

**MUNICIPAL PLANNING COMMISSION AGENDA
SUMMER VILLAGE OF JARVIS BAY
SUMMER VILLAGES ADMINISTRATION OFFICE
AUGUST 2, 2023 @ 10:00 A.M.**

A. CALL TO ORDER

B. ADOPTION OF AGENDA

C. DEVELOPMENT ITEMS

1) 158 Jarvis Bay Drive

D. ADJOURNMENT

Summer Village of Jarvis Bay – Municipal Planning Commission

August 2, 2023

Agenda Item

158 Jarvis Bay Drive (Lot 5, Block 5, Plan 7278AA)

Development Permit Application

Background:

An application was submitted on behalf of the registered homeowner of 158 Jarvis Bay Drive (Lot 5, Block 5, Plan 7278AA), in the village of Jarvis Bay for lakeside retaining walls and stairs. This property is located in the R District (Residential District). There is currently a demolition development permit for this property, and the structures on this property are in the process of being demolished.

Along with this report, the applicant has included a site plan and cross section showing the proposed placement of the tiered retaining walls, the new stairs, new vegetation, and existing and proposed grades. The proposed walls measure 4ft. tall, 5ft tall, and 20ft. apart. The site plan and cross section include a minimum 1m no mow zone as well as grass and vegetated plantings along the top retaining wall and between properties. The new stairs are proposed to be a precast rock as shown in the picture provided, to drop down from the top of each retaining wall. A minimum of 20 new plantings are to be planted.

A geotechnical report was provided with the application that is based on the proposed retaining wall design and was to verify the stability of the site with the construction of the new retaining walls. Under “normal” groundwater and slope conditions with the proposed walls the analysis confirms a long-term factor of safety of 2.4, the existing slope with the new retaining walls are deemed stable and exceeds the required 1.5 factor of safety. The stability assessment for high ground water tables revealed a long-term factor of safety of 2.38 also exceeding the minimum required FS 1.5.

Discussion:

This application is before MPC for the following reason:

- Land Use Bylaw, Part Three 4.4 (f) Retaining walls greater than 1m (3.28ft.) in height above any adjoining grade requires a development permit. The proposed walls being 1.21m (4ft.) and 1.67m (5.6ft) require variances, therefore the decision must come from the Municipal Planning Commission.

July 24, 2023

- Land Use Bylaw, Part Three 4(5) The following standard of landscaping shall be required for all areas of a parcel not covered by buildings, non-permeable driveways, storage and display areas:

....

b. The retention in their natural state of:

....

iv. Land with slope areas with a gradient of fifteen (15) percent or greater.

Therefore, a variance is required and the decision must come from the Municipal Planning Commission.

Application Review:

In administrations opinion the retaining walls are not required to stabilize the bank and the geotechnical report is not stating that the bank is failing and requires the work to take place. While it is an understanding the retaining walls will improve the factor of safety, it does not appear the development is necessary. Administration supports as much new vegetation as possible being planted in order to reduce any potential bank erosion or sediment loss. Variances shall be considered only where warranted by the merits of the proposed development and in response to irregular parcel lines, parcel shapes or site characteristics which create difficulties in siting structures within the required setback or in meeting the usual bylaw requirements.

Conditions:

If approved, Administration would recommend the following conditions:

- All recommendations in the geotechnical report to be followed and construction inspections to be completed by the engineer.
- Engineered drawings to be provided for the construction of the walls.
- Planting of shrubs and trees to be done according to the landscaping plan. The no mow zone shall be a buffer strip of vegetation that includes native plantings that let aquatic vegetation grow to maintain a stable natural state, a no mow zone allows native plants to seed and reestablish.
- The payment of a \$3,000.00 completions deposit to ensure all conditions of this development permit have been met, including the completion of building construction within a one-year period, landscaping completed within two years, and any or all road damage repaired.

Authorities:

The Municipal Planning Commission may approve an application for Development Permit even though the proposed development does not comply with the regulations of this bylaw or if the development is to be a rebuilding, an enlargement, an addition, or a

July 24, 2023

structural alteration of a non-conforming building if, in the opinion of the Municipal Planning Commission;

- a. The proposed development would not:
 - i. Unduly interfere with the amenities of the neighbourhood; or
 - ii. Materially interfere with or affect the use, enjoyment or value of neighbouring parcels of land; and
- b. The proposed development conforms to the use prescribed for that land or building in this bylaw.

In approving an application for development pursuant to Sections 4.7.2.a and 4.7.2.b, the Municipal Planning Commission shall adhere to the following:

- a. A variance shall be considered only where warranted by the merits of the proposed development and in response to irregular parcel lines, parcel shapes or site characteristics which create difficulties in siting structures within the required setback or in meeting the usual bylaw requirements. Except as otherwise provided in this bylaw, there shall be no variance from the following:
 - i. Site coverage; and
 - ii. Building height.
- b. Where a variance is granted, the nature of the approved variance shall be specifically described in the Development Permit approval.
- c. Where the issuance of a Development Permit involves the exercise of any specified discretion of the Municipal Planning Commission to relax a regulation of a district or any other regulation of this bylaw, the Municipal Planning Commission shall not permit any additional variance from that regulation.

Decision:

In order to retain transparency of the Commission, Administration recommends one of the following:

1. Approve the application with or without conditions (*Section 642 of the MGA*), or
2. Deny the application stating reasons why (*Section 642(4) of the MGA*).

158 Jarvis Bay Dr. LOI

The owners of 158 Jarvis Bay Dr. wish to install a tiered retaining wall system to protect the shoreline from further erosion and to accommodate a steep grade change in the yard. Included in the application package are photos and sketches to help describe where the walls will be installed as well as the appearance. Phil Kwong of Smith Dow and Associates has also reviewed the site and the proposed design and has prepared a report to support the construction of the structures as proposed.

The lower wall will be constructed adjacent to the eroded bank as shown in the provided photos. The end result will be similar to the walls recently installed at 152 and 166 Jarvis Bay Dr. There is an elevation change that is difficult to maintain and hazardous for the recreational use of the yard. The upper wall will be installed along the existing elevation change on the property which is approximately 20' behind the proposed lower wall. Vegetation will be added above the upper wall to become a natural railing for safety. Care will be taken to preserve as much of the existing vegetation as possible to aid in the stabilization of the area and also provide privacy and a more natural appearance. The area between the two walls will be a grassed and vegetated surface. Precast faux rock steps will be used for access to the lakeshore to create a more natural look. A 1m no mow zone will be left to separate the private property and the lake.

Upon approval of the retaining walls stamped engineered drawings will be drawn up and provided to the village. Smith Dow and Associates will design the walls and inspect the construction.

SITE PLAN

SHOWING ELEVATIONS AND IMPROVEMENTS

WITHIN

LOT 5, BLOCK 5, PLAN 7278 AA

SUMMER VILLAGE OF JARVIS BAY, ALBERTA

DISCLAIMER ALBERTA FIRST CALL 1-800-242-3447
THIS PLAN REPRESENTS THE BEST INFORMATION AVAILABLE AT THE TIME OF SURVEY. COMPASS GEOMATICS LTD. AND ITS EMPLOYEES TAKE NO RESPONSIBILITY FOR THE LOCATION OF ANY UNDERGROUND PIPES, CONDUITS, OR FACILITIES, WHETHER SHOWN ON OR OMITTED FROM THIS PLAN. AN ADDITIONAL SEARCH FOR SPECIFIC BURIED FACILITIES USING ALL RESOURCES MUST BE PERFORMED JUST PRIOR TO CONSTRUCTION.



LEGEND

- Statutory Iron Post Found
- Iron Bar Found
- Calculated Point
- Reference Point
- Countersunk
- Fence Corner Post
- Found
- Mark
- Marker Post
- Statutory Iron Post
- Foundation
- Radial
- Fence Line shown thus:
- Power Line shown thus:
- Power Pole
- Anchor

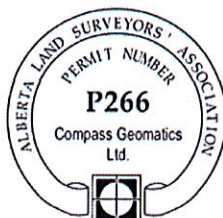
NOTES:

- Distances and elevations are in metres and decimals thereof.
- Elevations are processed through Precise Point Positioning.
- Bearings and Coordinates are UTM NAD83(CSRS) Zone 11; derived from GNSS Observations and processed through Precise Point Positioning.
- Combined Scale Factor: 0.999945
- Date of Survey: January 10th, 2023
- Title Information is based on title no. 172 333 703
- Property is Subject to: No registrations affecting the extent of title
- Date of title search: January 5th, 2023

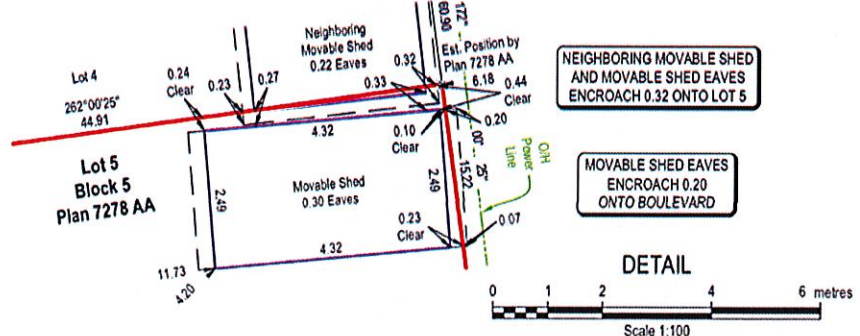
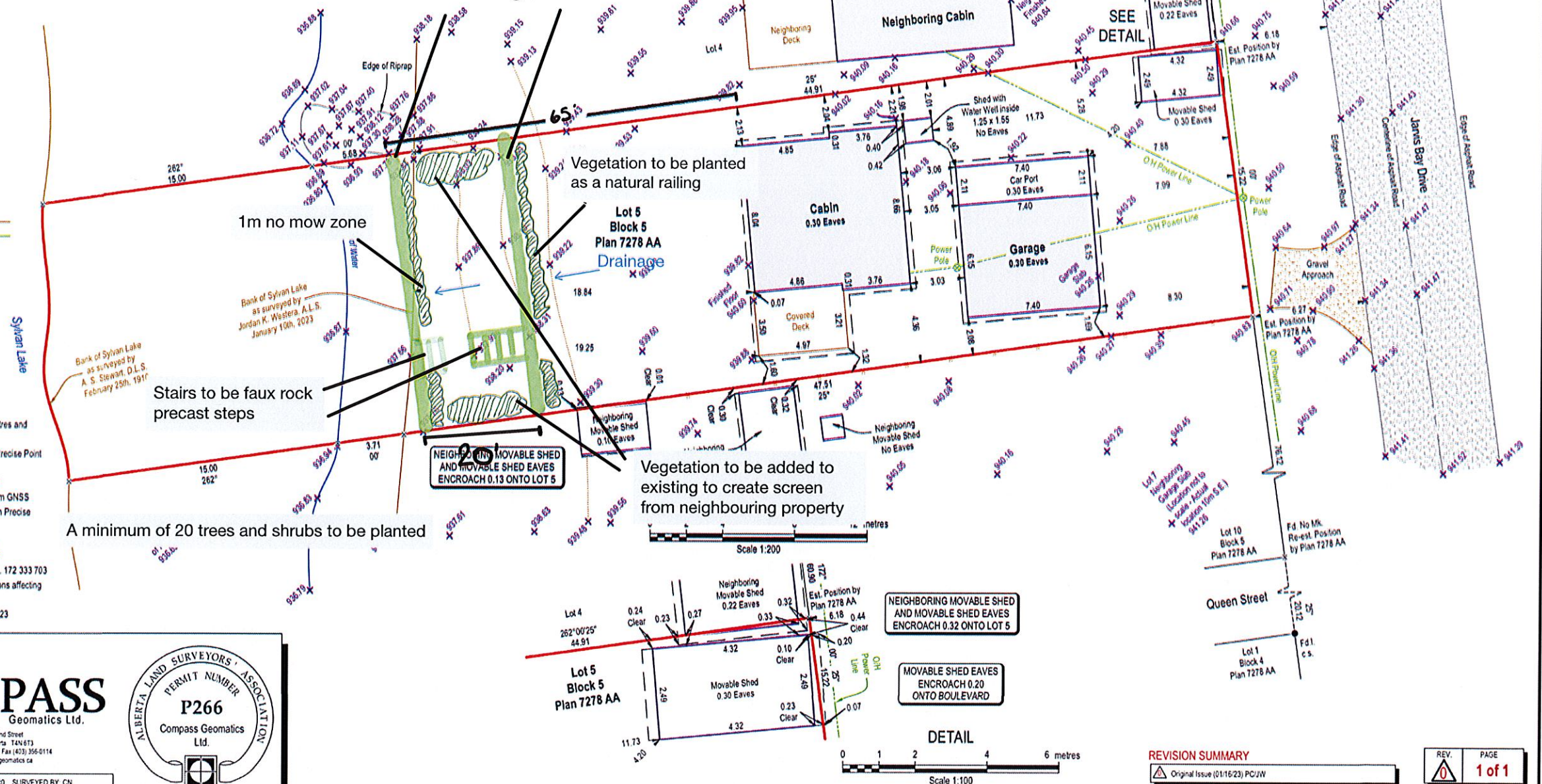
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Retaining walls

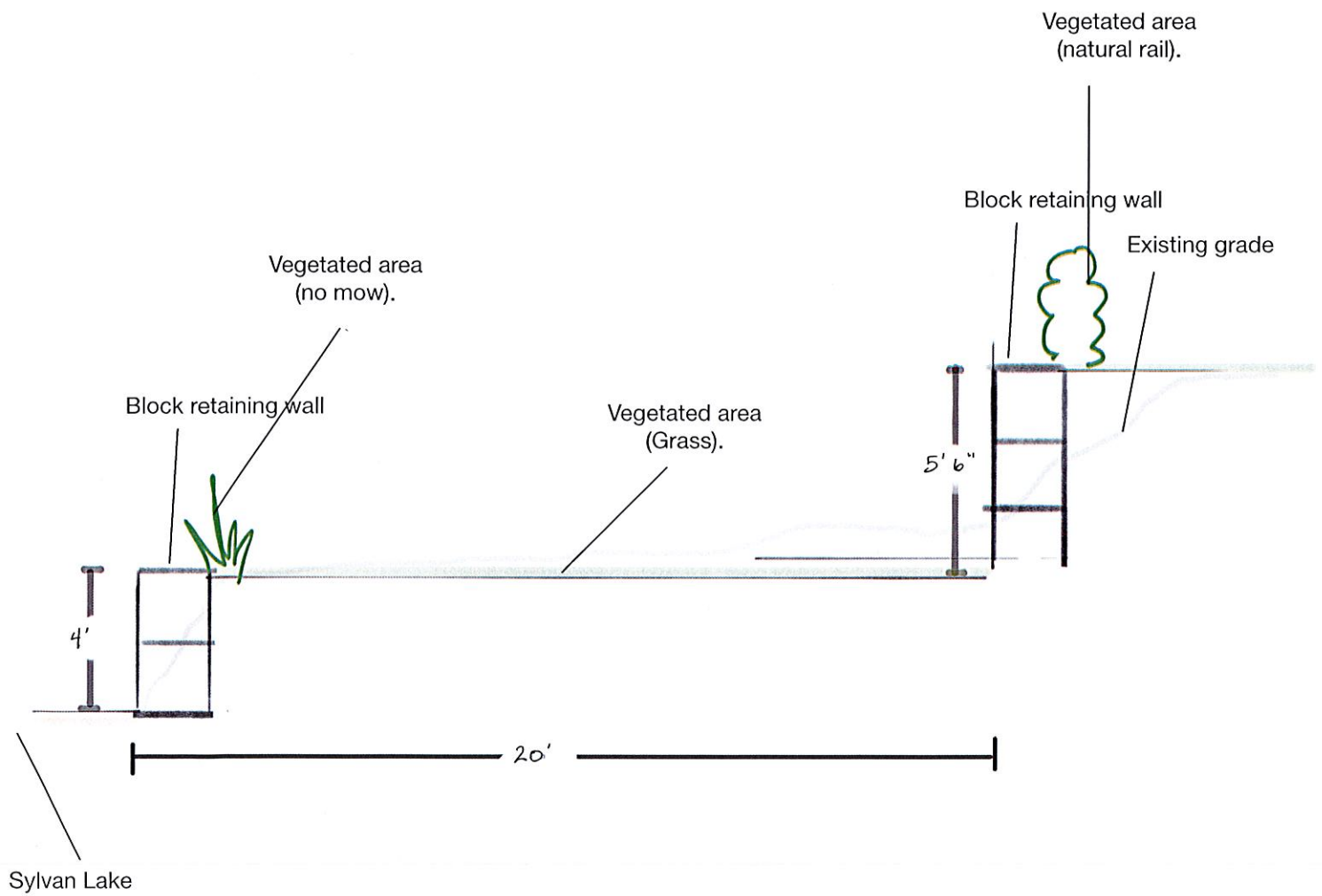


REVISION SUMMARY

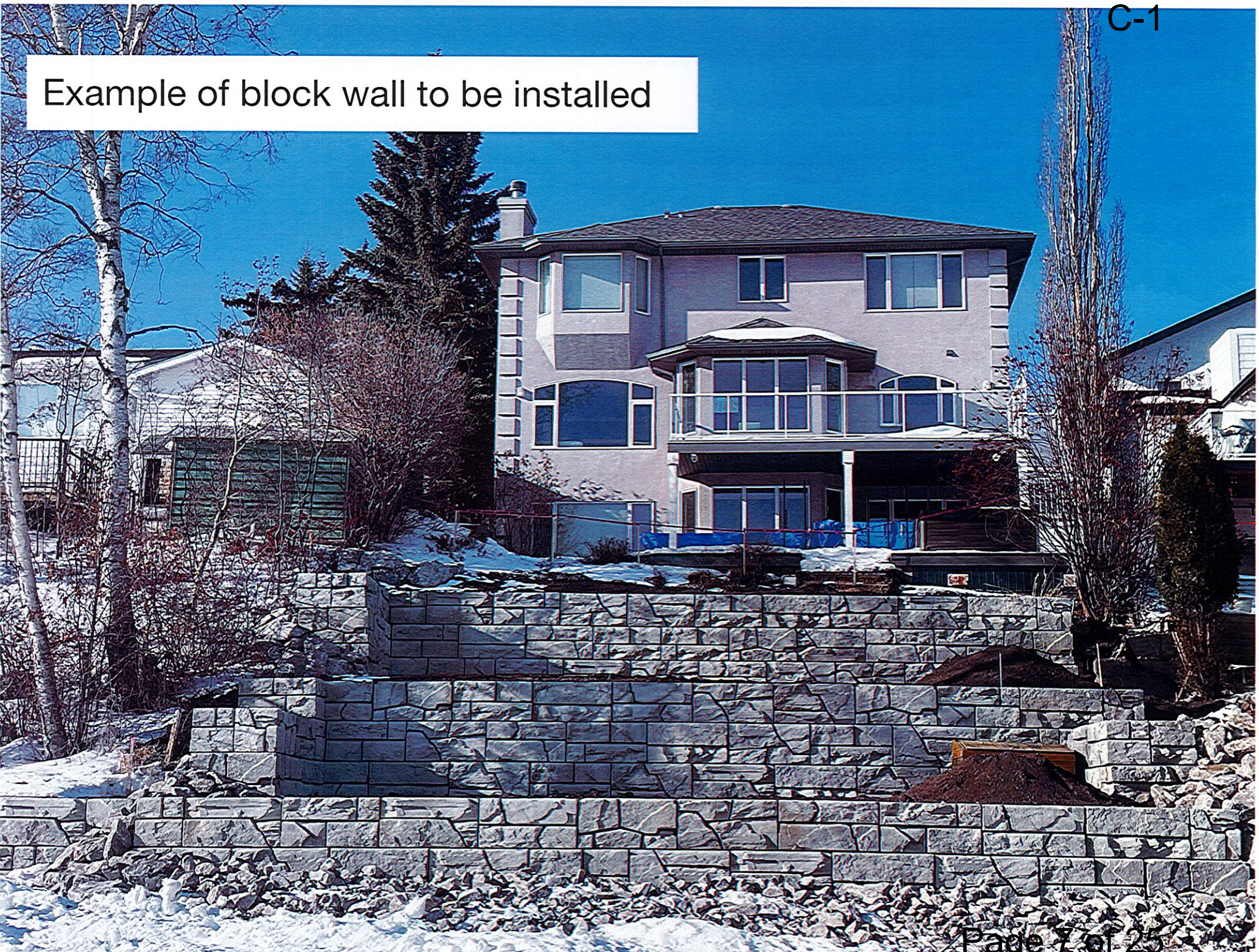
Original Issue (01/16/23) PCJ/W

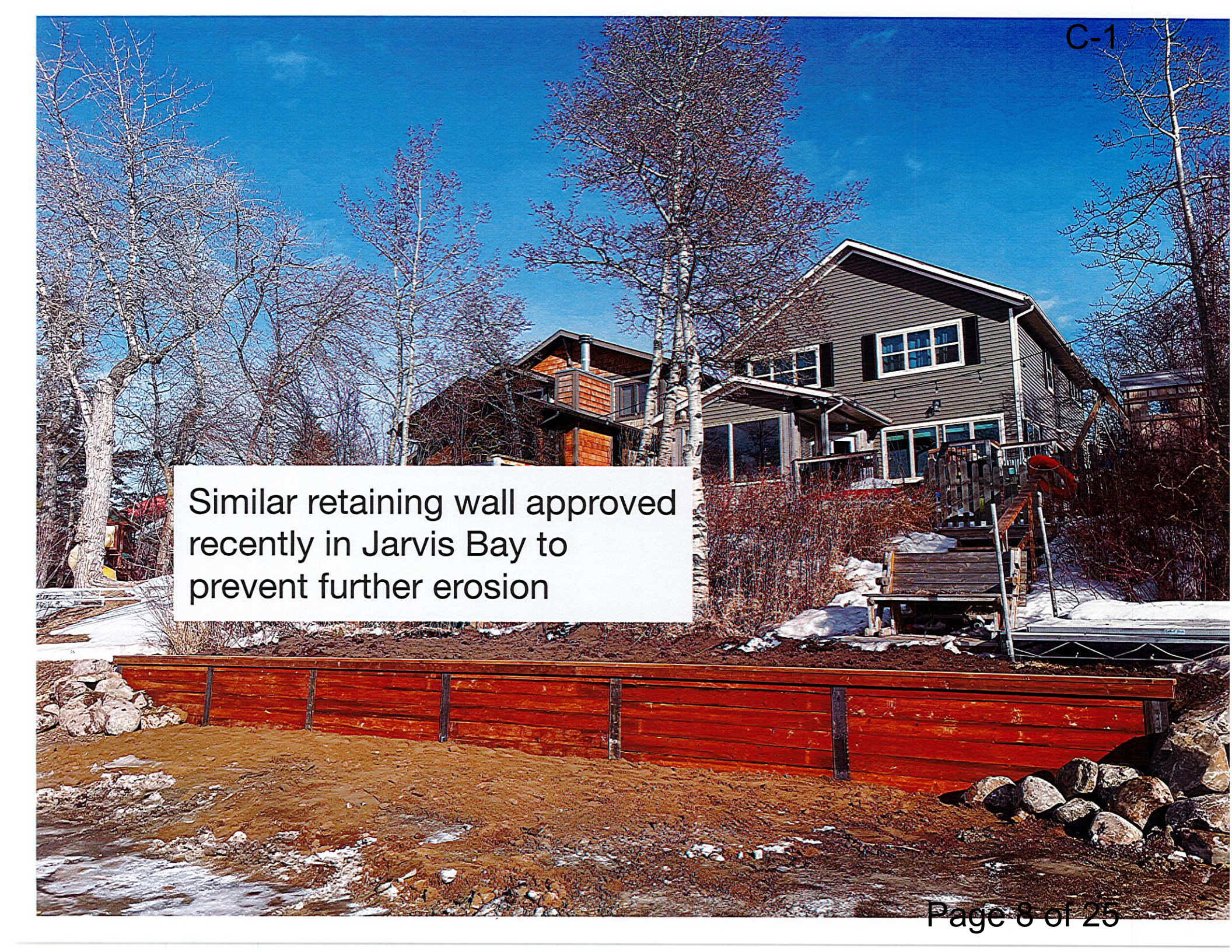
REV. PAGE
1 of 1

Wall cross section
158 Jarvis Bay Dr.



Example of block wall to be installed





Similar retaining wall approved recently in Jarvis Bay to prevent further erosion

Example of a vegetated railing



Precast stairs to be used



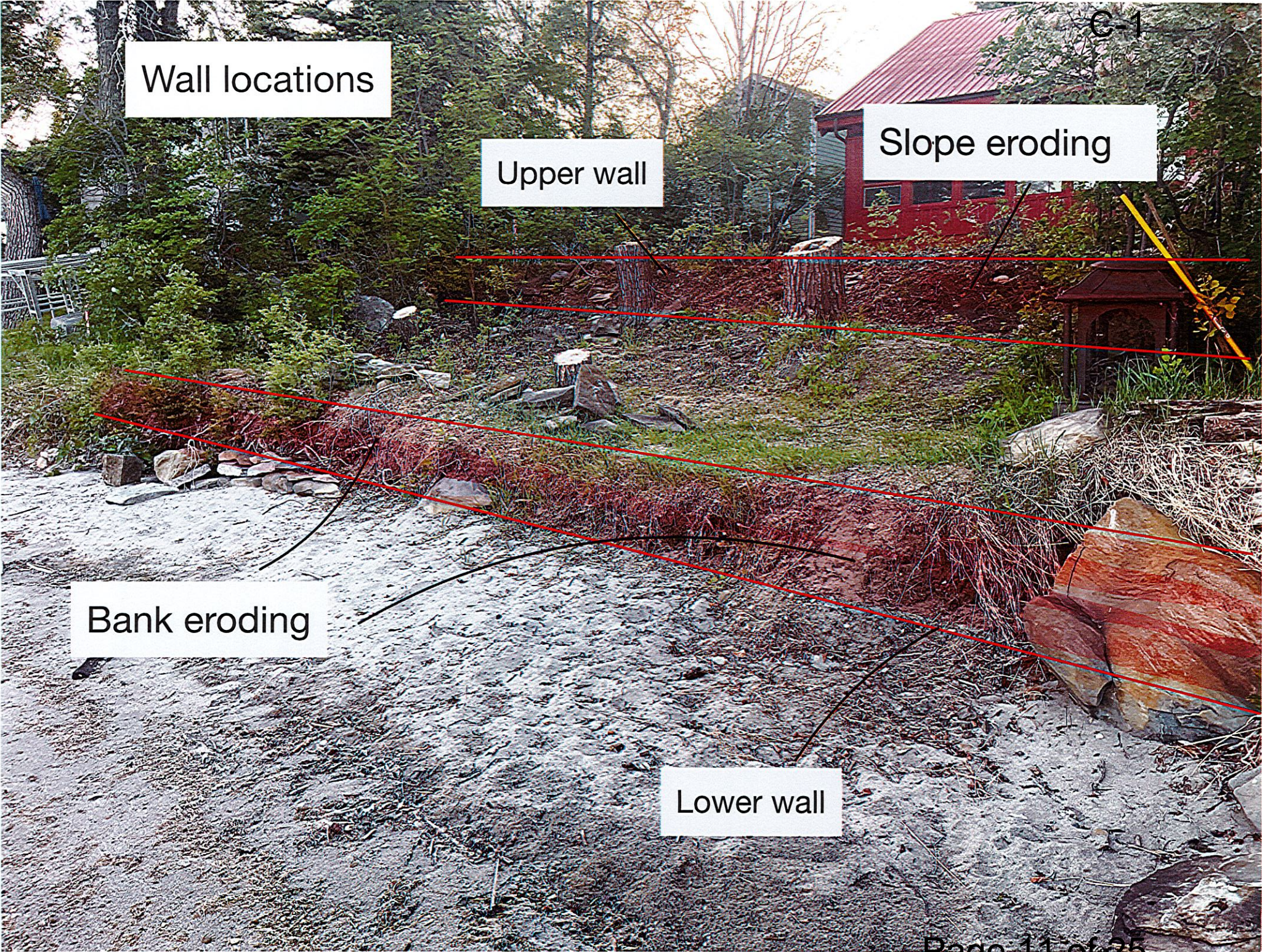
Wall locations

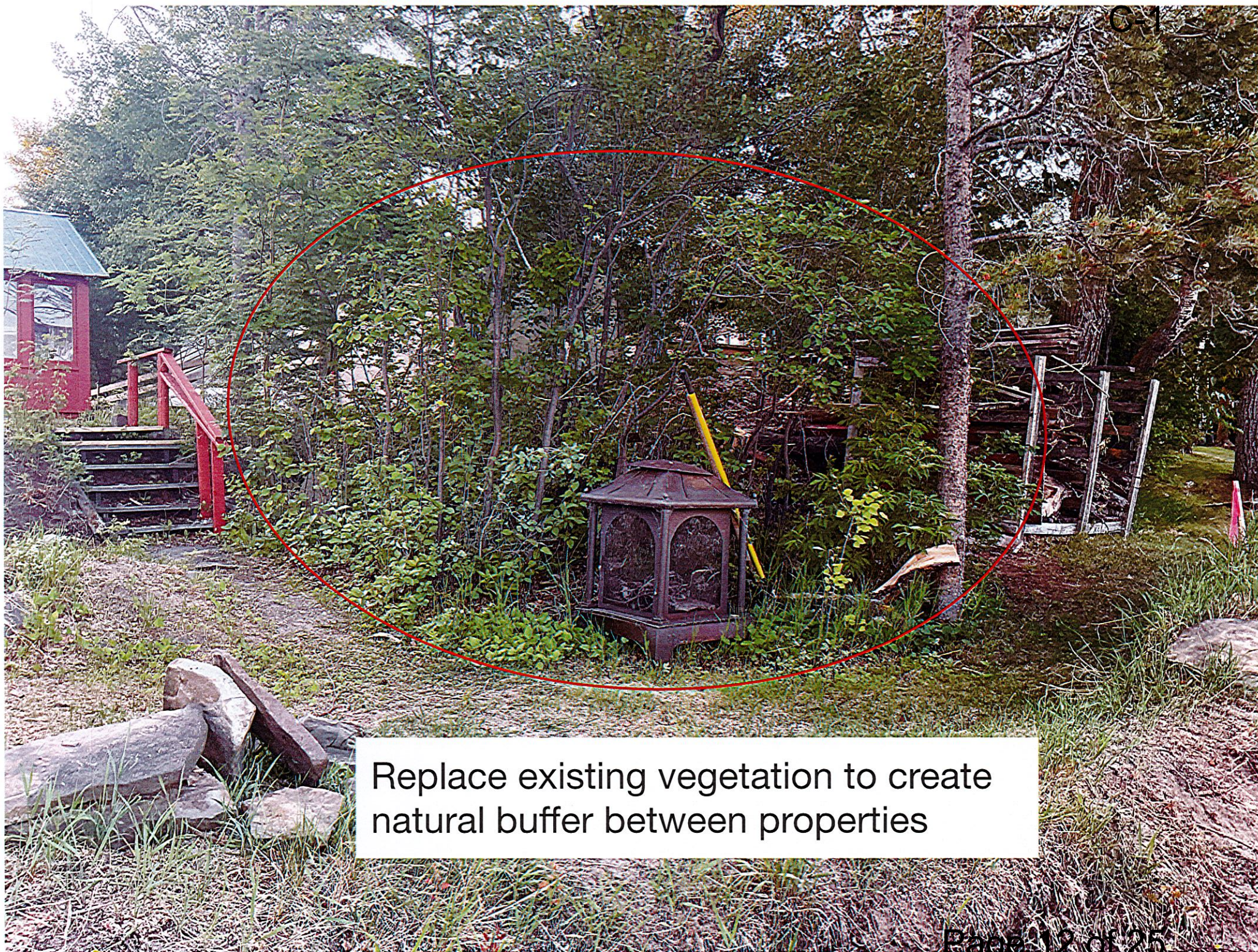
Upper wall

Slope eroding

Bank eroding

Lower wall





Replace existing vegetation to create natural buffer between properties

Replace existing vegetation to create
natural buffer between properties





SmithDow
& Associates Ltd.

- Foundation and Geotechnical Engineering
- Soil Investigation and Site Assessment
- Slope Stability Reports
- Environmental Audits
- Material Testing: Soil, Asphalt, and Concrete

**Proposed Retaining Structures
158 Jarvis Bay Drive
Jarvis Bay, Alberta**



File No: 158 Jarvis Bay Drive

June 29, 2023



SmithDow
& Associates Ltd.

- Foundation and Geotechnical Engineering
- Soil Investigation and Site Assessment
- Slope Stability Reports
- Environmental Audits
- Material Testing: Soil, Asphalt, and Concrete

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- Foundation and Geotechnical Engineering
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- Slope Stability Reports
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June 29, 2023

Lakeview Contracting
Sylvan Lake, Alberta

File No: 158 Jarvis Bay Drive

Attn: Brian Engel

Re: Proposed Retaining Structures
158 Jarvis Bay Drive
Jarvis Bay, Alberta

At your request, we attended a site meeting at the above referenced location on June 13, 2023. Present at this meeting was yourself and Philip with Smith Dow and Associates.

The scope of this report is to assess the cross-sections of the proposed retaining wall. As stated, no budget for soil sampling at the site. Slope stability modelling was completed by estimating soil parameters taken from other soil investigations in the area. No specific site survey or soil investigation was conducted at the time of this report. The modelling for this project is based on the proposed retaining structure design by Lakeview Contracting provided by yourself via email on June 13, 2023.

The intention of the meeting and report was to verify the stability of the site with the construction of new retaining structures near the lake. Environmental studies are beyond the scope of this report.

Summary

A) Stability

Field observation revealed the west facing slope appeared to have no apparent signs of slope movement within the subject property at the time of site meeting On June 13, 2023. Though groundwater or seepage was not directly noticed on the slope surface neighboring the building site, the potential of seepage or springs cannot be wholly discounted under all circumstances.

Slope stability analyses was carried out using the slope computer program to evaluate the stability of the existing slope profile with the construction of retaining structures near the lake. The slope stability analyses were to determine the factors of safety (FS) for various slip planes through compelling development features.

The slope factors of safety (FS) based on the Cross Section Retaining Walls per Lakeview Contracting's drawing were analyzed.

The following conservatively assumed soil parameters were used:

Soil Type	Unit Weight (kN/m ³)	Cohesive Strength (kPa)	Angle of Internal Friction (degree)
Fill Material	15	0	10
Silty Clay Till	20	5	25

The following design parameters were also considered.

Loading Conditions: 2.0 kPa - Pedestrian / snow load
4.8 kPa - Building slab surcharge load
90 kPa - Building footing surcharge load

Slope above walls: Horizontal

Slope below walls: Horizontal

Seismic coefficient: n/a

Groundwater: Groundwater was assumed to be drained away from the retaining wall.

Essentially, a factor of safety (FS) of less than 1 indicates that failure is expected. Given the possibility of soil variation, groundwater fluctuation, erosion and other factors, slopes with FS ranging between 1.0 and 1.3 are considered to be marginally stable. A "long term" stable slope to have a calculated FS of at least 1.5 is required for structures constructed at or near the slope.

On account of the present shallow slope configuration, existing vegetation and new Redi Rock retaining walls constructed near the edge of the lake, the stability of the slope cross-sectional profile provided by Lakeview Contracting were analyzed under the following conditions.

- a) Under “normal” groundwater and slope conditions while using the provided cross-sectional proposed retaining structure profile.

This first stage of the slope stability analysis confirms a long-term factor of safety (F.S.) of 2.416 for under normal groundwater conditions. This means the existing slope with the new construction of two retaining walls at 1.72 meter (5.5 feet) maximum height are deemed stable. The F.S. of 2.416 of the existing cross-sectional slope profile exceeds the minimum required FS of 1.5.

- b) The second stage of slope stability analysis was to take the conditions and cross-sectional analysis from the first stage and adding a simulated high groundwater level.

The second stage of the slope stability assessment for the simulated high ground water tables revealed a long-term factor of safety (FS) of 2.385 can still be achieved with these parameters for provided Lakeview Contracting’s retaining wall drawing. The F.S. of 2.385 also exceed the minimum required FS = 1.5.

The recommendations for soil compaction, the slope developments, site grading, subsurface drainage, and different stages of site inspections as required must also be adhered to for maintaining the stability of the slope during and after construction of the new retaining wall structures near the lake.

In order to maintain the stability of the slope, it is imperative the following should be adhered to:

- a) Specific details of the proposed stone retaining walls presented by the builder should be reviewed by our personnel.
- b) Check the recommended soil bearing strength can be achieved at the retaining wall footing grade by our personnel after excavation and prior to construction of the retaining wall structure.
- c) Test gravel compaction to ensure the 98% Standard Proctor Maximum Dry Density can be achieved.
- d) Proper drainage and site grading must be maintained to direct all water accordingly in order to maintain the stability of the slope.
- e) All other recommendations in this geotechnical report.

B) Retaining Wall Soil Bearing Strength

- 1) All topsoil / organic material must be removed from the construction area to expose the underlying native silty clay till deposit. Sandy soil or other questionable material encountered in the foundation of the retaining wall should be removed and replaced with low plastic clay compacted to 95% S.P.M.D.D. The exposed over-excavated area must be inspected and approved by our personnel.
- 2) All retaining walls should be directly supported by 300 mm thick compacted, 20 mm crushed gravel which in turn is supported by the firm to stiff native silty clay till.
- 3) The 300 mm thick gravel layer must be uniformly compacted to a minimum 98% Standard Proctor Maximum Dry Density. Soil compaction tests are required to confirm the gravel layer has achieved 98% Standard Proctor Maximum Dry Density (S.P.M.D.D.)
- 4) Shallow foundations founded on the compacted gravel layer overlying the firm to stiff native silty clay till soil may be designed based on the factored resistance or serviceability bearing resistance values given in the following table:

SOIL BEARING RESISTANCES

Soil Type	ULS (kPa)		SLS (kPa)
	Ultimate Resistance	Factored Resistance	
Native Silty Clay Till	200	100	80

The ultimate resistance values in this table are only based on semi-empirical data, therefore the factored resistance or serviceability bearing resistance should be used for the footing design. The “factored” resistance has been calculated by reducing the ultimate resistance values above by a geotechnical resistance factor of 0.5, in accordance with the building code.

- 5) Any organics, fill soil or deleterious material encountered within the shallow foundation must be completely removed to expose the underlying native silty clay till or bedrock. The exposed soil must be inspected and approved by our personnel in writing prior to gravel placement.
- 6) If construction is carried out during the winter, the foundation excavation must be protected against freezing of the subsoil at the footing grade. Under no circumstances shall concrete be placed on frozen soil.

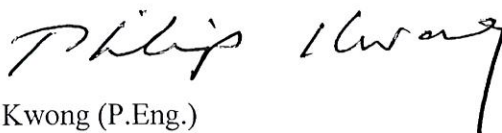
Conclusion

This report is based on the assumption of using soil parameters taken from other soil investigations in the area in conjunction with the site meeting on June 13, 2023. No specific site survey or soil investigation was conducted at the time of this report. Should conditions encountered during construction appear to be different from those used in this report, this office should be notified immediately so that we may reassess our recommendations on the basis of the new findings. Recommendations presented herein may not be valid if an adequate level of inspection is not provided during construction or if relevant building code requirements are not met.

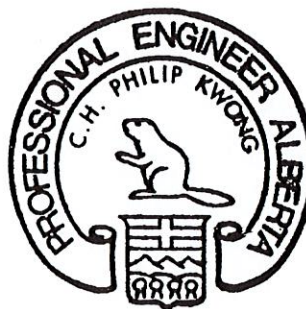
Soil conditions, by their nature, can be highly variable across a construction site. The placement of fill during and prior to construction activities on a site can contribute to variable near surface soil conditions. A contingency should be included in the construction budget to allow for the possibility of variations in soil conditions, which may result in modification of the design, and / or changes in construction procedures.

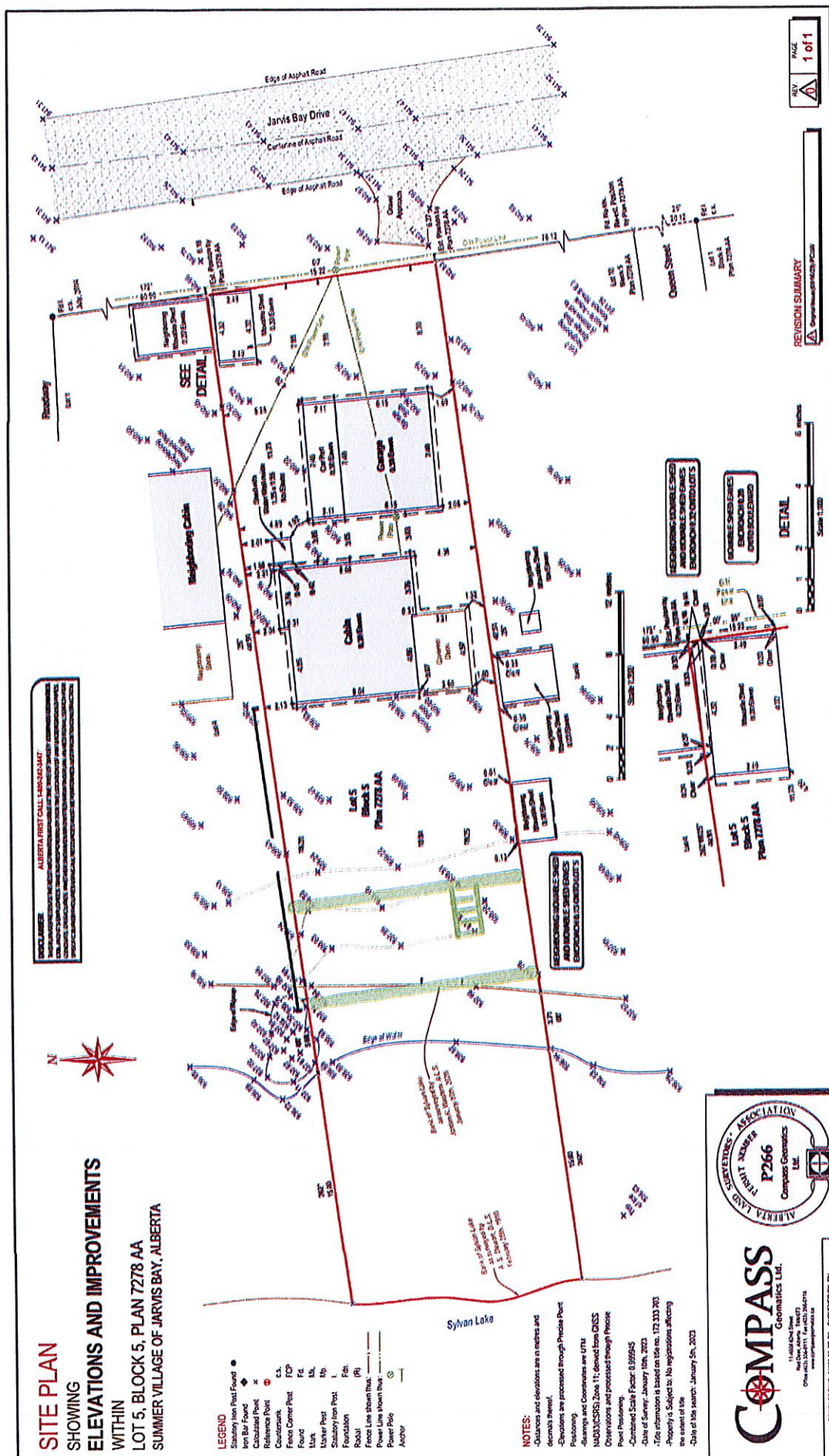
This report has been prepared for the exclusive use of Lakeview Contracting and their agents, for specific application to the proposed construction of retaining structures at 158 Jarvis Bay Drive Jarvis Bay, Alberta. Any use that a third party makes of this report, or any reliance or decisions based on this report, are the sole responsibility of those parties. It has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty is made, either expressed or implied.

Regards,
Smith Dow and Associates Ltd. (Red Deer)

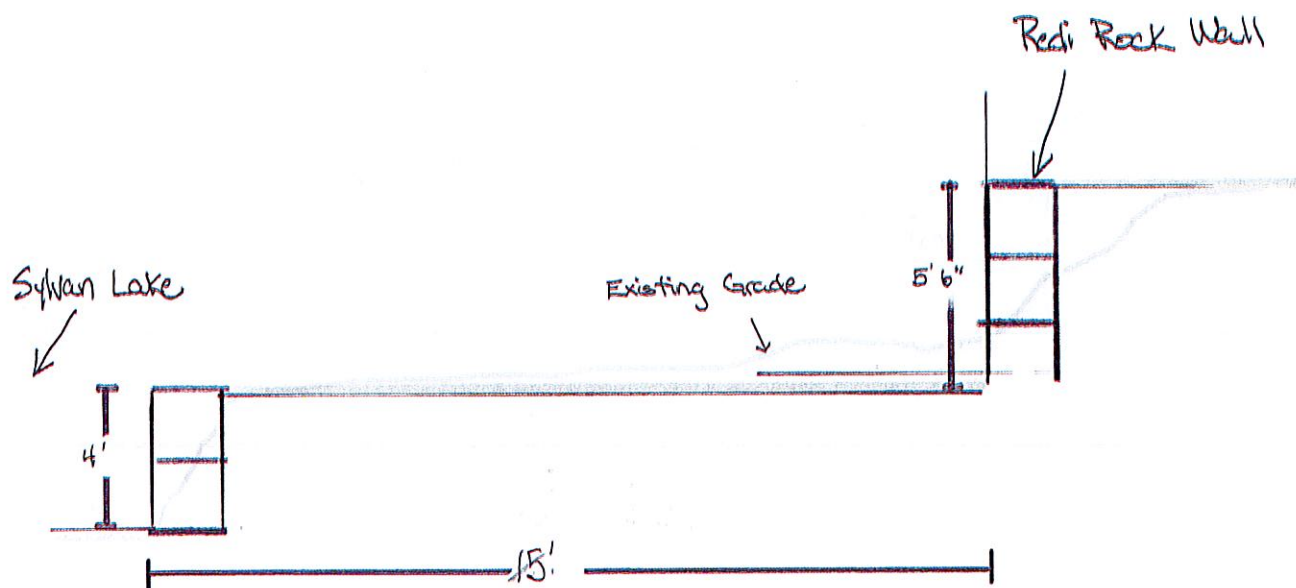


Philip Kwong (P.Eng.)



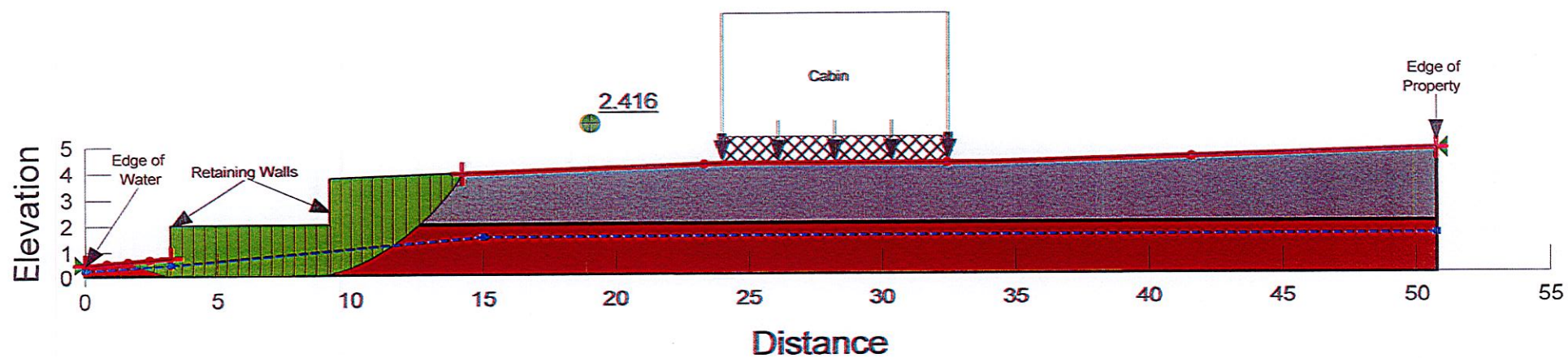


158 Jarvis Bay Dr.
Cross Section



RETAINING WALLS PROPOSED BY LAKEVIEW CONTRACTING,

158 Jarvis Bay Drive
S.V. of Jarvis Bay, Alberta



158 Jarvis Bay Drive
S.V. of Jarvis Bay, Alberta
(Simulated High Groundwater)

