



MEMO

TO: Scott Cosman. P ENG.
COMPANY: BC MOTI
FROM: Bob Forsyth
DATE: 7 November 2022
CC: Wayne Byczek, P Eng, Johnathan Tillie, Michael Carreira, P Eng.
PROJECT NO.: VG07794.306
SUBJECT: Silver Skagit Road, South of Hope, BC
Road and Culvert Repair at Km 23.0
Project Number: 14119, Site ID: SA07-150-15 and 23

As requested, we herein provide geotechnical comment regarding proposed repairs (RF Binnie & Associates Ltd. Drawings R1-1055-000 to 201) to the road embankment at km 23.0 of the Silver Skagit Road. During the flood event of November 2021, a tributary channel of Silverhope Creek encroached into the embankment of the Silver Skagit Road such that for a 50 m long section of the road, the west road edge has been eroded by the creek channel. The creek channel is still present at the west edge of the road and carried a substantial flow of water during our site visits on September 14 and 21, 2022.



Photo 1: Looking south at the creek channel adjacent to the west road edge, km 23.0

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“Effective September 21, 2022, Wood Environment & Infrastructure Solutions Canada Limited is now operating as WSP E&I Canada Limited. No other aspects of our legal entity, contractual terms or capabilities have changed in relation to this report submission.”



Photo 2: Looking north at the west road edge, km 23.0. Note the erosion of the road edge by the creek.

The repair design includes:

- The creek channel will be temporarily diverted during the work so that repairs can be done in the dry.
- The channel bottom will be excavated at least 0.8 m below the existing creek bed. Disturbed and/or organic material will be removed from the excavation bottom and sides.
- Where it has been eroded, the embankment will be reconstructed with Type D embankment fill.
- Non-woven geotextile (filter fabric) will be placed on top of the excavation bottom and /or embankment slope.
- A 1.60 m width of 100 kg class riprap will be placed atop the filter fabric so that the creek bottom and west road edge are armoured with riprap.
- The pavement structure at the west road edge will be reconstructed so that it will consist of High Fines Surfacing Aggregate (HFSA), underlain by Well Graded Base Course (WGB) then Select Granular Subbase (SGSB). BC MOTI specifications for the pavement structure materials are shown below.

Course	In Cut	In Fill
HFSA	100	100
25 mm WGB	225	225
SGSB	300*	150**

Notes: * assumes fine grained subgrade ML/CL/OL/MH/CH/OH. Can be reduced if it is coarse grained.
** assumes coarse grained subgrade GW/GP/GM/GC/SW/SP/SM/SC

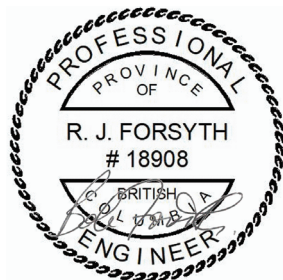
The subbase can be omitted where the underlying subgrade material meets SGSB requirements. We expect that Type D compacted subgrade material, where required by site grades, will consist of locally sourced granular fill.

Fill materials should be compacted in lifts, of maximum 300 mm loose thickness, using vibratory equipment. Water should be added as required so that the fill is close to optimum moisture content during compaction. We understand that compaction of fills will be witnessed by the project civil inspector.

Considering the above, it is our opinion that the repair plan is reasonable from a geotechnical perspective.

Yours sincerely,

WSP E&I Canada Limited



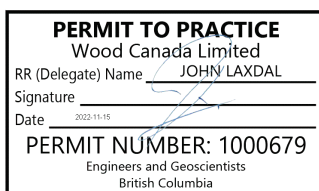
07-Nov-2022 14:15 PST

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Reviewed by:

2022-11-15

John Laxdal, P.Eng.
Principal Geotechnical Engineer



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