

June 5, 2024
Project No. 2302940

VIA EMAIL: rick.sole@globizen.com

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**Re: EIS Addendum Letter
4933 Victoria Avenue North
Lincoln, ON**

Dear Mr. Sole:

GEI Consultants Canada Ltd. (GEI) has prepared this letter as an Addendum to the Scoped Environmental Impact Study (EIS; GEI 2024) for the proposed development at 4933 Victoria Avenue North in Lincoln, Ontario (herein referred to as the Subject Lands). Specifically, this EIS Addendum has been prepared in response to the proposed Lake Ontario shoreline stabilization works, which were not addressed in the Scoped EIS. This EIS Addendum should be reviewed in conjunction with the 2024 Scoped EIS (GEI 2024).

This EIS Addendum describes existing conditions with respect to fish and fish habitat along the Lake Ontario shoreline adjacent to the Subject Lands, describes the proposed shoreline stabilization works, identifies the potential impacts, proposed avoidance and mitigative measures and net potential impacts on fish and fish habitat, identifies potential monitoring requirements associated with the proposed works and identifies potential permitting requirements.

Existing Ecological Conditions

The following sections describe the existing fish and fish habitat conditions along the Lake Ontario shoreline on and adjacent to the Subject Lands. Photographs of the existing shoreline taken by Shoreplan Engineering Limited (Shoreplan; 2024) are provided in **Appendix A**.

Fish and Terrestrial Habitat

The Lake Ontario shoreline on and adjacent to the Subject Lands is generally relatively uniform, consisting predominantly of an armourstone revetment, which extends along the entire ~100 m of the Subject Lands frontage on Lake Ontario. Shoreplan (2024) has reported that the revetment has a crest elevation of approximately 77.8 m and a toe elevation of approximately 74.0 m, for an overall height of 3.8 m. They have also reported a revetment slope of approximately 2.5:1. Individual stones in the revetment were observed by Shoreplan to range from 2 to 5 tonnes in size. The Lake Ontario water level has been surveyed

on several occasions; it was 74.53 m on December 22, 2022, and 74.61 m on October 27, 2023 (Shoreplan 2024).

No information on lakebed sediments beyond the toe of the existing erosion protection structure is available as the area was not visible from the shoreline. Based on other similar areas along the south shore of Lake Ontario, it is expected that sediments consist of a mix of cobble, gravel and sand.

Vegetation is relatively limited on the revetment itself, with some ground cover, shrub and tree species scattered along its length. Meadow species are the dominant vegetation form adjacent to the top of the revetment. None of the vegetation species present along the shoreline are considered to be species at risk in Ontario or regionally rare species (GEI 2024). No significant wildlife habitat or habitat for endangered or threatened terrestrial species was identified in the shoreline area on the Subject Lands during the investigations completed for the Scoped EIS (GEI 2024).

Overall, aquatic habitat within the study area is relatively uniform and typical of exposed Lake Ontario shorelines where erosion protection has been installed. All areas of the shoreline and lakebed below elevation 75.32 m are considered to be fish habitat. Although the study area generally lacks complexity and is highly altered by the shoreline erosion protection materials, the area is expected to provide habitat for a range of fish species.

Fish Community

Ministry of Natural Resources and Forestry (Government of Ontario 2024) online fish community records were reviewed but no aquatic resource area survey points were identified in Lake Ontario adjacent to the Subject Lands. Therefore, no specific information on the fish community within Lake Ontario adjacent to the Subject Lands is known to be available. However, studies from other similar areas of the lake (Aquatic Habitat Toronto, undated) have shown that the nearshore fish community of open coast areas is generally dominated by Alewife (*Alosa pseudoharengus*), White Sucker (*Catostomus commersonii*), Emerald Shiner (*Notropis atherinoides*) and Spottail Shiner (*Notropis hudsonius*). Offshore areas likely provide habitat for several sportfish species including salmon and trout. Shoreline areas with cobble, gravel and sand substrate may provide spawning habitat for several fish species.

American Eel (*Anguilla rostrata*), designated as endangered in Ontario and threatened in Canada, may also be present in the nearshore areas of Lake Ontario as they are known to occupy habitats between the shoreline and 10 m depth. This species is known to be present in nearby Jordan Harbour (Government of Ontario 2024).

The Fisheries and Oceans Canada (DFO) aquatic species at risk map (DFO 2023) identifies Lake Ontario adjacent to the Subject Lands as potentially providing habitat for the Shortnose Cisco (*Coregonus reighardi*), which is listed as endangered on Schedule 1 of the federal *Species at Risk Act*. However, this species is expected to reside in deeper (>20 m), offshore environments (COSEWIC 2005) and therefore, would not be expected to use the immediate shoreline area adjacent to the Subject Lands where works are proposed.

Proposed Shoreline Stabilization Works

Shoreplan (2024) indicated that the existing shoreline stabilization structure appears to be in good condition, but that it would be overtopped by current design water levels (100-year instantaneous water level of 76.4 m with a 20-year wave height of 1.5 m). The erosion hazard limit was calculated to be 39 m landward of the toe of the shoreline revetment. The structure was also estimated by Shoreplan to have a remaining lifespan of approximately 10 years. Shoreplan's analysis concluded that improvements to the shoreline protection structure would be required to facilitate development within the shoreline hazard zone.

Accordingly, Shoreplan (2024) has identified two preliminary options to improve the shoreline protection structure (see cross-sections in **Appendix A**).

The first option consists of an approximately 2:1 sloping armour stone revetment that is similar to the existing structure, but that has a higher crest elevation (~79.5 m based on the preliminary design) to prevent overtopping. The structure would replace the existing structure and would feature two layers of randomly placed armour stones underlaid by rip rap. The toe of the structure would consist of a double layer of stone at elevation 72.5 m.

The second option also consists of an approximately 2:1 sloping armour stone revetment with the lower portion of the structure being similar to the first option. However, at elevation 77.0 m, the structure would transition to a stacked armour stone wall, with a crest of 79.5 m.

With respect to potential impacts on fish habitat, both structures have the same design below the fish habitat-defining elevation of 75.32 m and therefore, the differences in design above this elevation are not relevant to this assessment. The impact assessment herein covers both potential design options.

To construct the enhanced shoreline protection, all existing armour stone and rip rap material would be removed and stockpiled on-site for reuse in the new structure. The bank would then be excavated to the design elevation/slope and rip rap and armourstone would then be added back to construct the new structure. All heavy equipment used to construct the site will be operated from land above the high-water mark, reaching down to the revetment as required to remove the existing structure, grade the underlying soils and install the new erosion protection material.

All disturbed shoreline areas adjacent to the erosion protection works will be restored with native vegetation species.

Impact Assessment and Mitigation

Implementation of the proposed shoreline stabilization works could potentially result in impacts on fish and fish habitat during the construction phase and cause long-term changes in fish habitat conditions. Potential impacts, proposed mitigative measures and expected net impacts are discussed in the following sections, by project phase.

Construction Phase Impacts

Construction of the proposed shoreline works is expected to require work in and near water. Potential negative impacts on fish and fish habitat that could occur include:

- Disturbance of fish due to noise and vibration associated with in-water and near water construction activities. Disturbance could potentially impact sensitive life history processes (e.g., reproduction) depending on the timing of construction;
- Injury to or mortality of fish due to contact with machinery operating in the water or material being installed within the lake;
- Increased turbidity levels within the lake due to suspension of fine sediments during in-water work that could cause injury or mortality of aquatic biota (e.g., fish, invertebrates, plankton) or altered habitat use (e.g., foraging);
- Erosion of sediment from the shorelands and transport to Lake Ontario could potentially result in increased turbidity and sedimentation of the lakebed; and
- Impaired water quality or injury/mortality of fish and other aquatic biota due to accidental spills of potentially contaminating material from heavy equipment use in and near water (e.g., fuel, oil, hydraulic fluid).

The following mitigative approaches are recommended to minimize the potential for, or the significance of, the above-noted potential negative impacts on fish and fish habitat:

- In-water construction in Lake Ontario should be completed between July 1 and September 14 to prevent disrupting sensitive fish life history processes during both spring and fall reproductive activities that may be occurring along the shoreline;
- The only equipment that operates in water should be the bucket/lower arm of an excavator that is otherwise operated from onshore above the water line;
- Prior to any work in water, the equipment operator should attempt to scare fish out of the work area by banging the excavator bucket on rocks to minimize the potential for fish injury/mortality due to contact with equipment or shoreline fill materials;
- The size of the in-water work area associated with removal of existing erosion protection materials and installation of new materials should be minimized to the extent possible to minimize temporary impacts on fish habitat;
- Installation of a turbidity curtain or cofferdam has not been identified as being required by Shoreplan during in-water construction activities. However, in-water work should not occur during periods of high-waves or high-water levels in Lake Ontario to minimize the potential for sediment disturbance and suspension, particularly after the existing erosion protection material is removed, exposing the underlying finer materials;

- Disturbance to the native soils on the lakebed should be minimized to the extent possible in those areas where excavation is required to prepare for installation of the new erosion protection materials;
- Erosion and sedimentation controls should be installed on-land adjacent to the work area to minimize the potential for erosion and sedimentation from the Subject Lands into the lake throughout the duration of construction;
- A spill prevention and response plan should be prepared outlining the measures that will be implemented to minimize the potential for accidental spills of potentially contaminating material into the lake;
- Equipment should arrive on-site in a clean condition and be regularly inspected, particularly prior to work in or near water to ensure it is clean (i.e., free of surface films of oil or hydraulic fluid) and not leaking;
- Only clean material, free of fine sediment, should be installed in the lake to avoid introducing fine sediments that could negatively impact fish and fish habitat; and
- Regular monitoring of erosion and sedimentation controls and spill prevention and response measures should be completed throughout the duration of in-water and near-water construction.

Consideration was given to completing the in-water work under dry conditions (i.e., isolating and dewatering the work area); however, it was determined that the above noted mitigative measures should be effective in preventing harm to fish. Ongoing discussions with reviewing agencies (e.g., DFO) will be required to confirm the proposed construction mitigation approaches.

With implementation of appropriate mitigative measures, supplemented with monitoring and execution of remedial actions to address any identified deficiencies (as required), it is expected that negative impacts on fish and fish habitat will be limited to temporary alterations and disturbance due to in-water work. While it is expected that fish (potentially including American Eel, if they are present in the area) will move out of the work area due to disturbance and the habitat will be temporarily unusable during active construction periods, this is not expected to have any significant negative impact on overall fish community productivity in this relatively homogeneous, simple shoreline area during the less sensitive summer period. No impacts on Shortnose Cisco are expected to occur, as this species is expected to reside in deeper, offshore areas outside the potential zone of impact of this proposed project.

Long-Term Impacts

The proposed shoreline stabilization work will result in a minor long-term change in fish habitat conditions along the ~100-m long shoreline on the Subject Lands. However, the proposed works are not expected to have any negative impact on fish habitat, since the existing footprint is expected to be maintained with no expansion of the footprint of the structure into adjacent native lakebed material. This will be confirmed following detailed design. In addition, the surficial armourstone will be re-used in the new structure, so no material impacts on substrate in the lake are expected. Based on the Shoreplan (2024) design cross-sections (**Appendix A**), some minor lowering of the toe of the structure within the lake may occur, which would result in a minor permanent increase in fish habitat volume below elevation 75.32 m.

Overall, the proposed shoreline erosion protection works are not expected to have any negative impact on fish habitat conditions relative to the existing shoreline condition. The proposed work is not expected to cause the Harmful Alteration, Disruption or Destruction (HADD) of fish habitat, but this will need to be confirmed with DFO following completion of the detailed design.

Monitoring Requirements

The following monitoring is recommended during construction:

- Monitoring of erosion and sedimentation control measures should occur regularly throughout the duration of in and near-water construction activities. Remedial actions should be implemented as necessary to address any observed deficiencies;
- Visual monitoring of in-water turbidity should occur when the existing bank materials (below the existing armour stone and rip rap) are being excavated to the design elevation. If excessive turbidity is observed to be spreading along the shoreline due to wave or current action, excavation should cease until lake conditions are calmer (to minimize the distribution of a suspended sediment plume). If a plume cannot be controlled in this manner, it may be necessary to consider other mitigative approaches such as installation of a turbidity curtain or cofferdam. The requirements for this should be determined by the on-site engineer; and
- Monitoring of adherence to the spill prevention and response should be completed throughout the duration of in and near-water construction activities.

Following installation, no specific ecological monitoring associated with fish or fish habitat is proposed. Vegetation survival monitoring should be completed during the warranty period to verify that planted vegetation survival thresholds have been met. Additional plantings may be required if thresholds are not met. Additional structural monitoring may be recommended by the coastal engineer to verify structure performance.

Potential Permitting Requirements

Depending on the final design for the proposed replacement erosion control works, the following permits may be required:

- Authorization under the *Fisheries Act* from DFO:
 - A Request for Review should be prepared and submitted to DFO to determine if an Authorization is necessary; and
- Development permit from NPCA for works within the regulated area.

No permit under the federal *Species At Risk Act* is expected to be required, but this will be confirmed during DFO's review.

Similarly, no permits under the *Ontario Endangered Species Act* are expected to be required. However, consultation with the Ontario Ministry of Environment, Conservation and Parks (MECP) is recommended to confirm that no permitting is necessary with respect to potential for American Eel to occur in the work area. This is addressed through the Information Gathering Form process.

Following completion of the detailed design for the shoreline stabilization works, review of the federal *Canadian Navigable Waters Act* and Ontario *Public Lands Act* should be completed to determine if there are permitting requirements under either Act. The *Canadian Navigable Waters Act* could be triggered if the proposed works extend beyond the current footprint of the structure. The *Public Lands Act* permitting process could be triggered if work on publicly owned lands on the lakebed are required. Consultation with the MNRF may be required to confirm if there are permitting requirements under the *Public Lands Act*.

Summary and Conclusions

The project proponent is proposing to replace approximately 100-m of existing erosion protection along the Lake Ontario shoreline of the 4933 Victoria Avenue North property. The existing erosion protection consists of armour stone underlaid by rip rap and is generally functioning well to prevent erosion but is overtopped by current design water levels which impacts the tableland development footprint (Shoreplan 2024). The existing shoreline protection materials are proposed to be removed and replaced with a new erosion protection structure (made of the same materials) that will be constructed to a higher elevation to prevent overtopping.

Mitigative measures, including but not limited to in-water work timing restrictions, erosion and sedimentation controls and spill prevention and response measures are recommended for implementation during construction to minimize the potential for negative impacts on fish and fish habitat. With implementation of recommended mitigation, supplemented with monitoring during construction (and implementation of remedial measures to address any identified deficiencies), negative impacts are expected to be limited to temporary disturbance to fish during the construction period. No negative impacts on overall fish community productivity are expected due to such disturbance within the appropriate timing window.

No negative impacts on fish and fish habitat are expected to occur because of the long-term presence of erosion protection structure. The footprint of the new structure is not expected to exceed the footprint of the existing structure and similar materials will be used in the structure, resulting in no measurable change in fish habitat conditions.

Monitoring has been recommended during and following construction. Additional monitoring may be recommended by the coastal engineer.

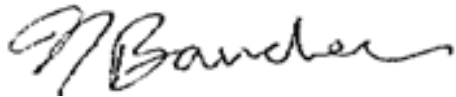
A permit is expected to be required from the NPCA. Consultation with DFO and MECP is recommended to confirm if any permitting is required under the *Fisheries Act*, *Species at Risk Act* and provincial *Endangered Species Act*.

Closing

If you have any questions, please feel free to contact one of the undersigned.

Sincerely,

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References

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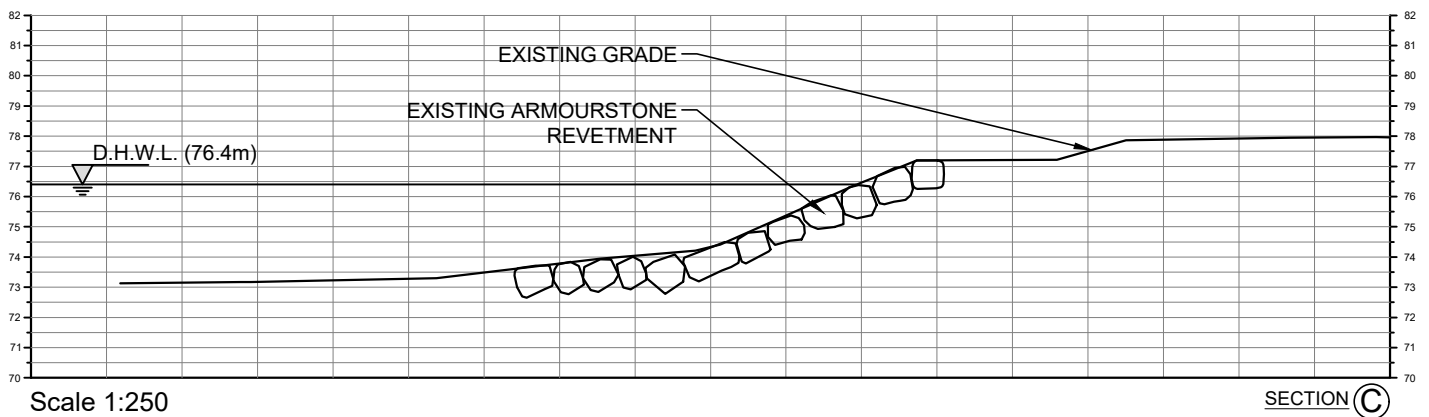
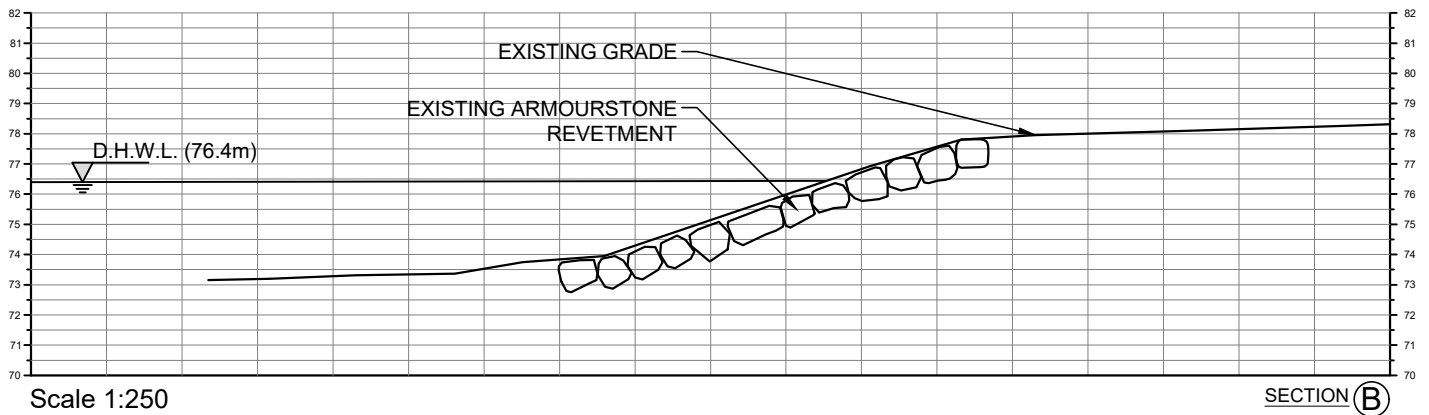
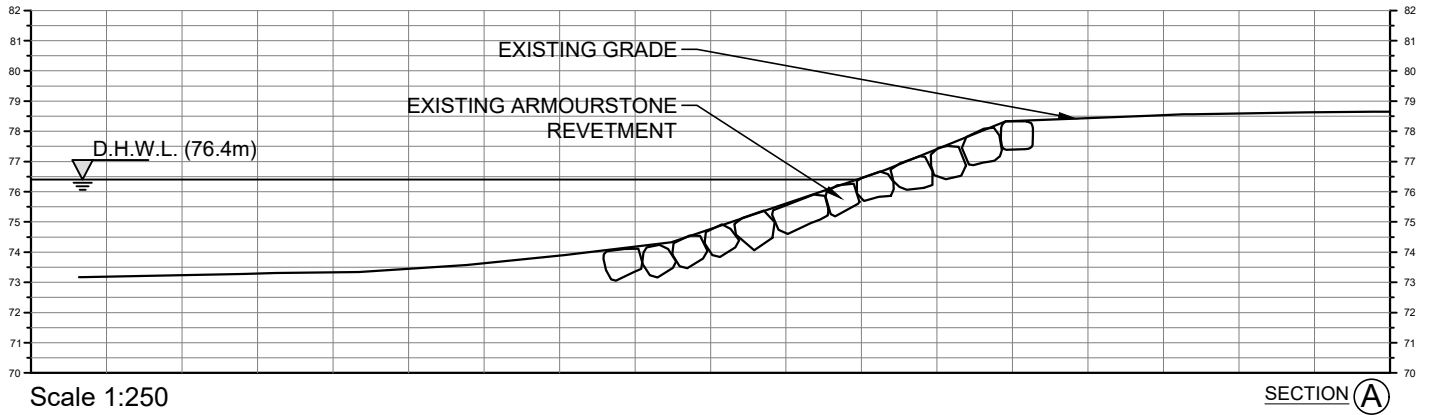
Shoreplan Engineering Limited (Shoreplan). 2024. Shoreline Natural Hazard Assessment Report. 4933 Victoria Avenue N, Lincoln, ON. Prepared for 4933 Vic Court Globizen LP. 7 pp. + Figures and Photos.

Appendix A Information from Shoreplan (2024)

A.1. Photographs of Existing Conditions

A.2. Proposed Cross-Sections

Drawing Location: S:\Shoreplan Project Files\Files 3700-3799\22-3791_4933 Victoria Street Lincoln (Globizen)\Drawings\22-3791_r0f.dwg



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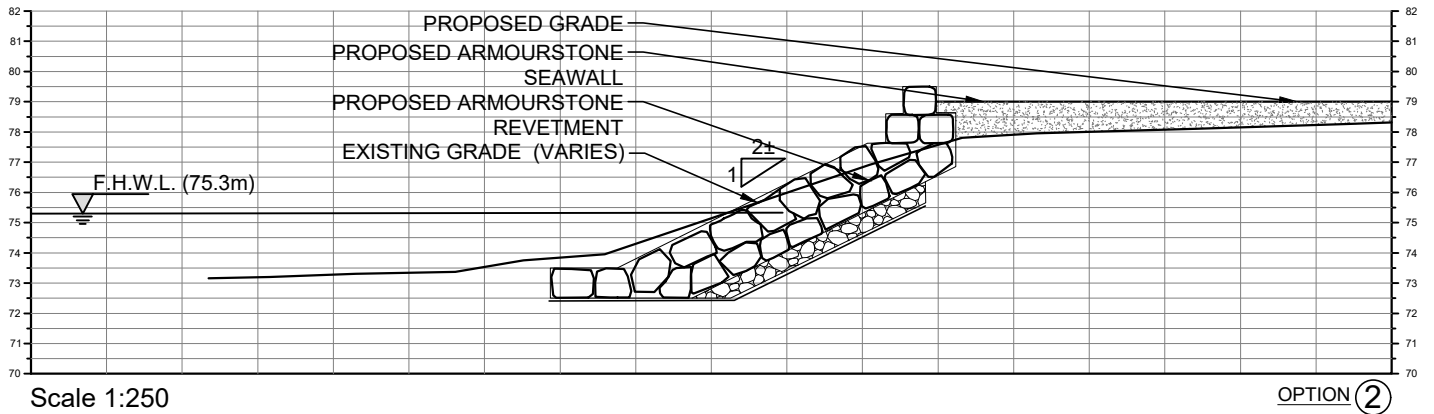
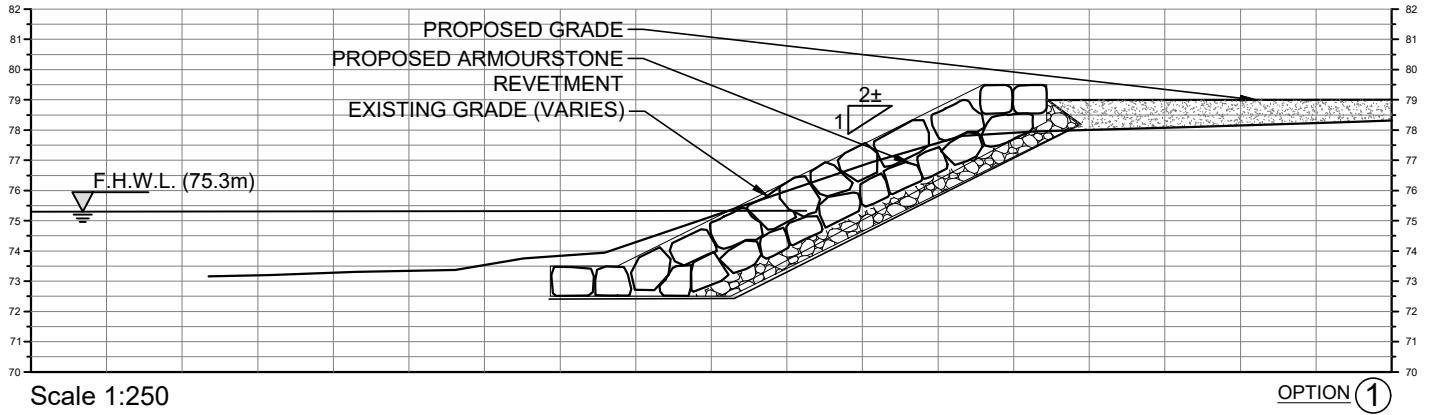


Photo 1: View of Revetment looking West



SHOREPLAN

Photo 2: View of Revetment looking East



Photo 3: View of Armour Stone Wall along Creek



SHOREPLAN

Photo 4: View of Tableland



Photo 5: View of Shoreline to the East



SHOREPLAN

Photo 6: View of Intersection of Victoria and Verity



Photo 7: View of Shoreline Protection to the West



SHOREPLAN