466 to KP 488) (see Figure 2). A short section of privately-owned land is traversed near the west boundary of MRPP.

The proposed route follows an established transportation corridor of historic and contemporary significance. The corridor through JNP and MRPP contains the Yellowhead Highway, CN Rail, the Trans Mountain Pipeline, fibre optic lines and other abandoned rail and roadbeds. The proposed route is within or abuts the existing Trans Mountain pipeline right-of-way for approximately 52% of its length through JNP and MRPP. The proposed route is on or abutting other linear rights-of-way (*i.e.*, highways, roads, power lines, abandoned rail grades) for 47% of its length. The remaining 1% of the proposed route represents segments that are connections from one existing right-of-way to another. The proposed route has been selected to follow the existing Trans Mountain pipeline route except where an alternative may create less disturbance.

### 3.2 Environmental Setting

The proposed loop originates on the north side of Highway 16 approximately 8 km west of the Town of Hinton, Alberta. This loop parallels the existing Trans Mountain pipeline, existing ATCO gas pipeline, powerline, and fibre optics cable for the entire length of the Alberta portion, outside JNP. The proposed loop crosses Drystone Creek and several tributaries to Maskuta Creek within this section. This section is located within the lower foothills ecoregion consisting of level to rolling topography with predominantly aspen-balsam poplar and spruce mixed forests. There are multiple land uses occurring in the area, including forest harvesting, mining and recreation. Access to the Wildhorse Lake and Maskuta Creek provincial recreation areas, located 2 to 4 km from the proposed loop and the Overlander Mountain Lodge, is available from Highway 16.

Inside JNP east gate, the proposed project area is located within the Montane Ecoregion as defined by the lower elevations along the Athabasca River valley bottom and the dominant landscapes of Brule and Talbot lakes. The JNP of Canada Management Plan identifies the Montane Ecoregion as a critical area for wildlife due to its warmer, drier winters and relatively light snowpack compared to the surrounding mountains. The Montane Ecoregion provides important habitat for species such as elk, sheep, deer and moose as well as key movement corridors for large home ranging carnivores including grizzly bear, black bear, wolf, cougar,

lynx and wolverine. Wetlands, lakes and intact forest interiors provide a diversity of habitats for waterfowl, shorebirds, owls, raptors, passerines and cavity nesters. The Montane Ecoregion is also the area most heavily used by people, and most of the park's development is located within this ecoregion.

The proposed route traverses portions of zones III (Natural Environment), IV (Outdoor Recreation) and V (Park Services) as outlined in the JNP Management Plan. The proposed route does not traverse Declared Wilderness Areas which are comprised of zones I (Special Preservation) and II (Wilderness). The Pocahontas Ponds, a designated Environmentally Sensitive Site, is located between the Athabasca River and the highway near Pocahontas.

The proposed loop crosses the Fiddle, Athabasca, Snaring, and Miette rivers as well as several other named and unnamed creeks. There are no Environmentally Sensitive Sites traversed by the proposed project. Access to the proposed route is along Highway 16, the Celestine Lake Road and several trails and former rail grades used by Parks Canada and recreational users as well as railway and utility companies for operations and maintenance. Access to the north side of the Athabasca River is along the Celestine Lake Road which traverses Moberly and Devona flats, an area rich in archaeological and historical resources, including the Moberly Homestead, Devona Cave Archaeological Site and Jasper House.

As the proposed loop approaches the Town of Jasper, the right-of-way forms the south boundary of the Jasper Community Land Use Plan. The 2004 population of the municipality of Jasper is reported as approximately 4,500 people, which includes roughly 350 seasonal residents. The JNP Warden service and Parks Canada administration office is located in Jasper. The warden service is responsible for attending all medical, search and rescue, and fire related emergencies within JNP. Seasonal accommodation is available through numerous hotels, motels, bed and breakfasts and campgrounds. The average annual number of visitors to JNP between 1996 and 2003 was over 1.9 million.

West of the Town of Jasper, the Miette River flows towards the Athabasca River which has created a natural corridor for transportation. The divide at the Alberta / British Columbia border is known as Yellowhead Pass, an area utilized by several railways and Highway 16. Yellowhead Pass is also the point of entry to BC's MRRP. Together, JNP and MRPP have been designated a World Heritage site by UNESCO. Established in 1913, MRRP contains four management zones including the Travel Corridor Management Zone, which encompasses the existing Trans Mountain pipeline, the Yellowhead Highway, and the CN railway. The divide also marks the headwaters of the upper Fraser River which flows to the BC lower mainland. The Fraser River is known for its salmon migration that ends at Rearguard Falls, approximately 10 km west of MRPP. The proposed loop crosses the Fraser and Moose rivers as well as Buckingham, Cottonwood, Grant, Woodley and Cochrane creeks. Being closer to the divide, MRRP is an area of deeper snow accumulation than JNP with species such as mountain goat, bighorn sheep, wolverine and lynx found in upper elevations.

The Mount Robson Visitor Centre is located on the west boundary of the MRRP. There are no communities within MRPP and only three serviced camping areas. Highway 16 terminates at the junction of Highway 5 which forms the major north-south transportation corridor to Kamloops and the lower mainland. The Trans Mountain pipeline crosses an area known as Jackman Hill and follows the CN railway beside the Highway 5 corridor. The proposed loop terminates approximately 10 km north of Valemount, BC.

### 3.3 Environmental Features

Environmental features to be discussed in the environmental assessment will focus on those elements outlined in the NEB *Filing Manual* for biophysical elements. Biophysical elements to be addressed in the environmental assessment are as follows:

Biophysical Element	Environmental Features to be Addressed in the Environmental Assessment
Physical Environment	<ul style="list-style-type: none"> <li>• areas of ground instability (<i>i.e.</i>, landslides, mudflows, slumping, avalanches, subsidence, fault zones and earthquakes)</li> <li>• potential for acid-generating rock, potential effects of exposure of such rock and proposed mitigation</li> <li>• areas of potential erosion or flooding</li> <li>• areas of high fire potential</li> <li>• areas of contamination</li> </ul>
Soil and Soil Productivity	<ul style="list-style-type: none"> <li>• general description of soil characteristics and the current level of soil disturbance</li> <li>• quantify reclamation capability of soils, including erosion control (other than revegetation), soil reclamation, drainage tile repair, and soil compaction alleviation</li> <li>• identification of contaminated soils</li> </ul>
Vegetation	<ul style="list-style-type: none"> <li>• description of vegetation species and communities of ecological, economic or human importance, and the existing level of disturbance, diversity, relative abundance and distribution of these species prior to construction</li> <li>• quantification of merchantable timber</li> <li>• identification of weed infestations</li> <li>• description of revegetation and reclamation procedures, including techniques, seed mixes, fertilizers, contingency plans and maintaining reclaimed areas</li> <li>• description of criteria for evaluating reclamation success</li> </ul>
Water Quality and Quantity	<ul style="list-style-type: none"> <li>• identification of water resources and water quality</li> <li>• identification of water supply sources and water disposal methods</li> <li>• description of contaminants associated with the project that could effect water quality</li> <li>• description of mitigation for potential effects on well water quality and quantity</li> </ul>

Biophysical Element	Environmental Features to be Addressed in the Environmental Assessment
Fish and Fish Habitat	<ul style="list-style-type: none"> <li>• identification of fish species and life stages of ecological, economic or human importance in the study area</li> <li>• description of seasonal ranges, sensitive periods, habitat use, movements, and general population status of fish species</li> <li>• identification of protection and enhancement policies for fish and fish habitat</li> <li>• identification of the need for Harmful Alteration Disturbance and Destruction authority as per subsection 35(2) of the <i>Fisheries Act</i>, and discussion of communications with DFO</li> <li>• detailed description of sensitive areas and habitats, including wetlands and riparian habitat</li> <li>• description and justification of water crossing techniques and criteria for determining proposed techniques</li> <li>• description of reclamation procedures and criteria for evaluating reclamation success</li> </ul>
Wetlands	<ul style="list-style-type: none"> <li>• quantification and description of wetlands (including regional abundance, distribution, current level of disturbance)</li> <li>• identification of wetland capacities to perform hydrological, water quality and habitat functions</li> </ul>
Wildlife and Wildlife Habitat	<ul style="list-style-type: none"> <li>• identification of wildlife species of ecological, economic or human importance</li> <li>• description and quantification of wildlife habitat types, location, suitability, structure, diversity, relative use and abundance</li> <li>• description of population status, life cycle, seasonal ranges, habitat requirements, movements, and sensitive periods</li> <li>• identification of wildlife management areas, sanctuaries or other protected areas</li> <li>• description of current level of disturbance associated with wildlife and habitat</li> </ul>
Species at Risk or Species of Special Concern	<ul style="list-style-type: none"> <li>• identification of species and their status and habitat (particularly critical habitat)</li> <li>• determination whether species or critical habitat could be affected by project activities, and if so, description of potential effects, reasonable alternatives, and mitigation measures to limit effects on critical habitat</li> </ul>
Air Quality	<ul style="list-style-type: none"> <li>• overview and qualitative assessment of public concerns</li> <li>• characterization of local and regional meteorological conditions</li> <li>• description of existing air quality</li> <li>• quantification of potential air emissions of concern associated with the proposed project, and measures to be implemented to reduce or prevent impacts on air quality</li> <li>• description of participation in national or regional air emission tracking and report programs</li> </ul>
Acoustic Environment	<ul style="list-style-type: none"> <li>• overview of public concern and provision of a qualitative assessment</li> <li>• description and quantification of increase in noise levels associated with the project</li> </ul>

Biophysical Element	Environmental Features to be Addressed in the Environmental Assessment
Human Occupancy and Resource Use	<ul style="list-style-type: none"> <li>• description of patterns of human resource use and occupancy in the study area, and potential interactions or effects resulting from the project</li> <li>• description of local or regional land use plans and development plans, and how the project complies with such plans</li> <li>• identification of potential impacts to surface water quality and quantity used for domestic, commercial, agricultural or recreational purposes</li> <li>• identification and description of navigable waters, associated requirement for approvals under the <i>Navigable Waters Protection Act</i>, and overview of correspondence with Transport Canada officials</li> <li>• identification and quantification of visual and aesthetic impacts</li> </ul>
Heritage Resources	<ul style="list-style-type: none"> <li>• description of known heritage resources in the study area, determination of potential for undiscovered heritage resources, and contingency plans for such a discovery during project construction</li> <li>• overview of impact assessments and consultation with regulators</li> </ul>
Traditional Land and Resource Use	<ul style="list-style-type: none"> <li>• description of current traditional land uses, aboriginal groups with traditional territory in the project area, and identification of potential project impacts on traditional use</li> <li>• description of traditional land use study methodology and overview of consultation</li> </ul>
Social and Cultural Well-Being	<ul style="list-style-type: none"> <li>• description of the socio-cultural setting of the study area, including predominant cultural groups, demographic features of local populations and workforce, concerns of residents, families and workers in the study area</li> <li>• overview and assessment of potential impacts and interaction with the local community, residents and businesses</li> </ul>
Human Health	<ul style="list-style-type: none"> <li>• description and quantification of project components that could potentially impact human health</li> <li>• overview of public concerns</li> <li>• description of mitigation to prevent or reduce potential health effects</li> </ul>
Infrastructure and Services	<ul style="list-style-type: none"> <li>• description of existing local and regional infrastructure in the study area, including roads and highways, railways, utilities, and treatment facilities for water, wastewater and solid waste</li> <li>• description of local and regional services, including accommodation, recreation, waste disposal, emergency services and health care services</li> <li>• consideration of effects of the project on above infrastructure and services, as well as current traffic patters, and the need for new or expanded services or infrastructure related to the project</li> </ul>

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Biophysical Element	Environmental Features to be Addressed in the Environmental Assessment
Employment and Economy	<ul style="list-style-type: none"><li>• description of the location and regional employment status, development plans, and ability of local and aboriginal residents to provide labour and services</li><li>• plans to encourage local and aboriginal employment, procurement and contracting opportunities</li><li>• description of training programs the company is supporting to enhance employment opportunities for local and aboriginal residents</li><li>• estimation of anticipated levels of local and regional economic participation in the project compared to the total project requirements</li><li>• quantitative assessment of project impacts on local, regional, provincial or federal government revenues from tax levies or other means during project construction and operation</li></ul>

### 3.4 Land Use

Current land uses in the Project area include parks and recreation, forestry, industrial, commercial, residential and agriculture. The proposed route lies mostly within JNP and MRPP, and is within the existing transportation corridor that includes the existing Trans Mountain pipeline, the Yellowhead Highway and the Canadian National Railway. The Project is not within any Indian Reserves or Metis Settlements. Local First Nations such as Aseniwuche Winewak and Simpcw claim portions of the Project area within their traditional territory. Terasen Pipelines will continue consultations with First Nations groups to identify areas of traditional land and resource use, and to develop effective mitigation strategies that limit Project impacts.