

**MUNICIPAL PLANNING COMMISSION AGENDA
SUMMER VILLAGE OF NORGLNWOLD
SUMMER VILLAGES ADMINISTRATION OFFICE
JANUARY 29, 2020 @ 8:30 A.M.**

- A. CALL TO ORDER**
- B. ADOPTION OF AGENDA**
- C. DEVELOPMENT ITEMS**
 - 1. 117 Grand Avenue
- D. ADJOURNMENT**

Summer Village of Norglenwold – Municipal Planning Commission

January 29, 2021

Agenda Item

117 Grand Avenue (Lot 8-10, Block B, Plan 5108EO)

Development Permit Application

Background:

James & Lena Willson submitted a complete application for boathouse renovations located on the property of 117 Grand Avenue (Lot 8-10, Block B, Plan 5108EO) in the Summer Village of Norglenwold. This property is located in the R-S District (Shoreline Residential). The boathouse is considered a non-conforming building. The boathouse renovation would require the removal of 3 of the existing walls that were constructed out of creosote railway ties, to be replaced with a precast concrete. The existing roof and existing doors will be removed during the replacement of the walls and then replaced. The boathouse will remain in the same position and the size and appearance will not change.

Discussion:

This application is before MPC for the following reasons:

- An accessory building on a parcel abutting Sylvan Lake shall be situated so that it is not closer to the front parcel boundary and the top of any escarpment area or high water mark than the front wall of the main building or 15m whichever is least. A variance is required.
- Land located below the top of escarpment should be in a natural state, so a variance is required.

Recommendation:

Based on the Municipal Government Act section 643 (1), a non-conforming building may continue to be used but the building may not be enlarged, added to, rebuilt or structurally altered to except: to make it a conforming building for routine maintenance of the building; if the development authority considers it necessary. The Municipal Development Plan 6.3.6 states that: "Development shall not be allowed adjacent to or near the shores of the Lake, unless the proponent can demonstrate to the satisfaction of the Summer Village the development will not: reduce lake water quality; degrade fish or wildlife habitat; adversely impact the area's visual or natural quality through inappropriate or excessive removal of vegetation and lead to soil erosion or instability or damage to the bank or shore." The Sylvan Lake Management Plan 2(a) also states that no development will be considered for approval unless "the integrity of the natural environment and ecosystems is protected, sustained and if possible, enhanced." The Municipal Government Act states under 6.2.1 (1) "The conservation of the environment goal is to protect the water quality, aquatic life, habitat and ecosystems of Sylvan Lake."

The proposed boathouse renovations will be completed to remove the existing creosote ties that are causing a health and safety concern to the lake. Alberta Environment and Parks agrees that repairing this will be beneficial to the lake and after reviewing all relevant planning documents, it is the recommendation of administration to approve the application for boathouse renovations.

January 18, 2021

Conditions:

If approved, Administration would recommend the following conditions:

- Completions deposit of \$1000.00.
- Exterior to match/compliment the exterior finish of the main building.
- No vegetation to be removed from the escarpment.
- The boathouse will remain a non-conforming building and can't be enlarged in the future.
- No further work is to be done on the bed/shore of the lake once boathouse is completed.

Authorities:

As per the MGA, a non-conforming building:

- means a building: (i) that is lawfully constructed or lawfully under construction at the date a land use bylaw affecting the building or the land on which the building is situated becomes effective, and (ii) that on the date the land use bylaw becomes effective does not, or when constructed will not, comply with the land use bylaw.
- May continue to be used but the building may not be enlarged, added to, rebuilt or structurally altered except: to make it a conforming building; for routine maintenance of the building; if the development authority considers it necessary; or in accordance with a land use bylaw that provides minor variance powers to the development authority for the purposes of this section.
- Is damaged or destroyed to the extent of more than 75% of the value of the building above its foundation, the building may not be repaired or rebuilt except in accordance with the land use bylaw.

The MPC may:

- Grant a variance to reduce the requirements of any use of the LUB and that use will be deemed to comply with LUB.
- Approve application even though the proposed development does not comply or is a non-conforming building if:
 - It would not unduly interfere with the amenities of the neighborhood, or
 - Materially interfere with or affect the use, enjoyment, or value of neighboring parcels of land, And
 - It conforms with the use prescribed for that land or building in the bylaw.
- Consider a Variance only where warranted by the merits or the proposed development and in response to irregular lot lines, parcel shapes or site characteristics which create difficulties in siting structures within the required setback or in meeting the usual bylaw requirements, except there shall be no variance for Parcel Coverage or Building Height.

For a discretionary use in any district:

- The Municipal Planning Commission may approve an application for a Development Permit:
 - With or without conditions;

January 18, 2021

- Based on the merits of the proposed development, including it's relationship to any approved statutory plan, non-statutory plan, or approved policy, affecting the site;
 - Where the proposed development conforms in every respect to this Land Use Bylaw; or
- May refuse an application for a development permit based on the merits of the proposed development, even though it meets the requirements of the Land Use Bylaw; or
- Subject to provisions of section 2.4 (2), the Municipal Planning Commission shall refuse an application for a development permit if the proposed development does not conform in every respect to the Land Use Bylaw.

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*).

[REDACTED]
117 Grand Ave

Norglenwold, Alberta

T4S-1S5

November 30, 2020

Summer Village Of Norglenwold,

We are proposing to remove 3 of the existing walls of our Boathouse. The current boathouse was constructed sometime in the 1960's and the 3 walls in question were constructed with Creosote Railway Ties.

Background

We purchased the property in March of 2017, and immediately that summer began to cleanup the property, there was approximately 34 Railway ties lakeside between 117 and 121 Grand ave, these were successfully removed and the area cleaned up (see attached photos). We then took the opportunity to remove 20+ railways ties roadside between 117 and 115 Grand ave in 2019 when the new home at 115 was being built and landscaped, these were used as a retaining wall (see attached photos).

We have noticed a very strong smell of creosote in the boathouse, and everything in the boathouse takes on that odor. The current creosote railway ties are within 7' or 8' of the waters edge. We are looking to once again continue on with the cleanup of our property in 2021. We did a rough count and there are around 50 to 60 railway ties that make up the 3 walls.

Process

We consulted 4 of our neighbors 2 on each side and have letters of support for our proposed repairs (see attached).

We contracted Parkland Geo Technical to prepare a report on the boathouse and the proposed project. We then contracted Lakeview Contracting for the logistics and construction. Eagle builders has been contracted to build 3 prefabricated concrete walls.

In late march when the ice is thick enough we will work from the lakeside, the existing roof will be removed in 1 piece with a crane for reuse, the existing doors lakeside will be removed and put aside for reuse. The 3 creosote walls will then be removed and disposed of. The area will then be excavated as required, 3 new concrete walls will then be

installed. The roof will then be placed back on the boathouse and the lakeside doors reinstalled. The area surrounding the boathouse will then be backfilled as per Parkland Geo's Technical requirements.

End Result

The boathouse will be in the same position, it will be the same size and will not be noticeably different in appearance from either the lakeside or looking at it from roadside.

We have taken a responsible approach and decided to invest in our property to ensure that it will be a safe and environmentally friendly place for our family and friends to enjoy in the many years to come.



November 25, 2020

To whom it may concern.

Lakeview Contracting has been contacted by Jamie Willson to participate in the renovation of the existing boat house located on the property of 117 Grand Ave. SV of Norglenwold Ab.

The purpose of the renovation is to remove the existing creosote ties that make up a portion of the exterior walls and replace them with a precast concrete. Creosote is known to be harmful to the ecosystem of the lake, and it has been encouraged by Alberta Environment to remove materials from close proximity of the lake that contain creosote whenever possible. A contaminated site specialist with Alberta Environment has been contacted regarding this project and is in support of the removal of these ties.

Lakeview Contracting will be aiding in the preparation of the existing structure to be altered and in the removal of the creosote ties. This work is proposed to take place during the winter months. This will be beneficial for a number of reasons. Among them is the need to use large equipment to undertake the project. Accessing the work area from the lot would be impractical so the best option is to use the ice to work from. It is also environmentally beneficial to carry out the works while the ice is on the lake. The ice limits the risk of contaminants entering the water system during construction. Clean up is easier and it is also safer for the trades involved.

Lakeview Contracting is of the opinion that the proposed renovation would be beneficial for not only the property owner but also the health of the lake.

Regards,
Brian Engel

Alberta Land Surveyor's
Real Property Report

LEGAL DESCRIPTION

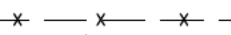


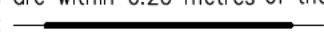
Parts of
Lot(s) 8, 9 & 10 Block B Plan 5108 EO

CLIENT

MUNICIPAL ADDRESS

117 Grande Avenue, S.V. of Norglenwold, Ab.

LEGEND

- Distances to building corners are at right angles from property lines, unless shown otherwise.
- Date of Survey: Aug. 19th, 2004
- Date of Title Search(A copy of which is attached) Aug. 9th, 2004
- Unless otherwise specified, the building dimensions shown relate to the greatest extent of the exterior walls.
- Eaves are dimensioned to the line of the fascia
- Distances are in metres and decimals thereof.
- Fences are shown thus: 
- Statutory iron posts found are shown thus: 
- Iron bars found are shown thus: 
- Unless shown otherwise, fences are within 0.20 metres of the property line
- Area referred to bounded thus: 

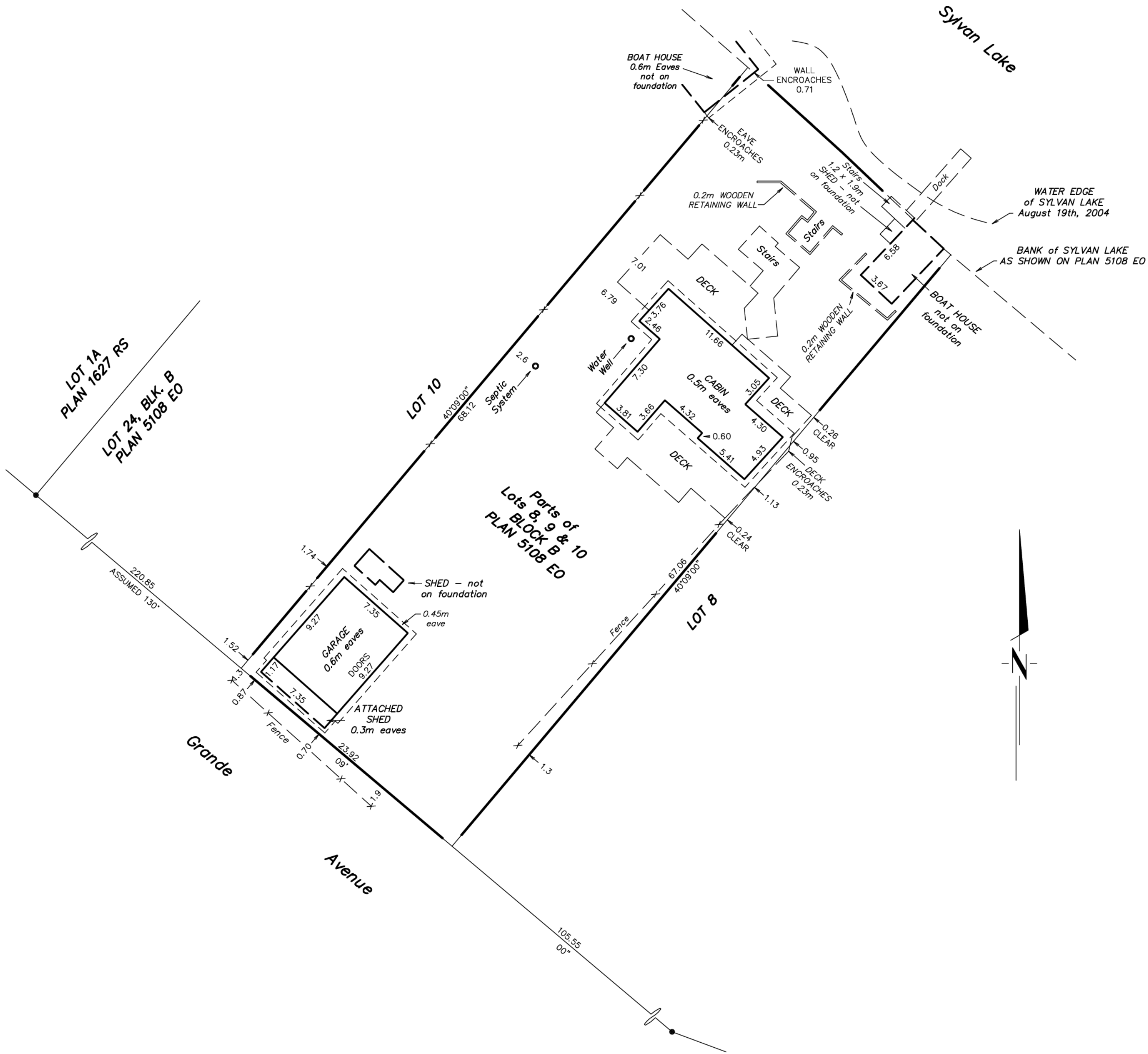
SURVEYORS CERTIFICATION

- I, Murray Young, Alberta Land Surveyor, hereby certify that:
This report was prepared and performed under my personal supervision and in accordance with the Manual of Standard Practice of the Alberta Land Surveyor's Association and supplements thereto. Accordingly within those standards as of the date of this report, I am of the opinion that:
- The plan illustrates the boundaries of the property, the permanent visible improvements situated thereon (the "Improvements"), registered easements, rights of way, and other registered instruments affecting the extent of title to the property.
 - The improvements are entirely within the boundaries of the property, except the dock and deck as shown.
 - No visible encroachments exist on the property from any improvements situated on an adjoining property, except the boat house on Lot 10.
 - No visible encroachments exist on registered easements, rights of way or other registered instruments affecting the extent of property.

Purpose: This report has been prepared and performed only for the benefit of the client, the client's purchaser(if this report was prepared to facilitate a sale) and any of their legal advisors and lenders/mortgagees. Copying is permitted only for the benefit of those parties. Where applicable, registered easements, rights of way, and other registered instruments affecting the extent of the property have been shown. Unless otherwise shown, property corner markers have not been placed during the survey for this report. The plan should not be used to establish property boundaries due to the high degree of risk of the user making an error in measurement.

Dated this ____ day of _____, 2004

Alberta Land Surveyor



©MURRAY YOUNG, A.L.S., 2004

Drawn By: MY
Date: August 23rd, 2004
Scale: 1 : 300
File No.: C-640-04

Bemoco Land Surveying Ltd.
21,7895 - 49th Avenue
Edmonton, Alberta

Existing Location and lake Proximity to Water



**Camrose Head Office**

4613 41 St
Camrose, AB T4V 2Y8
(P) 780-672-7946
(F) 780-672-8599

Fort McKay Office

Lot #32 Caribou Industrial Park
Fort McKay, AB T0P 1C0
(P) 587-674-2344
(F) 780-743-9785

Spruce Grove Office

102 Golden Spike Rd
Spruce Grove, AB T7X0G6
(P) 780-809-2890
(F) 780-809-2891

Email: office@heavymetalequipment.ca website: www.heavymetalequipment.ca

October 28, 2020

Summer Village of Norglenwold,

As the owner of 115 Grand Ave, in Norglenwold I approve of [REDACTED] Application to remove the harmful Creosote soaked Railway ties that make up the walls of their boathouse at 117 Grand Ave. The removal and replacement is welcomed as their boathouse is adjacent to our property.

Sincerely

A handwritten signature in black ink, appearing to be a stylized 'P' or 'B' followed by a horizontal line.

[REDACTED]
115 Grand Ave

Norglenwold, AB

June 28 2020

[REDACTED]

as per our conversation regarding your wishes to remove the creosote railway ties that make up your current boat house and replace them with concrete walls is a good environmentally sound thing to do. As owners and occupants of 113 Grand Avenue we encourage you to move forward on this project.

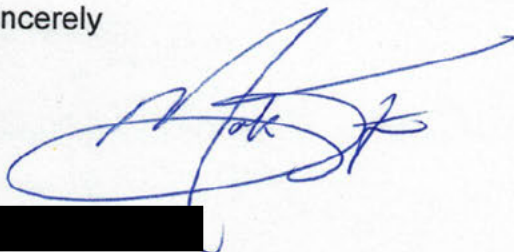
[REDACTED]

29-Oct-2020

Summer Village of Norglenwold

I support [REDACTED] efforts to remove the Creosote contaminated railway ties from their existing boathouse located at 117 Grand Ave and replace them with more environmentally friendly materials.

Sincerely

A handwritten signature in blue ink, consisting of a large, stylized 'A' followed by a series of loops and a final flourish.

[REDACTED]
121 Grand Ave
Norglenwold, AB

July 5, 2020

To Summer Village of Norglenwold Administration;

We live at 123 Grand Ave in Norglenwold and would like to provide a letter of support to the [REDACTED] who reside at 117 Grand Ave, also in Norglenwold, regarding the proposal to repair the existing boathouse on their property.

The existing structure has 70 cresole railway ties which are old and represent an environmental concern to the lake. Cresole leaching into the lake water is toxic to the habitat and the flora and fauna of the lake. The proposal to replace these with 3 inert concrete walls, and a steel frame would be better for the lake than what is currently in place. The footprint of the boathouse, nor the size or position would change.

Therefore, we fully support the [REDACTED] in this project.

Sincerely,

[REDACTED]

October 27, 2020
Project No. RD6905-01

jamie@willsonav.com
Original will remain on file



Re: Proposed Boathouse Clean-Up and Reconstruction
117 Grande Avenue, Norglenwold, Alberta

Dear 

It is understood that you are proposing to partially demolish and reconstruct the existing boathouse at your property referred to above. The following letter provides geotechnical recommendations and general geotechnical suggestions regarding the proposed project. It is understood that the primary goal of the project is to remove the bottom part of the boathouse which was constructed with old railroad ties that are preserved with creosote oil. Authorization for this letter was given in August 2020. This assessment is based on site observations of the writer from July 3 and August 10, 2020, a site survey from August 13 and local geotechnical knowledge of the Norglenwold area. Site specific investigation was not requested or proposed as part of this assessment.

1.0 SITE AND PROJECT DESCRIPTION

The property is located on the south shore of Sylvan Lake in the Summer Village of Norglenwold. The property has a sloped lakeshore up to the top of bank where the house is located about 18m south of the lake. The house is a one storey cabin with a partial basement. The slope to the house is about 4.8 m high so the overall slope inclination is about 3.8H:1V; but the slope is terraced with some stairs and landing areas provided by landscaped timber and rock retaining walls. At the time of the site visit, the property had an existing 3.67 x 6.58 m² boathouse in the northeast corner of the lot as show on Figure 1A, attached. Additional photographs of the site are also provided on Figure 1.

The existing boathouse was inset into the side of the lakeshore slope and is partially protected from the upper slope by a landscaped timber retaining wall. The bottom sections of the boathouse walls on the south, east and west sides are retaining walls constructed with timber railroad ties which were preserved with creosote oil. The upper part of the boathouse and the roof are a conventionally framed wood structure. The north wall was framed to support two large swinging doors which open onto a small permanent dock area above the rip rapped armoured shoreline,

which provides access to the seasonal boat docks extending out into the lake. Based on observed soil exposures, the subgrade of the lakeshore slope is expected to consist of clay till overlying bedrock which is expected to be present near the shoreline. The consistency of the local clay till is usually at least stiff and the bedrock will be hard to very hard.

The condition of the existing boathouse appears to be structurally sound and the floor and walls (including the railroad ties) are well above lake level (nominally about 1 m above normal summer lake levels). However, the proximity of these old railroad ties to the lake is considered to be less than ideal by the Owners from a long-term environmental perspective. They would like to remove the ties and replace the boathouse walls with a concrete and/or wood framed structure on a steel and/or concrete foundation frame.

The proposed project will start with removal of the existing boathouse roof for re-use. The wood structure including the wood plank floor and creosote ties from the walls will be removed, along with any stained soil. This will require some excavation of the backfill around the existing structure. The existing timber retaining wall south of the boathouse is expected to be left "as is". It is understood the replacement boathouse will be constructed with a metal and/or concrete base frame, supporting new wood floor planks and pre-cast concrete wall panels to at least mid-height of the new walls. The foundation frame is proposed to be grade supported. The upper walls will be constructed with pre-cast concrete or conventional wood framing. The existing roof will be placed back on the new structure; with modifications as necessary. The area around the boathouse will be re-landscaped; possibly with some minor backfill against the new walls. Given the need to bring materials and equipment to site, it is likely the construction will occur during the winter to make use of the lake ice for access and delivery of materials.

2.0 ASSESSMENT

The site conditions appear to be reasonable for the project. The walls of the new structure would be similar to the existing structure which has performed well for a long period of time. The native soil conditions are expected to be suitable for a shallow grade supported foundation. Other geotechnical concerns include:

1. The potential for differential lateral earth pressures on the building due to the sloping grade and unburied north wall. The concrete wall can either be designed to resist lateral earth pressures or the boathouse walls can be protected from these pressures by providing retaining walls to create a "pocket" around the boathouse, similar to the timber wall south of the current building. It is understood the preferred option is to provide retaining walls to protect the boathouse, rather than provide reinforced concrete walls under the assumption heavy reinforcement is required.
2. The potential for the new boathouse to intercept groundwater seepage from the upslope area. This does not appear to have been a major issue with the current boathouse, but the old timbers were not fully sealed and groundwater would have some outlet towards the lake. It will be prudent to build some features into the design to allow any groundwater seepage from the upslope subgrade to have a pathway towards the natural drainage into the lake. This can be provided by selection of suitable foundation and backfill materials.

3.0 RECOMMENDATIONS

The following recommendations and suggestions are provided to aid in the final design of the new boathouse structure.

1. The boathouse demolition will require some excavation and subcutting. All excavations required for the demolition should be undertaken in accordance with Alberta OH&S regulations. Any excavation face higher than 1.5 m should be sloped back at 1H:1V. The subgrade of the boathouse footprint and pocket should be sub-cut to provide for the proposed base gravel layer. The subgrade should have a minimum of 1% north to south grade towards the lake for drainage of groundwater intercepted by the base gravel layer.
2. It is understood the current timber landscaping wall upslope of the boathouse to the south will be kept "as is". Bracing of this existing timber landscaping wall should be provided as required to accommodate excavation of the boathouse "pocket" in front of this wall.
3. The following foundation recommendations assume a conservative allowable bearing capacity of at least 100 kPa for the assumed foundation soil (till) or bedrock. The foundation frame should be designed based on this conservative assumption.
4. The boathouse foundation should be supported on a gravel mat. The gravel mat should provide at least 150 mm of material below the foundation frame. The gravel should conform to Alberta Transportation (AT) Designation 2 specifications with a maximum aggregate size of 20 to 40 mm (Class 20, 25 or 40). These specifications are attached. The gravel should be nominally compacted to 95 percent of Standard Proctor Maximum Dry Density (ASTM D698). Free draining rock with a maximum aggregate size of 50 mm would be a suitable alternate gravel base material. This type of gravel is considered to be a self-compacting material when placed in an unfrozen condition.
 - If Designation 2 gravel is selected, consideration should be given to embedding a 100 mm perforated rigid PVC drain pipe in the gravel to aid drainage towards the lake.
 - If clean, drain rock is selected, any base or side surface in contact with native soil should be protected with a non-woven filter cloth to act as a separation barrier and minimize the potential migration of fines into the base layer. The provision of a drain pipe is not required in this case.
5. The pre-cast concrete boathouse walls should be designed to resist lateral earth pressures which may be computed using the following equation:

$$P = K \gamma H$$

Where: P = lateral earth pressure at depth H below ground level (kPa)
K = coefficient of lateral earth pressure (use 0.5)
 γ = total unit weight of backfill (use 20 kN/m³)
H = height of backfill (m)

This formula assumes nominally compacted, fully drained granular backfill with a clay cap. If a building pocket is formed using MSE walls to protect the walls from higher backfill levels the east and west walls may be required to resist the lateral pressure from nominal amounts of backfill up to 0.6 or 1.0 m high. The pre-cast structure will have a large opening in the north wall which will reduce the lateral resistance and stiffness of the east and west walls at the north end of the boathouse. It should be understood that full, reinforced corners can provide stiffness to concrete walls, so it is suggested to provide corner returns into the door frame for the north wall. A reinforced concrete or steel threshold across the base of the north wall would also be helpful in stiffening the walls.

6. It is understood the current option under consideration for protecting the south wall and corner returns into the east/west walls from higher earth pressures is to provide mechanically stabilized earth (MSE) walls forming a pocket for the new structure in the existing slope. The proposed MSE wall will be up to 1.2 m high above grade, which is generally considered to be a landscaping earth retaining structure; not an engineered earth structure. The following suggestions are provided to the MSE wall supplier or landscaper for design consideration:
- Based on the space available between the boathouse footprint and the existing timber retaining wall a suitable small block MSE product, such as Allan Block, may need to be considered.
 - Geogrid or equivalent tie-back reinforcing near the top of the wall should be provided to prevent overturning, as required. The manufacturer's design manual can be consulted for guidance on the need for reinforcement.
 - Suitable embedment into the base layer should be provided by the wall design. Burial of at least one row of small blocks (i.e. 200 mm) is suggested to improve toe stability against sliding.
 - The majority of the backfill immediately behind the MSE walls should be well graded, AT Designation 2 gravel to within 300 mm of surface. It is recommended to put a 300 mm thick compacted clay cap at the backfill surface to minimize rain and snow-melt infiltration. The cap should be graded to shed water around the sides of the boathouse.
 - The provision of a horizontal 100 mm rigid perforated drain is recommended behind the wall near the base to direct groundwater from the backfill into the foundation gravel layer and/or drain.

The recommendations and comments above are shown graphically on the profile and plan drawings of the proposed boathouse given in Figures 1C and 1D, attached.

4.0 LIMITATIONS AND CLOSURE

Geological conditions are variable. At the time this letter report was prepared, information on the subsurface conditions was only available from exposures in the slope face observed during site visits in July and August 2020. These observations were consistent with local experience in Norglenwold, so the conditions described herein are believed to be reasonably representative of the site. If the conditions noted during construction are believed to be at variance with the conditions described in this report, this office should be contacted immediately.

This letter report has been prepared for the exclusive use of **Mr. & Mrs. James Willson**, and their approved agents, for the specified application of the proposed boathouse project located in Norglenwold, Alberta. It is understood and accepted that this letter report will be submitted to the S.V. of Norglenwold as part of the approval process for this project. This letter has been prepared in accordance with generally accepted soil and foundation engineering practices. No other warranty, expressed or implied, is made. Use of the report is subject to acceptance of the General Terms and Conditions provided in Limitation Appendix of this letter report.

We trust this meets with your present needs. If you have any questions or comments regarding this information, please do not hesitate to contact this office.

Respectfully submitted,
PARKLAND GEOTECHNICAL CONSULTING LTD.
APEGA Permit #07312

APEGA Permit #07312

Mark Brotherton, P.Eng.
Principal Geotechnical Engineer

Mark Brotherton, P.Eng.
Responsible Member

Reviewed: Bryden Lutz, P.Eng.
Geotechnical Engineer

Attach/ Figure 1
AT Aggregate Specifications
General Terms and Conditions

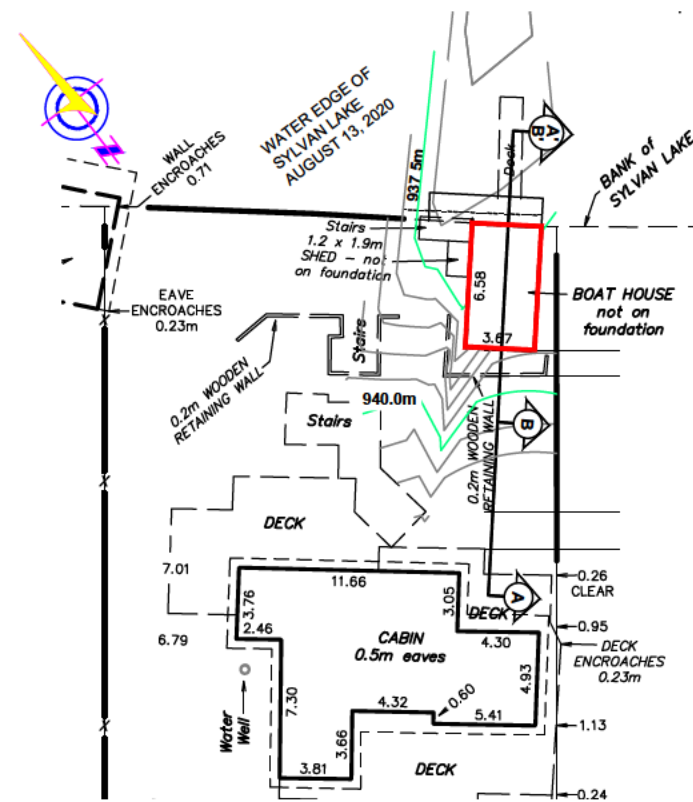


FIGURE 1A: EXISTING WATERFRONT PLAN
SCALE 1:400

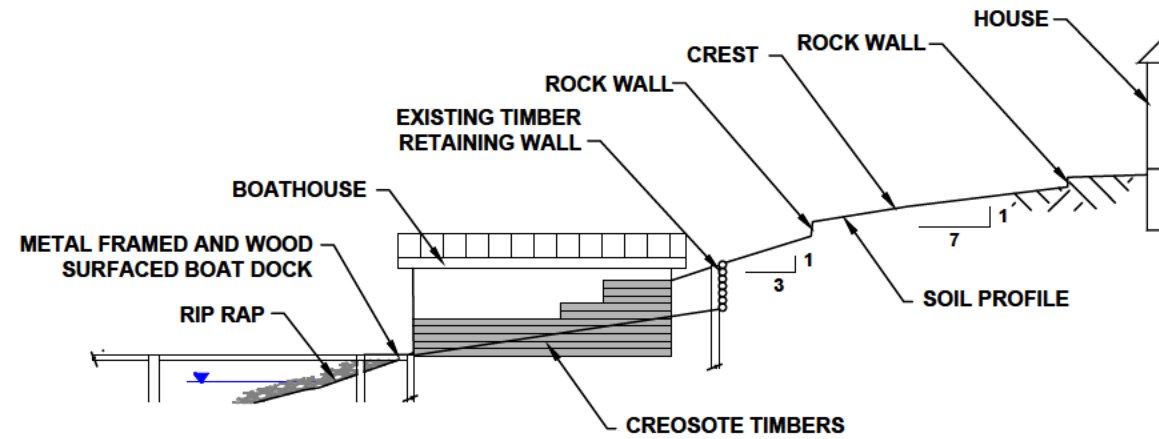


FIGURE 1B: EXISTING LOT PROFILE (A - A')
SCALE 1:200 (1V:1H)

- NOTES:

1. SITE PREPARATION & EXCAVATION

- It is understood the roof of the existing boathouse will be removed for re-use. The wood structure including the wood plank floor and creosote ties from the walls will be removed. Along with any contaminated soil (i.e. stained).
- All excavations required for the demolition should be undertaken in accordance with Alberta OH&S regulations. Any excavation face higher than 1.5 m should be sloped back at 1H:1V.
- The subgrade of the boathouse footprint and pocket should be sub-cut to provide for the base gravel layer and a minimum of 1% north to south grade towards the lake for drainage of groundwater intercepted by the layer.
- The existing timber retaining wall should be left "as is". Bracing of the existing timber landscaping wall should be used as required to accommodate excavation of the boathouse "pocket" in front of this wall.

2. BOATHOUSE (DESIGN BY OTHERS)

- It is understood the replacement boathouse will be constructed with a metal frame base, supporting wood floor planks and pre-cast concrete wall panels to at least mid-height. The upper walls will be constructed with conventional wood framing or pre-cast concrete. The existing roof will be placed back on the new structure.
- The boathouse foundation should be supported on a gravel mat foundation.
- The walls will be designed to resist lateral earth pressures up to 1.0 m high. The south walls and east/west wall returns will be protected by a mechanically stabilized Earth (MSE) wall forming a pocket for the new structure in the existing slope.

3. FOUNDATION BASE

- The gravel mat should provide at least 150 mm of support below the foundation frame.
- The gravel should consist of material conforming to Alberta Transportation (AT) Designation 2 gravel with a maximum aggregate size of 20 to 40 mm (Class 20, 25 or 40). The gravel should be nominally compacted to 95 percent of Standard Proctor Maximum Dry Density (ASTM D698).
- A suitable alternate gravel base material would be free draining rock with a maximum aggregate size of 50 mm. This type of gravel is considered to be a self-compacting material when placed in an unfrozen condition.
- If Designation 2 gravel is selected the option of embedding a 100 mm perforated rigid PVC drain north-south into the gravel could be considered.
- If clean, drain rock is selected, any base or side surface in contact with native soil should be protected with a non-woven filter cloth to act as a separation barrier to minimize the migration of fines into the base layer. The provision of a drain pipe is not required.

4. MSE WALL (DESIGN BY OTHERS)

- The MSE wall will be up to 1.2 m above grade (i.e. a landscaping earth structure not an engineered earth structure). Suitable embedment into the base layer should be provided by the wall design.
- Based on the space available between the boathouse footprint and the existing timber retaining wall a suitable block MSE product such as Allen Block should be considered. Geogrid or equivalent reinforcing near the top of the wall should be provided if required.
- The backfill immediately behind the wall should be well graded Designation 2 gravel.
- If Designation 2 gravel is selected the provision of a 100 mm rigid perforated drain is recommended at the base of the wall to direct groundwater



EXISTING WATERFRONT CONDITION



NORTH SIDE OF BOATHOUSE



SOUTH SIDE OF BOATHOUSE AND RETAINING WALL



INSIDE OF BOATHOUSE



WEST SIDE OF BOATHOUSE



EAST SIDE OF BOATHOUSE

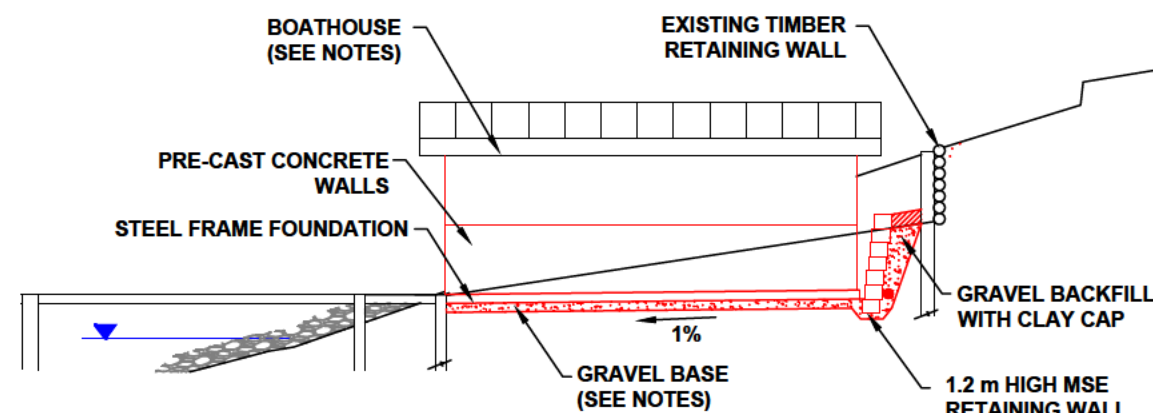


FIGURE 1C: PROPOSED BOATHOUSE AND MSE WALL PROFILE (B-B')
SCALE 1:125 (1V:1H)

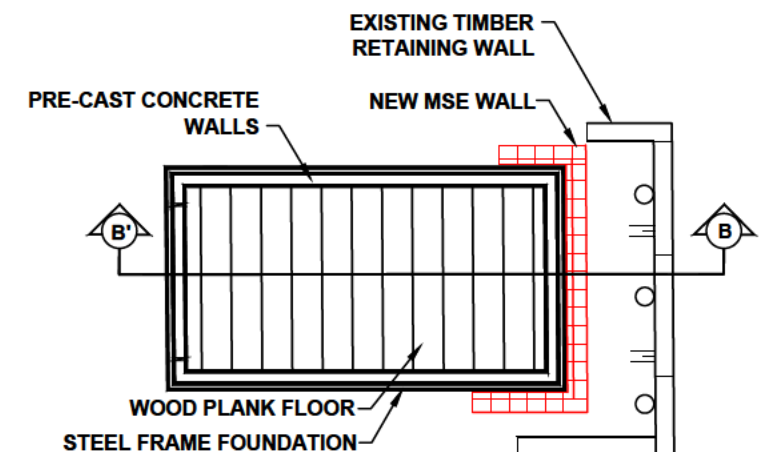


FIGURE 1D: PROPOSED BOATHOUSE AND MSE WALL PLAN (B-B')
SCALE 1:125

[illegible]

CLIENT:	
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REPLACEMENT BOATHOUSE PLAN

117 GRAND AVENUE
NORGLNWOLD, ALBERTA

SCALE:	JOB NO.	DRAWING NO.
AS SHOWN	PD-05-01	FIGURE 1

ALBERTA TRANSPORTATION - SPECIFICATIONS FOR AGGREGATE (TABLE 3.2.3.1, DECEMBER 2010)

DESIGNATION		1				2				3				4				5		6		7	8	9							
Class (mm)		10	12.5	16	25	*16(N2)	20	25	40	12.5AW	12.5BW	12.5C	16	20	25	40	10A	10B	80	125	40	25	8								
Percent Passing Metric Sieve (CGSB 8-GP- 2M) µm	125 000																			100											
	80 000																		100												
	50 000																		55-100	55-100											
	40 000								100							100					100										
	25 000					100			70-94						100				38-100	38-100		100									
	20 000					85-95	100	82-97						100		55-90															
	16 000					75-87	100	84-94	70-94	55-85			100						32-85	32-85			90-100								
	12 500		100	80-92	65-80	89-100				100	100	100	72-96																		
	10 000	100	83-92	70-84	58-72	78-94	63-86	52-79	44-74	35-65	55-75	70-93	53-82		35-77	30-77	25-72	100	100			85-100	45-75								
	8 000																							100							
%FRACTURE BY WEIGHT (2 FACES)	5 000	60-75	55-70	50-55	40-58	55-70	40-67	35-64	33-62	0-15	0-15	30-60	27-54	15-55	15-55	8-55	70-90	45-70	20-65	20-65		0-15	85-100								
	1250	26-45	26-45	26-45	25-44	26-45	20-43	18-43	17-43	0-3	0-3	9-28	9-28	0-30	0-30	0-30	20-45	20-45			40-100	0-5	45-75								
	630	18-38	18-38	18-38	16-36	18-38	14-34	12-34	12-34														30-50								
	315	12-30	12-30	12-30	10-28	12-30	9-26	8-26	8-26			0-15	0-15				9-22	9-22	6-30	6-30	17-100		18-30								
	160	8-20	8-20	8-20	6-18	8-20	5-18	5-18	5-18			0-11	0-11				5-15	5-15					10-21								
	80	4-10	4-10	4-10	4-10	4-10	2-10	2-10	2-10	0-0.3	0-0.3	0-8	0-8	0-12	0-12	0-12	0-10	0-10	2-10	2-15	6-30		5-15								
PLASTICITY INDEX (PI)	* SEE NOTE (N1)					60+	60+	60+	50+	75+ (100% 1 face)	75+ (100% 1 face)	60+	60+	40+	40+	25+	N/A	N/A	N/A	N/A	N/A	N/A	N/A								
L.A. ABRASION LOSS PERCENT MAX.	NP	NP	NP	NP	NP	NP	NP-6	NP-6	NP-6	N/A	N/A	NP-4	NP-4	NP-8	NP-8	NP-8	NP-6	NP-6	NP-8	NP-8	NP-5	NP-5	NP								
FLAKINESS INDEX	40	40	40	40	40	50	50	50	50	35	35	35	35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	35								
COEFFICIENT OF UNIFORMITY (C _u)		N/A																		MAX 15		N/A				N/A		3+		N/A	

- * Notes:**
- N1. According to Specification 3.50, Asphalt Concrete Pavement - EPS or 3.53, Asphalt Concrete Pavement - Superpave and Mix Type Specified.
- N2. Designation 2 Class 16 Material is ASBC
- N3. For crushed aggregates other than all Designation 5 and Designation 9 materials, a tolerance of three percent in the amount passing the maximum size sieve will be permitted provided all oversize material passes the next larger standard sieve size.
- N4. Unless otherwise specified, Pit-Run Aggregate will be defined as unprocessed granular material, with no specified gradation requirement, that is extracted from an aggregate deposit.
- Designations:**
- Designation 1 - Asphalt Concrete Pavement
- Designation 2 - Base Course Aggregate
- Designation 3 - Seal Coat Aggregate
- Designation 4 - Gravel Surfacing Aggregate
- Designation 5 - Sanding Material
- Designation 6 - Gravel Fill
- Designation 7 - Cement Stabilized Base Course Aggregate
- Designation 8 - Granular Filter Aggregate
- Designation 9 - Slurry Seal Aggregate

The use of this attached report is subject to the following general terms and conditions.

1. **STANDARD OF CARE** - In the performance of professional services, ParklandGEO used the degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same or similar localities. No other warranty expressed or implied is made in any manner.
2. **INTERPRETATION OF THE REPORT** - The CLIENT recognizes that subsurface conditions will vary from those encountered at the location where borings, surveys, or explorations are made and that the data, interpretations and recommendation of ParklandGEO are based solely on the information available to him. Classification and identification of soils, rocks, geological units, contaminated materials and contaminant quantities will be based on commonly accepted practices in geotechnical or environmental consulting practice in this area. ParklandGEO will not be responsible for the interpretation by others of the information developed.
3. **SITE INFORMATION** - The CLIENT has agreed to provide all information with respect to the past, present and proposed conditions and use of the Site, whether specifically requested or not. The CLIENT acknowledged that in order for ParklandGEO to properly advise and assist the CLIENT, ParklandGEO has relied on full disclosure by the CLIENT of all matters pertinent to the Site investigation.
4. **COMPLETE REPORT** - The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to ParklandGEO by the CLIENT, communications between ParklandGEO and the CLIENT, and to any other reports, writings or documents prepared by ParklandGEO for the CLIENT relative to the specific Site, all of which constitute the Report. The word "Report" shall refer to any and all of the documents referred to herein. In order to properly understand the suggestions, recommendations and opinions expressed by ParklandGEO, reference must be made to the whole of the Report. ParklandGEO cannot be responsible for use of any part or portions of the report without reference to the whole report. The CLIENT has agreed that "This report has been prepared for the exclusive use of the named CLIENT. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. ParklandGEO accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report."

The CLIENT has agreed that in the event that any such report is released to a third party, the above disclaimer shall not be obliterated or altered in any manner. The CLIENT further agrees that all such reports shall be used solely for the purposes of the CLIENT and shall not be released or used by others without the prior written permission of ParklandGEO.

5. **LIMITATIONS ON SCOPE OF INVESTIGATION AND WARRANTY DISCLAIMER**
There is no warranty, expressed or implied, by ParklandGEO that:
 - a) the investigation uncovered all potential geo-hazards, contaminants or environmental liabilities on the Site; or
 - b) the Site is entirely free of all geo-hazards or contaminants as a result of any investigation or cleanup work undertaken on the Site, since it is not possible, even with exhaustive sampling, testing and analysis, to document all potential geo-hazards or contaminants on the Site.

The CLIENT acknowledged that:

- a) the investigation findings are based solely on the information generated as a result of the specific scope of the investigation authorized by the CLIENT;
 - b) unless specifically stated in the agreed Scope of Work, the investigation will not, nor is it intended to assess or detect potential contaminants or environmental liabilities on the Site;
 - c) any assessment regarding geological conditions on the Site is based on the interpretation of conditions determined at specific sampling locations and depths and that conditions may vary between sampling locations, hence there can be no assurance that undetected geological conditions, including soils or groundwater are not located on the Site;
 - d) any assessment is also dependent on and limited by the accuracy of the analytical data generated by the sample analyses;
 - e) any assessment is also limited by the scientific possibility of determining the presence of unsuitable geological conditions for which scientific analyses have been conducted; and
 - f) the laboratory testing program and analytical parameters selected are limited to those outlined in the CLIENT's authorized scope of investigation; and
 - g) there are risks associated with the discovery of hazardous materials in and upon the lands and premises which may inadvertently discovered as part of the investigation. The CLIENT acknowledges that it may have a responsibility in law to inform the owner of any affected property of the existence or suspected existence of hazardous materials and in some cases the discovery of hazardous conditions and materials will require that certain regulatory bodies be informed. The CLIENT further acknowledges that any such discovery may result in the fair market value of the lands and premises and of any other lands and premises adjacent thereto to be adversely affected in a material respect.
6. **COST ESTIMATES** - Estimates of remediation or construction costs can only be based on the specific information generated and the technical limitations of the investigation authorized by the CLIENT. Accordingly, estimated costs for construction or remediation are based on the known site conditions, which can vary as new information is discovered during construction. As some construction activities are an iterative exercise, ParklandGEO shall therefore not be liable for the accuracy of any estimates of remediation or construction costs provided.
 7. **LIMITATION OF LIABILITY** - The CLIENT has agreed that to the fullest extent permitted by the law ParklandGEO's total liability to CLIENT for any and all injuries, claims, losses, expenses or damages whatsoever arising out of or in anyway relating to the Project is contractually limited, as outlined in ParklandGEO's standard Consulting Services Agreement. Further, the CLIENT has agreed that to the fullest extent permitted by law ParklandGEO is not liable to the CLIENT for any special, indirect or consequential damages whatsoever, regardless of cause.
 8. **INDEMNIFICATION** - To the fullest extent permitted by law, the CLIENT has agreed to defend, indemnify and hold ParklandGEO, its directors, officers, employees, agents and subcontractors, harmless from and against any and all claims, defence costs, including legal fees on a full indemnity basis, damages, and other liabilities arising out of or in anyway related to ParklandGEO's work, reports or recommendations.

Summer 2017

34 Railway Ties Removed lakeside between 117 and 121 Grand Ave



2019 20 or So Railway Ties Removed Roadside Between 115 and 117 Grand Ave



