



Re: 2AM-BRP1831 and 2BE-GOO2028

Catherine Paul <cpaul@sabinagoldsilver.com>

Tue, Jun 16, 2020 at 6:21 PM

To: Richard Dwyer <richard.dwyer@nwb-oen.ca>

Cc: Merle Keefe <mkeefe@sabinagoldsilver.com>, "Okonkwo, Godwin (AADNC/AANDC)" <godwin.okonkwo@canada.ca>

Hello Richard,

Please see the attached updated culvert crossing drawings in response to comments on 2AM-BRP1831 Echo and Goose Neck Culvert Crossing Detailed Report. In addition, Sabina is providing additional written responses below to directly address CIRNAC's two comments. These responses are being submitted on behalf of Merle Keefe, please do not hesitate to contact him at the below if questions arise or additional information is requested.

CIRNAC Comments:

1. The design report and drawings are generally satisfying. However, it is not clear how the proposed pipe ends once installed will be protected against scour around the inlet and outlet of the pipes. CIRNAC recommends that the Licensee provide adequate typical cross section showing end pipe protection with adequate riprap geometry, in addition to the profile and sections shown on drawing ECHO-03.
2. CIRNAC was unable to find any skew angle of the culverts on the provided drawings, to confirm that the culverts can be adequately installed to function effectively. CIRNAC recommends that the Licensee clarifies or provide the missing skew angles to confirm that the culverts can be adequately installed.

Sabina's Responses:

1. Sabina agrees with CIRNAC that scour protection around the culverts should be included. Sabina is proposing a small patch of non-woven geotextile at the immediate outlet of the culvert (approximately 1-m long by 0.7-m wide) that is covered by a larger layer (larger extents) of coconut matting. This coconut matting material would be placed approximate 2.0-m beyond the culvert outlet and at least one culvert diameter in width beyond each side of the culverts. This coconut matting will help to limit erosion by still allowing the top vegetative tundra mat to live. Drawings have been updated to reflect these changes. Sabina recommends this approach as opposed to a thin layer of rip rap fill material as there's concerns that these thin layers (less than 1.5 m) could lead to deepening of the local active layer and potential increased rates of permafrost degradation at the culvert outlet. Sabina will monitor conditions at the inlet and outlet of the culvert to ensure permafrost conditions are stable immediately after construction. Sabina also notes that, as part of its Environmental Monitoring and Protection Plan (EMPP; 12BRP1831 Supporting Document [SD] 20), culverts will be visually inspected for sediment accumulation and bed erosion, as well as other blockages, barriers, or culvert defects.
2. Sabina has updated both Echo and Goose Neck Culvert Crossing drawings to show culvert skew angles; Sabina notes that skew angles are shown relative to the approximate stream centerline on each figure. The road alignment over culvert crossings will be adjusted so skew angles are minimized as much as feasible. In addition, base slopes of culverts will be installed at 1% or greater grades, as shown on Echo-03 and GN-03. Drawings have been updated to reflect these changes.

Merle Keefe, EIT

Manager, Environmental Permitting

Sabina Gold & Silver Corp.



Office: (604) 998-4190

Mobile: (604) 240-6619

Email: mkeefe@sabinagoldsilver.com

Regards,

Catherine Paul (on behalf of Merle Keefe)

Environmental Consultant

Sabina Gold & Silver Corp.



1800 – 555 Burrard Street

Vancouver, BC V7X 1M9

Cell: (604) 908-8609

Email: cpaul@sabinagoldsilver.com

www.sabinagoldsilver.com

From: Richard Dwyer <richard.dwyer@nwb-oen.ca>

Sent: Tuesday, June 9, 2020 9:45 AM

To: Merle Keefe <mkeefe@sabinagoldsilver.com>

Cc: Sergey Kuflevskiy <sergey.kuflevskiy@nwb-oen.ca>; Licensing Department <licensing@nwb-oen.ca>

Subject: 2AM-BRP1831 and 2BE-GOO2028

[Sender is external to Sabina Gold & Silver]

Good morning,

The Nunavut Water Board requests response to the attached comments by June 16, 2020 on 2AM-BRP1831 Echo and Goose Neck Culvert Crossing Detailed Reports Drawings and 2BE-GOO2028 Trench Proposal.

Richard

