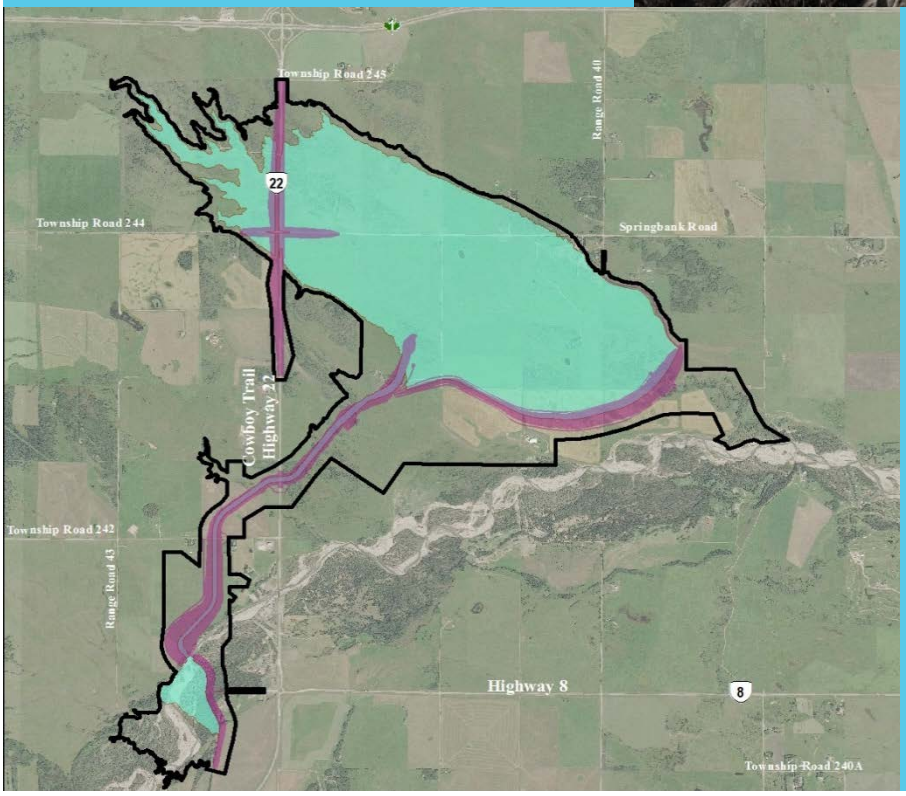
Springbank Off-stream Reservoir Project



Response to CEAA Information Request Package 2

August 20, 2018

May 2019

Alberta Transportation

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Abbreviations

ABMI	Alberta Biodiversity Monitoring Institute
ACT	Alberta Culture and Tourism
AEP	Alberta Environment and Parks
Agency	Canadian Environmental Assessment Agency
AVC	animal vehicle collision
AWA	*Alberta Wildlife Act*
BT/K	Blood Tribe/Kainai
CEA Agency	Canadian Environmental Assessment Agency
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CEAR	Canadian Environmental Assessment Registry
DFO	Fisheries and Oceans Canada
ECCC	Environment and Climate Change Canada
ECN	Ermineskin Cree Nation
ECO Plan	Environmental Construction Operations Plan
FAC	faculative
FACU	facultative upland
FN	First Nation
FWMIS	Fisheries and Wildlife Management Information System
HRA	*Historical Resources Act*
HRIA	Historical Resource Impact Assessment
IR	information request
IWAP	Indigenous Wisdom Advisory Panel
KCO	Kainai Consultation Office
KWBZ	key wildlife and biodiversity zone
LAA	local assessment area
LBT	Louis Bull Tribe
LCC	land cover classification
LUA	land use area
MVEIRB	Mackenzie Valley Environmental Impact Review Board

NRTA	Natural Resources Transfer Agreement
NWMP	Northwest Mounted Police
PDA	Project development area
PMF	probable maximum flood
PMP	probable maximum precipitation
Project	Springbank Off-stream Reservoir
RAA	regional assessment area
RAP	restricted activity period
SARA	*Species at Risk Act*
SCO	Siksika Consultation Office
SCRT	specific concerns and response tables
SNN	Stoney Nakoda Nations
SOMC	Species of Management Concern
SSRP	South Saskatchewan Regional Plan
TK	Traditional Knowledge
TKU	Traditional Knowledge and Use
TLRU	traditional land and resource use
TLU	traditional land use
TU	traditional use
TUS	Traditional Use Study
UPL	upland
VC	valued component
WMU	wildlife management unit
ZOI	zone of influence

IMPACTS TO RIGHTS

Question IR2-01: Impacts to Rights

Sources:

EIS Guidelines Part 2, Section 5

EIS Volume 2

EIS Volume 3A, Sections 14.1.3; 14.5

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission – June 25, 2018 (CEAR # 52)

Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51)

Ermineskin Cree Nation and Blood Tribe – Springbank EIS Technical Comments (CEAR # 46, 47)

Context and Rationale:

The EIS Guidelines require that, for each group identified in section 5.1, the EIS presents information on: Aboriginal and treaty rights; potential adverse impacts on rights of each project component and project physical activities; mitigation measures or accommodation to potential impacts; and potential impacts that have not been fully mitigated. The EIS Guidelines provide direction on proponent engagement with Indigenous groups and require that criteria for evaluating impacts to Aboriginal and treaty rights consider input sought by the proponent and/or provided by Indigenous groups.

The EIS does not present information on each Indigenous group's views of their rights and how each Indigenous group was engaged in developing or applying the proposed methodology. Additionally, the conclusions on potential impacts to rights do not consider each Indigenous group identified in section 5.1 of the EIS Guidelines.

The EIS defines treaty rights and Aboriginal rights broadly and states that effects to land and resource use upon which the exercise of rights depend is the measurable parameter for an assessment of potential impacts to rights. The EIS concludes that because effects of the Project on TLRU are predicted to be not significant, impacts on potential or established Aboriginal or

treaty rights are not expected. Indigenous groups have identified problems with the conclusions of the TLRU assessment and dispute the validity of relying on these conclusions for evaluating potential impacts to Aboriginal and treaty rights. For example, the EIS assumptions regarding the relative importance of the project area for the exercise of rights have been refuted by potentially impacted Indigenous groups.

Assessing impact to Aboriginal and treaty rights is not limited to assessing environmental effects on the current use of lands and resources for traditional purposes or on discrete biophysical components such as wildlife. An assessment of impacts to Aboriginal and treaty rights includes consideration of experience, culture, governance, knowledge and other factors, many of which have been labelled "intangible components" in the EIS. The EIS restricts the analysis of potential impacts to rights to the consideration of residual effects on traditional harvesting or physical activities associated with traditional use and does not assess effects to intangible components. The assessment of intangible components is possible and also necessary to understanding potential impacts to Aboriginal and treaty rights.

Indigenous groups, including Ermineskin Cree Nation and Kainai First Nation, as well as the Technical Advisory Group for the Project, requested that the *Methodology for Assessing Potential Impacts on the exercise of Aboriginal and Treaty Rights of the Proposed Frontier Oil Sands Mine* (Mikisew Cree First Nation and the Canadian Environmental Assessment Agency) (Annex 1) be considered in responding to the items below.

<u>Information Requests:</u>

a) Identify the conditions that support each community's exercise of their rights, including understanding how historic, existing, and approved activities have affected these conditions. Identify the importance of the Project's location in relation to the exercise of rights for each Indigenous group listed in the EIS Guidelines.

b) Identify the pathways for potential impacts of the Project (positive and negative) on the exercise of rights, accounting for the nature of rights, regional/historic/cumulative impacts, community thresholds, cultural landscape, preferred expression of rights, distribution of benefits/impact equity, and present and future generations.

c) Define the criteria used for assessing the severity of impacts to rights. The criteria may be different from the criteria used to assess the significance of environmental effects and may vary between Indigenous groups.

d) Considering each of the pathways identified and the criteria developed, provide analysis, discussion, and conclusions on whether the Project will have a low, medium, or high level of impact on the exercise of rights for each Indigenous group.

e) Describe mitigation measures that specifically address potential impacts to rights and accommodation measures that have been identified through engagement with Indigenous groups. Include any commitments made to mitigation and accommodation.

Response IR2-01

The information request asks for an assessment of potential impacts on the exercise of Aboriginal and treaty rights from the Project. The following sets out the legal framework for Aboriginal and Treaty rights in Alberta, including on private lands.

BACKGROUND INFORMATION ABOUT ABORIGINAL AND TREATY RIGHTS IN RELATION TO THE PROJECT

Section 35(1) of the *Constitution Act, 1982* recognizes and affirms "the existing aboriginal and treaty rights of the aboriginal peoples of Canada". In the province of Alberta, Treaties 6, 7, and 8, signed in the late 19th century, extinguished any Aboriginal rights (including Aboriginal title) and replaced those with treaty rights.[1]

Alberta First Nations engaged on the Project are signatories to Treaties 6 and 7 (see Volume 3A, Section 14.2.2). The Project is located on land covered by Treaty 7, which guarantees the First Nation signatories the right to hunt in the Treaty 7 area. By comparison, Treaty 6 guarantees the right both to hunt and fish in the Treaty 6 area. All treaties in Alberta exclude lands taken up for settlement or other purposes from the area where the First Nations can exercise treaty rights.

In Alberta, the treaty right to hunt has been modified by the Natural Resources Transfer Agreement (NRTA), which forms part of the *Constitution Act, 1930*. The NRTA secures the right of First Nations to hunt, fish and trap for food on unoccupied Crown lands or other lands to which the First Nations have a right of access for the purposes of hunting, fishing or trapping. A right of access, for example to harvest medicinal plants or to conduct some other activity, is not a right of access for the purposes of hunting, fishing or trapping for food.[2]

The NRTA had the effect of enlarging the area in which First Nations can hunt, fish and trap for food to the entire province. Under the treaties, First Nations were limited to hunting in their treaty areas. The NRTA also had the effect of limiting First Nation rights to hunt, fish and trap for food only. Commercial rights were extinguished. The NRTA is binding law – it is the legal instrument that currently sets out and governs the First Nation right to hunt, fish and trap in Alberta.[3]

[1] *R v. Lefthand*, 2007 ABCA 206 at para 53, leave to appeal to the SCC refused, 2008 CarswellAlta 195 (SCC); *Mikisew Cree First Nation v Canada*, [2005] 3 SCR 388 at para 2.
[2] *R v Mousseau*, [1980] 2 SCR 89
[3] *R v Badger*, [1996] 1 SCR 771 at para 47

Access to private lands to exercise treaty rights under the NRTA may be possible in limited circumstances:

- **Consent** – Access to private lands can be established by consent of the owner. However, this is a privilege granted by the landowner on an individual basis and does not extend access to the larger community. This is a fact-specific privilege that the landowner may grant to some individuals and not to others, and it is at the sole discretion of the landowner.[4]
- **Custom and Usage** – A right of access to private lands may also be established by custom and usage; meaning with the implied consent of the landowner. However, in order to establish implied consent through custom or usage to exercise treaty rights on private lands, there must be evidence of a long-standing practice of hunting, fishing or trapping on that land.[5] Customary use of what is now private land by First Nations prior to treaty does not give a right of access to those lands.[6]
- **Visible Compatible Use** – First Nations may have a right of access to private lands to exercise treaty rights where the use of the land is not visibly incompatible with hunting, fishing or trapping for food. However, visible signs of domestic animals, crop or pasture usage, buildings and fences are indications that the land is visibly incompatible with hunting, fishing or trapping.[7]

If First Nations are hunting, fishing or trapping on lands that are not unoccupied Crown lands, or lands to which they have not been granted a right of access for those purposes, then they are not exercising constitutionally protected rights.[8]

The Métis do not have treaty rights, but in some circumstances may have constitutionally protected Aboriginal rights under section 35 of the *Constitution Act*, 1982. However, Métis people do not have Aboriginal rights in southern Alberta, including the Project area, but they do not have the right to engage in constitutionally-protected harvesting whether on private or Crown land in that area.[9]

Therefore, given the context of the Project—predominately situated on private land in southern Alberta that has been used for ranching and agriculture since the late 1800s, and an understanding of the scope of Aboriginal and treaty rights in Alberta as developed through applicable case law—treaty rights are generally not exercisable within the PDA, except for a small portion that is located on Crown land (primarily the beds and shores of Elbow River and on private lands, with landowner consent.

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[4] *R v Francis*, 1997 CarswellAlta 771 (QB) at para 15; *R v Brertton* (1999), 244 AR 355 (CA) at para 7
[5] *R v Bearspaw*, 1984 CarswellAlta 687 (PC) at paras 9-10; *R v Hoff*, 2005 CarswellSask 932 (PC) at para 23
[6] R v Bearspaw, at para 12
[7] *R v Badger*
[8] *R v Brertton*
[9] *R v Hirsekorn*, 2010 ABPC 385, affirmed 2011 ABQB 682, affirmed 2013 ABCA 242, leave to appeal to the SCC denied, 2014 CarswellAlta 87 (SCC)

a) Alberta Transportation acknowledges that the specific conditions that support the exercise of Section 35 rights are best identified by Indigenous groups themselves. To that end, Alberta Transportation commenced consultation with the Treaty 7 First Nations in August 2014 and with the additional Indigenous groups identified in the Canadian Environmental Assessment Agency (CEA Agency) Guidelines for the Project in October 2016 concerning the Project and the nature and extent of the exercise of Section 35 rights in relation to the Project, including the context and setting for traditional uses in the Project area. Alberta Transportation has been conducting Indigenous engagement prior to and throughout the environmental assessment process, which includes sharing of Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, and funding for Project-specific Traditional Use Studies (TUS).

Alberta Transportation has provided funding to conduct TUS by all Indigenous groups who requested funding for these studies. This includes the following Indigenous groups: Kainai First Nation, Siksika Nation, Piikani Nation, Tsuut'ina Nation, Stoney Nakoda Nations, Ermineskin Cree Nation, Louis Bull Tribe, Montana First Nation and Métis Nation of Alberta, Region 3. Prior to filing the EIA, Alberta Transportation received a joint interim TUS from Kainai First Nation and Siksika First Nation and a final TUS from Piikani Nation. Since that time, final TUS have been received from Tsuut'ina Nation, Kainai First Nation, and Ermineskin Cree Nation.

As described in Volume 3A, Section 14.2 and Volume 3B, Section 14.2.2, Alberta Transportation also offered the opportunity to each Indigenous group engaged on the Project to participate in a TLRU workshop, facilitated by the CEA Agency, to obtain input and feedback on the draft TLRU sections (Sections 14 of Volumes 3A and 3B), as well as to obtain input on proposed mitigation measures, and to discuss how Project-specific concerns have been addressed in the assessment of TLRU, including Indigenous groups' perspectives on assessment methodology, proposed mitigation, Project-specific concerns and how the Project may affect the exercise of Section 35 rights.

The intention of the workshops was to validate the use of the traditional use information in the EIA and include any feedback received in the EIA, including views on impacts to Section 35 rights. Alberta Transportation held workshops with Stoney Nakoda Nations (February 12, 2018), Métis Nation of Alberta, Region 3 (February 22, 2018), Samson Cree Nation (February 23, 2018), Siksika Nation (February 26, 2018), and Tsuut'ina Nation (March 1, 5, 6, and 7, 2018). CEA Agency project managers facilitated each workshop, and the structure and format for each workshop were developed through engagement with individual Indigenous groups. In accordance with protocols established at the start of each workshop, Alberta Transportation completed written summaries of the workshop proceedings and provided them to each Indigenous group for review and validation[10]. To date, Alberta Transportation has not received permission to use information from any of the TLRU workshops in regulatory reporting, except for Métis Nation of Alberta, Region 3 which provided its permission to use

[10] As guided by the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA – Interim Principles (2016)

TLRU workshop information on April 5, 2018. However, no feedback regarding the EIS methodology was received from participating Indigenous groups.

On February 24, 2017, the CEA Agency sent letters to potentially affected Indigenous groups describing information the CEA Agency has with respect to the nature and extent of each group's rights and potential adverse impacts of the Project on those rights. The CEA Agency requested that each Indigenous group provide any additional information regarding the potential impacts of the Project on the exercise of rights, or potential or established rights to refine its understanding of the potential impacts of the Project and to adjust the CEA Agency's consultation approach, as necessary. Alberta Transportation is not aware of any responses that may have been received by CEA Agency to date. However, several Indigenous groups have submitted a Statement of Concern or other material to the CEA Agency that presents their views on their Section 35 rights and Alberta Transportation has considered this material throughout its response to this information request.

Details of Alberta Transportation's Indigenous engagement up to March 2018 for the Project is in Volume 1, Section 4 and Volume 4, Appendix B. Refer to Appendix IR1-1 for an updated summary of the engagement process to February 28, 2019. The Appendix has three parts: updated engagement summaries, record of consultation, and the consolidated specific concerns and response tables (SCRT).

On January 29, 2019, Alberta Transportation sent a letter to the Indigenous groups engaged on the Project seeking additional feedback regarding each Indigenous group's views on the exercise of its Section 35 rights, as outlined by this Information request. To date, Alberta Transportation received responses to this letter from Louis Bull Tribe, Tsuut'ina Nation and Métis Nation of Alberta, Region 3. Alberta Transportation's response to this information request relies on both the material filed in the EIA and any supplemental information received since the filing of the EIA. However, Alberta Transportation understands that the provision of this information is at the discretion of the participating Indigenous group.

As noted in Volume 3A, Section 14.1.7, some Indigenous groups have advised Alberta Transportation that current use of lands and resources for traditional purposes may occur within the PDA by consent of the landowner. Potential Project effects on such current use have been assessed in Volume 3A, Section 14.3. Conclusions regarding potential Project effects on each Indigenous group are summarized in Section 14.8.

Alberta Transportation is also aware that the Project may have effects on Section 35 rights on the portion of the PDA that is located on Crown land (i.e., the beds and shores of Elbow River) and these potential effects have been considered by employing the approach outlined in Volume 3A, Section 14.1.3.1.

Volume 3A, Section 14.2.3 discusses the conditions that support each community's exercise of Section 35 rights in the regional context for the Project. That section considers how historic, existing and approved activities have affected conditions for the current use of lands and

resources for traditional purposes and, by extension, the ability to exercise Section 35 rights. For example, Volume 3A, Section 14.2.3, page 14.38 states:

> "The Project is in an area that has been substantially modified, starting before the signing of Treaty 7 in 1877, by existing physical activities, including the church, Our Lady of the Peace, founded in 1872 and land conversion for agricultural purposes, which began in the 1870s. Since the late 1800s, land privatization; creation of transportation networks, pipeline rights-of-way and utility corridors; tourism and recreation activities; and commercial and residential development have contributed to the modification of land use in the area" (Volume 3A, Section 14.2.3).

Past alteration of distribution and abundance of traditionally harvested resources, reducing the area of lands available for traditional activities, disturbing or restricting access to traditional use sites and areas, these historic and approved activities have already contributed substantially to effects on Section 35 rights.

In addition, Volume 3C, Section 1 identifies approved activities that may affect the conditions for current use of lands and resources for traditional purposes and, by extension, the exercise of Section 35 rights.

Table IR1-1 summarizes the conditions that support each Indigenous group's exercise of its rights and the importance of the Project's location in relation to the exercise of rights that are either included in the EIA or subsequently shared with Alberta Transportation identified by each of the Indigenous groups listed in the EIS Guidelines. As noted above, Alberta Transportation acknowledges that the specific conditions that support the exercise of Section 35 rights are best identified by Indigenous groups themselves.

The information in Table IR1-1 includes information related to the specific conditions that support the exercise of Section 35 rights and is, therefore, not the complete list of concerns or interests raised by Indigenous groups as assessed in the EIA. Alberta Transportation notes that the baseline data collection for the EIA conforms to *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[11]

[11] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
Kainai First Nation		
"At least six of the landowners in the proposed Project area allow First Nation access to their lands for Treaty hunting and fishing rights and other traditional lands uses."	JFK Law Corporation 2017a, p. 2	Volume 3A, Section 14.1.7 Volume 3A, Section 14.2.4
"...Kainai First Nation identified Elbow River as important for fishing, as a gathering area, and as generally important for traditions and culture."	KCO & SCO 2017	Volume 3B, Section 14.2.4.3
Private landowners of lands that will be affected by the Project have offered Kanai members the opportunity to access those lands for the purpose of exercising Kanai's Treaty 7 rights, including for harvesting plants/berries and for hunting and fishing purposes. Kanai members have accessed these lands for hunting of elk as recently as March 2018.	Kainai First Nation 2018 (CEAR #47), p. 59	--
"Kainai members depend on the area that is proposed to be affected by the development of the Project for the exercise of Treaty rights, including hunting on these lands pursuant to their Treaty 7 rights."	JFK Law Corporation 2018a (CEAR #47), p. 2	--
Treaty rights held by Kainai First Nation include "rights to use lands and resources in the project area for traditional purposes, but their rights are not limited to such practices."	PGL 2018a (CEAR #47), p. 1	--
"Kainai ... currently use, and have access to private lands, where they exercise their Treaty rights."	PGL 2018a (CEAR #47), p. 2	--
"The exercising of Treaty Rights is dependent on exercising them in the traditional cultural area."	PGL 2018a (CEAR #47), p. 4	--
"Should the Project be approved and Conservation Area A be made accessible, [Kainai First Nation] hunters made it clear that they intend to use the area to exercise their rights to subsistence hunt, particularly for elk, moose, white tailed deer, mule deer and grouse."	Kainai First Nation 2018 (CEAR #47), p. 61	--

[12] -- indicates the referenced information was received following the submission of the EIA.

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
"Kainai First Nation indicated that agreements are in place with local landowners in the PDA to provide access to Kainai First Nation members for the purposes of subsistence hunting."	Kainai First Nation 2018 (CEAR #47), p. 67	--
Kainai First Nation stated, "We have built up relationships with the landowners out there [PDA]. We can go in there and hunt when we ask."	Engagement Meeting (August 7, 2018)	--
"The Project area is a good potential place to hunt and a good potential source of traditional food for the hunters due to the quality of the elk herd that frequents the area."	Kainai First Nation 2018 (CEAR #47), p. 67-68	--
Siksika Nation		
Given the importance of Elbow River, Siksika Nation, as communicated through the engagement process for the Project, expects that effects on Siksika traditional use "will be substantial."	TUS proposal letter (May 20, 2016)	Volume 3A, Section 14.3.2.1
"Our First Nation rights of hunting and ceremony are cut off because of these land use plans."	Engagement Meeting (December 10, 2018)	--
"The community has spoken to the landowners, they can ask and are granted permission to go hunt on that land."	Engagement Meeting, p. 8 (December 10, 2018)	--
Tsuut'ina Nation		
"Tsuut'ina Nation reported that the Project may affect citizens' ability to hunt, fish, and gather plants by affecting species and habitats that support these activities."	Tsuut'ina Nation, 2016, p. 1	Volume 3A, Section 14.3.2.1
"Tsuut'ina Nation explained that the Project is within 'an area where our citizens exercise their Aboriginal, Treaty and Inherent rights.'"	Tsuut'ina Nation 2016, p. 1	Volume 3A, Section 14.2.4 Volume 3A, Section 14.2.6
Tsuut'ina Nation "reports access to private land" within the Project area to hunt.	Tsuut'ina Nation 2018, p. 52	Volume 3A, Section 14.1.7

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
"Our citizens continue to depend on the lands and waters in our traditional territory, including the Project area to support traditional activities" including hunting and fishing."	Tsuut'ina Nation 2016, p. 3	Volume 3A, Section 14.2.3 Volume 3A, Section 14.2.4
	Tsuut'ina Nation 2019, p. 2	--
"Our citizens hold Aboriginal rights as well as rights under Treaty 7 and Inherent rights. At the heart of these constitutionally protected rights is a connection to the lands, waters, and resources in our traditional territory which we rely on to maintain our livelihoods, language, culture, and community. The Project is located squarely within our traditional territory, in an area where our citizens exercise their Aboriginal, Treaty and Inherent rights."	Tsuut'ina Nation 2016, p. 1	Volume 3A, Section 14.2.4
	Mandell Pinder LLP 2018 (CEAR #50), p. 2	--
	Tsuut'ina Nation 2019, p. 1	--
A total of 338 traditional use areas were recorded within the Project area during the Tsuut'ina Nation site visits[13]. Tsuut'ina Nation reported "hunting, gathering, fishing, camping and other traditional uses, including ceremonial uses, within and immediately proximate to the Project Area."	Tsuut'ina Nation 2018, p. 5	--
"Our citizens continue to depend on the lands and waters in our traditional territory, including the Project area to support traditional activities" including hunting and fishing."	Tsuut'ina Nation 2016, p. 3	Volume 3A, Section 14.2.3 Volume 3A, Section 14.2.4
	Tsuut'ina Nation 2019, p. 2	--

[13] In accordance with the terms of use of the TLRU Report, the specific locations of traditional use areas and nature of activities that occur in these areas have not been disclosed.

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
Piikani Nation		
"Piikani Nation indicated they have the following rights to the use and enjoyment of their traditional lands: • "Piikani activities, practices, and traditions that are integral to our culture and protected by Section 35 of the Constitution Act, 1982" • "…the right to hunt, trap and harvest natural resources within our traditional territory, to our way of life, to the use, enjoyment and control of lands reserved for us and the right to a livelihood and cultural and spiritual practices from our traditional lands." • "… the right to sufficient lands, and access to them, within our traditional territory, of a quality and nature sufficient to support the meaningful exercise of their [Piikani Nation's] treaty rights" • "The right to hunt for food in all seasons pursuant to the Natural Resources Transfer Agreement (being schedule 2 of the Constitution Act, 1930)" • "The right to be consulted and accommodated with respect to potential adverse effects on our rights and the interests secured by these rights" • "The right to use and enjoyment of our reserve lands pursuant to section 18(1) of the Indian Act (R.S. 1985, c. 1-5)" • "The statutory right to hunt, fish and trap on Crown lands pursuant to the Hunting, Fishing and Trapping Heritage Act (S.A. c. H-15.5)."	Piikani Nation Consultation 2018 (CEAR #48), p. 2-3	--

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
Stoney Nakoda Nations		
Stoney Nakoda Nations reported undertaking exercising their treaty rights in the Project area, including hunting, fishing, trapping.	Stoney Consultation Office 2016, p. 2	Volume 3A, Section 14.2.4 Volume 3A, Section 14.2.5 Volume 3A, Section 14.3.2.3 Volume 3A, Section 14.8.4
"...there are two different trap lines out there ... Our members use this area for trapping."	Engagement Meeting (May 4, 2016)	Volume 3A, Section 14.3.4.3 Volume 3A, Section 14.2.6 Volume 3B, Section 14.2.4.3
"Through the engagement program for the Project, Stoney Nakoda Nations stated that the Project "does impact Stoney Nakoda Treaty Rights and Traditional Uses in the proposed project area. As signatories to Treaty Number 7 in 1877, the Stoney Nakoda Nations have Aboriginal and treaty rights entitlement throughout the 50,000 square miles encompassing Treaty 7 territory, and beyond. The [Stoney Nakoda Nations] have historic trails, campsites, hunting areas, fishing waters, ceremonial and spiritual sites, trade routes, grave sites, and gathering areas throughout our historical territory."	Stoney Nakoda Nations letter (September 19, 2014)	Volume 3A, Section 14.8.4
"When Treaty 7 was signed, the SNN neither surrendered their Aboriginal title to water within their traditional territory nor surrendered any other interests pursuant to an associated Aboriginal right. The SNN continue to hold these rights."	Stoney Consultation Office 2016, p. 1	--

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
Stoney Nakoda Nations "confirmed the traplines are west of Bragg Creek."	Engagement Meeting (June 4, 2018)	--
Ermineskin Cree Nation		
"At least six of the landowners in the proposed Project area allow First Nation access to their lands for Treaty hunting and fishing rights and other traditional land uses".	JFK Law Corporation 2017c, p. 2	Volume 3A, Section 14.1.7
"The PDA and local study area, moreover, have become increasingly important to Ermineskin hunters and harvesters as a result of ... cumulative effects of industrial development, which have reduced the abundance of big game on Crown lands to the north and to the west of Ermineskin Reserve 138 ... the Project area represents one of the least disturbed, accessible areas for ECN land users."	WSSS 2018 (CEAR #46), p. 5	--
Ermineskin Cree Nation reported hunting and fishing on private lands within the PDA, stating that "ECN and its members have contacts with private landowners in different parts of Alberta, including the PDA and regional study area."	WSSS 2018 (CEAR #46), p. 7	--
"Collectively-held harvesting rights and connections to particular places are not eliminated because those sites are not presently occupied or used for traditional purposes, whether as a result of reduced access, declining natural productivity, or the emergency of alternative time demands, such as wage labour. The presence of industrial infrastructure and the demands of employment, while potentially reducing access to and opportunities for [traditional use], do not abolish the collectively held Treaty and Aboriginal rights or destroy the significance of those sites for the people who remember living and engaging in traditional activities there and / or who intend to use sites in the future."	WSSS 2018 (CEAR #46), p. 12	--
"Our Treaty rights are not the same as 'recreational activities'. Our Treaty rights enable us to survive on the land."	WSSS 2018 (CEAR #46), p. 14	--

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
"[Traditional use] transcends subsistence or recreational resource use because its practices connect the material to the ideational realm of cultural norms and wellbeing, identity formation and spirituality, as well as family and community bonds ... and provides critical and increasingly scarce opportunities to transmit knowledge and cultural practices to the younger generations."	WSSS 2018 (CEAR #46), p. 12	--
"Ermineskin members depend on the area proposed to be affected by the development of the Project for the exercise of Treaty rights, including hunting on these lands pursuant to their Treaty 6 rights."	JFK Law Corporation 2018b (CEAR #46), p. 2	--
Ermineskin Cree Nation stated that "private landowners of lands that will be affected by the Project have offered ECN members the opportunity to access those lands for the purpose of exercising Kanai's Treaty 7 rights, including for harvesting plants/berries and for hunting and fishing purposes. ECN members have accessed these lands for hunting of elk as recently as February 2018."	JFK Law Corporation 2018c, p. 1	--
Treaty rights held by Ermineskin Cree Nation include "rights to use lands and resources in the project area for traditional purposes, but their rights are not limited to such practices."	PGL 2018b (CEAR #46), p. 1	--
"Ermineskin ... currently use, and have access to private lands, where they exercise their Treaty rights."	PGL 2018b (CEAR #46), p. 2	--
"The exercising of Treaty Rights is dependent on exercising them in the traditional cultural area."	PGL 2018b (CEAR #46), p. 4	--
Louis Bull Tribe		
"Loss of accessible Crown lands on which to practice Aboriginal and Treaty Rights may be a long term residual impact relating to this project".	Letter to CEAA 2018, p. 1	Volume 3A, Section 14.8.9
Louis Bull Tribe stated that "due to extensive development and alteration of the natural landscape LBT members have to travel further and further from the Tribe Reserve lands to practice constitutionally protected Aboriginal and Treaty rights"	Louis Bull Tribe 2018b (CEAR #1228), p. 4	--
	Solstice Environmental Management 2019, p. 2	--

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
"Generally, traditional use rights can only be exercised on reserve, on Crown lands, or on private lands through arrangements with the landowner, a fairly limited geographic scope. Further, historical limitations on the movement of Alberta's Aboriginal peoples off reserve, and government actions to prevent the practice of traditional land use activities, have reduced the number of active practitioners. While this is changing today, use of recent historical and current use of lands as a metric for Aboriginal and Treaty Rights is inherently biased. Current use may not necessarily reflect past patterns of use, or the interests of a community in the health of ecosystems that could support growing interest in traditionally or culturally practices. These constraints on the ability to exercise Aboriginal and Treaty Rights within LBT Traditional Territory, and the interests of an Indigenous community in maintaining the ecological health of those natural resources to which they have legal access must be acknowledged when assessing impacts of any project".	Solstice Environmental Management 2019, p. 2	--
"The Project falls within LBT's area of traditional use, and a variety of traditionally and culturally important plants and harvested animals occur in the Project area."	Solstice Environmental Management 2019, p. 1	--
Montana First Nation		
"As stated in Treaty 6: Her Majesty further agrees with her said Indians that they, the said Indians, shall have right to pursue their avocations of hunting and fishing throughout the tract surrendered as herein before described, subject to such regulations as may from time to time be made by her Government of her Dominion of Canada and saving and excepting such tracts as may from time to time be required or taken up for settlement, mining, lumbering or other purposes by her said Government of the Dominion of Canada or by any of the subjects thereof, duly authorized therefore, by the said Government ... These promises were reinforced in 1982, when the Constitution Act included Section 35, which covers the Rights of the Aboriginal Peoples of Canada."	MSES 2018 (CEAR #51), p. 2	--
Montana First Nation reported "hunting in the Project area."	MSES 2018 (CEAR #51), p. 2	--

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
Samson Cree Nation		
"At least six of the landowners in the proposed Project area allow First Nation access to their lands for Treaty hunting and fishing rights and other traditional land uses".	JFK Law Corporation 2017b, p. 2	Volume 3A, Section 14.1.7
Samson Cree Nation's Inherent and Treaty rights and interests are "inextricably connected to the land, waters and resources within its Samson traditional territory. Samson maintains rights and interests to all water within and/or connected to Samson traditional territory. Water is the foundation of life and community wellbeing. Both water quality and quantity are integral to the continued exercise of Samson's Section 35 Rights. As original stewards of Samson traditional territory, Samson believes it has a duty to the Creator to protect and preserve Mother Earth, including its watersheds, in order to ensure the continuity of Samson's way of life, worldview, livelihood and very identity."	Samson Cree Nation 2018 (CEAR #52), p. 6-7	--
Samson Cree Nation indicated that Treaty 6 "provides for the protection and continuation of the Samson's reliance on their traditional territory to sustain themselves culturally, socially and economically, and in particular, the written text provides, for the following: Her Majesty further agrees with Her said Indians that they, the said Indians, shall have right to pursue their avocations of hunting and fishing throughout the tract surrendered. Samson's Treaty rights to hunting and trapping extends beyond the written terms of the Treaty. In particular, Samson's Treaty 6 rights encompass rights that are incidental to the rights granted by Treaty, including environmental conservation/stewardship required to ensure that Treaty signatories can continue to exercise its rights as they previously did. These incidental Treaty rights include the right to protect, preserve and advance healthy wildlife populations and habitats. The Samson has the right to access and harvest wildlife for spiritual, cultural, health, or economic purposes. They have the right to sustain a livelihood from the lands and resources, which includes hunting, trapping, fishing, tourism, and employment from resource development. They have a right to healthy, interconnected habitat that supports diverse and abundant species that are free of disease and migrate freely through their territory. Further, they have the right to manage the land and water according to their traditional teachings, which include a deep appreciation for ecosystem interactions and trophic relationships."	Samson Cree Nation 2018 (CEAR #52), p. 20	--

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
"The written text of Treaty 6 protects the Treaty signatories fishing rights. The Treaty states: Her Majesty further agrees with Her said Indians that they, the said Indians, shall have right to pursue their avocations of hunting and fishing throughout the tract surrendered… Samson's Treaty rights to fish extends beyond the written terms of the Treaty. Samson's Treaty rights to fish extends beyond the written terms of the Treaty. In particular Samson's No. Treaty rights encompass rights that are incidental to the rights granted by Treaty, including environmental conservation/stewardship required to ensure that Treaty signatories can continue to exercise its rights as they previously. These incidental Treaty rights include the right to protect, preserve and advance healthy fish habitats. Samson has and continues to exercise its fishing rights."	Samson Cree Nation 2018 (CEAR #52), p. 14	--
"Hunting, including trapping, is integral to Samson's food security, cultural continuity and economies. Samson members continue to hunt and trap in and around the Project area."	Samson Cree Nation 2018 (CEAR #52), p. 20	--
Métis Nation of Alberta, Region 3		
Métis Nation of Alberta, Region 3 stated that members "have agreements with landowners to access the private lands."	TLRU workshop (February 22, 2018)	--
"The Métis Nation of Alberta, Region 3 has Aboriginal/Indigenous rights in the project area some examples being; hunting, fishing, trapping, gathering. This area has been home to Métis from at least as early as 1842 and is part of the Métis homeland. We are currently compiling historical, oral, and archaeological data to demonstrate the scope and extent of Métis use of the area in the past, present and into the future."	MNAR3 2019, p. 1	--
Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding views on the conditions that support the exercise of their rights and/or the importance of the project's location in relation to the exercise of their rights has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		

Table IR1-1 Indigenous Group Views on the Conditions that Support the Exercise of their Rights and/or the Importance of the Project's Location in Relation to the Exercise of their Rights

Conditions that Support the Exercise of their Rights / Importance of the Project's Location in Relation to the Exercise of Rights	Source	EIA Reference (if applicable)[12]
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Ktunaxa Nation traditional land and resource use or Ktunaxa Nation Section 35 rights. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Métis Nation British Columbia traditional land and resource use or Métis Nation British Columbia Section 35 rights. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

b) As explained in Volume 3A, Section 14.1.3.1, for the purposes of the assessment, effects on the ability to exercise Section 35 rights may be considered to occur to the extent that the Project has a residual effect on traditional harvesting (hunting, trapping, fishing, plant or material gathering) or on physical activities associated with traditional use (travel and navigation, use of habitation, cultural and spiritual areas). Therefore, circumstances in which traditional resources necessary for the exercise of rights are diminished or in which lands accessed for traditional activities are disturbed may reasonably be understood to represent adverse effects on Section 35 rights or traditional uses.

For example, a change in availability of traditional resources for current use that results in a residual environmental effect on the diversity, distribution, or abundance of a species relied upon for traditional hunting may be an effect on Section 35 rights to hunt. Similarly, a loss or alteration, or restriction of access to a traditionally used trail or travelway may be an effect on access to exercise rights on unoccupied Crown land or other lands to which there is a right of access to exercise rights. As such, the pathways identified in Volume 3A, Section 14, Table 14-1 may also be understood to be pathways for effects on Section 35 rights.

For convenience, Table 14-1 is reproduced here as Table IR1-2.

In addition, Alberta Transportation notes that the identification of potential effects and effects pathways assessed in the EIA conforms to CEAA 2012 and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[14]

In this manner, the EIA considers that the exercise of Section 35 rights depends on the health and abundance of traditionally harvested species and the continued availability of and access to traditional use sites and areas. Therefore, the effects pathways identified in the EIA that may result in potential environmental effects on current use of lands and resources are also pathways for potential effects on Section 35 rights.

[14] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

Table IR1-2 Potential Effects, Effects Pathways and Measurable Parameters for Traditional Land and Resource Use (from Volume 3A, Section 14, Table 14-1)

Potential Environmental Effect	Effect Pathway	Measurable Parameter(s)
Change in availability of traditional resources for current use	• Vegetation clearing associated with construction could result in a loss of habitat for species of traditional importance, including plants and animals relied on for traditional hunting, trapping, or plant harvesting • Sensory disturbance has the potential to affect the availability of habitat for species of traditional importance • Loss or alteration of habitat resulting from disturbance to watercourses • Potential effects on wildlife health which could affect the availability of traditional resources • Indirect effects on the experience of Indigenous peoples which adversely alter the perceived value of availability of traditional resources for current use	• change in availability of habitat (ha) for traditionally used plant or animal species • change in availability of habitat for fish species • qualitative evaluation of change in hunting and fishing pressure as a result of the Project and other planned developments • identification of change in resource from participating Indigenous groups
Change in access to traditional resources or areas for current use	• Construction and dry operations could result in the loss, alteration, or restriction of access (including trails and travelways) to current lands and resources used for traditional purposes • Indirect effects on the experience of Indigenous peoples which adversely alter the perceived value of access to traditional resources for current use or current use sites and areas	• number of trails and travelways no longer accessible • area (ha) with access restrictions • area (ha) of altered land use management • time required to access different current use locations • identification of change in access from participating Indigenous groups
Change in sites or areas for current use	• Construction and dry operations could result in a loss or alteration of identified current use harvesting sites, habitation areas, cultural and sacred sites • Indirect effects on the experience of Indigenous peoples which adversely alter the perceived value of current use sites or areas	• number of or area (ha) of identified sites and areas affected • identification of change in sites or areas from participating Indigenous groups • identification of change in use of sites or areas from participating Indigenous groups

The assessment of potential effects considered relevant information provided by each Indigenous group. For instance, the change in availability of traditional resources reflects potential pathways identified by Kainai First Nation, Piikani Nation, Siksika Nation, Stoney Nakoda Nations, Tsuut'ina Nation, Ermineskin Cree Nation, Louis Bull Tribe, Samson Cree Nation, and Métis Nation of Alberta, Region 3 (Volume 3A, Section 14.3.2). These identified pathways included effects on wildlife, effects to fish habitat, loss of habitat and habitat fragmentation, effects on biodiversity, and effects on the ability to hunt and fish.

Table IR1-3 summarizes the pathways for potential impacts of the Project (positive and negative) on the exercise of Section 35 rights as identified by each Indigenous group listed in the EIS Guidelines, that are either included in the EIA or subsequently shared with Alberta Transportation through the engagement process. As noted above, Alberta Transportation recognizes that information regarding the exercise of Section 35 rights is best identified by Indigenous groups themselves. The information summarized in Table IR1-3 includes information on the pathways for potential impacts of the Project (positive and negative) on the exercise of Section 35 rights and is, therefore, not the complete list of concerns or interests raised by Indigenous groups as assessed in the EIA. Refer to Appendix IR1-1 for an updated summary of the engagement process to February 28, 2019, which includes consolidated specific concerns and response tables (SCRT).

The pathways for potential impacts of the Project identified by Indigenous groups are aligned with the potential effects and effects pathways described in Table IR1-2. To date, no new pathways for potential effects of the Project on the exercise of rights have been identified through the information shared by Indigenous groups.

Table IR1-3 Indigenous Group Views on the Pathways for Potential Impacts of the Project (Positive and Negative) on the Exercise of Rights

Pathways for Potential Impacts of the Project on the Exercise of Rights	Source	EIA Reference (if applicable)[15]
Kainai First Nation		
The Project may affect members' ability to exercise Treaty rights and to gather, hunt, fish, and practice ceremonies.	Indigenous Engagement Process	Volume 3A, Section 14.2.5
"The post-construction flood modelling associated with the Bragg Creek project ... shows a narrowing and deepening of the Elbow River on Tsuut'ina lands under flood conditions. It is not clear the extent or magnitude of this change over successive flood events, the effects of these changes on other VCs and on exercise of First Nations' rights and culture."	PGL 2018a (CEAR #47), p. 1	--
"Debris left after floods may result in loss of bird habitat or contamination of habitat, impacts to wetlands, which will cause further impacts to wildlife, fish and birds, as well as to the exercise of Aboriginal, Treaty, and Inherent rights."	PGL 2018a (CEAR #47), p. 4	--
Siksika Nation		
"the [Project] is being constructed to protect people and property in Calgary, while negatively impacting Siksika rights and interests that are protected by Section 35 of the Constitution of Canada."	Siksika Consultation Office 2016	Volume 3A, Section 14.8.3
Given the importance of Elbow River, Siksika Nation, as communicated through the engagement process for the Project, expects that effects on Siksika traditional use "will be substantial."	Siksika Consultation Office 2016	Volume 3A, Section 14.3.2.1
Tsuut'ina Nation		
Tsuut'ina Nation expressed concern about the potential for the Project to "adversely affect our rights and interests."	Tsuut'ina Nation 2016, p. 2	Volume 3A, Section 14.3
	Mandell Pinder LLP 2018 (CEAR #50), p. 2	--

[15] -- indicates the referenced information was received following the submission of the EIA.

Table IR1-3 Indigenous Group Views on the Pathways for Potential Impacts of the Project (Positive and Negative) on the Exercise of Rights

Pathways for Potential Impacts of the Project on the Exercise of Rights	Source	EIA Reference (if applicable)[15]
"Our concern is that the Project will interfere with our ability to carry out these traditional activities by adversely affecting key species or the habitats that support them, and taking up lands that will no longer be available for the exercise of our rights."	Tsuut'ina Nation 2016, p. 2	Volume 3A, Sections 14.3.2, 14.3.3 and 14.3.4
Tsuut'ina Nation expressed concerns about "adverse impacts to fish and fish habitat" that are part of their Aboriginal fishery, including: "impacts to spawning ... impacts to overwintering habitat ... increased sedimentation ... [and] temperature changes to the Elbow River." Tsuut'ina Nation stated that "fish migration in the Elbow River may be disrupted for a portion of the construction period as the Diversion Structure is installed ... fish may be unable to travel past the Diversion Structure, impeding their migration ... Fish could be carried into the Diversion Structure, and ultimately into the Reservoir where they could be stranded when the water is ultimately released ... The diversion of Highway 22 and construction of bridges could lead to further impacts to fish and fish habitat."	Tsuut'ina Nation 2016, p. 3-4	Volume 3A, Section 14.3.2; Volume 3B, Section 14.2.2 Volume 3B, Section 14.6.5 Volume 3B, Section 14.2.1
"Tsuut'ina Nation identified that the Project could destroy critical fish and wildlife habitat and noted the potential for reduction to or damage of fescue grassland and wetland habitat from contaminated sediment left behind following a flood."	Tsuut'ina Nation 2016, p. 3-4	Volume 3B, Section 14.2.2.1 Volume 3B, Section 14.6.5
"Tsuut'ina Nation reported the potential for the loss or contamination of bird habitat from debris left by a flood and noted the potential for flood waters to affect plants that are harvested in the project area."	Tsuut'ina Nation 2016, p. 3-4	Volume 3B, Section 14.2.2.
"Tsuut'ina Nation noted the potential for bird, wetland, and fescue grassland habitats to be affected by contaminated sediment deposition or debris from flooding."	Tsuut'ina Nation 2016, p. 3-4	Volume 3B, Section 14.2.2.
"It is unknown how the Project and the Bragg Creek Project may interact to cumulatively impact Tsuut'ina's lands, waters, and the exercise of Tsuut'ina's rights." "The post-construction flood modelling associated with the Bragg Creek project ... shows a narrowing and deepening of the Elbow River on Tsuut'ina lands under flood conditions. It is not clear the extent or magnitude of this change over successive flood events, the effects of these changes on other VCs and on exercise of First Nations' rights and culture."	Mandell Pinder LLP 2018 (CEAR #50), p. 4, 31	--

Table IR1-3 Indigenous Group Views on the Pathways for Potential Impacts of the Project (Positive and Negative) on the Exercise of Rights

Pathways for Potential Impacts of the Project on the Exercise of Rights	Source	EIA Reference (if applicable)[15]
"Debris left after floods may result in loss of bird habitat or contamination of habitat, impacts to wetlands impacts [sic] will cause further impacts to wildlife, fish and birds, as well as the exercise of Aboriginal, Treaty, and Inherent rights."	Mandell Pinder LLP 2018 (CEAR #50), p. 30	--
Tsuut'ina Nation "expressed concern that changes to the health and flow of the Elbow River will affect their ability to harvest trout and whitefish from the main channel and its tributaries."	Tsuut'ina Nation 2018, p. 55, 60	--
"Tsuut'ina members are concerned about impacts to hunting and fishing, including barriers to access, habitat loss, and changes in wildlife/fish behaviour, health, abundance/availability, locations, etc."	Tsuut'ina Nation 2018, p. 59	--
"Elk is an important traditional and subsistence food for Tsuut'ina members. The proposed Project is located within important habitat for elk and their predators that depend on healthy elk migrations. The Project will upset the elk migration and the lives of all the other animals that are connected to the elk in the natural circle of life ... Tsuut'ina members are concerned about how disruptions to the landscape may affect the leader elk's ability to navigate, and how changes in the elk's habitat may affect the herd's overall health, which they rely upon for food and ceremony."	Tsuut'ina Nation 2018, p. 59	--
"Tsuut'ina express concerns that compounding impacts from the Project and ongoing development will compromise harvesters' ability to fish in certain areas of the Elbow River and its tributaries, and will also force harvesters to travel further away to hunt."	Tsuut'ina Nation 2018, p. 60	--
Tsuut'ina Nation expressed concerns that the availability to "pursue traditional land use practices is threatened by cavalier [attitudes] towards development with foreseeable impacts on Tsuut'ina reserve lands and water."	Tsuut'ina Nation 2018, p. 61	--
"Tsuut'ina members have expressed concerns about the likelihood that standing water in the reservoir, if it becomes operational, could contaminate plants, animals, and fish, and threaten Tsuut'ina food and cultural food security."	Tsuut'ina Nation 2018, p. 64	--

Table IR1-3 Indigenous Group Views on the Pathways for Potential Impacts of the Project (Positive and Negative) on the Exercise of Rights

Pathways for Potential Impacts of the Project on the Exercise of Rights	Source	EIA Reference (if applicable)[15]
Piikani Nation		
Piikani Nation stated that the Project will adversely affect "Piikani activities, practices, and traditional that are integral to our culture and protected by Section 35 of the Constitution Act, 1982 ... the right to hunt, trap and harvest natural resources within our traditional territory, to our way of life, to the use, enjoyment and control of lands reserved for us and the right to a livelihood and cultural and spiritual practices from our traditional lands."	Piikani Nation Consultation 2018 (CEAR #48), p. 2	--
Piikani Nation expressed concern about "…any project contribution that exacerbates existing adverse regional cumulative effects is significant. This would apply to both tangible and intangible cultural connections to the land."	Piikani Nation Consultation 2018 (CEAR #48), p. 2	--
"While it was acknowledged that Alberta Transportation said it would permit "traditional use", it was not clear how access for Piikani Nation members would be coordinated such that they would be able to carry out ceremonies within the conservation area (Area A) or how the province would facilitate activities such as hunting within an area intended for multi-use including access by recreational users."	Schaldemose & Associates Inc. 2018 (CEAR #48), p. 76	--
Stoney Nakoda Nations		
Stoney Nakoda Nations stated "The environmental effect of the proposed project will impact the Stoney Nakoda in exercising their treaty rights and cultural practices (fishing, trapping and hunting). The proposed project will drive away or minimize the availability of bird, fish and wildlife. The impact of this will be that Stoney Nakoda members will have to travel farther to fish, trap and hunt."	Stoney Consultation Office 2016, p. 2	Volume 3A, Section 14.2.5 Volume 3A, Section 14.3.2.1
Stoney Nakoda Nations expressed concerns that "the proposed project will act as a barrier to the migration of wildlife and fish. This barrier will not facilitate the movement and access of wildlife and fish species, which will in turn, impact the availability of wildlife and fish for the exercise of treaty rights and cultural practices, in the proposed project area."	Stoney Consultation Office 2016, p. 2	Volume 3A, Section 14.2.5 Volume 3A, Section 14.3.2.1

Table IR1-3 Indigenous Group Views on the Pathways for Potential Impacts of the Project (Positive and Negative) on the Exercise of Rights

Pathways for Potential Impacts of the Project on the Exercise of Rights	Source	EIA Reference (if applicable)[15]
Stoney Nakoda Nations expressed concern about the "lack of wildlife crossings associated with the project. Similarly, there are no wildlife crossings associated with Highway 22 and Highway 8 in the general area. The inaccessibility of wildlife and fish, will impact the availability of wildlife and fish for the exercise of treaty rights and cultural practices, in the proposed project area."	Stoney Consultation Office 2016, p. 2	Volume 3A, Section 14.3.2.1 Volume 3A, Section 14.3.2.2 Volume 3A, Section 14.7 Volume 3A, Section 14.8.4
Ermineskin Cree Nation		
"The loss of areas for [traditional use], therefore, implies a loss much greater than access to resources for subsistence purposes: it represents a threat to the web of cultural norms, spiritual values, sense of self, place, and purpose, and knowledge that are invariably embedded within the physical act of land use and the connections between Indigenous peoples and their traditional territories."	WSSS 2018 (CEAR #46), p. 14	--
Ermineskin Cree Nation expressed concerns about the "potential impacts of the loss for an indefinite time of access to much of the PDA over the life of the Project on ECN TKU, consumption of wild meat, and ability to transmit their traditional way of life, culture, and knowledge to future generations."	WSSS 2018 (CEAR #46), p. 38	--
Ermineskin Cree Nation expressed concerns about "the potential impacts of the Project on wildlife migration routes and wildlife abundance and availability in the area."	WSSS 2018 (CEAR #46), p. 38	--
"The post-construction flood modelling associated with the Bragg Creek project ... shows a narrowing and deepening of the Elbow River on Tsuut'ina lands under flood conditions. It is not clear the extent or magnitude of this change over successive flood events, the effects of these changes on other VCs and on exercise of First Nations' rights and culture."	PGL 2018b (CEAR #46), p. 31	--
"Debris left after floods may result in loss of bird habitat or contamination of habitat, impacts to wetlands, which will cause further impacts to wildlife, fish and birds, as well as to the exercise of Aboriginal, Treaty, and Inherent rights."	PGL 2018b (CEAR #46), p. 4	--

Table IR1-3 Indigenous Group Views on the Pathways for Potential Impacts of the Project (Positive and Negative) on the Exercise of Rights

Pathways for Potential Impacts of the Project on the Exercise of Rights	Source	EIA Reference (if applicable)[15]
Ermineskin Cree Nation stated that if the environment is affected, then rights are also affected.	Engagement Meeting (June 26, 2018)	--
Louis Bull Tribe		
Louis Bull Tribe expressed concerns about "loss of accessible Crown lands on which to practice Aboriginal and Treaty rights."	Louis Bull Tribe 2018a (CEAR #49), p. 1	--
Louis Bull Tribe expressed concerns about "cumulative effects and increased impacts to Aboriginal and Treaty rights."	Louis Bull Tribe 2018b (CEAR #1228), p. 4	--
"Relative to this specific Project, LBT Elders, knowledge holders and land users have advised the LBT consultation office of concerns relating to past development in the Project area and the potential of this Project to add to past impacts on resources provided under their Aboriginal and Treaty rights. The regional project area is heavily developed for industrial activity such as oil and gas and forestry, as well as agricultural and rural residential development. The greatest concern of the LBT members is related to cumulative effects and incremental impacts to the health and abundance of resources provided under their Aboriginal and Treaty rights."	Solstice Environmental Management 2019, p. 2	--
Samson Cree Nation		
Samson Cree Nation stated, "...it is likely that Samson's hunting rights will be impacted during the construction and operation of the Project."	Samson Cree Nation 2018 (CEAR #52), p. 20	--
"It is highly likely that the Project will: Affect fish spawning and spawning habitat; Affect sedimentation – Sediments that are trapped within the reservoir maintain physical processes and habitats downstream; increase the likelihood of non-native and invasive species, and affects natural communities of plants and animals; retain sediments that would naturally replenish downstream ecosystems; deepen the riverbed and lower groundwater tables along the riverbed, and will have an impact on the water table that is accessible to plant roots and to human communities; contribute to the extinction of fish, the disappearance of wildlife, wetlands and forest; incur expenses in the future as dams need to be maintained."	Samson Cree Nation 2018 (CEAR #52), p. 20-21	--

Table IR1-3 Indigenous Group Views on the Pathways for Potential Impacts of the Project (Positive and Negative) on the Exercise of Rights

Pathways for Potential Impacts of the Project on the Exercise of Rights	Source	EIA Reference (if applicable)[15]
"Any impacts to fish and fish habitat either through direct mortality, changes to the ecosystem, introduction of deleterious substances or loss of habitat will have a direct consequence on the ability of Samson citizens to exercise their Section 35 Rights. Impaired ecosystem function and habitat quality can alter the productivity of fisheries. Reduced fish populations will impact the ability to harvest fish for recreational, cultural and economic fisheries. This would then translate into an impaired ability to sustain fisheries based livelihoods and engage in important traditional and cultural activities."	Samson Cree Nation 2018 (CEAR #52), p. 14	--
Métis Nation of Alberta, Region 3		
"Métis Nation of Alberta, Region 3 noted that a potential Project effect is that members will not be able to exercise Aboriginal rights when the Project is complete. If the Project is not built, the ability to practice traditional use in the area remains the same. If the Project is built, Alberta Environment and Parks would not allow individuals to enter Area B and, therefore, rights could not be exercised there."	TLRU workshop February 22, 2018	Volume 3A, Section 14.8.12
Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding views on the pathways for potential impacts of the Project on the exercise of rights has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Ktunaxa Nation traditional land and resource use or Ktunaxa Nation Section 35 rights. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Métis Nation British Columbia traditional land and resource use or Métis Nation British Columbia Section 35 rights. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

c) As noted in Volume 3A, Section 14.5, adverse residual effects on availability of traditional resources for current use, on access to traditional resources or areas for current use, or on sites or areas for current use may also have an effect on the ability of Indigenous groups to exercise Section 35 rights. Therefore, the criteria for assessing effects on Section 35 rights are as described in Table 14-2, reproduced here as Table IR1-4, for convenience.

Table IR1-4 Characterization of Residual Effects on Traditional Land and Resource Use (from Volume 3A, Section 14, Table 14-2)

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Direction	The long-term trend of the residual effect	Positive – a residual effect that changes measurable parameters in a direction beneficial to TLRU relative to existing conditions. Adverse – a residual effect that changes measurable parameters in a direction detrimental to TLRU relative to existing conditions. Neutral – no net change in measurable parameters for TLRU relative to existing conditions.
Magnitude	The amount of change in measurable parameters or the valued component (VC) relative to existing conditions	Negligible – no measurable change Low – effect will increase the effort necessary to conduct TLRU activity but will not reduce the ability to conduct TLRU activity Moderate – effect will reduce the ability to conduct TLRU activity High – effect will greatly reduce or eliminate the ability to conduct TLRU activity
Geographic Extent	The geographic area in which a residual effect occurs	PDA – residual effects are restricted to the PDA LAA – residual effects extend into the LAA RAA – residual effects interact with those of other projects in the RAA
Frequency	Identifies how often the residual effect occurs and how often during the Project or in a specific phase	Single event Multiple irregular event – occurs at no set schedule Multiple regular event – occurs at regular intervals Continuous – occurs continuously
Duration	The period of time required until the measurable parameter or the VC returns to its existing condition, or the residual effect can no longer be measured or otherwise perceived	Short-term – residual effect restricted to no more than the duration of the construction phase (3 years) Long-term – residual effect extends into dry operations (>3 years)

Table IR1-4 Characterization of Residual Effects on Traditional Land and Resource Use (from Volume 3A, Section 14, Table 14-2)

Characterization	Description	Quantitative Measure or Definition of Qualitative Categories
Reversibility	Whether a measurable parameter or the VC can return to its existing condition after the project activity ceases	Reversible – the residual effect is likely to be reversed after activity completion and reclamation Irreversible – the residual effect is unlikely to be reversed
Ecological and Socio-economic Context	Existing condition and trends in the area where residual effects occur	Undisturbed – area is relatively undisturbed or not adversely affected by industrial and agricultural activity Disturbed – area has been substantially previously disturbed by industrial and agricultural activity is still present
Timing	Periods of time where residual effects from Project activities could affect the VC	Time of day – residual effect is greater during the daytime or nighttime Seasonality – residual effect is greater in one season than another (e.g., spring/summer vs. fall/winter) Regulatory – provincial or federal restricted activity periods or timing windows (e.g., migration and breeding, spawning) related to the VC Not applicable - the residual effect of construction, dry operations or maintenance activities will have the same effect on the VC, regardless of timing

The severity of the potential effects on Section 35 rights is stated in the significance definition provided in Volume 3A, Section 14.1.6, page 14.19. The determination of significance, which defines a significant adverse effect on traditional lands and resource use, is as follows:

> ". . . a long-term loss of availability of traditional use resources or access to lands relied on for current use practices or current use sites and areas, such that current use is critically reduced or eliminated from the RAA. This may include disruption to current use activities and practices where biological resources or physical sites are not significantly affected in the RAA."

Therefore, a significant adverse effect on the availability of traditional resources, on access to traditional resources or areas, or on traditionally used sites or areas that results in the loss or critical reduction of the ability to exercise Section 35 rights in the TLRU RAA would be a significant effect on Section 35 rights. **For example, if there were** an adverse, long-term and irreversible effect on the availability of traditionally harvested fish that greatly reduces or eliminates the ability of Indigenous peoples to fish within the RAA is understood to be a significant effect on Section 35 rights to fish.

Alberta Transportation notes that the characterization of residual effects completed for the EIA and the significance definition conform to CEAA 2012 and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[16]

As noted in response to a), Alberta Transportation has been conducting Indigenous engagement prior to and throughout the EIA process, which includes providing Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, traditional land and resource use (TLRU) workshops and funding for Project-specific TUS. The characterization of the residual effects of the Project on TLRU has not changed, based on the information shared by Indigenous groups to date regarding the conditions that support the exercise of rights, the importance of the Project's location in relation to the exercise of rights (see Table IR1-1), and on the pathways for potential impacts of the Project on the exercise of rights (see Table IR1-3). No new pathways for potential effects of the Project on the exercise of rights have been identified through the information shared by Indigenous groups that have not already been considered in the EIA.

d) Analysis, discussion and conclusions regarding Project effects for each individual Indigenous group are presented in Volume 3A, Sections 14.8.1 through Section 14.8.13. The intent of those sections is to set out potential effects of the Project in detail for each Indigenous group, including those identified by Indigenous groups (see b)) and mitigation recommendations (see e)). A full assessment of residual adverse effects on current use is provided in Volume 3A, Section 14.3, page 14.60. This assessment employs the pathways identified in Volume 3A, Section 14.1.3.1 (see Table IR1-1) and the residual effects assessment criteria defined in Volume 3A, Section 14.5 (see Table IR1-2).

As noted in the responses to a) and c) above, Alberta Transportation has been conducting Indigenous engagement prior to and throughout the EIA process, which includes providing Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, TLRU workshops and funding for Project-specific TUS. The assessment conclusions did not change based on the information shared by Indigenous groups to date regarding the conditions that support the exercise of rights, the importance

[16] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

of the Project's location in relation to the exercise of rights (see Table IR1-1), and on the pathways for potential impacts of the Project on the exercise of rights (see Table IR1-3).

As stated in the responses to b) and c) above, the exercise of Section 35 rights depends on the conditions for traditional land and resource use being present; in other words, that traditional resources are available to be harvested and lands are accessible including sites, such as trails, sacred areas, campsites, and harvesting areas. The assessment of residual effects considers change in the distribution, diversity and abundance of traditionally used resources, access to those resources and areas, and changes to the sites and areas themselves. The conclusions of this assessment are summarized here for each pathway listed in Table IR1-2 (from Volume 3A, Section 14, Table 14-1).

- Residual adverse effects of the Project on the availability of traditional resources for current use are predicted to be moderate in magnitude (Volume 3A, Section 14.3.2.3). This magnitude rating for TLRU considers potential effects to traditionally harvested plant, wildlife, and fish species within the PDA and conservatively aligns with the highest rating. Specifically, the moderate rating for availability of traditional resources is based on the fact that there could be a measurable change in the abundance and distribution of wildlife in the TLRU LAA. The effect on availability of traditional resources is long-term within the LAA because of the presence of permanent Project infrastructure; however, residual effects will not pose a threat to the long-term persistence and viability of species within the TLRU RAA.
- Residual effects of the Project on current use sites or areas outside the area of permanent structures will be moderate during construction and low for dry operations (Volume 3A, Section 14.3.4.3). Following construction, current use sites or areas would remain largely unchanged outside the PDA. The adverse effects of the Project on current use sites will be restricted to the PDA. Residual effects on current use sites or areas within the area of permanent structures as well as sites located within the areas of temporary physical disturbance will be of high magnitude because these sites will be permanently removed. The high magnitude rating reflects the potential effects to cultural, spiritual, ceremonial, and ancestral sites as well as archaeological sites located within the area of disturbance.
- Residual effects of the Project on access to traditional resources, current use sites or locations assessed in Volume 3A, Section 14 are high in magnitude because of the loss of access to areas of the PDA (Volume 3A, Section 14.3.3.3). The effects of the Project on trails and travelways may alter the ability to access the PDA and, therefore, these effects will extend to the TLRU LAA.

As noted above in response to part c), a significant adverse effect on TLRU is one that results in the long-term loss of availability of traditional use resources or access to lands relied on for current use practices or current use sites and areas, such that current use is critically reduced or eliminated from the TLRU RAA.

Accordingly, the residual effects of the Project on TLRU will not result in the long-term loss of availability of traditional use resources or access to lands relied on for current use practices or current use sites and areas, such that current use is critically reduced or eliminated from the RAA. Therefore, the effects on the exercise of Section 35 rights within the PDA are predicted to be low in magnitude and negligible on the exercise of Section 35 rights beyond the PDA. The conclusions on significance determination also reflect the fact that the Project is predominately situated on private land that has been used for ranching and agriculture since the late 1800s and, therefore, the ability to conduct TLRU activities has already been substantially constrained (see Section 14.4).

Alberta Transportation notes that the definition of significance used in the EIA conforms to CEAA 2012 and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[17]

Additionally, through the engagement process that included feedback from First Nations, a draft principles of future land use for the Project has been developed (see the response to IR 2-01, Appendix IR1-2). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities, including the exercise of treaty rights such as hunting will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR1-2. As such, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise Section 35 rights.

[17] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

e) In assessing residual environmental effects, recommendations and measures for mitigation suggested by Indigenous groups were considered. For instance, Volume 3A, Section 14, Table 14-6 lists mitigation measures suggested by Indigenous groups aimed at avoiding or reducing potential effects on the availability of traditional resources. Recommendations for mitigation measures from Indigenous groups to address potential effects on access to traditional resources and on traditional use sites and areas are included in Volume 3A, Section 14.3.3.2 and Volume 3A, Section 14.3.4.2, respectively. The residual effects assessment also considers mitigation measures proposed for the different biophysical and socio-economic VCs that support the conditions for traditional land and resource use and, therefore, for the exercise of Section 35 rights.

The information in Table IR1-5 summarizes the mitigation measures identified by each Indigenous group listed in the EIS Guidelines, incorporating those recommendations previously reported in Table 14-6 of the EIA and those subsequently shared with Alberta Transportation that specifically address potential impacts to rights by the contributing Indigenous group. It is, therefore, not the complete list of recommendations for all concerns or interests raised by Indigenous groups described in the EIA. Alberta Transportation is in the process of responding to the proposed mitigation measures.

Table IR1-5 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts to Rights and Accommodation Measures

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[18]
Kainai First Nation		
"Negotiate access with Alberta Transportation and Kainai to Areas B and C during dry operations."	JFK Law Corporation 2018a (CEAR #47), p. 2	--
"The Proponent should attempt to ensure that Areas B and C of the PDA are accessible to Kainai and its members for Traditional Use ("TU") purposes, subject to safety considerations related to flooding. If Area C will contain grazing options that are privately managed, the Proponent should work with private managers to ensure maximum access for Kainai hunters to the area."	JFK Law Corporation 2018a (CEAR #47), p. 3-4	--
"The Proponent should work with Kainai to design an access management plan for areas B and C. Such a plan could support Kainai's access to the area for hunting and other traditional purposes."	JFK Law Corporation 2018a (CEAR #47), p. 4	--
"Given the potential negative effects of the Project on Kainai TU and traditional knowledge, and the traditional way of life and culture of its people, the Proponent should discuss ways to support programming within the community to strengthen the transmission of Kainai's way of life and culture to future generations."	JFK Law Corporation 2018a (CEAR #47), p. 4	--
"Should the Project be approved and Conservation Area A be made accessible, BT/K [Blood Tribe/Kainai] hunters made it clear that they intend to use the area to exercise their rights to subsistence hunt, particularly for elk, moose, white tailed deer, mule deer and grouse."	Kainai First Nation 2018 (CEAR #47), p. 61	--
Siksika Nation		
"The animals and fish living in and around the Elbow River near the location of the proposed SR1 project rely heavily on the sloughs that exist just off the Elbow River for a distance above and below the project site. These sloughs must be protected to prevent undue impacts to all living creatures."	KCO & SCO 2017, p. 5	Volume 3A, Section 14.2.4

[18] -- indicates the referenced information was received following the submission of the EIA.

Table IR1-5 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts to Rights and Accommodation Measures

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[18]
"The Blackfoot Nations requested what impact the construction of the diversion structure will have on the fish habitat and population, during and after the construction."	Engagement Meeting (September 15, 2016)	Volume 3A, Section 14.3.2.1
Siksika Nation requested that there be opportunity to hunt and harvest in the dry reservoir that is intended to become restricted land (Area B) since it will become Crown land.	Engagement Meeting (April 26, 2018)	--
"The Blackfoot Nations requested information on how the design of the reservoir is being undertaken to insure in times of flood that the mortality of fish in the reservoir is limited, when the reservoir is drained."	Engagement Meeting (September 15, 2016)	--
Tsuut'ina Nation		
"Fish and fish habitat: mitigation for salvaging; if there is fish rescue will the Nation be included; alteration and destruction of fish habitat; Treaty right to fish must be protected."	Engagement Meeting (August 8, 2018)	--
Tsuut'ina Nation recommended "monitoring during construction for wildlife."	Engagement Meeting (September 21, 2018)	--
"Tsuut'ina Nation recommended that a work plan be established to consider ... construction monitoring, and long-term monitoring (for the life of the Project)."	Engagement Meeting (May 14-15, 2018;	--
"Tsuut'ina Nation requested training for its members and recommended pre- and post-flood monitoring for the life of the Project. Tsuut'ina Nation recommended that the Project implement an Aboriginal Inclusion Model."	Engagement Meeting (May 14-15, 2018)	--
"Tsuut'ina Nation noted that Indigenous Inclusion planning and monitoring should be included as part of the Project and recommended that Tsuut'ina Nation formulate a Compliance Verification Model to mitigation and monitor the region over the life-cycle of the Project. This would include, but not be limited to, monitoring for air quality, emissions, medicinal plants, wildlife corridors, and habitat, and would work towards a sustainable future for Tsuut'ina Nation."	Engagement Meeting (May 14-15, 2018)	--

Table IR1-5 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts to Rights and Accommodation Measures

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[18]
Piikani Nation		
Piikani Nation recommends "ongoing mitigation after the finalization of the SR-1 Project to ensure no further derogation of Treaty and Aboriginal rights... in the designated SR-1 Project Area."	Piikani Nation n.d., p. 23	Volume 3A, Section 14.3.4.2
"Piikani Nation community representatives should be consulted about plans to provide fish habitat replacement or offset, including the DFO consultation and authorization process."	Piikani Nation 2018, p. 4	--
"Alberta Transportation should also assess the potential for methyl mercury to be produced within the flooded reservoir and transported to the Elbow River during water release; assesses the potential for methylmercury produced in the flooded reservoir to be bioaccumulated by fish to levels that might not otherwise occur (and that might exceed human consumption guidelines in the Elbow River)."	Piikani Nation 2018, p. 5	--
"An assessment of how changes to terrain and soil conditions might impact Indigenous land use resulting from implications for terrestrial resources (e.g., vegetation and wildlife) should be completed in collaboration with, and informed by, the Piikani Nation."	Piikani Nation 2018, p. 5	--
"Piikani Nation requests that Alberta Transportation discusses how issues of concern to Piikani Nation, their Treaty and Aboriginal Rights and traditional knowledge has been used in Project planning and site selection."	Piikani Nation 2018, p. 9	--
"Piikani requests direct consultation to address the project specific and cumulative loss of lands and natural resources and resulting loss of meaningful opportunities for the exercise of Piikani's treaty and aboriginal rights and interests."	Piikani Nation 2018, p. 11	--
"Piikani Nation requests that Alberta Transportation develops with the Piikani Nation a monitoring plan to assess Project effects on hunting, trapping, fishing, plant harvesting and cultural use following Project development."	Schaldemose & Associates 2018, p. 90	--

Table IR1-5 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts to Rights and Accommodation Measures

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[18]
Ermineskin Cree Nation		
"Prior to construction of the Project, the Proponent should invite ECN land users to hunt in the PDA, particularly for big game such as moose, elk, and deer."	WSSS 2018 (CEAR #46), p. 39	--
"The Proponent should attempt to ensure that Areas B and C of the PDA are accessible to ECN and its members for TU purposes, subject to safety considerations related to flooding. If Area C will contain grazing options that are privately managed, the Proponent should work with private managers to ensure maximum access for ECN hunters to the area."	WSSS 2018 (CEAR #46), p. 39	--
"The Proponent should work with ECN to design an access management plan for Areas B and C. Such a plan could support ECN access to the area for hunting and other traditional purposes."	WSSS 2018 (CEAR #46), p. 39	--
"Given the potential negative effects of the Project on ECN TU and TK, and the traditional way of life and culture of its people, the Proponent should discuss ways to support programming within the community to strengthen the transmission of ECN way of life and culture to future generations."	WSSS 2018 (CEAR #46), p. 40	--
Louis Bull Tribe		
"LBT encourages the Government of Alberta, upon converting the project area to Crown lands, to designate the area for Indigenous use only. Treaty 6 & 7 First Nations have been restricted from occupied Crown lands for a century and are in need of an area within this eco-system to practice rights and carry out traditional uses upon the land. This presents a unique opportunity for the Government of Alberta to reconcile loss of use and access to lands that has occurred during early settlement and development within Treaty 7".	Louis Bull Tribe 2018b (CEAR #1228), p. 9	--
Louis Bull Tribe requests "be[ing] included in post flood activities to ensure practice of rights can be continued following a flood event."	Louis Bull Tribe 2018b (CEAR #1228), p. 9	

Table IR1-5 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts to Rights and Accommodation Measures

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[18]
"The TLU report (Louis Bull Tribe 2018) provided specific construction recommendations for clearing and reclamation to enhance regrowth of important plants, reduce water and soil pollution by use of non-chemical weed control and retain wildlife habitat by retention of riparian species where possible. It also reiterated a desire to allow harvest of medicinal and culturally important plants prior to construction. To minimize disturbance to wildlife, it recommended various standard construction precautions including restriction of construction activity during times of higher animal activity (e.g., dusk and dawn) or during provincial Restricted Activity Periods (RAPs), and reducing the project footprint. Limiting use of chemicals harmful to these species (including pesticides and herbicides) was also recommended. It also identified the opportunity to restore access to the area by allowing Indigenous use of the future reservoir area, and to enhance traditionally and culturally important resources in the area through the co-management activities noted above (involvement in reclamation planning and monitoring, involvement in site management decisions). This latter mitigation represents the most meaningful action Project proponents could implement relative to Aboriginal and Treaty Rights, since it would acknowledge the right for LBT and other Indigenous communities to play a role in managing the resources to which they have access, under Constitutional and Treaty terms."	Solstice Environmental Management 2019, p. 3	--
"Within this Project, LBT and other Indigenous communities consulted during the EIS have noted the opportunity to improve access to lands in this area, and restore some of these cultural and experiential benefits derived from land use. Specifically, LBT and other communities have identified the opportunity to provide access to the reservoir lands for Indigenous use, involve community members in the reclamation of disturbed areas (including efforts to plant traditionally or culturally important plants), and engage community members in longterm monitoring effort. Each of these mitigation measures offers opportunity to derive cultural benefits from land use, but also the direct involvement in land management decisions, thus exercising governance through co-management of the area."	Solstice Environmental Management 2019, p. 2	--

Table IR1-5 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts to Rights and Accommodation Measures

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[18]
Samson Cree Nation		
"Samson's evaluation of any industrial development within its traditional territory also considers the potential impacts on important intangible factors such as changes to cultural transmission of knowledge and to the spirituality of the land. The evaluation of how the Project effects to aquatic ecology, wildlife and biodiversity can affect cultural and spiritual factors was not provided in the EIS. Samson requests further dialogue with Alberta to determine how Alberta can mitigate and offset these effects."	Samson Cree Nation 2018 (CEAR #52), p. 21	--
"Alberta will have to develop an offsetting plan following DFO's review of the EIS. Opportunity exists for the offsetting plan to include improvements to westslope cutthroat trout habitat in the upper Elbow River or its tributaries. Based on Samson's interest in this species, it is requested that Alberta engage with Samson to identify elements of the offsetting plan that can benefit westslope cutthroat trout habitat in other portions of Samson's traditional territory."	Samson Cree Nation 2018 (CEAR #52), p. 22	--
"To reduce fish mortality, Samson requests that Alberta commit to maintaining grading in the reservoir such that low-lying areas will be present where stranded fish can be salvaged and safely returned to the river. Samson also requests that Alberta engage with Samson so that community members can support or participate in fish salvage activities should they be required."	Samson Cree Nation 2018 (CEAR #52), p. 22	--
"Samson also requests that Alberta engage with Samson so that community members can support or participate in pre-construction wildlife surveys."	Samson Cree Nation 2018 (CEAR #52), p. 22	--
Métis Nation of Alberta, Region 3		
"Métis Nation of Alberta, Region 3 recommended that Alberta Environment and Parks and Métis Nation of Alberta, Region 3 try to negotiate an agreement regarding access to Area B."	TLRU workshop February 22, 2018	--

Table IR1-5 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts to Rights and Accommodation Measures

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[18]
"Continuing consultation [with] the Métis Nation of Alberta, Region 3, including monitoring and similar programs, would help to ensure that Métis voices are heard as the project moves forward. In addition, supporting the work of the Métis Nation of Alberta, Region 3 in continuing to build their Traditional Use Study data for the project area would help to ensure that all impacts are identified so they can be mitigated."	MNAR3 2019, p. 2	--
"Metis Nation of Alberta, Region 3 would also recommend that Indigenous monitors are present thought out all phases of the Project, especially during construction."	MNAR3 2019, p. 2	--
Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding views on mitigation measures that specifically address potential impacts to rights and accommodation measures has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Ktunaxa Nation traditional land and resource use or Ktunaxa Nation Section 35 rights. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Métis Nation British Columbia traditional land and resource use or Métis Nation British Columbia Section 35 rights. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

The resource-specific measures described in the EIA for all valued components will mitigate effects to the resources relied upon for hunting, trapping and fishing. Alberta Transportation's proposed measures to mitigate potential effects on the conditions that support the exercise of Section 35 rights further include:

- maintaining access to identified current use sites (located outside of the designated construction and project site limits) during construction and operations, including for hunting and fishing and advising Indigenous groups on post-construction land access;
- notifying Indigenous groups regarding Project activities and schedules, including provision of Project maps and design components, and discussing key traditional harvesting periods;
- avoidance of substantial interference with public navigation of Elbow River through the following design practices:
  - as part of construction, a permanent portage will be developed around the in-stream water intake components,
  - signs directing traffic to detours will be installed during construction of road realignments and modifications, and
  - signs will be installed along the existing Elbow River channel. Multiple signs will be placed upstream and downstream of the water intake components on both banks of Elbow River warning users on Elbow River that they are approaching instream water intake components and direct them to a portage location.

Since the submission of the EIA, the additional information gathered through Alberta Transportation's ongoing engagement process and referenced throughout this response has been reviewed in the context of the EIA. The exercise of Section 35 rights by Indigenous groups throughout their traditional territories, as indicated by the outcomes of the engagement process to date, are consistent with the activities that were assessed by Alberta Transportation in the EIA and for which Alberta Transportation's mitigation measures were developed.

Engagement efforts to date will continue relationships be strengthened with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate.

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Tsuut'ina Nation. May 30, 2016. Letter to Canadian Environmental Assessment Agency Re: Springbank Off-Stream Reservoir Project.

Tsuut'ina Nation. January 10, 2018. *Tsuut'ina Traditional Land Use Report for the Proposed Springbank Off-Stream Reservoir Project.* Prepared by Tsuut'ina Nation and Trailmark Systems. Prepared for Alberta Transportation.

Tsuut'ina Nation. February 28, 2019. Letter to Alberta Transportation Re: Canadian Environmental Assessment Agency Information Requests for the Springbank Off-Stream Reservoir Project (the Project) – Request for Tsuut'ina Input.

WSSS (Willow Springs Strategic Solutions). 2018. Ermineskin Cree Nation Traditional Knowledge and Use Study: Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #46) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123630?culture=en-CA

CULTURAL EXPERIENCE

Question IR2-02: Cultural Experience - Experiential Values and Importance of Water

Sources:

EIS Guidelines Part 1, Section 4.3.2

EIS Guidelines Part 2, Sections 5; 6.1.9; 6.3.4

EIS Volume 3A, Section 14; 14.1.3.3

EIS Volume 3B, Section 14; 14.5

Ermineskin Cree Nation – Springbank Off-Stream Reservoir TKU Report (CEAR #46)

Blood Tribe/Kainai – Traditional Knowledge, Land, and Resource Use (CEAR # 47)

Context and Rationale:

The EIS Guidelines direct the proponent to assess changes to the environment that affect cultural value or importance associated with traditional uses or areas affected by the Project as well as any change to, or loss or destruction of, cultural value and heritage. The EIS Guidelines require the proponent to assess the effects of changes to the environment on physical and cultural heritage of Indigenous peoples, and to integrate input from Indigenous engagement and Indigenous knowledge into this assessment (methodology and analysis).

The EIS focuses on potential effects to physical resources associated with land use and culture. The EIS describes perceived limitations to the assessment of, what the proponent labels, "experiential values" noting that potential effects and appropriate mitigation measures can only be meaningfully evaluated by individuals and communities experiencing these values in their cultural context, and that these effects can not be characterized from a Western science perspective. Effective engagement with Indigenous groups as required by the EIS Guidelines is not limited to what can be characterized from a Western science perspective; it should facilitate the evaluation of effects and mitigation measures by the Indigenous groups (individuals and communities) experiencing values in their cultural context, and the subsequent description of these evaluations in the EIS.

Numerous Indigenous groups have identified concerns with potential effects of the Project on cultural experience of the landscape, and associated effects to use and wellbeing. Indigenous groups shared their perspectives through engagement, site visits, and/or TLRU studies. Concerns

raised by Indigenous groups include, but are not limited to: quality of use experience and associated changes in cultural practices; changes to spiritual and cultural connections with the affected environment; effects resulting from management of water and treatment of non-human species; the effects of the Project on individual and community identity resulting from changes to the environment, culture, land use, and intergenerational transfer of knowledge; and impacts to the cultural and spiritual significance of water, as the Project will interfere with the natural flows of water.

Understanding Project changes to the environment that affect cultural value or importance associated with traditional uses or areas and on Indigenous peoples is integral to understanding the potential adverse environmental effects of the Project as per CEAA 2012 section 5(1)(c), the potential impacts to Aboriginal and treaty rights, and opportunities to mitigate or accommodate those impacts.

<u>Information Requests:</u>

a) Present an assessment of potential changes of the Project to cultural experience/ experiential values, including:

- **A description of cultural experience/experiential values identified by each Indigenous group and potential changes to the environment that interact with these.**
- **Mitigation measures identified by Indigenous groups (individuals and communities) who may experience these effects, and any commitment made to these mitigation measures.**
- **A clear explanation of the methodology for integrating Indigenous knowledge into this assessment.**

b) Describe each Indigenous group's views on the potential impacts of the Project specifically in relation to the cultural and spiritual importance of water.

c) Describe mitigation and accommodation measures regarding the cultural and spiritual importance of water proposed by Indigenous groups and any commitments by the proponent to these mitigation or accommodation measures.

Response IR2-02

a.1) Alberta Transportation recognizes that information regarding traditional land and resource use, including cultural experience/experiential values, are best identified by Indigenous groups themselves. To that end, Alberta Transportation commenced consultation with Treaty 7 First Nations in August 2014 and with the additional Indigenous groups identified in the Canadian Environmental Assessment Agency (CEA Agency) Guidelines for the Project in October 2016 concerning the Project, including the context and setting for traditional uses in the Project area. Alberta Transportation has been conducting Indigenous engagement prior to and throughout the assessment process, which includes sharing of Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, and funding for Project-specific Traditional Use Studies (TUS). Alberta Transportation's response to this information request relies on both the material filed in the EIA and supplemental information received since the filing of the EIA. However, Alberta Transportation understands that the provision of this information is at the priority and discretion of the participating Indigenous group.

Refer to Alberta Transportation's response to IR2-01 for a summary of:

- The engagement activities facilitated by Alberta Transportation to inform Project planning.
- Any feedback and material from Indigenous groups received prior to and following the filing of the EIA to inform Project planning.

Refer to the response to IR 2-01, Appendix IR1-1 for an updated summary of the engagement process to February 28, 2019 for additional Indigenous groups that CEAA requested to include.

As noted in Volume 3A, Section 14.1.7, Alberta Transportation is aware that current use of lands and resources for traditional purposes by Indigenous groups may occur within the PDA by permission of the landowner, and potential Project effects on such current use have been assessed in Volume 3A, Section 14.3. The assessment of potential Project effects on traditional land and resource use (TLRU) includes analysis, discussion and conclusions of the Project's residual effects on cultural experience/experiential values, as identified through engagement with each Indigenous group. The description of cultural experience/experiential values and the potential pathways of effects are described in Volume 3A, Sections 14.2.4 to 14.2.6 and 14.3.2 to 14.3.4. For clarity, in addition to identifying "use of cultural and spiritual sites and areas" as a component of current use, the EIA acknowledges that "Current use also accounts for the conditions of use, seasonal cycles, intergenerational knowledge transmission, landforms and named places, and other

factors that provide context, setting or understanding for the practice of current use activities," (Volume 3A, Section 14.1.3.2). [19]

Volume 3A, Sections 14.8.1 to 14.8.13 provides TLRU assessment conclusions for each Indigenous group for construction and dry operations and includes consideration of effects on cultural experience/experiential values, where these have been identified by each Indigenous group prior to submission of the EIA.

Table IR2-1 summarizes the cultural experience/experiential values, as identified by each of the Indigenous groups listed in the EIS Guidelines, that were either previously included in the EIA or subsequently shared with Alberta Transportation.

Potential changes to the environment that may interact with these values include:

- change in suspended sediment concentrations (Volume 3A and 3B, Section 7)
- construction and operation could result in alteration of wildlife movement patterns (daily or seasonal) because of habitat change and sensory disturbance (Volume 3A and 3B, Section 11)
- vehicle and equipment movement and ground disturbance can result in accidental mortality of small, less mobile species or individuals (e.g., amphibians) (Volume 3A and 3B, Section 11)
- animal-vehicle collisions (Volume 3A and 3B, Section 11)
- surface or subsurface disturbance due to Project activities, including vegetation removal, topsoil removal, borrow source activities, excavation, construction, roadwork and covering of sites (Volume 3A and 3B, Section 13)
- vegetation clearing associated with construction could result in a loss of habitat for species of traditional importance, including plants and animals relied on for traditional hunting, trapping, or plant harvesting (Volume 3A and 3B, Section 14)
- sensory disturbance has the potential to affect the availability of habitat for species of traditional importance (Volume 3A and 3B, Section 14)
- loss or alteration of habitat resulting from disturbance to watercourses (Volume 3A and 3B, Section 14)

[19] The Project's understanding of cultural experience/experiential values was informed by several federal project assessment reports, including the Panel Report for the Kemess North Copper-Gold Mine Project (2007), Report of the Federal Review Panel for the Taseko Mines Limited Prosperity Gold-Copper Mine (2010), Mackenzie Valley Environmental Impact Review Board (MVEIRB), Report and Reasons for Decision on Deze Energy Corporation Ltd. Taltson Hydroelectric Expansion Project (2010), MVEIRB Report and Reasons for Decision on Consolidated Goldwin Ventures Inc. Mineral Exploration Program (2007), and MVEIRB Report and Reasons for Decision on UR Energy Inc. Screech Lake Uranium Exploration Project (2007).

- potential effects on wildlife health that could affect the availability of traditional resources (Volume 3A and 3B, Section 14)
- indirect effects on the experience of Indigenous peoples that adversely alter the perceived value of availability of traditional resources for current use (Volume 3A and 3B, Section 14)
- loss, alteration or restriction of access to current lands and resources used for traditional purposes (Volume 3A and 3B, Section 14)
- indirect effects on the experience of Indigenous peoples that adversely alter the perceived value of access to traditional resources for current use or current use sites and areas (Volume 3A and 3B, Section 14)
- loss or alteration of identified current use sites or areas (Volume 3A and 3B, Section 14)
- indirect effects on the experience of Indigenous peoples that adversely alter the perceived value of current use sites or areas (Volume 3A and 3B, Section 14)

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
Kainai First Nation			
"At a meeting with representatives from Kainai First Nation, Piikani Nation, and Siksika Nation regarding the Project, participants highlighted that the destruction of cultural sites or locations can lead to the loss of spiritual connection to ancestors, and can occur regardless of the presence of a physical site. Participants also noted that many cultural and spiritual sites are no longer accessible and cannot be identified, but are still significant. As a result, mitigation measures that only address the physical component of a site do not mitigate effects on spiritual aspects of these locations and cultural practice."	Engagement Meeting (September 15, 2016)	Volume 3A, Section 14.7	Refer to potential effect pathways identified above table.
"Important to the Blackfoot way of life, or system, are specific places. Some of these places are very specific, such as Chief Mountain or Okotoks, or Writing on Stone, but there are other less famous places where sacred rock art can be found, or where there were buffalo jumps, wintering camps, and traditional trails, including the traditional trail along the foothills to the Bow River."	Blackfoot Gallery Committee 2013, p. 71	--	Place names identified by Kainai First Nation are located outside the RAA. No environmental effect pathways identified that have the potential to interact with the identified place names.

[20] -- indicates the referenced information was received following the submission of the EIA.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
"The traditional territory of the Blackfoot Nation was given to our people by our Creator. We respected and protected this traditional territory with our minds and our hearts and we depended on it for what it encompasses for our survival. Everything that we ever needed for our way of life and survival existed in our traditional territory, such as herbs for medicine, roots, rivers, game animals, berries, vegetables, the buffalo."	Kainai First Nation 2018 (CEAR #47), p. 9.	--	Refer to potential effect pathways identified above table.
"These historical connections are manifested in physical characteristics about the PDA including the presence of trails, tipi rings, artifacts and sites of ongoing cultural, spiritual and archaeological importance. This historical context shapes the current use of these sites for spiritual purposes. Through its methodological choice to limit the definition of current use to the last 25 years (Alberta Transportation, 2018, 14.17), the Proponent deliberately eliminates consideration of the long history of the Blackfoot people in general and the Blood Tribe/Káínai in particular within the PDA and LAA, a history that has not been wiped out by several generations of private landownership, but is rather taught through oral history, traditions and experienced through access arrangements with the private landowners in the area."	Kainai First Nation 2018 (CEAR #47), p. 96	--	Refer to potential effect pathways identified above table.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
Siksika Nation			
"A Consultation Officer for the Siksika Nation spoke about the importance of the Blackfoot history at the SR-1 site within their traditional territory and echoed other Blackfoot Nations regarding the need to protect artifacts that exist at the site, such as old camp sites, teepee rings and other rock markers. [He] mentioned that many of these sites have been lost in the past and it is important that the Blackfoot history needs to be preserved for future generations."	Engagement Meeting (September 15, 2016)	Volume 3A, Section 14.7	Refer to potential effect pathways identified above table.
"At a meeting with representatives from Kainai First Nation, Piikani Nation, and Siksika Nation regarding the Project, participants highlighted that the destruction of cultural sites or locations can lead to the loss of spiritual connection to ancestors, and can occur regardless of the presence of a physical site. Participants also noted that many cultural and spiritual sites are no longer accessible and cannot be identified, but are still significant. As a result, mitigation measures that only address the physical component of a site do not mitigate effects on spiritual aspects of these locations and cultural practice."	Engagement Meeting (September 15, 2016)	Volume 3A, Section 14.7	Refer to potential effect pathways identified above table.
Tsuut'ina Nation			
"Our culture relies on everything that grows. Without it, our people become weak and have to go further away from home to collect their medicines, smudges, and everything that takes care of our culture. All this stuff that we are immune to that grows around us, we may not find it in other parts of the land."	Tsuut'ina Nation 2018, p. 84	--	Refer to potential effect pathways identified above table.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
On being connected to terrain: "Our oral narratives tell us rock cairns were used to mark a burial sites or significant events, our practice was to put the deceased in trees and use rocks to mark the site, we as Tsuut'ina are intuitively connected to the land and to events that occurred within a specific site. The rock cairns found on site are burial cairns, bones will not be found nor will there be evidence of clothing or other materials."	Tsuut'ina Nation 2018, p. 85	--	Refer to potential effect pathways identified above table.
Piikani Nation			
"At a meeting with representatives from Kainai First Nation, Piikani Nation, and Siksika Nation regarding the Project, participants highlighted that the destruction of cultural sites or locations can lead to the loss of spiritual connection to ancestors, and can occur regardless of the presence of a physical site. Participants also noted that many cultural and spiritual sites are no longer accessible and cannot be identified, but are still significant. As a result, mitigation measures that only address the physical component of a site do not mitigate effects on spiritual aspects of these locations and cultural practice".	Engagement Meeting (September 15, 2016)	Volume 3A, Section 14.7	Refer to potential effect pathways identified above table.
"The onsite visits to location of the Off-stream Storage Reservoir earth filled dam and diversion canal if constructed would, desecrate and destroy all traces of the original people's existence in this case the *Siksik'aitsitapii*. The accepted practice is removal rather than preserving the last traces of the original history undisturbed and intact."	Piikani Nation n.d., p. 20	Volume 3A, Section 14.7	Refer to potential effect pathways identified above table.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
"One of the most important things is that we are on Piikani traditional territory. Springbank is on Piikani traditional territory. Our people have been here for thousands of years. I want to create a meaningful relationship with proponents. There are ties to the land I really want to emphasize. I want you to understand my culture." On the importance of historical sites: "There is a deeper meaning than just what is on the surface." "… how do we best communicate to the stakeholders the value or connection, history, culture, that's in the land?"	Engagement Meeting (September 18-19, 2018)	--	Refer to potential effect pathways identified above table.
Stoney Nakoda Nations			
On the cultural importance of wildlife crossings: "[Stoney Nakoda Nations member] said that is why they are adamant about the wildlife crossings. The memories from Elders go back generations and this is the import[ant] part of cultural studies. The Elders tell stories of animals in the area. Wildlife cameras don't pick up everything and science is lacking where cultural studies can prove to be effective."	Engagement Meeting (June 4, 2018)	Volume 3A, Section 14.7	Refer to potential effect pathways identified above table.
Ermineskin Cree Nation			
"The loss of areas for TU, therefore, implies a loss much greater than access to resources for subsistence purposes: it represents a threat to the web of cultural norms, spiritual values, sense of self, place, and purpose, and knowledge that are invariably embedded within the physical act of land use and the connections between Indigenous peoples and their traditional territories."	WSSS 2018 (CEAR #46), p. 14	--	Refer to potential effect pathways identified above table.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
"TK refers to the body of knowledge developed by an Indigenous community over generations about their traditional way of life and culture, its transmission to future generations is essential to the cultural survival of Indigenous communities. The transmission of TK, however, relies upon sociocultural spaces and physical places in which TK can be transmitted, such as sites for traditional use, the intergenerational bonds of families, and community spaces for socialization and gathering. This dependence upon sociocultural spaces and physical places similarly means that TK can be undermined by a variety of factors both dramatic and subtle, from the changes in value systems provoked by socio-economic shifts to delayed transmission mechanisms and reduced time spent on the land."	WSSS 2018 (CEAR #46), p. 15	--	Refer to potential effect pathways identified above table.
"I go out onto the land for my livelihood, and when I am on the land I feel more peaceful. Whenever I have a crisis in my personal life I go out to the bush to get away and to feel better. I need to be in nature when I am working through my own healing process as a residential school survivor. The land is a special place for me, and I have a strong connection to it because it helps me deal with a lot of stressful periods of my life. My life is supported by the land."	WSSS 2018 (CEAR #46), p. 12	--	Refer to potential effect pathways identified above table.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
"It is important for us to tell our children stories about the animals that we hunt because animals are considered very sacred. I teach my kids the names of animals and herbs in Cree too. The transmission of knowledge to the next generation is important because it is a way to make sure our culture stays alive. I see language, the harvesting of resources from the land, and my connection to the land as being very important to keeping my culture alive."	WSSS 2018 (CEAR #46), p. 13	--	Refer to potential effect pathways identified above table.
On nature and spirituality: "We are a part of nature. We talk about our brothers and sisters, which would be, which would be all the animals: moose, deer, all those animals. They are literally our brothers and sisters…when you clear-cut an area, those trees they are a part of nature. But also, in our beliefs, in our teachings, it's like a community. We have disrupted our community, because that tree has a spirit. And so does our, so do our animals. We are not above any animal in this world. We are not above the deer, the moose. They are here for us humans: to feed us, to clothe us, to utilize the parts of the animal, like the buffalo a long time ago, to utilize their bones for spoons, their hides for the outfits an blankets…when we go to the spirit world or when the Creator comes calling for us, they go to the spirit world, like all these other animals. They have spirits, too."	WSSS 2018 (CEAR #46), p. 13	--	Refer to potential effect pathways identified above table.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
Louis Bull Tribe			
"Opportunities for pursuit of cultural practices that are important to the cultural identity of community members, or to transfer knowledge of the land, have input into the management of those lands, or even quietly enjoy the land itself must be viewed in the context of past, cumulative effect on land access."	Solstice Environmental Management 2019, p. 2	--	Refer to potential effect pathways identified above table.
"While we can appreciate the desire to establish a link directly between the Project site, and the social, cultural and spiritual benefits of active practice of traditional land use, this does not consider the cumulative impact of incremental loss of access and ability to practice traditional land use since land settlement or more recent development of these lands. LBT members could derive such benefits from the Project area, if access were permitted, given the presence of traditionally and culturally used resources at this site."	Solstice Environmental Management 2019, p. 3	--	Refer to potential effect pathways identified above table.
Metis Nation of Alberta Region 3			
"... many members of The Métis Nation of Alberta, Region 3 have and continue to use this area for recreational and cultural purposes. The nature of the project means the landscape will be altered, potentially disrupting the connections of these members to the lands and waters of the area."	MNAR3 2019, p. 1	--	Refer to potential effect pathways identified above table.

Table IR2-1 Indigenous Group Views on Cultural Experience/Experiential Values

Indigenous Group Views on Cultural Experience/Experiential Values and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[20]	Potential Changes to the Environment that may Interact Cultural Experience/ Experiential Values
Foothills Ojibway			
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding cultural experience and experiential values has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.			
Ktunaxa Nation			
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Ktunaxa Nation traditional land and resource use or Ktunaxa Nation Section 35 rights. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.			
Métis Nation British Columbia			
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Consequently, Alberta Transportation has not undertaken an assessment of potential effects on Métis Nation British Columbia traditional land and resource use or Métis Nation British Columbia Section 35 rights. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.			

a.2) In assessing residual environmental effects, recommendations and measures for mitigation regarding cultural experience/experiential values suggested by Indigenous groups were considered. The residual effects assessment also considers mitigation measures proposed for the different VCs that support the conditions for traditional land and resource use, which includes consideration of cultural experience/experiential values.

The information in Table IR2-2 summarizes the mitigation measures identified by each of the Indigenous groups regarding potential effects to cultural experience/experiential values.

Table IR2-2 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts on Cultural Experience/Experiential Values

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[21]
Kainai First Nation		
"Develop avoidance or redesign measures to ensure that BT/K cultural properties, ceremonial sites and identified traditional camping areas along North-South Trail and associated material features (tip rings, stone circles, campfires, artifacts, etc.) remain intact and the areas remain accessible to BT/K."	Kainai First Nation 2018 (CEAR #47), p. 97	--
"Develop avoidance or preservation measures to ensure the integrity of the portions of the traditional trails (i.e., NWMP Trail and North-South Trail) or conduct additional archaeological field visits in the company of BT/K Elders to further and more comprehensively identify sites of interest for preservation."	Kainai First Nation 2018 (CEAR #47), p. 97	--
"Develop additional avoidance or redesign to ensure the integrity of BT/K traditional areas and cultural properties in the Val Vista Creek area so that the integrity of the site and material evidence of BT/K ancestral use is preserved and the site itself remain accessible."	Kainai First Nation 2018 (CEAR #47), p. 97	--
"Hold at least two Mitigation Measures workshops with BT/K where Elders, hunters and BT/K consultation personnel have the opportunity to discuss proposed mitigation with Alberta Transportation and develop mutually agreeable mitigation measures for the effects identified in this report and for any additional effects to sites of interest that have yet to be discovered."	Kainai First Nation 2018 (CEAR #47), p. 97	--
"Negotiate access to Areas B and C during dry operations for traditional gathering, hunting, ceremonial use and for traditional gathering, hunting, ceremonial use and for traditional cultural and heritage camps involving both Elders and youth."	Kainai First Nation 2018 (CEAR #47), p. 97	--
Piikani Nation		
"… the EIA did not make any specific commitments to protect/avoid TLUR [sic] and cultural sites, or any specific commitments to mitigate or accommodate tangible and intangible cultural impacts to Blackfoot culture, traditions and practices that will occur as a result of the Project."	Piikani Nation Consultation 2018 (CEAR #48), p. 10	--

[21] -- indicates the referenced information was received following the submission of the EIA.

Table IR2-2 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts on Cultural Experience/Experiential Values

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[21]
Tsuut'ina Nation		
"If the Project were to proceed, the Tsuut'ina would have to carry out a ceremony for the spirit of water."	Tsuut'ina Nation 2018, p. 86	--
"Do not disturb the extensive cultural and burial sites on the ridge located on the east side of the proposed dam."	Tsuut'ina Nation 2018, p. 90	--
"Do not disturb the extensive archaeological sites, particularly along the outflow creek of the proposed dam as well as along the Elbow River where the diversion channel is proposed to cross."	Tsuut'ina Nation 2018, p. 90	--
Stoney Nakoda Nations		
"[Stoney Nakoda Nations member] would like to mark the importance of the cultural assessment and put the vegetation and animal studies into one cultural assessment as these areas relate to certain stories and wildlife behaviors".	Engagement Meeting June 4, 2018	--
Ermineskin Cree Nation		
"Given the potential negative effects of the Project on ECN TU and TK, and the traditional way of life and culture of its people, the Proponent should discuss ways to support programming within the community to strengthen the transmission of ECN way of life and culture to future generations."	WSSS 2018 (CEAR #46), p. 13	--
"ECN recommends that the Proponent attempt to ensure that Areas B and C of the PDA are accessible to ECN members for TU purposes, subject to safety considerations related to flooding. If Area C will contain grazing options that are privately managed, the Proponent should work with private managers to ensure maximum access for ECN hunters."	WSSS 2018 (CEAR #46), p. 38	--
"The Proponent should work with ECN to design an access management plan for Areas B and C. Such a plan could support ECN access to the area for hunting and other traditional purposes."	WSSS 2018 (CEAR #46), p. 38	--

Table IR2-2 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts on Cultural Experience/Experiential Values

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[21]
Louis Bull Tribe		
"LBT encourages the Government of Alberta, upon converting the project area to Crown lands, to designate the area for Indigenous use only. Treaty 6 & 7 First Nations have been restricted from occupied Crown lands for a century and are in need of an area within this eco-system to practice rights and carry out traditional uses upon the land. This presents a unique opportunity for the Government of Alberta to reconcile loss of use and access to lands that has occurred during early settlement and development within Treaty 7".	Louis Bull Tribe 2018b (CEAR #1228), p. 9	--
"...LBT and other Indigenous communities consulted during the EIS have noted the opportunity to improve access to lands in this area, and restore some of these cultural and experiential benefits derived from land use. Specifically, LBT and other communities have identified the opportunity to provide access to the reservoir lands for Indigenous use, involve community members in the reclamation of disturbed areas (including efforts to plant traditionally or culturally important plants), and engage community members in long-term monitoring effort. Each of these mitigation measures offers opportunity to derive cultural benefits from land use, but also the direct involvement in land management decisions, thus exercising governance through co-management of the area."	Solstice Environmental Management 2019, p. 2	--
Samson Cree Nation		
"Samson's evaluation of any industrial development within its traditional territory also considers the potential impacts on important intangible factors such as changes to cultural transmission of knowledge and to the spirituality of the land. The evaluation of how the Project effects to aquatic ecology can affect cultural and spiritual factors was not provided in the EIS. Therefore, Samson requests further dialogue with Alberta to determine how Alberta can mitigate and offset these effects."	Samson Cree Nation 2018 (CEAR #52), p. 12	--

Table IR2-2 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts on Cultural Experience/Experiential Values

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[21]
Métis Nation of Alberta Region 3		
"Continuing consultation the Métis Nation of Alberta, Region 3, including monitoring and similar programs, would help to ensure that Métis voices are heard as the project moves forward. In addition, supporting the work of the Métis Nation of Alberta, Region 3 in continuing to build their Traditional Use Study data for the project area would help to ensure that all impacts are identified so they can be mitigated. Métis Nation of Alberta, Region 3 would also recommend that Indigenous monitors are present thought out all phases of the Project, especially during construction."	MNAR3 2019, p. 2	--
Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding cultural experience and experiential values has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

In addition to the resource-specific measures described in Volume 4, Appendix C to mitigate effects to the resources relied upon for TLRU, Alberta Transportation's commitments to mitigate potential effects on cultural experience/experiential values, include:

- notifying indigenous groups regarding Project activities and schedules, including provision of project maps and design components, and discuss key traditional harvesting periods
- maintaining access to identified current use sites (located outside of the designated construction and project site limits) during construction and operations, including for hunting and fishing and Alberta Transportation would advise Indigenous groups on post-construction access management
- Alberta Transportation is committed to Indigenous participation in the Project, including training, employment, and contracting opportunities.
- providing opportunities for harvesting or relocating medicinal and ceremonial plants prior to construction
- disturbance of identified burial sites located within the designated construction site boundary will be avoided to the extent possible and practical. Alberta Transportation would participate in discussions with Alberta Culture and Tourism (ACT) and Indigenous groups regarding possible mitigation options for burial sites located within the designated construction site boundary and particularly within the footprint of structures that will be disturbed by construction
- at the request of Indigenous groups, Alberta Transportation will participate in ceremonies (if invited) prior to the start of construction, including making offerings.

Through the engagement process that included feedback from First Nations, a draft principles of future land use for the Project has been developed (See the response to IR2-01, Appendix IR1-2). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities, including the exercise of treaty rights such as hunting will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR1-2. As such, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise Section 35 rights.

a.3) The approach to preparing the EIA and integrating Indigenous and community knowledge, like the approach to the engagement program for the Project, is iterative. The initial selection of VCs, spatial and temporal boundaries, and the collection of baseline information for each VC reflect available Indigenous and community knowledge gained from a combination of sources, which include literature review, field programs and Alberta Transportation's preliminary engagement efforts to gather this information, as described in a.1) of this response. The initial selection of VCs, spatial and temporal boundaries, and the collection of baseline information for each VC conform to *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[22]

As Indigenous and community knowledge or issues and concerns were made available to Alberta Transportation, the initial selection of VCs, spatial and temporal boundaries, and the collection of baseline information for each VC were reviewed to confirm whether Indigenous and community knowledge or issues and concerns were included or represented within the EIA. For the assessment of TLRU, current use is defined in Volume 3A, Section 14.1.4.2, referring to the present time to within the last 25 years, which considers cultural values, cultural transmission, and intergenerational knowledge transfer, such that:

- "Current use must be understood in the context of past and future use. Past TLRU information and information based on community members' living memory situates contemporary activities and long-term observations of existing conditions. Future use pertains to the opportunities for generations of descendants of the Indigenous groups to continue to practice cultural traditions in a modern form. Framing traditional activities and practices in this way serves to acknowledge that TLRU—while having continuity with historic practices, traditions, or customs—is dynamic and changing. Conceived of in this way, current use situates long-standing cultural practices in a contemporary context" (Volume 3A, Section 14.1.3.2).

To date, no new VCs or pathways for potential effects of the Project on TLRU have been identified through the information shared by Indigenous groups given the conservative assumption that TLRU activities occur near the Project even if these activities are not specifically identified by participating Indigenous groups.

[22] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

Consideration of Indigenous and community knowledge includes evaluating whether Alberta Transportation's planned mitigation would effectively manage the identified potential interactions, or whether additional or refined mitigation is warranted. As described in response to IR2-01e), in assessing residual environmental effects, recommendations and measures for mitigation suggested by Indigenous groups are considered. For instance, Volume 3A, Section 14, Table 14-6 lists mitigation measures suggested by Indigenous groups aimed at avoiding or reducing potential effects on availability of traditional resources. Recommendations for mitigation measures from Indigenous groups to address potential effects on access to traditional resources and on traditional use sites and areas are included in Volume 3A, Section 14.3.3.2 and Volume 3A, Section 14.3.4.2, respectively. The residual effects assessment also considers mitigation measures proposed for the different VCs that support the conditions for traditional land and resource use and, therefore, cultural experience/experiential values.

Since the filing of the EIA, mitigation measures identified by Indigenous groups who may experience effects on cultural experience/experiential values, and any commitment made to these mitigation measures, are described in the response to a.2).

Supplemental information brought forward from potentially affected Indigenous groups will be reviewed in the context of the EIA to evaluate whether Alberta Transportation's planned mitigation would effectively manage the identified potential interactions, or whether additional or refined mitigation is warranted.

Refer to Alberta Transportation's response to IR2-06 for additional information regarding the consideration of Indigenous and community knowledge within the EIA.

b) Alberta Transportation recognizes that information regarding traditional land and resource use, including the cultural and spiritual importance of water, are best identified by Indigenous groups themselves. Refer to a.1) of this response for a summary of Alberta Transportation's engagement efforts to date.

Alberta Transportation is aware that current use of lands and resources for traditional purposes by Indigenous groups may occur within the PDA by permission of the landowner, and potential Project effects on such current use have been assessed in Volume 3A, Section 14.3. The assessment of potential Project effects on TLRU includes analysis, discussion and conclusions of the Project's residual effects on cultural experience/experiential values, including the cultural and spiritual importance of water, as identified through engagement with each Indigenous group. The description of cultural experience/experiential values, including the cultural and spiritual importance of water, and the potential pathways of effects are described in Volume 3A, Sections 14.2.2 to 14.2.4 and 14.3.2 to 14.3.4. Potential Project effects on, specifically, the availability of water for traditional use are assessed in Volume 3A, Section 14.3.2.3, with reference to both the surface water quality assessment (Volume 3A, Section 7) and the groundwater assessment (Volume 3A, Section 5), and it is

concluded that the Project would not have effects on the use of groundwater or drinking water by Tsuut'ina Nation or to waters that flow through the Stoney Nakoda Nations traditional lands that may be used for sustenance. The TLRU assessment does acknowledge that appropriate conditions for current use entail more than the availability of traditional resources and that Indigenous groups may choose not to pursue TLRU activities near the Project for a variety of personal, practical, aesthetic, and spiritual reasons, including lack of existing access.

Volume 3A, Sections 14.8.1 to 14.8.13 provides TLRU assessment conclusions for each Indigenous group for construction and dry operations and includes consideration of effects on the cultural and spiritual importance of water, when identified by each Indigenous group prior to submission of the EIA.

Table IR2-3 summarizes each Indigenous group's views on the potential impacts of the Project specifically in relation to the cultural and spiritual importance of water, as identified by each of the Indigenous groups listed in the EIS Guidelines, that are either included in the EIA or subsequently shared with Alberta Transportation.

Table IR2-3 Indigenous Group Views on Cultural and Spiritual Importance of Water and the Pathways for Potential Impacts of the Project

Indigenous Group Views on Cultural and Spiritual Importance of Water and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[23]
Kainai First Nation		
On the importance of clean water: "Kids fishing has stopped. The weeds are taking over. The river barely moves. A Calgary Sun reporter says the Bow River is polluted. Industry, trees being cut down affects the Bow River. I learned from my grandparents what is there. The weeds, pollution make me sad. 75% of the water comes here from the mountains. Now I have to buy bottled water. We are not trying to stop the project. Let's work side by side. Listen to us. There is disease, people are dying now."	Engagement Meeting (January 18, 2017)	Volume 3A, Section 6.1.2
Water as lifeblood: "The Elders explained the importance of the river to the local landscape, to the wildlife and to the people who hunt the game while standing along the Elbow River. The River is like the blood in the veins of the earth and provides sustenance to the game. All the elk, deer and bear in the area come to the river to drink and use the river to travel. The river is therefore a critical wildlife corridor and its banks are habitat, lifeway and hunting ground".	Kainai First Nation 2018 (CEAR #47), p. 65	Volume 3A, Section 14.1.2
Tsuut'ina Nation		
"… water recurs as a pivotal theme and setting in multiple Tsuut'ina stories and myths… Water factors pivotally in two of the Tsuut'ina's most fundamental stories, both the Tsuut'ina creation myth, and the Nation's origin story".	Tsuut'ina Nation 2018, p. 38	--
"[Water is] called like us, the way I understood it in Tsuut'ina. That's the blood of Mother Earth, and you don't fool around with it. If you fool around you're going to destroy Mother Earth. That's the way I understood it in Tsuut'ina. And I always thought about it, it is the blood of Mother Earth".	Tsuut'ina Nation 2018, p. 39	--
"Tsuut'ina members report that altering the movement of water can affect its power, flow and spirit, and express concern that the Project will change the relationship between the Tsuut'ina and the water in their territory. They assert that when there are too many disturbances to the earth, the ground is less able to absorb water".	Tsuut'ina Nation 2018, p. 63	--

[23] -- indicates the referenced information was received following the submission of the EIA.

Table IR2-3 Indigenous Group Views on Cultural and Spiritual Importance of Water and the Pathways for Potential Impacts of the Project

Indigenous Group Views on Cultural and Spiritual Importance of Water and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[23]
" Water has a natural movement, it must flow. When you keep water stagnant it does not circulate naturally and it impacts its role to bring life to other living things, such as the plants and the animals and others. The spirit of the water is very powerful, and to divert or alter her force and flow requires that profound respect be demonstrated."	Tsuut'ina Nation 2018, p. 86	--
"The Elbow River is an important source of drinking water for our community as it is connected to the groundwater on our reserve. We regularly see groundwater bubbling up on our reserve lands, including around the Redwood Meadows area as it flows back from the Elbow River. This aspect of the Project is particularly concerning to us as water is a sacred element given to us by the Creator. It sustains life and is considered medicine and pivotal to our ceremonies and as Tsuut'ina we have an obligation to protect it".	Tsuut'ina Nation 2019, p. 1	--
Piikani Nation		
"The Siksikaitsitapii [Blackfoot] maintain an unfettered and continuous relationship to the life surrounding the moraine and riparian landscape of the rivers, our source of spiritual sustenance, the core of our physical needs in this life we live: in this case, where water is life."	Piikani Nation n.d., p. 15	Volume 3A, Section 14.3.2.1
Stoney Nakoda Nations		
"The waters flowing through the traditional lands of the SNN have sustained the SNN people since time immemorial. When Treaty 7 was signed, the SNN neither surrendered their Aboriginal title to water within their traditional territory nor surrendered any other interests pursuant to an associated Aboriginal right".	Stoney Consultation Office 2016	Volume 3A, Section 14.2.4 and Section 14.3.2.1
"[Stoney Nakoda Nations] used to listen to the bison moving. There are pockets of underground streams, and they listened to the vibrations. The oral history told us about the water table and flood plain". On the importance of water: "Sound, water it is soothing. They [animals] need to get to the soothing, healing area. Our people used to follow the animals. Now the animals can get lost. We need a plan for that".	Engagement Meeting (May 4, 2016)	Volume 3A, Section 14.3.2.3

Table IR2-3 Indigenous Group Views on Cultural and Spiritual Importance of Water and the Pathways for Potential Impacts of the Project

Indigenous Group Views on Cultural and Spiritual Importance of Water and the Pathways for Potential Impacts of the Project	Source	EIA Reference (if applicable)[23]
Foothills Ojibway First Nation		
"There will be power here. Each time you move, reroute water, takes away natural power that is supposed to be going through those areas. Flood was a natural disaster, for us to learn that we don't disrupt the culture. We all come from the source of the natural power. What if we start destroying water? It's going to retaliate back".	Engagement Meeting (May 07, 2018)	--
"Water is very important, has that power. The power created us. In Treaties we say water flows. The spirit of the water is very important, we're part of it".	Engagement Meeting (May 07, 2018)	--
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

c) As described in a.2) of this response, in assessing residual environmental effects, recommendations and measures for mitigation regarding the cultural and spiritual importance of water suggested by Indigenous groups (presented in Table IR2-2) are considered.

Alberta Transportation recognizes that information regarding traditional land and resource use, including the cultural and spiritual importance of water, are best identified by Indigenous groups themselves. The information in Table IR2-4 summarizes the mitigation measures identified by each of the Indigenous groups regarding potential effects to the cultural and spiritual importance of water, incorporating recommendations previously reported in Table 14-6 of the EIA and those subsequently shared with Alberta Transportation.

The cultural experience/experiential values and the cultural and spiritual importance of water as indicated by the outcomes of the engagement program to date, are consistent with the activities that were assessed by Alberta Transportation in the EIA and for which Alberta Transportation's suite of mitigation measures were developed.

Alberta Transportation has determined that the significance conclusions of the EIA remain unchanged.

Alberta Transportation emphasizes that the EIA conforms to CEAA 2012 and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[24]

[24] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

Table IR2-4 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts on Cultural and Spiritual Importance of Water

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[25]
Kainai First Nation		
On the construction of a dam near the outlet works: "Further mitigation measures to reduce the significance of the effect would be required such as avoidance and/or redesign of the Project to preserve the integrity of the site".	Kainai First Nation 2018 (CEAR #47), p. 96	--
"Provide additional rationale to BT/K Elders over the choice of location for flood mitigation measures and discuss and clarify alternatives such as McLean Creek".	Kainai First Nation 2018 (CEAR #47), p. 97	--
Tsuut'ina Nation		
"Water is our life, this is the future of our children and grandchildren. Tsuut'ina is strongly against the Project proceeding. If it does, the Tsuut'ina Nation would require, at a minimum, that: • Tsuut'ina monitors are on-site during all pre-construction and construction phases. • For every tree removed, the same type of tree should be replanted by First Nations close to where it was removed. • There is support for Tsuut'ina to develop their own community-based water monitoring program".	Tsuut'ina Nation 2018, p. 90	
Piikani Nation		
"Piikani Nation requests that Alberta Transportation: i. confirms that it has considered potential traditional groundwater use in any culturally sensitive areas; ii. If it identifies or is informed through the TLRU study about traditionally used, culturally sensitive areas within the Project impact area, develops mitigative measures to protect these sensitive areas including the contribution of natural groundwater flow to such areas; and iii. Consults with community members to inform and participate in monitoring activities related to culturally sensitive areas and considers incorporating the role groundwater plays in sustaining identified areas for monitoring and mitigation".	Schaldemose & Associates 2018 (CEAR #48), p. 24	--

[25] -- indicates the referenced information was received following the submission of the EIA.

Table IR2-4 Indigenous Group Views on Mitigation Measures that Specifically Address Potential Impacts on Cultural and Spiritual Importance of Water

Recommendations and Mitigation Requests	Source	EIA Reference (if applicable)[25]
Samson Cree Nation		
"Samson's evaluation of any industrial development within its traditional territory also considers the potential impacts on important intangible factors such as changes to cultural transmission of knowledge and to the spirituality of the land. The evaluation of how the Project effects to aquatic ecology can affect cultural and spiritual factors was not provided in the EIS. Therefore, Samson requests further dialogue with Alberta to determine how Alberta can mitigate and offset these effects".	Samson Cree Nation 2018 (CEAR #52), p. 12	--
Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding the cultural and spiritual importance of water has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

In addition to the resource-specific measures described in Volume 4, Appendix C to mitigate effects to the resources relied upon for TLRU. Alberta Transportation's commitments to mitigate potential effects on the cultural and spiritual importance of water, include:

- notifying Indigenous groups regarding Project activities and schedules, including provision of Project maps and design components, and discuss key traditional harvesting periods
- maintaining access to identified current use sites (located outside of the designated construction and project site limits) during construction and operations, including for hunting and fishing and Alberta Transportation would advise Indigenous groups on post-construction access management
- Alberta Transportation is committed to Indigenous participation in the Project including training, employment and contracting opportunities
- At the request of Indigenous groups, Alberta Transportation will participate in ceremonies (if invited) prior to the start of construction, including making offerings.

Alberta anticipates building upon engagement efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate.

REFERENCES

Blackfoot Gallery Committee. 2013. *The Story of the Blackfoot People Niitsitapiisinni*. Buffalo and Richmond Hill: Firefly Books.

Kainai First Nation. June 2018. Blood Tribe/Káínai Traditional Knowledge, Land, and Resource Use Study. Springbank Off-Stream Reservoir Project. Prepared for the Blood Tribe/Káínai. Prepared by Dermot O'Connor, Oak Road Concepts Inc. Available on the Canadian Environmental Assessment Registry (CEAR #47) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123631?culture=en-CA

Louis Bull Tribe. 2018b. Traditional Land Use Assessment for the Proposed Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #1228) at: https://www.ceaa-acee.gc.ca/050/documents/p80123/126242E.pdf..

MNAR3 (Métis Nation of Alberta Region 3). March 13, 2019. Letter to Alberta Transportation Re: Canadian Environmental Assessment Agency Information Request for the Springbank Off-Stream Reservoir Project, Metis Nation of Alberta Region 3 Input.

Piikani Nation Consultation. June 15, 2018. Letter to Alberta Transportation and Canadian Environmental Assessment Agency RE: Piikani Nation Statement of Concern for Alberta Transportation Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #48) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123693?culture=en-CA

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Samson Cree Nation. June 25, 2018. Springbank Off-Stream Reservoir Project Written Submission. Endorsed and Approved by Samson Cree Nation Consultation Committee. Available on the Canadian Environmental Assessment Registry (CEAR #52) at: https://www.ceaa-acee.gc.ca/050/documents/p80123/123697E.pdf.

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Solstice Environmental Management. February 28, 2019. Letter to Alberta Transportation Re: CEAA IR Response, Springbank Reservoir Project. Stoney Consultation Office. June 8, 2016. Springbank Off-Stream Reservoir Project (the "Project") Letter of Comment of the Stoney Nakoda Nations (the "SNN").

Tsuut'ina Nation. February 28, 2019. Letter to Alberta Transportation Re: Canadian Environmental Assessment Agency Information Requests for the Springbank Off-Stream Reservoir Project (the Project) – Request for Tsuut'ina Input.

Tsuut'ina Nation. January 10, 2018. Traditional Land Use Report for the Proposed Springbank Off-Stream Reservoir Project. Prepared by Tsuut'ina Nation and Trailmark Systems. Prepared for Alberta Transportation.

WSSS (Willow Springs Strategic Solutions). 2018. Ermineskin Cree Nation Traditional Knowledge and Use Study: Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #46) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123630?culture=en-CA

REGIONAL CONTEXT FOR TRADITIONAL USE AND EXERCISE OF RIGHTS

Question IR2-03: Regional Context for Traditional Use and Exercise of Rights

Sources:

EIS Guidelines Part 2 Section 5; 6.1.9; 6.3.4

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Technical Advisory Group – June 11 and 12, 2018 meetings

Context and Rationale:

The EIS Guidelines require the proponent to assess the effects of changes to the environment on Indigenous peoples, to consider the regional context for traditional use, and to include the views expressed by Indigenous groups on suggested mitigation measures and their effectiveness.

The EIS considers the biophysical context within the RAA for each VC but does not consider Project effects or mitigation interacting with land use management or planning that also affect traditional use.

Land use documents, guidelines, and policies exist in Alberta for various areas. In the project area, the South Saskatchewan Regional Plan (SSRP) is a provincial government plan that recognizes the significance of the South Saskatchewan Region to Indigenous peoples and identifies objectives that serve to protect current use, physical and cultural heritage, sites of importance, and the continued exercise of Aboriginal and treaty rights.

Indigenous groups also identified the Indigenous Wisdom Advisory Panel as a resource the proponent. Alberta Environment and Parks as the ultimate Project operator, could engage this Panel to better incorporate Indigenous perspectives and knowledge into Project planning and monitoring. Advice from such a panel could contribute to the effectiveness of mitigation. Engaging with this Panel could contribute to understanding the potential effects of the Project on Indigenous peoples.

Additional information regarding the Project relative to the direction and outcomes of the SSRP and/or other land use plans and guidelines is necessary to contribute to understanding Project effects and mitigation.

Information Request:

a) Describe how the Project will align with the existing land use plans, guidelines or policies, including the South Saskatchewan Regional Plan. Describe how the existing land use plans, guidelines or policies were integrated into the planning of the Project, assessment of effects of changes to the environment on Indigenous peoples, impacts to Aboriginal and treaty rights, and mitigation measures committed to by the proponent.

b) Describe if and how the Indigenous Wisdom Advisory Panel, or a similar entity, would be engaged and how this engagement could contribute to the assessment of effects and development of mitigation, monitoring, and follow-up programs for the Project. If the Indigenous Wisdom Advisory Panel was not / will not be engaged, describe why.

Response IR2-03

a) The South Saskatchewan Regional Plan 2014-2024 (SSRP) (Alberta Government amended 2018) is the primary land use plan that guides development in the region where the Project is located.

The Project is designed for flood mitigation in Elbow River and to help reduce the effects of future extreme floods on City of Calgary infrastructure, watercourses and people in the City of Calgary and downstream communities. In this respect, the Project is in alignment with the following implementation plan strategies of the SSRP. The Project directly applies to five of the implementation plan strategies for the SSRP. These strategies relate to enhanced watershed management (4.4), efficient and resilient water supply (4.10, 4.12), and building sustainable communities (8.23, 8.24).

The SSRP was developed to provide guidance and set goals at a broad scale rather than at a project-specific scale. As a result, the SSRP did not guide the assessment of effects of changes to the environment on Indigenous groups, the assessment of impacts to Aboriginal and treaty rights, or associated mitigation measures. Instead, these aspects of the EIA are guided primarily by the Terms of Reference for the Project, the environmental impact statement (EIS) Guidelines, and information gained through the ongoing Indigenous engagement process for the Project.

However, the SSRP states that the "Government of Alberta has committed to consult with First Nations before making land-use decisions that may adversely impact 'treaty rights' and well as 'traditional uses'."

The Project's aligns to this commitment through Alberta Transportation's ongoing engagement process, commencing consultation with Treaty 7 First Nations in August 2014 and with the additional Indigenous groups identified in the Canadian Environmental Assessment Agency (CEA Agency) Guidelines for the Project in October 2016 concerning the Project and the nature and extent of the exercise of Section 35 rights in relation to the

Project, including the context and setting for traditional uses in the Project area. Alberta Transportation has been conducting Indigenous engagement prior to and throughout the EIA process, which includes sharing of Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, and funding for Project-specific Traditional Use Studies (TUS). Refer to the response to IR2-01 for a summary of:

- the engagement activities facilitated by Alberta Transportation to inform Project planning.
- any feedback and material from Indigenous groups received prior to and following the filing of the EIA to inform Project planning.

Refer to CEAA IR2-01, Appendix IR1-1 for an updated summary of the engagement process to February 28, 2019 for additional Indigenous groups that the CEA Agency requested to include.

As noted in response to IR2-01e), through the engagement process that included feedback from First Nations, a draft principles of future land use for the Project has been developed (see the response to IR2-01, Appendix IR1-2). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities, including the exercise of treaty rights such as hunting will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR1-2. Therefore, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise Section 35 rights.

In addition to the resource-specific measures described in the EIA that will mitigate effects to the resources relied upon for hunting, trapping and fishing, Alberta Transportation's proposed measures to mitigate potential effects on the conditions that support the exercise of Section 35 rights further include:

- maintaining access to identified current use sites (located outside the designated construction and PDA) during construction and operations, including for hunting and fishing and Alberta Transportation will advise Indigenous groups on post-construction land access management.
- notifying Indigenous groups regarding Project activities and schedules, including provision of Project maps and design components, and discuss key traditional harvesting periods.

- avoidance of substantial interference with public navigation of Elbow River through the following design practices:
  - as part of construction, a permanent portage will be developed around the in-stream water intake components.
  - signs directing traffic to detours will be installed during construction of road realignments and modifications.
  - signs will be installed along the existing Elbow River channel. Multiple signs will be placed upstream and downstream of the water intake components on both banks of Elbow River. These signs will warn users on Elbow River that they are approaching instream water intake components and direct them to a portage location.

Discussions with Indigenous groups regarding mitigation measures are ongoing.

b) The Indigenous Wisdom Advisory Panel (IWAP) or a similar entity has not been engaged on the Project. Alberta Transportation will likely not engage the IWAP on the Project given the that the IWAP's Mandate and Roles Document (2017) states that:

> "The [IWAP] will not be expected to provide advice on the merits of government policy and plans outside of those influencing the Chief Scientist's mandate; political, economic or regulatory design or decision making; or consultations with stakeholders or the public."[26]

Alberta Transportation has implemented an engagement process appropriate for the nature and scale of the Project and will continue to rely on information brought forward by potentially affected Indigenous groups for the purposes of Project planning.

REFERENCES

Alberta Government. 2018. South Saskatchewan Regional Plan 2014-2024. Amended May 2018.

Calgary Regional Partnership. 2014. Calgary Metropolitan Plan.

[26] Government of Alberta. 2019. Indigenous Wisdom Advisory Panel. Website: http://environmentalmonitoring.alberta.ca/about/environmental-monitoring-and-science/indigenous-wisdom-advisory-panel/. Accessed January 2019.

ECONOMIC OPPORTUNITIES

Question IR2-04: Economic Opportunities

Sources:

EIS Guidelines Part 1, Section 2.1

EIS Guidelines Part 2, Section 5

EIS Volume 3A, Section 17.1.2

EIS Volume 3B, Section 17

Context and Rationale:

The EIS Guidelines require the proponent to describe predicted environmental, economic, and social costs and benefits of the Project and indicate that the EIS will document, from the proponent's perspective, any potential economic impacts or benefits to each Indigenous group that may arise as a result of the Project, and include the perspectives of the Indigenous groups.

The EIS describes the provincial economy, regional labour force, and regional economy. It presents key concerns raised during public and Indigenous engagement and the broad influence of these concerns on the assessment of employment and economy VCs. Limited detail is presented on how the specific concerns and interests of Indigenous peoples will be addressed. For example, Indigenous requests for employment opportunities through construction contracts are noted in the EIS, although no discussion of available opportunities is presented.

Technical Advisory Group participants described the historic and current systemic exclusion of Indigenous peoples from socio-economic benefits of development and expressed the need for pro-active and creative solutions including the purposeful inclusion of Indigenous groups in the economic benefits from projects such as this Project. Indigenous groups identified that project risks are borne by Indigenous groups, such as potential loss of traditional land use, resources, and access, and potential impacts to rights, whereas, benefits are often not present or indirect.

Detail on the economic costs and benefits of the Project to each Indigenous group would contribute to a more meaningful understanding of Project impacts to Indigenous groups.

Information Requests:

a) Describe the economic opportunities associated with the Project that may be of interest to Indigenous groups, and any commitments to facilitating these opportunities.

b) Discuss if and how the distribution of economic benefits of the Project to Indigenous groups could contribute to accommodation, including Indigenous groups' views on this matter.

Response IR2-04

a) Alberta Transportation is committed to Indigenous economic participation in the Project including through training, employment, and contracting opportunities. Alberta Transportation is preparing an Indigenous Participation Plan for the Project. The goal of this Plan is to create training, employment, and contracting opportunities with interested Indigenous groups potentially affected by the Project. Alberta Transportation aims to obtain Indigenous comment and feedback on the draft Plan, the final draft of which will identify how that feedback was incorporated.

   To date, Alberta Transportation has approved $1.21 million in funding to Indigenous groups in pre-planning work for the Project, which has included funding through Traditional Use Studies (TUS) agreements with provisions for training and capacity development, where requested, and capacity funding agreements.

b) As discussed in Volume 3A, Section 17, Table 17-2, there are positive effects associated with employment and expenditures related to this project. Alberta Transportation notes that the duty to consult and, where appropriate, accommodate is the responsibility of the Crown contemplating conduct that might adversely impact potential or established Section 35 Aboriginal or Treaty rights. As part of the Crown's assessment of the duty to consult and, where appropriate, accommodate, economic opportunities described in Alberta Transportation's Indigenous Participation Plan will be taken into account.

   Indigenous groups have not advised Alberta Transportation as to whether distribution of economic benefits could, from their perspective, contribute to accommodation.

FEDERAL LANDS

Question IR2-05: Federal Lands

Sources

EIS Guidelines Part 1, Section 3.3.2

EIS Guidelines Part 2, Section 6.3.5

EIS Volume 3A, Section 18

EIS Volume 3B, Section 18

EIS Volume 3C, Section 1

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Context and Rationale:

The EIS Guidelines indicate the EIS must describe changes that may be caused to the environment on federal lands and note that selection of VCs is to include consideration of the effects to federal lands. The federal lands considered in the EIS are reserve lands, specifically the Tsuut'ina Nation Reserve 145 and the Stoney Nakoda Nations Reserves 142, 143 and 144.

Description of Federal Lands

The assessment of potential effects to federal lands in the EIS does not include a description of the environment on federal lands. Existing conditions are described for each VC for the LAA, which may or may not cover portions of the reserve lands considered. To assess effects to federal lands, the state of the environment on federal lands must be understood. The description of federal lands, i.e. reserve lands, should include the current state of the environment from the perspective of the First Nations whose reserve lands will be affected.

Assessment of Valued Components

The EIS extrapolated the conclusions of the assessments for each of the VCs considered in the EIS to predict the significance of effects to reserve lands. The study areas used to inform these conclusions often consider only portions of the Tsuut'ina reserve lands and very rarely overlap with the Stoney Nakoda Nations reserve lands. Further, the EIS does not describe the residual effects of the Project to each VC on reserve lands.

Further assessment is required to understand the effects of all the changes to the environment on federal lands.

Information Requests:

a) Consider federal lands as a VC and provide an assessment of effects to federal lands that takes into account the entirety of each of the Tsuut'ina Nation Reserve 145 and the Stoney Nakoda Nations Reserves 142, 143and 144 and any other potentially affected federal lands. Include:

- **A description of the current state of the environment on federal lands, prepared with the First Nation whose reserve(s) is being considered. This description may be a narrative of the state of the environment on reserve that focuses on components of the environment of concern or importance to these First Nations.**
- **A description the residual effects of the Project on federal lands.**
- **A description of the cumulative effects of the Project on federal lands.**
- **Mitigation specific to effects on federal lands.**
- **A discussion of any areas of uncertainty, including those identified by Indigenous groups, and proposed monitoring and follow-up programs.**

Response IR2-05

a) As described in the Context and Rationale, an assessment of potential effects on federal lands is provided n Volume 3A, Section 18 and Volume 3B, Section 18 on a VC-by-VC basis. The approach taken to assess potential effects on federal lands is appropriate and in accordance with the environmental impact statement (EIS) Guidelines (CEA Agency 2016) (Part 1, Section. 3.3.2, p. 5; and, Part 2, Section 6.3.5, p. 34). Supporting this VC-by-VC approach is that the EIS Guidelines do not require that federal lands be a VC; instead, the Guideline states (Section 6.3.5) that "...additional VCs are to be selected based on...effects to federal lands". The information provided in the EIA follows this direction.

For Tsuut'ina Nation Reserve 145 and the Stoney Nakoda Nations Reserves 142, 143 and 144 (which were mapped and assessed as one contiguous area), a discussion is provided for all VCs in which any portion of Reserve lands falls within a VC-associated LAA or RAA. For example, the assessments of potential effects on traditional land and resource use (Volume 3A, Section 14; Volume 3B, Section 14; Volume 3C, Sections 1.2.9 and 1.3.10) considers effects from a land user perspective. Volume 3A, Section 18 and Volume 3B, Section 18 aggregates information from the VC-specific sections (i.e., Volume 3A, Sections 3 to 18; and, Volume 3B, Sections 3 to 18) for effects on Tsuut'ina Nation Reserve 145 and Stoney Nakoda Nations Reserves 142, 143 and 144.

The challenge with considering a Reserve as a stand-alone VC is that a Reserve reflects an administrative boundary with a complex suite of natural and human features and land use that collectively is described by many VCs. Consequently, there are no available means to assess federal lands as a single VC. What is available, as is done in the EIA, is the assessment of individual VCs that are demonstrably potentially affected by the Project (i.e., the potential Project effect within the LAA or RAA for each VC, which may extend onto federal lands).

The Context and Rationale implies that, if a federal land is in any way potentially effected, that the entire federal land (in this case, a Reserve) must be represented in the assessment, including a baseline description and assessment of potential effects. Instead, the EIA follows established practice by examining potential direct Project-effects on VCs within an LAA and, if measurable adverse effects are identified, further examines potential cumulative effects within an RAA for that VC (Volume 3C, Section 1). In all cases, the spatial area of the LAA and RAA, and the shape of that boundary, reflects the nature of the originating effect and its maximum likely area. That area and shape reflect the unique characteristics of the cause-effect relationship between the Project and the receiving environment (natural and human).

Figures 18-1 and 18-2 (Volume 3A) show all the VC LAAs and RAAs. They follow the above approach. Some LAAs and RAAs overlap portions of the reserves and some do not. Therefore, the assessment of potential effects on federal lands has been completed to the extent necessary for the relevant VCs in the federal lands.

Because the LAA and RAA are VC-specific, it is not necessary to complete a full baseline of the entire Reserve lands, as is implied in the Context and Rationale. Supporting baseline data (i.e., field surveys and desktop information) is used within the LAA or RAA for each of the VCs to support the assessment on the federal lands.

Regarding the Context and Rationale statement, "The description of federal lands, i.e. reserve lands, should include the current state of the environment from the perspective of the First Nations whose reserve lands will be affected", the EIA considered and incorporated information on Tsuut'ina Nation and Stoney Nakoda Nations perspectives, including traditional knowledge. A description of the Indigenous engagement program is provided in Volume 1, Section 7. As stated in Volume 2, Section 6.1, traditional knowledge shared with Alberta Transportation was used to inform an understanding of existing conditions.

Finally, in each of the VC sections in Volume 3A, Section 18 and Volume 3B, Section 18, there are cross references provided to other sections of the EIS for mitigation and follow-up and monitoring, if such are needed.

REFERENCES

CEA Agency. 2016. Guidelines for the Preparation of an Environmental Impact Statement, Springbank Off-Stream Reservoir Project, August 10, 2016

INDIGENOUS AND COMMUNITY KNOWLEDGE

Question IR2-06: Indigenous and Community Knowledge

Sources:

EIS Guidelines Part 1, Section 4.3.2

EIS Guidelines Part 2, Section 3.3.3

EIS Volume 3A, Section 14

EIS Volume 3B, Section 14

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission – June 25, 2018 (CEAR # 52)

Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51)

Ermineskin Cree Nation and Blood Tribe – Springbank EIS Technical Comments (CEAR # 46, 47)

Ermineskin Cree Nation – Springbank Off-Stream Reservoir TKU Report (CEAR #46)

Blood Tribe/Kainai – Traditional Knowledge, Land, and Resource Use (CEAR # 47)

Context and Rationale:

The EIS Guidelines require the proponent to assess effects of changes to the environment on Indigenous peoples, including on current use of lands for traditional purposes, and to provide information to support the assessment of impacts to rights. The EIS Guidelines direct the proponent to take into account community knowledge and Aboriginal traditional knowledge, including integrating knowledge into all aspects of the assessment, including methodology and analysis, and establishing spatial and temporal boundaries. The EIS Guidelines also require the proponent to engage with Indigenous groups to obtain their views, including their views on the effects of changes to the environment on Aboriginal peoples and potential effects of the Project on Aboriginal and treaty rights.

The EIS includes statements that input from Indigenous groups, including Indigenous knowledge, informed the development of the EIS. The EIS states that"[w]hile this information did not directly affect the significance definition it has been incorporated into the analysis of effects on which the significance determination was based." The EIS does not present a methodology for how the incorporation of information from Indigenous groups was completed in a meaningful manner. The EIS includes sections on Traditional Land and Resource Use.

With regards to spatial boundaries, the EIS explains that the local assessment areas and regional assessment areas are VC-specific and take into account physical, biological, social, economic, and cultural factors. The EIS states that temporal boundaries are based on the timing of project activities and interactions with VCs. Information is not provided in the EIS regarding Aboriginal traditional knowledge and/or community knowledge sought, provided, and considered in the establishment of spatial and temporal boundaries.

Indigenous groups expressed concerns that all input (meetings, workshops, site visits, and traditional land and resource use studies), including Indigenous knowledge pertaining to the project area, was not considered and therefore, potential environmental effects were not adequately characterized in the EIS. For example, Indigenous groups identified that TUS are critical to understanding wildlife baseline and biodiversity conditions and determining potential residual effects. The EIS does not describe how TUS information was included in the habitat suitability models or baseline surveys.

<u>Information Requests:</u>

a) Describe the methodology for considering Indigenous and community knowledge, and how issues raised by each Indigenous group, including concerns raised regarding environmental effects and impacts to Aboriginal and treaty rights, have been and/or will continue to be used in Project planning and design, assessment of effects and impacts, selection of mitigation measures, and determining appropriate accommodations. The description should:

- **Demonstrate how Indigenous knowledge, including but not limited to traditional land and resource use, was considered in the selection of VCs, establishing spatial and temporal boundaries, collection of baseline information for each VC, development of proposed mitigation measures, and assessment of environmental effects. Discuss how cultural values, cultural transmission, and intergenerational knowledge transfer were considered in the selection of temporal boundaries.**
- **Include a description of any differences between Indigenous knowledge, community knowledge, and Western knowledge and provide an explanation of how different knowledge or perspectives were taken into account.**

Response IR2-06

a.1) Alberta Transportation recognizes that Indigenous and community knowledge is best identified by Indigenous groups themselves. To that end, Alberta Transportation commenced consultation with Treaty 7 First Nations in August 2014 and with the additional Indigenous groups identified in the Canadian Environmental Assessment Agency (CEA Agency) Guidelines for the Project in October 2016 concerning the Project, including the context and setting for traditional uses in the Project area. Alberta Transportation has been conducting Indigenous engagement prior to and throughout the environmental assessment process, which includes sharing of Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, and funding for Project-specific Traditional Use Studies (TUS). Alberta Transportation's response to this information request relies on both the material filed in the EIA and supplemental information received since the filing of the EIA. However, Alberta Transportation understands that the provision of this information is at the priority and discretion of the participating Indigenous group.

Regarding the concern expressed in the Context and Rationale regarding whether Indigenuous group input was incorporated into the EIA, opportunities were offered to each Indigenous group engaged on the Project to participate in a TLRU workshop, facilitated by the CEA Agency (see Volume 3A, Section 14.2 and Volume 3B, Section 14.2.2). These workshops would obtain feedback on the draft TLRU sections (Sections 14 of Volumes 3A and 3B), as well as to obtain input on proposed mitigation measures, and to discuss how Project-specific concerns have been addressed in the EIA, including Indigenous groups' perspectives on assessment methodology, proposed mitigation, Project-specific concerns and Indigenous groups' perspectives on how the Project may affect traditional land and resource use (TLRU).

As a result, these workshops were held with Stoney Nakoda Nations (February 12, 2018), Métis Nation of Alberta, Region 3 (February 22, 2018), Samson Cree Nation (February 23, 2018), Siksika Nation (February 26, 2018), and Tsuut'ina Nation (March 1, 5, 6, and 7, 2018). Each workshop was facilitated by CEA Agency project managers and the structure and format for each workshop was developed through engagement with individual Indigenous groups. In accordance with protocols established at the start of each workshop and in recognition of the proprietary nature of TLRU, written summaries of the workshop proceedings were completed by Alberta Transportation and provided to each Indigenous group for review and validation.

However, Alberta Transportation had not received permission to use information from any of the TLRU workshops in regulatory reporting, except for Métis Nation of Alberta, Region 3 who provided their permission to use TLRU workshop information on April 5, 2018. However, no feedback regarding the EIS methodology was received.

The initial selection of VCs, spatial and temporal boundaries, and the collection of baseline information for each VC reflect available Indigenous and community knowledge gained from a combination of sources, which include literature review, field programs and Alberta Transportation's preliminary engagement efforts to gather this information, as described above. The initial selection of VCs, spatial and temporal boundaries, and the collection of baseline information for each VC conform to *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[27]

However, as Indigenous and community knowledge or issues and concerns were made available to Alberta Transportation, the initial selection of VCs, spatial and temporal boundaries, and the collection of baseline information for each VC were reviewed to confirm whether Indigenous and community knowledge or issues and concerns were included or represented within the EIA. Examples include the following:

- As described in Section 14.1.4.1, Volume 3A, spatial boundaries for TLRU encompass the largest VC LAAs and RAAs (wildlife and biodiversity, and aquatic ecology) because there are links between TLRU activities identified by Indigenous groups and these assessments (e.g., hunting, trapping and fishing).
- For the assessment of TLRU, current use is defined in Volume 3A, Section 14.1.4.2, referring to the present time to within the last 25 years, which considers cultural values, cultural transmission, and intergenerational knowledge transfer, such that:
  - "Current use must be understood in the context of past and future use. Past TLRU information and information based on community members' living memory situates contemporary activities and long-term observations of existing conditions. Future use pertains to the opportunities for generations of descendants of the Indigenous groups to continue to practice cultural traditions in a modern form. Framing traditional activities and practices in this way serves to acknowledge that TLRU—while having continuity with historic practices, traditions, or customs—is dynamic and changing. Conceived of in this way, current use situates long-standing cultural practices in a contemporary context" (Volume 3A, Section 14.1.3.2).

[27] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

- The identification of traditional use plants and wildlife species of management concern for assessment, including key indicators such as tree, shrub and forb species of concern, grizzly bear and elk, were used to focus the vegetation and wetlands, and wildlife assessment such that:
  - The RAA for the vegetation and wetlands and wildlife assessments includes representative land cover types that occur in the Foothills Parkland and Montane natural subregions including native grassland, shrubland, forests, and wetlands, which provide potential habitats for species of management concern and those of cultural importance. The RAA is sufficiently large to encompass a variety of species of management concern and documents changes to key habitats for species of cultural importance (e.g., deer, coyote, weasel), and effects on vegetation of concern (see Volume 3A, Section 10.1.4 and Section 11.1.5, and response to IR2-12).
  - Volume 3A, Section 11 and Volume 3B, Section 11, Attachment A, Table A-1 included an assessment of three species at risk that also have cultural importance to Indigenous groups: Sprague's pipit, grizzly bear and American badger.
  - As described in response to IR2-11, an additional 36 wildlife species of cultural importance were assessed to determine potential effects of the Project during construction and dry operations (see the response to IR2-11, Table IR11-1) as well as flood and post-flood operation phases (see the response to IR2-11, Table IR11-2).
  - As described in response to IR2-19, only one identified traditional use plant species is rare in Alberta, western red cedar (*Thuja plicata*) (Table IR19-1); the remaining species identified as traditionally used plants are commonly found species and are not linked to uncommon ecological features. Western red cedar was not observed in the PDA or LAA during Project surveys (Volume 4, Appendix L, Table 10A-1) and there are no documented occurrences in the RAA (Volume 3A, Section 10, Table 10-5).
- To date, no new VCs or pathways for potential effects of the Project on TLRU have been identified through the information shared by Indigenous groups given the conservative assumption that TLRU activities occur near the Project even if these activities are not specifically identified by participating Indigenous groups.

Consideration of Indigenous and community knowledge includes evaluating whether Alberta Transportation's planned mitigation would effectively manage the identified potential interactions, or whether additional or refined mitigation is warranted. As described in response to IR2-01e), in assessing residual environmental effects, recommendations and measures for mitigation suggested by Indigenous groups were considered. For instance, Volume 3A, Section 14, Table 14-6 lists mitigation measures suggested by Indigenous groups aimed at avoiding or reducing potential effects on availability of traditional resources.

Recommendations for mitigation measures from Indigenous groups to address potential effects on access to traditional resources and on traditional use sites and areas are included in Volume 3A, Section 14.3.3.2 and Volume 3A, Section 14.3.4.2, respectively. The residual effects assessment also considers mitigation measures proposed for the different biophysical and socio-economic VCs that support the conditions for traditional land and resource use.

In addition to the resource-specific measures described in the EIA that will mitigate effects to resources that support TLRU, Alberta Transportation's proposed measures to mitigate potential effects the Project on TLRU activities include:

- maintaining access to identified current use sites (located outside of the designated construction and PDA) during construction and operations, including for hunting and fishing and Alberta Transportation will advise Indigenous groups on post-construction land access management.
- notifying Indigenous groups regarding Project activities and schedules, including provision of Project maps and design components, and discuss key traditional harvesting periods.
- avoiding substantial interference with public navigation of Elbow River by AEP through the following design practices:
  - as part of construction, a permanent portage will be developed around the in-stream water intake components.
  - signs directing traffic to detours will be installed during construction of road realignments and modifications.
  - signs will be installed along the existing Elbow River channel. Multiple signs will be placed upstream and downstream of the water intake components on both banks of Elbow River. These signs will warn users on Elbow River that they are approaching instream water intake components and directing them to a portage location.

Additionally, through the engagement process that included feedback from First Nations, a draft principles of future land use for the Project has been developed (see the response to IR2-01, Appendix IR1-2). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities, including the exercise of treaty rights such as hunting will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR1-2. Therefore, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise Section 35 rights.

Supplemental information brought forward from potentially affected Indigenous groups will be reviewed in the context of the EIA to evaluate whether Alberta Transportation's planned mitigation would effectively manage the identified potential interactions, or whether additional or refined mitigation is warranted.

Alberta anticipates building upon engagement efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate.

a.2) Alberta Transportation is not aware of any differences between Indigenous, community and Western knowledge collected for the purposes of the EIA or Project planning. As noted above in response to a), information shared with Alberta Transportation by potentially affected Indigenous groups is reviewed in the context of the EIA to evaluate whether Alberta Transportation's planned mitigation would effectively manage the identified potential interactions, or whether additional or refined mitigation is warranted.

Discussions regarding mitigation are ongoing between Alberta Transportation and Indigenous groups.

EFFECTS ON TRADITIONAL LAND AND RESOURCE USE

Question IR2-07: Effects on Traditional Land and Resource Use

Sources:

EIS Guidelines Part 2 Section 5; 6.1.9; 6.3.4

EIS Volume 3A, Section 14

EIS Volume 3B, Section 14

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission, June 25, 2018 (CEAR # 52)

Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51)

Ermineskin Cree Nation and Blood Tribe – Springbank EIS Technical Comments (CEAR # 46, 47)

Ermineskin Cree Nation – Springbank Off-Stream Reservoir TKU Report (CEAR #46)

Blood Tribe/Kainai – Traditional Knowledge, Land, and Resource Use (CEAR # 47)

Context and Rationale:

The EIS Guidelines require the proponent to assess effects of changes to the environment on Indigenous peoples, including on current use of lands for traditional purposes, and provide information to support the assessment of impacts to Aboriginal and treaty rights. The EIS Guidelines require that baseline information characterise the regional context of each of the paragraph CEAA 2012 5(1)(c) elements and be sufficient to provide a comprehensive understanding of the current state of each VC.

The EIS identifies traditional land and resource use as a VC and notes that changes to the environment as a result of the Project are anticipated to occur primarily within the PDA. Indigenous groups identified the need for additional site-specific information, as the information used in the EIS to predict effects on Indigenous peoples and impacts to rights is incorrect, inappropriate, and/or taken from secondary sources that do not accurately characterize traditional land and resource use that may be affected by the Project. Indigenous groups

communicated the need for site-specific information to the proponent through engagement, site-visits, and/or Traditional Land and Resource Use studies. Without an understanding of the traditional land and resources available for use and accessible within the PDA, effects to current use within the PDA are not clear.

The EIS does not discuss how selecting a RAA for consistency rather than based on pertinent VC specific information influences the assessment of effects. Further, conclusions are drawn with regards to alternative areas in which traditional land use may take place, without supporting evidence. Limited baseline data is presented for land and resource use within the RAA and assumptions about access to Crown and private lands for current use purposes are not substantiated. As conclusions on potential effects are tied to assumptions about use within the RAA, additional baseline data within the RAA and appropriate selection of RAAs is required.

For example, the EIS states that "The Project will remove traditionally harvested plant species from the PDA and affect the distribution and abundance of wildlife and fish species in the LAA; however, the direct and indirect loss of habitat is relatively small compared to the remaining habitat availability in the RAA." However, certain harvesting sites within the LAA may be preferred by Indigenous land users within the regional backdrop of the RAA.

To view all harvesting sites within the RAA as equal without any regard for preference (e.g. ease of access, high quality and/or quantity, familiarity, family connection) does not allow for a full understanding of the true impacts to Indigenous harvest in the LAA.

<u>Information Requests:</u>

a) Explain the methodology and how traditional territory for each Indigenous group is reflected in the RAA for traditional land and resource use and include Indigenous groups' views. If traditional territory was not considered in the selection of the RAA for traditional land and resource use, determine appropriate RAA(s) to use in the assessment of effects to this VC.

b) Provide an updated assessment of effects to traditional land and resource that:

- **Describes the presence and distribution of traditional resources and traditional land and resource use areas within the PDA, LAA and RAA, and identify the relative importance of these resources and access to and preference for use areas.**
- **Describes the pathways of effects to traditional resources and land use identified by Indigenous groups in the PDA, LAA and RAA, and the associated mitigation, monitoring, and follow-up measures. Pathways of effects may include project interactions with or effects on resources, access, and experience.**
- **Provides a robust rationale for any conclusions drawn that demonstrably takes into account the views of Indigenous groups.**

Response IR2-07

a) Alberta Transportation recognizes that the information regarding TLRU, including the availability of and access to country foods of importance to each Indigenous group, within the PDA, LAA and RAA, are best identified by Indigenous groups themselves. To that end, Alberta Transportation commenced consultation with Treaty 7 First Nations in August 2014 and with the additional Indigenous groups identified in the Canadian Environmental Assessment Agency (CEA Agency) Guidelines for the Project in October 2016 concerning the Project, including the context and setting for traditional uses in the Project area. Alberta Transportation has been conducting Indigenous engagement prior to and throughout the environmental assessment process, which includes sharing of Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, and funding for Project-specific Traditional Use Studies (TUS). Alberta Transportation's response to this information request relies on both the material filed in the EIA and any supplemental information received since the filing of the EIA. However, Alberta Transportation understands that the provision of this information is at the priority and discretion of the participating Indigenous group.

   As noted in Volume 3A, Section 14.1.7, Alberta Transportation is aware that current use of lands and resources for traditional purposes by Indigenous groups may occur within the PDA by permission of the landowner, and potential Project effects on such current use have been assessed in Volume 3A, Section 14.3. The approach for the selection of spatial boundaries is delineated in Volume 2, Section 5.3.1. The primary consideration used is the probable geographical area of the environmental effects on each valued component (VC). The RAA is the area within which the Project's environmental effects may interact or accumulate with the environmental effects of other projects or activities that have been or will be carried out such that cumulative environmental effects may potentially occur. The RAA is defined for each VC depending on physical and biological conditions and the type and location of other past, present, or reasonably foreseeable projects or activities that have been or will be carried out.

   To date, no views regarding the RAA established for the assessment of TLRU have been identified through the information shared by Indigenous groups. However, the descriptions of traditional territories provided by each Indigenous group and included in Volume 3A, Section 14.2.2, where available, confirm the RAA overlaps lands accessed and used for traditional purposes by the Indigenous groups engaged on the Project.

   The approach to establishing Project-specific spatial boundaries for the EIA aligns with the approach outlined in the Ermineskin Cree Nation TUS related to Project-specific boundaries:

   > For scale, TKU studies can be either "Regional" or "Project-specific". Regional TKU studies are generally conducted on a much wider scale than project-specific studies. The area for a regional study could be the traditional territory of an Indigenous community or a

> politically determined area, such as provincial boundaries or regional-planning areas. Project-specific studies, on the other hand, usually comprise a more limited area, for instance the project footprint or development area, as well as the local and regional study areas within which there are potential impacts to TKU (ECN 2018:9) (CEAR # 46)

As stated in Volume 3A, Section 14.1.4, the RAA for TLRU aligns with the RAA for wildlife and biodiversity RAA, which is the PDA plus a 15-km buffer centred on the PDA. The aquatic RAA for TLRU is aquatic ecology RAA, which is the Elbow River watershed and includes Glenmore Reservoir. The TLRU RAA encompasses the RAAs described for the wildlife and biodiversity and aquatic ecology assessments because there are demonstrable links between TLRU activities identified by Indigenous groups and the potential effects pathways in these assessments (e.g., fishing and aquatic ecology). While the TLRU assessment RAA aligns with the wildlife and biodiversity and aquatic ecology RAAs, the assessment of effects on TLRU is not limited to the effects on the resources; the assessment also considers information about cultural importance and experiential values, and intangible values, where that information has been provided by Indigenous groups.

b) As noted in response to part a), no views regarding the spatial boundaries established for the assessment of TLRU have been identified through the information shared by Indigenous groups to date. Therefore, the description of the presence and distribution of traditional resources and TLRU areas, and the conclusion of the TLRU assessment in Volume 3A and Volume 3B, Section 14 remain unchanged.

   Alberta Transportation emphasizes that the EIA conforms to *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[28]

   Alberta anticipates building upon engagement efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate.

[28] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

INDIGENOUS HEALTH AND COUNTRY FOODS

Question IR2-08: Indigenous Health and Country Foods

Sources:

EIS Guidelines Part 2, Section 6.1.9; 6.3.4

EIS Volume 3A, Section 14 and 15

EIS Volume 3B, Section 14 and 15

Ermineskin Cree Nation and Blood Tribe – Springbank EIS Technical Comments (CEAR # 46, 47)

Context and Rationale:

The EIS Guidelines require the proponent assess the effects of changes to the environment on Indigenous peoples, including on current use, health and socio-economic conditions, and physical and cultural heritage, both of which include the consideration of the harvesting and consumption of country foods.

The EIS sections on Public Health draw a link between country foods and health. The information presented is primarily regarding chemical exposure pathways, the quality of country foods, and potential effects to human receptors, from a Western-science, physical health perspective. These sections do not offer a robust discussion of the role of country foods in physical, mental, and spiritual health of Indigenous people. Concerns have been raised relating to the assessment of changes to the environment and effects on Indigenous peoples health and wellbeing.

The EIS acknowledges the Project would limit access to areas where country foods are available and actively harvested, and this could lead to food scarcity if there is a high dependency on the affected land area for food. The EIS describes a "conservative approach" applied in the assessment which assumes that traditional land use, including the harvesting of country foods, occurs within the project area. In contrast, the conclusions of the assessment of effects assumes that there is limited access to private lands and points to the absence of site specific information and consumption rate estimates to minimize the relative importance of the Project area.

Potentially affected Indigenous groups have provided evidence to support their use of the lands within the PDA and have noted that the PDA may play an important role in community wellbeing.

Additional information is required regarding the potential effects of the Project on country foods availability and access, and associated effects to Indigenous peoples' use, health and wellbeing.

Information Requests:

a) Provide information on the availability of and access to country foods of importance to each Indigenous group, within the PDA, LAA and RAA, a description of the pathways of effects to these foods, project specific mitigation measures, and a revised effects assessment. Include consideration of:

- **the role of country foods from a holistic health perspective that accounts for physical, mental, and spiritual health of individuals and communities.**
- **the role of country foods in Indigenous food sovereignty as it relates to health, wellbeing, governance, and rights.**

b) Describe how findings on country foods affect the assessment of effects of changes to the environment on Indigenous peoples' current use, health and socio-economic conditions, and physical and cultural heritage. Provide updated effects assessments as necessary.

Response IR2-08

a) Alberta Transportation recognizes that the information regarding TLRU, including the availability of and access to country foods of importance to each Indigenous group, within the PDA, LAA and RAA, are best identified by Indigenous groups themselves. To that end, Alberta Transportation commenced consultation with Treaty 7 First Nations in August 2014 and with the additional Indigenous groups identified in the Canadian Environmental Assessment Agency (CEA Agency) Guidelines for the Project in October 2016 concerning the Project, including the context and setting for traditional uses in the Project area. Alberta Transportation has been conducting Indigenous engagement prior to and throughout the environmental assessment process, which includes sharing of Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, and funding for Project-specific Traditional Use Studies (TUS). Alberta Transportation's response to this information request relies on both the material filed in the EIA and any supplemental information received since the filing of the EIA. However, Alberta Transportation understands that the provision of this information is at the priority and discretion of the participating Indigenous group.

As noted in Volume 3A, Section 14.1.7, Alberta Transportation is aware that current use of lands and resources for traditional purposes by Indigenous groups may occur within the PDA by permission of the landowner, and potential Project effects on such current use have been assessed in Volume 3A, Section 14.3. The assessment of potential Project effects on traditional land and resource use (TLRU) includes analysis, discussion and conclusions of the Project's residual effects on the availability of and access to country foods of importance to each Indigenous group, within the PDA, LAA and RAA, as identified through engagement with each Indigenous group.

The description of the availability of and access to country foods of importance to each Indigenous group, within the PDA, LAA and RAA, and the potential pathways of effects are described in Volume 3A, Sections 14.2.4 and 14.3.2. The assessment of effects on public health concludes that there are no Project interactions for changes in human health from consumption of country foods during construction and dry operations (see Section 15.3.2). The quantity of Project-related emissions of chemicals that could persist in the environment (such as metals and polycyclic aromatic hydrocarbons in diesel emissions during construction) would not affect concentrations in edible tissues. Dust generated by earthworks during construction is inert earthen material and would be of similar quality as the surrounding soil in the construction area and therefore there would be no change to plant tissue concentrations due to uptake from soil. There are no substantial dust generating activities during dry operations. Therefore, effects on human health through the consumption of country foods are expected to be negligible.

Table IR8-1 summarizes the availability of and access to country foods of importance to each Indigenous group, as identified by each of the Indigenous groups listed in the EIS Guidelines, that were either previously included in the EIA or subsequently shared with Alberta Transportation. Location information is provided in this table, where available.

Information on context, pathways and Project-specific mitigation measures related to the aspects of cultural experience/experiential values of country foods, including health and wellbeing, are also discussed in Alberta Transportation's response to IR2-02.

The pathways for potential impacts of the Project identified by Indigenous groups are aligned with the potential effects and effects pathways described in Volume 3A, Section 14, Table 14-1. To date, no new pathways for potential effects of the Project on the availability of and access to country foods of importance to each Indigenous group within the PDA, LAA and RAA have been identified through the information shared by Indigenous groups.

Alberta Transportation notes that the assessment does not attempt to minimize the relative importance of the Project area due to the Project setting (i.e., limited access to private lands) or the absence of site-specific information. The assessment of TLRU considers that exact locations where country foods are harvested in the area of the Project were not disclosed, nor was any information regarding frequency of consumption of country foods provided by Indigenous groups through the Indigenous engagement program for the Project. Therefore, a conservative approach to the assessment was taken whereby potential effects to country foods were evaluated with the assumption that the harvest of country foods nonetheless occurs in the PDA, LAA and RAA. This approach also recognizes that the ability of Indigenous groups to harvest country foods on private land will be more restricted than on unoccupied Crown land.

Table IR8-1 Availability of and Access to Country Foods of Importance to Each Indigenous Group within the PDA, LAA and RAA, as Identified by each Indigenous Group

Availability of and access to country foods of importance to each indigenous group as Identified by each Indigenous group within the PDA, and the LAA and RAA for TLRU, including: • **the role of country foods from a holistic health perspective that accounts for physical, mental, and spiritual health of individuals and communities.** • **the role of country foods in Indigenous food sovereignty as it relates to health, wellbeing, governance, and rights**	**Source**	**EIA Reference (if applicable)[29]**
Kainai First Nation		
"There are medicinal and ceremonial plants located on both sides of the Elbow River where the diversion inlet and service sluiceway are proposed to be constructed (see Figure Two). These plants will need to be protected or relocated to another spot nearby to ensure they are available in future for Blackfoot traditional people".	KCO & SCO 2017, p. 5	Volume 3A, Section 14.3.2.3
"Traditional resources/species of interest to the Blood Tribe in relation to the Project area include: Elk, moose, white tailed deer, mule deer (species for subsistence hunting); Ruffed grouse, sharp-tailed grouse (species of subsistence use); Rabbit (species of subsistence value); Canada goose, mallard duck, merganser duck (migratory birds of subsistence use); Rainbow trout, Rocky mountain whitefish, cutthroat trout (species of subsistence use); Saskatoon berries, chokecherries, blueberries, strawberries (species of subsistence use)".	Kainai First Nation 2018 (CEAR #47), p. 50	--
"Hunting big game species such as moose, elk and white-tailed deer is a pillar of the Blood Tribe/Káinai traditional food provisioning system. The three hunters who participated in a focus group regarding this Project indicated that between them they feed dozens of people on a regular basis from their hunting, food processing, and sharing practices. When asked how many people they provide with wild meat as a result of their activities, [a Kainai First Nation hunter] responded: 'I would say, easily, 20 or more families. We all have family that we share with them. Sometimes if [another Kainai First Nation hunter] gets a moose or an elk, he'll share it with us and I'll share with the rest of the families, or ... elders and families that don't get a chance to have that much meat ... we share everything that we get'".	Kainai First Nation 2018 (CEAR #47), p. 61	--

[29] -- indicates the referenced information was received following the submission of the EIA.

Table IR8-1 Availability of and Access to Country Foods of Importance to Each Indigenous Group within the PDA, LAA and RAA, as Identified by each Indigenous Group

Availability of and access to country foods of importance to each indigenous group as Identified by each Indigenous group within the PDA, and the LAA and RAA for TLRU, including: • **the role of country foods from a holistic health perspective that accounts for physical, mental, and spiritual health of individuals and communities.** • **the role of country foods in Indigenous food sovereignty as it relates to health, wellbeing, governance, and rights**	**Source**	**EIA Reference (if applicable)[29]**
"Some of the bird species in the PDA are of subsistence value… the group encountered ruffed grouse. There is potential to hunt these game birds along the wooded portions of the banks of the Elbow River. The field research team spotted, photographed and documented the presence of Canada Geese near the outlet of the Val Vista Creek (unnamed Creek) on the Elbow River. Merganser ducks were also spotted on the river".	Kainai First Nation 2018 (CEAR #47), p. 64	--
"BT/K land users and Elders described the Elbow River as habitat for rainbow trout, cutthroat trout, brook trout, bull trout and rocky mountain whitefish".	Kainai First Nation 2018 (CEAR #47), p. 67	--
"… the most commonly trapped animal for food, the white-tailed jackrabbit rabbit (=lepus townsendii), is abundant in the PDA".	Kainai First Nation 2018 (CEAR #47), p. 67	--
Siksika Nation		
"There are medicinal and ceremonial plants located on both sides of the Elbow River where the diversion inlet and service sluiceway are proposed to be constructed (see Figure Two). These plants will need to be protected or relocated to another spot nearby to ensure they are available in future for Blackfoot traditional people".	KCO & SCO 2017, p. 5	Volume 3A, Section 14.3.2.3
"… our people when we gather plants it's not from one area. A particular species won't grow in everywhere, the gathering occurs at certain seasons and do not reoccur in the same area each year. Sometimes they are usable in the spring or summer and herbal roots of different types aren't done to the fall. The harvest is according to the seasons. One of the things that we used a lot is Indian mint, it usually grows on the banks of the Elbow. They grow in different areas. Pre-contact each clan had its own seasonally root migration. The resources can't be over harvested, and you have to be careful. Take what is needed and leave the rest. What the water is going to do is drown some of those species. One of the concerns is what if they don't grow back after a flood".	Engagement Meeting, April 26 2018	--

Table IR8-1 Availability of and Access to Country Foods of Importance to Each Indigenous Group within the PDA, LAA and RAA, as Identified by each Indigenous Group

Availability of and access to country foods of importance to each indigenous group as Identified by each Indigenous group within the PDA, and the LAA and RAA for TLRU, including: • **the role of country foods from a holistic health perspective that accounts for physical, mental, and spiritual health of individuals and communities.** • **the role of country foods in Indigenous food sovereignty as it relates to health, wellbeing, governance, and rights**	**Source**	**EIA Reference (if applicable)[29]**
Tsuut'ina Nation		
Tsuut'ina Nation explained that the medicinal plants are traditionally found in the areas adjacent to the Elbow River, because" medicine grows along the river". "Tsuut'ina land users report fishing for char, suckers, pike, whitefish, cutties, rainbow, brown and bull trout on the Elbow River and its tributaries". "During preliminary field visits to the proposed Project Area, Tsuut'ina field crews indicated that bull trout are an important source of both subsistence and ceremonial food". "[T]he sacred plants the Tsuut'ina rely upon grow along the shores of the Elbow River, which explains one of the reasons the Tsuut'ina selected a site proximate to the river for their reserve".	Tsuut'ina Nation 2018, p. 53-54, 55, 65	--
"The Project Area includes a portion of the migration corridor elk use in August, October and January, on a route that takes them in and out of the Tsuut'ina reserve… Tsuut'ina harvesters hunt these elk as they pass through what is known as the 'Wilderness Area' on their migration route until the end of January, after which the meat becomes too "fleshy and sticky." The Wilderness Area is also used for hunting moose, deer, ducks and spruce grouse".	Tsuut'ina Nation 2018, p. 52	--
"Our citizens continue to depend on the lands and waters in our traditional territory, including the Project area, to support traditional activities. These include hunting, fishing, and harvesting of various species of medicinal plants".	Tsuut'ina Nation 2016, p. 3	Volume 3A, Section 14.3.2.3
"Our citizens rely on various medicinal plants that grow on the sensitive riparian areas of the Elbow River and its tributaries as well as the wetlands".	Tsuut'ina Nation 2016, p. 5	Volume 3A, Section 14.3.2.3

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Piikani Nation		
"The area within the flood basin is the natural habit of the grizzly bear, moose, elk, deer, wolf, coyote, cougars and raptor's, fur bearing animals, herbs and medicinal plants"	Piikani Nation, n.d., p. 20	Volume 3A, Section 14.8.2
Stoney Nakoda Nations		
"Another environmental effect for the current use of lands and resources for traditional purposes is the environmental effect on water and wetlands for wildlife, fish, birds and vegetation, which will in turn impact the Stoney Nakoda cultural practices (hunting, fishing, trapping, camping, gathering), in the proposed project area".	Stoney Consultation Office 2016, p. 2	Volume 3A, Section 14.3.2.3
Ermineskin Cree Nation		
"Subsistence harvesting was also recorded around the Elbow River Recreation Area". "In addition to big game, ECN land users hunt for waterfowl (ducks and geese) and game birds (prairie chickens and wild turkeys) along the river to the south of the PDA". "The main species fished in the Elbow River were bull trout, rainbow trout, and cutthroat trout".	WSSS 2018 (CEAR #46), p. 22, 24, 26	--

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Availability of and access to country foods of importance to each indigenous group as Identified by each Indigenous group within the PDA, and the LAA and RAA for TLRU, including: • **the role of country foods from a holistic health perspective that accounts for physical, mental, and spiritual health of individuals and communities.** • **the role of country foods in Indigenous food sovereignty as it relates to health, wellbeing, governance, and rights**	**Source**	**EIA Reference (if applicable)[29]**
"Hunting trips to private lands generally consist of larger groups of hunters than would be the case for hunting on Crown lands... The meat from these hunting trips goes to feed numerous families within the community, and particularly Elders who are no longer able to hunt for themselves: 'Nothing gets wasted, it's all given out. We only take what we need and give the rest [to members of the community]. The thing about it is we hardly have any more hunters on our reserve because we're getting old'. As the numbers of hunters and the availability of wildlife on nearby Crown lands declines, not only hunters but the entire ECN community has become increasingly reliant upon hunting trips to more distant private lands to provide wild meat for the year".	WSSS 2018 (CEAR #46), p. 8	--
"By going out onto the land and using those traditional skills to survive, you grow up and turn yourself around from a young child into a grown man. This is a rite of passage for me as a man, to live off of the land by hunting, fishing and gathering. Doing these things with my kids helps me connect with them, and then my kids will have the same respect for the environment as I do".	WSSS 2018 (CEAR #46), p. 12	--
On the communal aspect of country foods: "... a lot of the guys don't hunt anymore. But they want to eat... they're worried about their kids. So, we feed a lot of the siblings' kids. Like I had two freezers full this fall and I have nothing left."	WSSS 2018 (CEAR #46), p. 12-13	--
"... for interview participants, wild meat and traditional foods are central to a healthy diet. Because big game feed on many plants considered to hold medicinal properties by ECN members, wild meat likewise contains medicinal properties and is healthier than farmed and store-bough[t] meat".	WSSS 2018 (CEAR #46), p. 14	--

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"Nowadays, people are eating foods with all sorts of chemicals and additives in it, and it affects people's health. We are shortening our life span by what we are eating. Cows are injected with all sorts of horrible things before they are slaughtered and then fed to people. The people eat beef that has been inoculated with hormones and who knows what else. The meat that I get off of the land is not like that; it is cleaner and healthier".	WSSS 2018 (CEAR #46), p. 14	--
"I teach my kids and my grandkids to live off of the land. My grandson recently shot his first deer and it was a big accomplishment for him. I was very proud of him. We had a ceremony to honour that first kill. It is important for us to tell our children stories about the animals that we hunt because animals are considered very sacred. I teach my kids the names of animals and herbs in Cree too. The transmission of knowledge to the next generation is important because it is a way to make sure our culture stays alive. I see language, the harvesting of resources from the land, and my connection to the land as being very important to keeping my culture alive".	WSSS 2018 (CEAR #46), p. 13	--
"In addition to big game, ECN land users hunt for waterfowl (ducks and geese) and game birds (prairie chickens and wild turkeys) along the river to the south of the PDA. Secondary hunting areas include lands south of Jumping Pound, west of the Project PDA, and south of Redwood Meadows and Bragg Creek on Tsuut'ina Reserve 145. The main species hunted in these areas are moose, elk, and deer, both mule and white-tailed, though wild turkeys have been spotted in the hunting grounds on Tsuut'ina Reserve 145".	WSSS 2018 (CEAR #46), p. 24	--
Louis Bull Tribe		
"Based upon wildlife sitings and tracks identified during the site visit, LBT participants noted that the current right-of-way is traversed by moose, deer, cougar, coyotes and wolves. A grizzly bear was also sited in the project area. All of these species are of cultural significance and are harvested for sustenance, pelts and other uses".	Louis Bull Tribe 2018b (CEAR #1228), p. 8	--

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"Although some community members have harvested plants, fish or wildlife from those lands to which they have access (e.g., the riparian and stream waters of the Elbow River), for the most part, private land ownership has denied access to these lands. Opportunities for pursuit of cultural practices that are important to the cultural identity of community members, or to transfer knowledge of the land, have input into the management of those lands, or even quietly enjoy the land itself must be viewed in the context of past, cumulative effect on land access".	Solstice Environmental Management 2019, p. 2	--
"… during the TLU site visit, Louis Bull Tribe found plants and wildlife within the project area that are traditionally collected, hunted or trapped, including medicinal and culturally important plants, and various culturally important species that are hunted or trapped for sustenance, pelts and other cultural uses. Harvested wildlife species included moose, deer, cougar, coyotes, wolves, muskrat and beaver, observed by sign and a grizzly bear seen in the project area".	Solstice Environmental Management 2019, p. 2	--
"Country foods that are used by LBT members include elk, deer, moose, beaver, ground squirrels, strawberry and gooseberry, which are also found in the Project area. The ability to obtain these foods through traditional methods of gathering, hunting and processing are important to the retention of culture, as each of these steps involves ceremony, culturally relevant harvesting techniques and sharing of stories connected to these activities".	Solstice Environmental Management 2019, p. 3	--
"Traditionally collected plants included gooseberry, smooth blue aster, plantain, willow species, giant golden rod, strawberry, and kinikinik".	Solstice Environmental Management 2019, p. 3	--
Montana First Nation		
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Samson Cree Nation		
"The Project development area historically provided habitat for westslope cutthroat trout, which is a fish species of interest to Samson… westslope cutthroat trout remain present in the upper Elbow River and its tributaries".	Samson Cree Nation 2018 (CEAR #52), p. 12	--
"The Samson ha[ve] the right to access and harvest wildlife for spiritual, cultural, health, or economic purposes".	Samson Cree Nation 2018 (CEAR #52), p. 20	--
Métis Nation of Alberta, Region 3		
"A preliminary survey indicated that many members of The Métis Nation of Alberta, Region 3 or their ancestors have harvested plants, both edible and medicinal, caught fish, and hunted/trapped in the project area. Several actively fish or harvest plants in the project area today, so the impacts to country foods by the construction of the reservoir has the potential to limit the access or have adverse effects on the ability of members of The Métis Nation of Alberta, Region 3 to access country foods that form an important part of expressing, maintaining, and passing on cultural values".	MNAR3 2019, p. 2	--
On country foods in Metis Nation of Alberta Region 3 traditional territory: "wooded areas are prime, traditionally used areas for hunting moose, deer, rabbits, muskrats, prairie chickens, ducks and geese… muskrats are typically trapped around lakeshores and shallow waterbodies". "Métis Nation of Alberta, Region 3 members pick berries in the Project area, including saskatoon berries, strawberries, and maybe others. Métis Nation of Alberta, Region 3 members were informed by First Nations individuals that there are blueberries in the Project area as well. Strawberries are typically harvested in June and saskatoon berries are typically harvested in July or August, or earlier depending on the weather".	TLRU Workshop (February 22, 2018)	--

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Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding Indigenous health and country foods has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

As described in Volume 4, Appendix C, Alberta Transportation's proposed measures to mitigate potential effects on the availability of land access to country foods of importance to each Indigenous group within the PDA, LAA and RAA, include:

- Construction activities will be restricted to the approved construction footprint (page C.11)
- Alberta Transportation will Implement access management plans, which includes gating approaches to Project access roads to restrict public access to the Project footprint. (page C.15)
- Substantial interference with public navigation of Elbow River will be avoided through the following design practices:
  - as part of construction, a permanent portage will be developed around the in-stream water intake components.
  - signs directing traffic to detours will be installed during construction of road realignments and modifications. (page C.16)
- Alberta Transportation will notify Indigenous groups regarding Project activities and schedules, including provision of Project maps and design components, and discuss key traditional harvesting periods. (page C.17)
- Alberta Transportation will maintain access to identified current use sites (located outside of the designated construction and PDA) during construction and operations, including for hunting and fishing and Alberta Transportation will advise Indigenous groups on post-construction access management. (page C.18)
- Alberta Transportation will provide Indigenous groups with Project maps and design information and preliminary project scheduling. (page C.18)
- the following signs will be installed:
  - multiple signs will be placed upstream and downstream of the water intake components on both banks of Elbow River. These signs will warn users on Elbow River that they are approaching the diversion structure and direct them to a portage location.
  - multiple warning signs and alarms to draw attention will be placed along the diversion channel at road crossings and at walking trails; at the emergency spillway; the unnanmed creek (the path of water overland as it is released from the reservoir), along trails leading to the unnamed creek, and at the confluence of the unnamed creek with Elbow River. When alarms are sounding during floods, including the release of water from the off-stream reservoir, evacuation of areas around these infrastructure components will be implemented.

- multiple signs will be placed along Highway 22 to the north and south sides of the PDA. These signs will advise the public against swimming or using watercraft on the water when it is present in the diversion channel.
- gates and signs will be placed along Springbank Road to the north, west and east of the PDA. Gates will be closed during all floods. Signs will advise vehicles that the roads are closed and to use an alternate route. (page C.31 and C.32)

No specific concerns or recommendations aimed at reducing or avoiding effects on country foods were made by Indigenous groups. However, recommendations made by Indigenous groups regarding the protection of sloughs and wetlands and the relocation of medicinal and ceremonial plants prior to construction may serve to mitigate effects to country foods. Alberta Transportation has committed to avoiding disturbance to wetlands to the extent possible. Where avoidance is not possible, disturbance will be minimized. Alberta Transportation has also committed to providing opportunities for harvesting or relocating medicinal and ceremonial plants prior to construction.

Additionally, through the engagement process that included feedback from First Nations, a draft principles of future land use for the Project has been developed (see the response to IR2-01, Appendix IR1-2). The primary use of all lands within the PDA is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses include traditional activities, including the exercise of treaty rights such as hunting will be allowed to occur within the land use area (LUA) identified in Figure 1 of Appendix IR1-2. Therefore, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise Section 35 rights.

b) Since the submission of the EIA, the additional information gathered through Alberta Transportation's ongoing engagement program and referenced throughout this response has been reviewed in the context of the EIA. The availability of and access to country foods of importance to each Indigenous group within the PDA, LAA and RAA, as indicated by the outcomes of the engagement program to date, are consistent with the activities that were assessed by Alberta Transportation and for which Alberta Transportation's suite of mitigation measures were developed.

   Alberta Transportation has determined that the significance conclusions of the assessment remain unchanged.

Alberta Transportation emphasizes that the EIA conforms to *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[30]

Alberta anticipates building upon engagement efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate.

REFERENCES

KCO & SCO (Kainai Consultation Office and Siksika Consultation Office). 2017. Springbank Off-stream Reservoir (SR-1) KCO and SCO TUS Research Study. Joint Kainai & Siksika Interim Report.

Kainai First Nation. June 2018. Blood Tribe/Káínai Traditional Knowledge, Land, and Resource Use Study Springbank Off-Stream Reservoir Project. Prepared for the Blood Tribe/Káínai. Prepared by Dermot O'Connor, Oak Road Concepts Inc. Available on the Canadian Environmental Assessment Registry (CEAR #47) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123631?culture=en-CA

Louis Bull Tribe. November 2018b. Traditional Land Use Assessment For the proposed Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #1228) at: https://www.ceaa-acee.gc.ca/050/documents/p80123/126242E.pdf.

MNAR3 (Métis Nation of Alberta Region 3). March 13, 2019. Letter to Alberta Transportation Re: Canadian Environmental Assessment agency Information Request for the Springbank Off-Stream Reservoir Project, Metis Nation of Alberta Region 3 Input.

Piikani Nation. n.d. Piikani Report on Proposed Springbank Reservoir and Dam. Prepared by William Big Bull for Piikani Consultation.

[30] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

Samson Cree Nation. June 25, 2018. Springbank Off-Stream Reservoir Project Written Submission. Endorsed and Approved by Samson Cree Nation Consultation Committee. Available on the Canadian Environmental Assessment Registry (CEAR #52) at: https://www.ceaa-acee.gc.ca/050/documents/p80123/123697E.pdf

Solstice Environmental Management. February 28, 2019. Letter to Alberta Transportation RE: Alberta Transportation CEAA IR Response, Springbank Off-Sream Reservoir Project.

Stoney Consultation Office. June 8, 2016. Springbank Off-Stream Reservoir Project (the "Project") Letter of Comment of the Stoney Nakoda Nations (the "SNN").

Tsuut'ina Nation. January 10, 2018. Tsuut'ina Traditional Land Use Report for the Proposed Springbank Off-Stream Reservoir Project. Prepared by Tsuut'ina Nation and Trailmark Systems. Prepared for Alberta Transportation.

WSSS (Willow Springs Strategic Solutions). 2018. Ermineskin Cree Nation Traditional Knowledge and Use Study: Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #46) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123630?culture=en-CA

PROJECT AREA LAND USE AND ACCESS

Question IR2-09: Project Area Land Use and Access

Sources:

EIS Guidelines Part 2, Section 6.1.9; 6.3.4

Volume 1, Section 1.3.2.1; 1.3.2.2

Louis Bull Tribe – EIS Review Submission, June 18, 2018 (CEAR # 49)

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Louis Bull Tribe – EIS Review Submission, June 18, 2018 (CEAR # 49)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Ermineskin Cree Nation and Blood Tribe – Springbank EIS Technical Comments (CEAR # 46, 47)

Context and Rationale:

The EIS Guidelines require the proponent to assess the effects of changes to the environment on Indigenous peoples' current use of lands for traditional purposes, including any changes to the alienation of lands from Indigenous traditional use.

The EIS discusses potential effects to current use in four land classifications (A, B, C, and D) associated with the project area throughout the project lifecycle. The descriptions of the classifications do not fully indicate the extent to which access to the lands for current use or the exercise of rights would be allowed to continue, reduced, or eliminated. The effects assessment of the proposed land classifications is therefore incomplete.

Indigenous groups and current land owners confirmed that lands within the PDA are currently used by multiple Indigenous groups for traditional purposes and the exercise of rights. With the development of the Project, these lands would be converted to Crown land. While the creation of Crown land could create possibilities for further access to lands on which rights can be exercised, the land uses proposed in the EIS would serve to restrict and reduce access from that which currently exists.

Access to lands and waters is essential for Indigenous peoples' current use of lands for traditional purposes, physical and cultural heritage, and health and socio-economic conditions as well as for the exercise of Aboriginal and treaty rights. Additional information is required to fully understand the effects of changes in land availability and use on Indigenous peoples.

Information Requests:

a) Provide clarity and rationale for the proposed land classifications. Include:

- **Details on the level of access anticipated and/or the parameters and criteria for determining the level of access to all areas. For example, given the reservoir is expected to be used infrequently and seasonally, provide a rationale for restricting access to Area B year round.**
- **With respect to Area A, clearly define "low impact recreation" and identify current use opportunities that would be permitted. Describe whether and how Indigenous peoples will be engaged in the reclamation and design of this conservation area.**
- **Describe the reasonably foreseeable land use options given the anticipated state of the environment within the PDAand how these have been considered in selecting land classifications. For example, Area C has options for grazing through public leases and will be privately stewarded; describe if and how options for Indigenous stewardship of this area have been considered.**

b) Discuss the potential effects to Indigenous peoples and impacts to the exercise of Aboriginal and treaty rights associated with the varying degrees of access associated with the proposed land classifications.

- **Describe information provided by Indigenous groups pertaining to land use in the PDA and revise or justify conclusions that the removal of access to Areas B, C, and D, and potentially restricted activities within area A, does not constitute a long-term loss of available resources or access to lands.**
- **Provide a discussion of land access, mitigation, and accommodation that identifies means of addressing the potential net loss of lands on which rights can be exercised.**
- **Provide the details of an access management plan for each area during all phases of the project, including information on how access could be managed to enhance Indigenous groups' access to traditional lands.**

Response IR2-09

a-b) Since filing of the EIA, through the engagement process with First Nations, Alberta Transportation has created a draft post-construction land use document for the Project. (see the response to IR2-01, Appendix IR1-2), which identifies draft principles of future land use within the PDA. The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR1-2. The engagement process for the LUA will include engagement with First Nations and stakeholders. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses such as First Nations' traditional activities (including the exercise of treaty rights such as hunting) will be allowed within the LUA.

Further details can be found in the response to IR2-01, Appendix IR1-2.

PHYSICAL AND CULTURAL HERITAGE

Question IR2-10: Physical and Cultural Heritage

Sources:

EIS Guidelines Part 2, Section 5; 6.1.9; 6.3.4

EIS Volume 3A, Section 13 and 14

EIS Volume 3B, Section 13 and 14

Context and Rationale:

The EIS Guidelines require the proponent to assess effects of changes to the environment on Indigenous peoples, including on physical and cultural heritage and on any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance. The EIS Guidelines direct the proponent to follow the *Technical Guidance for Assessing Physical and Cultural Heritage or any Structure, Site, or Thing that is of Historical, Archaeological, Paleontological, or Architectural Significance under the Canadian Environmental Assessment Act, 2012*. The Technical Guidance directs the proponent to consider all aspects of cultural heritage, including practices, traditions, customs, as well as associative cultural landscapes that are distinguished by the power of their spiritual, artistic, or cultural associations, rather than their surviving material evidence. Further, the EIS Guidelines require consideration of the loss or destruction of and changes in access to physical and cultural heritage and sites of importance, as well as changes to the cultural value or importance associated with physical and cultural heritage and sites of importance.

The EIS describes the regulatory and policy setting for the assessment of potential effects on historical resources, with a focus on the requirements of the Alberta *Historical Resources Act*, and indicates Historical Resources Impact Assessments for archaeology and paleontology were completed and informed (but are not included in) the environmental assessment. The primary risk mitigation measure provided in the EIS is that "Alberta Transportation will follow current industry best practices and comply with all provincial and federal legislation. Should additional heritage resources be encountered, Alberta Transportation will follow current Alberta Culture and Tourism policies and guidelines."

Physical and cultural heritage and sites of importance that need to be considered under CEAA 2012 are not limited to those recognized by Alberta Culture and Tourism or the provincial *Heritage Resources Act*. Indigenous communities raised concerns with the physical and cultural heritage and sites of importance that would be destroyed by the Project and asked for ongoing

mitigation, including but not limited to Indigenous monitoring. It was noted that the EIS underestimates the cultural significance of the area.

For the purposes of the federal environmental assessment, appropriate mitigation measures must be determined for the identified potential effects. Additional detail regarding physical and cultural heritage, as it is considered under CEAA 2012, is required for a meaningful understanding of the effects of the Project on Indigenous peoples.

Information Requests:

a) Provide additional information and revised assessments of effects on physical and cultural heritage on any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance as per the Technical Guidance and EIS Guidelines. With regards to mitigation proposed:

- **Identify where the Alberta Culture and Tourism policies and guidelines will address and mitigate potential effects to each of the instances of physical and cultural heritage and sites of importance identified in these assessments. Identify where additional guidance may be required. Identify how any gaps will be addressed.**
- **Where Alberta Transportation is committed to following best practices, describe the best practices that will be implemented, the origin of the best practice, and include an explanation of how these best practices can specifically address the concerns of Indigenous groups and the identification and protection of physical and cultural heritage and sites of importance to Indigenous peoples.**
- **Describe mitigation measures and best practices identified by Indigenous groups, including any commitments to these mitigation measures.**
- **Provide the details of monitoring plans and follow-up plans for potential effects to physical and cultural heritage and sites of importance including a description how Indigenous groups will be involved in plan design and implementation.**

Response IR2-10

a.1) Alberta Transportation recognizes that the information regarding TLRU, including physical and cultural heritage and sites of importance, are best identified by Indigenous groups themselves. To that end, Alberta Transportation commenced consultation with Treaty 7 First Nations in August 2014 and with the additional Indigenous groups identified in the Canadian Environmental Assessment Agency (CEA Agency) Guidelines for the Project in October 2016 concerning the Project, including the context and setting for traditional uses in the Project area. Alberta Transportation has been conducting Indigenous engagement prior to and throughout the environmental assessment process, which includes sharing of Project information and updates, on-going communication about the Project, face-to-face meetings, facilitation of site visits, and funding for Project-specific Traditional Use

Studies (TUS). Alberta Transportation's response to this information request relies on both the material filed in the EIA and supplemental information received since the filing of the EIA. However, Alberta Transportation understands that the provision of this information is at the priority and discretion of the participating Indigenous group.

As noted in Volume 3A, Section 14.1.7, Alberta Transportation is aware that current use of lands and resources for traditional purposes by Indigenous groups may occur within the PDA by permission of the landowner, and potential Project effects on such current use have been assessed in Volume 3A, Section 14.3. The assessment of potential Project effects on traditional land and resource use (TLRU) includes analysis, discussion and conclusions of the Project's residual effects on physical and cultural heritage and sites of importance, as identified through engagement with each Indigenous group. The description of physical and cultural heritage and sites of importance, and the potential pathways of effects are described in Volume 3A, Sections 14.2.4 and 14.3.2. The assessment of potential Project effects on historical resources includes analysis, discussion and conclusions of the Project's effects on the physical and cultural heritage on any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance, as identified through engagement with each Indigenous group. The description of the physical and cultural heritage on any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance, and the potential pathways of effects are described in Volume 3A, Sections 13.1.2 and 13.1.3.

Table IR10-1 summarizes the physical and cultural heritage and sites of importance, as identified by each of the Indigenous groups listed in the EIS Guidelines, that are either included in the EIA or subsequently shared with Alberta Transportation. Location information is provided in this table, where available and if the Indigenous group has agreed to release this information publicly.

Information on context, pathways and Project-specific mitigation measures related to the aspects of cultural experience/experiential values of physical and cultural heritage and sites of importance are also discussed in Alberta Transportation's response to IR2-02.

The pathways for potential impacts of the Project identified by Indigenous groups are aligned with the potential effects and effects pathways described in Volume 3A, Section 14, Table 14-1. To date, no new pathways for potential effects of the Project on physical and cultural heritage and sites of importance have been identified through the information shared by Indigenous groups.

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
Kainai First Nation		
Blackfoot camp within the PDA: "There is a Blackfoot traditional camp site located in the creek valley extending to the north-west off the Elbow River, close to the currently proposed outlet channel from the reservoir (see Figure Three). The Elbow River is an important four-season transportation route for Blackfoot people to travel between the plains and mountains. The KCO and SCO field teams discovered many teepee rings in the creek valley in a short period of time, indicating the site is well used. There is also a buffalo rubbing stone nearby. Fire-broken rocks were found there and on the flats north of the berm". "There is concern that there may be Blackfoot artifacts unearthed during excavation of the diversion inlet starting from the cliff on the west side of the Elbow River. This would be true of any location along the cliff-bank side of the river chosen for the diversion inlet. If the SR-1 project is constructed KCO and SCO monitors will need to be on-site when the inlet channel is excavated".	KCO & SCO 2017, p. 4-5	Volume 3A, Section 13.1.2 Volume 3A, Section 14.1.2 Volume 3A, Section 14.2.6
Kainai First Nation indicated that anything that used will always be given back to the source (the earth) as an offering to the source. It is important to consult with Elders about artifacts. No one has the right to take offerings. Treasure hunters look at the offerings for example, Items like a pipe, or moccasins might be an offering, and these attract the attention of treasure hunters. Once something is given back, it is left there. This is part of the natural life cycle of things. With the Land Registry, Archaeological lands, sites, Kainai First Nation knowledge holders should be there to interpret what the sites mean. Kainai First Nation should have access to these sites to make offerings. We want to make offerings at those sites.	Engagement Meeting, January 18, 2017	Volume 3A, Section 13.1.2 Volume 3A, Section 14.1.2

[31] -- indicates the referenced information was received following the submission of the EIA.

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
"Sites or areas of current use for ceremonial, spiritual, cultural, educational or historical value, or unique ecological characteristics of interest to the Blood Tribe include: • Blackfoot Trail (North-South Trail) along the Elbow River (within the PDA, and within the Project construction area to west of the floodplain berm) • Blood Tribe/Káínai ceremonial site at winter camp along the Blackfoot Trail (within the PDA) • Traditional Blackfoot Winter Camps in shaded valleys near water, such as one within the PDA east of the Our Lady of Peace Mission Site (Our Lady of Peace Roman Catholic Mission lies within the LAA) • Elbow River Valley (within the PDA) • Blackfoot winter camp and sites of historic, cultural and spiritual interest near proposed reservoir outlet on "Un-named Creek" known herein as Val Vista Creek (within the PDA, and intersected by the permanent project infrastructure of the off-stream storage dam)".	Kainai First Nation, 2018 (CEAR #47), p. 51	--
"Additional archaeological features within the PDA in particular are of interest to the Blood Tribe/Káínai. The material culture of the Blood Tribe can still be seen in many places within its traditional territory, often in stone formations… According to Trevor Peck, archaeological findings associated with the Blackfoot come from what archaeologists refer to as the Old Women's phase of archaeological time - about 850 AD to the 1700 AD (Peck, 2011, 3). Artifacts tied to the Blackfoot from this period include heterogeneous forms of pottery, projectiles and other artifacts indicative of mobile hunting bands in what are now Southern Alberta, western Saskatchewan and Northern Montana (Peck, 2011, 10; 3). Features tied to the Blackfoot include stone effigies, Iniskim – Buffalo Rocks, arrowheads, pottery and Medicine Wheels".	Kainai First Nation, 2018 (CEAR #47), p. 51	--

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
"Features of interest within the PDA for Blackfoot historical, spiritual or cultural value could include but are not limited to: • Tipi rings • Fire broken rocks • Pottery • Medicine Wheels • Stone effigies • Artifact scatters or deposits • Arrowheads, pipes, or carvings • Bone Piles • Bison Jumps • Human Remains".	Kainai First Nation, 2018 (CEAR #47), p. 52	--
Description of a Blackfoot camp within the PDA: "A traditional Blackfoot camp associated with a historic trail and travelway was identified and photographed Lat=51.0186° Lon=-114.4767° . This site was in a small clearing in the wooded area along the trail within reach of the river, forest and meadows… This site has the features that are suitable for a historic winter camp: 'In the winter months the ancestors winter near the mountain range and they camp near a good supply of wood so they must be camped near a forested area of the landscape. They also must be camped near a river and the trees provide a good shelter from the winter season. That is what we have seen for the time that we have been on this dam construction site and we have all agreed unanimously that this is camp of Káínai and they live here to make preparation for their traveling and acquire all that is needed to make the trip to their summer encampment. The Tipi Rings are evidence that we lived on the land and not far from this area is a steep hill and it was used as a buffalo jump'".	Kainai First Nation, 2018 (CEAR #47), p. 74	--

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
Description of a Blackfoot camp within the LAA: "The second area of historic occupancy was in the area to the east of the Our Lady of Peace Mission site. Our Lady of Peace Mission was in the vicinity of the camp of a Blood Chief (Treaty 7 Elders et al., 1996, 58). Kainai First Nation noted the importance of the information associated with the Catholic Church: "It means the Blackfoot Indians and this is where they lived in the past and they camped and hunted here'".	Kainai First Nation, 2018 (CEAR #47), p. 75	--
Description of a Blackfoot camp, located within the PDA and within the off-stream reservoir: "A third area is both a historic camp and a place of more recent occupancy within living memory and is associated with the east-west "NWMP" trail that runs through what would be the reservoir if the Project were to proceed. This site is within a portion of a much larger ranch that has been preserved as heritage rangeland and has not been ploughed. Blackfoot workers who came to the ranch on a seasonal basis would reside in a camp in this area along the remnants of the east-west trail between Fort Calgary and Morley. This practice continued up until the 1950s".	Kainai First Nation, 2018 (CEAR #47), p. 76	--
"The field research team identified the location of a traditional Blackfoot/Blood Tribe ancestral winter camp in an area that would likely be directly impacted by the construction of the dam, berm and low level outlet works within the PDA… The features of the site included several tipi rings, fireplaces, fire broken rocks, possible medicine wheel or other symbol or effigy, and arrowheads/artifact scatters. The camp itself is… along the banks of the Val Vista Creek (unnamed creek). Associated with this historic winter camp were several features of historical, cultural, spiritual and perhaps archaeological importance".	Kainai First Nation, 2018 (CEAR #47), p. 76	--
"The first of these sites of ceremonial, cultural or spiritual importance is at Alt=1223m Lat=51.0186° Lon=-114.4768° (Blood Tribe/Káinai Elders, 2018, CP24). This is the site where there are clear markings of tipi rings and other stone features. 'This landscape is just magnificent and it just takes away my breath, we have walked through and near the forested area, and from where I am standing I can clearly see the Tipi Rings, they are clearly visible. The ancestors have their camp set up close to the river and then just a little farther away from the river are Tipi Rings that indicate that First Nations people have lived on the land and its landscape'".	Kainai First Nation, 2018 (CEAR #47), p. 78	--

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
Tipi rings and stone features within the PDA: "During the field verification exercise in 2018, the BT/K Elders confirmed the presence of tipi rings at the ceremonial place that would likely be destroyed by the construction of the diversion channel".	Kainai First Nation, 2018 (CEAR #47), p. 79	--
"Another site of ceremonial, cultural, spiritual and historical significance is also within the PDA and would likely be damaged during construction of the berm, dam and outlet works on Val Vista Creek (unnamed creek). Another untouched portion of the Val Vista Ranch, this historic Blackfoot occupancy site features tipi rings, stone scatters, fireplaces, arrowheads and a potential medicine wheel and likely additional features such as effigies, pottery, bones and potential human remains".	Kainai First Nation, 2018 (CEAR #47), p. 80-81	--
"Additional areas of importance for traditional use for ceremonial purposes include the mouth of the Val Vista Creek with the Elbow River where materials related to traditional painting, arts and crafts were discovered. These include surface minerals and rocks from the Elbow River banks that are conducive to baking, grinding and mixing with oils to make traditional paints. Both red and yellow paint rocks were present. Also in the area were willows used to construct sweat lodges".	Kainai First Nation, 2018 (CEAR #47), p. 81	--
Trails within the PDA: "At least two segments of historic trails and travelways were identified and marked with GPS during the field verification exercise in May 2018… The first trail will be called 'North-South Trail" here. Maps published by the Blackfoot Gallery Committee depict a traditional travel route along the foothills to the Bow River, which passes through the Elbow River crossing, just west of what is now Highway 22… The North-South Trail… would be disrupted by construction of the floodplain berm. According to one participant 'you can see the road that they made on the ground when they arrived and left this winter and summer encampment. The land is marked with their horses and travois marking the pathway they took to travel to other encampments'. The field research team walked portions of the trail on May 24th, 2018 and have mapped the route for inclusion in this report and to provide additional detail to the Proponent so that damage to the trail may be avoided. It is important to point out that the North-South Trail intersects with the traditional camping and ceremonial areas discussed above. The trail and the ceremonial and historic occupancy places together comprise a historic occupancy and travel complex".	Kainai First Nation, 2018 (CEAR #47), p. 83-85	--

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
A trail located within the PDA and within the off-stream reservoir: "Another segment of an old trail and travel route, this one going between Fort Calgary and likely connecting with the North-South Trail was identified… within Val Vista Ranch, portions of the trail are still visible…. The field research team referred to this trail as the old NWMP Trail. Where fields have been cleared, ploughed and cultivated, evidence of old travel routes is disrupted. However, since there are quarter sections of untouched, natural lands within the Val Vista Ranch, portions of the trail have been preserved. Like the North-South Trail, the Old NWMP Trail leads through another Blackfoot historic occupancy and camping area featuring tipi rings and fireplaces. This trail is therefore likely to predate the arrival of the NWMP to southern Alberta".	Kainai First Nation, 2018 (CEAR #47), p. 85	--
Siksika Nation		
Stone features in the PDA: "… in the main body of the Reservoir north of the proposed berm where it is reported there may be a traditional medicine wheel and where tipi rings and fire-broken rock were found during the TUS study; along the Elbow River valley in both directions from the project perimeter especially on the islands nearby where it is believed there will be substantial evidence of tipi rings and traditional camp life; and, using a drone, viewing the entire proposed SR1 project site from above". Blackfoot camp within the PDA: "There is a Blackfoot traditional camp site located in the creek valley extending to the north-west off the Elbow River, close to the currently proposed outlet channel from the reservoir (see Figure Three). The Elbow River is an important four-season transportation route for Blackfoot people to travel between the plains and mountains. The KCO and SCO field teams discovered many teepee rings in the creek valley in a short period of time, indicating the site is well used. There is also a buffalo rubbing stone nearby. Fire-broken rocks were found there and on the flats north of the berm". Potential unearthing of artifacts within the PDA: "There is concern that there may be Blackfoot artifacts unearthed during excavation of the diversion inlet starting from the cliff on the west side of the Elbow River. This would be true of any location along the cliff-bank side of the river chosen for the diversion inlet. If the SR-1 project is constructed KCO and SCO monitors will need to be on-site when the inlet channel is excavated".	KCO & SCO 2017, p. 3-5	Volume 3A, Section 13.1.2 Volume 3A, Section 14.1.2 Volume 3A, Section 14.2.6

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
Siksika Nation commented on the importance of the Blackfoot history at the SR-1 site within their traditional territory and echoed other Blackfoot Nations regarding the need to protect artifacts that exist at the site such as old camp sites, teepee rings and other rock markers. Many of these sites have been lost in the past and it is important that the Blackfoot history needs to be preserved for future generations.	Engagement Meeting, September 15, 2016	Volume 3A, Section 13.1.2 Volume 3A, Section 14.2.3 Volume 3A, Section 14.2.6 Volume 3A, Section 14.3.4.1
Siksika Nation explained that every bundle will have elements of these sites. Arrowheads are incorporated back into our bundles. Siksika Nation. Traditional lands are important for Siksika identity and way of life. All the animals (found at the SR-1 site) you will find in Siksika bundles. Ceremonial practices based on a connection to traditional lands is important. Burial cairns are important and must be respected.	Engagement Meeting, January 18, 2017	Volume 3A, Section 14.2.6
Siksika Nation indicated that one of the concerns is the trails and the tipi rings in the area. The trail is a historic trail in place for hundreds of years. It's part of a corridor and trading route. The old Blackfoot trails.	Engagement Meeting, April 26, 2018	--
During site visits Siksika Nation found a village site with 20 tipi rings that looked like they had been there for 400-500 years. The site was near the Elbow River very close to the outflow channel. A large tree gave them that age estimation.	Engagement Meeting, December 10, 2018	--
Tsuut'ina Nation		
"Detailed information about physical and cultural heritage in the Project area and beyond needs to be collected as part of a federal environmental assessment. We are already aware of several possible archaeological and cultural sites in the Project area, including teepee sites, rock cairns, and portions of a medicine wheel. These resources could be significantly damaged by construction activities in the Project area, or by backing up of flood waters or depositing of contaminants or debris carried by flood waters. A full assessment is required of the location of these resources and how they might be affected by the Project".	Tsuut'ina Nation 2016, p. 8	Volume 3A, Section 14.3.4.1

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
"Tsuut'ina field crews reported numerous traditional use locations bearing evidence of cultural and archaeological significance within the Project area, including more than 100 teepee rings (in some cases 20-25 rings in a single grouping), as well as fire pits, trails, and more. Field crews also reported possible gravesites and headstones within the Project Area". "Tsuut'ina members report that there are extensive cultural sites wherever the land remains undisturbed, and that for this reason it is extremely important that undisturbed areas remain untouched. They express concern that there would be extensive damage to important cultural sites (including gravesites) on the dam outflow and intake/start of diversion channel, as well as the undisturbed riparian areas which contain numerous sites. The Tsuut'ina feel strongly that grave sites need to be protected". "Of particular concern to the field crew is the ridge on the east side of the valley where they observed what they considered possible multiple gravesites marked by stones and depressions. These are indicated by the cluster of sites directly on the Project footprint, on the east end of the proposed dam structure". "Traditional use sites bearing evidence of cultural and archaeological significance were found within the Project area and include more than 100 teepee rings (in some cases, 20-25 rings in one grouping), as well as fire pits, trails, and more". "Tsuut'ina members are concerned about damage to cultural sites (including grave sites) reported by field crews at the dam outflow and the intake/start of diversion channel, as well as the undisturbed riparian areas which contain numerous sites". "Tsuut'ina members are concerned about previously undisturbed ground because additional cultural sites may be found wherever the land remains undisturbed".	Tsuut'ina Nation 2018, p. 64, 84, 88, 89	--
"We have identified many cultural sites in the Project area, including teepee rings, fire pits, trails, and gravesites".	Tsuut'ina Nation 2019, p. 2	--

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
Piikani Nation		
Stone features within the PDA: "The Piikani decided to site visit, on Property #21 & 24. We walked in from Rge Rd 35 and followed the creek between the proposed Dam and the Elbow River. We walked both sides of the creek, found Tipi Rings multiple sites". "Site visit located and witnessed random wildlife, white & mule deer elk tracks, bald & golden eagle. More tipi rings along creek good shelter from wind, berry bushes and traditional herbs and roots". "We walked the Elbow River and the Foot Print of the Diversion Structure. We met land owner Mary Robinson she gave us the history of her ranch and showed the remains of 2 Tipi Rings at a site south of the house, an old camp site and an opening going into the cottonwoods east of the Elbow River bank of an old trail used pre and post contact called the old Stoney Trail (Old North South Trail)". "There had been Mother Grizzly Bear & 2 cubs sited in the area. Caution was taken we stayed in a group, carried bear spray & noise makers. There Piikani GPS recorded possible Tipi ring sites and other old camp signs". "We walked the area of the southern part of the Diversion Structure. Found possible evidence Tepee rings and GPS recorded some of these sittings. Additional visit to record North South Trail on February 17, 2017. We walked a portion on the Old North-South Trail".	Piikani Nation n.d., p. 9-12	Volume 3A, Section 14.2.3 Volume 3A, Section 14.2.5 Volume 3A, Section 14.2.6 Volume 3A, Section 13.3.3.1

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
"The onsite visits to location of the Off-stream Storage Reservoir earth filled dam and diversion canal if constructed would, desecrate and destroy all traces of the original people's existence in this case the *Siksik'aitsitapii*. The accepted practice is removal rather than preserving the last traces of the original history undisturbed and intact".	Piikani Nation n.d., p. 20	Volume 3A, Section 13.1.2 Volume 3A, Section 13.3.1 Volume 3A, Section 14.3.4.1
Stoney Nakoda Nations		
"Stoney Nakoda believes that a cultural use study of the proposed project area is required to understand extent and impact of the project on cultural resources and potential gravesite(s). A cultural assessment is needed to understand if there are historic structures and/or sites within the proposed project area. The cultural assessment must be done by Stoney Nakoda Nations, as the assessment would require an understanding of Stone Nakoda language, history and culture".	Stoney Consultation Office 2016, p. 2	Volume 3A, Section 13.1.2 Volume 3A, Section 14.2.3 Volume 3A, Section 14.2.4

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
Ermineskin Cree Nation		
"Site visits identified several sites of real and potential historical importance. The first is an area to near the Elbow River to the southwest of the intersection of Highways 22 and 8. The area was a traditional camping ground for First Nations travelling through the area. Within this area, moreover, ECN community members identified a potential teepee ring at the edge of a trail leading into a wooded area. ECN would like Alberta Culture to work with First Nations to determine whether the site is in fact a historical teepee ring". "The second potential historical site is in the southeastern corner of the PDA, near the Elbow River. The landowner stated there was an Indigenous burial site in the area, but claims the markings were washed away in the 2013 flood. ECN again would like Alberta Culture to work with First Nations to determine whether there is in fact an Indigenous burial site in the area prior to construction of the proposed Project". "ECN community members identified a number of sites in and around the Project LAA that are of spiritual and ceremonial significance to the community. The first is the TsuuT'ina powwow grounds to the southeast of Highway 22 between Redwood Meadows and Bragg Creek. Several of the community members interviewed have attended the powwow on a regular basis for years. As well, several interview participants identified the Sun Dance grounds on the Tsuu T'ina Reserve 145 as a site of spiritual and ceremonial significance, as well as the cultural camp for youth to the east of the Sun Dance grounds". "…community members mapped several occupancy sites in and around the TLRU LAA. Three sites were identified within TsuuT'ina Reserve 145 where an ECN Elder stays with family while visiting. The Elder in question visits relatives on the reserve numerous times every year and is a regular attendee of spiritual and ceremonial events on the reserve. Other occupancy includes campgrounds around Bragg Creek and in the Elbow River Recreation Area, where ECN community members stay when the travel to the area to fish and pick medicines.".	WSSS 2018, p. 28	--

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
Louis Bull Tribe		
No physical or cultural heritage sites of importance were identified by Louis Bull Tribe.	--	--
Montana First Nation		
"MFN is concerned about the impacts to heritage resources (i.e. ancestral traditional land and resource use sites) within the Project Development Area (PDA). A total of 11 pre-contact period sites and 11 historic period sites were assessed within the PDA. Sites deemed non-significant by the regulators will be cleared for impact and more significant sites will undergo systematic removal. Ultimately historical resources are non-renewable and will be permanently lost. The pre-contact period sites included five isolated finds of single lithic (stone) artifacts and six campsites. These sites are larger, with evidence of stone tool making and use, firebroken rocks from hearths or stone boiling, and occasional fragments of animal bone… The historic period sites included five historic artifact scatters, one granary, one cabin and four homestead sites".	MSES 2018 (CEAR #51), p. 12	-
Métis Nation of Alberta, Region 3		
"Métis Nation of Alberta, Region 3 noted that the Project TUS will include a historical assessment and questioned whether it will therefore be considered in the EIS. There are cart trails, artifacts, and other features that are an important part of Métis identity. If they are buried or dug up that will have effects on the community. If there are impacts to Bow River or Elbow River, this will have effects on identity". "Métis Nation of Alberta, Region 3 expressed concern about artifacts, cart trails, and other cultural sites being encountered then reburied and not identified as Métis. Métis Nation of Alberta, Region 3 explained that when a flood occurred in the Fort McLeod area, it buried a townsite. After, people found perfectly preserved shoe soles and other artifacts".	TLRU Workshop, February 22, 2018	--

Table IR10-1 Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Physical and Cultural Heritage and Sites of Importance as Identified by each Indigenous Group	Source	EIA Reference (if applicable)[31]
"Métis Nation of Alberta, Region 3 inquired about the cairn in the RAA. Alberta Transportation explained that a Catholic priest from Ireland, Father Scollen, set up a mission and established a church in the area… Métis Nation of Alberta, Region 3 added that Father Scollen was in Red River and Métis people followed him. There is possibly another church, Saint Thomas, located near Duhamel, which Métis Nation of Alberta, Region 3 would be interested in learning about. Alexis Cardinal who is Métis was Father Scollen's assistant. Métis Nation of Alberta, Region 3 explained that the church would have been built with dovetails, which is a unique technique that Métis used".	TLRU Workshop February 22, 2018	--
Métis Nation of Alberta Region 3 indicated the EIA identified 11 period historical sites; four cabins and one homestead in the PDA. These areas may be associated with Métis use. The Métis Nation of Alberta Region 3 requested to be contacted should construction unearth historical artifacts as there may be a connection to Metis use. The Métis Nation of Alberta Region 3 indicated they may be able to identify the original families to the cabins/homesteads. The Métis Nation of Alberta Region 3 voiced concern regarding the history of Métis concerns about archaeological material being ignored. The Métis Nation of Alberta Region 3 also noted that water flowing into or out of the reservoir may expose unknown heritage resources, monitoring is recommended	Engagement Meeting, May 23, 2018	--
Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding physical and cultural heritage has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

As noted in Volume 3A, Section 13.3.1, standard mitigation measures will be determined by Alberta Culture and Tourism (ACT) based on their review of the Historical Resource Impact Assessment (HRIA). However, anticipated measures to mitigate effects to any structure, site, or thing that is of historical, archaeological, paleontological, or architectural significance are described in Volume 3A, Section 13.3.1:

- ACT considers documentation of the site locations, photography, and collection of a sample of artifacts as sufficient mitigation for sites of low to moderate heritage value. For sites of moderate to high heritage value, avoidance or additional mitigation, such as detailed recording and mitigative excavation to retrieve a larger sample of artifacts and obtain an improved understanding of the cultural affiliation may be required by ACT. Construction monitoring could also be required, depending upon the results of mitigative excavations.
- Through the Project-specific Indigenous engagement program, Piikani Nation, Siksika Nation and Kainai First Nation, have recommended that all collected artifacts be returned to the land. They have also requested that GPS coordinates or archaeological findings be shared so that they can discover those areas with their Elders. HRIA permit requirements state that all artifacts be curated at the Royal Alberta Museum. ACT is the repository for all HRIA data and only they can share locality information.
- Through the Project-specific Indigenous engagement program, Piikani Nation, Siksika Nation and Kainai First Nation have recommended further investigation of the church (= mission) and related cairn. This site (The Our Lady of Peace Mission) is located outside the PDA. Because this site is a provincially designated historical resource, it has the highest level of protection under the *Historical Resources Act* (*HRA*) and ACT has indicated that no Project-related disturbance (including archaeological assessment) will be allowed at this site.
- ACT has also issued requirements for additional assessment including a deep backhoe testing program and additional assessment for areas where landowner approval of access was not obtained at the time of the initial fieldwork. However, any sites discovered during this additional assessment or shared with Alberta Transportation through the Indigenous engagement program for the Project will also require the application of standard mitigation measures prior to Project approval by ACT.
- As required under provincial legislation, should an unexpected find of an historical resource occur during construction, ACT will be notified and will determine the appropriate mitigation.

- Should any chance find of human remains be made during construction, all construction will immediately cease in the area, the site will be secured and all provincial regulations regarding the chance find of human remains will be followed. If the remains are determined to be of Aboriginal origin the Provincial Government would engage Indigenous groups according to Government of Alberta protocol and guidelines developed in consultation with Indigenous groups.
- Kainai First Nation, Piikani Nation and Siksika Nation recommended further investigation of potential burial and historic sites be undertaken. With respect to further investigation, Alberta Transportation must legally comply with the Alberta *Historical Resources Act* for the assessment and mitigation of sites. The Act provides for the consideration and, where warranted, investigation of historic resources identified during Project planning and construction activities.

Alberta Transportation notes that, while not all the locations of cultural sites identified by Indigenous groups have been shared with Alberta Transportation, mitigation discussions are dependent on the receipt of additional, site-specific information and Alberta Transportation will continue to request this level of detail through ongoing engagement. Any site information shared will continue to be documented for discussion and investigation with ACT and the interested Indigenous groups (Volume 3A, Table 14-7). Alberta Transportation will follow heritage resource protection methods as mandated by ACT and review archaeological results with Indigenous groups where approved by ACT (Volume 3A, Table 14-7). All historical resources sites are individually reviewed by the Aboriginal Heritage Section of ACT for potential effects on cultural heritage, who may direct Alberta Transportation on further required engagement.

a.2) Alberta Transportation clarifies that its reference to “current industry best practices” in Volume 3A, Table 14-7 relates specifically to the development of potential monitoring and follow-up plans. Final monitoring programs will rely on approval conditions (both provincial and federal), future refinement of Project planning and design, and the results of ongoing consultation and engagement with Indigenous groups and stakeholders (Volume 3C, Section 2.1).

Alberta Transportation will have in discussions with Indigenous groups regarding possible opportunities to them to participate in these monitoring programs (Volume 3A, Section 14.3.4.2, Table 14-7).

a.3) In assessing residual environmental effects, recommendations and measures for mitigation regarding physical and cultural heritage and sites of importance suggested by Indigenous groups were considered. The residual effects assessment also considers mitigation measures proposed for the different biophysical and socio-economic valued components (VCs) that support the conditions for traditional land and resource use, which includes consideration for physical and cultural heritage and sites of importance.

As noted above, Alberta Transportation recognizes that information regarding traditional land and resource use, including physical and cultural heritage and sites of importance are best identified by Indigenous groups themselves. The information in Table IR10-2 summarizes the mitigation measures identified by each of the Indigenous groups regarding potential effects to physical and cultural heritage and sites of importance, incorporating recommendations previously reported in Volume 31, Section 14, Table 14-6 and those subsequently shared with Alberta Transportation.

Table IR10-2 Indigenous Group Views on Mitigation Measures and Best Practices that Specifically Address Potential Impacts on Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Mitigation Measures and Best Practices	Source	EIA Reference (if applicable)[32]
Kainai First Nation		
"The destruction of ceremonial sites along the North-South Trail would be adverse, high in magnitude, concentrated within the site itself, continuous, long term, irreversible and the residual effect of the Project on this site would be highly significant. Further mitigation measures to reduce the significance of the effect would be required such as avoidance and/or redesign of the Project to a preserve the integrity of the site". "The effects of the potential loss of or permanent damage to Blackfoot material cultural properties (tipi rings, human remains, artifacts) at historic camp location along the North-South Trail would likewise be adverse, high in magnitude, concentrated within the site itself, continuous, long term, irreversible and highly significant. Additional mitigation measures are required". "Loss of access to the traditional winter camp location east of the Our Lady of Peace Mission site would be adverse, high in magnitude, concentrated in the western portion of the PDA, continuous, long term but reversible if access to that location should be opened at some point in the future. The effect to this site is therefore significant but could be mitigated with negotiated access to this portion of the PDA since it is unlikely to interfere with any structure". "The destruction of remnants of existing traces of Old NWMP trail south of Val Vista Creek (unnamed creek) would be adverse, high in magnitude, concentrated within the Area B, continuous, long term, irreversible and highly significant, even after mitigation, since in the event of a flood, the site would be covered in sediment and unrecognizable". "The residual effects of loss of access to cultural and historical sites of interest due to the construction of the dam would be adverse, high in magnitude, concentrated at the dam site (near the outlet works), continuous, long term, irreversible and highly significant. Further mitigation measures to reduce the significance of the effect would be required such as avoidance and/or redesign of the Project to a preserve the integrity of the site".	Kainai First Nation, 2018 (CEAR #47), p. 96	--

[32] -- indicates the referenced information was received following the submission of the EIA.

Table IR10-2 Indigenous Group Views on Mitigation Measures and Best Practices that Specifically Address Potential Impacts on Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Mitigation Measures and Best Practices	Source	EIA Reference (if applicable)[32]
"The residual effects of the Project-related destruction of or permanent damage to Blackfoot material cultural properties (medicine wheel, tipi rings, fire places, artifacts and possible human remains) would be adverse, high in magnitude, concentrated along Val Vista Creek (unnamed creek), continuous, long term and irreversible. Further mitigation measures to reduce the significance of the effect would be required such as avoidance and/or redesign of the Project to a preserve the integrity of the site".		
"The mitigation measures proposed here are preliminary and subject to change or additions as ongoing consultation between the BT/K and the Proponent continues. It is not implied that the mitigation measures listed here would be sufficient to reduce the significance of the identified residual effects but rather at minimum, these and additional measures would be required". "Develop avoidance or redesign measures to ensure that BT/K cultural properties, ceremonial sites and identified traditional camping areas along North-South Trail and associated material features (tip rings, stone circles, campfires, artifacts, etc) remain intact and the areas remain accessible to BT/K". "Develop additional avoidance or redesign to ensure the integrity of BT/K traditional areas and cultural properties in the Val Vista Creek area so that the integrity of the site and material evidence of BT/K ancestral use is preserved and the site itself remain[s] accessible". "Design avoidance or preservation measures to ensure the integrity of the portions of the traditional trails NWMP and North-South Trails or conduct additional archaeological field visits in the company of BT/K Elders to further and more comprehensively identify sites of interest for preservation". "Hold at least two Mitigation Measures workshops with BT/K where Elders, hunters and BT/K consultation personnel have the opportunity to discuss proposed mitigation with Alberta Transportation and develop mutually agreeable mitigation measures for the effects identified in this report and for any additional effects to sites of interest that have yet to be discovered". "Provide additional rationale to BT/K Elders over the choice of location for flood mitigation measures and discuss and clarify alternatives such as McLean Creek".	Kainai First Nation, 2018 (CEAR #47), p. 97	--

Table IR10-2 Indigenous Group Views on Mitigation Measures and Best Practices that Specifically Address Potential Impacts on Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Mitigation Measures and Best Practices	Source	EIA Reference (if applicable)[32]
Siksika Nation stated that "when construction is anticipated it is very important that there be Blackfoot monitors in place on the front lines to ensure that if artifacts are discovered during the excavations that all steps necessary be taken to preserve those artifacts".	Engagement Meeting, September 15, 2016	Volume 3A, Section 13.3.1: Project Interactions with Archaeology and Mitigation Measures, Page 13.15 Volume 3A, Section 14.3.4.2: Mitigation Measures, Page 14.80
Siksika Nation		
Siksika Nation stated "we have worked with archaeologists before. They should come to our elders to ensure accuracy and get accurate information. Some reports are not accurate. If you put inaccurate information out, future scholars will have more inaccurate information. It is relationship building with the landowner, with everyone".	Engagement Meeting, January 18, 2017	Volume 3A, Section 13.3.1: Project Interactions with Archaeology and Mitigation Measures, Page 13.15 Volume 3A, Section 14.3.4.2: Mitigation Measures, Page 14.79-14.80

Table IR10-2 Indigenous Group Views on Mitigation Measures and Best Practices that Specifically Address Potential Impacts on Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Mitigation Measures and Best Practices	Source	EIA Reference (if applicable)[32]
Siksika Nation stated "when construction is anticipated it is very important that there be Blackfoot monitors in place on the front lines to ensure that if artifacts are discovered during the excavations that all steps necessary be taken to preserve those artifacts".	Engagement Meeting, September 15, 2016	Volume 3A, Section 13.3.1: Project Interactions with Archaeology and Mitigation Measures, Page 13.15 Volume 3A, Section 14.3.4.2: Mitigation Measures, Page 14.79-14.80
Tsuut'ina Nation		
"The Tsuut'ina feel strongly that grave sites need to be protected".	Tsuut'ina Nation 2018, p. 64	--
"Do not disturb the extensive cultural and burial sites on the ridge located on the east side of the proposed dam". "Do not disturb the extensive archaeological sites, particularly along the outflow creek of the proposed dam as well as along the Elbow River where the diversion channel is proposed to cross" "Members of the Tsuut'ina Nation should be field crew for archaeological and all other field work carried out as part of this Project". "Tsuut'ina Nation would require, at a minimum, that Tsuut'ina monitors are on-site during all pre-construction and construction phases".	Tsuut'ina Nation 2018, p. 92	--

Table IR10-2 Indigenous Group Views on Mitigation Measures and Best Practices that Specifically Address Potential Impacts on Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Mitigation Measures and Best Practices	Source	EIA Reference (if applicable)[32]
Piikani Nation		
"The proponents of the [P]roject need to revise the language regarding mitigation and consider participation of *Siksik'aitsitapii* in the official assessment by the experts utilized to confirm the authenticity of the historic and archeological sites discovered. Second if the project proceeds to the stage of construction another stage of consultation needs to proceed with *Siksik'aitsitapii* prior to actual excavation and removal of material from the sites of the diversion".	Piikani Nation n.d., p. 23	Volume 3A, Section 13.3.1: Project Interactions with Archaeology and Mitigation Measures, Page 13.15 Volume 3A, Section 14.3.4.2: Mitigation Measures, Page 14.80
"Piikani Nation is concerned that monitoring will not involve Indigenous communities and requests that Alberta Transportation provides opportunities and financial capacity for the community to meaningfully participate in the planning and implementation of monitoring to help define meaningful monitoring targets, criteria and indicators for traditional land use objectives".	Schaldemose & Associates 2018, p. 51	--
Stoney Nakoda Nations		
No additional recommendations were made by Stoney Nakoda Nations.	--	--
Ermineskin Cree Nation		
"ECN community members have the following concerns and recommendations regarding the potential Environmental/TKU impacts of the proposed Project: the potential impact of the Project on sites of potential historical and spiritual significance to ECN and its members, particularly in the southeastern and southwestern portions of the PDA". "The Proponent should work with ECN in the design and implementation of environmental monitoring… As part of its environmental monitoring plan, the Proponent and ECN should develop a joint communications plan for the presentation of environmental monitoring results to the community and the incorporation of community feedback".	WSSS 2018, p. 39-40	--

Table IR10-2 Indigenous Group Views on Mitigation Measures and Best Practices that Specifically Address Potential Impacts on Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Mitigation Measures and Best Practices	Source	EIA Reference (if applicable)[32]
Louis Bull Tribe		
"LBT requests an opportunity to conduct a site visit during and post construction to ensure that prescribed mitigation measures are applied and that no culturally significant sites are adversely impacted".	Louis Bull Tribe, 2018b (CEAR #1228), Section 5.0, p. 9	--
Louis Bull Tribe has the following recommendations: "Cultural monitoring during construction; Indigenous participation in reclamation planning and implementation; ongoing consultation through construction".	Louis Bull Tribe 2018a (CEAR #49)	--
Montana First Nation		
"AB Transportation should commit to providing a workshop to interested MFN members on the sites identified and seek their perspective on site significance, site interpretation, and appropriate mitigation".	MSES 2018 (CEAR #51), p. 12	--
Métis Nation of Alberta, Region 3		
"During construction, monitoring, and/or operations Métis Nation of Alberta Region 3 would like to be contacted if historic period artifacts are encountered. Métis Nation of Alberta Region 3 wants to be involved in developing mitigation for the sites". "During drawdown, recommend monitoring for potential newly exposed heritage resources".	Engagement Meeting, May 23, 2018, p. 8	--
Foothills Ojibway		
As reported in Volume 3A, Section 14.8.7, Foothills Ojibway undertakes current use activities such as hunting, plant harvesting, habitation, as well as spiritual and ceremonial practices. However, no additional information regarding physical and cultural heritage has been received from Foothills Ojibway to date. Alberta Transportation has continued to provide Foothills Ojibway with Project information and updates.		

Table IR10-2 Indigenous Group Views on Mitigation Measures and Best Practices that Specifically Address Potential Impacts on Physical and Cultural Heritage and Sites of Importance, as Identified by each Indigenous Group

Mitigation Measures and Best Practices	Source	EIA Reference (if applicable)[32]
Ktunaxa Nation		
As reported in Volume 3A, Section 14.8.8, Ktunaxa Nation has informed Alberta Transportation that they have no interest in the Project. Alberta Transportation has continued to provide Ktunaxa Nation with Project information and updates.		
Métis Nation British Columbia		
Métis Nation British Columbia has not engaged with Alberta Transportation on the Project. Alberta Transportation has continued to provide Métis Nation British Columbia with Project information and updates.		

In addition to the resource-specific measures described in response to a.1), as described in Volume 3A, Section 14, Table 14-6 and in response to IR2-02, Alberta Transportation's commitments to mitigate potential effects on cultural experience/experiential values aspects of physical and cultural heritage and sites of importance, include:

- notifying Indigenous groups regarding Project activities and schedules, including provision of Project maps and design components, and discuss key traditional harvesting periods
- maintaining access to identified current use sites (located outside of the designated construction and PDA) during construction and operations, including for hunting and fishing and Alberta Transportation would advise Indigenous groups on post-construction access management
- providing Indigenous participation in the Project, including training, employment, and contracting opportunities.
- providing opportunities for harvesting or relocating medicinal and ceremonial plants prior to construction
- disturbing burial sites located within the designated construction site boundary will be avoided to the extent possible and practical. Alberta Transportation would participate in discussions with ACT and Indigenous groups regarding possible mitigation options for burial sites located within the designated construction site boundary and particularly within the footprint of structures that will be disturbed by construction.

At the request of Indigenous groups, Alberta Transportation would participate in ceremonies (if invited) prior to the start of construction, including making offerings

a.4) Final monitoring programs will rely on approval conditions (both provincial and federal), future refinement of Project planning and design, and the results of ongoing consultation and engagement with Indigenous groups and stakeholders (Volume 3C, Section 2.1).

Alberta Transportation will have discussions with Indigenous groups regarding possible opportunities for them to participate in these monitoring programs (Volume 3A, Section 14.3.4.2, Table 14-7).

Since the submission of the EIA, the additional information gathered through Alberta Transportation's ongoing engagement program and referenced throughout this response has been reviewed in the context of the EIA. The physical and cultural heritage and sites of importance to each Indigenous group, as indicated by the outcomes of the engagement program to date, are consistent with the activities that are assessed by Alberta Transportation and for which Alberta Transportation's suite of mitigation measures are developed.

The significance conclusions of the assessment on TLRU remain unchanged.

The EIA conforms to *Canadian Environmental Assessment Act, 2012* (CEAA 2012) and the CEA Agency Guidelines for the Project and reflects standard environmental assessment practice appropriate for the scope and nature of the Project.[33]

Alberta anticipates building upon engagement efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate.

REFERENCES

KCO & SCO (Kainai Consultation Office and Siksika Consultation Office). 2017. Springbank Off-stream Reservoir (SR-1) KCO and SCO TUS Research Study. Joint Kainai & Siksika Interim Report.

Kainai First Nation. 2018. Blood Tribe/Káínai Traditional Knowledge, Land, and Resource Use Study. Springbank Off-Stream Reservoir Project. Prepared for the Blood Tribe/Káínai. Prepared by Dermot O'Connor, Oak Road Concepts Inc. Available on the Canadian Environmental Assessment Registry (CEAR #47) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123631?culture=en-CA

Louis Bull Tribe. November 2018b. Traditional Land Use Assessment for the proposed Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #1228) at: https://www.ceaa-acee.gc.ca/050/documents/p80123/126242E.pdf.

MSES. June 25, 2018. MSES Review of Alberta Transportation's Springbank Off-Stream Reservoir Project Environmental Impact Assessment. Prepared for Montana First Nation. Available on the Canadian Environmental Assessment Registry (CEAR #51) at: https://www.ceaa-acee.gc.ca/050/documents/p80123/123696E.pdf

Peck, Trevor R. 2011. Light from Ancient Campfires: Archaeological Evidence for Native Lifeways on the Northern Plains. Edmonton: Athabasca University Press.

[33] Standard assessment methods have been developed with reference to federal guidance material for the conduct of federal environmental assessment, including CEAA 2012; the CEA Agency's Draft Technical Guidelines for assessing the Current Use of Lands and Resources for Traditional Purposes under CEAA 2012 (December 2015); the CEA Agency's Considering Aboriginal traditional knowledge in environmental assessments conducted under CEAA -- Interim Principles (2016); the CEA Agency Environmental Impact Statement Guidelines for the Springbank Off Stream Reservoir Project (2016); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Interim Technical Guidance (March 2018); CEA Agency's Assessing Cumulative Environmental Effects under the CEAA, 2012, Operational Policy Statement (March 2015); CEA Agency's Cumulative Effects Assessment Practitioners' Guide (1999); and Table A-3 of the National Energy Board Filing Manual (2017).

Piikani Nation. n.d. Piikani Report on Proposed Springbank Reservoir and Dam. Prepared by William Big Bull for Piikani Consultation.

Stoney Consultation Office. June 8, 2016. Springbank Off-Stream Reservoir project (the "Project") – Letter of Comment of the Stoney Nakoda Nations (the "SNN").

Tsuut'ina Nation. January 10, 2018. Tsuut'ina Traditional Land Use report for the Proposed Springbank Off-Stream Reservoir Project. Prepared by Tsuut'ina Nation and Trailmark Systems. Prepared for Alberta Transportation.

WSSS (Willow Springs Strategic Services). 2018. Traditional Knowledge and Use Study: Springbank Off-Stream Reservoir Project. Available on the Canadian Environmental Assessment Registry (CEAR #46) at: https://www.ceaa-acee.gc.ca/050/evaluations/document/123630?culture=en-CA

WILDLIFE

Question IR2-11: Wildlife – Culturally Important Species

Sources:

EIS Guidelines Part 2, Section 5; 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 11.5

EIS Volume 3B, Section 11.4

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission – June 25, 2018 (CEAR # 52)

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally important species and assess the effects of changes to the environment on Indigenous peoples. The EIS Guidelines indicate that with regards to current use, the EIS must consider fish, wildlife, birds, plans, or other natural resources of importance and that the views of Indigenous groups regarding VC selection must be taken into account.

The effects assessment in the EIS for construction and dry, flood and post flood operations includes a broad determination of significance on wildlife and biodiversity. Conclusions on significance are discussed broadly without a clear connection to each species assessment. The potential for significant adverse effects to specific species may not be reflected in significance determinations for wildlife and biodiversity overall.

The EIS includes a list of the wildlife indicator species considered in the EIS and the rationale for selection. While Indigenous groups have proposed additional and/or alternative indicator species, it is not evident if or how this input was considered. Species of importance identified by Indigenous groups include amphibians, wild horses, bison, osprey, beavers, bald eagles, moose, and deer. In assessing the broad effects of the Project on wildlife and biodiversity, the EIS does not allow for a meaningful understanding of potential effects to individual species of importance to Indigenous peoples, and related effects of changes to the species on Indigenous peoples.

Additional detail and accurate characterisation of species presence is required to understand baseline species abundance and distribution, predict changes to those species from the Project, and support the assessment of effects to Indigenous peoples.

Information Requests:

a) List the species identified by Indigenous groups as species of importance and provide a rationale for how the indicator species selected allow for a robust understanding of potential effects to each of these species of importance. Where an adequate understanding of potential effects to the species of importance cannot be determined using the indicator species, conduct and present an assessment of potential effects to that species.

b) Include an updated effects assessment and significance determination for each species of cultural importance. Update the effects assessment and significance determination for the wildlife and biodiversity VC as necessary.

c) Describe opportunities for and commitments to pre-construction surveys for species of importance to Indigenous groups and the development of species-specific mitigation measures prior to construction based on the results of these surveys.

Response IR2-11

a) A list of wildlife species identified by Indigenous groups are provided in Table IR11-1. The rationale used to select the wildlife indicator species and their ability to assess potential Project effects on traditional use wildlife species are described in Volume 3A, Section 11.1.2.2. The wildlife assessment used a habitat-based approach to assess potential Project effects on species of management concern including those considered to have cultural importance to indigenous groups. As stated in Volume 3A, Section 11.1.2.2, wildlife indicator species chosen, such as elk and grizzly bear, are representative of wildlife species used for traditional purposes because these species depend on a variety of seasonal habitat types that would include other wildlife species of traditional importance, such as mule deer, white-tailed deer, coyote and weasel, which also depend on similar habitat types (e.g., grassland, shrubland, forest). For a more detailed assessment of potential Project effects on species of cultural importance, see response to b) and Table IR11-1.

b) An updated effects assessment for wildlife species of cultural importance is provided in Table IR11-1 (construction and dry operations) and Table IR11-2 (design flood operations and post-flood operations), which only includes species of cultural importance that were not previously assessed and included in Volume 3A, Section 11, and Volume 3B, Section 11, Attachment A, Table A-1. Species at risk that are also considered as species of cultural importance including Sprague's pipit, grizzly bear, and American badger, and key indicators used in the assessment (i.e., elk) are not repeated here. Wild horses and bison are not included in this updated assessment because these species do not occur in the LAA or RAA

and, therefore, do not have any potential to interact with the Project. The assessment of individual wildlife species of cultural importance does not change the determination of significance or conclusions discussed in Volume 3A, Section 11.5 and Section 11.7 and in Volume 3B, Section 11.4 and Section 11.6. Species of traditional importance assessed are:

- harlequin duck
- trumpeter swan
- gray partridge
- ruffed grouse
- sharp-tailed grouse
- bald eagle
- northern pygmy owl
- snowshoe hare
- coyote
- red fox
- bobcat
- striped skunk
- short-tailed weasel
- American mink
- moose
- white-tailed deer
- muskrat
- red squirrel
- Canada goose
- American coot
- ring-necked pheasant
- spruce grouse
- osprey
- barred owl
- great grey owl
- white-tailed jackrabbit
- grey wolf
- Canada lynx
- cougar
- marten
- long-tailed weasel
- black bear
- mule deer,
- beaver
- porcupine
- Richardson's ground squirrel

c) Commitments to pre-construction surveys and development of species-specific mitigation will be outlined in the Environmental Construction Operations Plan (ECO Plan) as well as the wildlife mitigation and monitoring plan; a draft wildlife mitigation and monitoring plan is provided in the response to CEAA IR1-9, Appendix IR9-1. Pre-construction surveys will be conducted at the species-specific appropriate time of year to confirm presence of species of management concern (SOMC) at identified wildlife features (e.g., raptor stick nests, wetlands) that may require mitigation, including species of importance to Indigenous groups. Examples of pre-construction surveys designed to protect wildlife features include:

- bird nest searches conducted between February 15 to August 31 to identify active raptor stick nests (e.g., bald eagle, osprey, barred owl, northern pygmy owl) and both migratory (e.g., trumpeter swan, American coot) and non-migratory bird nests (e.g., spruce grouse, ruffed grouse),
- nocturnal or diurnal amphibian surveys conducted mid-April to mid-June and designed to confirm presence of SOMC amphibian breeding wetlands,
- mammal den and mineral lick searches conducted in early spring to identify active dens and ungulate mineral licks in the LAA.

If a wildlife feature is identified during pre-construction surveys, species-specific mitigation will be applied which might include temporary delays in construction, placing a timing and distance setback buffer around the wildlife feature, allowing wildlife to pass through, or placing silt fences around breeding wetlands for amphibian species of management concern. Mitigation measures for any unforeseen wildlife issues that may arise will be developed in consultation with the applicable regulatory agency (i.e., AEP and/or Environment and Climate Change Canada [ECCC]). Given that pre-construction surveys are wildlife feature based, no other pre-construction surveys are recommended; however, Alberta Transportation continues to consult with Indigenous groups and opportunities for other pre-construction surveys may arise.

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Birds								
Harlequin duck (*Histrionicus histrionicus*)	*Special Concern*	*Sensitive*	Fast flowing streams and rivers. Potential breeding habitat along sections of Elbow River. Low to moderate suitability breeding habitat occurs.	No Fisheries and Wildlife Management Information System (FWMIS) records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Potential sensory disturbance during in-stream Project activities. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing will result in increased mortality risk from potential nest destruction.	Section 11.4.2.2 Section 11.4.4.2.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short Term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed
Canada Goose (*Branta canadensis*)	-	*Secure*	Wetlands (e.g., graminoid marsh) and agricultural lands. Wetlands are 6.4% (312 ha) and agricultural lands are 48.2% (2,343.9 ha). Overall, moderate to high suitability breeding, stopover, and wintering habitat occurs.	FWMIS records in the RAA and observed during waterbird field surveys. Moderate to high potential to occur in the LAA during the breeding and winter seasons, as well as spring and fall migration.	**Change in Habitat** Direct habitat loss or alteration due to vegetation removal (29.5 ha of wetland) during construction. Temporary construction disturbances will reduce residual effects at dry operations (habitat loss of 15.3 ha from existing conditions). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short Term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
Trumpeter swan (*Cygnus buccinators*)	*Special Concern*	*Sensitive*	Shallow lakes, marshes, and wooded swamps. Wetlands are 6.4% (312 ha) and open water is 5.8% (283.5 ha). Overall, low suitability breeding habitat (i.e., only small wetlands and waterbodies occur). No potential migration stopover habitat.	FWMIS records in the RAA during early and mid-1990s. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration due to vegetation removal (29.5 ha of wetland) during construction. Temporary construction disturbances will reduce residual effects at dry operations (habitat loss of 15.3 ha from existing conditions). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short Term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed
American coot (*Fulica americana*)	-	*Secure*	Shallow lakes, marshes and ponds with emergent vegetation. Graminoid marsh and shallow open water is 4.9% (238.4 ha) combined. Moderate suitability breeding habitat.	Three FWMIS records in the RAA during 2006. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration due to vegetation removal (29.5 ha of wetland) during construction. Temporary construction disturbances will reduce residual effects at dry operations (habitat loss of 15.3 ha from existing conditions). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short Term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Gray partridge (*Perdix perdix*)	-	*Secure*	Agricultural lands and grassland, which is 48.2% (2,343.9 ha) and 8.8% (425 ha) respectively. Moderate to high suitability breeding and wintering habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (89.7 ha – native grassland). During dry operations, reclamation will increase habitat by 91.2 ha from existing conditions. Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short Term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed
Ring-necked pheasant (*Phasianus colchicus*)	-	*Secure*	Agricultural lands, grassland, shrubland, wetland (marsh), forest edges. Agricultural land is 48.2% (2,343.9 ha), grassland is 8.8% (425 ha), shrubland is 8.4% (408.5 ha) and wetlands are 6.4% (312 ha). Moderate to high suitability breeding and wintering habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (204.5 ha - all native habitat types combined). During dry operations, reclamation will reduce residual effects (habitat loss of 7.5 ha from existing conditions). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short Term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Ruffed grouse (*Bonasa umbellus*)	-	*Secure*	Mixed and broadleaf forest. Mixed and broadleaf forest is 6.1% (296 ha) and 5.2 % (252 ha), respectively. Overall, moderate suitability breeding habitat.	One FWMIS record in the RAA during 2010. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (38 ha – mixed and broadleaf forest combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed
Spruce grouse (*Falcipennis canadensis*)	-	*Secure*	Breed in coniferous forest. Coniferous forest is 5.0% (245 ha). Overall, low to moderate suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (11 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Sharp-tailed grouse (*Tympanuchus phasianellus*)	-	*Sensitive*	Breed in native grassland and tame pasture. Limited amounts of native grassland (425 ha or 8.8%). Tame pasture is 27.3% (1,325 ha). Overall, low suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (89.7 ha – native grassland). During dry operations, reclamation will increase habitat by 91.2 ha from existing conditions. Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2 See Volume 3A, Table 11-10 for sharp-tailed grouse timing and setback distance.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed
Osprey (*Pandion haliaetus)*	-	*Sensitive*	Breed in broadleaf forest (large trees) or man-made structures near waterbodies with fish. Broadleaf forest is 5.2% (252 ha). Overall, moderate suitability breeding habitat along Elbow River.	No FWMIS records in the RAA. One active platform nest observed in the LAA during 2016. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (3 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2 See Volume 3A, Table 11-10 for osprey timing and setback distance.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Bald eagle (*Haliaeetus leucocephalus*)	-	*Sensitive*	Breed in broadleaf forest (large trees) or man-made structures near waterbodies with fish. Broadleaf forest is 5.2% (252 ha). Overall, moderate suitability breeding habitat along Elbow River.	No FWMIS records in the RAA. One active stick nest observed in the LAA during 2016. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (3 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2 See Volume 3A, Table 11-10 for bald eagle timing and setback distance.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed
Barred owl (*Strix varia)*	*Special Concern*	*Sensitive*	Mixed and broadleaf forest. Mixed and broadleaf is 6.1% (296 ha) and 5.2% (252 ha), respectively. Overall, low suitability breeding habitat.	One FWMIS record in the RAA during 1980. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (37.8 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2. See Volume 3A, Table 11-10 for barred owl timing and setback distance.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
Northern pygmy owl (*Glaucidium gnoma*)	-	*Sensitive*	Coniferous and mixed forests is 5% (245 ha) and 6.1% (296 ha), respectively. Overall, low to moderate suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (46 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed
Great grey owl (*Strix nebulosa*)	-	*Sensitive*	Coniferous and mixed forests, treed wetlands. Coniferous forest is 5.0% (245 ha), mixed forest is 6.1% (296 ha) and treed wetland (wooded swamp) is 0.4% (20.3 ha). Overall, low suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration from vegetation clearing during construction (46 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** No potential Project effects. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of nest.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
Mammals								
Snowshoe hare (*Lepus americana*)	-	*Secure*	Coniferous and mixed forests, which is 5% (245 ha) and 6.1% (296 ha), respectively. Moderate suitability habitat in the LAA.	No FWMIS records in the RAA. Observed in the LAA during 2015 winter tracking survey. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (46 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
White-tailed jackrabbit (*Lepus townsendii*)	-	*Secure*	Grassland, shrubland, and tame pasture, which is 8.8% (425 ha), 8.4% (408.5 ha) and 27.3% (1325.2 ha) respectively. Overall, moderate to high suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (175 ha – native grassland and shrubland combined). During dry operations, reclamation will increase habitat by 7.8 ha from existing conditions. Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.4.2.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Coyote (*Canis latrans*)	-	*Secure*	Forests, shrubland, grassland, agricultural fields, which is 16.3 % (793.1 ha), 8.4% (408.5 ha), 8.8% (425.1 ha) and 48.2% (2,343.9 ha) respectively. Overall, high suitability habitat.	FWMIS records in the RAA. Observed during 2015 and 2017 winter tracking surveys as well as 2016 remote camera survey. High potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (224 ha – native habitats combined). **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of den, vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals).	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Grey wolf (*Canis lupus)*	-	*Secure*	Riparian, shrubland, and forest edges. Conifer forest and shrubland is 5.0% (245.2 ha) and 8.4% (408.5 ha), respectively. Overall, low suitability habitat due to relatively high human disturbance.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (96.3 ha). **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals).	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Red fox (*Vulpes vulpes*)	-	*Secure*	Forest, shrubland, grassland, agricultural lands, represent 16.3 % (793.1 ha), 8.4% (408.5 ha), 8.8% (425.1 ha) and 48.2% (2,343.9 ha) respectively. Overall, moderate suitability habitat.	One FWMIS record in the RAA. Observed in LAA during 2015 winter tracking and 2016 remote camera surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (224 ha – all native habitats combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in physical destruction of den, vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals).	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Canada Lynx (*Lynx canadensis*)	-	*Sensitive*	Coniferous and mixed forests is 5% (245 ha) and 6.1% (296 ha), respectively. Overall, low suitability habitat.	One FWMIS record in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (46 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals).	Section 11.4.2.2 Section 11.4.4.2.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Bobcat (*Lynx rufus*)	-	*Sensitive*	Forests, shrubland, grassland, which is 16.3 % (793.1 ha), 8.4% (408.5 ha), and 8.8% (425.1 ha) respectively. Overall, low to moderate suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (224 ha – all habitats combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals).	Section 11.4.2.2 Section 11.4.4.2.	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Cougar (*Puma concolor*)	-	*Secure*	Dense or open forests, shrubland, grassland, riparian areas. Forests, shrubland, grassland is 16.3 % (793.1 ha), 8.4% (408.5 ha), and 8.8% (425.1 ha) respectively. Overall, moderate suitability habitat.	Two FWMIS records in the RAA. Observed in LAA (2016 remote camera survey). Moderate potential to occur in the LAA, particularly along Elbow River.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (224 ha- all habitats combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance **Change in Mortality Risk** Potential increased mortality risk due to vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals).	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Long term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Striped skunk			Open mixed forests, shrubland, agricultural lands, which is 6.1% (296 ha), 8.4% (408.5 ha) and 48.2% (2,343.9 ha) respectively. Overall, moderate suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (120 ha – native habitats combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Marten (*Martes americana*)	-	*Secure*	Coniferous and mixed forests, which is 5% (245 ha) and 6.1% (296 ha), respectively. Overall, low suitability habitat	No FWMIS records in the RAA. Observed in the LAA during field survey for drilling program. Low potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (46 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Sing event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Short-tailed weasel (*Mustela erminea*)	-	*Secure*	Coniferous and broadleaf forests, and meadows. Coniferous and broadleaf forests is 5% (245 ha) and 5.2% (252 ha), respectively. Overall, low to moderate suitability habitat.	No FWMIS records in the RAA. Potentially observed during 2017 snow track survey (i.e., unidentified weasel tracks). Low to moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (14 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
Long-tailed weasel (*Mustela frenata longicauda*)	-	*Maybe at Risk*	Grassland, shrubland, forests, and agricultural lands are 8.8% (425.1 ha), 8.4% (408.5 ha), 16.3 % (793.1 ha), and 48.2% (2,343.9 ha) respectively. Overall, moderate suitability habitat.	No FWMIS records in the RAA. Potentially observed during 2017 snow track survey (i.e., unidentified weasel tracks). Low to moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (224ha – all native habitats combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
American mink (*Neovison vison*)	-	*Secure*	Forests, shrublands and grassland adjacent to water (i.e., riparian areas). Forest, grassland, shrubland, and open water is 16.3 % (793.1 ha), 8.4% (408.5 ha), 8.8% (425.1 ha), and 5.8% (283.5 ha), respectively. Overall, low to moderate habitat suitability.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA (Elbow River).	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction. Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
Black bear (*Ursus americana*)	-	*Secure*	Coniferous, mixed and broadleaf forests, shrubland, grassland, wet meadows, wetlands and riparian areas. Coniferous, mixed and broadleaf forests is 5% (245 ha), 6.1% (296 ha), and 5.2% (252 ha) respectively. Shrublands, grasslands and wetlands are 8.4% (408.5 ha), 8.8% (425 ha) and 6.4% (312 ha) respectively. Overall, low to moderate suitability habitat.	Six FWMIS records in the RAA. Observed in the LAA during 2016 remote camera survey (three detections). Low to moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (224 ha – all habitat types combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk due to destruction of potential den sites, vehicle collisions, and increased bear-human conflicts.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Moderate G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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	AWA[a]	AEP[b]					Construction	Dry Operations
Moose (*Alces americanus*)	-	*Secure*	Shrublands, mixed and broadleaf forests, wetlands, which are 8.4% (408.5 ha), 6.1% (296 ha) 5.2% (252 ha), and 6.4% (312 ha) respectively. Overall, moderate to high suitability habitat.	One FWMIS record in the RAA. Observed in the LAA during 2017 winter tracking survey and 2016 remote camera survey. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (123 ha – all habitat types combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Potential increased mortality risk due to vehicle collisions.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Moderate G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Mule deer (*Odocoileus hemionus*)	-	*Secure*	Grassland, shrubland and forests, which is 8.8% (425 ha), 8.4% (408.5 ha) and 16.3% (793.1 ha), respectively. Overall, moderate to high habitat suitability.	No FWMIS records in the RAA. Observed in the LAA during 2015 and 2017 winter tracking surveys, and 2016 remote camera survey. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (194.5 ha- all habitat types combined ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Potential increased mortality risk due to vehicle collisions.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Moderate G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
White-tailed deer (*Odocoileus virginianus*)	-	*Secure*	Grassland, shrubland and forests, which is 8.8% (425 ha), 8.4% (408.5 ha) and 16.3% (793.1 ha), respectively. Overall, moderate to high habitat suitability.	FWMIS records in the RAA. Observed in the LAA during 2015 and 2017 winter tracking surveys, and 2016 remote camera survey. High potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, from vegetation clearing during construction (194.5 ha – all habitat types combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Potential increased mortality risk due to vehicle collisions.	Section 11.4.2.2 Section 11.4.3.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Moderate G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Beaver (*Castor canadensis*)	-	*Secure*	Rivers, streams, marshes, swamps, and broadleaf forest. Open water and wetlands comprise 5.8% (284 ha) and 6.4% (312 ha) respectively. Broadleaf forests comprise 5.2% (252 ha). Overall, moderate habitat suitability.	FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (60 ha – open water and wetlands combined). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Muskrat (*Ondatra zibethicus*)	-	*Secure*	Rivers, streams, marshes, and swamps. Open water and wetlands comprise 5.8% (284 ha) and 6.4% (312 ha) respectively. Overall, moderate habitat suitability.	Three FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (60 ha – open water and wetlands combined). Temporary construction disturbances will reduce residual effects at dry operations (habitat loss of 15.3 ha from existing conditions). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Porcupine (*Erethizon dorsatum)*	-	*Secure*	Broadleaf and mixed forests and shrubland is 5.2% (252 ha), 6.1% (296 ha) and 8.4% (408.5 ha), respectively. Overall, moderate habitat suitability.	One FWMIS record in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (123 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Red squirrel (*Tamiascirus hudsonicus*)	-	*Secure*	Coniferous and mixed forests is 5% (245 ha) 6.1% (296 ha), respectively. Moderate suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (46 ha). Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

Table IR11-1 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Construction and Dry Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Existing Conditions	Frequency of Occurrence[c]	Potential Project Effect(s)[d]	Key Recommendations/ Mitigation Measures Volume 3A	Project Residual Effects[e]	
	AWA[a]	AEP[b]					Construction	Dry Operations
Richardson's ground squirrel			Grassland and tame pasture is 8.8% (425 ha) and 27.3% (1325 ha), respectively. Overall, moderate to high habitat suitability.	FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Direct habitat loss or alteration, including residences, from vegetation clearing during construction (89.7 ha). During dry operations, reclamation will increase habitat by 91.2 ha from existing conditions. Indirect loss or reduced habitat effectiveness from sensory disturbance during construction and dry operations. **Change in Movement** Construction and dry operations could result in alteration of movement patterns (daily or seasonal) because of Project structures and sensory disturbance. **Change in Mortality Risk** Ground disturbance and vegetation clearing can result in increased mortality risk, accidental mortality during vehicle/equipment movement.	Section 11.4.2.2 Section 11.4.4.2	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Single event R: Reversible E: Disturbed **Change in Movement** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Continuous R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed	**Change in Habitat** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Continuous R: Irreversible E: Disturbed **Change in Mortality Risk** T: N/A Dir: Adverse M: Low G: LAA Dur: Long term F: Irregular event R: Reversible E: Disturbed

NOTES:

[a] Government of Alberta. 2016. Species Assessed by the Conservation Committee. Available at: https://open.alberta.ca/dataset/0b3421d5-c6c1-46f9-ae98-968065696054/resource/b99ef1c9-6032-41eb-be5c-c6a2e3476960/download/speciesassessedconservation-mar2016.pdf. Accessed November 2018.

[b] Alberta Environment and Parks. 2017. Alberta Wild Species General Status Listing – 2015. Available at: https://open.alberta.ca/dataset/ad0cb45c-a885-4b5e-9479-52969f220663/resource/763740c0-122e-467b-a0f5-a04724a9ecb9/download/sar-2015wildspeciesgeneralstatuslist-mar2017.pdf. Accessed November 2018.

[c] Based on input from Indigenous groups, all species listed in Table IR11-1 occur in the wildlife RAA; however, the Fisheries and Wildlife Management Information System (FWMIS) records were used to assess frequency of occurrence for each species of cultural importance.

[d] There are no potential Project effects to change in movement for bird species of traditional importance because no tall structures would be erected that might affect migration patterns, flyways, local movement, and seasonal habitat use.

[e] Project residual effects characterization

T: Timing, Dir: Direction, M: Magnitude, G: Geographic Extent, Dur: Duration, F: Frequency, R: Reversibility, E: Ecological and Socio-Economic Context.

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Birds								
Harlequin duck (*Histrionicus histrionicus*)	*Special Concern*	*Sensitive*	Fast flowing streams and rivers. Potential breeding habitat along sections of Elbow River. Low to moderate suitability breeding habitat occurs.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** No potential Project effects. **Change in Movement** No potential Project effects. **Change in Mortality Risk** No potential Project effects.	A flood would affect harlequin duck habitat, movement, and mortality risk in the Elbow River; however, there are no potential Project effects. No mitigations required.	No project residual effects because Project flood operations do not affect harlequin habitat.	No project residual effects because Project post-flood operations do not affect harlequin habitat.

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Canada Goose (*Branta canadensis*)	-	*Secure*	Wetlands (e.g., graminoid marsh), agricultural lands. Wetlands are 6.1% (296.3 ha) and agricultural lands are 47.0% (2,285.2 ha). Overall, moderate to high suitability breeding, stopover, and wintering habitat occurs.	FWMIS records in the RAA and observed during waterbird field surveys. Moderate to high potential to occur in the LAA during the breeding and winter seasons, as well as spring and fall migration.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 70.3 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Positive M: Low G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Trumpeter swan (*Cygnus buccinators*)	*Special Concern*	*Sensitive*	Shallow lakes, marshes, and wooded swamps. Wetlands are 6.1% (296.3 ha) and open water is 5.8% (280 ha). Overall, low suitability breeding habitat (i.e., only small wetlands and waterbodies occur). No potential migration stopover habitat.	FWMIS records in the RAA during early and mid-1990s. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 131.5 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Positive M: Low G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
American coot (*Fulica americana*)	-	*Secure*	Shallow lakes, marshes and ponds with emergent vegetation. Graminoid marsh and shallow open water is 4.6% (224 ha) combined. Moderate suitability breeding habitat.	Three FWMIS records in the RAA during 2006. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 68.9 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Positive M: Low G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short Term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Gray partridge (*Perdix perdix*)	-	*Secure*	Agricultural lands and grassland, which is 47.0% (2,285.2 ha) and 10.6% (515.6 ha) respectively. Moderate to high suitability breeding and wintering habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 135 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Ring-necked pheasant (*Phasianus colchicus*)	-	*Secure*	Agricultural lands, grassland, shrubland, wetland (marsh), forest edges. Agricultural land is 47.0% (2,285 ha), grassland is 10.6% (515.6 ha), shrubland is 6.7% (325 ha) and wetlands are 6.1% (296.3 ha). Moderate to high suitability breeding and wintering habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 292 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Ruffed grouse (*Bonasa umbellus*)	-	*Secure*	Mixed and broadleaf forest. Mixed and broadleaf forest is 5.4% (261 ha) and 5.1% (249 ha), respectively. Overall, moderate suitability breeding habitat.	One FWMIS record in the RAA during 2010. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 9.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Spruce grouse (*Falcipennis canadensis*)	-	*Secure*	Breed in coniferous forest. Coniferous forest is 4.8% (234 ha). Overall, low to moderate suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 3.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Sharp-tailed grouse (*Tympanuchus phasianellus*)	-	*Sensitive*	Breed in native grassland and tame pasture. Limited amounts of native grassland (515.6 ha or 10.6%). Tame pasture is 30.6% (1,488 ha). Overall, low suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 134.8 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures. See Volume 3A, Table 11-10 for sharp-tailed grouse timing and setback distance.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Osprey (*Pandion haliaetus*)	-	*Sensitive*	Breed in broadleaf forest (large trees) or man-made structures near waterbodies with fish. Broadleaf forest is 5.1% (249 ha). Overall, moderate suitability breeding habitat along Elbow River.	No FWMIS records in the RAA. One active platform nest observed in the LAA during 2016. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 7.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk depending on height of flood waters. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures. See Volume 3A, Table 11-10 for osprey timing and setback distance.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Bald eagle (*Haliaeetus leucocephalus*)	-	*Sensitive*	Breed in broadleaf forest (large trees) or man-made structures near waterbodies with fish. Broadleaf forest is 5.1% (249 ha). Overall, moderate suitability breeding habitat along Elbow River.	No FWMIS records in the RAA. One active stick nest observed in the LAA during 2016. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 7.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk depending on height of flood waters. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures. See Volume 3A, Table 11-10 for bald eagle timing and setback distance.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Barred owl (*Strix varia*)	*Special Concern*	*Sensitive*	Mixed and broadleaf forest. Mixed and broadleaf is 5.4% (261 ha) and 5.1% (249 ha), respectively. Overall, low suitability breeding habitat.	One FWMIS record in the RAA during 1980. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 9.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk depending on height of flood waters. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures. See Volume 3A, Table 11-10 for barred owl timing and setback distance.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Northern pygmy owl (*Glaucidium gnoma*)	-	*Sensitive*	Coniferous and mixed forests is 4.8% (234 ha) and 5.4% (261 ha), respectively. Overall, low to moderate suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 5.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Great grey owl (*Strix nebulosa*)	-	*Sensitive*	Coniferous and mixed forests, treed wetlands. Coniferous forest is 4.8% (234 ha), mixed forest is 5.4% (261 ha) and treed wetland (wooded swamp) is 0.4% (20.3 ha). Overall, low suitability breeding habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood, 5.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** No potential Project effects. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk because of flooding of active nests. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Mammals								
Snowshoe hare (*Lepus americana*)	-	*Secure*	Coniferous and mixed forests, which is 4.8% (234 ha) and 5.4% (261 ha), respectively. Moderate suitability habitat in the LAA.	No FWMIS records in the RAA. Observed in the LAA during 2015 winter tracking survey. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 5.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
White-tailed jackrabbit (*Lepus townsendii*)	-	*Secure*	Grassland, shrubland, and tame pasture, which is 10.6% (515.6 ha), 6.7% (325 ha) and 30.6% (1,488 ha) respectively. Overall, moderate to high suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 221.4 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Coyote (*Canis latrans*)	-	*Secure*	Forests, shrubland, grassland, agricultural fields, which is 15.3% (744.2 ha), 6.7% (325 ha), 10.6% (515.61 ha) and 47.0% (2,285.2 ha) respectively. Overall, high suitability habitat.	FWMIS records in the RAA. Observed during 2015 and 2017 winter tracking surveys as well as 2016 remote camera survey. High potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 234.1 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile) and flooding of den, vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals). **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Grey wolf (*Canis lupus)*	-	*Secure*	Riparian, shrubland, and forest edges. Conifer forest and shrubland is 4.8% (234 ha) and 6.7% (325 ha), respectively. Overall, low suitability habitat due to relatively high human disturbance.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 89.7 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile) vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals). **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Red fox (*Vulpes vulpes*)	-	*Secure*	Forest, shrubland, grassland, agricultural lands, which is 15.3% (744.2 ha), 6.7% (325 ha), 10.6% (515.61 ha) and 47.0% (2,285.2 ha) respectively. Overall, moderate suitability habitat.	One FWMIS record in the RAA. Observed in LAA during 2015 winter tracking and 2016 remote camera surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 234.1 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile) and flooding of den, vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals). **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Canada Lynx (*Lynx canadensis*)	-	*Sensitive*	Coniferous and mixed forests is 4.8% (234 ha) and 5.4% (261 ha), respectively. Overall, low suitability habitat.	One FWMIS record in the RAA. Not observed in the LAA during field surveys. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 5.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals). **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Bobcat (*Lynx rufus*)	-	*Sensitive*	Forests, shrubland, grassland, which is 15.3% (744.2 ha), 6.7% (325 ha), and 10.7% (515.6 ha) respectively. Overall, low to moderate suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 234.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals). **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Cougar (*Puma concolor*)	-	*Secure*	Dense or open forests, shrubland, grassland, riparian areas. Forests, shrubland, and grassland is 15.3% (744.2 ha), 6.7% (325 ha), and 10.7% (515.6 ha) respectively. Overall, moderate suitability habitat.	Two FWMIS records in the RAA. Observed in LAA (2016 remote camera survey). Moderate potential to occur in the LAA, particularly along Elbow River.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 234.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals). **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Striped skunk			Open mixed forests, shrubland, agricultural lands, which is 5.4% (261 ha), 6.7% (325 ha) and 47.0% (2,285.2 ha) respectively. Overall, moderate suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 89.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Marten (*Martes americana*)	-	*Secure*	Coniferous and mixed forests, which is 4.8% (234 ha) and 5.4% (261 ha), respectively. Overall, low suitability habitat.	No FWMIS records in the RAA. Observed in the LAA during field survey for the geotech program. Low potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 5.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

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Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Short-tailed weasel (*Mustela erminea*)	-	*Secure*	Coniferous and broadleaf forests, and meadows. Coniferous and broadleaf forests is 4.8% (234 ha) and 5.1% (249 ha), respectively. Overall, low to moderate suitability habitat.	No FWMIS records in the RAA. Potentially observed during 2017 snow track survey (i.e., unidentified weasel tracks). Low to moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 10.2 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Long-tailed weasel (*Mustela frenata longicauda*)	-	*Maybe at Risk*	Grassland, shrubland, forests, and agricultural lands are 10.7% (515.6 ha), 6.7% (325 ha), 15.3% (744.21 ha), and 47.0% (2,285.2 ha) respectively. Overall, moderate suitability habitat.	No FWMIS records in the RAA. Potentially observed during 2017 snow track survey (i.e., unidentified weasel tracks). Low to moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 234.1 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
American mink (*Neovison vison*)	-	*Secure*	Forests, shrublands and grassland adjacent to water (i.e., riparian areas). Forest, grassland, shrubland, and open water is 15.3% (744.2 ha), 10.7% (515.6 ha), 6.7% (325 ha), and 5.8% (280 ha), respectively. Overall, low to moderate habitat suitability.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Low to moderate potential to occur in the LAA (Elbow River).	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 295.3 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Black bear (*Ursus americana*)	-	*Secure*	Coniferous, mixed and broadleaf forests, shrubland, grassland, wet meadows, wetlands and riparian areas. Forests, shrublands, grasslands and wetlands are15.3% (744.2 ha), 6.7% (325 ha), 10.7% (515.6 ha) and 6.1% (296.3 ha) respectively. Overall, low to moderate suitability habitat.	Six FWMIS records in the RAA. Observed in the LAA during 2016 remote camera survey (three detections). Low to moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 304.4 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle collisions, wildlife-human conflict (e.g., removal of nuisance animals). **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate(spring)/ Low (summer) G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low(spring)/ Low (summer) G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Moose (*Alces americanus*)	-	*Secure*	Shrublands, mixed and broadleaf forests, wetlands, which are 6.7% (325 ha), 5.4% (261 ha), 5.2% (249 ha), and 6.1% (296.3 ha) respectively. Overall, moderate to high suitability habitat.	One FWMIS record in the RAA. Observed in the LAA during 2017 winter tracking survey and 2016 remote camera survey. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 166.5 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile) and vehicle collisions. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Mule deer (*Odocoileus hemionus*)	-	*Secure*	Grassland, shrubland and forests, which is 10.7% (515.6 ha), 6.7% (325 ha) and 15.3% (744.2 ha), respectively. Overall, moderate to high habitat suitability.	No FWMIS records in the RAA. Observed in the LAA during 2015 and 2017 winter tracking surveys, and 2016 remote camera survey. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 234.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile) and vehicle collisions. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
White-tailed deer (*Odocoileus virginianus*)	-	*Secure*	Grassland, shrubland and forests, which is 10.7% (515.6 ha), 6.7% (325 ha) and 15.3% (744.2 ha), respectively. Overall, moderate to high habitat suitability.	FWMIS records in the RAA. Observed in the LAA during 2015 and 2017 winter tracking surveys, and 2016 remote camera survey. High potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 234.1 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile) and vehicle collisions. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Beaver (*Castor canadensis*)	-	*Secure*	Rivers, streams, marshes, swamps, and broadleaf forest. Open water and wetlands comprise 5.8% (280 ha) and 6.1% (296.3 ha) respectively. Broadleaf forests comprise 5.1% (249 ha). Overall, moderate habitat suitability.	FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 138.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Muskrat (*Ondatra zibethicus*)	-	*Secure*	Rivers, streams, marshes, and swamps. Open water and wetlands comprise 5.8% (280 ha) and 6.1% (296.3 ha) respectively. Overall, moderate habitat suitability.	Three FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 131.5 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Porcupine (*Erethizon dorsatum)*	-	*Secure*	Broadleaf and mixed forests, and shrubland is 5.1% (249 ha), 5.4% (261 ha) and 6.7% (325 ha), respectively. Overall, moderate habitat suitability.	One FWMIS record in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 96.2 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Red squirrel (*Tamiascirus hudsonicus*)	-	*Secure*	Coniferous and mixed forest is 4.8% (234 ha) and 5.4% (261 ha), respectively. Moderate suitability habitat.	No FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 5.6 ha of habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Low G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

Species	Conservation Status		Potential Habitat Use and Percentages in the LAA at Baseline Conditions[c]	Frequency of Occurrence[d]	Potential Project Effect(s)[e]	Key Recommendations/ Mitigation Measures Volume 3B	Project Residual Effects [f, g]	
	AWA[a]	AEP[b]					Design Flood	Post-flood Operations (Design Flood)
Richardson's ground squirrel			Grassland and tame pasture is 10.7% (515.6 ha) and 30.6% (1,488 ha), respectively. Overall, moderate to high habitat suitability.	FWMIS records in the RAA. Not observed in the LAA during field surveys. Moderate to high potential to occur in the LAA.	**Change in Habitat** Temporary alteration or inaccessibility of habitat during reservoir filling and draining as well as post-flood operations (i.e., presence of sediment and debris). At design flood 134.8 ha of native habitat will be inundated, respectively. Direct loss of residences during reservoir filling. Indirect loss or reduced habitat effectiveness from sensory disturbance during post-flood operations (i.e., moving of sediment to maintain water flow and maintenance activities). **Change in Movement** Flood and post-flood operations could result in changes to movement patterns (daily or seasonal) because of habitat change and sensory disturbance. **Change in Mortality Risk** Reservoir filling can result in increased mortality risk for young (i.e., less mobile), vehicle and equipment movement during post-flood operations can result in accidental mortality. **Change in Health** Reservoir filling and draining could result in increased exposure to contaminants brought in by flood water and methylmercury production in the reservoir.	See Section 11.3.2.2, 11.3.3.2, 11.3.4.2, and 11.3.6.2 for mitigation measures.	**Change in Habitat** T: Seasonality Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: Seasonality Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality Dir: Adverse M: Moderate G: PDA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: Seasonality Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A	**Change in Habitat** T: Seasonality/Regulatory Dir: Adverse M: Moderate G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Movement** T: N/A Dir: Adverse M: Low G: LAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Mortality Risk** T: Seasonality/Regulatory Dir: Adverse M: Low G: RAA Dur: Short term F: Irregular event R: Reversible E: Disturbed **Change in Health** T: N/A Dir: Adverse M: Negligible G: N/A Dur: N/A F: N/A R: N/A E: N/A

Table IR11-2 Summary of Project Residual Effects on Species of Cultural Importance to Indigenous Groups during Flood and Post-Flood Operations

NOTES:

[a] Government of Alberta. 2016. Species Assessed by the Conservation Committee. Available at: https://open.alberta.ca/dataset/0b3421d5-c6c1-46f9-ae98-968065696054/resource/b99ef1c9-6032-41eb-be5c-c6a2e3476960/download/speciesassessedconservation-mar2016.pdf. Accessed November 2018.

[b] Alberta Environment and Parks. 2017. Alberta Wild Species General Status Listing – 2015. Available at: https://open.alberta.ca/dataset/ad0cb45c-a885-4b5e-9479-52969f220663/resource/763740c0-122e-467b-a0f5-a04724a9ecb9/download/sar-2015wildspeciesgeneralstatuslist-mar2017.pdf. Accessed November 2018.

[c] Baseline for flood and post-flood operations is defined as the dry operations phase with major components of the Project in place and vegetation reclaimed after construction.

[d] Based on input from Indigenous groups, all species listed in Table IR11-1 occur in the wildlife RAA; however, the Fisheries and Wildlife Management Information System (FWMIS) records were used to assess frequency of occurrence for each species of cultural importance.

[e] There are no potential Project effects to change in movement for non-aquatic bird species of traditional importance because when considering the duration and timing of flood events, they are unlikely to affect migration patterns, flyways, local movement, and seasonal habitat use. Floods are more likely to result in temporary foraging or loafing habitat for aquatic birds that use large waterbodies.

[f] Project residual effects characterization

T: Timing, Dir: Direction, M: Magnitude, G: Geographic Extent, Dur: Duration, F: Frequency, R: Reversibility, E: Ecological and Socio-Economic Context.

[g] Residual effects during flood operations were assessed for the design flood. Residual effects during flood operations for the 1:100 and 1:10 year flood would be lower than for the design flood. Residual effects during post-flood operations were assessed for the design flood but not the 1:100 and 1:10 year floods because residual effects would be similar or lower than what was characterized for design flood.

Question IR2-12: Wildlife - Regional Assessment Area

Sources:

EIS Guidelines Part 1, Section 3.3.3

EIS Guidelines Part 2, Section 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 11.1.5

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Context and Rationale:

The EIS Guidelines indicate that the spatial boundaries used in the EA may vary depending on the VC. The EIS Guidelines also require the proponent to document changes to key habitats for culturally important species and species important to Indigenous current use of resources, and the effects of these changes on Indigenous peoples, including on current use and physical and cultural heritage.

The EIS describes the boundaries of the wildlife RAA as extending 15 km beyond the PDA and justifies the size of the RAA by explaining it is large enough to encompass the average home range of a female grizzly bear, which would also include home ranges of other wildlife species that have relatively smaller home ranges. Given the variance in species of importance, ecological boundaries such as habitat types, watersheds, and topography as they relate to wildlife should be considered in establishing the RAA boundaries. Range size alone may not adequately take into account the placement of species home ranges.

As the characterization of effects on wildlife species of cultural importance depends on the habitat suitability and species presence within the RAA, the selection of the RAA should take into account species specific information. Additional information and rationale is required to understand changes to key habitat for culturally important species.

Information Request:

a) Provide additional rationale to justify the use of a 15 km buffer around the PDA to assess project effects on all components of the wildlife and biodiversity effects assessment. Describe how this 15 km buffer allows for adequate consideration of the ecological boundaries most relevant for each species of cultural importance. Identify any limitations associated with the RAA selected and how these limitations are considered and accounted for in mitigation planning and effects determinations. Revise effects assessments for each species and the wildlife and biodiversity VC as necessary.

Response IR2-12

a) Project effects were assessed in the LAA (a 1 km buffer around the PDA), which is the area where the construction and operation of the Project could have direct or indirect effects on wildlife. The 15 km buffer around the PDA is the RAA, which is the spatial boundary in which Project residual effects could interact cumulatively with residual effects of other past, present, and future other projects. The size of the RAA is the average home range of a female grizzly bear, one of the largest ranging species found in the region. The RAA is designed to capture the average home range size of other species of management concern including species of cultural importance to Indigenous groups (e.g., elk, mule deer, coyote). The RAA includes representative land cover types that occur in the Foothills Parkland and Montane natural subregions including native grassland, shrubland, forests, and wetlands, which provide potential habitats for species of management concern and those of cultural importance. The rationale provided meets the requirements of the EIS Guidelines because the RAA is sufficiently large to encompass a variety of species of management concern and assess changes to key habitats for culturally important species.

   The RAA does not pose limitations to the accuracy of the assessment predictions for wildlife and biodiversity. Selecting an RAA based on an ecological boundary that encompasses a watershed or species management area would not increase the accuracy of assessment predictions on wildlife and biodiversity. In fact, in many cases, it would reduce the accuracy of the Project residual effects on other wildlife species assessed by diluting the effects with an overly large study area. Selection of a larger RAA based on an ecological boundary (e.g., watershed) would lower prediction confidence because the availability and resolution of data over a larger area is less.

   Project effects on wildlife and biodiversity are predicted to occur near the PDA, and the proposed mitigation measures reflect that proximity. Additional measures would not be required to mitigate potential effects on any of the wildlife species being assessed farther out than the RAA boundary (i.e., direct or indirect Project effects are predicted to occur within 1 km of the PDA and potential cumulative effects are not expected to extend beyond 15 km), nor would they differ if a different boundary were selected.

Question IR2-13: Wildlife - Habitat Modelling

Sources:

EIS Guidelines Part 2, Section 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 11.2; 11.5; 11.6

EIS Volume 3B, Section 11.4; 11.5

EIS Volume 4, Appendix H, Attachment 11

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Context and Rationale:

The EIS Guidelines require the proponent to characterize and describe riparian habitats and wetlands, to identify ecosystems that are sensitive or vulnerable, and to identify changes to key habitat for culturally important species. The EIS Guidelines also require the proponent to assess the effects of changes to the environment on Indigenous peoples, including on current use and physical and cultural heritage.

The EIS states that habitat suitability models for each key indicator were based on assessing the suitability of each wildlife habitat type or ecosite phase in providing the necessary life requisites (e.g., food, cover, security) to meet seasonal habitat requirements. The four-class rating scheme assigned for each key indicator by ecosite phase and structural stage (vegetation vertical profile) was described in a limited manner.

The EIS states that while limited species occurrence data was available in the LAA to verify the habitat suitability models, the models provide a reasonable prediction of habitat suitability based on current knowledge and peer-reviewed literature. Additional evidence of the current knowledge or literature used was not described and there is no discussion on how the limitations of the habitat suitability models affect prediction confidence for effects on wildlife and biodiversity.

Habitat suitability modelling for elk and grizzly bear, species of importance to Indigenous peoples, apply buffers to establish the zone of influence of existing disturbances, including buffer areas along linear disturbances. The rationale for these buffers is not clearly presented. For instance, the EIS notes that elk have been shown to avoid roads, which can affect habitat use and distribution to varying degrees and for varying distances from the roads. While pertinent

studies are referenced, Indigenous groups have noted that there are numerous studies on elk behaviour which would provide a more robust discussion on suitable buffer distances, with a focus on local habitat, and studies in Alberta.

Additional information is required to understand the Project changes to habitat for species of cultural importance and effects of these changes on Indigenous peoples.

Information Requests:

a) **Describe, in detail, the classes in the four-class wildlife habitat rating scheme and explain the information used to build the models so they are representative of the habitat suitability in the LAA.**

b) **Provide detail on the current knowledge and/or literature used to support the position that the suitability maps provide a reasonable assessment of potential project effects.**

c) **Describe the community knowledge and Indigenous knowledge provided regarding species occurrences and how this knowledge was considered in the development of habitat suitability. If community knowledge and Indigenous knowledge were not used, provide revised models using all available data sources or a rationale as to why that information was not included.**

d) **Provide a discussion of how limitations of habitat suitability models affect prediction confidence for effects on wildlife and biodiversity, and how this affects the assessment of effects of changes to the environment on Indigenous peoples.**

e) **Provide rationale, with additional information, to justify and explain the buffer distances applied in the elk and grizzly bear habitat suitability models.**

Response IR2-13

a) For each key indicator species, the classes in the four-class wildlife habitat rating scheme are explained under Ratings Assumptions (see Volume 4, Appendix H, Attachment 11A, Section 11A.2 for olive-sided flycatcher, Sprague's pipit, northern leopard frog, elk, and grizzly bear and Volume 3A, Section 11.4.7.1 for sora), where all relevant land cover types associated with the key indicator are assigned a rating of high (1), moderate (2), or low (3). All other land cover types are ranked as very low to nil (4).

The following are the ratings assumptions for each key indicator species as described in Volume 4, Appendix H, Attachment 11A, Section 11A.2 for olive-sided flycatcher, Sprague's pipit, northern leopard frog, elk, and grizzly bear and Volume 3A, Section 11.4.7.1 for sora.

OLIVE-SIDED FLYCATCHER

RATINGS ASSUMPTIONS

"Habitat suitability model ratings for olive-sided flycatcher breeding habitat use the following assumptions:

- Mature coniferous and mixedwood forests provide high and moderate suitability breeding habitat, respectively. Coniferous dominated – pine leading vegetation cover classes are given a lower rating because they typically do not provide gaps or edges preferred by olive-sided flycatchers (Kotliar 2007).
- Deciduous dominated vegetation cover classes are considered low suitability breeding habitat. Non-treed vegetation cover classes are assumed to have no value for nesting and were given a very low to nil rating.
- Older forests are assumed to have more forest gaps; and therefore, structural stage 6 (mature) and 7 (old) are given the highest ratings in each vegetation cover class. Structural stages 4 (pole sapling) and 5 (young forest) are less preferred for nesting and are given lower ratings, and structural stage 1 (non-vegetated), 2 (herb) and 3 (shrub) stands are given a very low to nil rating.
- Olive-sided flycatcher use edge habitats. Edge habitat is assumed to extend 50 m into the forest interior. Model assumptions include rating for habitat within 50 m of an edge. Distance from the natural edge is used to modify ratings of structural stage 6 and 7 habitat. Habitat suitability ratings are decreased by 1 class if any habitat occurs greater than 50 m from natural edge in patches of structural stage 6 or 7 coniferous or mixedwood (non-lodgepole pine) forests."

RATINGS ADJUSTMENTS FOR DISTURBANCES

"Olive-sided flycatcher vocalizations are presumably used to attract mates and defend territories (Altman and Sallabanks 2012). Therefore, it is assumed that noise disturbance might affect otherwise suitable breeding habitat as has been shown for other songbirds (Habib et al. 2007, Sutter et al. 2016). Environment Canada (2009), through further consultation with P. Gregoire (2014, pers. comm.), recommends setback buffers for petroleum industry activities for bird species at risk in Alberta. These setback buffers are used as ZOI for this Project and assigned to varying levels of sensory disturbance based on factors, such as noise level or perceived visual impediments. The following rating adjustments are applied to estimate the ZOI associated with each disturbance type:

- Industrial development and primary roads are considered high disturbance and buffered by 300 m. Suitability ratings are reduced by two classes for the first 150 m and one class if disturbance is greater than 150 m.

- Secondary roads are considered high disturbance and buffered by 300 m and suitability ratings are reduced by one class.
- Rural residential, tertiary roads and transmission lines are considered moderate disturbance and buffered by 150 m and suitability ratings are reduced by one class.
- Agricultural lands (e.g., cropland, hayland) are considered a low disturbance and buffered by 50 m and suitability ratings are reduced by one class."

SPRAGUE'S PIPIT

RATINGS ASSUMPTIONS

"Habitat suitability model ratings for Sprague's pipit breeding habitat use the following assumptions:

- Native grasslands that occur on moderately well-drained sites (xeric to mesic) with limited presence of non-native plant species provide high suitability habitat. Grasslands with imperfectly and poorly drained soils (subhygric to hydric) are rated as low suitability.
- Tame pasture and cultivated hayfields are rated as low suitability.
- Forested areas, riparian and shrub habitat are rated as very low to nil.
- Cropland is rated very low to nil.
- Sprague's pipit has been reported as an area sensitive species (Davis 2004), despite the uncertainty associated with minimum patch size requirements. As such, a patch size that considers the existing landscape condition as well as previously reported values is used. Specifically, grassland habitats smaller than 69 ha are rated as low and patch sizes greater than 69 ha have a rating of moderate or high depending on the results of the ZOI."

RATINGS ADJUSTMENTS FOR DISTURBANCES

"Sprague's pipit vocalizations are presumably used to attract mates and defend territories (Davis et al. 2014). Therefore, it is assumed that noise disturbance might affect otherwise suitable breeding habitat as has been shown for other songbirds (Habib et al. 2007). Sutter et al. (2016) found that Sprague's pipit daily nest survival rate increased with increasing distance from a pipeline construction right-of-way. Environment Canada (2009) recommends setback buffers for petroleum industry activities for bird species at risk in Alberta. These setback buffers are used as the ZOI for this Project and assigned to varying levels of sensory disturbance based on factors such as noise level or perceived visual impediments. In addition, habitat edge effects have been shown to be strongly influenced by distance to cropland for Sprague's pipit in southern Alberta (Koper et al. 2009). Specifically, a 50% decline from the predicted maximum relative abundance was observed 480 m from cropland (Koper et al. 2009).

The following rating adjustments are applied to estimate the ZOI associated with each disturbance type:

- Agricultural cropland is buffered by 500 m and suitability ratings are reduced by one class.
- Industrial development, and primary and secondary roads are considered high disturbance and buffered by 350 m and suitability ratings are reduced by two classes.
- Rural residential, tertiary roads and transmission lines are considered moderate disturbance and buffered by 150 m and suitability ratings are reduced by one class."

NORTHERN LEOPARD FROG

RATINGS ASSUMPTIONS

"Habitat suitability model ratings for northern leopard frog breeding habitat use the following assumptions:

- Northern leopard frog prefers warm, shallow water for breeding. All waterbodies with emergent vegetation are rated high. Any waterbodies with no emergent vegetation are rated very low to nil.
- Northern leopard frog reproduction occurs successfully in waters with neutral pH. Areas with high salinity are avoided. Saline or acidic waters, as found in bogs, are rated low for breeding suitability.
- Permanency of water is an important criterion for successful reproduction. Waterbodies that dry up before complete metamorphosis of tadpoles (i.e., dry before end of June) are not ideal. Waterbodies classified as ephemeral (Class I) are rated very low to nil, and those classified as temporary (Class II) are rated low.
- Fish are observed as predators of northern leopard frogs. Even small fish, such as brook stickleback (*Culaea inconstans*), can feed on northern leopard frog eggs. Waterbodies with known information on fish presence have their rating decreased by one class.
- Breeding wetlands typically occur within 2 km of overwintering sites. The probability of breeding wetland occurrence decreases the farther the frogs must travel from their overwintering sites. Therefore, breeding habitat suitability is decreased by one class if a potential overwintering site is greater than 2 km from a potential breeding site."

RATINGS ADJUSTMENTS FOR DISTURBANCES

"Amphibians, such as northern leopard frog, vocalize to attract mates in the spring, and anthropogenic noise has been shown to alter call rates in males (Sun and Narins 2005; Cunnington and Fahrig 2010). Environment Canada (2009) recommends setback buffers for petroleum industry activities for amphibian species at risk in the prairies. These setback buffers are used as ZOI and assigned to varying levels of sensory disturbance, based on factors such as noise level or perceived visual impediments. No ZOIs are applied to agricultural areas. The following rating adjustments are applied to estimate the ZOI associated with each disturbance type:

- Industrial development, and primary and secondary roads are considered high disturbance and buffered by 400 m. Suitability ratings are reduced by two classes for the first 200 m and one class if disturbance is greater than 200 m away.
- Tertiary roads and rural residential are considered a moderate disturbance and buffered by 200 m and suitability ratings are reduced by one class."

ELK

RATINGS ASSUMPTIONS

"Habitat suitability model ratings for summer and winter elk feeding habitat use the following assumptions:

- Elk are primarily grazers and prefer grassland habitat for feeding during winter; therefore, native grassland habitats (e.g., rough fescue) are rated high including ecosites that occur on south or southwest aspects, which can provide snow-free areas for winter and spring feeding. Native grasslands are also rated high during summer.
- Tame pasture is rated moderate in both winter and summer. Hayland is also rated moderate during the winter, but low during the summer.
- Deciduous and mixedwood forests containing a high diversity of preferred forb and grass species in the understorey are rated moderate during summer. During the winter, shrub and aspen browsing becomes more prominent; therefore, shrub and tree dominated habitats with suitable browse species are also rated moderate. Coniferous forests are rated low due to a sparse understorey of preferred forage.
- Mature and old forests are assumed to have more gaps and potential foraging opportunities, therefore, structural stage 6 and 7 are rated higher than closed canopy pole-sapling (structural stage 4) or young forests (structural stage 5). Structural stage 4 and 5 stands are given a very low to nil rating. Structural stage 3 is rated the same as structural stage 6 and 7.

- Riparian habitats are very productive and provide a variety of preferred grasses, sedges, and browse. Ecosite phases along the Elbow River floodplain are rated moderate to high, depending on overstorey and understorey plant species composition for both summer and winter.
- Ecosite phases that contain some preferred forage plants but with a predominantly north aspect have their ratings reduced by one class. Those with a predominantly south or southwesterly aspect retain their initial ratings.
- Distance from cover is used to modify feeding habitat ratings for grassland (open) habitat, structural stage 2. If feeding habitat is greater than 200 m from cover (structural stage 3, 6, and 7), ratings are reduced by one class."

RATINGS ADJUSTMENTS FOR DISTURBANCES

"Elk have been shown to avoid roads, which can affect habitat use and distribution. However, the extent to which elk reduce their use near roads varies with time of day, sex, road type and traffic volume (McCorquodale 2013; Buchanan et al. 2014). Some studies have reported elk reduce their use near roads at distances that vary from 250 m up to 1 km or more (McCorquodale 2013) studied elk in southern Alberta and reported elk selected areas farther from roads during all times of the day; however, elk were farthest (345 m) from the nearest road during the twilight hours. Considering the variability associated with road avoidance behaviour exhibited by elk, a 500 m and 250 m buffer is used as a ZOI for high traffic volume and medium to low traffic volume roads, respectively. The Trans-Canada Highway, Highway 8 and Highway 22, and Springbank Road are categorized as high traffic volume roads (Alberta Transportation 2016). Public township and range roads are categorized as moderate traffic volume, and private roads and driveways are categorized as low traffic volume.

Elk might avoid other linear developments and human settlements to some degree, but in some circumstances select these features for forage. Early successional stage vegetation used as forage by ungulates can be found under, or on, linear developments such as transmission line and pipeline rights-of-ways (Frair et al. 2005; Bartzke et al. 2014). Because elk are likely to forage on rights-of-ways, no ZOI is applied to these disturbances. Similarly, elk might select agricultural areas including tame pastures and hayland (Pruvot et al. 2014); therefore, no ZOI is applied. Elk might also select for habitats closer to human settlements as a predator avoidance strategy (Robinson et al. 2010; Rogala et al. 2011), but elk are still likely to avoid them up to a certain distance when human activity is high. The following rating adjustments are applied to estimate the ZOI associated with each disturbance type:

- Industrial development and primary roads are considered high disturbance and buffered by 500 m and suitability ratings are reduced by two classes.

- Rural residential and secondary roads are considered moderate disturbance and buffered by 250 m and suitability ratings are reduced by two classes.
- Tertiary roads are considered a low disturbance and buffered by 250 m and suitability ratings are reduced by one class."

GRIZZLY BEAR

"RATINGS ASSUMPTIONS

Habitat suitability model ratings for grizzly bear feeding habitat use the following assumptions:

Spring/Early Summer Feeding

- Ecosites that contain preferred herbaceous plants (e.g., grass, sedge, horsetail, hedysarum, cow parsnip) are rated high including grasslands (structural stage 2) and mature open forests (structural stage 6) that occur along riparian areas.
- Winter-killed ungulates and calves can provide opportunistic feeding opportunities during spring. Therefore, riparian and shrublands that might provide security cover for ungulates are rated high.
- All non-native vegetation units (e.g., crop fields, hayfield) are rated low or very low to nil.

Late Summer/Fall Feeding

- Ecosites that support buffaloberry are rated high for late summer/fall feeding, which include shrub-dominated habitats (structural stage 3) as well as mature forests (structural stage 6) with an open canopy. Habitats that do not contain buffaloberry but support other berry-producing shrubs (e.g., saskatoon and bearberry) are rated as moderate.
- Overall, structural stage 3 and 6 are rated higher than closed canopy and younger forests (structural stage 4 and 5). Structural stage 2, 4, and 5 are rated very low to nil because of lack of berry-producing shrubs.
- All non-native vegetation units (e.g., crop fields, hayfield) are rated very low to nil."

RATINGS ADJUSTMENTS FOR DISTURBANCES

"Grizzly bears might avoid habitats adjacent to roads, which results in reduced habitat effectiveness. However, the extent to which grizzly bears avoid roads depends on several factors including the type of road, time of day, frequency of human use, habitat quality as well as age and sex of bear (Benn and Herrero 2002; Gibeau et al. 2002; Mueller et al. 2004; Roever et al. 2008; Northrup et al. 2012a). Grizzly bears have been reported to avoid habitat near high traffic volume roads where avoidance can extend from 1 km to 2 km (Gibeau et al. 2002; Northrup et al. 2012a). Northrup et al. (2012a) also studied moderate (20 to 100

vehicles per day) and low traffic volume roads (less than 20 vehicles per day) and found grizzly bears avoided moderate and low traffic volume roads within approximately 500 m and 250 m, respectively. Overall, this study found grizzly bears used low-volume roads when available and crossed these roads more frequently, particularly at night.

With consideration of the potential avoidance of roads by grizzly bears described above, the Trans-Canada Highway, Highway 8 and 22, and Springbank Road are considered as high traffic volume roads for this model (Alberta Transportation 2016). Public township and range roads are categorized as moderate traffic volume, and private roads and driveways are categorized as low traffic volume.

Avoidance of low-impact linear features, such as transmission line rights-of-way, appears to be variable among individual grizzly bears, but generally continue to move and forage under these features (Nielsen et al. 2002). As such, no ZOI is applied to transmission and pipeline rights-of- way. Indeed, grizzly bears have been shown to use habitats near human settlements and agricultural lands where the risk of human-caused mortality is high but are attracted to these areas presumably for the forage resources they provide (Gibeau et al. 2002; Northrup et al. 2012b); therefore, no ZOIs are applied to agricultural areas. The following rating adjustments are applied to estimate the ZOI associated with each disturbance type:

- Primary roads are considered high disturbance and buffered by 1,000 m. Suitability ratings are reduced by two classes for the first 500 m and one class if disturbance is greater than 500 m.
- Industrial development and secondary roads are considered high disturbance and buffered by 500 m and suitability ratings are reduced by two classes.
- Rural residential is considered moderate disturbance and buffered by 250 m and suitability ratings are reduced by two classes.
- Tertiary roads are considered a low disturbance and buffered by 250 m and suitability ratings are reduced by one class."

SORA

RATINGS ASSUMPTIONS

"Habitat suitability model ratings for sora breeding habitat use the following assumptions:

- Sora prefer wetlands with abundant emergent vegetation for breeding. Therefore, all graminoid-dominated wetlands are rated high suitability (e.g., graminoid marsh) whereas shrub-dominated wetlands (e.g., shrubby fen) are rated low. Any waterbodies with little or no emergent vegetation are rated very low to nil.
- Permanency of water is also an important criterion for successful reproduction, which was used to modify suitability ratings. Specifically, waterbodies that dry up would not provide sufficient food sources (e.g., seeds, invertebrates), which reduces habitat suitability. Therefore, waterbodies classified as ephemeral (Class I) are rated very low to nil, and graminoid-dominated wetlands classified as temporary (Class II) are reduced by two classes (i.e., rated low). Seasonal (Class III) and semi-permanent (Class IV) graminoid wetlands are rated high whereas shallow open water is rated moderate suitability. Permanent (Class V) wetlands are reduced by one class (rated moderate) because they typically include larger areas of open water and less vegetation interspersion, which reduces habitat suitability (Zimmerman et al. 2002)."

RATINGS ADJUSTMENT FOR DISTURBANCES

"Although anthropogenic noise can affect bird behavioral and avoidance responses as well as interfere with bird communication (Ortega 2012), there is limited information on the potential indirect effects (i.e., sensory disturbance) of anthropogenic activities specific to sora habitat use. Nonetheless, Alberta Environment and Parks (SRD 2011) recommends a 100 m setback to protect wetland values including wetland-dependent wildlife species. In addition, ECCC (2017) also recommends a range of setback distances for human activities that might affect common waterbirds and waterfowl, which also includes setbacks up to 100 m. As such, this setback buffer was used as a zone of influence and assigned to varying levels of sensory disturbance based on factors such as noise level or perceived visual impediments. No zones of influence are applied to agricultural areas.

The following rating adjustments were applied to estimate the zone of influence associated with each disturbance type:

- Industrial development, and primary and secondary roads are considered high disturbance; therefore, suitability ratings were reduced by two classes if these anthropogenic features occurred within 100 m of potential breeding wetlands.
- Tertiary roads and rural residential are considered a moderate disturbance and suitability ratings reduced by one class if these anthropogenic features occurred within 100 m of potential breeding wetlands."

This concludes the repeating of information from the EIA for a)

b) As described in Volume 4, Appendix H, Attachment 11A, Section 11A.2 for olive-sided flycatcher, Sprague's pipit, northern leopard frog, elk, and grizzly bear and Volume 3A, Section 11.4.7.1 for sora, current knowledge and literature such as federal and provincial government species status and recovery documents, peer-reviewed journal articles and graduate theses, were used to develop the habitat suitability models. Overall, a thorough review of the available information was used to develop the species accounts and habitat ratings. These species accounts and accompanying models, and the resulting habitat suitability maps, provide a reasonable assessment of potential Project effects on change in habitat for key indicators. Change in habitat for key indicator species is presented and discussed in terms of changes to areas (ha) of high, moderate, low, and very low to nil suitability habitat, and provides an estimate on the amount of suitable habitat affected by the Project.

c) As described in response to IR2-06, the approach to preparing the assessment and integrating Indigenous and community knowledge was iterative. As Indigenous and community knowledge or issues and concerns were made available to Alberta Transportation, the initial selection of VCs, spatial and temporal boundaries, and the collection of baseline information for each VC were reviewed to confirm whether Indigenous and community knowledge or issues and concerns were included or represented in the assessment.

   Indigenous knowledge could not be used during the development of wildlife habitat suitability models because the Traditional Use Studies (TUS) were not available at that time. However, two of the wildlife species selected as key wildlife indicators and included in model development (i.e., elk and grizzly bear) were chosen to reflect importance to Indigenous groups as described in Volume 3A, Section 11.1.2, Table 11-1. Since the submission of the EIA, as described in response to IR 2-01, additional Indigenous and community knowledge regarding the location of high suitability wildlife habitats, and their use in the LAA, was reviewed.

   The result of that review was that the habitat suitability maps developed for elk and grizzly bear reflects Indigenous and community knowledge for these two species of traditional importance. For example, the Tsuut'ina Nation's TUS report states that the Project is within the calving grounds for elk, which is consistent with the habitat suitability model that identified high and moderate suitability summer feeding habitat for elk within the PDA. These areas represent patches of habitat where elk are more likely to feed and potentially calve due to the dense shrubby habitats that provide concealment cover (Volume 3B, Section 11.3.4.3, page 11.33). The distribution of summer and winter elk habitat identified in the LAA also aligns with information on specific habitat types (e.g., fescue grassland, aspen forest) and locations of elk herd observations provided in the Blood Tribe/Káínai TUS report. The Tsuut'ina Nation TUS report also stated that the observed female grizzly bear and her two cubs are

more likely to have travelled through the Project area along Elbow River. In addition, in the Blood Tribe/Káínai TUS report, signs of grizzly bear were observed in the southwest portion of the PDA.

Overall, the wildlife assessment identified high and moderate suitability spring and summer feeding habitat for grizzly bear, particularly along Elbow River, which is consistent with the information provided in the TUS reports.

d) Limitations of the habitat suitability models are discussed in Volume 4, Appendix H, Attachment 11A, page 11A.2 under Habitat Suitability Model Verification, which acknowledges that observational data collected during baseline surveys are often not of sufficient quantity or spatial distribution to meet the requirements of model validation (i.e., statistical comparison), especially for species at risk which occur at lower densities on the landscape. Although models could not be externally validated using observational data, they do provide a reasonable estimate of the amount of suitable habitat in the wildlife LAA for key indicators, based on current knowledge and literature that was used to build the models (see the response to a)). As stated in Volume 3A Section 11.6, prediction confidence is considered moderate based on the quality and quantity of available data, which includes the information used to develop the habitat suitability models. It should be emphasized, prediction confidence related to predicted Project effects on wildlife and biodiversity are based on other factors such as other available existing conditions data, proposed mitigation, and professional judgement. The prediction confidence for the wildlife and biodiversity assessment is applicable to the availability of traditional resources (e.g., wildlife) for Indigenous peoples as described in Volume 3A, Section 14.3.2 because the predictions of the wildlife assessment pertain directly to wildlife use of the LAA and consequently the availability of wildlife resources for Indigenous peoples. Overall, as stated in Volume 3A, Section 14.6, the prediction confidence for Project residual effects on TLRU are considered moderate, which aligns with the prediction confidence for the wildlife and biodiversity assessment.

e) Details on the explanation of buffer distances (i.e., zones of influence) are described in Volume 4, Appendix H, Attachment 11A, Section 11A.2.4, page 11A.12 for elk and Section 11A.2.5, page 11A.15 for grizzly bear. The following is from those sections.

RATINGS ADJUSTMENTS FOR DISTURBANCES FOR ELK

"Elk have been shown to avoid roads, which can affect habitat use and distribution. However, the extent to which elk reduce their use near roads varies with time of day, sex, road type and traffic volume (McCorquodale 2013; Buchanan et al. 2014). Some studies have reported elk reduce their use near roads at distances that vary from 250 m up to 1 km or more (McCorquodale 2013). Considering the variability associated with road avoidance behaviour exhibited by elk, a 500 m and 250 m buffer is used as a ZOI for high traffic volume and medium to low traffic volume roads, respectively. The Trans-Canada Highway,

Highway 8 and Highway 22, and Springbank Road are categorized as high traffic volume roads (Alberta Transportation 2016). Public township and range roads are categorized as moderate traffic volume, and private roads and driveways are categorized as low traffic volume.

Elk might avoid other linear developments and human settlements to some degree, but in some circumstances select these features for forage. Early successional stage vegetation used as forage by ungulates can be found under, or on, linear developments such as transmission line and pipeline rights-of-ways (Frair et al. 2005; Bartzke et al. 2014). Because elk are likely to forage on rights-of-ways, no ZOI is applied to these disturbances. Similarly, elk might select agricultural areas including tame pastures and hayland (Pruvot et al. 2014); therefore, no ZOI is applied. Elk might also select for habitats closer to human settlements as a predator avoidance strategy (Robinson et al. 2010; Rogala et al. 2011), but elk are still likely to avoid them up to a certain distance when human activity is high. The following rating adjustments are applied to estimate the ZOI associated with each disturbance type:

- Industrial development and primary roads are considered high disturbance and buffered by 500 m and suitability ratings are reduced by two classes.
- Rural residential and secondary roads are considered moderate disturbance and buffered by 250 m and suitability ratings are reduced by two classes.
- Tertiary roads are considered a low disturbance and buffered by 250 m and suitability ratings are reduced by one class."

RATINGS ADJUSTMENTS FOR DISTURBANCES FOR GRIZZLY BEAR

"Grizzly bears might avoid habitats adjacent to roads, which results in reduced habitat effectiveness. However, the extent to which grizzly bears avoid roads depends on several factors including the type of road, time of day, frequency of human use, habitat quality as well as age and sex of bear (Benn and Herrero 2002; Gibeau et al. 2002; Mueller et al. 2004; Roever et al. 2008; Northrup et al. 2012a). Grizzly bears have been reported to avoid habitat near high traffic volume roads where avoidance can extend from 1 km to 2 km (Gibeau et al. 2002; Northrup et al. 2012a). Northrup et al. (2012a) also studied moderate (20 to 100 vehicles per day) and low traffic volume roads (less than 20 vehicles per day) and found grizzly bears avoided moderate and low traffic volume roads within approximately 500 m and 250 m, respectively. Overall, this study found grizzly bears used low-volume roads when available and crossed these roads more frequently, particularly at night.

With consideration of the potential avoidance of roads by grizzly bears described above, the Trans-Canada Highway, Highway 8 and 22, and Springbank Road are considered as high traffic volume roads for this model (Alberta Transportation 2016). Public township and range roads are categorized as moderate traffic volume, and private roads and driveways are categorized as low traffic volume.

Avoidance of low-impact linear features, such as transmission line rights-of-way, appears to be variable among individual grizzly bears, but generally continue to move and forage under these features (Nielsen et al. 2002). As such, no ZOI is applied to transmission and pipeline rights-of- way. Indeed, grizzly bears have been shown to use habitats near human settlements and agricultural lands where the risk of human-caused mortality is high but are attracted to these areas presumably for the forage resources they provide (Gibeau et al. 2002; Northrup et al. 2012b); therefore, no ZOIs are applied to agricultural areas. The following rating adjustments are applied to estimate the ZOI associated with each disturbance type:

- Primary roads are considered high disturbance and buffered by 1,000 m. Suitability ratings are reduced by two classes for the first 500 m and one class if disturbance is greater than 500 m.
- Industrial development and secondary roads are considered high disturbance and buffered by 500 m and suitability ratings are reduced by two classes.
- Rural residential is considered moderate disturbance and buffered by 250 m and suitability ratings are reduced by two classes.
- Tertiary roads are considered a low disturbance and buffered by 250 m and suitability ratings are reduced by one class."

This concludes the repeating of information from the EIA for e).

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Question IR2-14: Wildlife - Survey Timing, Detection and Mitigation

Sources:

EIS Guidelines Part 2, Section 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 4, Appendix H

Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission – June 25, 2018 (CEAR # 52)

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally important species and assess the effects of changes to the environment on Indigenous peoples, including on current use and physical and cultural heritage.

The EIS describes the methods used in gathering baseline data, including for species that were identified as important to Indigenous groups. The methods used to complete the amphibian and yellow rail surveys do not follow the timing guidelines provided in the Sensitive Species Inventory Guidelines (Alberta Environment and Sustainable Resource Development, 2013, Sensitive Species Inventory Guidelines) which could impact detection rates. As these species have been identified as important to Indigenous groups, accurate characterisation of species presence is required to understand baseline species abundance and distribution, predict changes to those species from the Project, and support the assessment of effects to Indigenous peoples.

Information Requests:

a) Provide a rationale for survey timing for western toad and yellow rail and explain how potential impacts of survey timing on detection rates were considered in the understanding of baseline conditions, assessment of effects, and proposed mitigation.

b) Describe opportunities for and commitments to pre-construction surveys and how these may serve to determine additional appropriate mitigation measures.

Response IR2-14

a) Recommended survey timing for northern leopard frog and western toad, as described in ESRD (2013), for nocturnal acoustic surveys, is April 15 to mid-May and May 15 to June 14, respectfully.

Nocturnal acoustic amphibian surveys were completed May 5 and May 11 to capture the calling period for northern leopard frog. Western toads were detected incidentally calling in the Sibbald Flats area west of the LAA on April 16, 2016 as described in Volume 4, Appendix H, Section 2.2.2. Seasonal conditions (e.g., early spring) affect amphibian breeding periods that vary from the standard survey timing window as described ESRD (2013). Therefore, early May surveys for western toad were considered acceptable for 2016 spring conditions. A third acoustic survey was not conducted because it was determined that traffic noise along Highway 1, Highway 8 and Highway 22 could reduce detectability of calling amphibians. As such, a diurnal visual survey was conducted on July 14, 2016 as a third visit to wetlands to determine presence of breeding activity, including for non-calling amphibians (e.g., western tiger salamander).

Survey timing for yellow rail is between the last week of May and the first week of July. Volume 4, Appendix H states that rail surveys were completed July 15, July 24, and July 27. These dates are not correct and should be revised as follows:

"Two rounds of nocturnal rail call-playback surveys were conducted at 16 stations in the LAA. The first round was conducted on June ~~July~~ 15, 2016. The second round was conducted on June ~~July~~ 24 and June ~~July~~ 27, 2016 due to unsuitable weather conditions half way through the June ~~July~~ 24 visit."

Thus, rail surveys were conducted following ESRD (2013). Based on the above rationale, the survey timing for western toad and yellow rail are sufficient for determining existing conditions, assessment of effects, and mitigation.

b) Pre-construction surveys will be conducted in the appropriate season prior to start of construction. Surveys will be conducted at previously identified wildlife features (i.e., raptor stick nests, wetlands) that might require mitigation. Wildlife features and mitigation measures for each feature will be included in the Project-specific Environmental Construction Operations Plan (ECO Plan) and wildlife monitoring plan (see the response to IR2-15, Appendix IR15-1).

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Question IR2-15: Wildlife - Habitat Connectivity and Wildlife Movement

Sources:

EIS Guidelines Part 2, Section 2.2; 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 11

EIS Volume 3B, Section 11

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Louis Bull Tribe – EIS Review Submission, June 18, 2018 (CEAR # 49)

Stoney Nakoda Nations – Alberta Transportation Workshops, February and March 2018

Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51)

Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission – June 25, 2018 (CEAR # 52)

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally important species and assess the effects of changes to the environment on Indigenous peoples. The EIS Guidelines also require the proponent to conduct an alternative means analysis that addresses project design components related to environmental effect mitigation.

Concerns were raised about project effects to wildlife movement, including movement and migration of species of cultural importance. The EIS acknowledges the Project will result in changes to wildlife movement, including residual effects. However, the assessment of wildlife movement involves a high degree of uncertainty. Several project components may be barriers to movement, and the extent to which structures will be hindrances will vary based on project design features, wildlife species, and wildlife choosing to cross or not cross barriers. In addition to project components that may create barriers to movement, fences, such as the fence around the project infrastructure (Area D), which crosses the Elbow River overlap with areas of importance to wildlife migration. The specific location of fencing (for example at watercourse

crossings or near highway 22 modifications) is not clear. Alberta Transportation indicated that fences will be "wildlife friendly" although detail is not provided.

Recognizing the high degree of uncertainty associated with changes to wildlife movement resulting from the Project, the EIS identifies the need for a monitoring and follow-up program, although sufficient detail on the development, content, and implementation of the program to support a meaningful understanding of potential adaptive management and mitigation throughout the lifetime of the Project is not provided.

Indigenous groups identified potential mitigation measures related to wildlife movement that are not reflected in the EIS. For instance, during a meeting on March 20, 2018 between Alberta Transportation and Stoney Nakoda Nations, facilitated by the Canadian Environmental Assessment Agency, Alberta Transportation committed to further inquiry into the degree to which the diversion channel crossing under Highway 22 may serve as a wildlife crossing and means of improving this potential wildlife use of the diversion channel in dry conditions. While some mitigation measures are proposed in the EIS, if changes to the project design or operation are not successful to reduce potential impacts to wildlife movement, other actions to improve wildlife movement may be required.

Additional information is required to understand project interactions with wildlife movement and proposed mitigation, and to fully characterize potential changes to wildlife movement and the effects of these changes on Indigenous peoples.

<u>Information Requests:</u>

a) Provide additional detail on areas of uncertainty regarding wildlife movement throughout the PDA, LAA and RAA, and how species are predicted to respond to each project component during construction and dry, flood, and post flood operations.

b) Provide evidence pertaining to the suitability of the diversion channel to serve as a wildlife crossing underpass, including:

- **Supporting information to demonstrate that successful ungulate crossings can be achieved with the proposed cover materials for the diversion channel and channel features/conceptual design to achieve this success.**
- **A description of uncertainty regarding the successful use of this structure by ungulates, and how uncertainty in use can be or is being reduced.**
- **An updated description of project design features intended to improve wildlife use and any proposed actions to be undertaken to modify the planned diversion channel to improve wildlife movement or a rationale for not undertaking these changes. Describe alternatives that may be considered and have been identified by Indigenous groups.**
- **An updated effects assessment to reflect this information, as appropriate.**

c) Explain in detail how fencing will prevent public access and concurrently permit wildlife access. Include a description of fence permeability as it relates to elk and grizzly bear.

d) Considering information from a thorough review of existing literature, describe the potential benefits related to wildlife movement and mortality of an overpass over Highway 22 at various locations connected to the project area and discuss the feasibility of overpass options. Include a discussion of Indigenous groups' views on wildlife crossings, mitigation, and accommodation.

e) Provide details of wildlife mitigation, monitoring, and follow-up plans that support a clear understanding of project effects to wildlife movement over time and adaptive management that may be required.

Response IR2-15

a) It is stated in Volume 3A, Section 11.7.2, page 11.89, there is some uncertainty how ungulates and other wildlife would respond to Project structures if they are encountered during daily or seasonal movements. It is not possible to provide any additional details regarding specific areas of uncertainty related to wildlife movement.

As stated in Volume 3A, Section 11.7.2, page 11.88, large mammals can and will likely move around Project structures during dry operations if they do not cross over them. The proposed mitigation, such as covering sections of the diversion channel with vegetation (i.e., topsoil and grass) and installing wildlife friendly fencing, are designed to facilitate wildlife movement through the PDA.

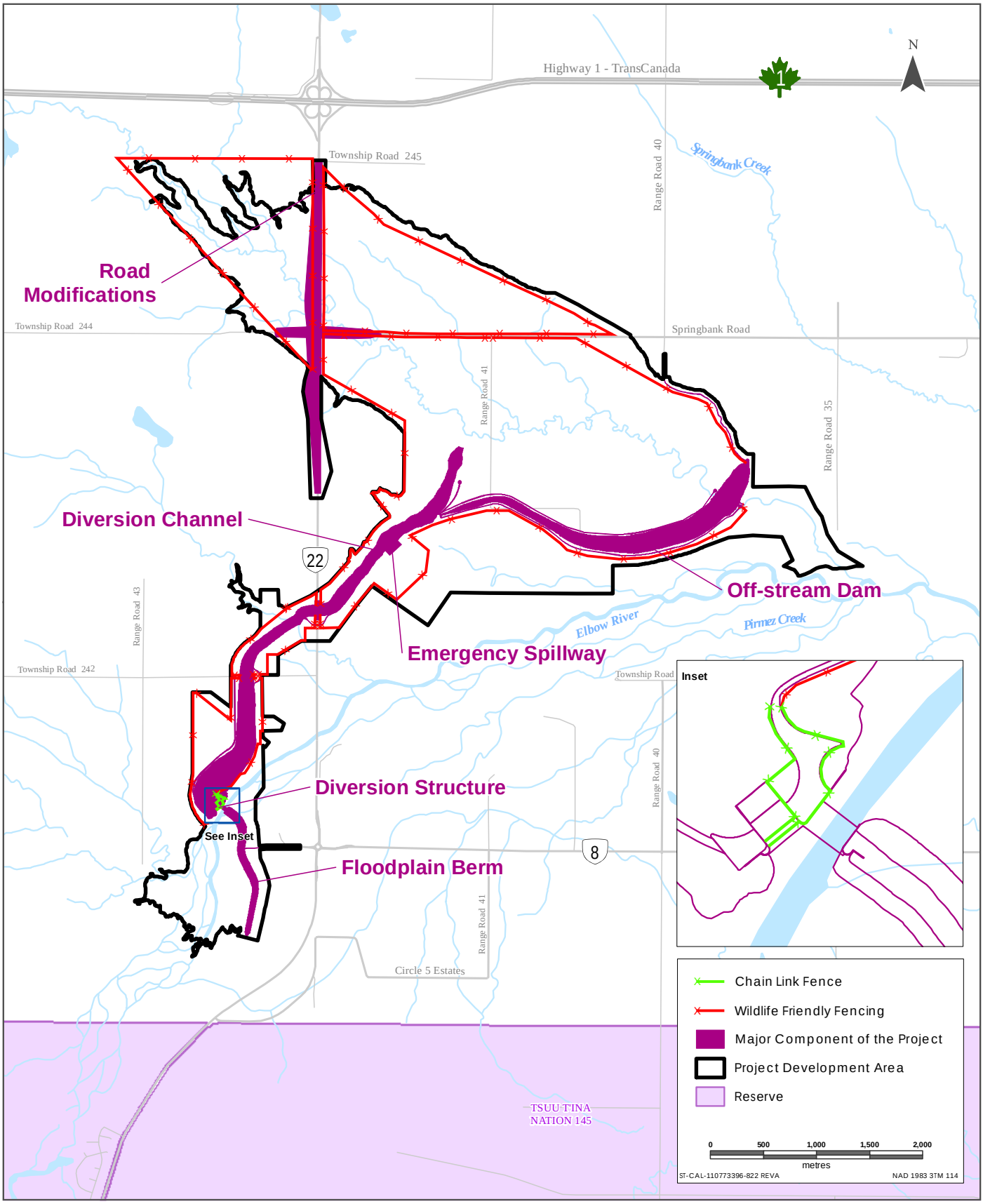
Similarly, during flood and post-flood operations, flood waters might be a temporary barrier to mammal and amphibian movement; however, whether animals such as elk and grizzly bear cross flood waters or go around them will depend on the amount of reservoir filling (as stated in Volume 3B, Section 11.6, Page 11.55).

b) The initial design for rip-rap in the diversion channel under the bridges of Range Road 242 and Highway 22 did not include additional fill material. However, through public consultation, stakeholders and Indigenous groups have shown concern for potential Project effects on wildlife movement; therefore, to help facilitate the movement of wildlife through the diversion channel under the bridges, the riprap in the diversion channel beneath the bridges will be filled with finer material on the bottom to create a more conducive substrate for wildlife to walk on (Clevenger 2011). Most crossable sections of the diversion channel will be soil that is vegetated with grasses.

An updated effects assessment is not required because the assessment conclusion for effects on wildlife does not change. However, there is some uncertainty related to wildlife movement and how various species might respond to the filled riprap. A monitoring program using remote cameras will be designed to identify whether permanent features of the

Project, such as the diversion channel, act as a barrier to wildlife movement, especially for ungulates (see Volume 3C, Section 2.10). A draft wildlife mitigation and monitoring plan is provided in the response to CEAA IR1-9, Appendix IR9-1.

c) A wildlife-friendly fence is typically a 4-strand wire fence designed to allow wildlife passage by having the top wire low enough for ungulates (e.g., deer, elk) to jump over (e.g., no higher than 100 cm above ground), and the bottom wire high enough for other animals (e.g., bear) to crawl under (e.g., at least 45 cm above ground) (GoA 2011; Paige 2012; Visscher et al. 2016). The top and bottom wire would be smooth and not barbed to reduce potential injury. Elk can tangle their back legs if the top wires are closer together; therefore, it is recommended that the top two wires are no less than 30 cm apart (Paige 2012). All fencing in or along the PDA boundary will be wildlife-friendly, except where chain-link fencing will be installed around certain facilities (e.g., control building) for public safety and security (see Figure IR15-1). The chain-link fencing will prevent both human and wildlife access to these facilities, whereas the wildlife-friendly fencing will be designed to facilitate wildlife movement in the PDA. Wildlife-friendly fencing cannot prevent human access; however, it is anticipated that wildlife-friendly fencing in combination with future land use objectives and education (e.g., signage) should reduce human access.



Sources: Base Data - Government of Alberta, Government of Canada, Thematic Data - Stantec Ltd.

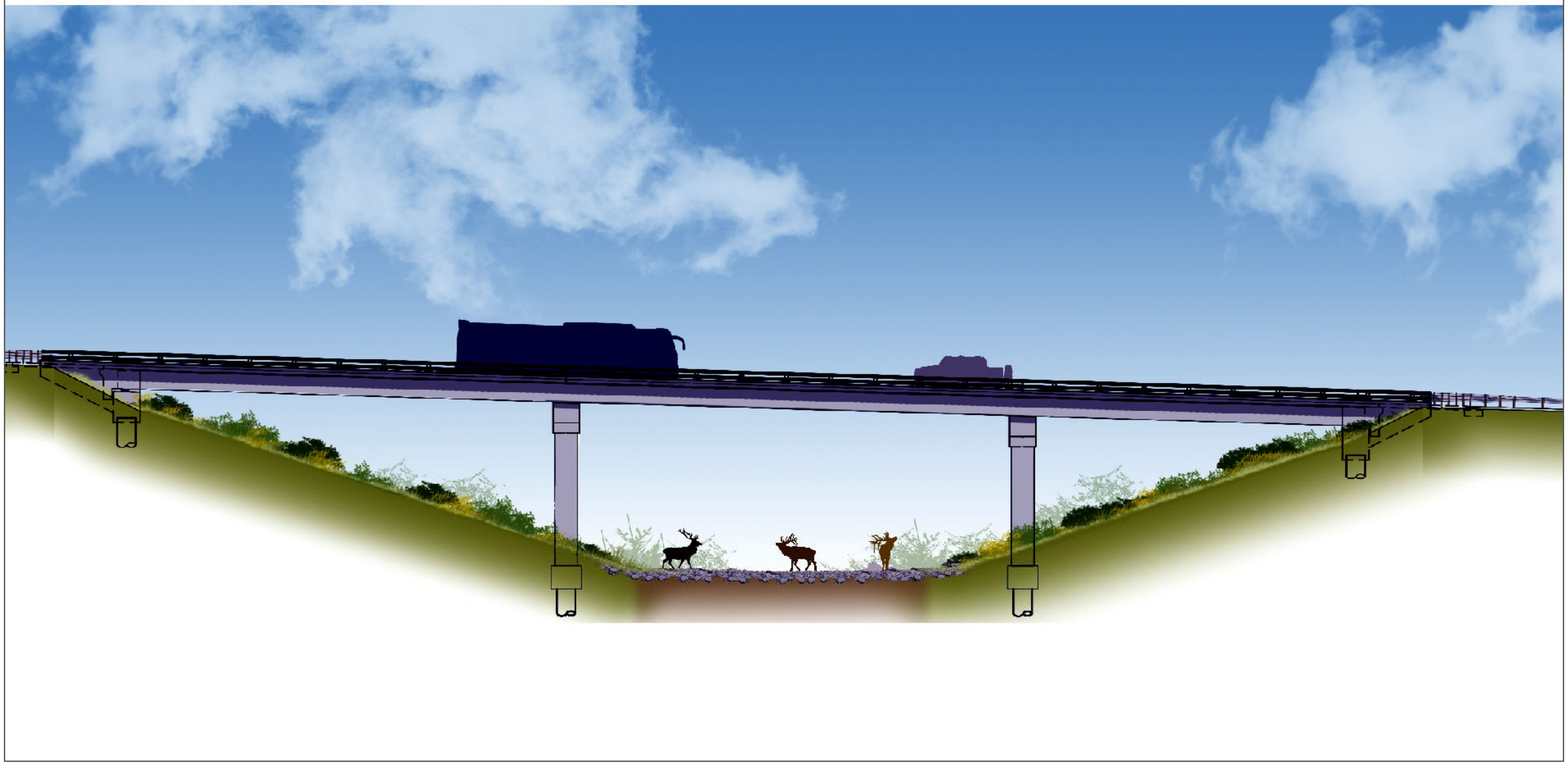
Proposed Location of Wildlife Friendly Fencing

Stantec

d) A review of the existing literature suggests that when placed in the right locations and designed properly, wildlife crossing structures (over and underpasses) are beneficial for wildlife because they can maintain connectivity between suitable habitats and populations as well as reduce wildlife mortality risk along highways (Clevenger and Waltho 2005; Dodd et al. 2006; Clevenger et al. 2009; McCollister and van Manen 2010; Clevenger 2011; Wakeling et al. 2015; Andis et al. 2017).

There are many factors that influence animal vehicle collision (AVC) locations and rates; however, AVCs tend to be clustered around areas of landscape features (e.g., drainages/riparian areas, level topography, species specific suitable habitat) and road-related features (e.g., higher traffic volumes, low motorist visibility) (Gunson et al. 2011). In addition, different wildlife species prefer different crossing structure designs (Clevenger and Waltho 2000; Clevenger and Waltho 2005; Clevenger et al. 2009; Cramer 2013). For example, grizzly bears, moose, deer and elk prefer large, open structures with good visibility, whereas cougars and black bears tend to prefer smaller structures with cover (Clevenger et al. 2009; Clevenger and Waltho 2005).

The diversion channel will run under Highway 22 near a drainage that flows into Elbow River (see Figure IR15-2). The riprap on the bottom of the diversion channel underneath the Highway 22 bridge (i.e., excluding the side slopes) will be covered to facilitate the movement of wildlife. The underpass can provide a crossing opportunity for wildlife such as elk; a herd of approximately 70 elk (i.e., tracks) were incidentally observed crossing Highway 22 in this area (as stated in Volume 4, Appendix H, Section 3.7.2). The most likely species to use the underpass along the diversion channel under Highway 22 are elk, white-tailed deer, mule deer, and coyote. Other large mammal species such as grizzly bear, black bear, and cougar are more likely to move along the Elbow River valley where there is relatively more cover from human activity on the landscape. The placement of a 3.67 m diameter culvert at the bottom of the raised intersection of Highway 22 could also function as a passageway for smaller wildlife to pass under the road to the other side (as stated in Volume 3A, Section 11.4.3.3, page 11.59). Bow River is the only recognized wildlife corridor in the RAA, as identified in the South Saskatchewan Regional Plan (GoA 2014). The proposed Highway 22 bridge over the diversion channel and culvert at the raised intersection of Highway 22 do not overlap key wildlife and biodiversity zones (KWBZ); therefore, overpasses and other crossing structures are not necessary.



Sources: Stantec

Highway 22 Bridge over the Diversion Channel

Figure IR15-2

Wildlife
May 2019

Wildlife movement and mitigation is important to the Stoney Nakoda Nations and Samson Cree Nations, as stated in Volume 3A, Section 11.4.3. Submissions to the Canadian Environmental Assessment Agency (CEA Agency) from Indigenous groups post-submission of the EIA also identify concerns related to wildlife movement:

- Stoney Nakoda Nations, Alberta Transportation Workshops, February and March 2018; Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)
- Louis Bull Tribe – EIS Review Submission, June 18, 2018 (CEAR # 49)
- Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51); Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission, June 25, 2018 (CEAR #52)
- Tsuut'ina Nation, (October 11, 2018 meeting)

At the October 11, 2018 meeting, Tsuut'ina Nation stated that "elk are around the east entrance to Redwood Meadows, from there to the roundabout, and they move back and forth into the hills on Tsuut'ina" and that "there is a large wildlife corridor that runs through the area". Tsuut'ina Nation would like to be involved with pre- and post-construction monitoring. Alberta Transportation continues to consult with Indigenous groups in relation to the wildlife monitoring program and land use planning.

e) A draft wildlife mitigation and monitoring plan is provided in the response to CEAA IR1-9, Appendix IR9-1. The final version will be developed following Project approval and based on provincial and federal approval conditions.

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Question IR2-16: Wildlife - Restricted Activity Periods

Sources:

EIS Guidelines Part 2, Section 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 11.4

Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51)

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally important species and assess the effects of changes to the environment on Indigenous peoples, including on current use and physical and cultural heritage. Restricted activity periods may serve to protect species of cultural importance to Indigenous peoples.

The EIS identifies seasonal and regulatory parameters for construction timing as restricted access periods. Restricted access periods for species of management concern vary and construction has the potential to affect some species more than others. Avoidance of restricted activity periods for all species of management concern is not feasible as these periods span the entire calendar year. The EIS indicates that site specific mitigation for wildlife habitat features will be identified during pre-construction surveys, that efforts will be made to avoid the restricted access period for the key wildlife and biodiversity zone along the Elbow river, and that if the restricted access period cannot be avoided, a wildlife mitigation and monitoring plan will be developed.

A more thorough understanding of which restricted access periods are not likely to be avoided and associated mitigation and follow-up requirements is required to understand potential impacts to wildlife species of cultural importance.

Information Requests:

a) Provide an updated project schedule reflecting which restricted access periods may be avoided and which may not be avoided. If this level of detail is not possible, identify when, within the general project timeline this information will be available and how this information will be shared with Indigenous groups.

b) Provide details of wildlife mitigation, monitoring, and follow-up plans for restricted access periods that are unlikely to be avoided.

Response IR2-16

a) As stated in Volume 3A, Section 11.4.2.2, the avoidance of construction activities in restricted activity periods (RAPs) for migratory birds and raptors and the key wildlife and biodiversity zone (KWBZ) are identified as mitigation measures to reduce potential Project effects on wildlife habitat. Due to year-round construction and avoidance with other RAPs, it is likely that activities will need to occur within the migratory bird, raptor, and KWBZ RAPs; the overlap of these with the construction schedule will be determined when the schedule is finalized.

b) As stated in Volume 3A, Section 11.4.2.2, if the RAP for migratory bird and raptors cannot be avoided, then a qualified wildlife biologist would inspect the site for active nests within seven days of the start of construction activity (e.g., vegetation removal, blasting). If an active nest or den is found, it will be subject to a provincial or federal disturbance setback buffer and site-specific mitigation. A draft wildlife mitigation and monitoring plan is provided in the response to CEAA IR1-9, Appendix IR9-1 and the final plan will describe, among other details, the process for if RAP for the KWBZ cannot be avoided and monitoring of ungulate habitat use and response to human disturbance. An Environmental Construction Operations Plan (ECO Plan) will also be developed, which will provide mitigation during construction.

Question IR2-17: Wildlife - Elk

Sources:

EIS Guidelines Part 2, Section 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 11

EIS Volume 3B, Section 11

Volume 4, Appendix H

Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Wildlife
May 2019

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally important species and assess the effects of changes to the environment on Indigenous peoples. The EIS Guidelines indicate that, with regards to current use, the EIS must consider fish, wildlife, birds, plans, or other natural resources of importance.

The EIS identifies that Tsuut'ina Nation noted that the Project is an environmentally sensitive area that comprises an important ungulate winter range, and describes the overlap of the LAA and RAA with the key wildlife and biodiversity zone for elk. Limited information is provided in the EIS on the relative importance of the LAA in the regional context for elk. There is uncertainty in the effects assessment, as significance determinations rely on the suitability of the RAA. Understanding the Project effects within the RAA through which elk are moving is needed in order to consider the concerns of elk migration and movement.

The EIS describes wildlife survey methods and results, including information about species habitat, presence, and movement and the results of winter tracking and remote camera surveys conducted within the LAA. Specific movement surveys are described, although dominant movement patterns to allow for understanding of potential project effects to elk movement patterns are not included.

The EIS acknowledges the construction of the Project may cause the loss of winter ungulate habitat and increase habitat fragmentation in the project area. A description of the context for population trends and threats, to understand how loss of winter ungulate range in addition to increased fragmentation will impact elk in the area, is missing. The EIS acknowledges potential effects related to access roads but does not specify the location of these roads relative to key wildlife and biodiversity zones.

Elk have been identified as a species of importance to Indigenous peoples. Additional information on elk presence, distribution, use of the PDA, LAA and RAA, pathways of effects, and proposed mitigation is required to assess the changes to elk from the Project and the effects of these changes to Indigenous peoples.

Information Requests:

a) Describe the relative importance of the PDA and LAAto elk and revise the assessment of effects to elk, to include a:

- **description of regional data from Western and Indigenous knowledge sources and a comparison of the results of project studies and surveys with this regional data. Explain any discrepancies between the information sources and supplement project studies with available regional data in a revised assessment as appropriate;**

- **description of dominant elk movement patterns through the region and how project effects relate to this context; and,**
- **description of elk population trends and threats and how trends and threats may change as a result of the Project. Include discussion of any population viability analysis undertaken to support the conclusion that the Project is unlikely to pose a long-term threat. If population viability analysis was not undertaken, discuss the information used to support the concept of minimal threat to persistence or viability.**

b) Clarify whether or not proposed access roads overlap with the key wildlife and biodiversity zones. If there is overlap, provide the details of an access management plan for the Project, including consideration of access for traditional use.

c) Clarify how remote camera locations were selected and how habitat types were considered in the selection of remote camera locations. Provide a figure of remote camera locations overlaid with habitat types.

d) Describe if and how the option of habitat offsets was considered to further mitigate the loss of high and moderate suitability habitat for elk.

Response IR2-17

a) Elk habitat suitability in the wildlife LAA is discussed in Volume 3A, Section 11.2.2.4, page 11.27 under the subheading "Elk". In that section, it states that approximately 74.5% of the LAA consists of low and very low to nil suitability winter feeding habitat for elk, with the remainder represented by 223.0 ha (4.6%) of high and 1,016.7 ha (20.9%) of moderate suitability habitat. Overall, elk summer feeding habitat occurs in similar amounts and distribution as winter habitat.

The distribution and estimates of elk numbers are discussed in a regional context for the two wildlife management units (WMU) that overlapped the RAA: WMU 212 and WMU 312. Other than these data, there are no other sources of regional data. There are limited data available to describe dominant elk movement patterns in the RAA. A discussion of elk movement in the LAA based on remote camera and winter track surveys are provided in Volume 4, Appendix H, Section 3.7.3, and it states that while elk are wide ranging over the LAA. The largest concentrations were recorded north of Elbow River near Township Road 242, approximately 1 km west of Highway 22. They crossed Highway 22 approximately 1 km north of the Elbow River bridge, and this herd kept travelling west across pasture and cultivation north of Elbow River towards the western edge of the LAA and in a pasture and wet shrub habitat east of Highway 22 between Springbank Road and the Trans-Canada Highway. At a meeting between Alberta Transportation and Tsuut'ina Nation (October 11, 2018), Tsuut'ina Nation stated that "elk are around the east entrance to Redwood Meadows, from there to the roundabout, and they move back and forth into the hills on Tsuut'ina" and that "there is a large wildlife corridor that runs through the area."

The potential Project effects on elk movement are discussed in Volume 3A, Section 11.4.3.1, Section 11.4.3.3, and Volume 3B, Section 11.3.3.3. An assessment of potential cumulative effects on wildlife movement in the RAA including elk are discussed in Volume 3C, Section 1.2.7.1. In summary, major components of the Project such as the diversion channel may act as semi-permeable barriers to elk movement. These structures will be designed to allow elk to physically cross (e.g., appropriate side-slope angles, vegetating the structures and covering up riprap with conducive material for crossing). However, the structures may still act as sensory disturbances and the degree to which elk might habituate to the Project structures and maintain daily or seasonal movements is uncertain. The magnitude of residual Project effects on elk movement are therefore predicted to be moderate. Elk are known to habituate to other human activities if human and physical disturbances are relatively constant and predictable (Thompson and Henderson 1998); therefore, it is likely that they would habituate to these structures over time.

The most recent aerial winter ungulate survey completed for WMU 212 and WMU 312 was conducted in 2013 (see Volume 4, Appendix H, Section, 11A.2.4); the results of that survey indicated winter elk populations had declined by 28% in WMU 212 where 560 elk were observed compared to 710 elk observed in 2011. The number of elk in WMU 312 increased by 70%, where 1,667 elk were observed during 2013 compared to 979 in 2008 (Ranger and Rasmussen 2013).

The assessment did not include a population viability analysis. The assessment of residual Project effects on elk and the determination of significance on wildlife and biodiversity relied on habitat suitability modelling, existing information and professional judgment. The assessment identified Project residual effects related to change in elk habitat, movement and mortality risk. Those changes are not considered to result in long-term threats to population viability because mitigation is expected to reduce potential Project effects on elk and there are other suitable habitats in the wildlife LAA and wildlife RAA capable of supporting elk over the long-term.

b) Proposed permanent access roads for the floodplain berm and diversion structure overlap with the key wildlife and biodiversity zone. These roads will not be open for public use and access will be restricted using locked gates and fencing. All permanent access roads for the Project will be gated with swing gates and vehicle access will be limited to AEP operations and maintenance personnel, which will reduce potential effects associated with sensory disturbance, mortality risk and wildlife-human conflict.

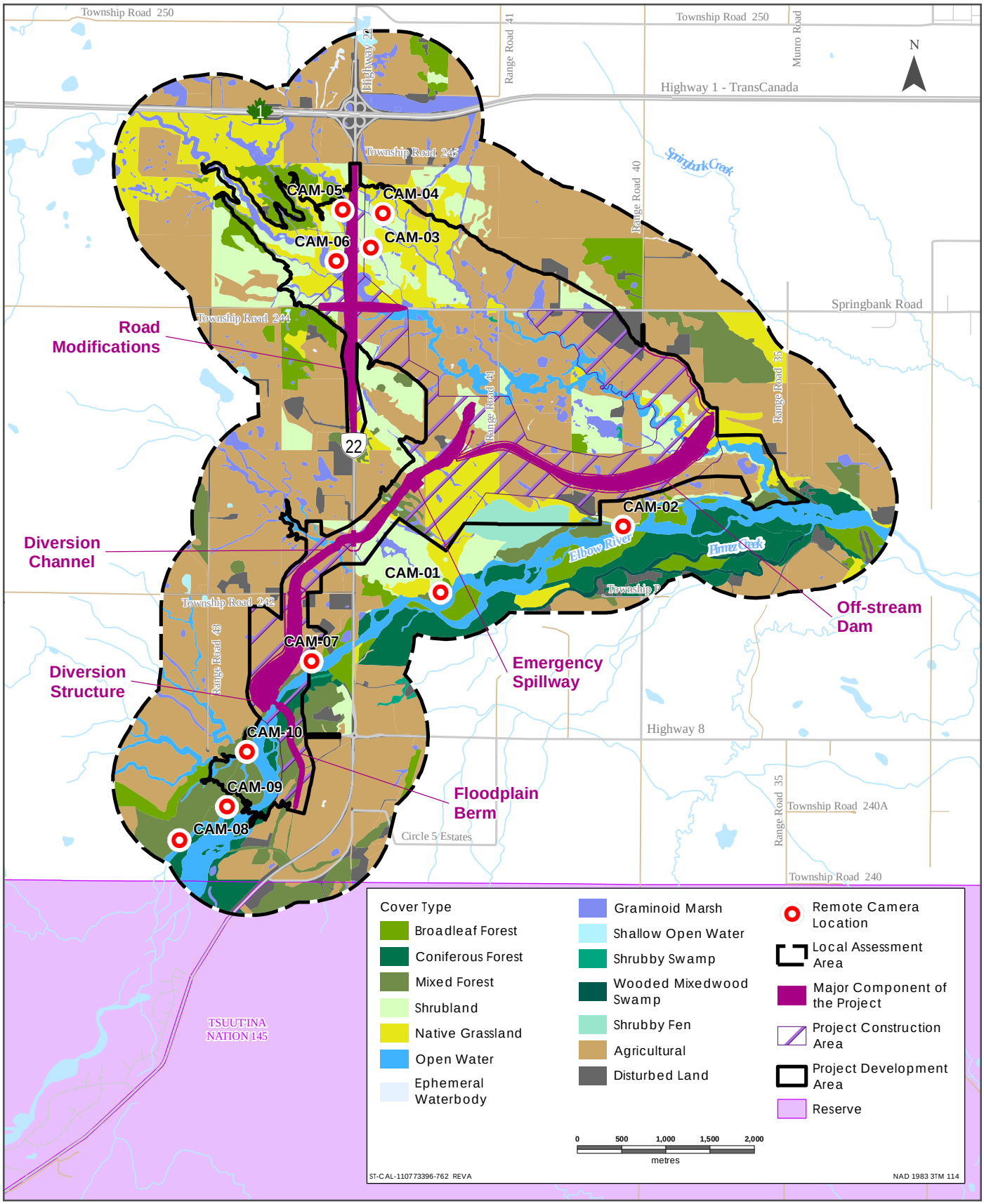
c) Site selection for remote cameras is detailed in Volume 4, Appendix H, Section 2.6.1. As stated there, remote cameras were placed upstream and downstream of the proposed diversion inlet along Elbow River, and near the proposed elevation of Highway 22 in areas where wildlife are more likely to be detected such as near wildlife trails, human made trails, riparian areas and wetlands. Placing the cameras in these locations also provides potential for follow-up monitoring after construction of the Project to determine if wildlife movement

would be affected in the key wildlife and biodiversity zone along Elbow River with the diversion structure in place and near the raised highway. The locations of remote cameras in relation to habitat types are provided in Figure IR17-1. Cameras 7, 8, 9 and 10 were placed in a mixed forest habitat, Cameras 2 and 5 were placed in a broadleaf forest, Cameras 1, 3, and 4 placed in shrubland, and Camera 6 was placed near a graminoid marsh.

d) Habitat offsets were not considered as a mitigation option for the direct loss of high and moderate suitability habitat for elk because:

- There is no provincial offset policy or framework in place to allow for the consideration of offsets as a mitigation option for proposed developments.
- Currently, habitat offsets are only applied to wetlands as part of the GoA (2018) or to wildlife species listed as endangered or threatened under Schedule 1 of the *Species at Risk Act* (SARA). Offsets under SARA are used only to address residual effects after applying avoidance and mitigation measures to comprehensively reduce the effects of the activity on species at risk individuals, residences and critical habitat (GoC 2016).
- Elk are currently listed as secure by AEP (2017) and are not listed as endangered or threatened under Schedule 1 of SARA (GoC 2018). There is currently no precedence for designating habitat-based offsets for a non-listed species.

Overall, habitat offsets were not considered as a mitigation option because the proposed mitigation strategies (e.g., avoid, minimize, reclaim) were determined to be adequate to reduce Project residual effects to the extent that they do not threaten the long-term persistence or viability of elk in the RAA (i.e., there is substantial habitat for elk in the RAA), as well as in consideration for the other reasons listed above. The Project will reclaim temporary work spaces using native species, which will reduce the direct loss of high and moderate suitability elk feeding habitat within the construction area. As stated in Volume 3A. Section 11.4.2.3, existing areas of lower suitability habitat such as crop and hayland that occur within the off-stream reservoir are expected to become tame pasture over time, which may increase the quality and quantity of elk habitat during dry operations.



Sources: Base Data - Government of Alberta, Government of Canada, Thematic Data - Stantec Ltd.

Remote Camera Locations in Relation to Vegetation and Wetland Cover in the LAA

Stantec

REFERENCES

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Question IR2-18: Wildlife - Grizzly Bear

Sources:

EIS Guidelines Part 2, Section 6.1.8, 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 11

EIS Volume 3B, Section 11

EIS volume 4, Appendix H, Attachment 11A

Montana First Nation – Review of Springbank Off-Stream Reservoir EIA, June 2018 (CEAR # 51)

Samson Cree Nation – Springbank Off-Stream Reservoir Project Written Submission – June 25, 2018 (CEAR # 52)

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally important species and assess the effects of changes to the environment on Indigenous peoples.

The EIS Guidelines indicate that with regards to current use, the EIS must consider fish, wildlife, birds, plans, or other natural resources of importance.

The EIS includes grizzly bear as an indicator species in the wildlife and biodiversity assessment. The baseline data for grizzly bear, including movement from radio-collared grizzly bears as well as data from field surveys, is limited. The habitat modelling presented is unclear as to whether all pertinent factors were considered for grizzly bear, such as elevation and aspect. Consequently, the understanding of potential impacts to grizzly bear may be limited. The wildlife and biodiversity assessment concludes that the Project is likely to have a greater adverse effect on ungulate and amphibian movement compared to effects on birds and grizzly bears. This conclusion is based on the understanding that grizzly bear use of the Elbow River valley is more common than the grizzly bear use of the habitats where the diversion channel and reservoir would be constructed. Given the data limitations, the understanding of grizzly bear habitat and movement areas may be incomplete.

The Project is predicted to have a low risk of wildlife mortality based on proposed mitigation measures during the construction phase. Further analysis by calculating the number of potential mortalities expected based on the increased traffic volumes resulting from the Project, may contribute to understanding mortality risk for large mammals. The determination of overall effect to grizzly bears is unclear, given the information presented in the EIS identifies multiple pathways of effects.

Grizzly bears were identified as a species of cultural importance. A thorough understanding of potential effects and mitigation for grizzly bear is necessary to assess the changes to grizzly bears from the Project and the effects of these changes to Indigenous peoples.

<u>Information Requests:</u>

a) With regards to habitat, describe the limitations of the data used to predict baseline conditions and pathways of effects to grizzly bears, and the subsequent selection of mitigation measures. Provide reasoning for excluding elevation and aspect from the grizzly bear habitat suitability model, or update the model accordingly. Integrate results of model updates into the assessment of effects.

b) With regards to mortality, explain whether and how increases in traffic volumes associated with the Project were considered in the assessment of risk of wildlife mortality. If increased traffic volumes were not considered in the assessment, integrate this into the assessment and provide the results.

c) Identify additional mitigation measures and/or clarify proposed mitigation, including:

- **A description Project effects and mitigation relative to existing best practices and recommendations.**

- **Specific measures that could be considered to mitigate impacts to grizzly bear overall and during spring feeding.**
- **Details of a project-specific strategy or plan to proactively reduce human-grizzly bear conflict considering the Project will have a high magnitude impact on grizzly bear habitat. Include appropriate responses in the event of a human-bear interaction.**
- **Where provincial strategies or policies may serve as mitigation, identify specifics that mitigate changes to grizzly bears and effects of those changes on Indigenous peoples.**

Response IR2-18

a) As stated in Volume 4, Appendix H, Attachment 11A, the habitat suitability models, including those developed for grizzly bear, provide a reasonable prediction of habitat suitability in the wildlife LAA, based on current knowledge and peer-reviewed literature. The only potential limitation to the habitat suitability models, which is stated under subheading "Habitat Suitability Model Verification" (page 11A.2), is the inability to externally validate the model due to the scarcity of species occurrence data.

The habitat suitability models for grizzly bear were developed using information on key habitat requirements and habitat use for spring/early summer feeding (i.e., pre-berry/herbaceous vegetation) and late summer/fall feeding (i.e., berry season). The habitat suitability ratings are based on the ability of vegetation communities (i.e., ecosite phases) to provide preferred seasonal feeding habitats during spring and summer.

Elevation and aspect were not excluded from the grizzly bear habitat suitability models. These physical features are inherent to the ecosite classification system. To clarify, within the Foothills Parkland Natural Subregion, which occurs between 1,025 m and 1,400 m (ESRD 2012), ecosite phases are classified using vegetation as well as topography, slope and aspect (see Volume 10A, Section 10.2.1.1, page 10.11). Habitat suitability ratings for grizzly bear reflect the vegetation as well as physical characteristics (e.g., aspect) of each ecosite phase.

b) The Project pathways identified in Volume 3A, Section 11.4.4.1, page 11.61, discuss potential changes in wildlife mortality associated with animal-vehicle collisions and increased traffic volumes. The Project residual effects on change in mortality risk is discussed in Volume 3A, Section 11.4.4.3, page 11.64, under the heading "Elk and Grizzly Bear". Although increased traffic volumes can lead to higher mortality risk during construction, increase in vehicle traffic during construction is expected to be minor. For example, the average annual daily traffic (AADT) in 2016 was 12,850 (north bound traffic) and 11,860 (south bound traffic) on Highway 22. As a conservative estimate, it is assumed that the 515 construction workers make two trips per day. Therefore, the commuting trips per day is 1,030. This represents an 8% (north bound) and 8.7% (south bound) potential increase in traffic on Highway 22.

c) As stated in Volume 3A, Section 11.4.4.2 and Volume 3B, Section 11.3.4.2, storing waste in wildlife-proof containers and providing wildlife awareness training to all staff on site is designed to reduce human-bear conflicts and represents best management practices as identified in Jorgenson (2016). This mitigation is also consistent with the direction provided in AEP (2016) to reduce potential human-caused mortality risk associated with bear attractants. These mitigations apply overall including during the spring season. Further details related to mitigation to reduce human-bear conflict will be provided in the final wildlife mitigation and monitoring plan (the draft is provided in the response to CEAA IR1-9, Appendix IR9-1),

If a bear-human interaction occurs, the incident would be reported to the Environmental Inspector and AEP.

AEP (2016) identified strategies and priority actions designed to achieve grizzly bear recovery objectives including:

- review the BearSmart Program
- enhance the public outreach and education including the engagement of indigenous groups in the planning, delivery and evaluation of programs
- improve program coordination (i.e., inter-jurisdictional cooperation)
- reduce human-caused mortality by managing bear attractants, minimizing motorized access, reducing accidental mortality (e.g., vehicle collisions, self-defense)

The mitigation proposed to reduce potential Project effects on grizzly bears align with these provincial recovery strategies, which will result in reduced mortality risk to grizzly bears.

REFERENCES

AEP (Alberta Environment and Parks). 2016a. Alberta Grizzly Bear (*Ursus arctos*) Recovery Plan (Draft). Alberta Environment and Parks, Alberta Species at Risk Recovery Plan No. 38. Edmonton Ab. 85 pp.

ESRD (Alberta Environment and Sustainable Resource Development). 2012. Range Plant Communities and Range Health Assessment Guidelines for the Foothills Parkland Subregion of Alberta. Environment and Sustainable Resource Development, Lands Division, Pincher Creek, AB. Available at http://aep.alberta.ca/lands-forests/grazing-range-management/documents/FoothillsParklandRangePlantGuide.pdf

Jorgenson, J.T. 2016. Bear Hazard Assessment Update for the Greater Bragg Creek Area of Southern Alberta 2016. 64 pp.

VEGETATION

Question IR2-19: Vegetation - Plants Species of Cultural Importance

Sources:

EIS Guidelines Part 2, Section 6.1.8; 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 10

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Context and Rationale:

The EIS Guidelines require the proponent to present baseline information for riparian, wetland, and terrestrial environments, including the identification of ecosystems that are vulnerable with a focus on species at risk or ecosystems of social, economic, cultural, or scientific significance. The EIS Guidelines also require baseline data regarding wetlands that are most likely to be affected by project activities and information on plants of importance for traditional use including harvesting areas.

The EIS presents a limited description of baseline data for plant species and wetlands of importance to Indigenous peoples, including species presence, abundance, and distribution in the PDA and LAA. The EIS identifies 250 site locations surveyed for baseline data of wetland and vegetation. Most of these sites were located in the PDA, with a limited number located outside of the PDA but within the LAA. The EIS does not indicate the number or locations of surveys relative to different ecosite types. Further, the reporting of baseline data within the PDA is inconsistent regarding species of management concern and species of cultural importance. The EIS identifies that three plant species were observed during rare plant surveys in the PDA but also states that effects on plant species of management concern from vegetation clearing are not anticipated because none were observed in the PDA.

The EIS presents 77 traditional use plant species identified by reviewing secondary sources of traditional ecological knowledge and indicates that 41 of these species were observed within the PDA. The EIS states that there was no indication that these plants were being used by Indigenous groups and, without consideration of plant species-specific effects, that because the species were generally common and widespread, the effects of the Project on traditional use plant species would be low. The EIS does not provide supporting justification for the statement that "Due to the lack of information of rare plant occurrences in the RAA, a loss of a single rare

plant occurrence at the local scale does not imply a significant effect at the regional scale." The conclusion that traditional use of species will not be affected because the plants may be accessed elsewhere requires sufficient documentation of the opportunities to access plants of importance elsewhere, including information on specific locations, abundance, accessibility, and preference.

The EIS describes the RAA for vegetation and wetlands as selected to encompass an average home range of a female grizzly bear. The RAA used to provide context for the assessment of potential project effects should be relevant to the valued component, in this instance vegetation and wetlands. The scope of the RAA for vegetation and wetlands is required to meaningfully understand the potential project cumulative effects on vegetation and wetlands, including plant species and wetlands of importance to Indigenous peoples.

Indigenous groups indicated they were not engaged by Alberta Transportation to determine which rare traditional plants to include in surveys, to determine if the rare plants identified are traditionally important species, or to develop species-specific mitigation for the species of management concern that might found within the PDA that may be removed by the project.

Validation of and/or additional information is required to meaningfully understand the potential project effects on plant species and wetlands of importance to Indigenous peoples.

<u>Information Requests:</u>

a) **Explain how the plant survey methods adequately support understanding of different ecosite types, and the presence, abundance, and distribution of plant species of cultural importance to Indigenous peoples. Describe the level of engagement of Indigenous groups in survey design and implementation, and discuss how sample locations and distribution are representative of plant species of importance to Indigenous peoples.**

b) **Justify the use of the home range of a female grizzle bear as the RAA for vegetation and wetlands, taking into account baseline conditions, pathways of effects, plant species and wetlands of importance to Indigenous peoples, and wetland functions.**

c) **Clarify and provide additional detail on the presence, abundance, and distribution of plant species of cultural importance/traditional use throughout the PDA, LAA and RAA.**

d) **Provide a description of species-specific mitigation measures for plant species and wetlands of importance to Indigenous peoples observed within the PDA.**

e) **Update the assessment of residual effects and significance determination for vegetation and wetlands considering the responses to a, b, c and d above regarding plant species of importance to Indigenous peoples.**

Response IR2-19

a) As is common practice for baseline surveys for environmental impact assessment, surveys targeted ecosite phases representative of the vegetation LAA and areas of higher rare plant potential (e.g., wetlands, riparian areas, exposed soil). Two-hundred and fifty site locations were surveyed in the LAA: twenty locations in the spring and 28 in the summer for rare plants, and 202 wetland surveys. Survey locations were well distributed throughout the PDA. All but six non-anthropogenic vegetation cover types were surveyed in the PDA and only one of the unsurveyed community types, b5 grassland – submesic/medium, occupies more than 1% of the PDA (Table IR19-1).

Survey methods Alberta Native Plant Council (2012), with at least two surveys conducted to account for different flowering times of plants, one spring and one summer. Unusual areas with variable micro-sites not visible from aerial photographs were surveyed, when encountered in the field.

At each upland survey location, a 10 x 10 m plot was established within the plant community. A meander survey was completed within the plot and continued until no new plant species were found. Site information, including slope and slope position, moisture and nutrient regime, light conditions and ground cover (e.g. litter, bare ground), were recorded and used to classify each site to ecosite phase.

At each surveyed wetland, water depth and conductivity was also measured, and soils were evaluated at locations with landowner approval for ground disturbance. These methods, combined with publicly available information on the Foothills Parkland Natural Region, adequately support ecosite phase classification and understanding of plant species presence, abundance and distribution in the PDA, including plant species of importance to Indigenous peoples.

The approach to preparing the vegetation assessment and integrating Indigenous and community knowledge was iterative. The initial selection of valued components (VCs), spatial and temporal boundaries, and the collection of baseline information for each VC were reviewed to confirm whether Indigenous and community knowledge or issues and concerns were included or represented within the vegetation assessment. All common vegetation community types were surveyed, survey locations were well distributed in the PDA, locations with higher rare plant potential were surveyed and all vascular plants present at a survey site were recorded.

Ecosite phases are classified based on slope, topographic position and dominant plant species composition of tree, shrub and grass layers and this information was collected at all surveyed locations.

Table IR19-1 Area of Cover Types in the PDA and Number of Survey Sites

Cover Type	Land Unit[a,b]	PDA Area		Number of Survey Sites in Vegetation LAA	Number of Survey Sites in PDA
		ha	%		
Broadleaf Forest	b2 Hairy wild rye Aw	0	0	0	0
	d1 Pine grass Aw	0.1	<0.1	1	0
	e1 Snowberry-silverberry Aw-Pb	1.5	0.1	1	0
	f2 Red osier dogwood Pb-Aw	19.7	1.4	3	2
	g2 Horsetail Aw-Pb	0	0	0	0
Coniferous Forest	b4 Hairy wild rye Sw	0	0	0	0
	d3 Pine grass-Sw	0	0	0	0
	g1 Horsetail Sw	17.3	1.2	2	2
Mixed Forest	b3 Hairy wild rye Aw-Sw-Pl	14.1	1.0	1	1
	d2 Pine grass-Sw-Pl-Aw	<0.1	<0.1	0	0
	e2 Snowberry-silverberry Sw	24.4	1.7	1	1
	e4 Snowberry-silverberry Sw-Aw	9.0	0.6	1	1
	f1 Red osier dogwood Sw	19.5	1.4	4	3
Shrubland	e3 Shrubland - mesic/rich	33.7	2.3	4	3
	f3 Shrubland - subhygric/rich	163.2	11.4	13	12
Native Grassland	b5 Grassland - submesic/medium	21.3	1.5	1	0
	c1 Rough fescue	187.6	13.0	12	11
	f4 Grassland - subhygric/rich	4.1	0.3	0	0
	Upland Subtotal	***515.5***	**35.9**	**44**	**36**
Open Water	Open Water	102.4	7.1	12	11
	Open Water Subtotal	**102.4**	**7.1**	**12**	**11**

Table IR19-1 Area of Cover Types in the PDA and Number of Survey Sites

Cover Type	Land Unit[a,b]	PDA Area		Number of Survey Sites in Vegetation LAA	Number of Survey Sites in PDA
		ha	%		
Ephemeral Waterbody	Ephemeral Waterbody	0.7	<0.1	9	6
Graminoid Marsh	Temporary graminoid marsh	32.4	2.3	59	53
	Seasonal graminoid marsh	47.1	3.3	70	64
	Semi-permanent graminoid marsh	18.1	1.3	27	20
Shallow Open Water	Shallow open water with submersed and/or floating aquatic vegetation	0.2	<0.1	0	0
	Saline shallow open water with submersed and/or floating aquatic vegetation	0	0	0	0
Shrubby Swamp	Seasonal shrubby swamp	1.4	0.1	2	2
Wooded Mixedwood Swamp	Seasonal wooded mixedwood swamp	0	0	0	0
Shrubby Fen	Moderate-rich shrubby fen	23.1	1.6	8	6
Wetland Subtotal		**123.0**	**8.6**	**175**	**152**
Agricultural	Annual crop	136.6	9.5	8	6
	Dugout	0.5	<0.1	0	0
	Hayland	82.8	5.8	1	1
	Tame pasture	411.5	28.6	10	10
Disturbed Land	Disturbed land[c]	65.4	4.5	0	0
Anthropogenic Subtotal		**696.8**	**48.5**	**19**	**17**
Grand Total		**1437.6**	**100.0**	**250**	**216**

Table IR19-1 Area of Cover Types in the PDA and Number of Survey Sites

NOTES:

Aw – aspen (*Populus tremuloides*)

Pb – balsam poplar (*Populus balsamifera*)

Pl – lodgepole pine (*Pinus contorta*)

Sw – white spruce (*Picea glauca*)

[a] Upland land units (ecosites) were classified using Range Plant Communities and Range Health Assessment Guidelines for the Foothills Parkland Subregion of Alberta (ESRD 2012)

[b] Wetland land units classified using the Alberta Wetland Classification System (ESRD 2015)

[c] Disturbed land includes industrial facilities, disturbed land, transportation and rural residential land unit types

No information on survey design was provided by Indigenous groups prior to finalizing the vegetation assessment. Wetlands and riparian areas were identified as valued ecosystems through the Project Indigenous engagement program. Traditional use plants were identified through a Project-specific TUS' conducted by Indigenous groups potentially affected by the Project (Tsuut'ina Nation and Trailmark Systems 2018; Ermineskin Cree Nation 2018; Blood Tribe/Kainai 2018; Louis Bull Tribal Administration 2018; Piikani Nation n.d; Kainai Consultation Office and Siksika Consultation Office 2017), Only one identified traditional use plant species is rare in Alberta, western red cedar (*Thuja plicata*) (Table IR19-1); the remaining species identified as traditionally used plants are commonly found species and are not linked to uncommon ecological features. Western red cedar was not observed in the PDA or vegetation LAA during surveys (Volume 4, Appendix L, Table 10A-1) and there are no documented occurrences in the vegetation regional assessment area (RAA; Volume 3A, Section 10, Table 10-5).

b) Project effects are assessed in the PDA and vegetation LAA. This includes the area where the construction or operation of the Project could have direct or indirect effects on vegetation and wetlands. The 15 km buffer around the PDA (i.e., female grizzly bear home range) is the vegetation RAA, which is the spatial boundary in which Project residual effects could interact cumulatively with residual effect of other past, present and reasonably foreseeable future development activities. The RAA based on grizzly bear home range includes the Foothills Parkland Natural Subregion intersected by the PDA and Montane Natural Subregion, located close to the LAA. Natural subregions have characteristic vegetation, climate, elevation and physiographic features (Natural Subregions Committee 2006) and the areas included in the RAA likely have similar baseline conditions as the PDA. Communities and species observed in the PDA are found elsewhere in the Foothills Parkland Natural Subregion and lower elevations of the Montane Natural Subregion (DeMaere et al. 2012; Willoughby et al. 2008) and likely occur beyond the PDA in the RAA. Land use patterns in the vegetation RAA are similar to the vegetation LAA with anthropogenically modified areas most abundant (Volume 3A, Section 10.2.2.3, Figure 10-4).

The RAA is representative of the plant species diversity observed in the PDA, including species of importance to Indigenous peoples, and communities and species that may be directly and indirectly affected by the Project, while also supporting the wildlife assessment. Baseline conditions in the RAA were determined using publicly available information from SRD (2011) and ABMI (2010).

A different ecological boundary, such as a watershed or ecoregion, would not increase the accuracy of the assessment predictions of effects pathways on vegetation and wetlands. Use of wildlife species of management concern home range is common practice in environmental assessment and meets guidelines for determining spatial boundaries under CEAA (Canadian Environmental Assessment Agency 2012). Use of a larger ecological boundary would diminish the accuracy of the assessment by diluting the magnitude of effects. Although female grizzly bear home range is not a vegetation and wetland centered

RAA, effects on vegetation and wetlands are linked to wildlife because vegetation and wetlands provide habitat and are a food source.

c) Vegetation is described in Volume 3A, Sections 10.2.2.1, 10.2.2.2, 10.2.2.3 for the RAA, LAA and PDA. Traditional use plants identified during field surveys are provided in Volume 3A, Section 10, Table 10-7. In addition to what is provided in the vegetation assessment regarding traditional use plant abundance and distribution in the PDA and LAA, details are also provided in Table IR19-2. No sites were surveyed beyond the vegetation LAA.

Of the 77 species listed in Table IR19-2, fifteen have not been identified to genus; therefore, the presence, abundance or distribution of these species cannot be evaluated. Forty-one of the traditional plant species or genus identified in the traditional ecological reports reviewed were observed within the PDA during field surveys. Of the 41 species observed in the PDA (listed in Volume 3A, Section 10, Table 10-7), all are common, widespread species in Alberta and likely occur in the RAA, outside the LAA. Western red cedar (*Thuja plicata*) is provincially rare and may occur in the Montane Natural Subregion portion of the RAA because it has been documented in the montane, subalpine and alpine areas of the Rocky Mountain Natural Region (ACIMS 2017). This species grows on sites with 890 mm to 6,600 mm of annual precipitation (Tesky 1992) and is not expected in the Foothills Parkland Natural Subregion portion of the RAA because mean annual precipitation levels in the Foothills Parkland Natural Subregion are a little over 600 mm (Natural Subregion Committee 2006).

d) Mitigation measures listed in Volume 3A, Section 10.3.1 and Volume 3B, Section 10.1.1 will mitigate potential effects on traditional use plant species. Traditional use plant mitigation (Volume 3A, Section 10.3.1, Table 10-11) consists of measures to reduce effects from erosion, weeds and weed control on traditional plant establishment and growth (i.e., use cover crop, do not apply herbicide within 30 m of plant species of management concern, herbicide application by licensed industrial pesticide applicator). All observed traditional use plant species are common species expected to naturally recover following flooding or to disperse to disturbed areas. Post-construction and post-flood revegetation monitoring and reclamation plan details have not been established. Indigenous group and stakeholder engagement are ongoing and will guide monitoring and revegetation plans. Traditional use plant species will be included in revegetation plans. The draft vegetation and wetland mitigation, monitoring and revegetation plan is provided as Appendix IR19-1.

e) No changes are necessary to the assessment. In summary, the RAA used for the assessment of cumulative effects (15 km buffer around the PDA) captures the diversity and is appropriate for assessing effects pathways, supporting the wildlife assessment and not diluting the magnitude of vegetation and wetland effects. Traditionally used plant species were frequently observed in the PDA and are likely common in the LAA and RAA, based on provincial status. Mitigation and revegetation should also limit adverse effects to species of importance to Indigenous peoples and, therefore, the long-term availability of traditionally used plants is not expected to be threatened. Land within the PDA will be converted from private freehold to Crown land.

   Since filing of the EIA, Alberta Transportation has created a draft post-construction land use document for the Project (Appendix IR2-1). This document provides the draft principles of future land use for the PDA, which was developed through the engagement process and includes feedback received by First Nations and stakeholders. The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Therefore, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise Section 35 rights. Consequently, opportunities to harvest plant species of importance to Indigenous groups may increase.

Table IR19-2 Traditional Use Plants Identified in Reviewed Information Sources and Engagement Program, and Presence in the LAA and PDA

Traditionally Used Name[a]	Scientific Name[b]	ACIMS Rank[c]			Quarter Sections with Species Observation	Number of Sites in LAA Species Observed	Number of Sites in PDA Species Observed	Percent Cover Observed in the Vegetation LAA			Percent Cover Observed in PDA		
		Provincial	National	Tracked				Minimum	Mean	Maximum	Minimum	Mean	Maximum
alsike clover	*Trifolium hybridum*	SNA	NNA	No	NE-13-24-4W5, NE-14-24-4W5, NE-18-24-3W5, NE-22-24-4W5, NE-23-24-4W5, NE-26-24-4W5, NE-27-24-4W5, NE-3-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-23-24-4W5, NW-24-24-4W5, NW-26-24-4W5, NW-27-24-4W5, NW-3-24-4W5, SE-10-24-4W5, SE-14-24-4W5, SE-23-24-4W5, SE-24-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-13-24-4W5, SW-14-24-4W5, SW-19-24-3W5, SW-23-24-4W5, SW-24-24-4W5, SW-25-24-4W5, SW-26-24-4W5	52	44	<1	4	20	<1	4	20
aspen	*Populus tremuloides*	S5	N5	No	NE-27-24-4W5, NE-3-24-4W5, NW-26-24-4W5, SE-13-24-4W5, SE-26-24-4W5, SW-14-24-4W5	7	6	1	9	35	1	7	35
bear root	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
bearberry, kinnikinnick	*Arctostaphylos uva-ursi*	S5	N5	No	NW-17-24-3W5, SE-10-24-4W5, SE-13-24-4W5	4	3	3	17	40	3	21	40
bitter berry	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
black root	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
bunchberry	*Cornus canadensis*	S5	N5	No	NE-13-24-4W5, SE-10-24-4W5	2	1	1	8	15	1	1	1
camas	*Zigadenus* spp.	S4, S5	N5	No	NE-23-24-4W5, NE-27-24-4W5, NW-24-24-4W5, SE-27-24-4W5	5	5	<1	1	2	<1	1	2
caribou weed	*unknown*	NA	NA	NA	-	-	-	-	-	-	-	-	-
cattail	*Typha latifolia*	S5	N5	No	NW-18-24-3W5	4	2	3	9	22	3	13	22
chokecherry	*Prunus virginiana*	S5	N5	No	SW-14-24-4W5	1	1	1	1	1	1	1	1
cloudberry, dewberry	*Rubus pubescens*	S5	N5	No	SE-10-24-4W5	1	1	15	15	15	15	15	15
cohosh, honeysuckle	*Lonicera* spp.	S3, S5, SNA	N5, NNA	No	NW-14-24-4W5, NW-18-24-3W5, SE-13-24-4W5	3	2	<1	2	5	<1	3	5
Common plantain, whiteman's foot	*Plantago major*	SNA	NNA	No	NE-18-24-3W5, NE-22-24-4W5, NW-18-24-3W5, SE-23-24-4W5, SE-24-24-4W5, SW-23-24-4W5	8	5	<1	1	5	<1	1	5
cottonwood, black cottonwood, poplar	*Populus* spp.	S2, S3, S5, SU	N3, N5, NNA	No	NE-13-24-4W5, NE-18-24-3W5, NE-27-24-4W5, NE-3-24-4W5, NW-14-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-26-24-4W5, NW-3-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SE-19-24-3W5, SE-26-24-4W5, SW-14-24-4W5, SW-19-24-3W5	15	1	<1	9	35	<1	8	35
cow parsnip	*Heracleum maximum*	S5	N5	No	NE-18-24-3W5, SE-23-24-4W5	2	2	10	22	33	10	22	33

Table IR19-2 Traditional Use Plants Identified in Reviewed Information Sources and Engagement Program, and Presence in the LAA and PDA

Traditionally Used Name[a]	Scientific Name[b]	ACIMS Rank[c]			Quarter Sections with Species Observation	Number of Sites in LAA Species Observed	Number of Sites in PDA Species Observed	Percent Cover Observed in the Vegetation LAA			Percent Cover Observed in PDA		
		Provincial	National	Tracked				Minimum	Mean	Maximum	Minimum	Mean	Maximum
currant	*Ribes* spp.	S2, S2?, S3, S4, S5, SU	N#N5, N4, N5, NNA	Yes[d]	NE-14-24-4W5, NE-18-24-3W5, NE-27-24-4W5, NW-14-24-4W5, NW-24-24-4W5, NW-26-24-4W5, SE-13-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-19-24-3W5, SW-26-24-4W5	18	16	<1	3	15	<1	3	15
dandelion	*Taraxacum officinale*	SNA	N5	No	NE-10-24-4W5, NE-13-24-4W5, NE-14-24-4W5, NE-18-24-3W5, NE-22-24-4W5, NE-23-24-4W5, NE-24-24-4W5, NE-26-24-4W5, NE-27-24-4W5, NE-3-24-4W5, NW-13-24-4W5, NW-14-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-23-24-4W5, NW-24-24-4W5, NW-26-24-4W5, NW-27-24-4W5, NW-3-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SE-14-24-4W5, SE-15-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-24-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-10-24-4W5, SW-13-24-4W5, SW-14-24-4W5, SW-19-24-3W5, SW-23-24-4W5, SW-24-24-4W5, SW-25-24-4W5, SW-26-24-4W5, SW-27-24-4W5	132	116	<1	5	60	<1	5	60
diamond willow fungus	*Trametes suaveolens*	NA	NA	NA	-	0	0	-	-	-	-	-	-
dwarf blueberry	*Vaccinium caespitosum*	S5	N5	No	-	0	0	-	-	-	-	-	-
fireweed	*Chamerion* spp.	SU, S4, S5	N5	No	NE-18-24-3W5	1	0	7	7	7	-	-	-
frog plant	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
fungus (wood, green wood cup)	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
goldenrod	*Solidago* spp.	S3, S4, S5	N5	No	NE-13-24-4W5, NE-14-24-4W5, NE-18-24-3W5, NE-23-24-4W5, NE-27-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-24-24-4W5, NW-3-24-4W5, SE-13-24-4W5, SE-14-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-27-24-4W5, SW-13-24-4W5, SW-26-24-4W5, SW-27-24-4W5	18	12	<1	1	3	<1	1	3
green alder	*Alnus viridis*	S5	N5	No	NE-3-24-4W5	1	1	5	5	5	5	5	5
high-bush blueberry, huckleberry	*Vaccinium membranaceum*	S5	N5	No	-	0	0	-	-	-	-	-	-
horse grass	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
juniper (ground, berry)	*Juniperus* spp.	S3, S5, SU	N4, N5	No	NW-3-24-4W5, SE-10-24-4W5, SE-13-24-4W5	4	2	<1	2	5	1	2	3
king root	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-

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Traditionally Used Name[a]	Scientific Name[b]	ACIMS Rank[c]			Quarter Sections with Species Observation	Number of Sites in LAA Species Observed	Number of Sites in PDA Species Observed	Percent Cover Observed in the Vegetation LAA			Percent Cover Observed in PDA		
		Provincial	National	Tracked				Minimum	Mean	Maximum	Minimum	Mean	Maximum
Labrador tea, muskeg tea, muskeg leaves	*Rhododendron groenlandicum*	S5	N5	No	-	0	0	-	-	-	-	-	-
lichen (tree)	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
low-bush cranberry, mooseberry	*Viburnum edule*	S5	N5	No	-	0	0	-	-	-	-	-	-
mint, peppermint, wild mint	*Mentha arvensis*	S5	N5	No	NE-18-24-3W5, NE-23-24-4W5, NE-27-24-4W5, NW-18-24-3W5, NW-24-24-4W5, NW-3-24-4W5, SE-15-24-4W5, SE-27-24-4W5, SW-19-24-3W5, SW-24-24-4W5	17	16	<1	1	5	<1	1	5
moss (spike, sponge)	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
mushrooms (chanterelle, morel, pine, puff balls)	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
norther bedstraw	*Galium boreale*	S5	N5	No	NE-18-24-3W5, NE-23-24-4W5, NE-27-24-4W5, NE-3-24-4W5, NW-14-24-4W5, NW-18-24-3W5, NW-24-24-4W5, NW-26-24-4W5, SE-13-24-4W5, SE-14-24-4W5, SE-23-24-4W5, SE-24-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-13-24-4W5, SW-14-24-4W5, SW-19-24-3W5, SW-26-24-4W5, SW-27-24-4W5	28	23	<1	2	10	<1	2	10
northern gooseberry	*Ribes oxyacanthoides*	S5	N5	No	NE-14-24-4W5, NE-18-24-3W5, NE-27-24-4W5, NW-14-24-4W5, NW-24-24-4W5, NW-26-24-4W5, SE-13-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-19-24-3W5, SW-26-24-4W5	18	16	<1	3	15	<1	3	15
old-man's beard	*Unsnea* spp.	SU	N5	No	-	0	0	-	-	-	-	-	-
old-man's whiskers	*Galium triflorum*	S5	N5	No	SE-27-24-4W5	1	1	<1	<1	<1	<1	<1	<1
onion (wild, prairie)	*Allium cernuum*	S5	N5	No	NW-18-24-3W5, SE-10-24-4W5	2	1	<1	<1	<1	<1	<1	<1
pigweed (lamb's quarter, red)	*Chenopodium album*	SNA	NNA	No	NE-13-24-4W5	6	6	1	5	12	1	5	12
pin cherry	*Prunus pensylvanica*	S5	N5	No	-	0	0	-	-	-	-	-	-
pineapple weed	*Matricaria discoidea*	SNA	N5	No	-	0	0	-	-	-	-	-	-
prairie clover	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
prairie coneflower	*Ratibida columnifera*	S4	N5	No	-	0	0	-	-	-	-	-	-
rabbit root	*Aralia nudicaulis*	S5	N5	No	-	0	0	-	-	-	-	-	-

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Traditionally Used Name[a]	Scientific Name[b]	ACIMS Rank[c]			Quarter Sections with Species Observation	Number of Sites in LAA Species Observed	Number of Sites in PDA Species Observed	Percent Cover Observed in the Vegetation LAA			Percent Cover Observed in PDA		
		Provincial	National	Tracked				Minimum	Mean	Maximum	Minimum	Mean	Maximum
red clover	*Trifolium pratense*	SNA	NNA	No	NW-14-24-4W5, NW-17-24-3W5, NW-18-24-3W5, SE-19-24-3W5, SE-23-24-4W5	6	6	1	3	10	1	3	10
red osier dogwood, nipiswasiskwatew	*Cornus stolonifera*	S5	N5	No	NE-18-24-3W5, NE-3-24-4W5, NW-13-24-4W5, NW-14-24-4W5, NW-17-24-3W5, NW-18-24-3W5, SE-13-24-4W5, SE-14-24-4W5, SE-19-24-3W5, SW-19-24-3W5	11	8	<1	5	31	<1	6	31
sage (bush, prairie)	*Artemisia* spp.	S1, S2, S2S3, S3, S4, S5, SNA, SU	N1N3, N2N3, N4N5, N5, N5?, NNA, NNR	Yes[d]	NE-27-24-4W5, NW-13-24-4W5, NW-14-24-4W5, NW-18-24-3W5, SE-13-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-24-24-4W5, SE-27-24-4W5, SW-19-24-3W5, SW-23-24-4W5, SW-26-24-4W5	12	8	<1	3	15	<1	4	15
saskatoon berry	*Amelanchier alnifolia*	S5	N5	No	NE-14-24-4W5, NW-14-24-4W5, NW-18-24-3W5, NW-26-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SE-19-24-3W5, SE-23-24-4W5	8	6	<1	3	10	<1	3	10
saw-grass	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
Silverberry, wolf willow, white sage berry	*Elaeagnus commutata*	S5	N5	No	NW-17-24-3W5, NW-18-24-3W5, NW-3-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SE-14-24-4W5, SE-19-24-3W5	9	6	1	7	15	1	6	15
smelly root	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
soapberry, hoshum	*Shepherdia canadensis*	S5	N5	No	NE-13-24-4W5, NW-18-24-3W5, SE-10-24-4W5, SE-13-24-4W5	5	2	1	4	10	3	4	5
spruce	*Picea* spp.	S5, SNR	N5, NNA	No	NE-13-24-4W5, NE-18-24-3W5, NE-3-24-4W5 NW-13-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-3-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SW-13-24-4W5	13	8	<1	15	50	<1	16	50
stinging nettle	*Urtica dioica*	S5	N5	No	NE-27-24-4W5	1	0	<1	<1	<1	-	-	-
strawberry	*Fragaria virginiana*	S5	N5	No	NE-14-24-4W5, NE-23-24-4W5, NE-26-24-4W5, NE-27-24-4W5, NE-3-24-4W5, NW-14-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-24-24-4W5, NW-26-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-24-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-13-24-4W5, SW-14-24-4W5, SW-19-24-3W5, SW-26-24-4W5	31	25	<1	6	20	<1	5	20
sweet pine, lodgepole pine	*Pinus contorta*	S5	N5	No	-	0	0	-	-	-	-	-	-
sweetgrass	*Anthoxanthum* spp.	S3, S5	N5	No	-	0	0	-	-	-	-	-	-
tiger lily	*Lilium philadelphicum*	S5	N5	No	-	0	0	-	-	-	-	-	-

Table IR19-2 Traditional Use Plants Identified in Reviewed Information Sources and Engagement Program, and Presence in the LAA and PDA

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		Provincial	National	Tracked				Minimum	Mean	Maximum	Minimum	Mean	Maximum
tumbleweed	*Amaranthus* spp.	S2S3, SU, SNA	N1N2, N5	Yes[d]	-	0	0	-	-	-	-	-	-
twinberry	*Lonicera involucrata*	S5	N5	No	-	0	0	-	-	-	-	-	-
western dock	*Rumex occidentalis*	S5	N5	No	NE-18-24-3W5, NW-18-24-3W5, NW-24-24-4W5, SW-25-24-4W5	5	4	<1	2	6	<1	2	6
western red cedar	*Thuja plicata*	S2	N5	Yes	-	0	0	-	-	-	-	-	-
wheat	*Elymus* spp.	S2S3, S3, S4, S4S5, S5, SU, SNA, SNR	N2, N4N5, N5, NNA, NNR	Yes[d]	NE-10-24-4W5, NE-14-24-4W5, NE-18-24-3W5, NE-22-24-4W5, NE-24-24-4W5, NE-3-24-4W5, NW-18-24-3W5, NW-23-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SE-15-24-4W5, SE-19-24-3W5, SE-24-24-4W5, SE-26-24-4W5, SW-10-24-4W5, SW-19-24-3W5, SW-24-24-4W5	27	23	<1	19	45	1	20	45
white birch	*Betula occidentalis*	S4	N5	No	NW-17-24-3W5	1	1	10	10	10	10	10	10
wild asparagus	*Asparagus officinalis*	SNA	NNA	No	-	0	0	-	-	-	-	-	-
wild carrot	*Daucus carota*	SNA	NNA	No	-	0	0	-	-	-	-	-	-
wild chives	*Allium schoenoprasum*	S4	N5	No	-	0	0	-	-	-	-	-	-
wild potato	*Bistorta vivipara*	S5	N5	No	NE-23-24-4W5, SE-27-24-4W5, SW-13-24-4W5, SW-19-24-3W5	4	3	<1	4	10	<1	2	5
wild raspberry	*Rubus idaeus*	S5	N5	No	NW-14-24-4W5, NW-26-24-4W5, SE-23-24-4W5, SW-19-24-3W5, SW-26-24-4W5	5	5	1	2	4	1	2	4
wild rice	Zizania spp.	S1, SNA	N4, N4N5	No	-	0	0	-	-	-	-	-	-
wild rose	*Rosa* spp.	S5	N5	No	NE-13-24-4W5, NE-14-24-4W5, NE-18-24-3W5, NE-23-24-4W5, NE-26-24-4W5, NE-27-24-4W5, NE-3-24-4W5, NW-14-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-24-24-4W5, NW-26-24-4W5, SE-10-24-4W5, SE-13-24-4W5, SE-14-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-10-24-4W5, SW-14-24-4W5, SW-19-24-3W5, SW-26-24-4W5	30	23	<1	5	30	<1	3	15
wild tobacco	unknown	NA	NA	NA	-	-	-	-	-	-	-	-	-
wild turnip	*Raphanus raphanistrum*	SNA	NNA	No	-	0	0	-	-	-	-	-	-

Table IR19-2 Traditional Use Plants Identified in Reviewed Information Sources and Engagement Program, and Presence in the LAA and PDA

Traditionally Used Name[a]	Scientific Name[b]	ACIMS Rank[c]			Quarter Sections with Species Observation	Number of Sites in LAA Species Observed	Number of Sites in PDA Species Observed	Percent Cover Observed in the Vegetation LAA			Percent Cover Observed in PDA		
		Provincial	National	Tracked				Minimum	Mean	Maximum	Minimum	Mean	Maximum
willow	*Salix* spp.	S1, S2, S3, S4, S5, S5?, SU, SNA	N1, N2, N3, N3N4, N4, N4N5, N5, NNA	Yes[d]	NE-13-24-4W5, NE-14-24-4W5, NE-18-24-3W5, NE-23-24-4W5, NE-26-24-4W5, NE-27-24-4W5, NW-13-24-4W5, NW-14-24-4W5, NW-18-24-3W5, NW-23-24-4W5, NW-24-24-4W5, NW-26-24-4W5, NW-27-24-4W5, NW-3-24-4W5, SE-13-24-4W5, SE-14-24-4W5, SE-15-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-24-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-13-24-4W5, SW-14-24-4W5, SW-19-24-3W5, SW-25-24-4W5, SW-26-24-4W5, SW-27-24-4W5, SE-25-24-4W5	82	71	<1	5	55	<1	5	55
yarrow	*Achillea* spp.	S5, SNA	N5, NNA	No	NE-14-24-4W5, NE-23-24-4W5, NE-27-24-4W5, NW-13-24-4W5, NW-14-24-4W5, NW-17-24-3W5, NW-18-24-3W5, NW-23-24-4W5, NW-24-24-4W5, NW-3-24-4W5, SE-13-24-4W5, SE-14-24-4W5, SE-19-24-3W5, SE-23-24-4W5, SE-26-24-4W5, SE-27-24-4W5, SW-14-24-4W5, SW-19-24-3W5, SW-26-24-4W5, SW-27-24-4W5	32	29	<1	1	5	<	1	5

NOTES:

[a] Traditional names are those listed in the following sources (AMEC Earth & Environmental 2009, AMEC Earth & Environmental 2010, MacPherson Leslie & Tyerman LLP Lawyers 2011, Enbridge 2012, Trans Mountain Pipeline ULC 2013, National Energy Board 2015, Riversdale Resources 2015, Tsuut'ina Nation 2016 and Energy East Pipeline Ltd. 2016) that have the potential to occur within the RAA

[b] Scientific names are inferred based on Moss 1983, Marles et al. 2000, Royer and Dickenson 2006 and professional judgement

[c] ACIMS 2018.

[d] A subset of potential species are provincially tracked and have been documented in the Foothills Parkland Natural Subregion and Montane Natural Subregion, but beyond the RAA.

✓ Species observed in PDA during surveys

- Species not observed during surveys or species unknown

S1/N1 - Known from five or fewer occurrences or especially vulnerable to extirpation because of other factor(s)

S2/N2 - Known from twenty or fewer occurrences, or vulnerable to extirpation because of other factors

S3/N3 - Known from 100 or fewer occurrences, or somewhat vulnerable due to other factors

S4/N4 - Apparently secure – taxon is uncommon but not rare

S5/N5 – Secure – taxon is common, widespread, and abundant

SU/NU - Taxon is currently unrankable due to lack of information or due to substantially conflicting information (e.g., native vs. non-native status not resolved)

S/N#? - Rank is most likely appropriate, but conflicting information exists (e.g., S2? believed to be 6 - 20 occurrences)

S#S# - A numeric range rank (e.g., S2S3 or S1S3) is used to indicate any range of uncertainty about the status of the taxon

NA – not assessed as species not known

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Question IR2-20: Vegetation - Flood and Post Flood Habitat Fragmentation

Sources:

EIS Guidelines Part 2, Section 6.1.8; 6.1.9; 6.2.3; 6.3.4

EIS Volume 3B, Section 10.1; 10.2; 10.3

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally importance species and changes to resources, including plants, and access to areas for gathering.

The EIS states that "Filling and draining of the reservoir, as well as reservoir sediment partial cleanup, would not fragment patches of native plant communities." However, flooding, scouring, erosion and deposition of sediment could effectively destroy/bury native plant communities, particularly native grasslands, and would have a similar effect as clearing and fragmentation, which was not assessed.

Understanding all potential pathways of effects to vegetation and wetlands is required to meaningfully assess the potential project effects on vegetation and wetlands, including culturally important plant species, and the effects of such changes to Indigenous peoples.

Information Request:

a) Describe the potential for vegetation and wetland fragmentation to result from filling and draining of the reservoir and sediment clean up. Update the effects assessment to include fragmentation as a pathway of effect for vegetation and wetlands, including plant species of cultural importance.

Response IR2-20

a) The 1:100 year flood and design flood will inundate the reservoir, affecting both native and non-native plant communities. This will alter species composition of inundated communities.

Areas of sedimentation that could result from future floods are largely restricted to agricultural areas (205.3 ha). Areas of native grassland (67.1 ha) may also experience sediment depths of less than 3 cm to greater than 100 cm following a design flood. Almost half (32.2 ha) of this area of native grassland is expected to experience sedimentation levels of less than 3 cm and no effect to minor changes (e.g., temporary reduction in plant cover or species abundance due to reduced germination) are anticipated to these communities. Areas with sedimentation greater than 3 cm depth may convert to different communities. and vegetation cover, including species of cultural importance, may be temporarily reduced in some affected communities, but further fragmentation will be negligible. Natural regeneration in these areas will provide new opportunities for vegetation to establish and native areas would not be lost. It is also possible that fragmentation could be reduced as a result of periodic inundation. Sedimentation may alter patch size after floods and could increase wetland area or increase the number of wetland patches.

Sediment cleanup will involve only the moving of sediment within the reservoir in order to maintain water flow for future floods. This activity is expected to be minor and occur, at most, once every 10 years. So, effects on vegetation are not expected in the long term.

Considering the fragmented nature of the current landscape, the minimal loss of native vegetation, the possibility of reduced fragmentation effects as a result of inundation, and that fragmentation is typically less important than habitat loss (Fahrig 2003), fragmentation effects are of low consequence. The ability to collect plant species of cultural importance will be reduced in areas of major Project components and temporarily reduced following flooding, including from reduced cover of culturally important species. The overall ability to collect culturally important species, though, will increase following construction because current privately held property will become public land with greater access. Access plans are not finalized, but Indigenous groups will likely have access to the entire PDA except for major Project components.

The determination of significance would not change as a result of including fragmentation as an effect pathway for vegetation and wetlands, including plant species of cultural importance.

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Question IR2-21: Vegetation – Reclamation, Revegetation and Land Use

Sources:

EIS Guidelines Part 2, Section 6.1.8; 6.1.9; 6.2.3; 6.3.4

EIS Volume 3A, Section 9; 10

EIS Volume 3B, Section 9; 10

EIS Volume 4, Appendix D

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Louis Bull Tribe – EIS Review Submission, June 18, 2018 (CEAR # 49)

Tsuut'ina First Nation, Ermineskin Cree Nation, and Kainai First Nation – Technical Review of the EIS - Annexes – Combined (CEAR # 46, 47, 50)

Ermineskin Cree Nation – Springbank Off-Stream Reservoir TKU Report (CEAR #46)

Blood Tribe/Kainai – Traditional Knowledge, Land, and Resource Use (CEAR # 47)

Natural Resources Canada (NRCan) – Comments on the EIS, June 19, 2018

Context and Rationale:

The EIS Guidelines require the proponent to identify changes to key habitat for culturally important species and changes to resources, including plants, and access to areas for gathering. The EIS Guidelines also require a description of the potential to return affected areas to pre-project conditions to support traditional practices.

The EIS describes revegetation as mitigation for potential impacts to soil, vegetation, wildlife, and biodiversity, however detail on revegetation planning is not provided causing uncertainty regarding the effectiveness of revegetation as a mitigation measure. For example, the EIS does

not explain what is meant by "the degree practical", anticipated challenges, or adaptive management strategies in relation to revegetation. The EIS describes a progression of revegetation in the PDA consistent with proposed end land uses, however there is no discussion of a strategy for this progression, such as target ecosite types or planting prescriptions.

The EIS presents conflicting information regarding potential effects on vegetation and wetlands from flood and post-flood operations. The EIS suggests that project effects are not anticipated because plant communities are expected to recover post flood, while also suggesting that native upland plant communities will be permanently replaced by three different types of modified grasslands and that wetland areas will be replaced by graminoid dominated marsh.

The EIS states that permanent loss of traditional plants is not anticipated because the plants would recover naturally over time. However, consideration of the traditional use species does not coincide with the types of vegetation the EIS describes as expected to recover after inundation during the Design Flood. For instance, all submerged upland and wetland communities would be lost along with many associated upland and wetland traditional use plant species. The assessment lacks adequate information to demonstrate that successful grassland and wetland (marsh) recovery could occur and support traditional plants and subsequent uses.

Indigenous groups have identified forested ecosystems as important to current use, cultural heritage, and the exercise of Aboriginal and treaty rights. The EIS indicates that approximately 25% of the vegetation cover types in the LAA are forest (broadleaf, coniferous, mixed and shrub). Natural Resources Canada indicated that this is a significant amount of forested area that will continue to expand as long as fire is restricted in the foothills. The EIS does not consider potential effects to land use and the various species (plant, bird, mammal and insect species) that utilize forested ecosystems. To limit effects of the Project on forest ecosystems during construction and operation, a forest regeneration plan should be developed to include plans for tree seeding or planting activities considering the forested habitat that was present prior to the Project. Since it is expected that forested ecosystem, grasslands, and forested wetlands will be affected by the Project, an integrated forest management plan for different flooding restraint and release scenarios is required to demonstrate how project effects to the different types of riparian vegetation will be mitigated.

Revegetation strategies are relevant to the mitigation of other project effects, such as soil erosion and introduction of invasive plants. For construction and dry operations, the EIS indicates that the strategy for mitigation of soil erosion for stockpiles will be defined upon finalization of detailed construction plans. Indigenous groups recommended the revegetation of stockpiles with native species of importance to Indigenous communities. There is potential for invasive species to spread and establish in disturbed areas during project clearing and construction, and in the reservoir area (throughout dry operations and following draw down). Limited information is provided on invasive species management. For example, there is no description of vectors for invasive species propagation within the project area, or best management practices including seeding prescriptions to minimize introduction of invasive plants.

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The EIS includes a list of broad mitigation associated with biodiversity and maintaining or restoring biodiversity throughout each phase of the Project. However, criteria or thresholds for monitoring and measuring the effectiveness of mitigations to re-establish biodiversity, including biodiversity necessary to support traditional land uses on reclaimed areas, are not discussed.

A meaningful understanding of changes to vegetation and wetland habitat, and the effects of those changes to Indigenous peoples, requires thorough and accurate information on reclamation and revegetation as it relates to the continued presence, abundance, and distribution of resources and access to these resources for gathering.

Information Requests:

a) Present evidence to support claims of natural reestablishment of vegetation, including species of importance to Indigenous groups, and of successful grassland and marsh recovery.

b) Update the effects assessment for vegetation and wetlands to account for revegetation plans and anticipated loss of or changes to species of cultural importance. Include:

- **A discussion of how revegetation will mitigate project effects and support habitat for plant and wildlife species of importance and end land uses of Indigenous peoples.**
- **Options for planting native plant species of importance to Indigenous peoples, for all phases of the Project. Include information on selection/development of seed mixes, seed sources and local procurement opportunities.**
- **A description of integrated forest management plans for construction and operation, taking into account different flooding restraint and release scenarios, and forest regeneration plans for uplands, forested wetlands, and coulee areas.**

c) Describe specific mitigation to prevent and control the establishment and spread of invasive species, including regulated weeds, throughout all phases of the Project.

d) Describe follow-up program elements to monitor the effectiveness of returning the project area landscape to a full pre-disturbance suite of native plant species that support biodiversity and continued use by Indigenous peoples.

Response IR2-21

a) Available literature was reviewed for information on plant responses to burial and flooding and is referenced in Volume 3A, Section 10. The reviewed literature indicates plant communities respond to flood duration and sedimentation in three ways (Van der Valk et al. 1983):

1. no change as a result of flood duration and/or sediment deposition
2. most species comprising plant community at existing conditions are retained in addition to recruitment of new species
3. most of the species at existing conditions are lost and are replaced by new species

Marsh species are adapted to flooding with flowering, seed set and seed germination timed for appropriate conditions, and physical adaptations to tolerate low soil-oxygen levels and lower light intensity (Cronk and Fennesy 2001). Each plant species has varying tolerance to flooding. Marsh recovery following flooding will depend on the natural frequency of flooding and duration, frequency and depth of flooding. The most common wetland type in the vegetation LAA is seasonal graminoid marsh (102.7 ha, 2.1% of the LAA) followed by temporary graminoid marsh (92.9 ha, 1.9% of the LAA) (Volume 2, Section 10.2.2.2).

In the reservoir, only temporary graminoid marsh will be affected (1.1 ha) by the 1:10 year flood. Temporary, seasonal and semi-permanent wetland classes will be affected by a 1:100 year flood and design flood (Volume 3B, Section 10.2.2). Common plant species that are important to Indigenous groups in the temporary and seasonal graminoid marshes included the native plant species clustered sedge (*Carex praegracilis*), awned sedge (*Carex atherodes*), wire rush (*Juncus balticus*), tufted hairgrass (*Deschampsia cespitosa*) and cow parsnip (*Heracleum maximum*), as well as the non-native plant species dandelion (*Taraxacum officinale*) and alslike clover (*Trifolium hybridum*). Many of these species, as well as the native species foxtail barley (*Hordeum jubatum*), and non-native smooth brome (*Bromus inermis*) and timothy (*Phleum pratense*), were also present in outer communities of semi-permanent wetlands. Common plant species of more central, semi-permanently inundated portions of the reservoir include the native species common cattail (*Typha latifolia*) and common tall manna grass (*Glyceria grandis*). Available information indicates all but smooth brome, timothy and dandelion have moderate to high tolerance of anerobic conditions and are commonly found in wetlands (United States Department of Agriculture 2017).

Temporarily flooded wetlands are naturally flooded from 7 to 28 days, seasonal wetlands from 35 to 119 days and semi-permanent wetlands from 126 to 280 days (Hauer et al. 2002).

Water retention in the reservoir (62 to 84 days) will be longer than the natural range for temporarily flooded wetlands; loss or alteration may, therefore, occur in these areas. The duration of water retention will be below the natural range for seasonally and semi-permanently flooded wetlands and species are, therefore, expected to persist in these areas. Dandelion, smooth brome and timothy may be temporarily lost from affected wetlands, but dandelion produces abundant long-lived seeds that can disperse over several hundred metres (Esser 1993a), and smooth brome and timothy readily colonize disturbed areas (ANPC 2015; Howard 1996; Esser 1993b) and are expected to re-colonize areas that were inundated.

Plant species that were commonly found to dominate upland plant communities in the off-stream reservoir all have low to no tolerance of anaerobic conditions (United States Department of Agriculture 2017; U.S. Army Corps of Engineers 2016):

- aspen (*Populus tremuloides*, FAC [occurs in wetlands and non-wetlands]
- white spruce (*Picea glauca*, FACU [usually occur in non-wetlands, but may occur in wetlands])
- Canada buffaloberry (*Shepherdia canadensis*, FACU)
- prickly rose (*Rosa acicularis*, FACU)
- silverberry (*Elaeagnus commutate*, UPL [almost always occurs in uplands])

However, other common upland plant species—mountain fescue (*Festuca campestris*), buckbrush (*Symphoricarpos occidentalis*) and Kentucky bluegrass (*Poa pratensis*)—have been shown to tolerate temporary flooding (Hardy BBT Limited 1989; Hauser 2007; Klinkenberg 2017). Tolerance of temporary flooding indicates these species will persist following release of water from the reservoir, which will result in conversion of affected forested and shrubby areas to grassland communities.

Upland, including grasslands, and wetlands will likely be unaltered if deposited sediment is less than 3 cm deep. Wang et al. (2013) found that sedimentation of less than 3 cm did not significantly affect germination rates in wetland plant communities.

Information on the effect of sedimentation on the germination of upland plant species is not available in the literature; however, the effect of sediment on germination is presumed to be similar for upland and wetland plant species because it is known that changes to the microsite in which a seed settles affects the probability of seed germination, seedling emergence and survival. Kui and Stella (2016) have shown that burial of plants by more than 10 cm of sediment results in total mortality. Species that were partially buried, where greater than 20 cm of the stem was exposed, tended to survive, including cotton wood (Populus spp.), which is important to Indigenous groups.

Vegetation conditions will be evaluated following construction and post-flood operations to determine if appropriate plant cover and desired plant species are present or establishing in the reservoir.

b) Construction will affect 5.9% (5.5 ha) of the area for temporary graminoid marsh and 4.4% (4.5 ha) of seasonal graminoid marsh in dry operations. Semi-permanent graminoid marsh will also be affected by construction with 12.5% (4.3 ha) of the baseline area affected during dry operations (Volume3A, Section 10.4.3, Table 10-12).

See the response to CEAA IR2-19, Appendix IR19-1 for the draft vegetation and wetland mitigation, monitoring and revegetation plan.

Post-construction revegetation will conform to all regulatory requirements and guiding principles (e.g., GoA 2013; AER 2014; Native Plant Working Group 2000). Ongoing engagement with Indigenous groups is also discussing the potential to revegetate specifically with species of interest for traditional and medicinal use. Seed mixes and monitoring details will be determined with Indigenous groups and stakeholders.

Commercially available native seeds will be obtained from southern Alberta suppliers where possible and potential seed collection from the PDA will be evaluated.

The vegetation assessment assumes shrub and tree communities inundated for prolonged periods (in the reservoir) during the 1:100 year flood and design flood will become modified grassland ecosites. Sedimentation depths of 10 cm or greater is also expected to result in mortality of herbs, grasses and short shrubs. Trees and tall shrubs would likely survive sedimentation depths less than 100 cm. Post-flood revegetation was not included in the assessment as plans had not been determined. Active revegetation would decrease predicted effects, including habitat for plant and wildlife species of importance and end land uses of Indigenous peoples; however, the degree of change cannot be assessed as plans are not finalized. Effects will be assessed further during revegetation monitoring with results provided to the relevant regulatory agencies.

An integrated forest management plan for the vegetation LAA has not been developed and is not planned for the Project. Although 48.8 ha of forested area (6.15% of the LAA forested area) will be removed for Project construction and 12.7 ha (21.03%) of forested area (located in the off-stream reservoir) in the PDA will be inundated during the design flood, the forest has not previously been managed or logged, and logging is not planned for the PDA. Changes to tree damage or loss in the riparian area of Elbow River from flooding was not assessed; however, predicted changes in Elbow River channel morphology and overbank flow (Volume 3B, Section 6.4.4) could alter flood tree damage and loss.

Trees will be allowed to naturally re-establish and forest use will be limited to Indigenous traditional and cultural use. Because no logging in planned and natural recovery will be allowed, a forest management plan should not be required.

c) Weed control will, at minimum, follow the Alberta *Weed Control Act* Regulations with all prohibited noxious weeds removed and noxious weeds controlled. Monitoring of weeds will be part of construction and operations of the Project and monitoring plans will be developed pending Project approval.

d) Disturbed non-native areas (i.e., annual crop, dugout, hayland, tame pasture) and disturbed land will be reclaimed to equivalent land capability with areas topsoiled and seeded following construction and after flooding, where needed. A decision on where restoration activities would be undertaken in the PDA has not been made; however, restoration will likely be targeted to high value native communities in areas of temporary disturbance lacking abundant weeds or aggressive non-native plant species.

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SOIL QUANTITY AND QUALITY AND LAND USE

Question IR2-22: Soil Quantity and Quality and Land Use

Sources:

EIS Guidelines Part 2, Section 6.1.8; 6.1.9

EIS Volume 3A, Section 9.2.3; 9.7.2; 10; 11

EIS Volume 3B, Section 9.5.2; 10; 11

Piikani Nation – Technical Review of EIS, June 15, 2018 (CEAR #48)

Context and Rationale:

The EIS Guidelines require the proponent to present information on the characterization of soils in terrestrial and riparian environments and an overall description of changes related to landscape disturbance, including changes to vegetation and plant communities. The EIS Guidelines also require the proponent to assess the effects of changes to the environment on Indigenous peoples. Soil quantity and quality affects vegetation and thus habitat, which in turn can affect current use.

The EIS states that soil inspection sites were distributed throughout the LAA but does not provide an overlay of inspection locations relative to the project footprint. The absence of this information creates uncertainty in understanding the representativeness of field inspection locations relative to the proposed disturbance to terrain and soils, and the soils specifically affected by project components.

In assessing effects to soil from flood and post flood operations, the EIS notes that in the reservoir, the change in soil quality and quantity is predicted to be a long term, adverse and irreversible effect of high magnitude, but due to the project area no longer being used for agriculture these effects on soil are considered not significant. This conclusion does not consider the soil quality and quantity requirements for other components of the environment (e.g. vegetation, wildlife, biodiversity and wetlands), or the suitability of affected soils for land uses other than agriculture such as Indigenous land use.

Understanding the effects of changes to soil quality and quantity on other VCs and the effects of changes to those VCs on Indigenous peoples is necessary to assess project effects to current use of land by Indigenous peoples.

Information Request:

a) Identify which soil profile data collection sites were located within the PDA. Provide a figure showing locations of soil inspections in the PDA, LAA, and in relation to project components and the construction footprint.

b) Provide an assessment of how changes to terrain and soil conditions might impact Indigenous land use, including impacts resulting from associated effects to terrestrial resources (e.g., vegetation, wildlife, biodiversity, wetlands), independent of the significance of the effects to terrestrial resources.

c) Describe mitigation measures for soil quality and quantity, and discuss the need for a follow-up and monitoring plan for effects to soil conditions and associated impacts to Indigenous land use.

Response IR2-22

a) Locations of soil inspection and sampling sites that were used to provide a baseline for the assessment of Project effects on terrestrial and riparian soils are presented in Volume 4, Appendix G, Figure 3-1. The figure also shows the PDA and the terrain and soils LAA. A total of 360 soil profiles were classified in the LAA, and 18 of these were sampled, by horizon, for subsequent laboratory analysis of key properties. The Project components and construction footprint are presented in Volume 4, Appendix D, Figure 4-1. Figure IR22-1 provides the location of soil inspections within both the PDA and soils and terrain LAA.

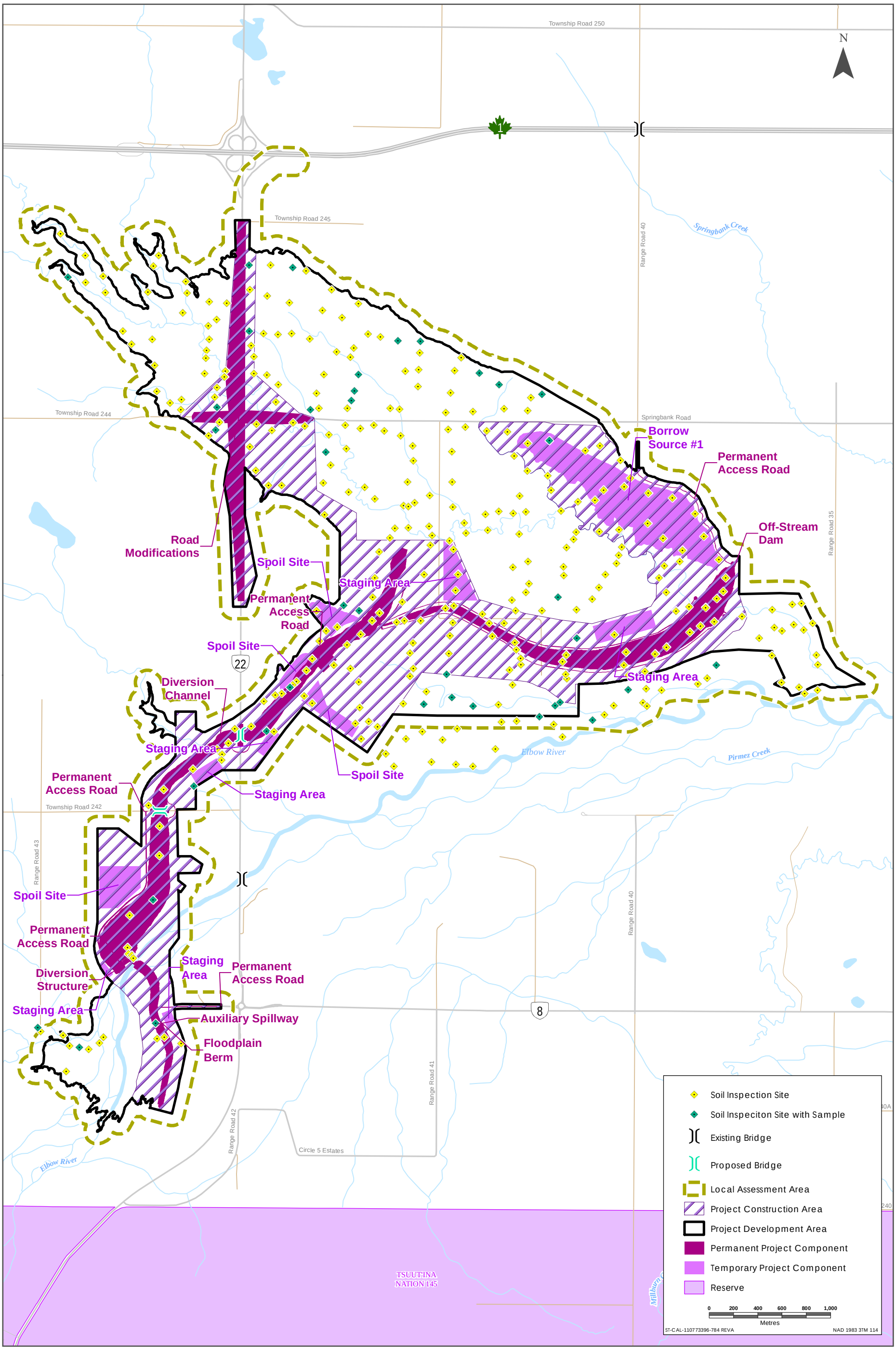
b) Changes in soil and terrain conditions as a result of the Project are not anticipated to result in direct effects to Indigenous land use. Instead, effects to Indigenous land use resulting from changes in soil and terrain conditions are indirectly assessed in the vegetation assessment.

Soil disturbance during construction will result in a corresponding temporary loss of vegetation and its value as wildlife habitat. In addition, soil removal and vegetation clearing during construction will result in the temporary loss of some vegetation species of traditional importance. Because the construction footprint will be reclaimed, there will be an opportunity to include species of traditional importance in the reclamation planning. Of the 41 species observed in the PDA (listed in Volume 3A, Section 10, Table 10-7), all are common, widespread species in Alberta and likely occur in the terrain and soils RAA outside the LAA (see the response to CEAA IR2-19).

The vegetation assessment for flood and post flood operations (Volume 3B, Section 10.2.2.3) considers changes in soil moisture as a factor determining changes in vegetation community diversity. The vegetation assessment also examines changes in vegetation community diversity associated with the deposition of sediment which results in a change in soil types in the PDA. The vegetation assessment concludes that no vegetation and wetland land units are completely lost, and no lasting effects to vegetation and wetlands in the LAA would be

anticipated as a result of a 1:10 year, 1:100 year or design flood. Therefore, residual effects to plant community diversity are expected to be adverse, restricted to the PDA, low in magnitude and medium-term.

Effects on soil are also considered in the wildlife assessment with respect to changes in habitat, which is based on vegetation community diversity, and concludes that the amount of wildlife habitat affected for species of management concern (SOMC), including species of cultural importance, is relatively small compared to the availability of wildlife habitat remaining in the RAA (Volume 3B, Section 11.3.2, p 11.10 to 11.22). An assessment of wildlife species of cultural importance is also discussed in the response to CEAA IR2-11.



Sources: Base Data - Government of Alberta, Government of Canada, Thematic Data - Stantec Ltd.

Soil Inspection and Sampling Sites in the LAA

c) Mitigation measures for soil quality and quantity for the construction and dry operations phase are presented in Volume 4, Appendix C and Appendix D. These mitigation measures include:

- Slope stability will be visually monitored on infrastructure features such as berms, dam, and diversion channel.
- Concrete retaining wall will be designed and constructed as part of the diversion structure to stabilize the Elbow River escarpment.
- Stockpiling of materials at slopes steeper than 3H:1V will not be allowed. Grade slopes smooth upon completion to reduce sliding and sloughing.
- Diversion channel banks will be seeded and revegetated with native seed or erosion control mix to improve bank stability.
- Surface drainage patterns will be re-established where possible, after construction.
- Drainage and erosion control measures will be implemented (e.g. silt fences) around stockpiles to prevent erosion.
- Topsoil will be stripped and stockpiled for future use in the reclamation of disturbed areas.
- Topsoil horizons will be salvaged separately and stockpiled for later use from areas intended for disturbance; this separation will prevent admixing of soils.
- Disturbed areas associated with Project components such as the water intake, water retention, water outflow and roads will use previously salvaged topsoil material to promote vegetation re-establishment.

Volume 4, Appendix D, Section 4.4 describes how soils will be handled to ensure conservation during the construction phase. Section 4.5 describes how soil will be conserved in stockpiles temporarily. Section 4.6 describes measures to reduce erosion risk during and after construction of the Project infrastructure. Section 5.2 describes how soil covers are replaced in areas of disturbance. Mitigation measures for managing soil erosion risk during the flood and post-flood operations phases are described in Volume 4, Appendix G, Attachment 9A, Section 9A.3.

Plans for soil monitoring at post-construction are presented in Volume 4, Appendix D, Section 5.4, involving depth of soil covers, compaction, and chemical changes. Plans for soil monitoring at post-flood are described in Volume 3C, Section 2.8. Soil monitoring at post-flood will focus on compaction, erosion and areas of poor vegetation growth.

NAVIGATION

Question IR2-23: Navigation

Sources:

EIS Guidelines Section 6.3.5

EIS Volume 3A Section 12.4.2

Alberta Transportation Responses to CEAA Annex 2: A) Early Technical Issues, May 11, 2018

Transport Canada Comments on the EIS - June 18, 2018 (CEAR # 31)

Context and Rationale:

The EIS Guidelines require that the proponent assess any changes or alterations to access into the areas used for traditional purposes, including changes to waterways that affect navigation. Additionally, in the responses to CEAA Annex 2, Alberta Transportation indicated its intent to opt-in to the *Navigation Protection Act*.

The EIS states that some recreational boating occurs on the river in the PDA and LAA and the right of safe public navigation of any waterway must be maintained during construction and operation. The EIS indicates that during construction, the substantial interference with public navigation of the Elbow River would be avoided through the creation of a permanent portage around the in-stream water in-take components.

Transport Canada indicated that the diversion inlet, debris deflector, and safety or sedimentation booms or works from the spillways that may encroach on the Elbow River are components of the Project that may affect navigation.

Project effects to navigation have the potential to affect the ability to navigate, and the experience of navigation, both of which may impact Indigenous land use, cultural heritage, and exercise of Aboriginal and treaty rights. Additional details are required in order to understand potential effects to navigation from the Project.

Information Requests:

a) Describe current navigation practices of the Elbow River and how project components and project phases may affect those navigation practices.

b) Describe Indigenous navigation practices on the Elbow River and potential project effects to the ability and experience of navigation and the exercise of rights. Include a discussion of how navigation relates to land use, culture, and the exercise of rights, and how these interests may be impacted by effects on navigation.

c) With regards to the proposed permanent portages proposed, clarify: who will be responsible for constructing and maintaining permanent portages; anticipated need for, timing, and location of portages; potential environmental effects from portage construction and maintenance; and effects of the portages on Indigenous groups' use and experience of the Elbow River.

Response IR2-23

a) Recreational boating (kayaking, canoeing, rafting) occurs on Elbow River (Volume 3A, Section 12.2.2.1 and Section 12.4.2.1).

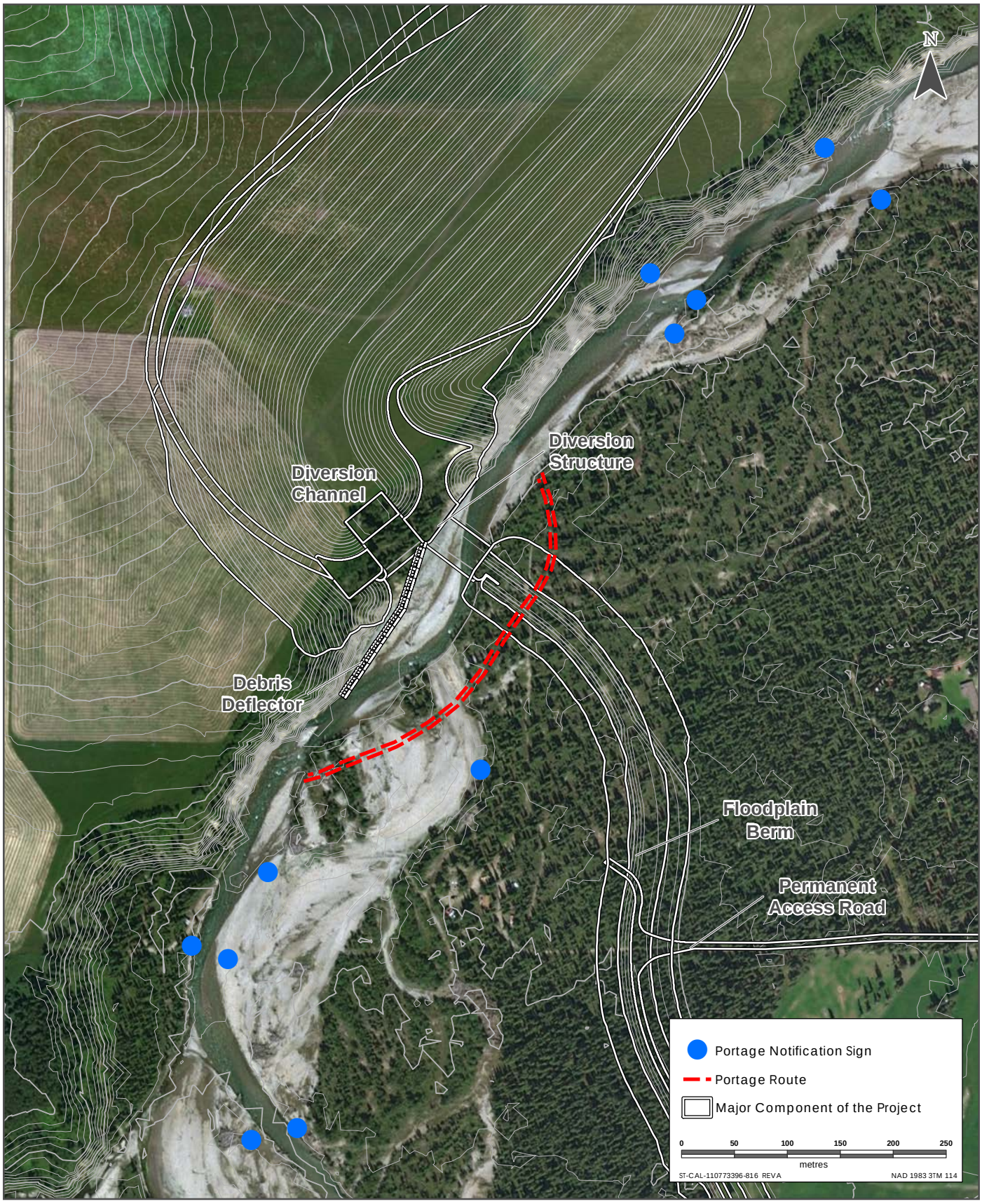
The diversion spillway would have the primary affect on navigation, being a concrete structure along the full width of the river (Volume 1, Section 3.2.1.2 and Figure 3-3). The diversion inlet and debris deflector (Debris Deflector - Environmental Assessment Addendum, May 2018) are located along the west side of the river. The diversion inlet is above the normal high-water mark and the debris deflector foundation is at the bankfull elevation; they will not restrict navigation along Elbow River.

During non-flood river conditions, the diversion inlet is closed and the service spillway is open. River navigation is facilitated by use of a portage around the diversion structure (see Figure IR23-1). Boating activity on the river is not expected during floods.

b) The nature and potential effects of the Project affecting Indigenous navigation practices on Elbow River are discussed in Volume 3A, Sections 14.2.3.1 and 14.3.3.3, respectively, and further expanded on in IR2-1 and IR2-2. Alberta Transportation reviewed the TUS reports received following the submission of the EIA and identified the following comments on Indigenous use of Elbow River for travel:

- Siksika Nation and Kainai First Nation identified Elbow River as an important travel route and its importance to Blackfoot traditions and culture (KCO & SCO 2017).
- Tsuut'ina Nation identified that there is potential for the Project to affect the Nation's ability to use Elbow River as a transportation route.
- Kainai First Nation and Ermineskin Cree Nation reported that, in general, navigable waterways were travel routes (TMP 2013).

In summary, Elbow River is recognized as part of historical travel routes.



Sources: Thematic Data - Stantec Ltd. Imagery: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Location of Proposed Portage Signage and Route

Stantec

c) As part of Project construction, Alberta Transportation will install a permanent portage around the in-stream diversion structure, within the PDA. The exact location and design (i.e. trail versus paved pathway) of the portage route has not been completed (and is part of final design) but it is expected to have negligible effects.

AEP, the owner and operator of the Project, will maintain the portage as part of Project maintenance activities. Signs will be installed along the existing Elbow River channel upstream and downstream of the diversion structure on both banks of Elbow River. These signs would warn users on Elbow River that they are approaching instream water intake components and directing them to the portage location. A portage around the instream diversion will accommodate ongoing use of Elbow River.

REFERENCES

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TMP (Trans Mountain Pipeline ULC). 2013. Trans Mountain Expansion Project. Volume 5D: Socio-economic Technical Reports: Traditional Land and Resource Use Technical Report. Calgary, Alberta.

Tsuut'ina Nation. May 30, 2016. Letter to Canadian Environmental Assessment Agency Re: Springbank Off-Stream Reservoir Project.

Navigation
May 2019