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Laura Friend
Manager, Board Reviews
Natural Resources Conservation Board
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Dear Ms. Jurijew and Ms. Friend:

Alberta Transportation is applying to Alberta Environment and Parks (AEP), the Natural Resources Conservation Board (NRCB) and the Canadian Environmental Assessment Agency (CEA Agency) for approval to construct and operate the Springbank Off-stream Reservoir Project ("the Project or SR1").

In March 2018, Alberta Transportation submitted the *Springbank Off-stream Reservoir Project Environmental Impact Assessment* (EIA) to AEP, the NRCB, and CEA Agency for review. On July 28, 2018, Alberta Transportation received combined supplemental information requests (SIRs) from AEP and NRCB.

Project Description:
The Project is located approximately 15 km west of Calgary near Springbank Road, north of Elbow River and predominantly east of Highway 22. The Project incorporates, as its main components, a diversion structure on the main channel and floodplain of the Elbow River, a diversion channel to transport diverted floodwater into the off-stream reservoir, an off-stream dam to temporarily contain the diverted floodwater, and a low-level outlet in the dam to return the stored water back to the Elbow River after the flood subsides through an existing unnamed creek channel.

The off-stream reservoir would work in tandem with the Glenmore Reservoir and will store water only when flood levels in the Elbow River exceed 160 m^3/s and flow downstream of the Glenmore Reservoir is expected to exceed 170 m^3/s. The Project has the capacity to divert up to 600 m^3/s of flow from the Elbow River to the off-stream

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reservoir, which can hold 77,771,000 m^3 of water as active flood storage. Flows more than the diversion capacity will pass the diversion structure, down the Elbow River and be stored within Glenmore Reservoir, up to its allocated flood storage capacity of 10,000,000 m^3.

Updates since March 2018 Filing:

Debris Deflector

As stated in the March 2018 EIA, the diversion inlet structure and channel were designed to allow for passage of large floating debris and bedload contained within diverted flood waters. Throughout the Project's design, Alberta Transportation has reviewed the Project for component protection and public safety. Taking this risk-informed approach, Alberta Transportation determined that additional debris management measures should be taken as part of the Project. In addition, Alberta Transportation received concerns regarding debris management during the Indigenous consultation and stakeholder engagement programs for the Project including concerns related to debris build up in the off-stream reservoir. The proposed debris deflector mitigates these concerns by reducing the potential for large debris entering the off-stream reservoir.

The debris deflector will be installed along the west side of the Elbow River, at the opening of the diversion channel. The structure is an additional Project component that would be located within the project development area (PDA) assessed in the EIA. The debris deflector would reduce risks of infrastructure damage and operating failure of Project components including the diversion inlet, diversion channel and off-stream reservoir and dam.

In May 2018, Alberta Transportation submitted an addendum to AEP, the NRCB and CEA Agency detailing the debris deflector (*Springbank Off-stream Reservoir Project, Debris Deflector – Environmental Assessment Addendum*). The document provided an environmental assessment addendum of the debris deflector and its associated contribution to the overall Project as assessed in the EIA.

Project Timeline

There remains considerable uncertainty in terms of the timing required to complete the environmental assessment and regulatory review processes. The department will continue to work through the stages of the regulatory process to secure required approvals. Assuming the Project receives regulatory approval, the Project is targeted to be functionally operational (1:100 year flood) following two years of construction and will be able to accommodate water volumes equal to the 2013 flood following three years of construction.

2019 Benefit/Cost Analysis

In response to SIRs received, Alberta Transportation has prepared a Benefit/Cost Analysis (BCA), comparing SR1 to the McLean Creek Option (MC1 Option) as of April 2019. The BCA was one factor when considering a proposed project to the alternatives (effectiveness, environmental and social impacts are other factors). The practice of conducting BCAs is limited by the ability to anticipate and quantify the amount and timing of all future benefits and costs. As a decision-making tool, a BCA must be viewed in the context of the time it was undertaken. The 2014 and 2017 BCAs were conducted with the best information available at the time. As such, one cannot “update” a previous BCA, only conduct a new one. However, the utility of using a BCA at this time to compare a more fully developed SR1 to the preliminary estimates for the MC1 Option becomes questionable. Not only do they continue to diverge in terms of the detail and confidence in cost estimates, but challenges arise in attempting to align the two projects for a fair BCA comparison.

The project budget for SR1 is $432 million. Final budget decisions are subject to the Government of Alberta’s decision-making process. The final cost to complete will be determined upon: final project design and the value of mitigation initiatives; procurement of a contractor to complete construction; and acquisition of Project lands and future amounts realized from the sale of any residual lands.

To complete the BCA and to respond to SIRs, certain assumptions were made including: the addition of a debris deflector as provided in the May 2018 addendum; an estimate opinion on the cost of construction materials; and the acquisition costs of the lands acquired to date and future acquisition costs based on the value of the lands acquired. Alberta Transportation will continue to evaluate these costs as the project advances.

Indigenous Consultation

Alberta Transportation has continued to consult with First Nations regarding the Project since filing the EIA. Engagement opportunities include information sharing, discussing concerns, and engaging in meaningful dialogue about ways to avoid or mitigate potential Project impacts. An updated summary of the engagement process to March 29, 2019 for Treaty 7 Nations and additional Indigenous groups that the CEA Agency requested has been included in the SIR package (see CEAA Package 2 IR1-1). This response has two parts: updated consultation summaries and specific concerns and response tables (SCRTs).

Through the consultation process, Alberta Transportation has heard concerns regarding future involvement in certain aspects of the Project. Alberta Transportation anticipates

building upon consultation efforts to date to continue to strengthen relationships with potentially affected Indigenous groups. Information provided throughout the regulatory phase will be used to inform Project plans and mitigation, as appropriate. Additionally, Alberta Transportation is committed to Indigenous participation in the Project including training, employment, and contracting opportunities.

Additional Hydrogeology Modelling and Report

The hydrogeology (groundwater) assessment completed in March 2018 has been updated in response to concerns raised by Tsuut'ina Nation during the consultation process and expands upon the previous baseline assessment and numerical modelling presented in the EIA. As part of the update, the hydrogeology regional assessment area (RAA) was expanded to encompass areas south of the Elbow River and all areas of the Tsuut'ina Nation Reserve that are within the Elbow River watershed. The three-dimensional conceptual site model (3D CSM), which characterizes the underlying geologic units and groundwater flow regime for the expanded RAA, was updated with additional hydrogeologic information from areas south of the Elbow River and on the Tsuut'ina Nation Reserve. In total, the updated 3D CSM examined 4,250 well records that were screened to remove records with no usable information, of which 1,893 well records were used to re-interpret and update the baseline assessment for the expanded RAA.

In addition, the expansion of the 3D CSM numerical groundwater model, has also been updated in accordance with the expanded RAA. The numerical model was updated to reflect the baseline characterization of geologic conditions under the Tsuut'ina Nation Reserve, and to adjust some model parameters based upon requests from Tsuut'ina and AEP (through SIRs). The numerical model was recalibrated using additional data from south of the Elbow River and on the Tsuut'ina Nation Reserve, and calibration metrics were improved across the model domain. New simulations of dry and flood operations were completed, and the results confirm the original findings of the EIA: effects on groundwater would be limited to areas north of the Elbow River, near Project components including the diversion channel and off-stream reservoir area. Effects on groundwater do not extend laterally southward beyond the Elbow River valley and in turn are not expected on the Tsuut'ina Nation Reserve. In order to provide ongoing monitoring of groundwater conditions during dry or flood operations, Alberta Transportation has developed a draft groundwater monitoring plan that has been filed with the SIR package (see AEP/NRCB IR46, Appendix IR46-1).

The updated hydrogeology technical data report presents a consolidated update and replacement to the two reports in Volume 4, Appendix I of the March 2018 EIA: Hydrogeology Baseline Technical Data Report, and Groundwater Numerical Modelling Technical Data Report (see AEP/NRCBSIR 42, Appendix IR42-1).

Draft Principles for Future Land Use of the Proposed Springbank Off-stream Reservoir Project

Since filing the EIA, and based on concerns expressed during engagement with Indigenous groups, Alberta Transportation has created a draft post-construction land use document for the Project (see AEP/NRCB IR2, Appendix IR2-1). This document provides the draft principles of future land use for the PDA.

The principles apply to the land use area (LUA) outlined in yellow in Figure 1 of Appendix IR2-1. The primary use of all lands within the PDA, including the LUA, is for flood mitigation. In light of the primary use, the safety of anyone with access or land users will be an overriding factor. Secondary uses such as vegetation management and First Nations' traditional activities (including the exercise of treaty rights such as hunting) will be allowed within the LUA. As such, the potential for increased access in the PDA relative to existing conditions (i.e., private land) would result in a positive change to the ability to exercise Section 35 rights and to engage in traditional uses.

Organization of the SIR Package:

Responses to the AEP/NRCB SIRs are provided in nine (9) sections corresponding to the sections in the original SIR package as follows:

- Section 2: NRCB
- Section 3: General
- Section 4: Air
- Section 5: Water
- Section 6: Terrestrial
- Section 7: Health
- Section 8: Dam Safety
- Section 9: Approvals
- Section 10: Errata

We trust the foregoing is satisfactory. Should you have any questions or concerns regarding the SIR package, kindly contact Matthew Hebert at 780-644-7780.

Sincerely,

[Original signed by]

Matthew Hebert
Executive Director