



**COUGAR CREEK
DEBRIS FLOOD RETENTION STRUCTURE
ENVIRONMENTAL IMPACT ASSESSMENT**

**NATURAL RESOURCES CONSERVATION BOARD
APPLICATION SUMMARY**

SUBMITTED TO:
Natural Resources Conservation Board

SUBMITTED BY:
Town of Canmore

July 2016

TABLE OF CONTENTS

PROPONENT INFORMATION	II
1 NRCB SUMMARY	1-1
1.1 Introduction	1-1
1.1.1 Project Rationale.....	1-2
1.1.2 Regulatory Requirements	1-2
1.2 First Nations Consultation and Public Engagement.....	1-5
1.2.1 First Nations Consultation	1-5
1.2.2 Public Engagement	1-5
1.3 Project Description	1-6
1.4 Summary of the Environmental Impact Assessment and Socio-economic Impact Assessment	1-7
1.4.1 Aquatic Environment	1-8
1.4.2 Terrestrial Environment.....	1-8
1.4.3 Human Environment.....	1-9
1.4.4 Adaptive Management and Monitoring	1-11
1.5 Closure	1-12
1.6 References	1-12

FIGURES

Figure 1	Project Location	1-4
----------	------------------------	-----

PROPONENT INFORMATION

Proponent Name: Town of Canmore

Type of Organization: Municipal Government

Address: 902 - 7 Avenue
Canmore, Alberta T1W 3K1
403.678.1500

Project Contact: Mr. Félix Camiré, E.I.T., Project Manager
403.675.1512
fcamire@canmore.ca
All project correspondence can be submitted to Mr. Camiré

1 NATURAL RESOURCES CONSERVATION BOARD SUMMARY

1.1 Introduction

Heavy rains in the Bow Valley in 2013 caused a debris flood on Cougar Creek that resulted in widespread damage to municipal infrastructure, flood protection works, homes, property, businesses, the Trans-Canada Highway, Highway 1A, and the Canadian Pacific Railway. Immediately following this flood event, the Town of Canmore implemented short-term mitigation measures on Cougar Creek including channel armouring and the installation of a debris net. These short-term mitigation measures were designed to reduce the amount of debris travelling from the watershed onto the alluvial fan and to reduce bank erosion in the creek channel if another flood event occurs before the implementation of long-term mitigation plans.

Multiple location and design options were evaluated for mitigating debris flood hazards on Cougar Creek while protecting the Bow Valley Regional Wildlife Corridor, maintaining recreational access, and fitting aesthetically with the natural landscape. As a result of this assessment, the Town is proposing to construct a debris flood retention structure on Cougar Creek at the site of an existing debris net, approximately 2 km northwest of the Trans-Canada Highway (Figure 1). The Project includes a debris flood retention structure that will be 29.85 m high (the Structure) and a 0.5 km Access Road for maintenance (together, the Project). The Structure has been designed to retain up to 760,000 cubic metres (m³) of water and debris during a flood event with a maximum outlet discharge rate of 45 cubic metres per second (m³/s). The Structure will not permanently hold water and is designed to manage a debris flood over a variety of return period and rainfall duration scenarios. The Structure is fully overtoppable, and includes a spillway and stilling basin to release water during a major event that is beyond the retention capacity of the Structure. The Project will significantly increase public safety and protect downstream infrastructure and was designed with careful consideration of potential effects to the environment, local residents, and other land users.

Construction of the Project is expected to take 2 to 2.5 years and will begin as soon as regulatory approvals have been granted. The Town has set an aggressive schedule for this Project as its primary aim is to increase public safety. The Town is working to secure key regulatory approvals in 2017 so that construction can be completed in late 2018 to mid-2019.

The Town of Canmore is applying to the Natural Resources Conservation Board (NRCB) for approval of a water management project pursuant to Section 4(d) of the *Natural Resources Conservation Board Act* (NRCBA). This document provides a summary of the *Environmental Protection and Enhancement Act* (EPEA) environmental impact assessment (EIA) report prepared for the Project and submitted under separate cover. This summary focuses on items listed in Section 5.2 of the *Board Review Process Under the NRCBA Process Guide* (NRCB 2007) that describes the content of an application to the NRCB. This document also includes a summary of First Nations consultation and public engagement that the Town of Canmore has undertaken and confirms that the Town of Canmore is not aware of any significant First Nations or public concerns regarding the design or location of this Project.

1.1.1 Project Rationale

The floods of 2013 demonstrated the limitations of hazard-based mitigation for protecting Canmore from debris floods and debris flows generated by steep mountain creeks. Without adequate mitigation for an event of this magnitude, tens of millions of dollars in losses were experienced, highways and the railway were severed, and the public and emergency response teams were put at risk.

The Town of Canmore, with the support of the Government of Alberta and an experienced team of consultants and specialist advisors, completed a detailed hazard and risk assessment for Cougar Creek. The assessment shows that the risk on Cougar Creek is unacceptable in its current state. Safety risk, expressed by the annual probability of death of an individual, exceeds the threshold of 1:10,000 on 181 parcels of the Cougar Creek alluvial fan. This number is comparable to the probability of dying in a car accident. Estimated group safety risk also fell in the unacceptable range. Estimated direct building damage has an annualized cost of \$700,000 not including damage to contents or inventory, cost of clean-up and recovery, indirect costs due to business interruption, loss of power transmission, or highway and railway interruption.

The Town recognizes that there is an urgent need to provide debris flood protection for residents, business, and infrastructure on Cougar Creek. The Town has invested significant resources into understanding the hazards and risk, assessing options, and defining a solution that achieves risk reduction objectives and considers positive and negative potential environmental and social effects. The Town has engaged Canmore residents throughout the planning process and it is clear that residents want to see a long-term flood mitigation structure on Cougar Creek as soon as possible. Residents have expressed frustration with the time required to design, obtain regulatory approvals for, and construct the Project. Until the Project, or other flood mitigation offering similar risk reduction, is complete, no new development will occur on the Cougar Creek alluvial fan.

1.1.2 Regulatory Requirements

The Project is a reviewable water management project pursuant to Section 4(d) of the NRCBA. The NRCB will consider the potential Project effects on the environment, the community, and the economy to determine if the Project is in the public interest. A favourable NRCB decision must be authorized by the Alberta Cabinet before the issuance of approvals, licenses, or permits issued for the Project under any other provincial legislation.

The Project requires an EIA pursuant to Section 44(1)(a) of the EPEA. The Project is a mandatory activity included in Schedule 1(c) of the *Environmental Assessment (Mandatory and Exempted Activities) Regulation* (A.R. 111/1993) that requires an EIA be conducted for a "dam greater than 15 m in height." While the Structure will not permanently hold water, the potential for water impoundment during a high precipitation event requires that it be regulated as a dam. The proposed terms of reference (TOR) for the EIA report was published for a 45 day public comment period in October 2015, and after consideration of input from the public and government reviewers, Alberta Environment and Parks (AEP) issued the final TOR on March 21, 2016. The final TOR was used to develop an EIA report that satisfies the information requirements of both AEP and the NRCB. The EIA report includes a concordance table that links the content of the EIA report to requirements outlined in the EIA's final TOR.

While the Structure is not designed to permanently store water, it has been classified as a “very high consequence dam” and will be designed, reviewed, and regulated according to this classification. AEP is responsible for ensuring that dam operators in Alberta comply with the Alberta *Water Act* and Part 6 of the *Water (Ministerial) Regulation* (A.R. 205/1998) that establishes dam and canal safety requirements. The Project will be reviewed to ensure that it complies with both the Alberta *Dam and Canal Safety Guidelines* and the Canadian Dam Association *Dam Safety Guidelines*. The Town of Canmore will submit a dam safety application in 2016 for an authorization pursuant to Part 4 of the Alberta *Water Act* to construct and operate the Project.

The proposed Project location is within the Bow Valley Wildland Provincial Park and the *Provincial Parks (Dispositions) Regulation* (A.R. 241/1977) prohibits the granting of dispositions for the Project as defined. Specifically, the regulation prohibits the construction of the Access Road in a wildland provincial park. When the Project receives an approval from the NRCB, AEP will pursue the deregulation and sale of the Project area to the Town of Canmore. AEP investigated several options for a potential boundary amendment that would allow the Project to be constructed without compromising the natural values protected by the wildland park. After reviewing all options available to them under provincial legislation, the Government of Alberta has selected deregulation and land sale as the preferred land management option for the Project.

The deregulation and sale is conditional upon Project approval through the environmental assessment process, and on the results of public and Aboriginal consultation. The area to be deregulated and sold to the Town will include sufficient land for the Structure and Access Road footprint, and for maintenance and emergency response to future floods. The land sale will require a boundary amendment to the Bow Valley Wildland Provincial Park and an amendment to the South Saskatchewan Regional Plan (SSRP). An existing licence of occupation (PLC 140008) will be amended to include areas upstream and downstream of the Structure that are within the wildland park and are required for maintenance access. AEP will establish a number of conditions for the land sale that will preserve the values of the surrounding wildland park. These conditions will protect or enhance wildlife movement in and across Cougar Creek, maintain recreational access, and provide long-term assurance that the land will only be used for Project operations and maintenance.

A historic resource impact assessment was conducted pursuant to the Alberta *Historical Resources Act* and in accordance with the *Archaeological and Palaeontological Research Permit Regulation* (A.R. 254/2002).

1.2 First Nations Consultation and Public Engagement

1.2.1 First Nations Consultation

The Project requires Level 3 extensive consultation in accordance with *The Government of Alberta's Guidelines on Consultation with First Nations on Land and Natural Resource Management* (Aboriginal Relations 2014). First Nations consultation is required before any NRCB or AEP decisions are taken with respect to the Project. The Town of Canmore initiated consultation with all Treaty 7 First Nations on the Project:

- Bearspaw, Chiniki, and Wesley bands of the Stoney Nakoda First Nation;
- Blood Tribe (Blackfoot);
- Piikani Nation (Blackfoot);
- Siksika Nation (Blackfoot); and
- Tsuut'ina Nation (Sarcee).

Between October 2015 and April 2016, the Town of Canmore met with the Tsuut'ina Nation, Piikani Nation, Blood Tribe, and Siksika Nation to describe the need for and design of the Project. During these meetings, the Town provided presentation materials, maps, photographs, and videos describing the need for the Project, and its location and design. Questions about the Project were answered during the meeting and additional follow-up information was provided when requested. No specific concerns regarding the Project were raised at any of these meetings. All of these communities have experienced flood damage in recent years and are acutely aware of the need for long-term flood mitigation to protect infrastructure, homes, and businesses. These meetings provided an opportunity for the First Nations and the Town of Canmore to share knowledge and experiences related to flood risk, damage, and recovery.

In March and April 2016 the Tsuut'ina Nation, Blood Tribe, Piikani Nation, and Siksika Nation conducted traditional land use (TLU) site visits in Cougar Creek. The Town of Canmore project manager participated in all site visits and each First Nation brought elders, knowledge holders, consultation managers, and TLU specialists depending on their individual approach to conducting site visits. None of the First Nations who conducted TLU site visits identified any specific cultural, historical, or TLU areas associated with the Project. The Tsuut'ina Nation, Blood Tribe, Piikani Nation, and Siksika Nation have all provided the Town with letters of non-objection confirming that the Project is not expected to adversely affect TLU or Treaty rights.

The Stoney Nakoda received the Project notification and information package and requested additional information from the Town of Canmore that was provided in November 2015. A Stoney Nakoda consultation representative did indicate that they were interested in meeting to discuss the Project, but as of the date of EIA submission a meeting had not yet been scheduled.

1.2.2 Public Engagement

The Town of Canmore initiated public engagement activities on July 18, 2013, with a focus on residents directly affected by the 2013 flood. Between July 2013 and April 2016, the Town held 21 resident meetings and four public open houses. Updates, technical and decision reports, design drawings, story boards, and newsletters were made available on the Town of Canmore

website, in hardcopy at the Civic Centre, or upon request. Since the 2013 floods and throughout the flood mitigation decision making process, the Town of Canmore has accepted feedback from residents (both those directly affected and others) by email, mail, online surveys, and in person at public meetings.

During resident meetings, the Town of Canmore provided updates on various topics that included, among others: technical work such as hazard and risk assessments, geotechnical investigations, debris flood mapping and mitigation design options; availability of grants and funding for flood mitigation; emergency preparedness; community wellness support; progress reports on flood mitigation planning, options, and implementation; and the development of an early warning weather system. Once a long-term flood mitigation option was selected, public meetings focused more specifically on selection of the preferred option, details of the preferred design, regulatory and permitting timelines, status of the EIA, First Nation consultation, the construction tender process, and estimated construction timeline. At appropriate times, technical specialists presented key findings and were available to take questions from the public (e.g., hazard and risk specialist, EIA project manager).

The primary concern for local stakeholders is safety and protection from future flood events. Local stakeholders have expressed support for the Project and concern about the length of time required for Project permitting and construction. Residents are concerned about compensation for damage if another debris flood occurs before completion of the Project. As the Project design has progressed, directly affected residents along Cougar Creek have inquired about construction activities, and associated noise and traffic, but continue to press the urgency of having the Project completed.

The Town plans to host another public open house in the fall of 2016 after submission of the NRCB application, EIA report, and *Water Act* application. The open house will include both an update on the Project and on other flood mitigation projects that the Town is delivering. The Town will continue to inform residents by posting relevant information on the Town of Canmore website and through email correspondence with residents in the Cougar Creek area.

1.3 Project Description

The Town of Canmore initiated work to mitigate flood risk on Cougar Creek immediately after the 2013 flood event. Since that time, extensive work has been conducted to understand:

- the flood hazards associated with the Cougar Creek drainage and the risk to development that has occurred on the alluvial fan;
- the flood history of the Cougar Creek drainage;
- short-term and long-term flood mitigation options for Cougar Creek; and
- the geotechnical conditions of Cougar Creek.

The Town of Canmore engaged Canadian (BCG Engineering Inc., Thurber Engineering Ltd., Canadian Hydrotech Corporation) and international firms (Alpinfra Engineering) with expertise in hydrology, hydrogeology, risk assessment, geotechnical analysis, and steep creek engineering to determine baseline conditions and design a long-term flood mitigation solution to achieve the desired level of flood protection on Cougar Creek. Three potential location and design options were prepared and evaluated against a wide variety of criteria including costs, protection of

private and public property, protection of environmental values, and operational considerations. Stakeholders, including AEP and Alberta Transportation, were involved in the decision making process.

The proposed Structure will be 29.85 m high and will span the bedrock confined channel at a location approximately 100 m in width. The Structure will be a rock and earth filled embankment with an impervious reinforced concrete central core seal wall tied to grouted bedrock abutments and a grouted foundation. Zones within the Structure provide the required upstream and downstream support and water permeability to achieve the desired design function and will be constructed of materials tested for the specific purpose of each zone. Detailed design drawings are included in the EIA report.

A cut-off wall within the alluvium substrate (secant pile wall) will be constructed below the central core seal wall to eliminate seepage. The abutments of the central core seal wall and the cut-off wall will be tied into bedrock and structural grouting will be used to seal the interface between bedrock and concrete components. The Structure will include an open outflow structure with a maximum design discharge of 45 m³/s that is fitted with a throttle and a debris rake. The Structure will be constructed with a spillway and settling basin so that it is overtoppable in return period scenarios where full impoundment is exceeded. A 0.5 km Access Road will be constructed to provide access over and behind the Structure.

The Structure is designed to provide flood protection for storm events with return periods of up to 1,000 years. The Structure is fully overtoppable and some modelled flood scenarios resulting from storm events with 300-year and 1,000-year return periods will exceed the retention capacity and use the armoured spillway and stilling basin. For severe storm events that exceed flood protection design levels, the Structure will provide adequate time for evacuation of the Cougar Creek alluvial fan. The Project includes considerations for ensuring that wildlife movement and human access to Cougar Creek are not impeded. The Structure will be a permanent installation and will not be decommissioned. This type of structure has been used to manage steep creek hazards in Europe and examples are provided in the design report appended to the EIA report.

1.4 Summary of the Environmental Impact Assessment and Socio-economic Impact Assessment

The purpose of an EIA is to evaluate the potential environmental and socio-economic consequences of a project or activity. This evaluation is completed by identifying project activities that can interact with the environment, considering potential effects that may arise from those interactions, selecting appropriate mitigation measures to reduce potential environmental effects, and then assessing the residual effects remaining after mitigation. Residual effects are rated in terms of standard effects assessment criteria (direction, magnitude, geographic extent, duration, frequency, and permanence). Cumulative effects assessment considers the potential for effects from the project or activity to overlap in time and in space with effects from other activities. Professional judgment is used to synthesize the individual effects assessment criteria ratings and describe an overall environmental consequence for the effect being evaluated.

The summaries below describe the residual effects and overall environmental consequence ratings for potential Project effects on environmental and socio-economic indicators. Proposed adaptive management plans and additional monitoring are also described below. Detailed assessments, including the selection of local and regional studies areas and the assessment of baseline conditions for each indicator, are included in [Section 6: Aquatic Environment](#), [Section 7: Terrestrial Environment](#), and [Section 8: Human Environment](#) of the EIA report.

1.4.1 Aquatic Environment

Residual Project effects on the aquatic environment were found to range from negligible (hydrology, surface water quality, aquatic ecology, and hydrogeology) to moderate (hydrology):

- **Hydrology:** The frequency of impact to peak flows and geomorphology of Cougar Creek ranges from infrequent to rare, and these impacts are contained within Cougar Creek upstream of the confluence with the Bow River. Normal sediment contributions of Cougar Creek to the Bow River are not anticipated to be impacted by the Structure. Reducing peak flows, debris and sediment yield, and channel migration will have moderate environmental consequences, but are considered to be positive when accounting for public safety.
- **Surface Water Quality and Aquatic Ecology:** Overall, the contribution of Cougar Creek to the water quality and aquatic ecology of the Bow River and Policeman Creek is considered to be minimal. Considering the design of the Structure, it is not expected that the construction and operation will have any residual effects on surface water quality or aquatic ecology of the aquatic resources in the regional study area.
- **Hydrogeology:** Because the Structure is designed to allow groundwater flow to pass through, impacts are limited to the immediate vicinity of the Structure where water levels in the Valley/Fan Aquifer may be locally altered. Impacts to groundwater quality are not anticipated. These predictions will be verified by long-term water level and water quality monitoring at a well in the Valley/Fan Aquifer downstream of the Structure.

No cumulative effects were identified for any aquatic discipline.

1.4.2 Terrestrial Environment

The terrestrial assessment evaluated soils and terrain, vegetation, wildlife, and biodiversity indicators. Residual effects on terrestrial indicators ranged from negligible to low. Key results of the terrestrial assessment are:

- **Soil Quality and Quantity:** Effects to soil quality and quantity are predicted to have a final environmental consequence rating of negligible. Effects to soil quantity and quality are predicted to have a low environmental consequence rating for a maximum inundation event. Effects to terrain and to land capability and forestry are predicted have a low environmental consequence rating.

- **Vegetation:** The Project will have no impact on wetlands, riparian communities, or old-growth forests. Project impacts on all other vegetation indicators are predicted to have final environmental consequence ratings of negligible or low.
- **Wildlife:** The effects of the Project on wildlife habitat availability (following revegetation mitigations) and mortality risk are predicted to have a negligible environmental consequence rating. Effects to habitat connectivity are predicted to have a negligible to low environmental consequence rating.
- **Biodiversity:** No Project effects on habitat richness are predicted. Effects to biodiversity indicators for species richness, habitat diversity, and habitat fragmentation are predicted to have a negligible environmental consequence rating.

Based on the assessment of potential Project effects after application of proposed mitigations and proposed post-construction reclamation, the Project is not predicted to result in effects that could interact in time or space with foreseeable and planned future developments in the regional terrestrial study areas.

Continued terrestrial monitoring will be conducted to support flexible and responsible management of the Project and associated reclamation. Continued monitoring will include large mammal habitat use monitoring in a regional extent (AEP camera and winter track count monitoring in the Bow Valley Corridor), and the monitoring of wildlife, soil, and vegetation resource response to reclamation work.

1.4.3 Human Environment

Air Quality and Noise

The Project will result in increased criteria air contaminant (CAC) emissions from equipment use for construction and maintenance activities; however, the potential effect of Project emissions on local air quality is expected to produce a low contribution to the current and future emission sources in the area. The magnitude of the effects is considered to be low because the CAC level will increase and may be detectable, but will be within allowable Alberta ambient air quality objectives. Though the Project will have short-term impacts to air quality, the benefits of protecting the residents from future flood events outweighs the short-term impacts from construction and maintenance of the Structure. No effects to terrestrial, aquatic, or human environment are expected as a result of emissions from the Project.

Noise modelling was conducted to understand relative noise increases from baseline conditions. The Project will not generate noise during normal operations so modelling was only conducted for the construction period and for debris removal after a major flood event. The baseline noise levels for the entire study area ranged from 43.1 to 62.2 dBA and model results indicate that during construction, noise levels range from 43.3 to 62.5 dBA and during post-flood maintenance activities noise levels range from 43.4 to 62.8 dBA. Increases relative to the baseline conditions range from 0.0 to 8.9 dBA and 0.0 to 10.4 dBA during post-flood debris removal activities. Construction and post-flood maintenance noise scenarios were conservatively modelled and show that at most receptors, the change from baseline conditions will be less than 1.0 dBA. Those receptors with increases greater than 1.0 dBA are located

directly adjacent to the proposed pedestrian pathways and increased noise levels will be the result of vehicles accessing Cougar Creek rather than construction activities at the Project site. No further noise mitigation or monitoring is proposed.

Land Use and Management

The Project is located in both the Green Area and White Area of the province and falls within the SSRP, Bow Corridor Integrated Resource Plan (IRP) and Ghost River Sub-Regional IRP that outline the management of lands and resources in the region. The Project is also located within Bow Valley Wildland Provincial Park and the portion of the Project that is located in the White Area is administered by the Town of Canmore. In addition to residential and commercial land uses, surface land dispositions in the area are mostly related to conservation and flood management. Development of the Project is in keeping with the principles of integrated land use and resource planning applicable to areas of multiple uses. Because the Project mitigates risk to existing and future land uses in the Cougar Creek alluvial fan, the residual effect is positive in direction and the final environmental consequence rating is high.

Following the deregulation and sale of a portion of the Bow Valley Wildland Provincial Park on which the footprint used for the Access Road and Structure will be, land will be permanently removed from the park; however, AEP will put conditions on the land sale to mitigate effects of the boundary change. As land will be permanently removed from the Bow Valley Wildland Provincial Park, the residual effect of the Project on unique sites and special features is negative in direction and the final environmental consequence rating is negligible.

Primary access into the region is by a paved highway system including Highway 1 and Highway 1A (Bow Valley Parkway). Access to the Project is via Elk Run Boulevard/Benchlands Trail, which connects to Highway 1A to the east and Highway 1 to the west. A number of trails managed by the Town of Canmore and AEP can be accessed from Cougar Creek. Recreational access through the Project area will be maintained through the duration of construction and operations of the Project, except during safety sensitive activities, where alternative routes will be provided. Changes to recreational access as a result of the Project were found to be neutral in direction and the final environmental consequence rating is negligible.

There is a considerable amount of aggregate in the region and the volume used for the Project will not materially affect the overall supply. Because the Project will permanently remove aggregate, the residual effect on aggregate resources is negative in direction and the final environmental consequence rating is predicted as low.

There are no publically disclosed projects with similar effects that may overlap in time and space in the regional study area so no cumulative effects on land use and management are expected.

Socio-economics

Economic effects from construction and operation of the Project will stem from direct employment, from employment generated by purchases from suppliers of goods and services required for operation (indirect effects), and from jobs created through the spending of employment incomes earned directly or indirectly (induced employment). Capital and operating expenditures associated with the Project are expected to be spent primarily within the regional study area and the province. As the potential for debris flood damage will be mitigated by the

Project, the financial risks of flooding to the municipal, provincial, and federal governments, and to the public will be significantly reduced.

It is expected that a skilled construction workforce to fill the employment requirements for construction of the Project is available in the region. If there are not enough suitable workers available in the study area, it is expected that employees will come from outside of the region. Any residents outside of the region that take up employment on the Project will likely be temporary mobile workers from other communities, rather than permanent residents.

The maximum incremental temporary population change due during the construction period is 30 people. The Town of Canmore is accustomed to a non-permanent population and tourist industry, and is therefore expected to have the capacity to handle a temporary mobile workforce. Operation of the Project requires one part-time position, which is expected to be filled by an existing resident. No population change is expected during operations.

Potential impacts to the landowners adjacent to the Project include effects such as increased traffic, increased noise during construction, dust, and change in visual aesthetics. Construction and operation of the Project will increase the use of highways and local area roads. Traffic concerns include noise, volume, dust, and speed of traffic. No new road or intersection construction on public roads will be required for the Project.

Historical Resources

The potential impact to historical resources as a result of the development of the Project is considered to be minimal. It is highly probable that all fossiliferous exposures currently accessible within the Project area will be accessible after the Structure is constructed (except during flooding events). Therefore, further palaeontological requirements are not justified. As for archaeological and historic resources, no known, significant, and intact historical resources are associated with the Project. Therefore, the Project archaeologist recommended to the Historical Resources Management Branch that *Historical Resources Act* clearance be granted for the Project.

Traditional Ecological Knowledge and Land Use

No specific traditional ecological knowledge was provided by any of the First Nations consulted on the Project to the date of EIA submission. None of the First Nations who conducted TLU site visits identified any specific cultural, historical, or TLU areas associated with the Project and no specific views on reclamation were provided other than a preference for reclamation with native species. No further mitigation is proposed with respect to TLU.

1.4.4 Adaptive Management and Monitoring

Based on the results of the assessment, the need for additional mitigation, adaptive management plans, or monitoring was considered where necessary to minimize residual effects. No additional mitigation was proposed for any discipline. The Town of Canmore is proposing to conduct groundwater monitoring during and after construction to verify the assessment of potential Project effects on groundwater levels and quality. The Town will consult with AEP on the results of ongoing monitoring of wildlife habitat use over the next 3-year period and consider adaptive management practices for wildlife habitat use and movement across Cougar

Creek as warranted. The Town of Canmore will also conduct a vegetation and soil survey of reclaimed areas to evaluate the success of reclamation practices. The need for additional reclamation monitoring and adaptive management practices will be evaluated based on the results of the survey.

1.5 Closure

This summary document was prepared to provide an overview for NRCB reviewers. Full details on all topics discussed in this summary are presented in the EIA report.

1.6 References

- Ministry of Aboriginal Relations (Aboriginal Relations). 2014. *The Government of Alberta's Guidelines on Consultation with First Nations on Land and Natural Resource Management*. July 28, 2014.
http://www.aboriginal.alberta.ca/documents/First_Nations_Consultation_Guidelines_LNRD.pdf
- Natural Resources Conservation Board (NRCB). 2007. *The Board Review Process Under the NRCBA – Process Guide*. November 20, 2007.
<http://www.assembly.ab.ca/lao/library/egovdocs/2007/alnrc/173396.pdf>