RGC
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Permit No. 1002767

Project No: RGC-3832

February 6, 2025

Attention: Michael & Manisha Willms

Dear Mr. and Ms. Willms:

Subject: Preliminary Geotechnical Assessment for Proposed Residential House at 2624 Forsyth Drive, West Bench, Penticton BC

1.0 Introduction and Background

Ms and Mr Willms. have retained Rock Glen Consulting Ltd. (RGC) to complete a geotechnical assessment of the site in support of a building permit application to the Regional District of Okanagan-Similkameen. This assessment will address geotechnical issues for the foundation design of an assumed at grade single-family residence and the geotechnical slope stability assessment of the existing slopes within the property.

Per the enclosed site survey plan by Core Geomatics Inc., the proposed construction areas are located within the LOT 9, PLAN KAP33471, DISTRICT LOT 4947, OSOYOOS DIV OF YALE LAND DISTRICT, with the civic address 2624 Forsyth Drive, West Bench Penticton, BC. The proposed development is bounded by existing properties to the east and west, Estates Place to the south and Forsyth Drive to the north.

It is assumed that the proposed development is to be limited to the construction of a single-family residence with or without a walk out basement, and supported by a pad and/or strip footings. No development plan has been provided to us at time of preparation of this report

RGC has conducted a visual review of the property and excavated test pits within the proposed construction areas. See the attached photos.

This letter summarizes the findings and recommendations of a geotechnical assessment for the proposed building at 2624 Forsyth Drive, West Bench, Penticton, BC.

2.0 Desktop Review and Field Observations

The surficial geology of the area is mapped as Kettled outwash, terraces, sand, gravel, till as per Okanagan Geology South, Roed, M., and Fulton, R. 2011.

Test pits were excavated in November 2024 as a part of this assessment. The soil strata encountered in test pits generally consist of topsoil underlain by sand with gravel, trace cobbles to a maximum depth of 7 ft. below the existing grade. At the location of Test Pit 2 (TP2), a layer of sand and gravel is interlayered between aforementioned strata. The test pit location plan and test pit logs are attached. No groundwater was observed at time of excavation, groundwater levels may fluctuate seasonally.

The soils observed in the excavated test pits are in general conformance with the reported surficial geology. Soils descriptions are limited to the excavated test pits and variable soils and conditions may be encountered throughout the property.

3.0 Slope Stability Review

The proposed construction areas are shown on the enclosed test hole location plan, areas were traversed during our geotechnical investigation, the proposed areas are generally flat. See Photos 1 to 4. There is a benched slope on the north side of the proposed development area 1 with an access lane on a bench of the slope. The average gradient of the slope is 2 Horizontal to 1 Vertical or shallower, dipping towards the south.

Generally, the slopes are lightly vegetated with some signs of surficial erosion on the body of the slope. No signs of slope instability were observed on the proposed construction areas.

4.0 Construction Recommendations

It is necessary for the intended construction to meet or exceed all requirements and specifications as outlined in the British Columbia Building Code.

Prior to the commencement of construction, the foundation plan is to be reviewed by a geotechnical engineer.

A qualified professional must be called to observe all aspects of foundation preparation to confirm that soil conditions are as described in this letter, and to review that the recommendations presented in this report are followed by the building contractor.

The following are recommendations for site preparation and construction of foundations for proposed building at the subject property.

Geotechnical Recommendations:

1. All building footings and floor slabs shall be placed on undisturbed compact sandy material or on properly compacted and approved engineered fill materials. The allowable SLS bearing capacity for undisturbed sand material shall be 100 kPa (2080 psf) and for compacted engineered fill material (75mm minus crushed gravel) shall be 120kPa (2500 psf). The provided bearing capacities assume that the groundwater level is at depth greater than the proposed footing widths from the underside of the proposed footings.

2. Soils underlying this site are assessed to be Site Class D – "stiff soils" as defined in Table 4.1.8.4.A of the BC Building Code.

3. All soft, loose, and otherwise unacceptable materials, as determined by an RGC engineer, shall be removed from beneath footings and floor slab areas. Unsuitable soils shall be replaced with 75 mm minus crushed gravel. Engineered fill shall be compacted to 100% SPMDD as confirmed by in-situ density testing.

4. A qualified geotechnical engineer shall be called to review foundation preparation and to inspect footing areas before any concrete is poured. It is expected that foundation preparation adjustments may be needed to accommodate soil conditions exposed during building construction.

5. RGC visually assessed slope on the proposed construction areas 1 to 3 and did not note any indications of slope instability.

6. RGC concluded that there was no evidence of slope instability affecting the proposed construction areas 1 to 3.

Drainage Recommendations:

7. Drainage systems, frost protection and soil gas control measures shall be implemented for the construction of the building in compliance with the BC Building Code.

8. For protection against freezing, a minimum of 600 mm of ground cover, or its equivalent in styrofoam insulation, shall be provided above the base levels of exterior foundations.

9. Site grading at a minimum of 2% shall direct runoff away from the building.

10. The soils at this site are generally considered to be moderately well drained. In-situ testing is recommended for the engineered design of drainage features.

5.0 Closure and Limitations

This report was prepared for the use of Mr. and Ms. Willms with respect to the proposed construction of a single-family residence at the subject property.

The conclusions and recommendations presented in this report are based upon visual observations of the site and excavated test pits.

The recommendations presented in this letter are intended to ensure the proper support of the building foundations. All construction activities are to adhere to these recommendations. An engineer from RGC is to be called to observe all aspects of foundation preparation to confirm that soil conditions are as described in this letter, and to review that the recommendations presented in this report are followed by the building contractor.

This work was completed following the generally accepted geotechnical engineering practice. No warranty, express or implied, is intended.

We trust that the contents of this letter are appropriate for your requirements. If you have any questions, please do not hesitate to call our office.

Yours truly,

Rock Glen Consulting Ltd.

2025-02-06

Prepared by:
Brian Figueroa-Odell, EIT

Reviewed by:
Amirali Mehdizadeh, M.A.Sc., P.Eng.

Attachments:
1) Site Photos
2) Test Hole Location Plan and Proposed Development Areas
3) Test Pit Logs
4) Site Survey Plan, Core Geomatics Inc., dated February 2025.

Photo 1- Proposed Construction Area 1- Facing to the west, Photo taken Nov. 2024

Photo 2- Benched Sloped to the north of

the Proposed Construction Area 1, Photo taken Nov. 2024

Photo 3- Proposed Construction Area 2-

Facing to the west-Photo taken Nov. 2024

Photo 4- Proposed Construction Area 3-

Facing to the south-Photo taken Nov. 2024

Photo 5- Encountered Ground at TP1-

within Proposed Construction Area 1-Photo taken Nov. 2024

Photo 6- Encountered Ground at TP2-

within Proposed Construction Area 2-Photo taken Nov. 2024

Photo 7 Encountered Ground at TP3-

within Proposed Construction Area 3-Photo taken Nov. 2024

Test Pit Log

RGC
Rock Glen Consulting

Date:	11 20 2024	**Project:**	PRELIMINARY ASSESSMENT
RGC No.:	3832	**Location:**	2624 FORSYTH DR., PENTICTON
Borehole No.:	TP24-01	**Client:**	MANISHA & MICHAEL WILLMS
Northing:	AS SHOWN	**Sub.:**	-
Easting:	AS SHOWN	**Equipment:**	MINI EXCAVATOR
Elevation (m):	-	**Reference:**	AS SHOWN
GPS method:	-	**Conditions:**	-

Depth	Soil Description	Sample	Test
0 - 0.4 m 0 - 1 ft.	Topsoil, roots	-	-
0.4 - 1.2 m 1 - 4 ft.	FILL, Gravel and sand, trace silt, compact, angular to very angular, dry	-	-
1.2 - 2.0 m 4 - 7 ft.	Sandy gravel, trace cobbles, trace silt, compact, dry		
2.0 - 2.0 m 7 - 7 ft.	Test pit ends at 7 ft.		

Notes:
No groundwater observed at the bottom of the borehole

Recorded by: BF

Reviewed by: AM

Test Pit Log

RGC
Rock Glen Consulting

Date:	11 20 2024	**Project:**	PRELIMINARY ASSESSMENT
RGC No.:	3832	**Location:**	2624 FORSYTH DR., PENTICTON
Borehole No.:	TP24-02	**Client:**	MANISHA & MICHAEL WILLMS
Northing:	AS SHOWN	**Sub.:**	-
Easting:	AS SHOWN	**Equipment:**	MINI EXCAVATOR
Elevation (m):	-	**Reference:**	AS SHOWN
GPS method:	-	**Conditions:**	-

Depth	Soil Description	Sample	Test
0 - 0.2 m 0 - 1 ft.	Topsoil, roots	-	-
0.2 - 2.0 m 1 - 7 ft.	Sand, some gravel, trace cobbles, trace silt, compact, dry	-	-
3.1 - 3.1 m 10 - 10 ft.	Test pit ends at 7 ft.	-	-

Notes:
No groundwater observed at the bottom of the borehole

Recorded by: BF Reviewed by: AM

Test Pit Log

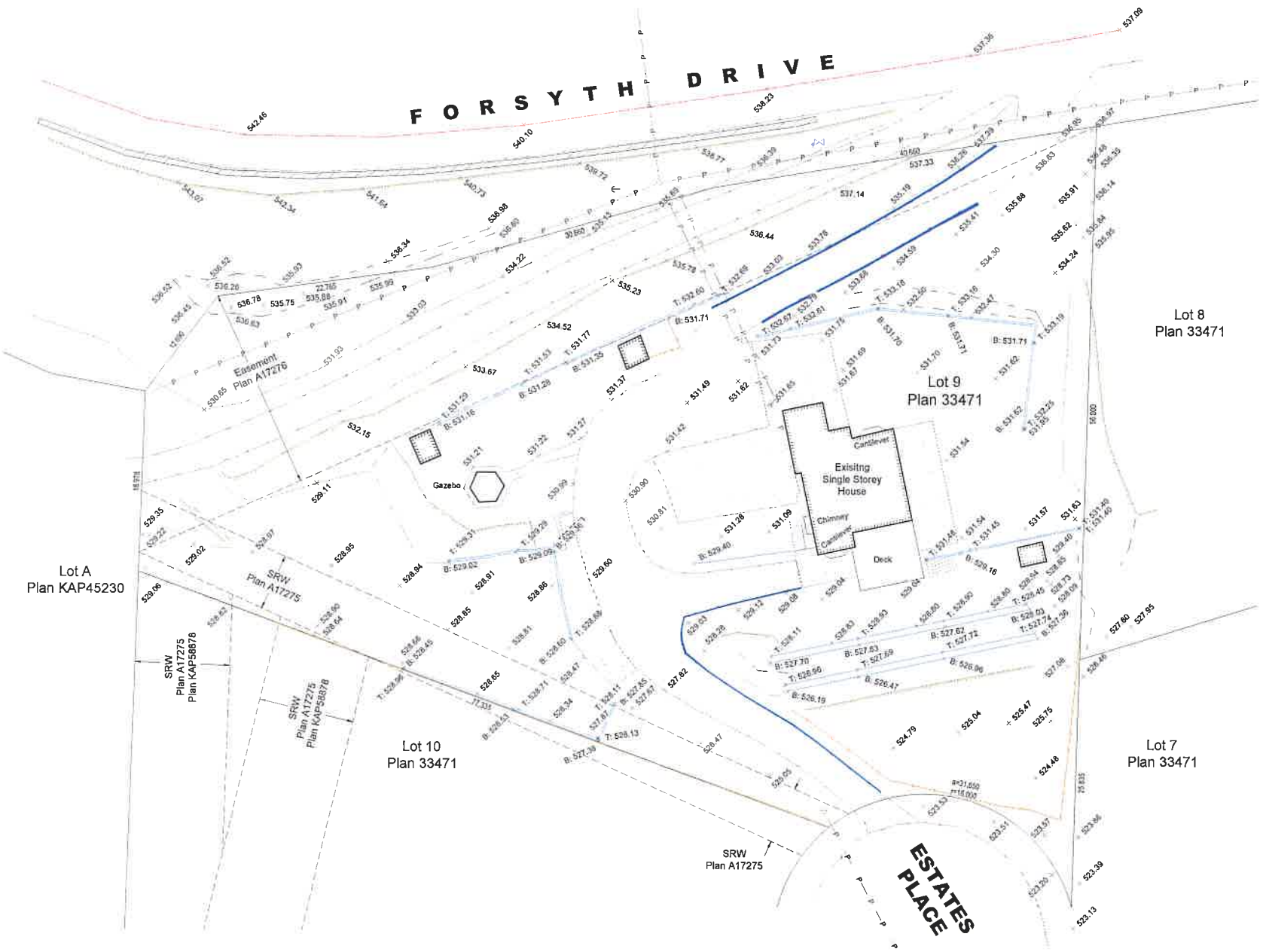
RGC
Rock Glen Consulting

Date:	11 20 2024	**Project:**	PRELIMINARY ASSESSMENT
RGC No.:	3832	**Location:**	2624 FORSYTH DR., PENTICTON
Borehole No.:	TP24-03	**Client:**	MANISHA & MICHAEL WILLMS
Northing:	AS SHOWN	**Sub.:**	-
Easting:	AS SHOWN	**Equipment:**	MINI EXCAVATOR
Elevation (m):	-	**Reference:**	AS SHOWN
GPS method:	-	**Conditions:**	-

Depth	Soil Description	Sample	Test
0 - 0.2 m 0 - 1 ft.	Topsoil, roots	-	-
0.2 - 1.8 m 1 - 6 ft.	Gravelly sand, trace cobbles to boulders, trace silt, compact, dry	-	-
2.7 - 2.7 m 9 - 9 ft.	Test pit ends at 6 ft.	-	-

Notes:
No groundwater observed at the bottom of the borehole

Recorded by: BF Reviewed by: AM



Legend

- Curb - Back
- Edge of Asphalt
- Fence
- Property Line
- Power
- Road Centerline
- Slope - Crest
- Slope - Toe
- Breakline
- Retaining Wall
- Jersey Barrier
- Buildings
- Concrete Pad
- Guy Anchor
- Power Pole
- Spot Elevations
  - Ground Shot
  - Top of Retaining Wall
  - Bottom of Retaining Wall
- Shutoff Valve
- Irrigation Box

Abbreviations

Notes

Distances shown are in metres.

Elevations shown are in metres and are derived from:

Dual frequency observations to and processed using the CSRS-PPP onlin
processing provided by Natural Resources Canada.

Coordinates are UTM Zone 11, Grid Referenced to CM 117°W.
Combined scale factor: 0.999969920
Date(s) of Survey: Jan. 2, 2025

Lot Dimensions are from land titles records for Plan KAP33471.

Additional surveys are required when working near the property lines and the property zoning setbacks.

Site Survey Plan

Willms Residence

Showing Certain Topo Features
on
Lot 9
DL 4947
ODYD
PLAN 33471

PID : 003-180-921

Civic Address: 2624 Forsyth Drive, Penticton

Plan View
Scale 1:300

0m 3 6 9 12 15m

Revision 0

No.	Revision	Date
0	Original Issue	05/02/2025

PC: RW | DR: AM | CH: -

File: 24-1171-00 | Dwg: 24-1171 - Topo Survey - Rev0

coregeomatics