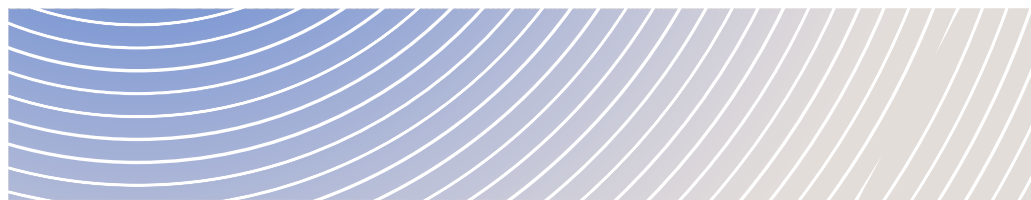


# Analysis Report



WHETHER TO DESIGNATE THE **DEADHORSE COULEE RESERVOIR PROJECT** IN ALBERTA PURSUANT TO THE *IMPACT ASSESSMENT ACT*

July 2022



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## Purpose

The Impact Assessment Agency of Canada (the Agency) prepared this report for consideration by the Minister of Environment and Climate Change (the Minister) in responding to a request to designate the Deadhorse Coulee Reservoir Project (the physical activities referred to as the Project) pursuant to section 9 of the *Impact Assessment Act* (the IAA).

## Project

The Bow River Irrigation District (the Proponent) is proposing to construct the Deadhorse Coulee Reservoir, a new reservoir located on the Bow River Irrigation District main canal, approximately 10 kilometres (km) southeast of Enchant, Alberta. The reservoir would have a surface area of 470 hectares and a water storage capacity of 24.86 million cubic metres. As proposed, the Project would allow water storage for irrigation, and provide a location for the community to participate in sport fishing and other water-related activities. Other components of the Project would include several new dams, a concrete outlet structure, and three earth embankments.

## Context of Request

On April 12, 2022, the Minister received a request to designate the Project from Ecojustice on behalf of Alberta Wilderness Association, Bow Valley Naturalists, Society of Grasslands Naturalists, Sierra Club Canada Foundation – Prairie Chapter, Canadian Parks and Wilderness Society – Southern Alberta Chapter, Southern Alberta Group for Environment, Nature Alberta, Arlene Kwasniak and David Swann. Two additional requests were received on June 6, 2022, from Blood Tribe/Kainai and Siksika Nation. The requesters raised concerns regarding the potential effect of the Project on the environment including impacts to fish and fish habitat, species at risk, migratory birds, federal lands and the rights of Indigenous peoples as well as transboundary impacts on water.

The Agency sought input from the Proponent, federal authorities, the Government of Alberta, and five potentially affected Indigenous groups: Blood Tribe/Kainai, Piikani Nation, Siksika Nation, Tsuut'ina Nation and Métis Nation of Alberta Region 3. Public comments that were submitted to the Agency and the Minister of Environment and Climate Change were also considered.

The Proponent responded to the Agency on May 24, 2022, with information about the Project, a response to the requesters' concerns, and its view that the Project should not be designated.

The Proponent submitted a request to Alberta Environment and Parks (AEP) for a determination of whether the Project would require an Environmental Impact Assessment (EIA) under section 44(1) of the *Environmental Protection and Enhancement Act* (EPEA).

AEP has notified the Proponent that while the Project is not a mandatory activity requiring an EIA, under section 44(1)(b)(i) of EPEA, the potential environmental impacts of the Project warrant further consideration



and a screening report would be prepared, as required under section 45(1) of EPEA. The Director of AEP will consider the screening report and input from the public to decide if an EIA is required.

Advice on applicable legislative mechanisms and potential effects due to the Project was received from Canada Infrastructure Bank (CIB), Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), Natural Resources Canada (NRCan), Health Canada (HC), Transport Canada (TC), Indigenous Services Canada (ISC), Department of National Defence (DND), Women and Gender Equality Canada (WAGE), and AEP.

## Project Context

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### Project overview

The Proponent is proposing to construct a new reservoir on the Bow River Irrigation District main canal, approximately 10 km southeast of Enchant, Alberta (Figure 1). The reservoir will primarily be used as a balancing and re-regulating reservoir to improve water use management by the Proponent. The reservoir will also increase water storage capacity of the canal, provide water for irrigation, and provide sport fishing and day use. Other proposed Project components include the construction of new dams, a concrete outlet structure, and three earth embankments (Figure 1). The reservoir surface area will be 470 hectares and have a storage volume of 24.86 million cubic metres. The Project's construction is expected to take place from 2023-2025 and have a minimum estimated lifespan of 200 years.

The Project is part of the Alberta Irrigation investment partnership between the Government of Alberta, the CIB, and a consortium of 10 Irrigation Districts to modernize irrigation district infrastructure and increase water storage capacity in southern Alberta. The investment is for infrastructure rehabilitation projects and the construction or enlargement of up to four off-stream irrigation storage reservoirs. The overall investment consists of grant funding from the Government of Alberta (30 percent contribution), up-front funding by the involved Irrigation Districts (20 percent contribution) and financing by the CIB to be repaid by the Irrigation Districts (50 percent contribution). "The Canada Infrastructure Bank is responsible for meeting all of its legal obligations, including responding to the Duty to Consult Indigenous groups and ensuring that projects have met environmental assessment and other regulatory requirements."<sup>1</sup> The preliminary cost estimate for the Project is \$59.1 million.

The provincial screening report will identify environmental issues including any potential significant adverse effects associated with the Project.<sup>2</sup> If the Director of AEP decides that an EIA is required for the Project pursuant to section 45(4), the EIA is expected to include assessment of potential impacts of the Project on the environment and social and economic conditions of the region.

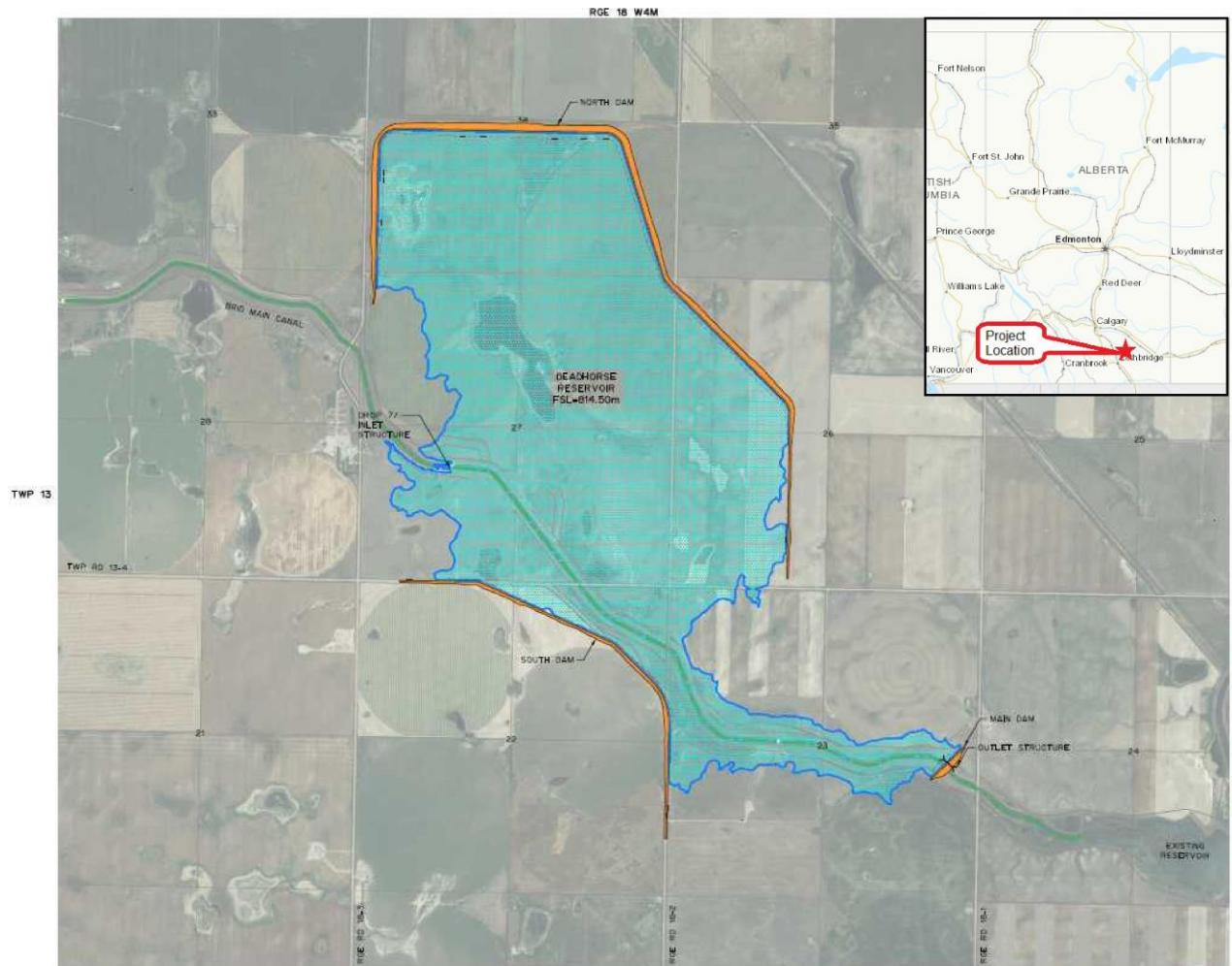
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<sup>1</sup> From the *Statement of Priorities and Accountabilities*. [Infrastructure Canada - Statement of Priorities and Accountabilities – Canada Infrastructure Bank](#)

<sup>2</sup> From the Alberta [Environmental Assessment Regulation](#)



Figure 1: Location of the Project



SOURCE: MPE ENGINEERING LTD., MAY 2022 (BASE MAP); IAAC GEOIMPACT, JULY 2022 (INSET MAP)

**Figure Description :** The Proposed Deadhorse Coulee Reservoir is centred in the figure covering the entire east half of 27-013-18 W4M and the majority of the west half. The southwest portion of the footprint overlays the northwest to southeast orientation of the Bow River Irrigation District Main Canal through section 27 and southeast through section 23 and the footprint extends north, covering the majority of the west half of section 26 and the south half of section 34. The footprint is bound to the southwest by the South Dam, to the north by the North Dam, and the Main Dam and Outlet Structure are at the furthest east point along the Main Canal in SE 23-013-18 W4M.

## Project components and activities

The Project will be created by damming the Deadhorse Coulee. A North Dam and a South Dam will be constructed to enclose the reservoir. The Main Dam and a gated, cast in place, concrete outlet structure will be constructed on the east end to control flows from the reservoir into the Bow River Irrigation District Main Canal.



The Project will include construction of the following:

- the Main Dam with a maximum height of 9.8 metres and length of 250 metres;
- the North Dam with a maximum height of 10.2 metres and length of 4.8 kilometres;
- the South Dam with a maximum height of 5.0 metres and length of 2.3 kilometres; and
- the outlet structure.

## Analysis of Designation Request

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### Authority to designate the Project

The *Physical Activities Regulations* (the Regulations) of the IAA identify the physical activities that constitute designated projects.

The most applicable entry in the Regulations to the Project is the following:

(58) The construction, operation, decommissioning and abandonment of a new dam or dyke on a natural water body, if the new dam or dyke would result in the creation of a reservoir with a surface area that would exceed the annual mean surface area of the natural water body by 1,500 ha or more.

The Project, as described in the information provided by the Proponent, includes the construction of three new dams which would result in a new reservoir with a surface area of 470 hectares, and as such is not included in the Regulations.

Under subsection 9(1) of the IAA, the Minister may, by order, designate a physical activity that is not prescribed in the Regulations. The Minister may do this, if, in the Minister's opinion, the physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation.

The carrying out of the Project has not substantially begun and no federal authority has exercised a power or performed a duty or function that would permit the Project to be carried out, in whole or in part.<sup>3</sup>

Given this understanding, the Agency is of the view that the Minister may consider designating the Project pursuant to subsection 9(1) of the IAA.

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<sup>3</sup> The Minister cannot designate a physical activity if the carrying out of the physical activity has substantially begun, or a federal authority has exercised a power or performed a duty or function in relation to the physical activity (subsection 9(7) of the IAA).

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## Potential adverse effects within federal jurisdiction

The Agency's analysis identified the potential for adverse effects within federal jurisdiction that may result from carrying out the Project. Overall, the potential adverse effects within federal jurisdiction would be limited and managed through project design, mitigation measures, and existing legislative mechanisms.

Relevant federal legislative mechanisms include the *Migratory Birds Convention Act, 1994*; the *Fisheries Act*; *Canadian Environmental Protection Act, 1999*; and the *Species at Risk Act* (SARA), as applicable. Provincial legislative mechanisms relevant to the Project include the *Water Act* and *Historical Resources Act*. Under the provincial regime, any future proposed amendments to the Project would require review via submission and approval of notices of alteration, or submission of a new proposal for major alterations.

Annex 1 provides a summary table of the potential adverse effects within federal jurisdiction and associated public concerns, mitigation measures proposed by the Proponent, and relevant legislative mechanisms that would apply, should the Project proceed. Annex 2 lists the potential federal and provincial authorizations relevant to the Project.

### Fish and fish habitat

The Agency considered information provided by the Proponent, DFO, ECCC, AEP, the requesters, Indigenous groups, and the public, and is of the view that, with appropriate project design and mitigation, the potential for effects to fish and fish habitat is limited.

Concerns expressed by the requesters included the potential for impacts to fish and fish habitat, including upstream and downstream aquatic habitat from Project alterations to instream and return flow levels throughout the South Saskatchewan River Basin. These effects could be exacerbated due to cumulative impacts of multiple water diversion projects within the watershed. The requesters noted that water withdrawal activities associated with the Project may adversely affect Bull Trout critical habitat in Highwood River and Sheep River (a tributary of Highwood River). Additionally, Bull Trout may be caught in diversion canals into the Little Bow Basin from Highwood River and Bow River. The requesters expressed concerns regarding the likelihood Project activities contributing to the existing issues of invasive fish and aquatic vegetation species in Alberta's fisheries. The requesters also noted potential effects to the Oldman River Basin as it is a critical water supply for the region and according to the Alberta Government's South Saskatchewan Regional Plan, is already facing significant pressure and demands on water resources in the region<sup>4</sup>.

Concerns expressed by the public related to fish and fish habitat included effects to aquatic ecosystem health, riparian habitat, and in-stream flows by Project activities.

The Proponent indicated that the Province has not yet identified Bull Trout downstream of the Project over the past 20 years. The Proponent noted that a fish rescue in the AEP canal downstream of the weir has been conducted for 20 years and no Bull Trout have been captured. The Proponent plans to submit an

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<sup>4</sup> Alberta Government. Amended in 2017. South Saskatchewan Regional Plan 2014 – 2024: [south-saskatchewan-regional-plan-2014-2024-may-2018.pdf](https://www.alberta.ca/south-saskatchewan-regional-plan-2014-2024-may-2018.pdf) (alberta.ca)



application for an authorization under the *Fisheries Act* to DFO. Baseline fish study results indicate that a SARA permit will not be required. The Proponent also noted that the reservoir is expected to provide habitat for fish and other wildlife including an overwintering fish habitat.

DFO stated that there is currently insufficient information to determine whether the Project will result in adverse effects, but that a project of this nature has the potential to result in the harmful alteration, disruption or destruction of fish habitat and/or death of fish. As such, the Project may require authorization under the *Fisheries Act*. According to DFO, it is unlikely that a permit will be required under SARA for aquatic species at risk as there are currently no aquatic species at risk mapped for the Project footprint. The Fish and Fish Habitat Protection Program of DFO reviews projects for impacts to fish and fish habitat, by ensuring compliance with the *Fisheries Act* and SARA. Through this program, DFO may provide information to the Proponent in order to avoid and mitigate the negative impacts of the proposed Project.

ECCC advised that construction of the Project may adversely affect air quality through the introduction of particulate matter; air contaminant emissions can result in contamination of nearby waterbodies and may affect fish and fish habitat. ECCC noted that the construction, operation, and maintenance of the Project could cause erosion and result in deposition of soils and sediments to waterbodies. Surface water quality may be degraded by hydrological changes, reduction of wetland function, and by increased runoff/mobilization of agricultural chemicals, wastes, and other contaminants due to agricultural expansion. The Project may result in mobilization of mercury in newly-flooded agricultural areas, which may release agricultural chemicals. The adverse effects to surface water quality could result in adverse effects to fish and fish habitat; however, adverse effects could be reduced through mitigation measures and confirmatory monitoring.

Potential effects of the Project to water quality and quantity are being addressed through the provincial *Water Act*. AEP noted there are general approval condition prohibitions related to the release of deleterious substances, to protect water quality. Additionally, AEP indicated the Alberta Wetland Policy will be adhered to if any impacts to wetlands by Project activities are identified.

## Migratory birds and species at risk

The Agency considered information provided by the Proponent, ECCC, the requesters, Indigenous groups, and the public, and is of the view that existing legislation provides a framework to address potential adverse effects to migratory birds and terrestrial species at risk.

The requesters expressed concern on adverse effects of the Project on migratory birds and species at risk due to habitat loss, habitat alteration, habitat fragmentation, functional habitat loss, inadequate habitat offsets, indirect mortality, and contribution to the existing issues of invasive species.

The requesters indicated the Project footprint includes important permanent and temporary wetland habitats and native grasslands for many waterfowl and migratory bird species, including bird species at risk. The requesters additionally indicated the cumulative impacts of the irrigation projects on the overall security of the South Saskatchewan River Basin could adversely affect migratory bird habitats.

Concerns expressed by the public included potential effects of the Project on species at risk and their habitats, including impacts to native grasslands.



The requesters stated that species at risk and their critical habitat are identified within the Project footprint. A non-exhaustive list of species at risk that may be impacted by the Project provided by the requesters included SARA-listed endangered species (burrowing owl and great short-horned lizard), threatened species (tiny cryptantha, thick-billed longspur, and rocky mountain sculpin), and species of special concern (great plains toad and northern leopard frog). Lake sturgeon, listed as endangered under the Committee on the Status of Endangered Wildlife in Canada, were also included by the requesters.

The Proponent has completed a desktop environmental assessment of the Project and acknowledges that the conversion of a largely terrestrial landscape to an aquatic one will result in habitat loss. The Proponent indicates that long-term impacts to wildlife and suitable habitats as a result of the Project are not anticipated to be significant. Wetlands have been identified within the proposed Project footprint and the possibility of wetland compensation of these wetlands will be determined by AEP as part of the provincial *Water Act* approval process for the Project. The Proponent has committed to compliance with the Alberta Wetland Policy. It is planned that the edges of the Project will become wetland and riparian habitat areas to support area wildlife. Baseline studies have been completed related to the SARA and the *Migratory Birds Convention Act, 1994*, and the Proponent has indicated that no authorizations will be required. The Proponent also clarified that impacts to native grasslands will be minimal, as the proposed footprint primarily overlays cultivated agricultural land. Restoration and monitoring are expected to be conditions of approvals issued by the province under the *Water Act*.

ECCC noted that activities associated with the Project will result in a loss of native prairie habitat, and habitat for migratory birds and SARA-listed species, and the new dam will disrupt wildlife movement in the river valley. Nineteen SARA-listed species ranges overlap the Project site: two endangered species (burrowing owl and little brown myotis), eight threatened species (common nighthawk, loggerhead shrike, barn swallow, Sprague's pipit, thick-billed longspur, lark bunting, chesnut-collared longspur, and ferruginous hawk), and nine listed as special concern (Baird's sparrow, common nighthawk, horned grebe, long-billed curlew, short-eared owl, northern leopard frog, western tiger salamander, American badger, and prairie rattlesnake). All of the bird species except burrowing owl, ferruginous hawk and short-eared owl are protected under the *Migratory Birds Convention Act, 1994*. The requesters identified concern related to three additional species at risk (tiny cryptantha, greater short horned lizard and great plains toad), however, their ranges do not overlap the Project site.

Construction during migratory bird nesting season could disturb migratory bird eggs and nests. ECCC advised the Project may adversely affect surface water quality, which could result in adverse effects to migratory birds. ECCC noted that the Project is not located on federal lands and there are no SARA orders in place for the proposed Project location. Only the SARA prohibitions pertaining to migratory birds would apply to the Project, they would not apply to critical habitat unless an order is put in place or additional activities or components are added to the Project scope. As no species at risk critical habitat has been observed within or adjacent to the Project footprint, ECCC has indicated that it is unlikely that a SARA permit will be required for the Project.

The Proponent will be required to adhere to applicable federal and provincial legislation, such as the *Migratory Birds Convention Act, 1994*, *Species at Risk Act*, and the *Water Act*.



## Indigenous peoples of Canada

The Agency considered information provided by Blood Tribe/Kainai, Siksika Nation, the requesters, the Proponent, AEP, ECCC, ISC, HC, DFO, WAGE, and the public. The Agency is of the view that the Project has the potential to cause adverse effects to the health, social, or economic conditions of Indigenous peoples or environmental effects that would lead to adverse effects to physical and cultural heritage, the current use of lands and resources for traditional purposes, or any structures, sites, or things that are of historical, archaeological, or paleontological significance to the Indigenous peoples of Canada. The Agency expects that existing legislation will provide a framework to address these potential effects.

Blood Tribe/Kainai and Siksika Nation expressed concerns regarding impacts associated with Project flooding on Blackfoot historical resources, including that there is a high likelihood that Blackfoot historical resources and artifacts are present within the Project footprint and have the potential to be lost or altered due to Project activities. The areas around streams and rivers in southern Alberta are of significant historical and cultural importance to Siksika Nation. Blood Tribe/Kainai's reserve lands are in the Oldman River Basin and Blood Tribe/Kainai relies on the basin for drinking water, community and commercial water needs, and agricultural water supply. The quality of this basin is of critical importance to Blood Tribe/Kainai.

The requesters indicated concerns that the conversion of native grasslands to agricultural lands can lead to the destruction of important cultural sites, and water infrastructure can complicate and constrain access to and evaluation of archeological sites. Effects to water rights were also raised as a concern in the Oldman River Basin and the South Saskatchewan River Basin where surface water is fully, or nearly fully, allocated. The requesters also highlighted the link between cultural and ecological resources of the land and the well-being of Indigenous peoples.

Concerns expressed by the public included potential effects of the Project on the health and well-being of communities near the Project and within the South Saskatchewan River Basin, including Indigenous communities.

ISC advised that the information provided regarding the Project is insufficient to determine whether the Project may pose adverse direct or incidental effects; however, ISC indicated changes from the Project activities may interfere with land use/access, loss of traditional lands, and ability to hunt, fish, gather, and/or trap, as well as the ability for Indigenous peoples to practice their culture. ISC recommended the potential impacts of the proposed Project should be considered over an extended period of time (80-100 years) and include consideration of the impacts of advancing climate change on food security and traditional activities of Indigenous peoples.

ECCC advised that construction of the Project may adversely affect air quality through the combustion of fossil fuels by construction equipment and through physical disturbance of land introducing particulate matter into the air. Air pollutants as a result of the Project could potentially affect human health and sensitive ecosystem receptors at local and regional extents. The Project could also impact water availability for communities near the Project, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration.

HC advised that, though the information provided is not sufficient to evaluate the extent of potential impacts, some Project activities may lead to a risk of adverse human health effects and corresponding potential impacts to Indigenous health. The Project may impact human health through potential changes to



air quality, water quality, noise, and country foods. A human health risk assessment that identifies all relevant contaminants and potential exposure pathways should be completed for the Project.

WAGE indicated that the Project's potential effects relating to women and the advancement of gender equality could include impacts to cultural heritage and changes to health, social, and economic conditions of Indigenous peoples. Indigenous peoples may suffer adverse effects to cultural and ecological resources and water rights as a result of the Project, and Indigenous peoples' access to archaeological resources within the Project footprint or in areas that may be impacted by the Project could be limited.

The Proponent anticipates no changes to public health as a result of the Project. There are no harmful chemicals being stored, used or produced as part of the Project. The Proponent anticipates no impacts to the flow in the Bow River as no additional water volumes will be required to support the Project to those already authorized by existing *Water Act* licenses. There are no anticipated impacts to the Little Bow River, Oldman River or the Highwood River basins as a result of the Project as water diversion to support the Project will be sourced from the Bow River.

The Proponent also noted that the Project footprint is located on privately owned land, with the exception of one parcel of land owned by the Municipal District of Taber. There are no provincial or federally owned lands within the proposed Project footprint or land with known traditional use. The Proponent has submitted an application to the Alberta Aboriginal Consultation Office and is awaiting a decision regarding Indigenous consultation requirements under the *Water Act* for the Project. The Proponent has committed to following the requirements set out by the Aboriginal Consultation Office once they are issued. AEP indicated that work with Alberta Indigenous Relations is ongoing and the Proponent will be notified when a decision is made.

Pursuant to the Alberta *Historical Resources Act*, the Proponent submitted an application to Alberta Culture and the Status of Women and is awaiting a decision. The Proponent noted that water diversions from the Bow Valley Irrigation District supplies municipalities (the Town of Vauxhall, hamlets of Enchant, Hays and Lomond) and an approximately 2,000 hectare irrigation project on the Siksika Nation. The Proponent has committed to supplying the Siksika Nation project and municipalities first in the event of droughts or challenges with water supply.

Should DFO consider issuing a *Fisheries Act* authorization for the Project, consultation with Indigenous groups would be undertaken. The authorization process through the DFO Fish and Fish Habitat Protection Program may involve consultation and/or accommodation on potential impacts to Indigenous peoples of Canada. When making a decision under the *Fisheries Act*, the Minister shall consider any adverse effects that the decision may have on the rights of Indigenous peoples of Canada.

## Federal lands

The Agency considered information provided by the Proponent, DND, ISC, and the requesters and is of the view that the potential for changes to the environment on federal lands is limited.

The requesters expressed concern regarding the potential for downstream impacts to federal lands, including reserve lands and Canadian Forces Base (CFB) Suffield from Project activities. Potential adverse impacts noted by the requesters included possible water flow impacts on riparian corridors within the CFB Suffield National Wildlife Area, which could impact species at risk. Responses from both CFB Suffield and



3<sup>rd</sup> Canadian Division Support Base Detachment Southern Alberta indicated that DND does not have any concerns regarding impacts of the Project on CFB Suffield, including within CFB Suffield National Wildlife Area.

Potential adverse impacts to reserve lands noted by the requesters included large withdrawals and altered flow regimes on aquatic ecosystems of the Oldman River Basin that run through Blood Reserve No. 148 as well as federal lands.

The Proponent noted that the Project footprint is located on privately owned land, with the exception of one parcel of land owned by the Municipal District of Taber. There are no provincial or federally owned lands within the proposed Project footprint. The Proponent expressed that their water diversion licences are for the Bow River only. No additional volumes will be required to support the Project. The Proponent anticipates no impacts to the Little Bow River, Oldman River, or Highwood River Basins. Significant alterations to flow regimes through the Blood Reserve No. 148, Piikani Reserve No. 147 (Oldman River), and Siksika's traditional lands are not expected.

Blood Reserve No. 148, is approximately 90 kilometers southwest of the Project, Siksika Reserve 146 is approximately 90 kilometers northwest, and CFB Suffield is approximately 80 kilometres east. The Agency is of the view that there is limited potential for impacts to federal lands including reserves and CFB Suffield.

## Transboundary effects

Consideration of transboundary effects include transboundary waters, greenhouse gas (GHG), other air emissions, and climate change. The Agency considered information from the Proponent, ECCC, the requesters, and Indigenous groups with respect to transboundary effects. The Agency is of the view that existing legislation provides a framework to address the potential for adverse effects in other provinces.

The requesters indicated that the Project may decrease the water volume input and effect the water quality of the Oldman and South Saskatchewan rivers due to increased water diversions from the rivers and reduced return flows to the rivers. The Oldman and South Saskatchewan rivers flow from Alberta to Saskatchewan and concerns have been raised surrounding water quality and quantity into Saskatchewan and beyond if the Project proceeds. The requesters also noted the *Bow, Oldman and South Saskatchewan River Basin Water Allocation Order*<sup>5</sup> issued by the Province of Alberta closed the watersheds to new surface water allocation licenses. Concern regarding the potential of the Deadhorse Coulee Reservoir cumulatively with other irrigation projects to contribute to the expansion of total irrigated lands in Alberta was also noted, as this would enable conversion of dry cropland and native grassland habitats to irrigated agricultural land.

The Proponent has indicated that there will be no water-related transboundary effects due to the Project. Water diversion will not exceed currently licensed volumes and is not expected to adversely affect access to water downstream of the Project's existing diversion location. In addition, the Proponent will develop a sediment and erosion control plan and a water management plan to address potential water quality issues caused by the Project. Assessment of Project effects on water quality will be included in *Water Act* approvals.

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<sup>5</sup> [https://open.alberta.ca/publications/2007\\_171](https://open.alberta.ca/publications/2007_171)



ECCC noted the Project may impact water availability downstream, including into the Province of Saskatchewan, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration. The provinces of Alberta and Saskatchewan are members of the Prairie Provinces Water Board, a Federal-Provincial governance body that helps facilitate collaborative transboundary water management in the prairie region. A Master Agreement on Apportionment<sup>6</sup> sets the requirements and responsibilities, and the Government of Alberta is responsible for ensuring compliance with that agreement. Compliance with the Master Agreement on Apportionment is expected to manage potential effects of the Project on water moving from Alberta to Saskatchewan.

The requesters indicated that irrigation agriculture can be a major emitter of GHGs and cultivation of native grasslands results in significant releases of GHGs. Concerns from members of the public included potential effects of emissions produced by Project activities.

ECCC indicated that the Project may hinder the Government of Canada's ability to meet its commitments in respect of climate change, as Project activities may result in GHG emissions, or impact carbon sinks, including native prairie grasslands.

Pursuant to the *Canadian Environmental Protection Act, 1999*, facilities are subject to federal GHG emissions reporting requirements if they emit ten kilotonnes or more of GHG emissions, in carbon dioxide equivalent units per year. The Project will be subject to these reporting requirements if GHG emissions exceed this threshold. The Proponent anticipates limited GHG emissions during the construction phase of the Project.

## Other considerations

### Cumulative effects

The Agency considered information provided by the Proponent, ECCC, ISC, HC, the requesters, the public, Blood Tribe/Kainai, and Siksika Nation, and is of the view that existing legislation provides a framework to address cumulative effects. Cumulative effects were mentioned as a concern of the requesters and Indigenous groups. Inclusion of the Project in the Alberta Irrigation investment partnership program and the associated cumulative effects of the projects involved was also noted by the requesters.

Members of the public expressed concerns regarding potential cumulative effects of the Project and other proposed irrigation projects in the area and supported a federal impact assessment to assess cumulative effects.

ECCC noted that Project-related effects on water quantity and quality would contribute to the cumulative effects of existing anthropogenic influences and future projects on the affected watershed (South Saskatchewan River Basin). ECCC has identified that the Project will contribute to the existing high cumulative effects of loss of native prairie grassland in Alberta, through direct loss of native prairie, and indirectly through the expansion of irrigated agricultural land area replacing native prairie grassland.

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<sup>6</sup> <https://www.alberta.ca/master-agreement-on-apportionment.aspx>



ISC indicated that cumulative effects due to oil, gas, and agricultural activities over the past several decades is a common concern surrounding impacts to Indigenous groups. HC advised that there may be cumulative effects with other proposed irrigation projects.

AEP noted there is native grassland management strategies to protect native grasslands under the South Saskatchewan Regional Plan.

The Proponent indicated that the proposed Project footprint will primarily overlay cultivated agricultural land and that the Project's contribution to cumulative effects are expected to be mitigated by adherence to provincial and federal legislative mechanisms. The Proponent also clarified there are no irrigation expansion components of the Project; the Project will improve water delivery efficiency and store water for irrigation use.

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## Potential adverse direct or incidental effects

Direct or incidental effects refer to effects that are directly linked or necessarily incidental to a federal authority's exercise of a power or performance of a duty or function that would permit the carrying out, in whole or in part, of a physical activity, or to a federal authority's provision of financial assistance for the purpose of enabling that physical activity to be carried out, in whole or in part.

The Project may require a *Fisheries Act* authorization from DFO if the Project could cause harmful alteration, disruption, or destruction of fish habitat or death of fish. The CIB may provide funding for the Project in the form of a loan that would be repaid by the Proponent.

The carrying out of the Project has the potential to cause adverse direct or incidental effects; however, potential effects are expected to be addressed through the requirements set by the relevant federal authorities.

Potential federal and provincial authorizations or approvals are listed in Annex 2.

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## Public concerns

Public comments that were submitted to the Agency and the Minister of Environment and Climate Change were considered. The public concerns expressed a desire for a comprehensive federal impact assessment to be conducted for the Project, including assessment of cumulative effects of the Project and other proposed irrigation projects in the region. The concerns expressed regarding the Project by the requesters, public, and Indigenous groups that relate to effects within federal jurisdiction are noted above in the relevant section and in Annex 1, along with the associated mitigation measures proposed by the Proponent, if any, and applicable regulatory mechanisms that may address these concerns. Additional concerns submitted to the Agency by the public included a lack of information regarding the location and extent of the Project and the resulting increased irrigated land area, and effects of the project and subsequent irrigation on native grasslands, groundwater and surface water, and nearby communities.

The Proponent indicated that public consultation on the Project will be focused on affected landowners and irrigators within the Bow River Irrigation District. Public consultation has been conducted with potentially



impacted landowners, and an information session to introduce the Project was completed with local landowners in attendance. General public information sessions are not being completed due to the sparse population in the vicinity of Project. Primary concerns heard from the public are related to potential impacts to agricultural land due to seepage from the reservoir. The Proponent will address these concerns through the design of the reservoir to reduce seepage and retain the productivity of agricultural land.

The Proponent, as part of Irrigating Alberta Inc., has also met with representatives of the Southern Alberta Group for the Environment and the Canadian Parks and Wilderness Society to discuss the Project and has conducted public presentations to the Bow River Basin Council and the Southern Alberta Council on Public Affairs.

The public will have the opportunity to provide comments on the provincial notice regarding the decision to screen the Project. The Director of the AEP will consider the screening report and statements of concern from the public to decide if an EIA is required for the Project.

The Agency is of the view that existing legislation provides a framework to address the concerns within federal jurisdiction and adverse direct or indirect effects and include opportunities for public participation and consideration of public comments (Annex 2).

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## Potential adverse impacts on the section 35 rights of Indigenous peoples

The Agency considered submissions from Indigenous groups and relevant advice from federal and provincial authorities. In relation to subsection 9(2) of the IAA, the Agency is of the view that while there is the potential for the Project to cause adverse impacts on rights that are recognized and affirmed by section 35 of the *Constitution Act, 1982* (section 35 rights), existing legislation provides a framework to address such impacts.

The Project is located within Treaty 7 territory and within the Métis Nation of Alberta Region 3. The Agency sought views from five potentially impacted Indigenous groups and received comments from two groups: Blood Tribe/Kainai and Siksika Nation. Both Nations noted that the Project would cause significant impacts to section 35 rights by removing their ability to practice traditional activities such as hunting, fishing, trapping, gathering, and ceremonial practices within the proposed Project footprint.

Should DFO consider issuing a *Fisheries Act* authorization for the Project, consultation with Indigenous groups would be undertaken. The authorization process through the DFO Fish and Fish Habitat Protection Program may involve consultation and/or accommodation on potential impacts to Indigenous peoples of Canada. When making a decision under the *Fisheries Act*, the Minister shall consider any adverse effects that the decision may have on the rights of Indigenous peoples of Canada. "The Canada Infrastructure Bank is responsible for meeting all of its legal obligations, including responding to the Duty to Consult



Indigenous groups, and ensuring that projects have met environmental assessment and other regulatory requirements.”<sup>7</sup>

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## Regional and strategic assessments

There are no regional or strategic assessments pursuant to sections 92, 93, or 95 of the IAA that are relevant to the Project.

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## Conclusion

To inform its analysis, the Agency sought and received input from the Proponent, ECCC, DFO, HC, NRCan, ISC, TC, WAGE, DND, CIB, and the Government of Alberta. In addition, the Agency considered the comments and concerns received from the public, Blood Tribe/Kainai, and Siksika Nation.

The Agency is of the view that existing legislation provides a framework to address the potential for adverse effects, as described in subsection 9(1) of the IAA. These include approvals under Alberta’s *Water Act*, which can include enforceable terms and conditions to mitigate potential environmental effects of the Project on water quality and quantity. These also include federal legislative mechanisms such as an authorization under the *Fisheries Act*, which would include additional Indigenous consultation activities (Annexes 1 and 2).

While there is the potential for the Project to cause adverse impacts on the section 35 rights of the Indigenous peoples of Canada, existing legislation will provide a framework to address potential impacts to section 35 rights caused by the Project.

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<sup>7</sup> From the *Statement of Priorities and Accountabilities*. [Infrastructure Canada - Statement of Priorities and Accountabilities – Canada Infrastructure Bank](#)





# Annexes

## Annex 1: Analysis Summary Table

Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>A change to fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i></p>	<p><u>Public and Indigenous Communities:</u>            Concerns related to potential for adverse effects to fish and fish habitat due to Project activities. Effects to Bull Trout critical habitat in the Highwood River through changes to water withdrawal. Concerns also related to impacts on Bull Trout occupying nearby critical habitat in the Sheep River, a tributary of the Highwood River. Bull Trout may also experience additional adverse effects from being caught in diversion canals into the Little Bow Basin from the Highwood River near High River and the Bow River near Carseland. Effects to riparian habitat availability and inadequate habitat offsets for aquatic species at risk in the reservoir expansion area. Concerns related to the contribution of the Project to invasive fish and aquatic vegetation species in Alberta’s fisheries.</p> <p><u>Federal Authorities:</u>            DFO stated that the Project has the potential to result in the harmful alteration, disruption or destruction of fish habitat and/or the death of fish and may require authorization under the <i>Fisheries Act</i>. It is unlikely that a permit will be required under the SARA for aquatic species at risk because there are currently no aquatic species at risk mapped for the Project footprint.</p>	<p>The Fish and Fish Habitat Protection Program of DFO reviews projects for their impacts to fish and fish habitat by ensuring compliance with the <i>Fisheries Act</i> and SARA. Through this program, DFO may provide information to the Proponent in order to avoid and mitigate the negative impacts of the proposed Project.</p> <p>DFO may issue a <i>Fisheries Act</i> paragraph 35(2) (b) Authorization if the Project is likely to cause the harmful alteration, disruption, or destruction of fish habitat and/or a <i>Fisheries Act</i> paragraph</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>ECCC advised that the Project may adversely affect air quality through the introduction of particulate matter through activities which cause a physical disturbance to land, such as earth moving, land clearing and transportation; air contaminant emissions can result in contamination of nearby waterbodies and may affect fish and fish habitat. ECCC noted that the construction, expansion, operation, and maintenance of the Project could cause erosion and result in deposition of soils and sediments to waterbodies. Surface water quality may be degraded by hydrological changes, reduction of wetland function, and by increased runoff/mobilization of agricultural chemicals, wastes, and other contaminants due to agricultural expansion. Water Impoundments may result in mobilization of mercury, which may release agricultural chemicals. The adverse effects to surface water quality could result in adverse effects to fish and fish habitat; however, adverse effects could be reduced through mitigation measures and confirmatory monitoring.</p> <p><u>Proponent:</u> The reservoir is expected to provide habitat for fish and other wildlife. The point of water diversion at the Carseland weir on the Bow River is downstream of Bull Trout habitat and does not impact the Sheep River, Highwood River or the upper reaches of the Bow River. The Proponent will submit an application for an authorization to DFO and indicated that the associated field work has been completed. No SARA permits are anticipated.</p> <p>Water volumes authorized by existing <i>Water Act</i> licence(s) are sufficient to support the Project. No additional withdrawals will be required and</p>	<p>34.4(2) (b) Authorization if the Project is likely to result in the death of fish. The SARA sets out prohibitions relating to harming at risk species or destroying any part of their critical habitat.</p> <p>Approval under Alberta's <i>Water Act</i> regulates the allocation, protection and conservation of water and applies to the proposed construction, operation and maintenance of the reservoirs, dam facilities, canals and alteration of wetland habitat and any loss or alteration of fish habitat.</p>

Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	adverse effects are not expected for fish and fish habitat in the Bow River, the source of currently authorized water diversion.	
A change to aquatic species, as defined in subsection 2(1) of the <i>Species at Risk Act</i>	<p>See the section “A change to fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i>” for fish species at risk.</p> <p>The Project will not affect the marine environment so marine plants will not be affected.</p>	See the section “A change to fish and fish habitat, as defined in subsection 2(1) of the <i>Fisheries Act</i> ”.
A change to migratory birds, as defined in subsection 2(1) of the <i>Migratory Birds Convention Act, 1994</i>	<p><u>Public and Indigenous Communities:</u> Concerns were expressed regarding the potential of the Project to adversely affect wetland and native grassland habitats for migratory bird species, including migratory bird species at risk. Cumulative impacts of the Project and other irrigation projects was noted to potentially contribute to expansion of irrigated agricultural lands into migratory bird habitats, and adversely affect the overall security of the South Saskatchewan River Basin leading to impacts on migratory bird habitats throughout the basin.</p> <p><u>Federal Authorities:</u> ECCC noted that activities associated with the Project will result in a loss of some native prairie, and habitat for migratory birds and SARA-listed species. Construction during migratory bird nesting season could disturb migratory bird eggs and nests. ECCC advised the Project may adversely affect surface water quality, which could result in adverse effects to migratory birds. ECCC noted that the Project is not located on federal lands and there are no SARA orders in place for the proposed Project location; only the SARA prohibitions pertaining to migratory birds would apply and would not apply to critical habitat unless an order is put in place or if additional activities or components are included in the Project scope.</p>	<p>Permitting requirements under the <i>Species at Risk Act</i> for migratory bird species at risk may be applicable under a specific set of circumstances, as described in section 73 of the <i>Species at Risk Act</i>. Prohibitions are in place for the migratory birds, their nests, eggs, and habitat (including native prairie grassland) under the <i>Migratory Birds Convention Act 1994</i>, wherever they occur regardless of land tenure.</p> <p>Should a provincial EIA be required by AEP,</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>As no species at risk critical habitat has been observed within or adjacent to the Project footprint, ECCC has indicated that it is unlikely that a SARA permit will be required for the Project. However, 19 SARA-listed species ranges overlap the project site and may utilize the area, including 11 species included in the <i>Migratory Birds Convention Act, 1994</i>.</p> <p><u>Proponent:</u> Wetlands have been identified within the proposed Project footprint. The possibility of wetland compensation will be determined by AEP as part of the Project provincial approval process under the <i>Water Act</i> in compliance with the Alberta Wetland Policy. The edges of the Project will become wetlands and riparian habitat areas to support area wildlife. No authorizations are anticipated related to the SARA and the <i>Migratory Birds Convention Act, 1994</i>. Potential effects to native grasslands will be minimal as the proposed footprint primarily overlays cultivated agricultural land.</p>	<p>assessment of potential effects to migratory birds may be included in the Terms of Reference.</p> <p>Approval under Alberta's <i>Water Act</i> regulates the allocation, protection and conservation of water and applies to the proposed construction, operation and maintenance of the reservoirs, dam facilities, canals and alteration of wetland habitat and any loss or alteration of fish habitat.</p>
<p>A change to the environment that would occur on federal lands</p>	<p><u>Public and Indigenous Communities:</u> Concerns regarding potential adverse impacts to reserve lands due to large water withdrawals and altered flow regimes on riparian and aquatic ecosystems, and potential adverse impacts to riparian corridors and species at risk within the CFB Suffield National Wildlife Area due to Project-related changes in water flow.</p> <p><u>Federal Authorities:</u> Responses from both CFB Suffield and 3<sup>rd</sup> Canadian Division Support Base Detachment Southern Alberta indicated that DND does not have</p>	<p>Not applicable</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>any concerns regarding impacts of the Project on CFB Suffield land, including for CFB Suffield NWA.</p> <p><u>Proponent:</u> The Proponent is of the view that the Project will not cause changes to the environment on federal lands. The Proponent indicated that the Project footprint is on privately owned land, with the exception of one parcel of land owned by the Municipal District of Taber. There are no provincial or federally owned lands within the proposed Project footprint.</p>	
<p>A change to the environment that would occur in a province other than the one in which the Project is being carried out or outside Canada</p>	<p><u>Public and Indigenous Communities:</u> Concerns regarding the decrease in water volume and effects to water quality of the Oldman and South Saskatchewan rivers due to increased water diversions and reduced return flows due to the Project. Concerns that the Project will impact water quality and quantity in Saskatchewan.</p> <p>Concerns were expressed regarding greenhouse gas emissions. Irrigation agriculture can be a major emitter of greenhouse gas and cultivation of native grasslands results in significant releases of greenhouse gas. The overall Alberta Irrigation investment partnership program that the Project is part of would also contribute to emissions.</p> <p><u>Federal Authorities:</u> ECCC noted the Project may impact water availability downstream, including into Saskatchewan, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration. Furthermore, project activities have the potential to be affected by future climate change, possibly resulting in impacts to the environment. Alberta and Saskatchewan are members of the Prairie Provinces Water Board</p>	<p>Alberta's EPEA requires cooperation with governments of other jurisdictions to prevent and minimize transboundary environmental impacts.</p> <p>Existing authorizations for water licenses under Alberta's <i>Water Act</i> would remain in effect and any new authorizations, would be subject to provincial approval in accordance with the <i>Bow, Oldman and South Saskatchewan River Basin Water Allocation Order</i>.</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>and the Government of Alberta is responsible for ensuring compliance with the Master of Agreement on Apportionment with Saskatchewan.</p> <p>ECCC noted that project activities may result in greenhouse gas emissions, or impact carbon sinks and may hinder the Government of Canada's ability to meet its commitments in respect of climate change. Combustion of fossil fuels during construction can result in the emission of air contaminants such as sulfur oxides, nitrogen oxides, volatile organic compounds, and fine particulate matter.</p> <p>HC indicated the potential for changes to air quality, but did not comment on the potential extent of such effects.</p> <p><u>Proponent:</u> The Proponent has indicated that there will be no transboundary effects due to the Project. Water diversion will not exceed currently licensed volumes and is not expected to adversely affect access to water downstream of the Project's existing diversion location. The Proponent coordinates with AEP and other irrigation districts to ensure apportionment agreement terms are met.</p> <p>Limited GHG emissions are anticipated primarily during the construction phase of the Project. Operation of the Project does not require inputs of power or fossil fuel consumption and water is delivered into and from the reservoir by gravity.</p>	<p>Facilities are subject to federal greenhouse gas emissions reporting requirements, pursuant to the <i>Canadian Environmental Protection Act, 1999</i>, if they emit ten kilotonnes or more of greenhouse gas emissions, in carbon dioxide equivalent units per year.</p> <p>Should a provincial EIA be required by AEP, assessment of effects related to carbon sequestration and water quality may be included in the Terms of Reference.</p>
With respect to the Indigenous peoples of Canada, an impact - occurring in Canada and	<u>Public and Indigenous Communities:</u>	Should a provincial EIA be required, Section 49 of Alberta's EPEA requires



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>resulting from any change to the environment - on physical and cultural heritage</p>	<p>Concerns were raised regarding the conversion of native grasslands to agricultural lands that can lead to the destruction of important cultural sites.</p> <p>Blood Tribe/Kainai and Siksika Nation expressed concerns regarding potential impacts to historical resources and artefacts belonging to the Blackfoot. The areas around streams and rivers in southern Alberta are of significant historical and cultural importance to Siksika archeological sites and impacts. The relationship to the area is crucial to cultural, social and economic wellbeing of families and communities within in the area.</p> <p><u>Federal Authorities:</u> ISC advised that changes from the Project activities may interfere with land use/access, loss of traditional lands, and ability to hunt, fish, gather, and/or trap, as well as the ability for Indigenous peoples to practice their culture.</p> <p>WAGE indicated that the Project's potential effects relating to women and the advancement of gender equality could include impacts to cultural heritage.</p> <p><u>Proponent:</u> The Proponent has submitted an application to the Alberta Aboriginal Consultation Office and is awaiting a decision regarding Indigenous consultation requirements under the <i>Water Act</i> for the Project. The Proponent has committed to following the requirements set out by the Aboriginal Consultation Office once they are issued.</p>	<p>the EIA to include a description of potential positive and negative environmental, social, economic, and cultural impacts of the proposed activity, including cumulative, regional, temporal, and spatial considerations (unless otherwise determined by the Director of AEP).</p> <p>Alberta's <i>Historical Resources Act</i> designates and protects moveable and immoveable historic resources. A Historical Resources Impact Assessment is required by Alberta Culture and Status of Women.</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>With respect to the Indigenous peoples of Canada, an impact - occurring in Canada and resulting from any change to the environment - on current use of lands and resources for traditional purposes</p>	<p><u>Public and Indigenous Communities:</u> Concerns regarding potential effects to water rights in the Oldman River Basin and the South Saskatchewan River Basin where surface water is fully or nearly fully allocated. Blood Tribe/Kainai's reserve lands are in the Oldman River Basin and the Nation relies on the basin for drinking water, community and commercial water needs, and agricultural water supply.</p> <p><u>Federal Authorities:</u> ISC noted that development activities can result in a potential loss of food security for Indigenous groups (i.e. traditional foods). The loss of lands with native habitats and associated wildlife, coupled with effects to soils, air, water, and fish habitat can have an effect on Indigenous groups' use of lands and resources for traditional purposes.</p> <p>WAGE identified Indigenous peoples may suffer adverse effects to cultural and ecological resources and water rights as a result of the Project.</p> <p><u>Proponent:</u> The Proponent noted that Indigenous consultation requirements related to the <i>Water Act</i> have not yet been issued by the Aboriginal Consultation Office. The Proponent noted that the Project footprint is located on privately owned land, with the exception of one parcel of land owned by the Municipal District of Taber. There are no provincial or federally owned lands within the proposed Project footprint.</p>	<p>Should a provincial EIA be required, Section 49 of Alberta's EPEA requires the EIA to include a description of potential positive and negative environmental, social, economic, and cultural impacts of the proposed activity, including cumulative, regional, temporal, and spatial considerations (unless otherwise determined by the Director of AEP).</p> <p>Existing authorizations for water licenses under Alberta's <i>Water Act</i> would remain in effect and any new authorizations, which are not anticipated, would be subject to provincial approval in accordance with the <i>Bow, Oldman and South Saskatchewan River Basin Water Allocation Order</i>.</p>





Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>With respect to the Indigenous peoples of Canada, an impact - occurring in Canada and resulting from any change to the environment - on any structure, site, or thing that is of historical, archaeological, paleontological or architectural significance</p>	<p><u>Public and Indigenous Communities:</u> Concerns were expressed regarding water infrastructure that can complicate and constrain access to and evaluation of archeological sites. Blood Tribe/Kainai and Siksika Nation expressed concerns regarding potential impacts to historical resources and artefacts belonging to the Blackfoot. The areas around streams and rivers in southern Alberta are of significant historical and cultural importance to Siksika archeological sites and impacts. The relationship to the area is crucial to cultural, social and economic wellbeing of families and communities within in the area.</p> <p><u>Federal Authorities:</u> ISC noted potential impacts to sacred sites and other cultural and heritage-sensitive areas and impacts to the ability of Indigenous peoples to practice their culture.</p> <p>WAGE stated that Indigenous peoples' access to cultural and archaeological resources within the Project footprint or in areas that may be impacted by the Project could be affected.</p> <p><u>Proponent:</u> The Proponent noted that Indigenous consultation requirements related to the <i>Water Act</i> have not yet been issued by the Aboriginal Consultation Office.</p> <p>Pursuant to the <i>Alberta Historical Resources Act</i>, the Proponent submitted an application to Alberta Culture and the Status of Women and is awaiting a decision.</p>	<p>Should a provincial EIA be required, Section 49 of Alberta's EPEA requires the EIA to include a description of potential positive and negative environmental, social, economic, and cultural impacts of the proposed activity, including cumulative, regional, temporal, and spatial considerations (unless otherwise determined by the Director of AEP).</p> <p><i>Alberta's Historical Resources Act</i> designates and protects moveable and immoveable historic resources. A Historical Resources Impact Assessment is required by Alberta Culture and Status of Women.</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>Any change occurring in Canada to the health, social, or economic conditions of the Indigenous peoples of Canada</p>	<p><u>Public and Indigenous Communities:</u> Concerns were raised regarding the link between cultural and ecological resources of the land and the well-being of Indigenous peoples.</p> <p><u>Federal Authorities:</u> ISC advised that the information provided regarding the Project is insufficient for the determination as to whether or not the Project may pose adverse direct or incidental effects; however, ISC indicated changes from the Project activities may interfere with land use/access, loss of traditional lands, and ability to hunt, fish, gather, and/or trap, as well as the ability for Indigenous peoples to practice their culture. ISC recommended the potential impacts of the proposed Project should be considered over an extended period of time (80-100 years) and include consideration of the impacts of advancing climate change on food security and traditional activities of Indigenous peoples.</p> <p>HC advised that, although the information provided by the Proponent is not sufficient to evaluate the extent of potential impacts, some Project activities may lead to a risk of adverse human health effects and corresponding potential impacts to Indigenous health. The Project may impact human health through potential changes to air quality, water quality, noise, and country foods. HC advised that a human health risk assessment that identifies all relevant contaminants and potential exposure pathways should be completed for the Project.</p> <p>ECCC advised that construction of the Project may adversely affect air quality through the combustion of fossil fuels by construction equipment and through physical disturbance of land introducing particulate matter</p>	<p>Should a provincial EIA be required, Section 49 of Alberta's EPEA requires the EIA to include a description of potential positive and negative environmental, social, economic, and cultural impacts of the proposed activity, including cumulative, regional, temporal, and spatial considerations (unless otherwise determined by the Director of AEP).</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>into air. Air pollutants as a result of the Project could potentially affect human health and sensitive ecosystem receptors at local and regional extents. The Project could also impact water availability for communities near the Project, as irrigation and related canals and reservoirs increase the amount of water lost to evapotranspiration.</p> <p>WAGE indicated that the Project's potential effects relating to women and the advancement of gender equality could include changes to health, social, and economic conditions of Indigenous peoples.</p> <p><u>Proponent:</u> The Proponent anticipates no changes to public health as a result of the Project. There are no harmful chemicals being stored, used or produced as part of the Project. Indigenous consultation requirements related to the <i>Water Act</i> have not yet been issued by the Aboriginal Consultation Office.</p>	
Adverse direct or incidental effects	<p><u>Federal Authorities:</u> DFO stated that there is insufficient information to determine whether the Project will result in adverse effects. However, projects of this nature have the potential to result in the harmful alteration, disruption or destruction of fish habitat and/or the death of fish. As such, DFO may need to issue a <i>Fisheries Act</i> paragraph 35(2)(b) Authorization if the Project is likely to cause the harmful alteration, disruption or destruction of fish habitat and/or a <i>Fisheries Act</i> paragraph 34.4(2)(b) Authorization if the Project is likely to result in the death of fish.</p> <p><u>Proponent:</u> The Proponent will submit an application for an authorization to DFO.</p>	Activities that result in the death of fish or the harmful alteration, disruption or destruction of fish habitat are prohibited unless authorized under the <i>Fisheries Act</i> .



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
<p>Effects on federally listed Species At Risk under the <i>Species at Risk Act</i></p>	<p><u>Public Concerns:</u>            Concerns regarding potential effects of the Project to species at risk due to critical habitat loss, habitat alteration, habitat fragmentation, functional habitat loss, inadequate habitat offsets, indirect mortality, and the contribution to existing issues with invasive species in fisheries. Cumulative effects of the Project and other regional irrigation projects was noted to potentially adversely affect the overall security of the South Saskatchewan River Basin leading to impacts on species at risk habitats throughout the basin.</p> <p><u>Federal Authorities:</u>            ECCC noted that activities associated with the Project will result in a loss of some native prairie habitat and habitat for migratory birds and SARA-listed species. ECCC noted that the Project is not located on federal lands and there are no SARA orders in place for the proposed Project location; only the SARA prohibitions pertaining to migratory birds would apply and would not apply to critical habitat unless an order is put in place or if additional activities or components are included in the Project scope. As no species at risk critical habitat has been observed within or adjacent to the Project footprint, ECCC has indicated that it is unlikely that a SARA permit will be required for the Project. However, 19 SARA-listed species ranges overlap the project site and may utilize the area, including 11 species included in the <i>Migratory Birds Convention Act, 1994</i>.</p> <p><u>Proponent:</u>            Consideration of wetland compensation of wetlands identified within the proposed Project footprint will be determined by AEP as part of the provincial approval process under the <i>Water Act</i> for the Project. The</p>	<p>Compliance with the <i>Species at Risk Act</i>.</p> <p>Should a provincial EIA be required, assessment of potential effects to species at risk may be included.</p> <p>Approval under Alberta's <i>Water Act</i> regulates the allocation, protection and conservation of water and applies to the proposed construction, operation and maintenance of the reservoirs, dam facilities, canals and alteration of wetland habitat and any loss or alteration of fish habitat.</p>



Adverse Effect or Public Concern in Relation to Subsection 9(1) of the IAA	Effects and Mitigation Proposed by the Proponent and Advice from Federal and Provincial Experts	Relevant Legislative Mechanisms
	<p>Proponent has committed to compliance with the Alberta Wetland Policy. Edges of the Project will become wetland and riparian habitat areas to support area wildlife. SARA and <i>Migratory Birds Convention Act, 1994</i> authorizations are not anticipated. Effects to native grasslands will be minimal, as the proposed footprint primarily overlays cultivated agricultural land.</p>	



## Annex 2: Potential federal and provincial authorizations relevant to the Project

Authorization	Description
Federal	
<p><i>Fisheries Act</i> Authorization</p>	<p>A <i>Fisheries Act</i> paragraph 35(2)(b) authorization would be required if the activities are likely to cause the harmful alteration, disruption, or destruction to fish habitat and/or a <i>Fisheries Act</i> paragraph 34.4(2)(b) Authorization if the activities are likely to result in the death of fish. However, as proposed, it is likely that the Project would cause the death of fish, and/or the harmful alteration, disruption, or destruction of fish habitat. DFO may be required to exercise a power or perform a duty.</p> <p>The <i>Fisheries Act</i> paragraph 36(3) prohibits the deposit of deleterious substances into waters frequented by fish, unless authorized by regulations or other federal legislation.</p>
<p><i>Species at Risk Act, 2002</i> Permit</p>	<p>For non-aquatic species listed in Schedule 1 of the <i>Species at Risk Act</i> as Extirpated, Endangered, or Threatened, a permit may be required from ECCC (e.g., under section 73 of the <i>Species at Risk Act</i>) for activities that affect a listed terrestrial wildlife species, any part of its critical habitat, or the residences of its individuals, where those prohibitions are in place. Such permits may only be issued if: all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted; all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and if the activity will not jeopardize the survival or recovery of the species.</p> <p>However, as proposed, it is unlikely that a <i>Species at Risk Act</i> permit would be required for the Project. It is possible that prohibitions may come into force in the future through Orders in Council for individuals, residences, and critical habitat on Project-implicated, non-federal lands. If such an order is put in place, it may require a SARA permit.</p>
<p><i>Canadian Environmental Protection Act, 1999</i></p>	<p>The Project may require greenhouse gas emissions reporting if ten kilotonnes or more of greenhouse gases are emitted in carbon dioxide equivalent units per year. This would be in addition to reporting required from the Strategic Assessment of Climate Change, should an impact assessment be required.</p>



Authorization	Description
<i>Migratory Birds Convention Act, 1994 Permit</i>	The <i>Migratory Birds Convention Act, 1994</i> protects migratory birds and their eggs and nests, wherever they occur, regardless of land tenure. A permit would be required if construction and clearing activities are scheduled within the migratory bird nesting season.
Provincial	
<i>Environmental Protection and Enhancement Act (EPEA)</i>	<p>EPEA supports and promotes the protection, enhancement and wise use of the environment. AEP reviews applications under EPEA to assess the potential environmental impacts of a proposed project.</p> <p>The Project is not a mandatory activity pursuant to Schedule 1(c) of the Environmental Assessment (Mandatory and Exempted Activities) Regulation. However, under Section 44(1)(b)(i) of EPEA, AEP has determined that the potential environmental impacts of the Project warrant further consideration under the environmental assessment process and requires the preparation of a screening report. The Director of the AEP will consider the Screening Report and input from the public to decide if an EIA is required.</p>
<i>Historical Resources Act</i>	<p>Provides for the use, designation and protection of moveable and immoveable historic resources. Projects such as this one that require a provincial EIA require an application under the <i>Historical Resources Act</i>. Clearance is required prior to any site preparation or construction work occurring. A Historical Resources Impact Assessment is required by Alberta Culture and Status of Women.</p> <p>In the case of incidental historical finds, all activities that may impact the resource are to cease while it is being evaluated.</p>
<i>Water Act</i>	<p>Regulates the allocation, protection and conservation of water and applies to the proposed construction, operation and maintenance of the reservoirs, dam facilities, canals and alteration of wetland habitat and any loss or alteration of fish habitat.</p> <p>The water volumes authorized by the existing water diversion licences held by the Proponent will not be altered but the licenses will be amended to reflect the changes to expand the existing reservoir.</p>
<i>Public Lands Act</i>	Prohibits the disturbance of the bed and shore of water bodies and other public lands administered by the Minister of AEP.
<i>Alberta Soil Conservation Act</i>	Requires that appropriate measures be taken to prevent soil loss or deterioration from occurring. Should a provincial EIA be required under EPEA, mitigation and monitoring to protect soils during construction and operation may be included.



Authorization	Description
<i>Weed Control Act</i>	Prevention of the spread of invasive and noxious weeds. Should a provincial EIA be required under EPEA, mitigation and monitoring to control weeds during construction and operation may be included in the EIA required by AEP.
<i>Wildlife Act</i>	Prohibits the disturbance of wildlife and wildlife habitat as administered by the Fish and Wildlife Branch of AEP. Should a provincial EIA be required under EPEA, assessment of potential effects to rare plants, wildlife, migratory birds, fish and species at risk may be included in the terms of reference.
<i>Alberta Wetland Policy</i>	<p>Provides the strategic direction and tools to minimize the loss and degradation of wetlands, the goal is to conserve, restore, protect and manage Alberta's wetlands to sustain the benefits they provide to the environment, society and economy.</p> <p>The policy is administered by AEP under the <i>Water Act</i>.</p>
Intergovernmental	
<i>Master Agreement on Apportionment (MAA)</i>	Schedule A of the MAA governs the sharing of waters of eastward flowing streams between Alberta and Saskatchewan. The Government of Alberta is responsible for ensuring compliance with the MAA. Compliance with the MAA is expected to manage potential effects of the Project on water moving from Alberta to Saskatchewan.