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Canada Energy Regulator Reasons for Decision

Trans Mountain Pipeline ULC
MH-032-2020

Canada Energy Regulator Reasons for Decision

In the Matter of

Trans Mountain Pipeline ULC

Trans Mountain Pipeline ULC variance application to construct and operate the Coldwater West Alternative Route

MH-032-2020
August 2021

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MH-032-2020

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Chapter 1 – Decision and recommendations

On 19 July 2021, the Commission of the Canada Energy Regulator (**Commission**) issued its MH-032-2020 Letter Decision ([C14136](#)) in respect of Trans Mountain Pipeline ULC's (**Trans Mountain**) variance application to construct and operate the Coldwater West Alternative Route (**Variance, West Alternative, or Project**). These are the reasons for the decision (**Reasons**).

1.1 Decision

As stated in its 19 July 2021 Letter Decision, the Commission has approved the Variance and has determined that this renders Condition 39 – which was applicable to Certificate of Public Convenience and Necessity (**Certificate**) OC-065, Order XO-T260-007-2016, and XO-T260-009-2016 – inapplicable to the Trans Mountain Expansion Project (**TMEP**). The Commission released three amending orders to effect this decision: AO-008-OC-065, AO-002-XO-T260-007-2016, and AO-003-XO-T260-009-2016.

In its Letter Decision, the Commission indicated that reasons would follow in due course. In deciding to issue a decision with reasons to follow in this case, the Commission considered that the West Alternative was proposed as an accommodation measure and was essentially unopposed. The Commission also considered Trans Mountain's submissions regarding the Project being a critical path construction priority, as well as Coldwater Indian Band's (**Coldwater**) request for a timely decision.

With respect to the applicability of Condition 39, the Commission considered that the condition had been imposed on the original East Route to address concerns raised by Coldwater with respect to its groundwater supply. Condition 39 required Trans Mountain to file a hydrogeological study (**Condition 39 Hydrogeological Study**) and to assess the need for any additional measures to protect the underlying aquifer. Given that Trans Mountain's proposal to move the route to the West Alternative is just such a measure, and given that the West Alternative reduces the risk to Coldwater's groundwater supply, the Commission finds that Condition 39 is no longer applicable to the TMEP. The Commission also notes Coldwater's submission that Condition 39 is unnecessary, so long as the TMEP is not constructed to the east of Coldwater Indian Reserve No. 1 (**Reserve**).

1.1.1 Weighing of benefits and burdens associated with the West Alternative in comparison to the approved East Route through the Coldwater Valley

In deciding to approve the West Alternative, the Commission considered the benefits and burdens associated with the West Alternative as compared with those associated with the previously approved East Route.

Expected benefits of the West Alternative compared to the East Route include:

- relatively lower risk to the aquifer underlying the Reserve, and Coldwater's groundwater supply;
- avoids known heritage sites of importance to Coldwater;
- avoids impacts on traditional land use values, including places of great spiritual importance, that Coldwater members use on a daily basis;
- less greenfield disturbance (4 kilometres [km] versus 10 km);
- longer length paralleling existing linear infrastructure (14.37 km versus 7.55 km); and
- avoids crossing two creeks (Kwinshatin and Skuagam) of spiritual and cultural value to Coldwater.

Expected burdens of the West Alternative compared to the East Route include:

- 2.85 km longer in length (18.31 km versus 15.46 km), which results in a marginally higher overall risk of a spill;
- higher residual environmental effects for a number of valued environmental components as a result of a larger total area of right-of-way and workspace, including a larger riparian disturbance area, overlap with *Species at Risk Act* critical habitat, and wetlands; and
- requires two crossings of the Coldwater River.

In weighing the benefits and burdens of the West Alternative, the Commission gave significant weight to the evidence that the West Alternative poses less risk to Coldwater's groundwater supply than the East Route, given the emphasis Coldwater placed on the importance of access to clean drinking water in its submissions. The Commission also gave weight to Coldwater's strong preference for the West Alternative, as well as the support for Coldwater's preference from other potentially affected Indigenous peoples, and the lack of opposition from affected landowners. Lastly, the Commission considered the mitigation measures Trans Mountain is required to implement (pursuant to its commitments and the conditions attached to Certificate OC-065 and Amending Order AO-008-OC-065) and is of the view that the West Alternative can be constructed safely and in a manner consistent with environmental protection.

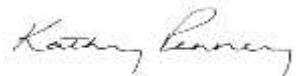
As detailed in **Section 4.2.5**, the Commission finds that there has been adequate consultation and accommodation with respect to potentially affected Indigenous peoples for the purpose of the Commission's decision on the Variance.

As discussed in **Chapter 5**, the MH-032-2020 hearing process is not the last step of the Canada Energy Regulator's (**CER**) regulatory oversight. The CER is a lifecycle regulator and will hold Trans Mountain accountable to keep its pipelines and facilities safe and secure, and to protect people, property, and the environment. The Commission also holds Trans Mountain to the commitments it has made throughout the hearing process.

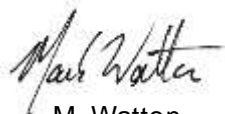
Having weighed the benefits and burdens, for the detailed reasons provided in these Reasons, the Commission has concluded that the benefits of the West Alternative outweigh the burdens in comparison to the previously approved East Route through the Coldwater Valley, and that approval of the West Alternative is in the public interest.



D. Côté
Presiding Commissioner



K. Penney
Commissioner



M. Watton
Commissioner

Calgary Alberta
August 2021

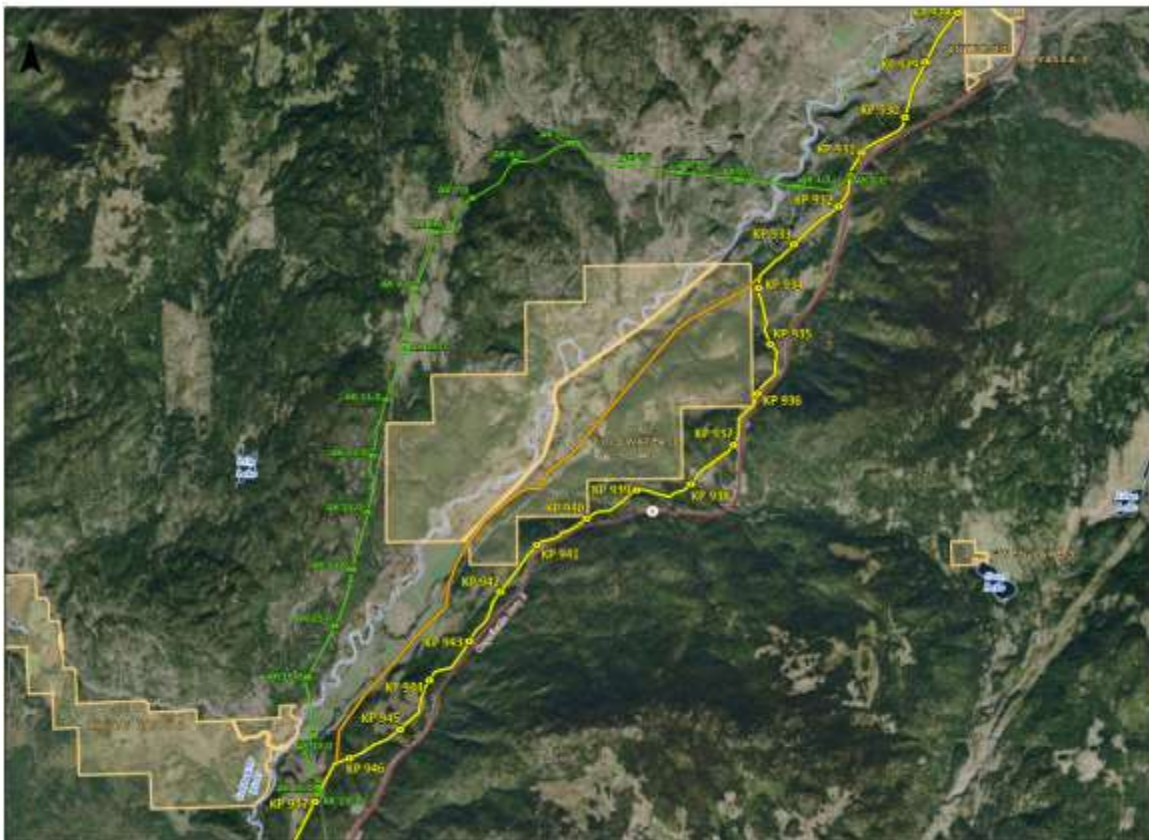
Chapter 2 – West Alternative overview

On 2 February 2019, the National Energy Board submitted its Reconsideration Report ([A98021](#)) to the Governor in Council recommending approval of the TMEP. On 18 June 2019, the Governor in Council approved the TMEP and its general pipeline corridor between approximately Edmonton, Alberta and Burnaby, British Columbia (BC), subject to 156 conditions. On 21 June 2019, the National Energy Board issued Certificate OC-065 ([C00061](#)).

On 9 October 2020, Trans Mountain filed an application ([C08844](#)) with the Commission of the Canada Regulator (Commission), pursuant to section 190 of the *Canadian Energy Regulator Act (CER Act)*, to vary the alignment of the TMEP corridor in the Coldwater Valley area of BC. The corridor realignment is referred to as the West Alternative.

Trans Mountain filed its application partly in response to requests from Coldwater to re-route the corridor in a manner that avoids potential impacts to the aquifer beneath the Reserve. The West Alternative is approximately 18.31 km long, deviating from the approved corridor at Kilometre Post (KP) 931.43 and rejoining the approved corridor at KP 946.88.

Figure 1 – Overview of the West Alternative (Source: [C08844-1](#))



In addition to approval of the Variance, Trans Mountain requires approval of the associated Plan, Profile and Book of Reference (**PPBoR**) sheets in order to proceed with the West Alternative. PPBoR sheets are detailed drawings that show, among other things, the exact location of the pipeline right-of-way (known as the **detailed route**) on each property it will cross. Trans Mountain indicated that it was planning to seek approval of PPBoR sheets depicting the West Alternative detailed route as part of, or in parallel with, the Commission's decision or recommendation on the Variance. The Commission may approve PPBoR after considering any related Statements of Opposition (**SOO**) to the detailed route filed in response to Trans Mountain's service and publication of notices, or if no SOOs are received.

Chapter 3 - Hearing process

3.1 Setting down Hearing MH-032-2020

On 3 November 2020, the Commission decided, pursuant to subsection 52(3) of the CER Act, to set down the MH-032-2020 public hearing process to examine the Variance. The Commission directed Trans Mountain to publish and serve¹ a Notice of Hearing, which set out how interested persons could register to participate as an intervenor or commenter, and the deadline for doing so (20 November 2020) [[C09302](#)]. The Commission indicated that it was considering assessing the Variance and any SOOs set down for a detailed route hearing via the same proceeding. It advised that it would invite comments on the hearing process, including the concept of combining the Variance hearing with any detailed route hearings, once the Commission determined the List of Participants.

On 30 November 2020, the Commission published an initial List of Participants ([C10009](#)) and set 11 December 2020 as the deadline for participants' comments on the hearing process ([C10012](#)). On 11 December 2020, for certain landowners and tenants to whom Trans Mountain provided later notice about the Variance, the Commission set a 4 January 2021 deadline to register and provide comments on the hearing process ([C10362](#)). Trans Mountain's comments were due on 5 January 2021.

On 8 January 2021, after considering the comments received, the Commission issued the MH-032-2020 Hearing Order setting out the process steps and their associated deadlines, participants' roles and responsibilities, as well as guidance and available resources ([C10826](#)). The Hearing Order confirmed that Hearing MH-032-2020 would consider the Variance and all SOOs set down for detailed route hearing. The Commission issued reasons for its process decision on 11 January 2021 ([C10840](#)).

The Commission stated that, after Hearing MH-032-2020 concludes, it would determine whether the proposed corridor realignment is in the public interest and, if so, it would also decide on detailed route matters for any tract(s) of land for which a SOO was received. If the Commission were to determine that the proposed corridor realignment was **not** in the public interest, it would not decide

¹ Trans Mountain was directed to serve the Commission's 3 November 2020 letter and Notice of Hearing on Trans Mountain's list of interested parties; all landowners and tenants within the proposed West Alternative corridor; all potentially affected Indigenous peoples, including all Indigenous peoples whose claimed traditional territory overlaps with the proposed West Alternative corridor; and a Commission-generated list of federal and provincial Ministers, attorneys general, and departments, and certain industry and landowner associations.

The following Indigenous peoples or organizations were served: Ashcroft Indian Band, BC Métis Federation, Boothroyd Indian Band, Boston Bar First Nation, Coldwater, Cook's Ferry Indian Band, Kanaka Bar Indian Band, Lower Nicola Indian Band, Lower Similkameen Indian Band, Lytton First Nation, Métis Nation British Columbia, Métis Nation British Columbia – Thompson & Okanagan, Nicomen Indian Band, Nooaitch Indian Band, Okanagan Indian Band, Oregon Jack Creek Band, Osoyoos Indian Band, Penticton Indian Band, Shackan Indian Band, Siska Indian Band, Skuppah Indian Band, Spuzzum First Nation, Upper Nicola Band, Upper Similkameen Indian Band, and Westbank First Nation.

on detailed route matters. Further, the Commission advised that, if it did not receive any SOOs that met the criteria set out in the CER Act, Hearing MH-032-2020 would only examine the Variance.

Regarding the proposed detailed route, for which Trans Mountain filed the PPBoR on 2 December 2020 (C10104), Trans Mountain confirmed completion of the required service and publication of notices under section 201 of the CER Act (C10585, C10321). On 16 December 2020, the Commission reminded the participants in the Variance of their opportunity to file SOOs if they opposed the location of the detailed route, the methods of construction, or the timing of construction (C10452). The Commission did not receive any SOOs from landowners, Indigenous peoples, or other interested persons within the legislated 30-day deadlines and, therefore, no detailed route hearings were set down. In light of the above, Hearing MH-032-2020 only considered the Variance.

3.2 Participation by Indigenous peoples, landowners, and the public

Section 74 of the CER Act requires that the CER establish processes that it considers appropriate to meaningfully engage with the public, and Indigenous peoples and organizations, when public hearings are held. For the Variance, the Commission invited the public – individuals, communities, groups, organizations, governments, and companies, including those identifying as Indigenous peoples – to register to participate as either an intervenor or commenter. The registration form described what each role could entail.

The Commission advised that anyone that registered to participate would be able to participate as a commenter. However, it noted that a registrant’s participation should be commensurate with the degree to which that registrant may be impacted by the Variance and that it would consider the information provided by each registrant in deciding whether that registrant is assigned intervenor or commenter status.

Certain intervenors withdrew their registrations during the hearing and their submissions were not considered. The remaining intervenors and commenters at the time of the Letter Decision were the following:

Table 1 – Participants in Hearing MH-032-2020

Intervenors	Commenters
Coldwater	Alberta Department of Energy
Coquihalla Cattle Co.	Bruce Beech ²
Métis Nation British Columbia	Cook’s Ferry Indian Band
Nooaitch Indian Band	Natural Resources Management Division of Nicomen Indian Band
Province of BC	Gray Simms
Siska Indian Band	Lorie Simms
	Spuzzum First Nation

² Mr. Beech sought intervenor status, but the Commission considered a letter of comment to be the appropriate manner of participation. See the Commission’s 30 November letter for details (C10012).

3.3 Hearing steps and process

The 8 January 2021 Hearing Order set out the procedural steps for Hearing MH-032-2020. Certain steps pertained to the filing of information regarding detailed route matters, in the event that SOOs were received. However, since no SOOs were received, these steps were not undertaken.

The Commission seeks to take Indigenous knowledge into account in its decision-making and, therefore, invited Indigenous participants to share their oral Indigenous knowledge. Coldwater was the only Indigenous participant to indicate their intent to undertake this step, but later advised the Commission that it had decided not to do so ([C11807](#)).

Intervenors were able to file written evidence, and only Coldwater did so ([C12076](#)). Coldwater's written evidence included Indigenous knowledge filed confidentially pursuant to section 58 of the CER Act. Each commenter was able to file a letter of comment; however, none were received.

Following Trans Mountain's filing of reply evidence ([C12184](#)), intervenors and Trans Mountain were able to ask each other written information requests (**IRs**) about their respective evidence filings. The Province of BC was the only party to ask IRs, which it did in relation to Trans Mountain's evidence. The Commission also asked various IRs of Trans Mountain. Trans Mountain's provided responses to each IR asked ([C10526](#), [C11001](#), [C11881](#), [C12002](#), [C12510](#), [C12811](#)).

The Commission sought the parties' interest in undertaking cross-examination via videoconference. As no parties indicated their intent to cross-examine, the Commission announced in a 30 April 2021 Procedural Direction ([C12745](#)) that cross-examination would not take place.

Intervenors were given the choice of providing argument in writing or orally via videoconference. Coldwater indicated that it would file argument in writing. No other parties filed a preference. In an 8 April 2021 Procedural Direction ([C12315](#)), the Commission confirmed that all argument would be in writing. Trans Mountain filed written argument on 3 June 2021 ([C13396](#)), Coldwater filed written argument on 9 June 2021 ([C13471](#)), and Trans Mountain filed reply argument on 11 June 2021 ([C13516](#)).

Chapter 4 – Matters considered by the Commission

The Commission considered all evidence and argument filed on the [MH-032-2020](#) hearing record. The Commission also considered the Crown Consultation and Accommodation Report (CCAR). Throughout these Reasons, the main issues are summarized and the Commission provides its analysis and findings for each.

4.1 Support for the West Alternative

Coldwater:

- As the Band, and the member of the Nlaka'pamux Nation, most directly and significantly impacted by routing through the Coldwater Valley, Coldwater provided Trans Mountain with a letter expressing their support for the West Alternative variance application, subject to ongoing community engagement.
- That Coldwater is most affected by a routing decision in the Coldwater Valley is reflected in letters from Boston Bar First Nation, Cook's Ferry Indian Band, Nooaitch Indian Band, Shackan Indian Band, Siska Indian Band, Spuzzum First Nation, and Upper Nicola Indian Band, which all support Coldwater's position on the West Alternative.
- Coldwater submits that if Coldwater are forced to live with the pipeline running through their territory and valley, Coldwater strongly prefers the West Alternative over the East Route because it avoids all risks and impacts to their community's sole source of drinking water.
- Other factors that support the West Alternative include: it reduces greenfield disturbance associated with the TMEP in the Coldwater Valley; it is further from Coldwater's main residential community and the proximate area relied on for various rights practices; and, it is preferred by Coldwater elders and knowledge holders because it avoids additional impacts to the already heavily impacted eastern side of the valley.

NNTC (provided in the CCAR):

- NNTC supports the Coldwater Indian Band in its efforts to protect its drinking water aquifer from the risks and impacts posed by the TMEP.

4.1.1 Commission analysis and findings – Support for the West Alternative

The Commission gives significant weight to the fact that Coldwater, which is the Indigenous community located in the Coldwater Valley and closest to the West Alternative, has indicated its express support for the West Alternative as the superior route option through the Coldwater Valley. The Commission also notes that in the West Alternative variance application, Trans Mountain appended several letters from other Indigenous peoples in support of Coldwater's position on the West Alternative. In addition, the Commission notes that the landowners affected by the West Alternative that registered to participate in the hearing subsequently withdrew their interventions or did not file a letter of comment.

The fact that there is no outstanding opposition to the West Alternative route, whereas opposition still exists to the approved East Route, is an important consideration for the Commission.

4.2 Consultation with Indigenous peoples

4.2.1 Indigenous Rights and Interests

Coldwater:

- Coldwater is a member of the Nlaka'pamux Nation, whose territory spans a large region in the south central interior of British Columbia, including Lower Thompson River area, the Fraser Canyon, the Nicola and Coldwater River Valleys, and the Coquihalla area.
- Coldwater's ancestors have used and occupied the lands since the time before memory. While they have connections to the entire Nlaka'pamux territory, Coldwater has a special connection to the Coldwater watershed, which includes the Coldwater Valley, and the cultural resources it has provided their people for millennia. Coldwater's rights and title to the lands and waters have never been ceded or surrendered.
- Coldwater's members rely heavily on their territory and draw great strength from their traditional practices and the resources they harvest. Being out on the territory connects the present to the past and to generations of ancestors. Coldwater's traditional activities are part of their identity and they are what bind families together. Coldwater's territory, and not just selected areas or sites, is a part of their lives in every sense.
- The Coldwater Valley supports traditional resource gathering for cultural and spiritual purposes that continue a pattern of use that has been in place for generations. Prior to colonization, Coldwater's village was located at the confluence of the Coldwater and Nicola Rivers, and their ancestors relied heavily on the Coldwater Valley as part of their harvesting area. This use continues today.
- In addition to enabling harvesting and agricultural activities, the lands (both in the Coldwater Valley and broader territory) include sacred sites like ritual bathing sites, sites of spiritual training for young people, sweat lodge and vision quest locations, Sun Dance grounds, areas that are avoided based on oral histories, trees in which to hang cradleboards after use to ensure the vitality and success of babies later in life, sacred waterfalls and mountains, archeological pit house sites and places inhabited by legendary beings.
- The TMEP has been approved to run through unceded Nlaka'pamux territory and will have countless effects on Coldwater's territory, rights, and people. These include immediate effects, which Coldwater's members will experience from the construction and operation of the TMEP, and long term and future effects from the continued operation of the TMEP and inevitable accidents and malfunctions.
- Since the TMEP was first proposed in 2013, Coldwater has been raising concerns about how it will affect their unceded rights and title. No issue has been more important than the risks and impacts to Coldwater's sole source of drinking water on the Reserve. This is Coldwater's key concern with the TMEP because it threatens to undermine their ability to live on the Reserve. Access to clean drinking water is a fundamental human right for good reason.

NNTC (provided in the CCAR):

- For the West Alternative, NNTC represents four Nlaka'pamux communities: Skuppah Indian Band, Oregon Jack Creek Indian Band, Lytton First Nation and Boothroyd Indian Band.
- TMEP passes through a wide area of traditional use by members of the Nlaka'pamux Nation. The cultural interests of the member communities of the Nlaka'pamux Nation Tribal Council are vested in the entire territory of the Nlaka'pamux. They are not limited to the reserves assigned or even to a larger area associated with their locality. Nlaka'pamux traditional protocol holds that the mountain and plateau areas of Nlaka'pamux territory and the associated resources were open to all Nlaka'pamux people.

- In the Nlaka'pamux geographic model, all the land is named: not only villages, but also fishing sites, mountains, upland resource areas, and places along trails. These were places where adolescent children seeking their sne'm or guardian spirit, or adults seeking augmented power, could train. They were also sites of travel.
- The mountain region between Coldwater and the area east of Hope was historically a Nlaka'pamux harvesting and hunting area, as well as a travel route to the Skagit valley. The more open country north and east of the Nicola River, including the area around Stump Lake, is an interconnected series of traditional resource areas, as well as historic sites of meeting and trade.

4.2.2 Trans Mountain's consultation with Indigenous people

Trans Mountain:

- Trans Mountain's consultation with Indigenous peoples that may be affected by the West Alternative is presented in its West Alternative variance application.
- Trans Mountain's Indigenous Engagement Program was designed to create an open, transparent and inclusive process that seeks to: exchange information in a respectful manner; address concerns shared by those who might have an interest in the Project or have Indigenous interests potentially affected by the Project; incorporate feedback into Project planning and execution; and provide Project benefits.
- The Trans Mountain Indigenous Engagement Program is guided by Trans Mountain's Indigenous Relations Policy and the following principles: build trust and respect; conduct meaningful engagement; address legal requirements; gather Indigenous perspectives; assess project impacts; reach understanding; provide benefits.
- Trans Mountain has a long and extensive engagement history with Coldwater on the issue of routing through the Coldwater Valley. More recently, since May of 2020, Trans Mountain President and CEO, Ian Anderson, met regularly with Chief Lee Spahan of Coldwater, attempting to reach consensus on routing. In early October, Coldwater confirmed that the West Alternative route for the TMEP addresses its concerns regarding potential impacts to the aquifer used by Coldwater.
- In addition to Coldwater, Trans Mountain has engaged with other potentially affected Indigenous peoples regarding the West Alternative. That engagement has included providing detailed information about the West Alternative and working with Indigenous peoples to consider and incorporate knowledge and advice into the design of the West Alternative.
- Trans Mountain committed to continue site-specific planning and engagement with Coldwater Indian Band on the Coldwater River crossings.
- Trans Mountain is committed to ongoing dialogue and discussions with Indigenous peoples that may be affected by the West Alternative, including Coldwater Indian Band and NNTC, through the duration of the regulatory review process and the lifecycle of the Project.
- Through its engagement with Coldwater and other parties, Trans Mountain understands that no Indigenous people have expressed opposition to the West Alternative.

Coldwater:

- The driving purpose behind the West Alternative variance application is to respond to Coldwater's fundamental concerns about the East Route and to protect Coldwater's drinking water from the unnecessary risks posed by that route. No other measures have been put forward by Canada or Trans Mountain that would address Coldwater's concerns about impacts and risks to their aquifer. Coldwater has been raising concerns about the unacceptable risks the

TMEP East Route poses to their aquifer since at least 2013 and engagement with Trans Mountain on the West Alternative continued even after the June 2019 approval of the TMEP.

- By asserting that “Nlaka’pamux Title and rights are held by the Nation and are not held by the bands”, NNTC implies that it appropriately speaks for the Nlaka’pamux Nation as a whole. Coldwater submits this is incorrect and that the NNTC only speaks for four communities: Skuppah Indian Band, Oregon Jack Creek Indian Band, Lytton First Nation and Boothroyd Indian Band. The NNTC does not speak for or otherwise represent Coldwater.

NNTC (provided in the CCAR):

- Trans Mountain has continued to focus its consultation on bands and to focus on issues in relation to reserves, even though bands and reserves have no place in the Nlaka’pamux cultural landscape.

4.2.3 Commission’s hearing process

The Commission established and conducted Hearing MH-032-2020. Participant funding was made available by the CER. The process steps are described in **Section 3.3**. As outlined in **Section 3.2** above, of the 25 Indigenous peoples or organizations notified of the hearing process, the following registered to participate in Hearing MH-032-2020 and were granted the status they requested as follows:

Table 2- Indigenous participants in MH-032-2020

Intervenors	Commenters
Coldwater	Cook’s Ferry Indian Band
Métis Nation British Columbia	Natural Resources Management Division of Nicomen Indian Band
Nooaitch Indian Band	Spuzzum First Nation
Siska Indian Band	

Coldwater actively participated in Hearing MH-032-2020 by filing evidence (including confidential Indigenous knowledge) and written argument. Nicomen Indian Band filed a letter of comment on 10 December 2020 outlining its interests in funding and employment opportunities with respect to the West Alternative.

No other Indigenous intervenors or commenters made any submissions in Hearing MH-032-2020 beyond that contained in their initial registration to participate forms.

4.2.4 The Government of Canada’s consultation process with Indigenous peoples

Pursuant to subsection 190(1) of the CER Act, the Commission is the final decision-maker on applications to vary a certificate unless the Minister requires the Commission to make a

recommendation.³ On 22 December 2020, NRCan informed the Commission that the Minister had decided not to exercise his discretion and would not be directing the Commission to make a recommendation to the Governor in Council on the Variance ([C10589](#)).⁴

Subsection 10(2) of the CER Act designates the CER as an agent of the Crown. The Government of Canada has also tasked the CER to act as federal Crown Consultation Coordinator. This role is being undertaken by CER staff working independently from the Commission (Crown Consultation Team).

The CCAR and associated filings:

- On 30 October 2020 the Crown Consultation Team and NRCan sent a letter with notice of the application to Indigenous peoples or organizations that may be affected by the West Alternative (see footnote 1 for those served) ([C09249](#)).
- The letter clarified that the CER is responsible for coordinating all consultation activities with Indigenous peoples in relation to the West Alternative application. The CER encouraged Indigenous peoples or organizations that may be affected by the West Alternative to participate in the Commission's hearing process, noting that such participation allows the Commission to directly hear about and fully consider impacts on their rights and interests. The CER also indicated that the Crown Consultation Team was available to meet bilaterally to discuss any concerns regarding, and potential impacts of, the West Alternative.
- In November and December 2020, the Crown Consultation Team followed-up with each of the Indigenous peoples and organizations contacted by letter with respect to participation opportunities in both the Commission's hearing process and the Crown Consultation Team's activities.
- The Crown Consultation Team also provided information regarding participant funding.
- Indigenous peoples or organizations were offered one of two options for participant funding to support their involvement in MH-032-2020 and/or Crown Consultation Team activities. Option 1 was an opportunity to participate in Crown Consultation Team activities without participating in the MH-032-2020 hearing. Maximum available participant funding for Option 1 was \$20,000 for eligible activities. Option 2 was an opportunity to participate in both the MH-032-2020 hearing as an intervenor, and in Crown Consultation Team activities. Maximum available participant funding for Option 2 was \$50,000 for eligible costs. As shown in Table 3, based on responses received, the CER made \$140,000 in funding available.

⁴ Subsection 190(1) of the CER Act provides: "The Commission may, on application or on its own initiative, vary a certificate issued under this Part and may, on application, transfer a certificate issued under this Part. However, the Minister may, if he or she considers that it is in the public interest to do so, direct the Commission to make a recommendation to the Governor in Council with respect to the variation or transfer instead."

Table 3 - CER Participant Funding for Indigenous Peoples

Indigenous People or Organization	Amounts
Coldwater	\$50,000 (Option 2)
NNTC	\$20,000 (Option 1)
Siska Indian Band	\$50,000 (Option 2)
Spuzzum First Nation	\$20,000 (Option 1)

- Of the 25 Indigenous peoples or organizations notified, only NNTC pursued a consultation process with the Crown Consultation Team. Both Cook’s Ferry Indian Band and Kanaka Bar Indian Band met virtually with the Crown Consultation Team and BC EAO to discuss the consultation process and to discuss any potential concerns with the West Alternative. Cook’s Ferry Indian Band raised no concerns, and no further communications took place. Kanaka Bar Indian Band stated they are supportive of Coldwater’s position and would keep following the hearing process and Coldwater’s position with respect to the application. No further consultation process took place with Kanaka Bar Indian Band.
- The CER filed a motion on 5 May 2021 for a two-week extension to file its Crown Consultation and Accommodation Report (CCAR) to provide the Crown Consultation Team an opportunity to re-engage with NNTC ([C12939](#)). After considering comments from parties, the Commission granted the motion for the extension ([C13037](#)).
- With respect to Coldwater’s participation, Coldwater sent an email on 16 November 2020 to the Crown Consultation Team stating that it looked forward to being consulted on the West Alternative. The Crown Consultation Team responded by email on 17 November 2020 to Coldwater offering to meet, but no response was received. A follow-up email was sent to Coldwater on 7 December 2020 but again no response was received. Coldwater registered as an intervenor and actively participated in MH-032-2020 hearing. In response to Coldwater’s comments regarding the Crown Consultation Team’s motion for a deadline extension to file the CCAR in which Coldwater raised concerns regarding its involvement in the CER’s process, the Crown Consultation Team indicated that based on the above, it was unaware that Coldwater wished to continue engaging in consultation activities outside of the MH-032-2020 hearing.
- With respect to NNTC’s involvement in the Crown Consultation process, following NNTC’s request, NNTC and the Crown Consultation Team pursued a consultation process involving an NNTC-British Columbia Shared Decision-Making Board (SDMB). The SDMB is a body that includes representatives of NNTC, the government of British Columbia and, for the limited purposes of addressing issues relating to the West Alternative application, representatives from the CER Crown Consultation Team and observers from NRCan. The representatives agreed to a regular meeting schedule and discussed a modified 7-Step Engagement Process (based on the SDMB) for the purposes of engagement and consultation on the West Alternative.
- On 27 May 2021, the Crown Consultation Team submitted the CCAR for the West Alternative to the Commission for consideration ([C13255](#)). In addition to a summary of the engagement process and consultation activities with NNTC that occurred between January 2021 and May 2021, the CCAR includes the NNTC Information Report at Appendix 3 and 49 Recommendations put forward by NNTC along with the Government of Canada’s response to each recommendation at Appendix 5. The CCAR notes that the Commission’s process is the primary forum for Crown consultation and describes the Crown Consultation Team’s activities as complementary.

Coldwater's concerns with CER Consultation:

- Coldwater expressed concern that the CER requested an extension for the submission of the CCAR to the Commission on account of ongoing consultation with the Nlaka'pamux Nation Tribal Council (which does not represent Coldwater). Coldwater submitted that it received no correspondence from the Crown Consultation Team regarding its CCAR, or underlying duty to consult and accommodate, since first receiving notice of the CER's Crown Consultation Team on 30 October 2020.

NNTC concerns with CER Consultation (provided in the CCAR):

- Appendix 2 of the CCAR is a letter dated 5 May 2021 from NNTC's Chief Matt Pasco to the Crown Consultation Team outlining NNTC's concerns with the Crown Consultation Team's process, which included an information report to be prepared jointly by NNTC and the CER. Chief Pasco submits that the CER did not disclose changes made to the Joint Information Report, contrary to the process to which the parties had agreed. Consequently, the Joint Information Report was not completed and the CCAR attached an Information Report prepared solely by NNTC as an appendix.
- The letter also notes that the majority of the responses of Canada and the CER to NNTC's recommendations provide no opinion on whether the recommendation should be brought forward for the Commission's consideration. Chief Pasco therefore expresses the view that the Government of Canada and CER appear to have been mere note takers in the consultation process with the NNTC.

4.2.5 Commission analysis and findings – Consultation with Indigenous peoples

The Commission interprets its responsibilities in a manner consistent with the *Constitution Act, 1982*, including section 35, which recognizes and affirms the existing Indigenous and Treaty rights of Indigenous peoples. For the reasons that follow, the Commission finds that there has been adequate consultation and accommodation for the purpose of this Variance decision.

In determining that the Crown's duty to consult and accommodate has been fulfilled in this circumstance, the Commission considered the following:

- a) Effects on the rights and interests of Indigenous peoples. (**Sections 4.2.1 and 4.2.5**)
- b) Mitigation, commitments, and conditions aimed at minimizing effects (see **Appendices II and III** for specific references).
- c) Trans Mountain's consultation with Indigenous peoples for the West Alternative mandated by the CER Filing Manual (**Sections 4.2.2 and 4.2.5**).
- d) The Commission's Hearing process and participation opportunities for Indigenous peoples (**Sections 4.2.3 and 4.2.5**).
- e) The Government of Canada's consultation with Indigenous people coordinated by the CER (**Sections 4.2.4 and 4.2.5**).

The Commission has considered the submissions of Coldwater and NNTC through the CCAR (**Section 4.2.4**) and accepts that, within the area of the West Alternative, they have the rights and interests described.

For the Reasons provided in **Sections 4.5 and 4.6**, the Commission finds that impacts of the West Alternative on the ability of Coldwater or NNTC to exercise their rights and interests can be adequately addressed through the Commission's requirement that Trans Mountain fulfill its commitments and the conditions attached to the TMEP Certificate and to the orders that accompanied the decision.

a) Effects on the rights and interests of Indigenous peoples

The Commission has considered the submissions of Coldwater, and NNTC through the CCAR, (**Section 4.2.3**) and accepts that, within the area of the West Alternative, they have the rights and interests described.

For the Reasons provided in Sections 4.5 and 4.6, the Commission finds that impacts of the West Alternative on the ability of Coldwater or NNTC to exercise their rights and interests can be adequately addressed through the Commission's requirement that Trans Mountain fulfill its commitments and the conditions attached to the TMEP Certificate and to the orders that accompanied the decision.

b) Mitigation, commitments, and conditions

With the exception of Certificate Condition 39 (discussed in **Section 0**), the conditions applicable to the TMEP as a whole continue to apply to the Variance.

The Commission has also imposed, in the Order amending the Certificate, a number of additional conditions including standard conditions requiring Trans Mountain to implement all of its commitments (Appendix I). All conditions imposed by the Commission are enforced pursuant to the CER Act.

Coldwater submitted some proposed conditions during the hearing process. The Commission has fully considered these and addressed them throughout these Reasons (cross reference is provided in Appendix II)

In the CCAR, NNTC's concerns and recommendations are provided and each recommendation is addressed in these Reasons (cross reference is provided in Appendix III).

c) Trans Mountain's Indigenous Engagement mandated by the CER Filing Manual

The Commission is satisfied that Trans Mountain's consultation with Indigenous peoples was adequate for the West Alternative.

The Commission accepts the submissions of Trans Mountain that its established engagement program with Indigenous peoples or organizations in the vicinity of the West Alternative has been implemented for the West Variance, and through this program Trans Mountain has committed to provide engagement opportunities throughout the lifecycle of the West Alternative. Although NNTC expresses concern with Trans Mountain's approach to consultations, the differing views of Coldwater and the communities represented by the NNTC suggest that engagement with every Nlaka'pamux Nation as a whole may not be possible.

The Commission notes that the Variance application itself is in direct response to concerns raised by Coldwater. Further, Trans Mountain has continued to refine its plans for the Variance as a result of its engagement with Coldwater. The Commission notes, for example, Trans Mountain's commitment to use heavy wall pipe for the entire Variance route and its change to Direct Pipe Installation (**DPI**) (rather than HDD) as the primary construction method for Coldwater River Crossing #2 (**Section 4.5.3**). The Commission also notes that Trans Mountain's engagement with NNTC has led to Project modifications, including an additional wildlife survey done at NNTC's request in mid-April 2021 (**Section 4.6.7**).

d) The Commission's Hearing process and participation opportunities for Indigenous peoples

The Supreme Court of Canada recognized that the National Energy Board (NEB) has the procedural powers to implement consultation (e.g. participant funding, ability to hold a hearing) and the remedial powers to impose and enforce accommodation measures (e.g. the power to deny the application or attach conditions) as well as the requisite technical expertise.⁵ Accordingly, the Supreme Court found that the NEB's process could be relied on to completely or partially fulfill the Crown's duty to consult. As successor to the NEB, the CER has these same powers and expertise, as exercised by the Commission.

The 30 October 2020 letter sent to Indigenous peoples that may be affected by the project by the Crown Consultation Team and NRCan (described in **Section 4.2.4**) encouraged direct participation in the Commission's process. The Commission is of the view that this correspondence clarified the Government of Canada's intention to rely on its hearing process to fulfill the duty to consult.

The Commission provided an opportunity for parties to file comments on the hearing process in the early stages. As demonstrated by its reasons ([C10840](#)), the Commission took parties' comments into account in establishing the process for the hearing described in **Section 3.3**. In the Commission's view, the hearing process was appropriate in the circumstances and provided ample opportunities for participation.

e) CER's Crown Consultation Process

Section 4.2.4 outlines the process undertaken by the CER's Crown Consultation Team in undertaking Crown consultation with Indigenous people and also concerns about that process raised by Coldwater and NNTC.

The Commission has considered that Cook's Ferry Indian Band and Kanaka Bar Indian Band, as well as NNTC, participated in the CER's Crown Consultation process. The Commission notes that Coldwater initially expressed an interest in participating in the CER's Crown Consultation process but did not respond to follow-up communications. In any event, the Commission finds that Coldwater's involvement in the Commission's hearing process, has allowed Coldwater to fully express its views about the Project and to provide the Commission with the information necessary to fully consider how their rights and interests may be affected by the Project.

While the Commission acknowledges the process concerns raised by NNTC in the CCAR, the Commission finds that the CCAR, inclusive of Chief Pasco's letter and NNTC's recommendations, is a sufficiently complete contribution to the hearing record of the Government of Canada's consultation and of NNTC concerns for the Commission to assess NNTC's concerns and any appropriate mitigation and accommodation to address them. NNTC's recommendations are addressed throughout these Reasons and **Appendix III** provides a guide to the sections addressing each NNTC recommendation.

⁵ *Clyde River (Hamlet) v. Petroleum Geo-Services Inc.*, 2017 SCC 40 at paras. 33 and 34; *Chippewas of the Thames First Nation v. Enbridge Pipelines Inc.* 2017 SCC 41 at paras. 32 and 48.

The Commission's conclusion – Consultation with Indigenous peoples

Considering the above, along with all of the findings in this decision, the Commission is of the view that the requirements of section 35 of the *Constitution Act, 1982* have been met, such that the approval of the West Alternative is consistent with the honour of the Crown.

4.3 Trans Mountain's consultation with Landowners, Local Residents & Government Authorities

Trans Mountain:

- Trans Mountain's consultation with the Appropriate Government Authorities and affected landowners/tenants related to the West Alternative is presented in its West Alternative variance application. Trans Mountain committed to ongoing engagement throughout the life of the Project and to continue to share information with those affected as the Project progresses.
- On 29 July 2020, Trans Mountain filed a Project Notification in relation to the West Alternative variance application, wherein Trans Mountain notified the Commission and other regulators and stakeholders that it was considering a potential application to the CER for approval of the West Alternative.
- Trans Mountain notified the Thompson-Nicola Regional District of its intention to explore an alternative route along the west side of the Coldwater Valley. Trans Mountain has not received any feedback from the Regional District since issuing this notification.
- Trans Mountain representatives have contacted and met with all landowners, residents and range tenure holders affected by the West Alternative to discuss the proposed route and review the route on large scale maps. Trans Mountain has provided mapping of the route to all affected landowners, residents and tenure holders and, in some cases, has received and discussed feedback from those stakeholders.

4.3.1 Commission analysis and findings – Trans Mountain's consultation with Landowners, Local Residents & Government Authorities

The Commission is satisfied that government departments and agencies, and the public that may be affected by the West Alternative were notified by Trans Mountain and given the opportunity to comment on the West Alternative. There has been minimal participation by potentially affected people in Hearing MH-032-2020.

The Commission finds that Trans Mountain's consultation with non-Indigenous people has been adequate.

4.4 Land matters

Trans Mountain:

- Table 4 shows the comparison between the West Alternative and the East Route with respect to: overall length; length of new corridor (greenfield); and land requirements for RoW, temporary workspace (TWS), and extra temporary workspace (ETWS).

Table 4 - Comparison of West Alternative and East Route - Lands

	West Alternative	East Route
Length	18.31 kilometres	15.46 kilometres
Greenfield	3.99 kilometres	7.9 kilometres
Area ROW, TWS, ETWS	46.34, 49.35, 44.05 hectares	26.37, 39.3, 7.98 hectares

- The length of the West Alternative that parallels existing linear features is 14.37 kilometres (compared to 7.55 kilometres for the East Route).
- The permanent easement will be 25 metres in width and the construction footprint will be approximately 45 metres wide, with extra temporary workspace areas for bends and crossings. Lands affected by the West Alternative are primarily Crown land. Specifically, about 80 per cent or 14.45 kilometres of the West Alternative is on Crown land (19 parcels), and 21 per cent or 3.91 kilometres is on private land (7 parcels).
- Most of the Crown lands are occupied by grazing tenures, which consist of six listed tenures. The BC Oil and Gas Commission is the permitting authority for granting a licence of occupation to Trans Mountain for short and long-term use of Crown Land.
- The private land affected is largely at the north end of the route between the proposed West Alternative kilometer posts (AK) 0.5 and AK 2.5, where the West Alternative crosses four large residential properties and two agricultural properties. The alignment also traverses two agricultural properties at the southern end of the route between AK 14.8 and AK 18.2.
- Trans Mountain requires the following types of land ownership rights for the West Alternative:
 - permanent easement on Crown land and fee simple land;
 - temporary workspace for construction;
 - temporary access agreements for construction; and,
 - crossing agreements for roads and utilities.
- Trans Mountain will utilize existing access roads and trails to the extent possible. Some roads may require upgrading prior to construction to ensure roads are safe for crew and equipment travel but will be decommissioned after construction with the exception of permanent access roads that will be required for ongoing access to the valve sites.
- Trans Mountain will acquire the necessary easement interests, permits and rights from private landowners and utility owners (or the Commission, if needed) and Crown licence agreements for the construction, operation, and maintenance of the TMEP along the West Alternative.

Coldwater:

- Coldwater notes that the East Route will have more than 10 kilometres of “new” disturbance, compared with less than 4 kilometres of “new” disturbance (i.e., not adjacent or parallel to any existing utility or road feature) for the West Alternative. This is because the West Alternative is largely located within, or directly next to, existing rights of way that have already disturbed Coldwater’s lands. Coldwater understands that construction and operational access to the West Alternative will utilize existing access roads, whereas new access roads and reactivation of roads that have grown over would be required for the East Route, resulting in further alienation and disturbance of lands in close proximity to Coldwater’s community, including use of roads on the Reserve.
- Based on Trans Mountain’s own pipeline corridor selection process, which prioritizes siting the corridor on or adjacent to the existing pipeline or other linear facilities, the West Alternative

better accords with Trans Mountain's own routing criteria, and ought to have been selected on this basis in the first place.

NNTC (provided in the CCAR):

- NNTC proposed recommendations 45, 46 and 47 (Appendix III) in relation to access.

4.4.1 Commission analysis and findings – Land matters

The Commission recognizes Trans Mountain's efforts to parallel existing linear infrastructure to minimize potential impacts to the people and the environment within the new proposed corridor. The proposed West Alternative corridor would parallel more existing linear infrastructure and cross less greenfield than the East Route. The Commission finds that Trans Mountain's anticipated requirements for permanent and temporary land rights are appropriate to allow for the construction and operation of the Project in a safe and efficient manner.

The Commission also finds that Trans Mountain's anticipated requirements for land rights, and the process for the acquisition of these land rights, are acceptable and will meet the requirements of the CER Act (including sections 321 to 323), and provincial and local permitting authorities as applicable.

In their Recommendations 45, 46, 47, NNTC proposed that Trans Mountain, in collaboration with NNTC, draft a detailed plan for temporary road reclamation and mitigation for permanent access roads and provide a detailed field plan that outlines efforts to identify areas with increased predation and mitigative responses once these areas have been identified (CCAR, [C13255-3](#), PDF 93-95). The Commission finds that the Access Management Plan (existing Certificate Condition 47) addresses these recommendations and considers the current mitigation combined with Trans Mountain's commitment to consider any specific input on access road reclamation that NNTC may provide to be adequate.

4.5 Facility

4.5.1 Pipeline design

Trans Mountain:

Pipeline specifications

- Trans Mountain stated that pipe specifications will be confirmed during detailed design work. It is anticipated that NPS 36 Grade 483 pipe of 19.0 mm and 14.7 mm wall thicknesses will be used. In the course of ongoing engagement with Coldwater, Trans Mountain committed to using heavy wall pipe (14.7 mm) for the entire West Alternative alignment. Trenchless crossings of the Coldwater River will require extra heavy wall pipe (19.0 mm); other locations will also require pipe with a 19.0 mm wall thickness.
- Detailed design will be completed once all geotechnical information for the north Coldwater River crossing and other road crossings are available. Issued for Construction designs and drawings will be completed at least 3 months prior to construction.
- Trans Mountain does not anticipate the need to utilize high strain capacity pipe in the design and construction of the West Alternative, as the current route alignment avoids the recognized geohazards in the area that may otherwise have required high strain capacity pipe.

Crossings and Depth of Cover

- The West Alternative Road will cross 5 named roads; a number of trails, 3 pipelines (all of which are third-party pipelines); 5 crossings of the Telus Fiber-Optics Transmission System cable; 4 overhead powerline crossings; 4 wetland crossings; 2 crossings of the Coldwater River; and 26 other watercourses. These crossings will be updated and confirmed prior to construction.
- The depth of cover over the pipeline will be as follows:
 - 0.9 metres (except for the trenchless sections at the Coldwater River crossings, geohazards areas and other site-specific designs);
 - 1.2 metres at all watercourse crossings; and
 - 1.2 metres at all roads (except for the 5 named roads where the BC Ministry of Transportation and Infrastructure requires 2 m).

Valves

- A valve will be installed at either side of each of the two proposed Coldwater River crossings, for a total of four valves along the West Alternative. These will be two mainline block valves and two check valves. The precise valve locations and configurations will be finalized based on a release volume analysis during detailed design. This final design will inform an update of Condition 17: Valve Locations on Line 2⁶.
- Table 5 shows the type of valves and preliminary locations:

Table 5 - Valves

Valve Name	Valve Chainage (m)	Valve Closure Type	Valve Closure Time (minutes)
Block Valve (2CK-001)	936,030.169	Remote	5
Check Valve (2CK-003)	939,738.447	Check	Immediate ⁷
Block Valve (2CK-014)	950,227.816	Remote	5
Check Valve (2CK-017)	953,141.631	Check	Immediate

Hydraulic acceptability

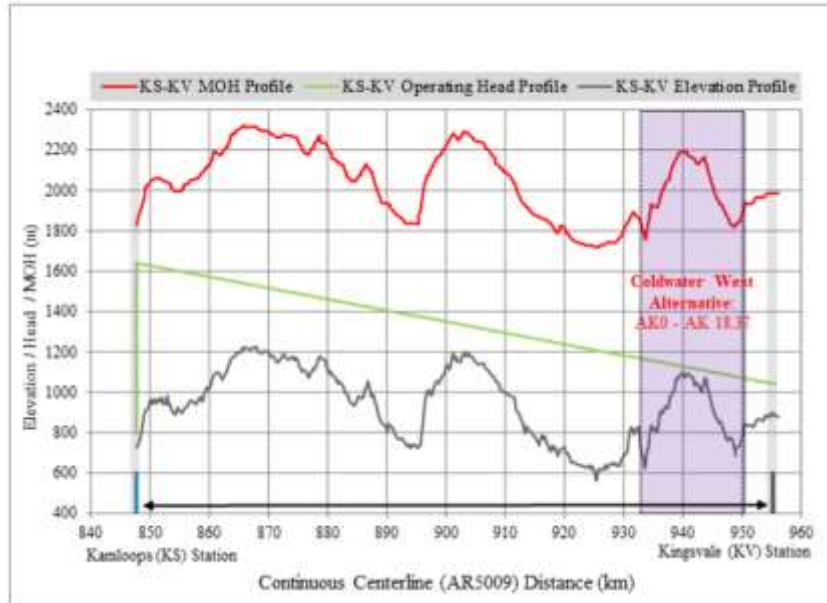
- A segment of pipeline is defined as having “Hydraulic Acceptability” if the segment length and elevation will not impact the design throughput.
- Trans Mountain determined that segment length and elevation on the West Alternative will not impact the design throughput. The upstream pump station (Kamloops) has sufficient pressure to overcome the elevation head for the product to reach the next pump station (Kingsvale). The Kamloops Pump Station and Kingsvale Pump Station are located at 848 kilometres and 956 km, respectively (Figure 2).

⁶ Line 2 refers to the pipeline approved under Certificate OC-065.

⁷ Check valves only prevent flow in the reverse direction. If reverse flow is recognized within the pipeline system, an immediate closure occurs.

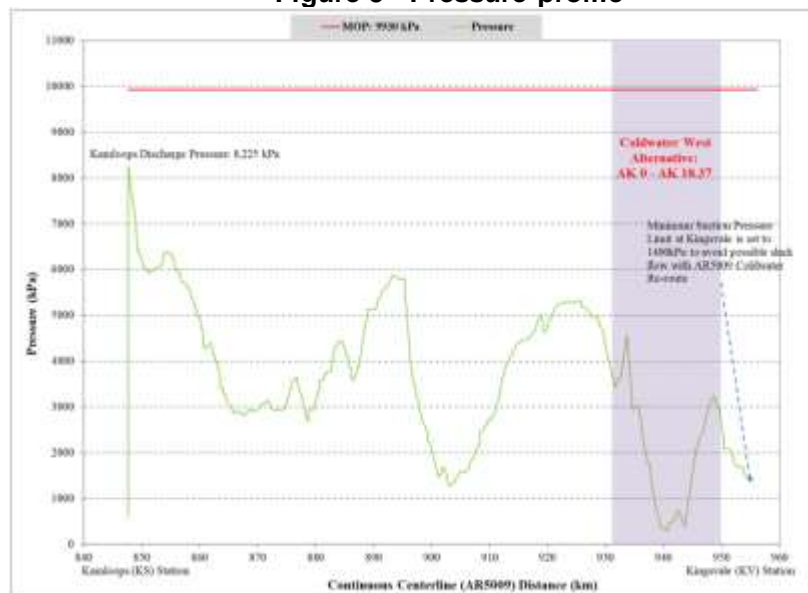
- Trans Mountain stated that the West Alternative (AR5009) is acceptable within the anticipated maximum operating pressure. Although Trans Mountain made small design and route changes (AR005.19.6), these changes will not impact the pressure profile.

Figure 2 - Maximum Operating Head (MOH), Operating Head, and Elevation Profile



- With the West Alternative (AR005.19.6), between AK 0 to AK 18.313, the discharge pressure at the Kamloops Pump Station is approximately 8,225 kPa. Trans Mountain considered site-specific pressure based on the elevation profile of the West Alternative (AR5009) to calculate failure likelihood due to third party damage, which is discussed in **Section 4.5.2** Risk assessment (Figure 3).

Figure 3 - Pressure profile



4.5.1.1 Commission analysis and findings – pipeline design

The Commission is satisfied with Trans Mountain's pipeline design as it complies with CSA Z662 requirements and is consistent with the design that was approved in the Reconsideration Report.

4.5.2 Risk assessment

Trans Mountain:

- Trans Mountain undertook a risk-based design process for the West Alternative, accounting for factors influencing both the failure likelihood for relevant threats, and the consequence of a pipeline rupture. Trans Mountain confirmed that its risk estimation approach for the West Alternative employs the same methodology as for TMEP Line 2.
- Trans Mountain submits that using this same methodology for the West Alternative is the best and most reliable manner in which to assess the risk of the West Alternative relative to the East Route.
- The overall likelihood of a failure along a pipeline segment can be expressed as the sum of the failure likelihoods of all threats combined. Threats contributing to overall failure likelihood include construction damage, incorrect operations, manufacturing defects, third-party damage, and natural hazards. Of these threats, third-party damage and natural hazards are influenced by design and routing parameters, while the remaining three are independent of routing decisions.
- With respect to risk mitigation, Trans Mountain confirmed that it employs the same methodology in its evaluation of the West Alternative as in previously approved Condition 15 compliance filings.

Third-party damage

- Trans Mountain evaluated the third-party damage failure frequency along the West Alternative by considering land use classification and its relationship to the frequency of a pipeline strike, or 'hit frequency'. Trans Mountain stated that where third-party activity is relatively high, the hit frequency increases in comparison to areas with lower third-party activity. While Trans Mountain classifies most of the route as 'Remote' with little third-party activity, certain agricultural and low density residential areas traversed by the route in the vicinity of the Coldwater River are evaluated considering relatively high third-party activity.
- Trans Mountain also highlighted the influence of wall thickness on the damage resistance of a pipeline, indicating that as the thickness of a pipeline increases, the amount of damage it can sustain without failing also increases. The majority of the West Alternative will be constructed with 14.7 mm wall thickness pipe (heavy wall), with 19.0 mm wall thickness pipe (extra heavy wall) specified for certain locations, including the trenchless crossings of the Coldwater River.
- Pipeline depth of cover has an effect on third-party damage, where an increased depth of cover decreases the likelihood of incurring an accidental impact by heavy excavating equipment. The effect of increased depth of cover is accounted for in the failure likelihood estimation adopted in the risk assessment. Trans Mountain indicated that a depth of cover of 0.9 metres was assumed in the analysis as a minimum value, whereas the pipeline may be buried deeper following installation.
- In evaluating failure likelihood due to third-party damage along the West Alternative, Trans Mountain accounts for the pipeline operating pressure, pointing out that as operating pressure increases, the amount of damage that it can sustain without failing decreases. Trans Mountain evaluated site-specific operating pressures along the West Alternative based on elevation profile and the discharge and suction pressures of upstream and downstream pump stations.

The site-specific operating pressures were considered in its failure likelihood calculations from third-party damage.

Risk mitigation - third-party damage

- Trans Mountain selected a risk threshold of approximately 3×10^{-3} (index/yr) for the purposes of investigating further risk mitigation measures beyond those developed for natural hazard threats and consequence mitigation. Trans Mountain adopted additional third-party damage control measures into the detailed design of the West Alternative involving use of buried marker tape, and increased depth of cover to a minimum level of 1.2 metres for 14 100-m long segments exceeding the risk threshold in an attempt to reduce risk to levels below Trans Mountain's risk threshold. The calculated risk for 9 of the 14 segments will be lowered to levels below the threshold.
- Additional control measures will be applied to the five segments remaining above the risk threshold, including:
 - external leak detection system (HiFi) installed on Line 2 which has the ability to detect third-party intrusions;
 - public awareness communications with new and existing landowners and land users;
 - right-of-way and aerial patrols; and,
 - enhanced pipeline right-of-way signage.
- Trans Mountain states that the above measures will minimize the threat of third-party damage to the pipeline. In the unlikely event of a leak during operations, the measures will allow Trans Mountain to detect and repair the leak as soon as reasonably possible.
- Trans Mountain maintains that the risk associated with the West Alternative is acceptable in light of (i) the industry-leading damage prevention and leak detection measures that Trans Mountain has proposed for the TMEP, including the West Alternative; and (ii) the fact that the risk associated with the West Alternative is comparable to that associated with the East Route.
- With respect to wall thickness, during engagement with Coldwater, Trans Mountain committed to using heavy wall pipe (14.7 mm) for the entire West Alternative Alignment. Two 100-m long segments exceed Trans Mountain's risk threshold within the Low Density Residential area. Risk would be lowered to acceptable levels for the first segment through the application of additional third-party damage control measures, in particular through the application of buried marker tape in its design. Trans Mountain explained that the second segment has a wall thickness of 19.0 mm in its current design, and no additional design measures would significantly reduce the total failure frequency any further since the primary drivers are associated with threats for which failure frequency estimates are independent of design parameters. Other locations within the Low Density Residential land use location are below Trans Mountain's risk threshold.

Natural hazards

- Trans Mountain stated that natural hazards consist of ground or water movement such as landslides, rockfall or river scour that, left unmitigated or unmonitored, can lead to failure of a pipeline. Natural hazard risk for the West Alternative considers both hydrotechnical and geotechnical hazards, the most significant of which are located near the Coldwater River crossings and consist of scour and lateral erosion.

Risk mitigation - natural hazards

- Natural hazards are classified according to their likelihood of occurrence. Of all natural hazards along the route, 10 geohazards represent a credible threat to loss of containment of the pipeline. These 10 sites comprise two locations of lateral erosion, seven scour locations, and one avulsion location. Trans Mountain confirmed that by way of appropriately designed

trenchless crossings of the Coldwater River (and Salem Creek), the hazard potential from scour, lateral erosion, and avulsion can be mitigated to acceptable levels.

Coldwater aquifer consequence evaluation

- Trans Mountain's qualitative consequence scoring approach considers potential spill outflow volume and environmental characteristics such that elevated consequences result from areas where oil may intersect surface water or an aquifer. Trans Mountain's approach incorporates the maximum potential spill volumes along the length of the pipeline and overland spill trajectory modeling to determine impacts to sensitive areas in its risk estimations.
- Trans Mountain acknowledges that the geospatial extents of the Coldwater aquifer are not definitively known, and therefore it assumed an approximate location of the aquifer which extends from the west of the Coldwater River to the West Alternative. However, the assumed aquifer extent is conservative and is consistent with previous risk assessments conducted in this area. The start and end segments of the West Alternative intersect with the assumed extent of the Coldwater aquifer, where Trans Mountain evaluates the consequence score as a water-based spill with a greater impact than a land-based spill.
- Spill extent trajectories were simulated considering release volumes in a 'worst-case' full-bore rupture at 30 metre intervals along the West Alternative. The spill trajectory model considers land elevation, cover, and water features to calculate spill pathways. Trans Mountain provided the results of its predicted spill extents, which indicate at certain locations the potential for intersection with the Coldwater aquifer and surface waterbodies.

Coldwater aquifer impacts

- The impact to the groundwater of the Coldwater aquifer is determined by either a direct intersect of the pipeline alignment, or potentially could be intersected by means of overland spill trajectory. A direct intersect of the pipeline alignment is identified by a direct overlap between the pipeline centerline location and the corresponding aquifer extents, while an intersection by means of overland spill trajectory is identified by a direct overlap between the overland portion, excluding the stream transportation, of the spill trajectory and the corresponding aquifer extents.
- The following assumptions address uncertainties in a realistic worst-case consequence scenario:
 - the assumed larger extents of the Coldwater aquifer, where Trans Mountain highlights in its Condition 39 Hydrogeological Study that the extent of the aquifer is smaller in comparison to the extent assumed in the current spill risk assessment;
 - a two-dimensional overlap between the centreline of the West Alternative route or an overland spill plume leads to a spill intersecting the Coldwater aquifer. In this scenario, the assessment conservatively assumes a spill enters the aquifer without consideration of aquifer depth, which may be a factor in averting a spill intersect;
 - a 24-hour spill travel time in stream tracing modeling (i.e.: spill extent analysis). This assumption does not account for spill response intervention efforts;
 - consideration of a full-bore opening of the pipe as the credible worst-case scenario; and
 - a watercourse sensitivity rating based on the primary watercourse intersect.
- Spills along the entire West Alternative are evaluated as water-based, which are considered an order of magnitude higher in severity than non-watercourse spill intersects. Further, Trans Mountain assigns elevated 'Drinking Water/Commercial Water Source' severity scoring to the north and south intersects of the Coldwater aquifer.
- In response to an information request from the Province of BC regarding aquifer extent verification, Trans Mountain submitted that ten boreholes were drilled along the West Alternative in the fall 2019 through winter 2021, the data from which were used to verify the

extent of deposits which could be hydraulically connected⁸ to the aquifer. None of the boreholes drilled along the northern Coldwater River crossing intersected with the deposits of concern, while only one borehole along the south crossing did so. The results served to extend the southern extent of the deposits and narrow its northern extent. Approximately 20 metres of lower conductivity materials overlay the deposits of concern, and most of the route lies to the west of the deposits. Trans Mountain concludes that it has adequate geotechnical information to ensure safe operation of the pipeline and protection of groundwater and other resources along the route.

Risk results

- Trans Mountain provided its risk results for the West Alternative, where failure likelihood and consequence were plotted as a function of Alternative Kilometre Post. Although relatively constant for the majority of the alignment, elevated third-party damage failure frequency is encountered at the north end of the route due to a 'Low Density Residential' land use classification. Certain locations also indicate greater natural hazard failure frequencies due to higher vulnerability to lateral erosion, scour, and avulsion.
- Increased consequence scores near the start and end of the alignment are attributed to the Coldwater River crossings. Other localized increases in consequence score indicate locations where the spill trajectory model indicate the potential for the spill plume to intersect with a watercourse having a higher sensitivity rating.
- The Integrated Risk Value of the West Alternative is 3.7×10^{-2} index/yr over a route length of 18.31 kilometres. In comparison, the Integrated Risk Value of the East Route (Approved Route) is 3.12×10^{-2} index/yr over a route length of 15.46 km. The results demonstrate that the West Alternative is comparable from a risk perspective to the East Route, and that the slightly higher risk is largely attributable to the increase in length of the West Alternative.
- Trans Mountain submits that no parties have expressed concerns with the risk associated with the West Alternative relative to the East Route. As a result, the record before the Commission supports the conclusion that the risk associated with the West Alternative can be adequately managed and is similar to the risk found to be acceptable for TMEP, and the East Route.

4.5.2.1 Commission analysis and findings – risk assessment

Third party damage

The Commission has evaluated Trans Mountain's submissions dealing with third-party damage threats. The Commission notes that Trans Mountain employs the same risk threshold (3×10^{-3} index/yr) as in its risk assessment submissions for Line 2 under Condition 15. Trans Mountain identified 14 100-m long segments exceeding the risk threshold due to third-party damage concerns. Trans Mountain has committed to adopting third-party damage control measures for all 14 segments by way of increased depth of cover to a minimum of 1.2 metres and buried marker tape as mitigation. Trans Mountain has also applied heavy wall pipe (14.7 mm) along the entire West Alternative which the Commission acknowledges increases its resistance to third-party damage.

⁸ Undifferentiated Glaciofluvial (UGF) deposits which could be considered aquifer materials according to the Province of BC

The Commission recognizes deeper burial and buried marker tape as acceptable third-party damage risk reduction measures.

The Commission notes that five of the 14 segments susceptible to third-party damage remain marginally above Trans Mountain's risk threshold following the adoption of mitigation measures. The Commission has assessed Trans Mountain's plan to manage risk during operation for the five segments in question. Trans Mountain's controls which will be adopted more widely along Line 2, as well as the West Alternative, include an external leak detection system capable of concurrent detection of third-party intrusions in real-time. With these measures, in combination with right-of-way patrols, signage, and public awareness communications, the Commission is satisfied that third-party damage threats have been addressed sufficiently.

Natural hazards

The Commission is of the view that Trans Mountain has evaluated and mitigated natural hazard threats (including lateral erosion, scour and avulsion) according to its methodology for Line 2 (accepted under Conditions 15 and 16). The Commission agrees with Trans Mountain that these hazards will be mitigated to acceptable levels through its trenchless crossings of the Coldwater River. The Commission also agrees with Trans Mountain's approach of implementing typical pipeline design in locations where natural hazard threats remain below Trans Mountain's threshold for when additional mitigation is required.

Aquifer

The Commission has evaluated Trans Mountain's risk assessment methodology with respect to the Coldwater aquifer, in addition to Coldwater's written evidence. The Commission notes that Trans Mountain has assumed aquifer extents that exceed those assessed under the Condition 39 Hydrogeological Study. Trans Mountain has conducted further geotechnical studies by drilling 10 additional boreholes along the West Alternative, the results of which have refined the interpretation of the extent of the Coldwater aquifer. The Commission is of the view that Trans Mountain's aquifer extent assumptions are most likely conservative.

The Commission is also of the view that Trans Mountain has demonstrated conservatism in its risk assessment assumptions beyond aquifer extents. Trans Mountain interprets two-dimensional intersects between either the pipeline route or simulated overland spill plumes with the Coldwater aquifer as being equivalent to a spill entering the aquifer. While the potential does exist for overland and surface water spills to reach an aquifer, the Commission is of the view that it will not occur in all instances. The Commission further notes that Trans Mountain has treated all spills along the West Alternative as water-based which are an order of magnitude higher in severity than for non-watercourse spills. In addition, elevated 'Drinking Water/Commercial Water Source' severity scoring is applied to the north and south intersects of the Coldwater aquifer. This has the effect of increasing risk results along those segments regardless of whether a spill would enter the aquifer by groundwater transport. The Commission is of the view that Trans Mountain's aquifer risk assessment assumptions suggest a conservative approach in accounting for uncertainties.

Risk results

With respect to comparative overall risks between the East Route and West Alternative, the Commission concludes that the West Alternative is marginally higher than the East Route (approximately 19 per cent). The increased risk is mostly attributable to the increased route length (18.31 kilometres versus 15.46 km), as failure frequencies are similar, as well as Consequence Scores. The Commission notes that the Mean Failure Return Period (a way to express the frequency of a failure in years occurring at some point along a pipeline) is shorter for the West Alternative than for the East Route (1524 years versus 1780 years). Although both Mean Failure Return Periods are

sufficiently high and acceptable, the longer period implies the East Route is marginally favourable by this risk measure. The Commission also notes that the results indicate risks to the Coldwater Aquifer have been significantly reduced. For example, the entirety of the East Route impacts the Coldwater Aquifer, whereas only the start and end segments of the West Alternative indicate risks to the aquifer. The Commission acknowledges that Coldwater (and its consultant BC Groundwater Consulting Services Ltd. [BC Groundwater]) are satisfied that the West Alternative avoids all impacts to its community's sole source of drinking water. On a balance of risk, the Commission concludes that the West Alternative is favourable to the East Route in minimizing impacts to the Coldwater Aquifer in particular, while maintaining overall risk to levels similar to the East Route.

4.5.3 Coldwater River crossing methods

Trans Mountain:

- The West Alternative crosses the Coldwater River twice, when the proposed route deviates west from the East Route (the northernmost crossing – Coldwater River Crossing #1a), and at the south end when the proposed route rejoins the East Route (the southernmost crossing – Coldwater River Crossing #2).
- Mitigation measures from the Groundwater Management Plan in the Pipeline Environmental Protection Plan (EPP) that pertain to artesian conditions will be employed if and where applicable. Acknowledging Coldwater's submission that Condition 65 Hydrology – notable watercourse crossings – should apply to the West Alternative to ensure flood frequency analyses remain accurate, Trans Mountain confirms that both DPI crossings have been designed to withstand rare flooding events, although neither crossing has specific hydrology concerns. Trans Mountain confirms that an updated flood frequency estimate and Condition 65 filing will be provided for the West Alternative Coldwater River crossings.
- Trans Mountain interprets Condition 67 – outstanding horizontal directional drilling geotechnical and feasibility reports – as applying to all river crossings constructed using trenchless techniques including both HDD and DPI, agreeing with Coldwater that Condition 67 applies to the Coldwater River crossings.
- Trans Mountain submits that the wording of Condition 74 – Horizontal directional drilling noise management plan – is specific to HDD construction methods, which are generally noisier than DPI. However, Trans Mountain confirms that it will submit Noise Management Plans that address the details specified by Condition 74 for Coldwater River Crossings #1a and 2 in response to Coldwater's request.

Coldwater River Crossing #1a

- After completing a geotechnical assessment, Trans Mountain decided to complete the crossing using DPI. This crossing will be approximately 300 m, starting at approximately AK 1.3 and ending at AK 1.6.
- The contingency crossing method at this location will be Micro-Tunnel. DPI and Micro-tunneling are both trenchless construction methods.
- Trans Mountain completed six boreholes during geotechnical drilling, which was conducted to depths below the proposed borepaths. Of the six boreholes, only one borehole encountered artesian groundwater conditions. This borehole was located on the east side of the Coldwater River in a glaciofluvial unit at a depth of 95 metres below ground surface (Borehole BH-BGC20-CW6-02).
- None of the boreholes drilled along the northern crossing of the Coldwater River intersected the UGF Deposit. The area of the northern crossing (if UGF Deposit present) is overlain by at approximately 20 metres or more of glacial till and glacial lake sediments (silts and clays), which typically have a lower conductivity.

- The primary DPI alignment is designed to be approximately 7 metres below ground surface and will not encounter the artesian-bearing unit noted at a depth of 95 metres below surface. The contingency crossing method, micro-tunnel, if needed, will be installed at a slightly shallower depth, approximately 5-6 metres below the surface.
- The flowing well cited by BC Groundwater at the Moonshadows RV Park is approximately 3.5 kilometres from the Coldwater #1a crossing location. Trans Mountain infers that the confined glaciofluvial aquifer encountered at depth at the crossing location is a continuation of the aquifer referred to by BC Groundwater, based on available information, including the above-noted geotechnical investigations and a 120-m deep artesian well 2.5 kilometres downstream from the crossing (WTN 83868), which is overlain by 110 metres of glacial lake sediments. The proposed primary and contingency pipe crossing depths at the West Alternative Coldwater River #1a crossing lie well above the top of this aquifer.
- Geotechnical investigations were completed to confirm subsurface conditions, and a feasibility assessment report was filed pursuant to Condition 67: Outstanding horizontal directional drilling geotechnical and feasibility reports.

Coldwater River Crossing #2

- In its application, Trans Mountain proposed to conduct this crossing using trenchless HDD. After completing feasibility studies and considering proximity to other pipelines, restricted workspace, and Coldwater's concerns with respect to a small aquifer that supplies wells at Paul's Basin Indian Reserve No. 2, Trans Mountain decided to complete this crossing using DPI. This crossing will be approximately 252 m, starting at approximately AK 16.5 and ending at approximately AK 16.7.
- Only one borehole (BH-BGC-19-CW5-03) along the southern crossing intersected the UGF Deposit (at a depth of approximately 35 m). At the southern crossing the UGF Deposit is interpreted to be overlain by approximately 20 metres of glacial till.
- DPI offers greater separation between the pipeline and the aquifer, which lies approximately 35 metres below the surface (installation of the pipe will be at a depth of 9.3 m). The crossing is shorter, and the lower mud pressures required for DPI reduce the risk of release of drilling fluids during construction. DPI is best suited for construction through the fluvial deposits beneath the Coldwater River, provides for a smaller footprint on the exit side of the crossing, and can be constructed in less time.
- The contingency crossing method at this location will be HDD. Trans Mountain has advanced discussions with Enbridge regarding the use of their right-of-way for the HDD installation, should it be necessary. Trans Mountain also stated that the HDD drill path is not expected to intersect the aquifer or encounter artesian pressures beneath the Coldwater River. A shallower HDD drill path has been designed to increase the separation between the pipeline and the aquifer.
- The preliminary design of the DPI for this crossing is set approximately 28 metres above the gravel zone as identified by geotechnical investigations. As a result, it is unlikely that the West Alternative Coldwater River Crossing #2 will intersect with the UGF Deposit with either DPI or HDD crossing methods.
- The proposed trenchless crossing at AK 16.5 is located within a low-lying floodplain. Hydraulic modelling indicates it may become inundated in a 10-or-20-year flood event. Neither hazard is considered an immediate threat to the pipeline that could develop during an individual flood event. Both processes would develop over several years, allowing sufficient time for proactive implementation of engineered mitigation measures. Trans Mountain stated that the primary flood protection measure within the flood plain is to ensure that the depth of burial is below the 1 in 200-year flood scour depth. If achieving the target depth of burial is not possible, additional measures including construction of bank protection would be necessary to prevent lateral migration of the river and potential exposure of the pipeline.

- During construction, mitigation measures would depend upon the level of flood. For minor flooding, inundation is not expected to reach back to the tie-in locations. If a minor amount of flood water reaches these locations, temporary measures including use of sandbags, pumping and other temporary barriers could be implemented. If major flooding were expected, Trans Mountain would watch rising flood levels locally and regionally, and the construction would be suspended until the flood receded.

Coldwater:

- While Trans Mountain is confident that the new DPI crossing methods are feasible, appropriate and adequately protective, Coldwater has yet to satisfy itself of the same and site-specific planning and engagement with Trans Mountain is ongoing.
- In its argument, Coldwater recommended a condition requiring Trans Mountain to continue site-specific planning and engagement with Coldwater on the Coldwater River crossings. Coldwater sought a condition that Trans Mountain would provide an update to the Commission by 9 August 2021 on the status of site specific planning with Coldwater and whether Coldwater's site-specific concerns have been addressed. Further, if Coldwater's concerns remain unresolved Trans Mountain would provide a further update to the Commission by 8 October 2021.
- Coldwater also recommended a condition requiring Trans Mountain to file a plan describing Coldwater's participation in monitoring the construction of the two Coldwater River crossings, including a monitoring role for Coldwater's technical advisors. Coldwater recommended that the plan should include any additional site-specific operations and mitigation measures or plans.
- In addition, Coldwater recommended a condition requiring Trans Mountain to provide Coldwater with all condition filings regarding the two Coldwater River crossings associated with the West Alternative, including updates to conditions 67 and 74, on the same day they are filed with the CER. The condition would further stipulate that Coldwater would have 10 working days to provide the CER with comments, if any, on the adequacy of Trans Mountain's condition compliance filings.
- Coldwater submits that Condition 65 is not mentioned in Trans Mountain's West Alternative variance application as applicable to the West Alternative. While a flood frequency analysis was included in the application, changes to the construction method (HDD to DPI) and location for the Coldwater River crossings mean that Condition 65 should apply to the West Alternative to ensure the flood frequency analyses remain accurate for the final crossing locations and construction methods. Coldwater highlights that both crossings should be built to withstand higher spring freshets likely to be caused by climate change.
- Coldwater requests that Conditions 67 and 74 continue to apply to both Coldwater River crossings, even though both crossings are now proposed to be constructed using DPI methods.

Coldwater River Crossing #1a

- Coldwater has concerns regarding the HDD for the Coldwater River Crossing #1a because the HDD route is approaching the area of a serious uncontrolled artesian discharge located at the Moonshadows RV Park.

Coldwater River Crossing #2

- Coldwater is concerned that construction of the Coldwater River Crossing #2, between their Reserve and Paul's Basin IR No. 2 using HDD, could puncture a small aquifer that supplies an individual well at Paul's Basin IR No. 2. Coldwater's concern is based on the multiple flowing-artesian regions that will be encountered along the crossing path.

4.5.3.1 Commission analysis and findings – Coldwater River crossing methods

The Commission is satisfied with Trans Mountain's construction methods for Coldwater River Crossing #1a and #2. By using DPI as primary construction method and a shallow path for both crossings, Trans Mountain is addressing Coldwater's concerns regarding artesian flows and the protection of groundwater.

The Commission is also satisfied with Trans Mountain's proposed flood protection measures during construction and operations to protect the integrity of the pipeline.

With respect to Coldwater's concerns regarding Condition 65 and flood frequency analyses that consider climate change, the Commission notes that Trans Mountain has adopted the Government of British Columbia's 200-year recurrence period interval for flooding in its earlier filings for the TMEP. Trans Mountain also stated that to account for climate change, a 10 per cent upward adjustment was applied to the design flow at watercourse crossings where the 200-year flood event is used as the design basis to allow for increased variation in precipitation and resultant flow rates in watercourses. The approach is recommended by Engineers and Geoscientists BC (formerly Association of Professional Engineers and Geoscientists of B.C.) Trans Mountain has adopted this approach in its flood frequency analyses for the Coldwater River DPI crossings #1a and #2 included in the Variance Application. The Commission is satisfied with Trans Mountain's commitment to provide an updated flood frequency estimate and Condition 65 filing for the West Alternative Coldwater River crossings addressing Coldwater's concerns involving changes to crossing construction method and climate change. This commitment is specifically referenced in the Commission's Decision on the West Alternative variance application ([C14136-1](#)).

In response to Coldwater's recommended conditions requiring Trans Mountain to continue its engagement regarding site-specific planning on the Coldwater River crossings, the Commission is of the view that a condition is not required as Trans Mountain's commitment to continue this engagement will be captured under Certificate Condition 6 Commitments Tracking Table. Additionally, under Certificate Condition 96 – Engagement with Indigenous peoples – Trans Mountain is required to submit an updated filing every 6 months from prior to construction until operations reporting on engagement with Indigenous peoples, including Trans Mountain's efforts on the West Alternative.

The Commission does view Coldwater's request for a Coldwater River trenchless construction monitoring plan to be reasonable. The Commission has imposed as Condition 5 (Appendix I and Order AO-008-OC-065 ([C14136](#)) the West Alternative Coldwater River Trenchless Crossings Monitoring Plan, which requires Trans Mountain to file a river crossing monitoring plan that includes Coldwater's involvement. The Commission has expanded on Coldwater's proposed wording to add specificity around engagement activities with respect to the plan and the participation scope. The Commission has also aligned the timing of the filing requirement to the commencement of trenchless construction (through either the primary or contingency method) to which the plan relates.

With respect to Coldwater's suggested condition regarding service of condition filings associated with Coldwater River crossings #1a and #2, the Commission is of the view that such a condition is not necessary. Rather, the Decision letter directed Trans Mountain to provide Coldwater with the updated Certificate Condition 74 filing on the same day that it is filed with the CER and to provide Coldwater with the updated Certificate Condition 67 filing, dated 3 May 2021 ([C12819](#)) and 29 June 2021 ([C13820](#)), if it had not already done so, immediately upon receipt of the Decision letter.

With respect to Coldwater's suggested condition specifying ten days for Coldwater to comment on condition filings, the Commission determines whether to approve condition filings, or whether the filing meets the requirements of conditions that do not specify they are "for approval", through a

separate condition compliance process. The conditions attached to orders by the Commission are directed to companies of regulated facilities. It is the CER, and not Trans Mountain, that determines the condition compliance process. Accordingly, the Commission declines to impose the condition requested.

4.6 Environmental and socio-economic issues

4.6.1 Coldwater's drinking water source

Trans Mountain:

- A hydrogeological study completed in May 2020 as part of the West Alternative application found that the West Alternative presents minimal risk to groundwater supplies, given the large distance from supply wells to the realignment and that all supply wells aside from one are located on the opposite (eastern) side of the Coldwater River.
- While the environmental effects of the West Alternative are comparable to those associated with the East Route, as are the risks, the West Alternative addresses Coldwater's concerns about impacts of the East Route on the aquifer relied on by Coldwater.

Coldwater:

- Coldwater relies on an aquifer below the Reserve as the sole source of drinking water for 90 per cent of Reserve residents, as well as for agricultural and other uses. There is no alternative water source available that could sustain the community's needs. No issue has been more important than the risks and impacts to the sole source of drinking water on Reserve. Coldwater has long opposed the now approved East Route corridor that runs along the eastern edge of the Reserve because they want to ensure they have access to clean, safe, drinking water for generations to come.
- Coldwater strongly prefers the West Alternative over the East Route because it avoids all risks and impacts to Coldwater's sole source of drinking water. Coldwater's consultant has confirmed that the West Alternative route poses no risk to the Reserve groundwater supply, including water wells.
- Where clean water exists on a reserve – as it does on the Coldwater Reserve – it must be a top national priority to protect that water and, for Indigenous peoples, it most certainly represents a keystone for Reconciliation.
- Given Trans Mountain's conclusions that the two routes have similar environmental effects, the protection of Coldwater's drinking water clearly tips the balance and justifies a finding that varying the TMEP corridor to run along the West Alternative is in the public interest.

4.6.2 Other groundwater concerns

Trans Mountain:

- Interactions and potential effects on groundwater quality and quantity were considered in the Coldwater West Alternative Reroute Environment and Socio-Economic Assessment (ESA). No new or unique interactions between the West Alternative realignment and water quality and quantity were identified since the original ESA, and no new mitigation measures are recommended or required. The realignment does not cross any mapped aquifers. With the implementation of mitigation measures all potential residual effects to groundwater have a low probability of occurring. Since the residual effects are short-term in duration, low in magnitude and have a low probability of occurring, the risk to groundwater users is deemed to be low.

Coldwater:

- See Coldwater's submissions under **Section 4.5.3** regarding a small aquifer that supplies individual wells at Paul's Basin IR No. 2.
- Coldwater's consultant, BC Groundwater, in a preliminary interpretation of the hydrogeology to the west of the Coldwater River, found that the likelihood is low for a similar sand and gravel aquifer west of the river similar to the one intersected by production wells on the east side.

NNTC (provided in the CCAR):

- NNTC made Recommendation No. 25 concerning groundwater specific to the West Alternative (see Appendix III).

4.6.3 Fish and fish habitat

Trans Mountain:

- The West Alternative involves two crossings of the Coldwater River (high sensitivity fish-bearing), one crossing of Salem Creek (low sensitivity fish-bearing), and 25 crossings of other watercourses and drainage (non-fish-bearing). The West Alternative also involves 3 hectares of disturbance in riparian habitat. In comparison, the East Route does not cross the Coldwater River, crosses 4 sensitive fish-bearing watercourses, has 18 other crossings, and does not disturb riparian habitat.
- The primary and contingency crossing methods are trenchless at both crossings of the Coldwater River. Both crossings avoid disturbance to the Coldwater River, and therefore effects on water quality and quantity and fish and fish habitat will be avoided. For the north Coldwater River crossing, the entry location on the right bank is topographically constrained and some encroachment into the riparian reserve zone (RRZ) is required. Extra Temporary Workspace has been constrained to the extent possible and will avoid mature vegetation along the immediate bank edge. For the south Coldwater River South crossing, both the entry and exit locations, along with all temporary workspace, are located outside the RRZ.
- Although instream work is required at the Salem Creek crossing, no sensitive fish habitat will be disturbed considering the poor habitat conditions, and it is anticipated that the proposed crossing location will be dry during construction (summer/fall). Following the trenched watercourse crossing, Trans Mountain will restore instream and riparian habitat to pre-construction conditions or better.
- Overall, no negative impacts to fish or fish habitat (i.e., no harmful alteration, disruption, or destruction [HADD] or death to fish) are anticipated, and as there are no known fish species at risk (listed on Schedule 1 of the Species at Risk Act), it was determined that Self-Assessments are not necessary at this time.

Coldwater:

- Water quality on the western side of the valley has decreased significantly as development has occurred over the past few years, and many of the streams are now dry for much of the year.
- The West Alternative would add two additional crossings of the Coldwater River. Coldwater members are concerned about the risks and impacts posed by these crossings because the Coldwater River is, amongst other things, habitat for salmon and steelhead populations that are under increasing threat.

NNTC (provided in the CCAR):

- NNTC made Recommendation Nos. 16-21, 29 in regard to fish and fish habitat specific to the West Alternative (see Appendix III).

4.6.4 Other wildlife and habitat disturbance

Trans Mountain:

- As shown in Table 6, compared to the East Route, the West Alternative impacts more riparian habitat; it overlaps more critical habitat and wildlife habitat areas (WHAs) for Williamson’s sapsucker (endangered); it affects one fewer rare plant and rare ecological community; and it affects more old growth management areas (OGMAs), more ungulate winter range (UWR), and more wetlands.

Table 6 - Comparison of West Alternative and East Route – wildlife and habitat

	West Alternative	East Route
Riparian habitat	3.0 hectares	0 hectares
Critical habitat / WHA	77.66 hectares / 20.4 hectares	15.57 hectares / 0 hectares
Rare plants/ecological comm.	16	17
OGMAs	1.42 kilometres / 12.28 hectares	1.2 kilometres / 5.54 hectares
UWR	14.17 kilometres / 104.25 hectares	12.12 kilometres / 57.21 hectares
Wetlands	0.53 kilometres / 2.62 hectares	0.12 kilometres / 0.73 hectares

- While there are environmental features and resources that would incur greater or different impacts along the West Alternative when compared to the East Route, Trans Mountain has developed mitigation measures to address these incremental impacts through existing Condition Plans and a comprehensive suite of mitigation measures in the Pipeline EPP. The West Alternative does not introduce any new issues or constraints that have not already been mitigated or managed elsewhere on the TMEP.
- Within the West Alternative corridor, Trans Mountain has taken measures to avoid or minimize overlap with habitats for rare and at-risk species, such as by refining the footprint at the north Coldwater River crossing to reduce disturbance to the Red-listed cottonwood-snowberry-rose community.
- In the case of Williamson’s sapsucker, avoidance of critical habitat and WHAs is challenging given their broad occurrence in the area. Avoiding these areas entirely, or at least for a greater extent, would result in substantially increasing the length of the route, deviating away from existing linear features, and encountering more challenging terrain. The mitigation and habitat restoration measures that will be implemented within areas of critical habitat for Williamson’s sapsucker (per the Williamson’s Sapsucker and Lewis’s Woodpecker Mitigation and Habitat Restoration Plan) will also be implemented within the WHAs where the biophysical attributes of critical habitat are present. Field studies to identify site-specific locations of biophysical attributes (e.g., suitable nest trees and colonies of aphid tending ants) and species-specific surveys for Williamson’s sapsucker were completed along the West Alternative during the appropriate survey period in June 2020 to inform mitigation.

- Habitat surveys for Western screech owl, Williamson's sapsucker and Lewis's woodpecker will be completed prior to construction to document critical habitat and any species presence in support of the respective wildlife species at risk mitigation and habitat restoration plans. Vegetation and OGMA surveys will be completed prior to construction in support of the rare ecological community and rare plant population management plan, weed and vegetation management plan and OGMA mitigation and replacement plan. Trans Mountain does not intend to update Certificate Condition plans, but instead results from the surveys will be captured in the Resource-Specific Mitigation Tables (RSMTs) and Environmental Alignment Sheets (EASs). In the event an environmental feature or cultural resource of concern is identified during construction, the contingency plans outlined in the Pipeline EPP will be implemented.
- Trans Mountain submits that there are no aspects of the West Alternative that warrant conditions beyond those contained in the Certificate.

NNTC (provided in the CCAR):

- NNTC made Recommendation Nos. 8-10, 13, 33, 48-49 with respect to wildlife, habitat disturbance and soils specific to the West Alternative (see Appendix III).

4.6.5 Traditional land use and occupancy

Trans Mountain:

- Trans Mountain is investigating Coldwater's identified traditional land use (TLU) sites and will mitigate effects to those sites should they overlap with the Project footprint. To date, archaeological investigations have not identified any overlap between the Project footprint and the sites identified by Coldwater.
- Should TLU sites be discovered, Trans Mountain will implement the measures described in the Traditional Land Use Sites Discovery Contingency Plan.
- Information on Traditional uses related to fish and fish habitat in the Black Pines to Hope segment, which includes the West Alternative, are provided in section 4.2.3 of Fisheries (BC) Technical Report 5C7 in Volume 5C (Triton 2013; Filing ID [A3S2C1](#)).
- In its reply evidence, Trans Mountain committed to mitigate effects to known TLU and heritage resource sites identified by Coldwater in confidential portions of its written evidence, should they overlap with the Project footprint. At present, no such overlap has been identified.
- In its reply argument, in response to Coldwater's request for a plan describing Coldwater participation in monitoring activities during construction for the protection of traditional land and resource use along the West Alternative, Trans Mountain submitted that it considers Condition 98 and the associated Indigenous Monitoring Program to apply Project wide, including the West Alternative. That plan (i) is, for the most part, not site-specific; (ii) was developed in consultation with Coldwater; and (iii) does not require updating as a result of the proposed West Alternative. Trans Mountain confirmed that Coldwater is already participating in Project construction monitoring activities under the Certificate Condition 98 plan and Indigenous Monitoring Program (specifically, in Spreads 5A and 5B) and that Coldwater will have the same opportunity to participate in Indigenous monitoring activities along the entirety of the West Alternative route.

Coldwater:

- Wherever the Pipeline is built it will affect Coldwater's traditional land uses and values. There are over 380 traditional use sites along the East route and West Alternative route that are of continued importance for the harvest of resources for materials, food, medicine and cultural purposes, and for agriculture and ranching.

- Coldwater’s extensive and ongoing use of the Coldwater Valley is documented in the 2020 “Traditional Use Study Review of Trans Mountain Pipeline Expansion Project Route Alternatives” by Mr. Inglis, particularly the confidential map of all uses.
- Coldwater members say that the western side of the valley (particularly the area along Midday Valley Road and around Lily Lake) has already been alienated and impacted by non-Indigenous landowners.
- The approved East Route of the TMEP on the eastern side of the valley would have more impacts within the community watershed and affect Coldwater’s use and enjoyment of the Reserve given how close the East route is to the main Coldwater residential community .
- Coldwater has concerns regarding the West Alternative route impacts to hunting, gathering, medicine gathering, agricultural ranching, cultural/ceremonial use, spiritual concerns.
- Of the elders and knowledge holders interviewed during the traditional land use study, not a single person preferred the East Route and all interviewees identified it as a “major concern”.
- Since Coldwater’s main residential community is located on the east side of the Valley, the East Route would impose additional burdens on Coldwater’s use of the Reserve that the West Alternative would not.
- In Coldwater’s written argument, Coldwater recommended a condition that Trans Mountain file, prior to construction of the West Alternative, a plan that complies with Condition 98 and that describes Coldwater’s participation in monitoring activities during construction for the protection of traditional land and resource use along the West Alternative.

NNTC (provided in the CCAR):

- NNTC made Recommendation No. 44 in relation to traditional land use and occupancy specific to the West Alternative (see Appendix III).

4.6.6 Heritage resources

Trans Mountain:

- The West Alternative route was assessed as having high archaeological potential during desktop review and an AIA was recommended.
- AIA field studies began on July 6, 2020 and were ongoing at the time of Trans Mountain’s application.
- Several areas of high archaeological potential were confirmed in the field and two new archaeological sites were documented.
- Trans Mountain has committed to obtain the necessary archaeological and heritage resource permits from the British Columbia Ministry of Forests, Lands and Natural Resource Operations and Rural Development (BC MFLNRORD) prior to commencing construction along the West Alternative and will file related information required by Condition 100 with the Commission, subject to confidentiality requirements.
- In its reply evidence, Trans Mountain confirmed that an AIA will be completed prior to the commencement of construction in any given area along the West Alternative. AIA fieldwork along the West Alternative is being conducted under a Heritage Inspection Permit issued by the Archaeology Branch of BC MFLNRORD and with the participation of several Indigenous groups and organizations including Esh-kn-am, Lower Nicola Indian Band, Upper Nicola Band, Nooaitch Indian Band, NNTC I and the Scw’emx Tribal Council.
- Trans Mountain has been engaged in weekly collaborative planning for the remaining AIA work since February 2021 and will initiate fieldwork with interested Indigenous peoples (as identified above) in the spring of 2021. Upon completion of the fieldwork, a report will be produced

detailing the results of the AIA and providing management recommendations for all identified archaeological sites. The report will be submitted to BC MFLNRORD Archaeology Branch for approval and shared with Indigenous peoples.

- Trans Mountain is investigating the identified Coldwater heritage sites and will mitigate effects to those sites should they overlap with the Project footprint. To date, archaeological investigations have not identified any overlap between the Project footprint and the sites identified by Coldwater.
- Trans Mountain confirms that should heritage resources be discovered during construction, it will implement the measures described in the Heritage Resources Contingency Plan.
- If confirmed to be a heritage resource and as required, a Heritage Resource Specialist will develop an appropriate mitigation plan in consultation with the Contractor, Environmental Inspection team (including Trans Mountain's Indigenous Monitors), the Construction Manager, the Appropriate Government Authority, as well as the applicable Indigenous group(s).

Coldwater:

- Coldwater submits that the completion of a comprehensive AIA is important and as of the date of submission of Coldwater's evidence in this hearing, Coldwater has not seen one.

NNTC (provided in the CCAR):

- NNTC made recommendations 3-7 in relation to archaeological assessments specific to the West Alternative (see Appendix III).

4.6.7 Commission analysis and findings– environmental and socio-economic issues

No novel environmental and social effects are raised by the West Alternative that have not already been considered for other parts of the TMEP. There will be mitigation measures in place as described in the West Alternative variance application and under existing Certificate conditions for the anticipated interactions, and the Commission considers the mitigations described by Trans Mountain to be appropriate.

In its Reconsideration Report, the NEB found that the TMEP is not likely to cause significant environmental effects with the exception of effects relating to marine shipping⁹. The Commission considers there to be no change to the overall significance findings in the NEB assessment of the TMEP as set out in the Reconsideration Report as a result of project impacts from the West Alternative.

For a number of valued environmental components (VECs), the West Alternative involves more disturbance than does the East Route. For example, the West Alternative involves almost double the total area of ROW and workspace, approximately five times the overlap with Williamson's sapsucker

⁹ The NEB found significant environmental effects on the Southern resident killer whale and on cultural use by Indigenous peoples associated with the Southern resident killer whale as well as greenhouse gas emissions resulting from Project-related marine vessels.

critical habitat polygons, over three times the area of overlap with wetlands and, unlike the East Route, involves riparian habitat disturbance at one of the crossings of the Coldwater River. Although mitigation measures are in place for each of these impacts, residual environmental effects for these VECs are expected to remain higher with the West Alternative compared to the East Route.

In contrast, the West Alternative involves less greenfield disturbance than the East Route, and it avoids much if not all of the risk to Coldwater's drinking water supply.

Regarding Coldwater's Traditional Land Use and Heritage Resources concerns, the Commission notes that to date Trans Mountain has not identified any overlap between sites of concerns and the West Alternative project footprint. Trans Mountain continues to conduct field work and assess the potential impacts to Heritage Resources under the permitting requirements of BC MFLNRORD Archaeology Branch HCA Permit 2015-0258 and Trans Mountain will be required to mitigate potential impacts as directed by the HCA Permit. In its application, Trans Mountain also committed to file an update to Certificate Condition 100 Heritage Resources to reflect any changes resulting from the West Alternative and BC FLNRORD Archaeology Branch for HCA Permit 2015-0258 and will notify the Commission that the necessary heritage resources permits have been obtained. Should any previously unidentified sites of concern be identified through continued fieldwork within the West Alternative footprint or during construction, the Commission is satisfied that the application of Trans Mountain's Traditional Land Use Sites Discovery Contingency Plan or Heritage Resources Contingency Plan will appropriately mitigate these concerns. The Commission is satisfied that through the above measures and through Trans Mountain's continued engagement with Coldwater and NNTC that potential impacts to Traditional Land Use and Occupancy and Heritage Resources will be appropriately mitigated.

With respect to Coldwater's recommendation for a plan describing Coldwater's participation in monitoring activities during construction for the protection of traditional land and resource use along the West Alternative, the Commission is satisfied that the approved Certificate Condition 98: Plan for Indigenous group participation in construction monitoring is not a site-specific plan that would require updating as a result of the West Alternative. Rather, the Commission is of the view that the previously assessed and approved Certificate Condition 98, which was developed by Trans Mountain through engagement with Indigenous peoples, including Coldwater, applies to the entirety of the TMEP, including the West Alternative. Trans Mountain has noted that Coldwater is already a monitoring participant under the terms of Certificate Condition 98 and Coldwater will be provided the opportunity to participate in construction monitoring along the entirety of the West Alternative. The Commission finds that Certificate Condition 98 sufficiently addresses Coldwater's concern and that no further steps are required to address this proposed condition. The Commission notes that, although not required to address the issues raised by Coldwater, in Chapter 5 of these reasons, the Commission does require Trans Mountain to either comment on or provide an update to TMEP Condition 98 in order to ascertain any new or different involvement by other Indigenous peoples.

With respect to NNTC's recommendations, the Commission finds that no further steps are required to address the following recommendations for the reasons set out below:

- Recommendations 3 – 7: Regarding archaeological assessments meeting NNTC standards, the need for resurveying, shovel tests and to consider the broader Nlaka'pamux heritage and landscape, as well as the participation of NNTC, the Commission considers that Trans Mountain has reasonably addressed these recommendations given NNTC's involvement in archeology field programs and the archeology assessment being conducted under BC MFLNRORD *Heritage Conservation Act* Permit 2015-0258.
- Recommendation 8: With respect to the requirement for species-specific surveys for Great Basin Spadefoot and Western Screech-Owl prior to approval of the West Alternative, the Commission is of the opinion that the surveys Trans Mountain has done, including an additional survey done at NNTC's request in mid-April 2021, and the wildlife and wildlife habitat mitigation

provided for in the EPP are sufficient. Trans Mountain has committed to report any incidental wildlife sighting from the June 2021 wildlife surveys and to update their EAS and RSMTs accordingly. With respect to Western Screech Owl, the Commission is of the opinion that Trans Mountain's response is satisfactory given the further planned surveys prior to construction.

- Recommendation 9: With respect to conducting a breeding bird inventory within riparian habitat at the Coldwater River crossings and within upland areas where no incidental data was collected, the Commission is of the opinion that Trans Mountain's commitment to conduct opportunistic breeding bird point count surveys, in areas outside of Williamson's sapsucker critical habitat, in June 2021 and to update the EAS and RSMTs for the TMEP with any new discoveries is satisfactory. The Commission is of the opinion that the mitigation proposed by Trans Mountain for breeding birds is acceptable.
- Recommendation 10: With respect to further surveys for raptor stick-nests, the Commission is of the opinion that the additional spring 2021 surveys as well as Trans Mountain's pre-construction field program will provide Trans Mountain with sufficient opportunities to identify any raptor nest and implement the appropriate mitigation. If a BC Wildlife Act permit is required Trans Mountain will also have to meet those requirements.
- Recommendation 13: With respect to incorporating NNTC's edits and comments into the American Badger and Great Basin Spadefoot Environmental Field Guides, the Commission is of the opinion that Trans Mountain's commitment to incorporate NNTC's feedback, and to provide NNTC with rationale where it will not, to be acceptable.
- Recommendation 16: With respect to sampling non-monitored watercourse crossings one year after construction, the Commission is of the opinion that the mitigation proposed by Trans Mountain is acceptable and covered in Conditions 41, 43 and 151. As well, Trans Mountain will be restoring these areas post construction which will identify any potential site issues.
- Recommendation 17: With respect to immediate reclamation of riparian areas using mature trees in fish bearing streams, the Commission is of the opinion that Conditions 71 and 154 are adequate.
- Recommendation 18: With respect to a watercourse focused management plan, the Commission is of the opinion that Conditions 43 and 72 cover the respective areas brought forward. The Commission considers the current information, mitigation and conditions to be adequate.
- Recommendation 19: With respect to retaining Qualified Professionals on an emergency basis to mitigate project-induced flood damages, the Commission finds that, with previous environmental protection and monitoring commitments and with condition 72 already in place, no further steps are required to address this recommendation.
- Recommendation 20: With respect to detailed water quality monitoring and response information, detailed water quality monitoring of surface water and adaptive management and/or mitigation measures are incorporated, although not directly stated, into a number of conditions in the Certificate, including Conditions 41, 43, 46, 71, 72, 89, 92 and 108. The Commission finds that, with the current information, and the mitigation and conditions already in place, no further steps are required to address this recommendation.
- Recommendation 21: With respect to a site specific Water Quality Monitoring Management Plan/Protection Plan for the Coldwater River Valley, the Commission is of the view that numerous Conditions, including Conditions 41, 43, 46, 71, 72, 89, 94 and 108 address this recommendation and consider the current information, mitigation and conditions to be adequate.
- Recommendation 25: With respect to further exploration, identification and mapping of not yet identified Coldwater Valley groundwater aquifers, as well as applicable mitigation for those aquifers, the protection of groundwater, including vulnerable aquifers, was considered during the NEB certificate hearings and is covered by numerous conditions, including Conditions 72, 87, 93, 94, 130. The Commission considers the technical information provided and the

mitigations to be implemented (see **Sections 4.5.2 and 4.5.3**), as well as the mitigations under the Certificate conditions to be sufficient.

- Recommendation 29: With respect to eliminating the use of fertilizer within 15-30 metre of a watercourse, there may be instances where this activity may be of benefit to establishing riparian areas where soils are nutrient poor. The Commission finds that, with the current information, and the mitigation already in place, no further steps are required to address this recommendation.
- Recommendation 33: With respect to a requirement for ecological mapping on the West Alternative, the Commission agrees with Trans Mountain that using Vegetation Resources Inventory (VRI) mapping from the Province of BC, as an alternative mapping method, was appropriate.
- Recommendation 44: With respect to completion of a Nlaka'pamux use and occupancy assessment (including the gathering of all data related to historic and contemporary uses of the land base that may be impacted by the proposed project as well as historic grievances), the Commission accepts Trans Mountain's submissions that it has incorporated traditional use information as part of its application process and that the Contingency Plans in the EPP will allow Trans Mountain to incorporate any new information received into project planning.
- Recommendations 48, 49: With respect to updating the Soils Technical Report to include correct soil classifications, and adjust soil stripping requirements, the Commission is satisfied with Trans Mountain's commitment to update the EASs and RSMTs for the West Alternative with the correct soil classification information and to apply the appropriate soil stripping measures.

Chapter 5– Compliance oversight

Throughout the lifecycle of an approved project, the CER holds the pipeline company accountable for meeting its regulatory requirements in order to keep its pipelines and facilities safe and secure, and protect people, property and the environment. To accomplish this, the CER assesses condition filings, tracks condition compliance, verifies compliance with regulatory requirements, and employs appropriate compliance and enforcement measures where necessary to quickly and effectively obtain compliance, prevent harm, and deter future non-compliance.

There are 156 conditions applicable to the TMEP, of which 142 are applicable to Certificate OC-065. As set out in Order AO-008-OC-065 ([C14136](#)) and discussed in **Section 1.1**, with the exception of Certificate Condition 39, all other conditions applicable to Certificate OC-065 continue to apply to the TMEP, including the West Alternative.

The Commission takes the commitments made by Trans Mountain seriously and throughout its deliberations, the Commission carefully considered all commitments made by Trans Mountain in this proceeding. Commitments relevant to specific concerns are discussed in the applicable section of these Reasons and are not summarized here. Commitments made by Trans Mountain in its West Alternative application and in its related submissions during the proceeding also become regulatory requirements, as set out in Condition 1 (Appendix I and AO-008-OC-008).

To increase transparency related to the Variance, the Commission requires Trans Mountain to provide a commitments table setting out all of its commitments made during the MH-032-2021 proceeding, and then incorporate these commitments into its Certificate Condition 6 recurring filings (Condition 2) (Appendix I and AO-008-OC-008). In addition, to assist CER Inspection Officers in carrying out compliance verification activities, Trans Mountain will be required to maintain at its construction office(s) a copy of this Order and any filings submitted to the CER under this Order (Condition 3) (Appendix I and AO-008-OC-008).

During the MH-032-2020 proceeding, Trans Mountain provided information relating to the West Variance on matters relating to Certificate Condition 15 - Pipeline risk assessment, 43 - Watercourse crossing inventory, Certificate Condition 67 - Outstanding horizontal direction drilling geotechnical and feasibility reports, and Certificate 103 - Utility crossings. The Commission accepts Trans Mountain's commitments to file updates to the following conditions resulting from the West Variance: Conditions 16, 17, 65, 66, 68, 73, 74, 89, 93, 100 and 104. These commitments are included in the Order approving the variance under Condition 1 (Appendix I and AO-008-OC-065).

The Commission is of the view that certain other existing Certificate conditions may or may not require an update due to the West Variance. For this reason, the Commission imposes Condition 4 (Appendix I and AO-008-OC-065), where Trans Mountain must either file updates to the following conditions, or provide a justification for why no updates are required:

- Condition 50 – The Commission notes there will be four powerline crossings (two more than for the East Route).
- Condition 95 – The Commission notes that the proposed corridor for the West Variance deviates from the existing Trans Mountain Line 1 that is in operation.
- Condition 98 – The Commission accepts Trans Mountain's submissions regarding why no update to Certificate Condition 98 is needed with respect to Coldwater's participation. However the Commission is not clear if the participation of other Indigenous peoples would change as a result of the West Variance.

Chapter 6 – Nlaka'pamux Nation Tribal Council (NNTC) recommendations that go beyond the West Alternative

NNTC Recommendations that appear specific to the West Alternative have been discussed in the chapters above. The following discusses NNTC Recommendations that are more general in nature in that they comment on mitigation applicable to the TMEP as a whole.

Trans Mountain's general responses

- While NNTC made a number of requests during the bilateral CER consultation process, the majority of those requests have already been addressed and they are largely not specific to the West Alternative (i.e., they do not favour the East Route over the West Alternative). While the Commission should give due consideration to the CCAR, including NNTC's recommendations, the nature of NNTC's input does not warrant any modification or denial of the West Alternative variance application.
- NNTC recommendations that address general environmental matters apply across the entirety of the TMEP and have already been reasonably addressed through Trans Mountain's mitigation measures, commitments and plans pursuant to applicable Certificate conditions. The Certificate conditions were imposed following extensive regulatory review by the Commission's predecessor; each of the associated plans is scrutinized by the Commission (and, in many cases, third parties) and must be approved or accepted by the Commission; and Trans Mountain's implementation of those plans is subject to ongoing monitoring and inspection by Environmental Inspectors, Indigenous Monitors, the Indigenous Advisory Monitoring Committee and CER Inspectors, among others. These plans and associated mitigation measures have been effective in mitigating impacts from the TMEP to the greatest extent practicable.

Coldwater's general responses

- While Coldwater acknowledges NNTC's interests in protecting fish, wildlife, plant and cultural heritage resources, protection of these interests should not – and need not – come at the expense of Coldwater's defined Aboriginal interest in the Reserve or Coldwater's clear preference as the indigenous community most directly affected by this Variance decision. There is no suggestion in the CCAR or its Appendices (including NNTC's direct submissions) that NNTC's concerns would be addressed by building the Project along the East Route.

6.1 Environmental protection matters that go beyond the West Alternative

NNTC (provided in the CCAR)

- NNTC made the following Recommendations, with respect to environmental protection, that relate to the TMEP as a whole, rather than specifically to the West Alternative: Nos. 1-2, 11-12, 15, 22-24, 26-28, 30-32, 34, 40-43 (see Appendix III).

6.1.1 Commission analysis and findings – Environmental protection matters that go beyond the West Alternative

The NNTC recommendations (or parts of certain recommendations) considered below refer to issues that are not before the Commission for adjudication in respect to the West Alternative variance application. These NNTC recommendations do not directly address the question of whether

the West Variance should be approved, or the conditions that should be attached to any such approval.

NNTC recommendations that are better considered through the CER's lifecycle oversight of the TMEP (provided in the CCAR):

The following NNTC recommendations either raise questions as to whether already-approved Project-wide mitigation plans should be amended, or whether such plans are being implemented correctly by Trans Mountain. The Commission notes that there is limited evidence on these questions in the present hearing, and if there are resulting amendments to Trans Mountain's plans, or to Trans Mountain's implementation of such plans, there is no rationale for applying these amendments just to the West Variance, rather than Project-wide.

- Recommendation 12: Consideration of whether further information on post-salvage monitoring should be required in several species-specific mitigation and habitat restoration plans.
- Recommendations 23, 24: In particular, the statement by NNTC that Trans Mountain is proposing to dispose of potentially acid generating and metal leaching waste rock in the pipeline footprint, despite the BC Government requirement for disposal in an approved facility and not in the pipeline footprint.
- Recommendation 27: Consideration of the reduction of, and alternatives to, chemical vegetation control methods. In particular, the statement by NNTC that data shows that the majority of treatments were chemical, with only one manual option (hand-pulling) and no use of mechanical or cultural treatments within Nlaka'pamux territory, despite Trans Mountain's plans stating that non-chemical methods of vegetation management will be used when treatment objectives can be achieved.
- Recommendation 28: Consideration of whether the use of biochar under specific circumstances should be included in reclamation plans.
- Recommendation 30: Consideration of the use of active versus natural regeneration techniques in reclamation plans, such as for sites with limited soil moisture.

As described in Chapter 5, the CER is a lifecycle regulator and these issues raised by NNTC through the CCAR will be shared with the broader CER for consideration during the CER's compliance oversight activities.

NNTC recommendations suitably accommodated in whole or in part (provided in the CCAR):

The Commission considers that a number of the general NNTC recommendations have already been suitably addressed and that no additional steps are required:

- Recommendation 1: The Commission agrees with the Government of Canada's response that NNTC's broader TMEP engagement concerns related to environmental management plans and construction monitoring are best addressed through the IAMC-TMX and not through the West Variance application. As noted in the Government of Canada's response, the NNTC may request to participate in the IAMC-TMX and information on how to make this request is provided.
- Recommendation 2: With respect to the need for clarity in Trans Mountain's EPP and associated management plans, the plans have already been through various rounds of Commission review, information requests, revisions, and approvals (e.g. see CER Letter summarizing project filings and NEB/CER correspondence [C12991-1](#)). The Commission finds that a broad and general re-evaluation of the plans is not warranted at this time.
- Recommendation 11: With respect to NNTC's concerns with Trans Mountain's baseline wildlife program, the Commission notes that the broader issue of potential effects to wildlife and wildlife habitat were considered during the original TMEP hearing as well as the West Alternative

hearing. Mitigation for wildlife and wildlife habitat are provided in the EPP, EASs and RSMTs as well as species-specific plans, as required under existing condition 44. BC EAO, and not the Commission, will determine whether Trans Mountain is compliant with the requirements of BC EAO Condition 16.

- Recommendation 15: With respect to cumulative impact assessments for all watercourse crossings within NNTC homeland, the Commission is of the opinion that this matter could be addressed through the Terrestrial Cumulative Effects Initiative or through direct interaction with such agencies as DFO and ECCC, should NNTC wish to pursue this subject further.
- Recommendation 22: With respect to specific and detailed field plans for water withdrawal/discharge activities, many aspects of the recommendation related to hydrostatic testing would be covered through the existing conditions 112 (Pressure Testing) and 113 (Hydrostatic Testing Plan), as well as other mitigations and conditions (such as EPPs) required for the TMEP. Condition 113 was created due to the large volumes of water required for hydrostatic testing. The Commission is of the view that volumes for other uses would be relatively minor in nature and do not warrant this level of reporting.
- Recommendations 23, 24: The Commission does not consider an Acid Rock Drainage/Metal Leaching (ARD/ML) Management Plan specific to the West Alternative area to be appropriate given the benefits of consistency across the TMEP and given Trans Mountain's already approved ARD/ML Management Plan under Condition 72.
- Recommendation 26: The Commission considers that mitigation measures to reduce the spread of invasive seed, including for personnel, have already been considered under the Biosecurity Management Plan under Condition 72.
- Recommendation 31: The Commission does not consider it necessary to amend the timelines set in existing post-construction monitoring conditions. These conditions were discussed, drafted in a coordinated manner, and released for comment, in the NEB Certificate hearings (Reconsideration Report, [A98021-1](#), PDF 39).
- Recommendation 32: With respect to promoting establishment and recovery of disturbed riparian areas, the Commission notes Trans Mountain's response ([C13396-3](#) PDF 21 of 30) that watering activities have already been incorporated in Trans Mountain's field guides. The Commission finds that, with the incorporation of watering activities in the field guides in combination with post-construction monitoring requirements already in place, no further steps are required to address this recommendation.
- Recommendation 34: The Commission considers that the matters of decommissioning, abandonment, and abandonment costs, were already dealt with via existing Commission processes. As outlined in the NEB Reconsideration Report, the Commission has a process developed for the review and approval of abandonment cost estimates, and once Trans Mountain is ready to abandon its pipeline, it must first seek leave of the Commission (Reconsideration Report, [A98021-1](#), PDF 367).
- Recommendation 40: With respect to downstream emissions from the TMEP, the Commission considers this recommendation to have been adequately addressed in the Government of Canada response, which stated that Environment and Climate Change Canada conducted an assessment of upstream GHGs for the TMEP, and this assessment was considered in the decision by GIC for the TMEP and in the NEB Reconsideration Report which stated that the effects of end use are not directly linked or necessarily incidental to the Board's regulatory process regarding the Project (Reconsideration Report, [A98021-1](#) PDF 34, 221-222, 234).
- Recommendation 41: With respect to the collaborative identification of mitigation measures for air quality, the Commission accepts Trans Mountain's submissions that air quality mitigation measures are outlined in the Pipeline EPP, which was provided to Indigenous groups for feedback and that Trans Mountain is committed to ongoing engagement throughout the life of the Project and will continue to discuss their approach to mitigation with NNTC.

- Recommendation 42: With respect to the recommendation to physically remove CO₂ from the ambient air, the Commission notes Trans Mountain's commitment to review potential offset projects and available technologies when developing the Emissions Offset Management Plan.
- Recommendation 43: With respect to monitoring of fugitive emissions along the pipeline route and not just at pumping stations and terminals, the Commission agrees with Trans Mountain that such emissions are not expected to occur under normal operating conditions. Although not considered a source of fugitive air emissions, NNTC asked whether a leak detection program exists to ensure that seals between segments underground remain intact. The Commission highlights that Trans Mountain committed to installing an external fiber optic leak detection system along the entirety of Line 2 under Condition 115 (a), including the West Alternative. The system can provide real-time leak detection and will complement two computational pipeline monitoring leak detection systems on the expanded pipeline system. Following installation and testing, the system will be operated and maintained by a third-party vendor who will provide 24/7 monitoring and reporting to the Trans Mountain Control Centre.

6.2 Emergency response, pipeline design and spill response matters that go beyond the West Alternative

NNTC (provided in the CCAR):

- NNTC made the following Recommendations, with respect to emergency response, pipeline design and spill response matters, that relate to the TMEP as a whole, rather than specifically to the West Alternative: Nos. 14, 35-39 (see Appendix III).

6.2.1 Commission analysis and findings – Emergency response, pipeline design and spill response matters that go beyond the West Alternative

No novel emergency response or pipeline design and spill response issues are raised by the West Alternative that have not already been considered for other parts of the TMEP. There are plans and conditions in place to address these issues and the Commission considers the plans described by Trans Mountain to be appropriate.

The Commission considers that the following NNTC recommendations deal with matters which have already been adequately addressed and that no additional steps are required:

- Recommendation 14: With respect to undertaking studies into the effects and toxicology of diluted bitumen on salmon, the Commission points to Chapter 8 of the Reconsideration Report which considered the environmental behavior of spilled oil (Reconsideration Report, A98021-1, starting on PDF page 177) with discussion of the aquatic environments at section 8.1.1.2.
- Submerged and sunken oil is covered in section 8.1.2.4 and a discussion of the Government of Canada's research on the behaviour, fate and transport of diluted bitumen is found in section 8.1.2.7. Potential effects of a spill on fish and fish habitat (and other environmental receptors) are covered in Chapter 10 of the Reconsideration Report in section 10.2.17. Effects of diluted bitumen on salmon and other fish species was also taken into consideration in the Government of Canada decision to approve the TMEP, resulting in the announcement of the Oceans Protection Plan (OPP) concurrent with the decision to approve the TMEP. The OPP includes the Fate, Behaviour and Effects Initiative which funds research to better understand oil spill behavior and biological effects. For example, on 15 December 2020, \$349,948 in funding was provided to the University of Guelph for a two-year research project to evaluate how Coho salmon, in early stages of life, are impacted when exposed to diluted bitumen.

- Recommendations 35-38: With respect to emergency response and emergency management and research into spills, the Commission considers these matters to have been addressed. The Reconsideration Report, Chapter 9 (Reconsideration Report, A98021-1, starting on PDF page 202) provided detailed consideration of emergency prevention, preparedness and response related to the TMEP and the analysis therein applies equally to the West Alternative. The Reconsideration Report also describes a number of Conditions that relate specifically to Trans Mountain's emergency management program (Conditions 90, 117 and 124) and pipeline emergency response plan (Condition 125), which apply to the West Alternative as part of the TMEP. In addition to this, the Commission is of the view that Trans Mountain's commitments to continue to work with Indigenous people in the development of its Emergency Management Program and emergency response plans and its ongoing work with Western Canada Marine Response Corporation, Canadian Coast Guard, NRCan and DFO on spill response and cleanup, are steps that address these recommendations. Finally, the Commission notes BC EAO Condition 35 Fate and Behaviour of Bitumen Research, which requires Trans Mountain to report on research programs it has been involved with and to provide the report to Indigenous peoples.
- Recommendation 39: The Commission is of the opinion that consideration of climate change or increased weather event impacts on pipeline integrity, hazard identification, and pipeline design concerns have been addressed for the Project through existing conditions, which have directly influenced the design of the Project, and will continue to do so for the West Alternative through condition filing updates. See, for example, **Section 4.5.3.1** with respect to Condition 65 and flood frequency analyses that consider climate change. As another example, Trans Mountain has committed to provide a supplemental quantitative geohazard frequency assessment specific to the West Alternative under Condition 16.

Appendix I – Conditions imposed

The purpose of conditions is to mitigate potential risks and effects associated with a project so that it can be designed, constructed, operated, and abandoned in a safe manner that protects the public and the environment.

All commitments made by Trans Mountain in the MH-052-2018 Reconsideration Hearing, and the conditions attached to Certificate OC-065 (with the exception of Condition 39), apply to the West Alternative, to the extent they are relevant. The Commission considered all submissions received from the parties in the MH-032-2020 proceeding, as well those included in the CCAR, as discussed in the relevant sections of these Reasons, before finalizing and setting out the terms and conditions it has imposed on the West Alternative.

The Order amending Certificate OC-065 (AO-008-OC-065 [[C14136-3](#)]) is subject to the terms and conditions set out below. The Commission notes that, via Condition 1 of the Order, any commitments made by Trans Mountain in its West Alternative application and its related submissions during the MH-032-2020 proceeding are now regulatory requirements.

The Commission will monitor and enforce compliance with these terms and conditions throughout the lifecycle of the TMEP through audits, inspections, and other compliance and enforcement tools.

Documents filed by Trans Mountain in relation to condition compliance and related correspondence will be available to the public on the CER's online [public registry](#).

No.	Condition
1	Trans Mountain must comply with all of the conditions contained in this Order, and all commitments made during the MH-032-2020 proceeding, unless the Commission otherwise directs.
2	Trans Mountain must: <ul style="list-style-type: none"> (a) file with the CER within 30 days of the issuance of this Order, a Commitments Table listing all commitments made by Trans Mountain during the MH-032-2020 proceeding relating to the West Alternate Route, and as otherwise agreed to during questioning, argument, or any related submissions, including reference to: <ul style="list-style-type: none"> i. the documentation in which the commitment appears (for example, the Variance application, responses to information requests, or argument); and ii. the estimated timelines associated with the fulfillment of each commitment; and (b) update the Certificate Condition 6 filing to incorporate these commitments within 60 days of issuance of the Order.
3	Trans Mountain must maintain at its construction office(s), a copy of this Order and any filings made to the CER under this Order.
4	Trans Mountain must file with the CER: <ul style="list-style-type: none"> (a) an update for the West Alternative Route for Certificate Condition 50 (High-voltage alternating current [AC] interference), Certificate Condition 95 (Visual Impact Plan), and Certificate Condition 98 (Plan for Indigenous group participation in construction monitoring); or (b) at least 2 months prior to commencing construction, an explanation as to why no update to the condition filings noted in a) is required.

No.	Condition
5	<p>Trans Mountain must file with the CER, at least one month prior to commencing trenchless construction at the West Alternative Coldwater River Crossings, a plan describing Coldwater Indian Band's (Coldwater) participation in monitoring activities during construction for the Coldwater River trenchless crossings, including but not limited to:</p> <ul style="list-style-type: none"> (a) a summary of engagement and planning activities (including methods, dates, and locations) undertaken with Coldwater to obtain input into the monitoring plan and to develop opportunities for Coldwater's participation in monitoring activities, including a role for Coldwater's technical advisors; (b) a description of how the results from Trans Mountain's engagement with Coldwater were incorporated into the plan and, where suggestions and concerns raised by Coldwater were not incorporated into the plan, an explanation as to why not; (c) a description of any anticipated training and participant requirements, including potential certifications for Coldwater's monitors and/or technical advisors, or an explanation as to why no requirements are necessary; (d) the scope, methodology, and justification for monitoring activities to be undertaken by Trans Mountain and each Coldwater participant identified in a), including the elements of construction and geographic locations that will involve monitors and/or technical advisors; (e) a description of how Trans Mountain will use and incorporate the information gathered through the monitors' participation and apply it to the West Alternative Route; and (f) any additional site-specific operation and mitigation measures or plans related to the Coldwater River trenchless crossings. <p>Trans Mountain must provide a copy of the plan to Coldwater and confirm to the CER that it has done so at the same time the plan is filed with the CER.</p>

Appendix II – Coldwater’s proposed conditions and cross-references to these Reasons

The following table provides the list of conditions proposed by Coldwater in its written argument ([C13471-2](#)), with a cross-reference to where each condition is discussed in these Reasons. The conditions have been reproduced verbatim. For full context, please visit the source document.

No.	Proposed condition	Location in Reasons
1	Trans Mountain will continue site-specific planning and engagement with Coldwater Indian Band on the Coldwater River crossings.	4.5.3
2	Trans Mountain will provide an update to the Commission by August 9, 2021 on the status of site-specific planning with Coldwater and whether Coldwater’s site-specific concerns have been addressed. If Coldwater’s concerns remain unresolved Trans Mountain will provide a further update to the Commission by October 8, 2021.	4.5.3
3	Trans Mountain must file with the CER, at least one month prior to commencing construction of the West Alternative, a plan describing: Coldwater’s participation in monitoring the construction of the two Coldwater River crossings, including a monitoring role for Coldwater’s technical advisors; Any additional site-specific operation and mitigation measures or plans; and A copy of the report will be shared with Coldwater at the time of filing.	4.5.3
4	All Condition Compliance Filings regarding the two Coldwater River crossings associated with the West Alternative (i.e. including updates to Condition 67 and 74 filings) will be provided to Coldwater Indian Band on the same day they are filed with the CER.	4.5.3
5	Coldwater shall have ten (10) working days to provide the CER with comments, if any, on the adequacy of Trans Mountain’s Condition Compliance Filings.	4.5.3
6	Trans Mountain must file, at least 2 months prior to commencing construction of the West Alternative, a plan describing Coldwater Indian Band participation in monitoring activities during construction for the protection of traditional land and resource use along the West Alternative. The Plan must otherwise comply with Project Condition 98.	4.6.5, 4.6.7

Appendix III – The NNTC’s recommendations and cross-references to these Reasons

The following table provides the list of the NNTC’s recommendations, which were set out in Appendix 3¹⁰ ([C13255-3](#)) to the CCAR, with a cross-reference to where each recommendation is discussed in these Reasons. The recommendations have been reproduced verbatim. For full context, please visit the source document.

The Government of Canada’s and Trans Mountain’s responses to the NNTC’s recommendations are included in Appendix A to Trans Mountain’s written argument ([C13396-3](#)).

No.	Recommendation	Location in Reasons
General concerns		
1	Environmental Monitors/Inspectors, QPs/Resource Specialists must be independent from the contractor and be given authority and resources to ensure that environmental management plans are followed and NNTC values are protected. It is also recommended that a clear and concise reference document be provided to construction personnel as well as onsite training prior to work commencing. This reference document may be in the form of a Nlaka’pamux territory specific management plan.	6.1, 6.1.1
2	The plans need to clearly outline roles and responsibilities, be easy to implement for the contractors and outline the appropriate regulations, permit conditions, guidelines, etc.	6.1, 6.1.1
Archaeology		
3	All archaeological assessments of the CWAR must meet the standards and requirements of the NNTC.	4.6.6, 4.6.7
4	The entire revised CWAR project footprint will need to be resurveyed to address the significant gap in identified AOs. This survey should include the new areas added to the project footprint since 2020, as well as the proposed road network.	4.6.6, 4.6.7
5	Shovel testing of existing Stantec AoPs and new AOs identified during the resurvey of CWAR must be completed prior to the commencement of construction.	4.6.6, 4.6.7

¹⁰ Information Report Re: Trans Mountain Expansion Project – Coldwater Variance Application, prepared by NNTC, dated 5 May 2021.

No.	Recommendation	Location in Reasons
6	NNTC must participate fully in archaeological assessments, including a role in: establishing objectives, methods, and schedules; providing QA/QC of all results and data; reviewing reports and recommendations, and, developing management and mitigative actions.	4.6.6, 4.6.7
7	Archaeological sites and features are just one aspect of Nlaka'pamux heritage and the Nlaka'pamux cultural landscape. The results of all archaeological assessments must be presented and evaluated within the broader context of Nlaka'pamux heritage and landscape.	4.6.6, 4.6.7
Wildlife		
8	Additional baseline inventory for Great Basin Spadefoot and Western Screech-Owl: Species-specific surveys should be completed prior to approval of the West Alternative to inform further and/or modified mitigation measures. NNTC-AEW should continue to be involved and work collaboratively in the field work with Jacobs for this baseline work in order to complete the scope of work from 2020.	4.6.4, 4.6.7
9	Incidental breeding bird species were compiled during Williamson's sapsucker surveys; however, these surveys were conducted within habitat specific to Williamson's sapsucker therefore the species list may be skewed towards species that inhabit similar habitat to or habitat immediately adjacent to Williamson's sapsucker habitat. Conduct breeding bird inventory within riparian habitat at the Coldwater River crossings and within upland areas where no incidental data was collected. Breeding bird inventory should be conducted according to provincial guidelines.	4.6.4, 4.6.7
10	Complete surveys for raptor stick-nests – particularly, close to permanent water sources such as the Coldwater River and other appropriate habitats. Develop or update mitigation measures to address any identified raptor stick nests.	4.6.4, 4.6.7
11	Completion of a baseline wildlife program and effects assessment for species to which BC EAO Condition 16 applies. This program should include all components of a typical baseline program including desktop research, field inventory (according to provincial guidelines and/or expert-recommended methodology), potential effects, and mitigation measures. This program will serve to inform mitigation measures pre-, during, and post-construction, evaluation of mitigation measures and potential need for offsets.	6.1, 6.1.1
12	Create post-monitoring plans for salvage sites or species. Post-salvage monitoring is crucial to inform the success of a salvage operation and other associated mitigation measures. There is the potential to use federally-sourced funding to develop post-salvage monitoring plans to be implemented in conjunction with other research or educational facilities to reduce costs. Post-salvage procedures exist only for the Oregon Forests snail.	6.1, 6.1.1
13	TM has developed American Badger and Great Basin spadefoot Environmental Field Guides to be utilized during construction which includes the West Alternative route, if approved. NNTC has reviewed and provided comment. NNTC edits and comments to American badger and Great Basin spadefoot Environmental Field Guides should be incorporated by April 15, 2021.	4.6.4, 4.6.7

No.	Recommendation	Location in Reasons
Aquatics		
14	<p>Studies to be developed on the effects and toxicology of diluted bitumen (dilbit) on salmon; specifically:</p> <ul style="list-style-type: none"> a) Effects of dilbit exposure on adult returning spawners and effect on egg and sperm with respect to fertilization, hatchability, viability over 30 days or longer b) Effect of dilbit exposure on smolts and the effect on swimming ability and behaviour 	6.2, 6.2.1
15	Complete cumulative impact assessments for all watercourse crossings within Nlaka'pamux homeland. Provide a report detailing the results of the cumulative effects assessment.	6.1, 6.1.1
16	Watercourse crossing methods during low flow/dry cut/frozen periods that have not been monitored for water quality during construction, should be sampled once flow has returned within the first year after construction.	4.6.3, 4.6.7
17	Immediate reclamation of riparian habitats including the planting of mature native trees and shrubs to provide cover in sensitive fish bearing streams.	4.6.3, 4.6.7
18	Develop a watercourse crossing focused management plan to centralize and clearly outline construction activities, crossing methods, mitigation measures, and regulatory requirements related to watercourse crossings and protection of aquatic resources. Minimize cross-referencing, eliminate duplicated mitigation measures, streamline for workflows, etc. This will help to ensure that the various plans are implemented effectively by field personnel. It will also help the proponent to audit contractor performance.	4.6.3, 4.6.7
19	It is recommended that there be commitments to retain Qualified Professionals on an emergency response basis to help mitigate any project-induced flood damages – additional QPs should be hired for this purpose.	4.6.3, 4.6.7
20	TMEP should provide detailed water quality monitoring and response information. This should be in the form of a clearly written/Standard Operating Procedure type field guide. NNTC to provide input on a watercourse specific basis.	4.6.3, 4.6.7
21	Comprehensive site-specific Water Quality Monitoring Management Plan/Protection Plan should be provided for the Coldwater River valley. Cumulative issues such as drought related concerns should be considered when developing these plans.	4.6.3, 4.6.7
22	Field plans should outline the location selection criteria, regulatory permit/approval and monitoring requirements for all potential withdrawal/discharge activities that may be required during the project in addition to the Hydrostatic Testing specific activity. Roles and responsibilities should be made clear, for field staff.	6.1, 6.1.1

No.	Recommendation	Location in Reasons
Acid rock drainage/metal leaching and groundwater		
23	Field Guide for ARD/ML to be developed collaboratively with QPs and NNTC, sampling and testing should be running well ahead of construction activities in order to determine potential areas needing further mitigations.	6.1, 6.1.1
24	Potentially acid-generating (PAG) material should be disposed of in an approved facility that can manage ARD/ML material. TMEP to determine where storage of ARD/ML generating material will occur, outside of operating area.	6.1, 6.1.1
25	Further exploration, identification and mapping of the Coldwater Valley groundwater aquifers. TMEP to provide detailed field plan on how vulnerable aquifers, not yet identified, will be identified along the pipeline route and mapped and how appropriate mitigation measures will be implemented.	4.6.2, 4.6.7
Reclamation/vegetation		
26	Mitigation measures to reduce the spread of invasive seed should include washing or removal of footwear, personnel protective equipment and clothing not just machinery and equipment as stated within the Integrated Vegetation Management Plan.	6.1, 6.1.1
27	Reduction in the reliance of chemical control methods. Dedicated research and funding is needed to identify realistic alternatives.	6.1, 6.1.1
28	Improve soil conditions using biochar, created from the removal of local shrubs and trees.	6.1, 6.1.1
29	Increase fertilizer buffer to 30m from all watercourses.	4.6.3, 4.6.7
30	TMEP to implement active regeneration methods to wetlands, grasslands and dry interior forest that are being reclaimed. Appropriate native species should be used in all reclamation activities.	6.1, 6.1.1
31	It is understood that grasslands are to be monitored for a minimum 10 years post-construction. TM to increase post-construction monitoring timeline to 10 years minimum for wetlands and dry interior forests, with additional years added on if corrective measures were taken. Remove gaps in monitoring years for years 1-5 and increase monitoring frequency overall, especially in areas that require irrigation and planting of seedlings. Monitoring frequency should increase up to or past year 10 if corrective measures were required.	6.1, 6.1.1
32	Develop and include practices for completing ongoing/regular maintenance/irrigation of revegetation measures and plantings during the first 1-2 growing seasons to promote establishment and recovery of disturbed riparian areas.	6.1, 6.1.1
33	Develop or provide rationale as to why ecological mapping (e.g. TEM/PEM) was not completed for the West Alternative. This mapping would support the quantification of potential impacts to vegetation communities.	4.6.4, 4.6.7
34	Decommissioning and End Land Use Reclamation Plan for the project, including the West Alternative, if approved to be developed in collaboration with NNTC prior to project operation.	6.1, 6.1.1

No.	Recommendation	Location in Reasons
Emergency response, spills, and leaks		
35	Emergency Response Plans be developed collaboratively, such that cultural or other significant sites and important environmental features can be avoided or mitigated for in relation to spill response. This would include participating in the development of Geographic Response Plans.	6.2, 6.2.1
36	Develop emergency management working group to analyse gaps in proponent plans and community capacity.	6.2, 6.2.1
37	Further development and completion/testing of underwater shoreline cleanup and assessment techniques (SCAT) used to detect and estimate volumes of submerged oil.	6.2, 6.2.1
38	Develop, participate, and fund collaborative research programs or studies on the effectiveness of inland response technology with a focus on diluted bitumen spills within freshwater systems.	6.2, 6.2.1
39	Develop spill response model that considers climate change and increased weather events that are likely to impact integrity or increase spill risk.	6.2, 6.2.1
Air quality – greenhouse gas emissions and climate change		
40	The amount of upstream and downstream emissions related to the Project need to be considered in the creation of the NEB Condition 142 Emissions Offset Plan.	6.1, 6.1.1
41	Collaborative identification of mitigation measures	6.1, 6.1.1
42	Physical removal of CO2 from the ambient air using current available technologies within the Emissions Offset Management Plan	6.1, 6.1.1
43	Monitoring of fugitive emission along pipeline route – currently only monitored at pumping stations and terminals.	6.1, 6.1.1
Access		
44	Completion of Nlaka'pamux use and occupancy assessment which includes the gathering of all data related to historic and contemporary uses of the land base that may be impacted by the proposed project as well as historic grievances.	4.6.5, 4.6.7
45	TM to draft in collaboration with NNTC a detailed plan for temporary road reclamation.	4.4, 4.4.1
46	Collaboration on road deactivation plans and mitigations for permanent access roads.	4.4, 4.4.1
47	TMEP to provide detailed field plan that outlines efforts to identify areas with increased predation and mitigative responses once these areas have been identified.	4.4, 4.4.1
Soils		
48	Update Soils Technical Report to include correct soil classification.	4.6.4, 4.6.7
49	Review and adjust soils stripping requirements based on updated soil classifications.	4.6.4, 4.6.7