

September 15, 2023

Mr. Sam Kerzner
Sophies Landing Grimsby Inc.
3310-88 Bloor St. E.
Toronto, Ontario, M4W 3G9

Dear Mr. Kerzner,

RE: Shoreline Protection Design
165 Lake St., Grimsby, Ontario
Our file 21-3490

This letter and the attached drawings provide a very brief introduction to the proposed shore protection design at the above noted property. This report is a follow up to our shoreline hazard assessment prepared on September 15, 2023.

The drawings attached to this report provide a preliminary design of the shore protection design noted in the September 15, 2023, letter in the Development Setback section of the report. The shoreline protection structure consists of an armour stone revetment. It is designed to provide a 50-year design life. It is proposed to be constructed along the entire shoreline of the site, including both unprotected portions of the site and replacing protection works that exist along portions of the site. It will tie directly to existing protection works that exist on the adjacent properties.

The proposed protection works accommodate the expected bank swallow habitat replacement. Bank swallow habitat has been identified along approximately 40 meters of the shoreline starting approximately 30 meters from the west property boundary and extending east. The shoreline bank that provides the habitat will be protected with an armour stone revetment and the bank above the revetment, where the nests are located, will be left unaltered with the nests intact. However, over time, the upper bank will adjust through gradual surface erosion and the functionality of the swallow nest habitat will be gradually reduced. The upper bank above the revetment is expected to revegetate and become functionally stable at a slope between 1.3h:1.0v to 1.5h:1.0v. over a period of several decades.

Replacement habitat will be created along approximately 44 meters of the bank west of the existing habitat. A steel sheet pile wall will be constructed above

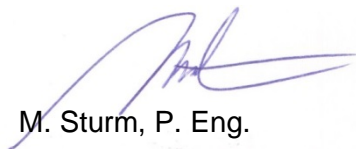
the proposed armour stone revetment and nest openings will be provided in the new wall. The toe of the steel sheet pile wall will be established behind the proposed armour stone revetment and the upper part of the wall anchored with a buried anchor wall. The crest of the wall will be set at approximately 82.0m to accommodate construction practicality, and the existing site behind the wall will be graded to that elevation. The east and west ends of the steel sheet pile wall will be terminated with short wing walls. The steel sheet pile wall may include a concrete surface. The functionality of this habitat will be described by others.

The protection works will also accommodate a storm sewer outfall. The proposed location of the outfall is approximately 9 meters from the west property boundary. The invert elevation of the outfall is proposed at approximately 76.5 m. An armour stone channel will be created within the revetment to guide the flow onto the beach.

The proposed preliminary design is illustrated on the attached drawings 21-3490-01 and 02. The drawings illustrate typical sections of the revetment, the bank swallow nesting habitat wall and the outfall.

We trust that these comments will assist you as you develop your plans for this property. Please do not hesitate to call us if you have any questions regarding this letter.

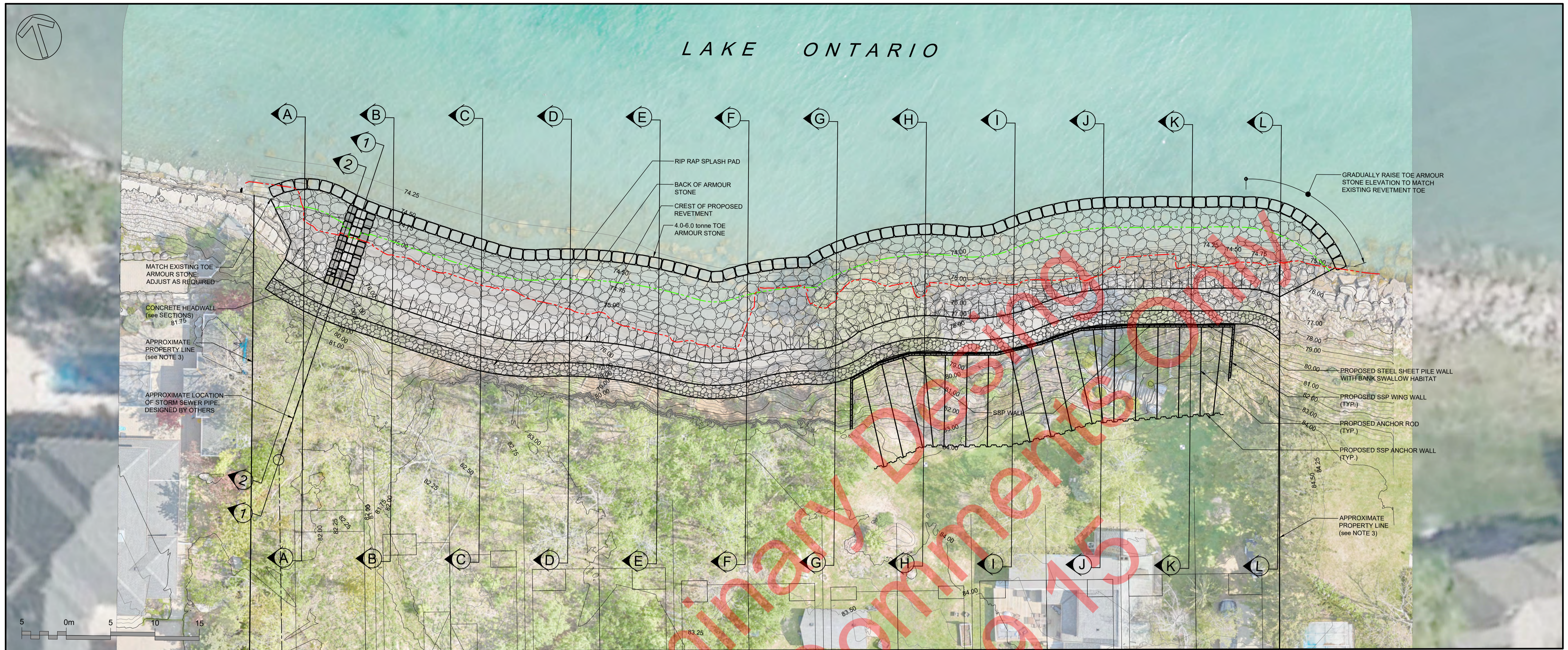
Yours truly,
Shoreplan Engineering Limited



M. Sturm, P. Eng.



LAKE ONTARIO



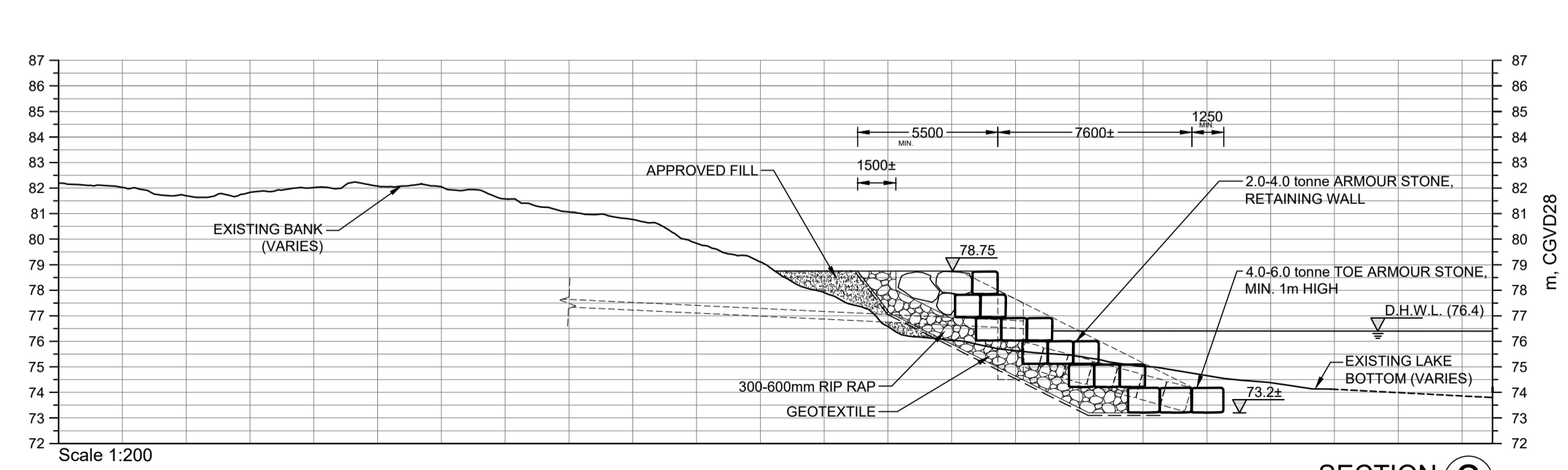
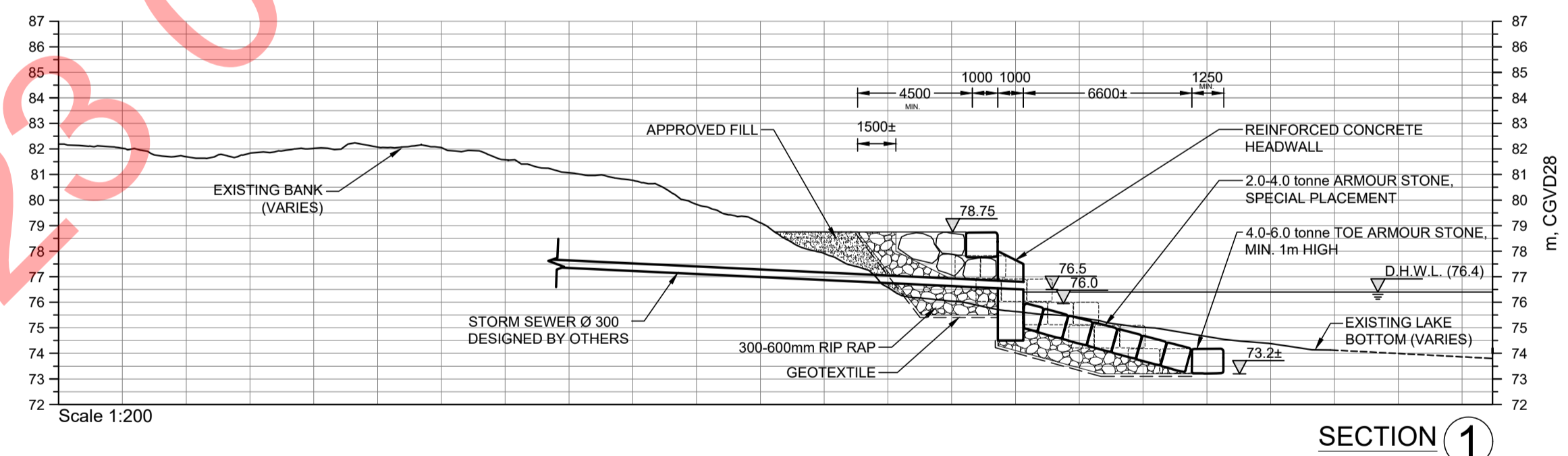
SCALE 1:250 DETAILED SITE PLAN



SCALE 1:750 SITE PLAN

SPECIFICATIONS:

1. Work includes preparation of the access to the site, demolition and/or removal of items indicated on the contract drawing or required to complete the specified work, tree and brush removal required to complete the work, removal of existing structures and concrete rubble and miscellaneous other site preparation tasks required to complete the specified works, disposal of the derived or excess material in a legal manner, and the restoration of the sites and access routes to existing or better conditions. Erect any silt curtains or fences as required by conditions of approvals and comply with any and all conditions outlined on permits.
2. Riprap stone shall be clean, hard, dense, angular, quarry stone, free from seams, cracks or other structural defects with relative density 2.6, +/- 0.15. Riprap material shall be rock, ranging in size from 300 to 600 mm. Minimum 50% of the total volume shall contain stone of individual size greater than 450 mm and not more than 10% of volume shall contain stone less than 400 mm in size. Specified dimensions represent the smallest dimension of individual rock pieces. In case of a dispute regarding the size of material the contractor shall provide scientific proof of size at his expense. Place riprap to lines and grades indicated on the contract drawings.
3. Armour stone shall be clean, hard, durable, quarry stone, free from cracks, seam or other defects which may impair durability. Individual stones in masses varying as indicated on the contract drawings. Least dimension of each stone not less than 2/3 of greatest dimension. Relative density of 2.6, +/- 0.15. The stones shall have roughly parallel top and bottom surfaces. The stones shall be angular or semi-angular and roughly cubical in shape. Armour stone placed on steps, cap of revetment, or against existing structures will need to be cut, chiseled, or otherwise shaped to provide a tight fit and stable placement. Use of existing armour stones is permitted where armour stones meet specified requirements.
4. The filter fabric material (geotextile) shall be non-woven pervious, inert and durable. The material shall be Terrafix 800R or approved equal. Individual filter fabric sheets shall reach from the top of the revetment to the toe. Provide a minimum of 800 mm overlap width in the across the slope direction when placing a new section of filter fabric adjacent to a previously placed section. Repair any damaged filter fabric by placing second layer, overlaying the damaged area by not less than 1500 mm in all directions beyond the damaged area. Use geotextile under rip rap whenever fine grained soils are encountered.
5. Top soil as per OPSS 802. Sod as per OPSS 803. Seed shall be Crown Vetch mix as per OPSS 803



GENERAL NOTES

1. All dimensions in millimeters unless indicated otherwise.
2. All elevations in meters, CGVD28.
3. Legal and topographic survey completed by J.D. Barnes on April 28, 2022. Bathymetric survey completed by AG UAV on May 15, 2023. Owner to establish property lines prior to start of construction.
4. No in-water work shall be carried out during periods noted on permits.
5. All equipment shall be refueled at least 30 meters from the lake.
6. Contractor shall provide 48 hours notice of start of construction to all approving agencies.
7. Construction access to be restored to existing conditions or better upon completion of protection works.
8. Contractor shall restore the nearshore profile with existing sand, gravel, and cobble material upon placement of the toe armour stones.

No.	Date	Revisions	By
2	2023/08/17	Issued for Review Only	M.S.
1	2023/06/07	Issued for Discussion Only	M.S.

SHOREPLAN
Shoreplan Engineering Limited
20 Holly Street, Suite 202
Toronto, Ontario
M4S 3B1 Tel. (416) 487-4756

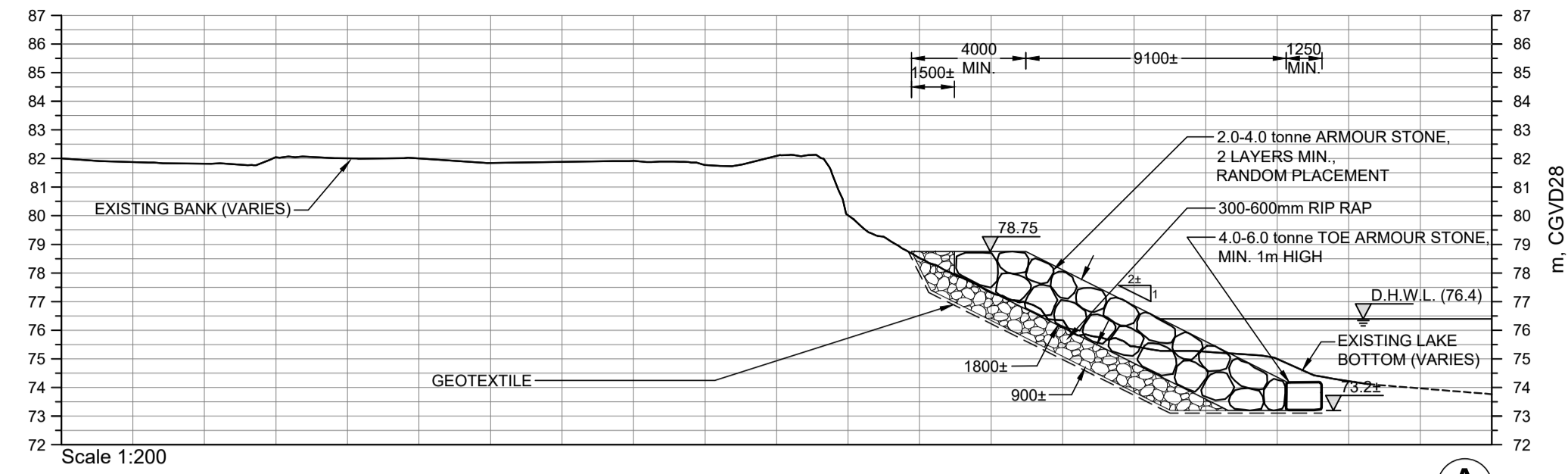
Project Title
**SOPHIE'S LANDING
165 LAKE STREET
GRIMSBY, ONTARIO
SHORELINE PROTECTION**

Drawing Title
**PRELIMINARY SITE PLANS,
SECTION & SPECIFICATIONS**

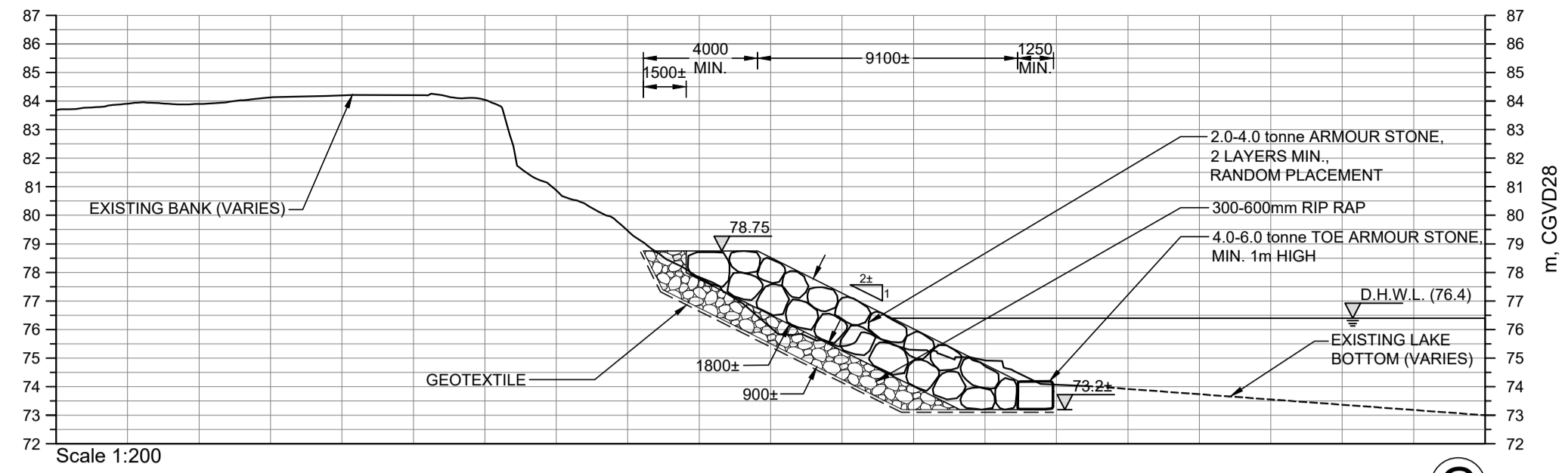
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Date of Issue
Scale
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GENERAL NOTES

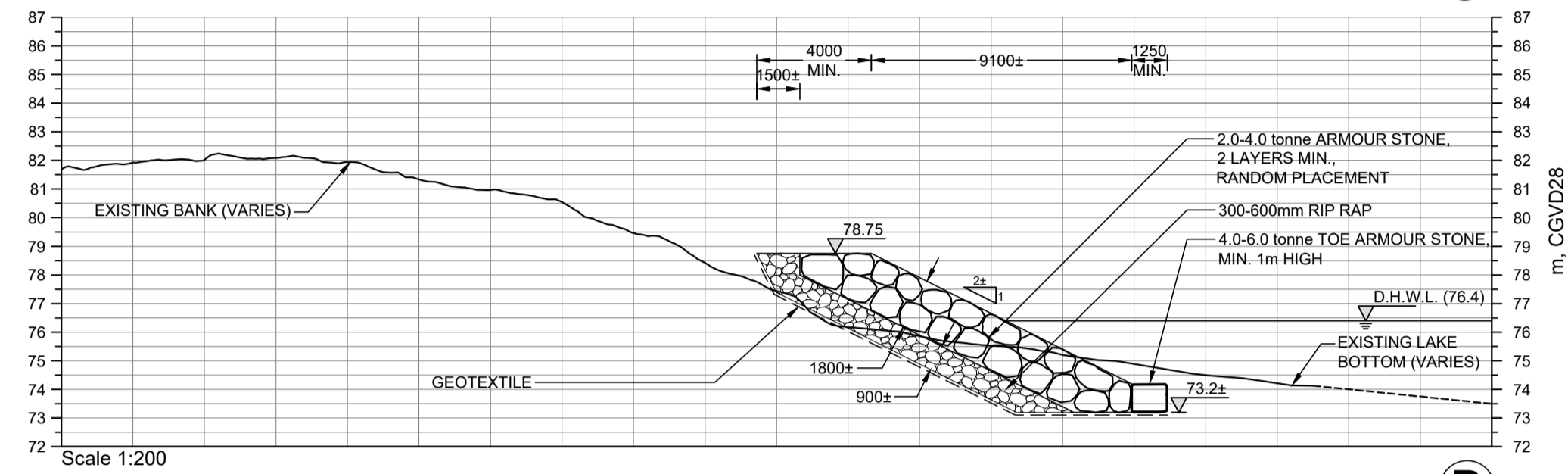
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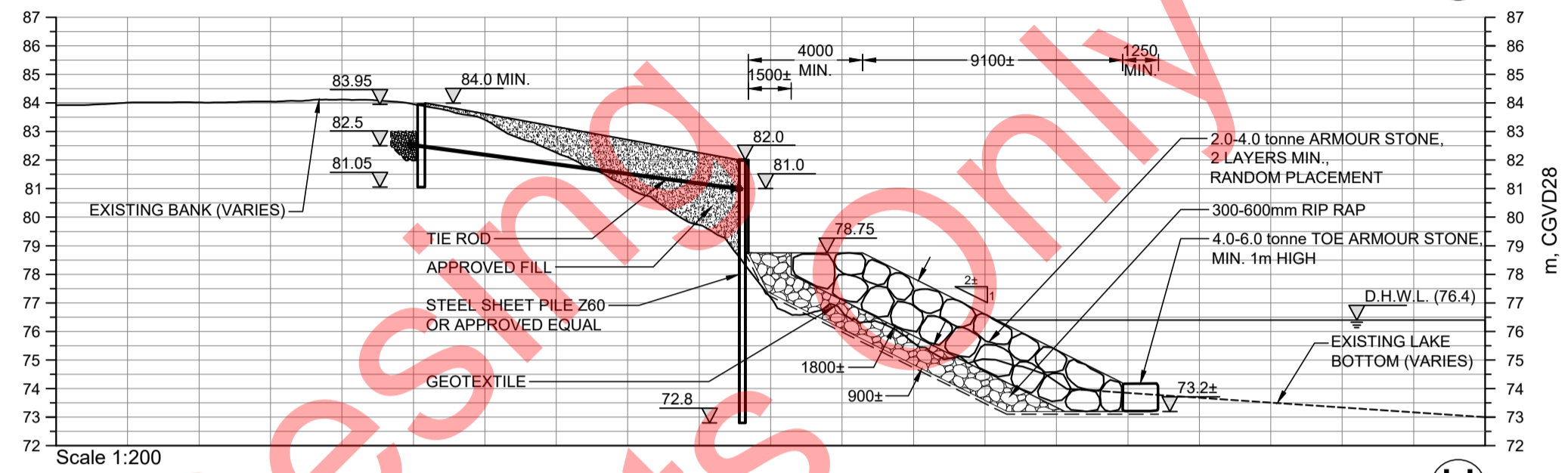
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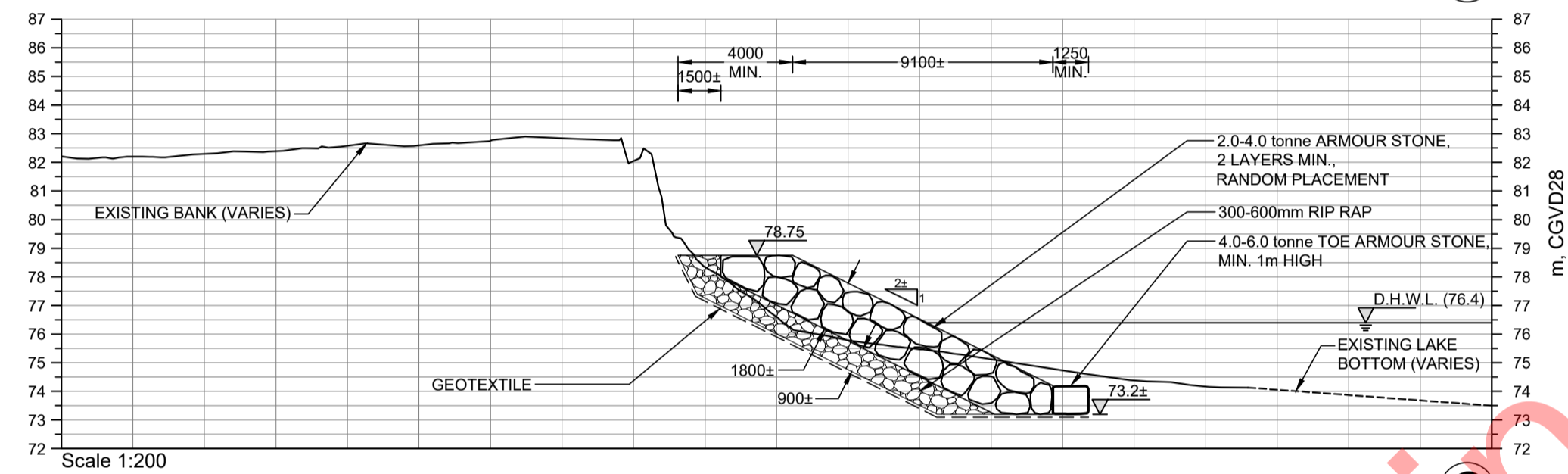
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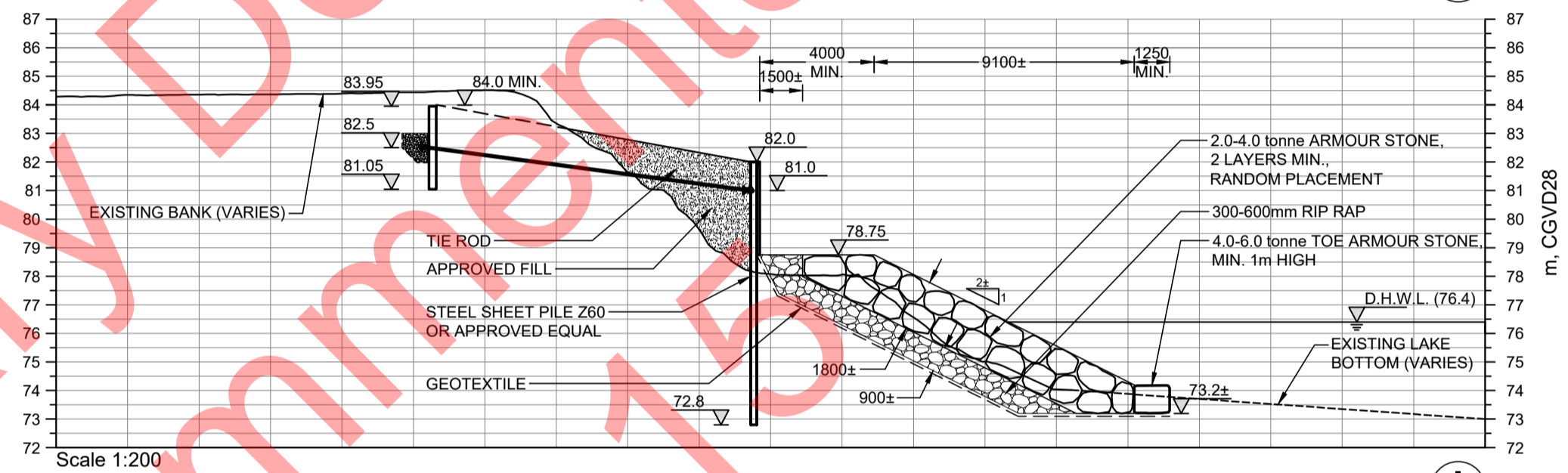
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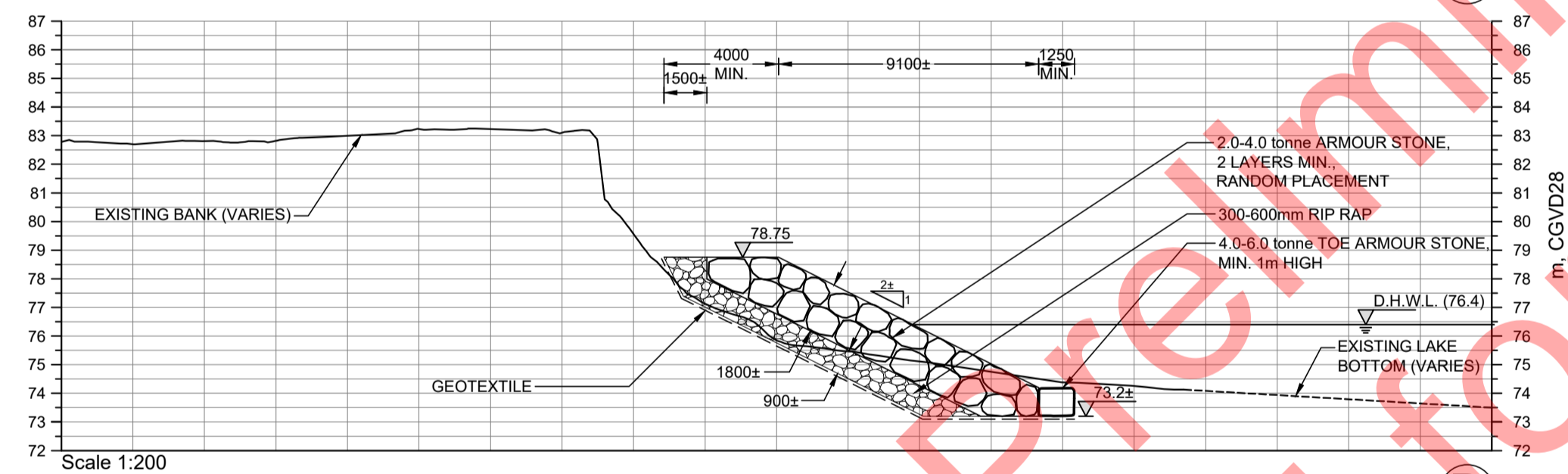
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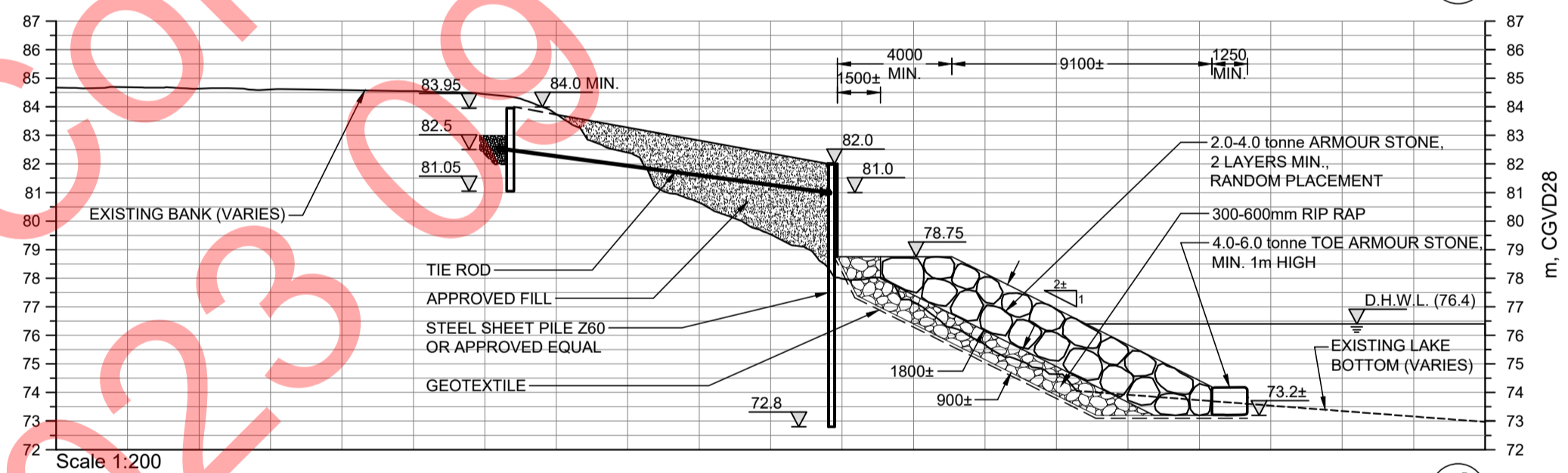
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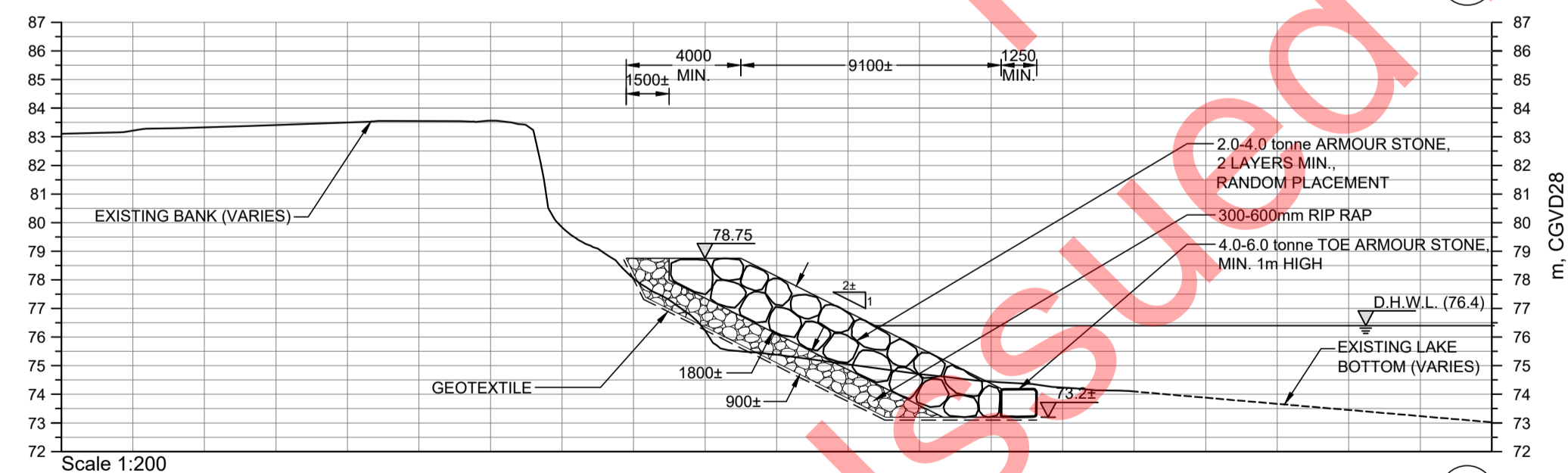
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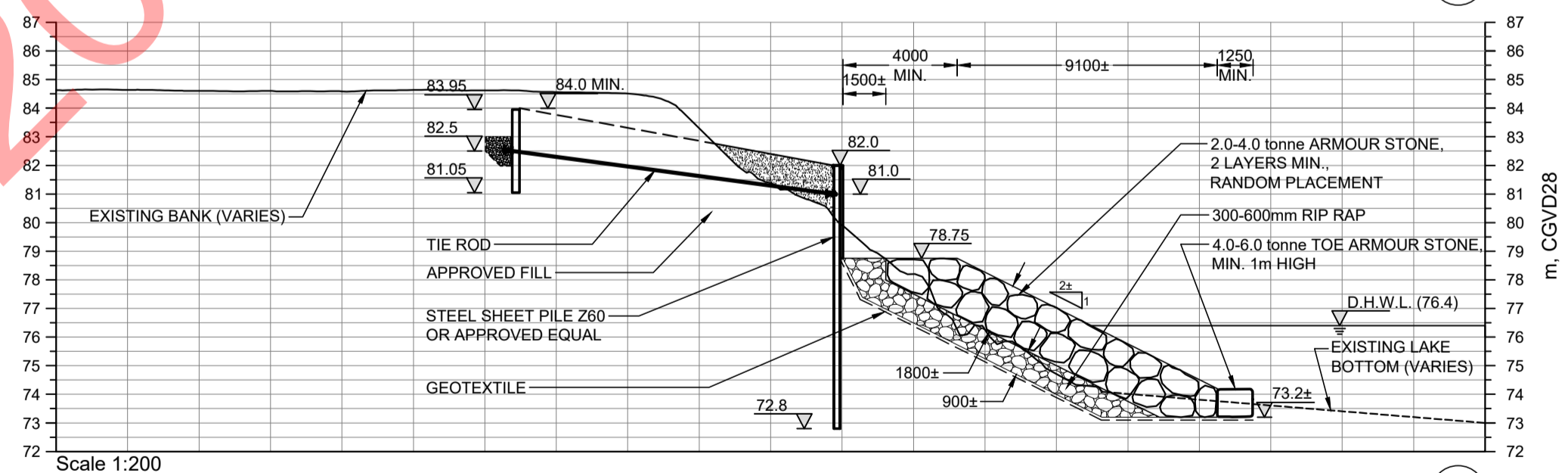
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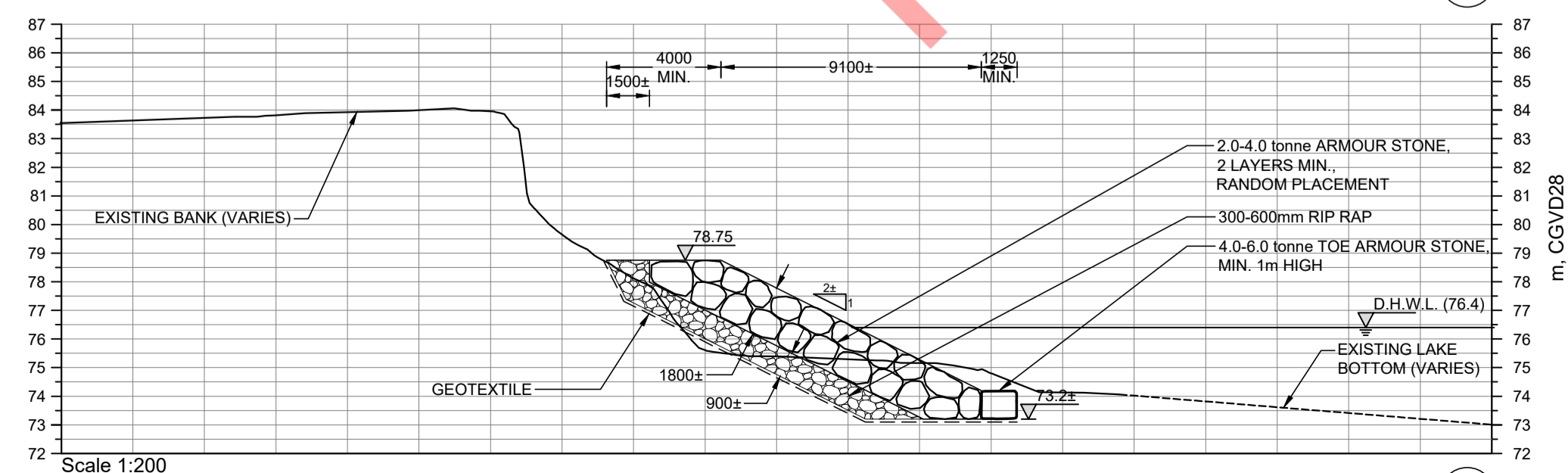
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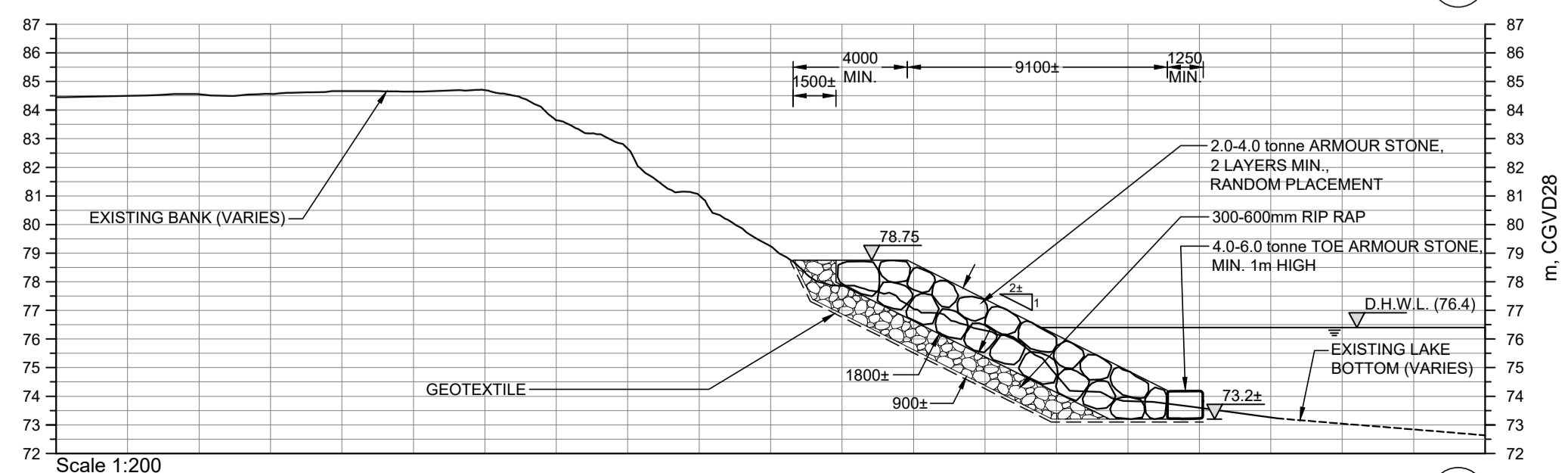
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Project Title
**SOPHIE'S LANDING
165 LAKE STREET
GRIMSBY, ONTARIO
SHORELINE PROTECTION**

Drawing Title
**PRELIMINARY SECTIONS OF
REVTMENT AND SSP WALL WITH
BANK SWALLOW HABITAT**

Drawn By P.M.
Checked By M.S.
Date of Issue
Scale
AS SHOWN