Date: November 13, 2025

Submit To: Islands Trust
200-1627 Fort Street
Victoria, BC, V8R 1H8
information@islandstrust.bc.ca

Attn: Brad Smith

Prepared By: MSR Solutions Inc.

Subject: 3334 Port Washington Road - Hydrogeological Report

---

1. Introduction

A rezoning application has been submitted for the property at 3334 Port Washington Road, on Pender Island, BC. The legal description of the property is Lot 7, Plan, VIP6294, Section 18&22, Cowichan Land District, Portion Pender Island, with the PID: 005-837-693. The file number for the rezoning application is: PLRZ20240110. The North Pender Island Local Trust Committee had received a preliminary report and passed a resolution to proceed with the application on November 29, 2024. With the issuance of a Terms of Reference, it is required that a hydrogeological report is submitted.

2. Background

MSR Solutions Inc. (MSR) has been retained to develop a hydrogeological report for the rezoning application. The hydrogeological report is requiring an assessment of the quantity and quality of the potable water on site. One well has previously been drilled on site in October 2023. This well has a Well Tag No.: 129423, and Well ID: 65548, and is proposed to provide the potable water supply for the property. According to the letter from Islands Trust, regarding the "Terms of Reference for Rezoning Application PLRZ20240110 (Bigham) - 3334 Port Washington Road, North Pender Island (PID 005-837-693)" and dated December 18, 2024, the water supply standard for residential use is 2,000 L/day, plus the amount to service all proposed future industrial groundwater uses. A shop and an office are proposed on site, which are assumed to have a comparable water demand to a dwelling. No additional industrial groundwater uses are proposed. The water well and potable water supply is also to be in accordance with the North Pender Land Use Bylaw No. 224 (2022) and North Pender Island Official Community Plan Bylaw No. 171 (2007).

The terms of reference provide in the attachments and document for Potable Water Standards Guidance, which appends a map of the North Pender Island Groundwater Recharge and Discharge Zones. According to the map, the well is in a high recharge zone.

3. Water Supply

Potable water is to be supplied by the water well on site (Well ID: 65548). The drillers estimated well yield is 11.3 L/min (3 USgpm), which equates to an estimated 16,350 L/day, which exceeds the water supply standard for residential use of 2,000 L/day. To confirm the well yield, a pump test was completed by, and under the supervision of MSR (refer to Section 5 for more details).

The well was constructed in accordance with the Groundwater Protection Regulation to a total depth of 74.7 m (245 ft), recorded as being drilled in sandstone from top to bottom. With the well located over 100 m away from the next nearest well according to the BC Wells Database and located in a high recharge zone, the extraction of groundwater in respect of each permitted building, structure, or use, will not adversely affect the quantity or quality of any existing groundwater well or surface water used as a source of potable water. Regional mapping does not show any surface water in the nearby vicinity of the well.

4. Water Quality

Water samples were collected from the water well on site for further testing, to determine the drinking water quality. Refer to the attached site plan in Appendix A for the location of the well and obtained samples. The samples were sealed on site and delivered to the laboratory in accordance with their best practices of cool storage and a timely delivery.

A water quality analysis was completed by an accredited laboratory, obtaining the results provided in Tables 1-3. The water quality results are compared to the Maximum Allowable Concentrations (MACs) and Aesthetic Objectives (AO) determined by the Guidelines for Canadian Drinking Water Quality (2020). Refer to Appendix B for the water quality results provided by the laboratory for more information.

Table 1: Water Quality Analysis – Bacterial Testing

Parameter	Result	Guideline	Interpretation
Total Coliforms (TC)	0 CFU/100 mL	0 CFU/100 mL	**Safe** – No coliform bacteria
Fecal Coliforms (FC)	0 CFU/100 mL	0 CFU/100 mL	**Safe** – No fecal contamination
E. coli	0 CFU/100 mL	0 CFU/100 mL	**Safe** – No E. coli present
Total Non-coliforms (T-NC)	27,600 CFU/100 mL	≤ 200 CFU/100 mL	Result of stagnant well – shock disinfection treatment recommended.
Fermenters (F-NC)	200 CFU/100 mL	≤ 200 CFU/100 mL	
Lactose Fermenters	276 CFU/mL	≤ 200 CFU/mL	
Iron Bacteria	Present	Not a health risk	
Yeast/Fungi	Not Detected	Not specified	
Aeromonas	0.18 CFU/mL	No guideline	
Total Plate Count (TPC)	22,272 CFU/mL	≤ 500 CFU/mL	

Based on the water quality test results showing no coliform bacteria, no fecal contamination, and no E. coli, the water meets criteria outlined by the Canadian Drinking Water Quality Guidelines and the British Columbia Drinking Water Quality Guidelines. High measurements for Total Non-coliforms, Fermenters, Lactose Fermenters, and Total Plate Count suggest that there is some bacteriological activity occurring in the well, which is common for wells that are stagnant for an extended period. It is recommended to disinfect and flush the well thoroughly and retest the water again prior to finalizing the proposed treatment system.

For use in a dwelling unit, a baseline recommendation is to treat the water through filtration plus UV disinfection for safer and cleaner water and to mitigate against any potential bacteriological changes in the future.

Table 2: Water Quality Analysis – Metals Testing

Parameter	Result	Guideline	Interpretation
Lead	6.32 µg/L	5.00 µg/L MAC	**High** – Treatment recommended
Manganese	0.184 mg/L	0.120 mg/L MAC (0.020 AO)	**High** – Treatment recommended
Iron	0.155 mg/L	0.300 mg/L	**Safe** – Within limits
All Other Metals	-	-	**Safe** – No exceedances

Water quality analysis for metal elements in the well water yielded high lead and manganese. Lead can be toxic at trace amounts and should be removed. Manganese is generally considered safe within low levels, though an exceedance of the MAC indicates that treatment is required.

The water can be made safe for potable uses with the appropriate treatment provisions. The use of filter media such as Katalox Light, Metsorb, or Granular Activated Carbon (GAC) contained in a Clack canister is a common strategy effective in reducing both lead and manganese levels. Reverse Osmosis can also be considered but has high energy demands and high water consumption.

Table 3: Water Quality Analysis – Saltwater Intrusion Indicators

Parameter	Result	Guideline	Interpretation
Chloride	8.12 mg/L	≤ 250 mg/L (AO)	**Safe** – Within aesthetic objectives
Sodium	34.4 mg/L	≤ 200 mg/L (AO)	**Safe** – Within aesthetic objectives
Electrical Conductivity (EC)	425 µS/cm	Not specified	**Safe** – Freshwater is generally < 1,000 µS/cm
Total Dissolved Solids (TDS)	246 mg/L	≤ 500 mg/L (AO)	**Safe** – Within aesthetic objectives
Sulfate	6.86 mg/L	≤ 500 mg/L	**Safe** – Far below limit
Hardness	140 mg/L	75–150 mg/L	**Safe** – Moderately hard water within normal levels
pH	7.51	7.0 – 10.5	**Safe** – Neutral pH

Based on the water quality results, it is determined that the well does not experience high saline levels and is therefore safe for potable uses. According to the BC Water Resources Atlas, the subject well is not likely to be affected by the intrusion of saline groundwater or sea water as it is classified as moderately low seawater intrusion vulnerability. The well draws from Aquifer No. 711, a bedrock aquifer covering the northern area of North Pender Island.

Taking the current water quality results into account, it is recommended to install a 5-micron cartridge filter, 1-micron absolute cartridge filter, Clack canister filter with Katalox Light media, and a UV disinfection unit. Treatment with appropriately sized equipment of this nature will allow the existing well to function as a potable water source. As noted previously, it is recommended to disinfect and purge the well prior to taking a new sample to confirm requirements for treatment.

5. Pump Test

A pump test was started on the morning of June 24th, 2025, running for about 15 hours, before stopping the pump and monitoring the water level until the morning of June 26th, 2025. The two-day test allowed for the pumping of groundwater at a constant rate, exceeding the minimum pumping period of 12 hours according to the Terms of Reference and Land Use Bylaw No. 224. The pump was running at a rate of about 3.0 L/min (0.8 US gpm), which exceeds the water supply standard and provides a conservative margin for future groundwater uses. The pump test withdrew more than double the daily required volume in the span of 15 hours, which satisfies the requirements for the domestic potable water supply for one primary and one additional dwelling under the Land Use Bylaw No. 224 Section 8.12. Refer to Table 4 for a flow rate comparison.

Table 4: Flow Rate Comparison

	Flow Rate (L/day)	Flow Rate (L/min)	Flow Rate (US gpm)
Water Supply Standard [A]	2,000	1.4	0.4
Drillers Estimate [B]	16,350	11.4	3.0
Pump Test	4,370	3.0	0.8

[A] *From Terms of Reference and Land Use Bylaw No. 224*
[B] *From BC Wells Database*

Figure 1 demonstrates the results of the pump test at a flow rate of 3.0 L/min. The water rose shortly after the test started and was quickly drawn back down to the initial level within about the first two hours of pumping. An initial spike in the data may be indicative of a plugged screen, which was released with the draw of water through pumping.

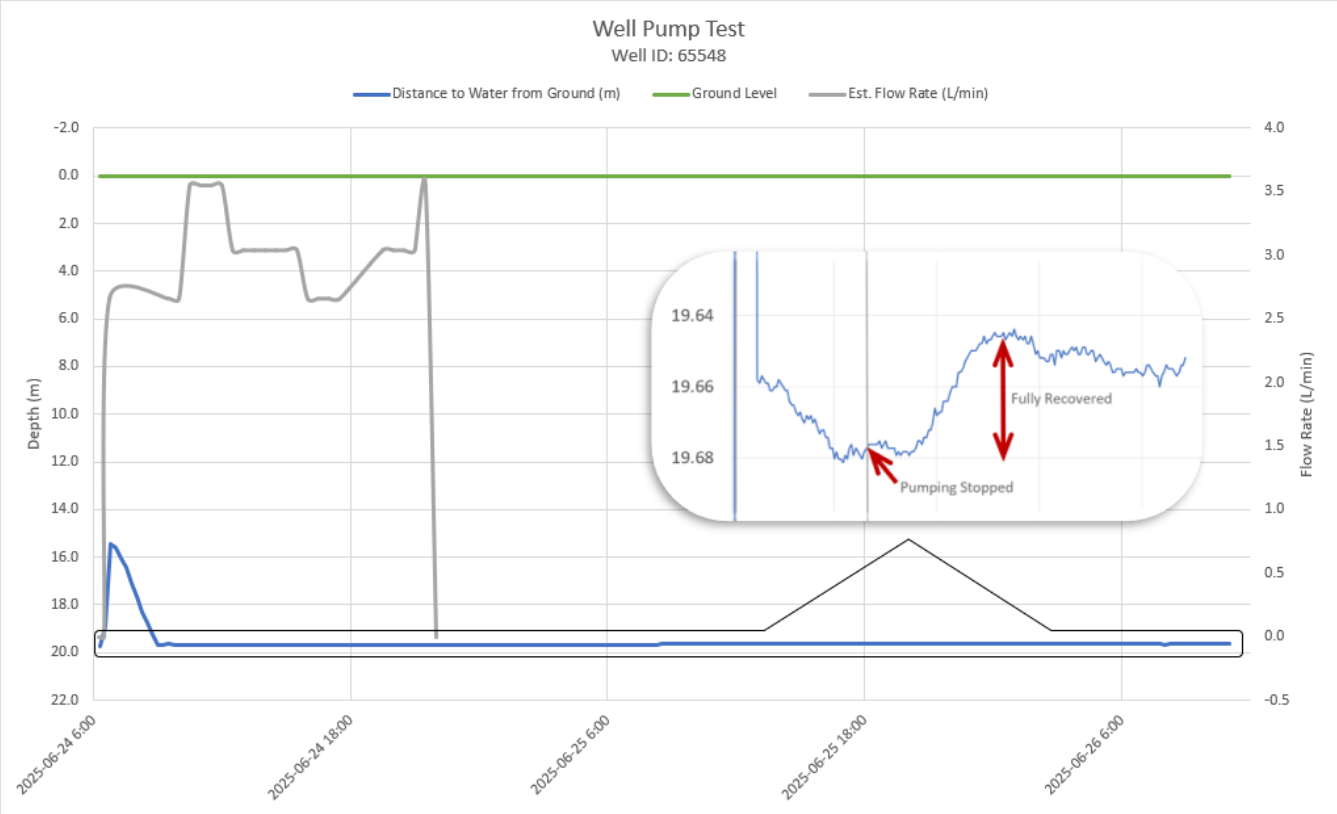


Figure 1: Pump Test and Well Drawdown

As seen in Figure 1, the water level rose nearly 4 cm within 12 hours after the pumping had stopped, fully recovering within a period no longer than the duration of the pumping test. The pump test did not show any signs of negative effects. The well was monitored for 36 hours after the completion of the pump test which generally remained above the initial water level observed prior to the pump test. The theoretical well yield is therefore greater than the 3.0 L/min at which it was tested.

Based on the rate of drawdown during the pump test, a 120-day projection can be extrapolated by forecasting the data obtained by the water data logger. By obtaining a logarithmic trendline equation for the data obtained by the data logger, the equation was used to project the trend over 120 days. Figure 2 shows the forecasted water drawdown through 24 hours per day, at 3.0 L/min.

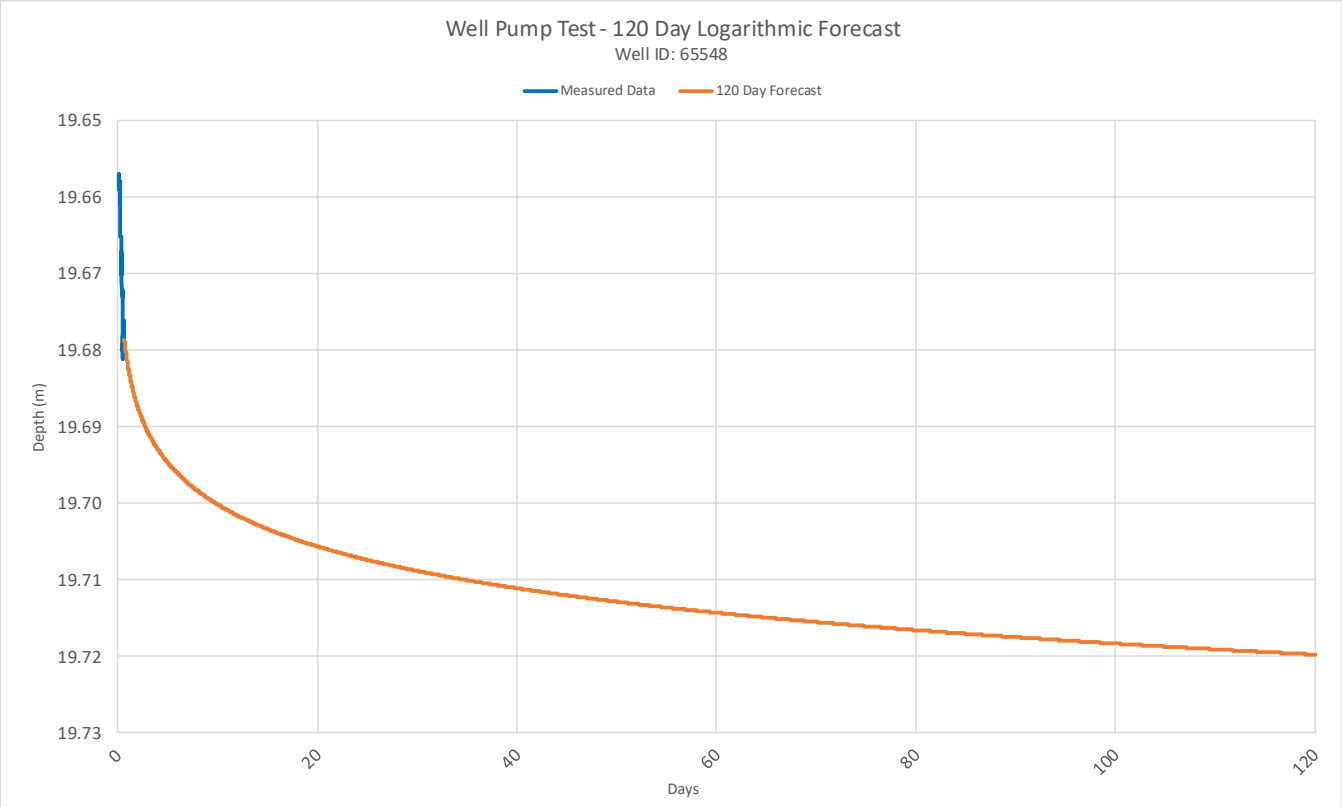


Figure 2: Pump Test 120 Day Projection

With the well drilled to a depth of 74.7 m, the water drawdown over the 120-day projection does not indicate any concern, as the expected drawdown will bring the water level down to 19.72 m below grade, for a total drop of approximately 0.06 m.

6. Guidelines for Subdivision

Development permit areas are outlined in the North Pender Island Official Community Plan (OCP) Bylaw No. 171, 2007. According to the OCP Development Permit Areas Compilation Map, the subject property is partially located in Development Permit Area (DPA) 1 for Woodland areas, with a small portion in DPA 2 for Herbaceous Sensitive Ecosystems. The DPA is located on the north side of the site and does not encompass the water well. The water well is not expected to have any impact on the DPA and while there may be an adequate capacity for a community system, the well will not serve as such.

The Terms of Reference acknowledge the presence of DPA 1 and DPA 2 areas, noting that they exist in the upper portion of the subject parcel only, and there are no DPAs affecting the area proposed for rezoning.

7. Conclusion

A rezoning application has been submitted for the property at 3334 Port Washington Road, on Pender Island, BC, to become industrially zoned. One water well with Well ID: 65548 is located on site and was inspected and tested for the purpose of becoming the property's potable water source. It is confirmed that:

- The well has sufficient available groundwater to provide the daily required volume of potable water for the proposed buildings and use.
- The well has been constructed in accordance with the Groundwater Protection Regulation.
- The extraction of groundwater for the proposed buildings and use will not adversely affect the quantity or quality of any existing groundwater well or surface water used as a source of potable water.

Samples taken at the time of the pump test yielded no coliform bacteria, no fecal contamination, and no E. coli; however, elevated non-coliform bacteria, high plate counts, and elevated levels of lead and manganese suggest treatment is required to provide potable water. It is also recommended to disinfect the well prior to use. The treatment methods described in this report are recommended to remove lead and manganese and to mitigate against future potential bacteriological issues. With the water samples obtained, it is confirmed that:

- The water quality analysis was completed by an accredited laboratory.
- The proposed water supply source can be made potable with a treatment system that is customarily used in a dwelling unit.
- The well is not affected by the intrusion of saline groundwater or sea water and has a low risk of becoming affected.
- A plan of the property is attached, indicating the location where the water samples were taken.
- The water samples upon which the water quality analysis was performed were unadulterated samples taken from the location indicated on the plan.

A pump test verified the adequacy of the quantity and quality of water from a well drilled on site, tested at a rate of 3.0 L/s (4,370 L/day), more than double the minimum water supply standard for a dwelling. The well showed a high recovery rate and over a projection of 120-days there no anticipated impacts to the quantity of groundwater available. The pump test completed confirms that:

- Groundwater was pumped at a constant rate for a period of more than 12 hours.
- A volume greater than the daily required volume in the North Pender Land Use Bylaw No. 224 was extracted within a period of 24 hours.
- The recovery phase was monitored for the well, and it was observed to recover more than 90 percent of the static water level within a period no longer than the duration of the pumping test.

Prepared By:

Luke Nelissen, EIT
Assistant Project Engineer
luke@msrsolutions.ca

Reviewed By:

Justin Allen, EIT
Project Engineer
justin@msrsolutions.ca

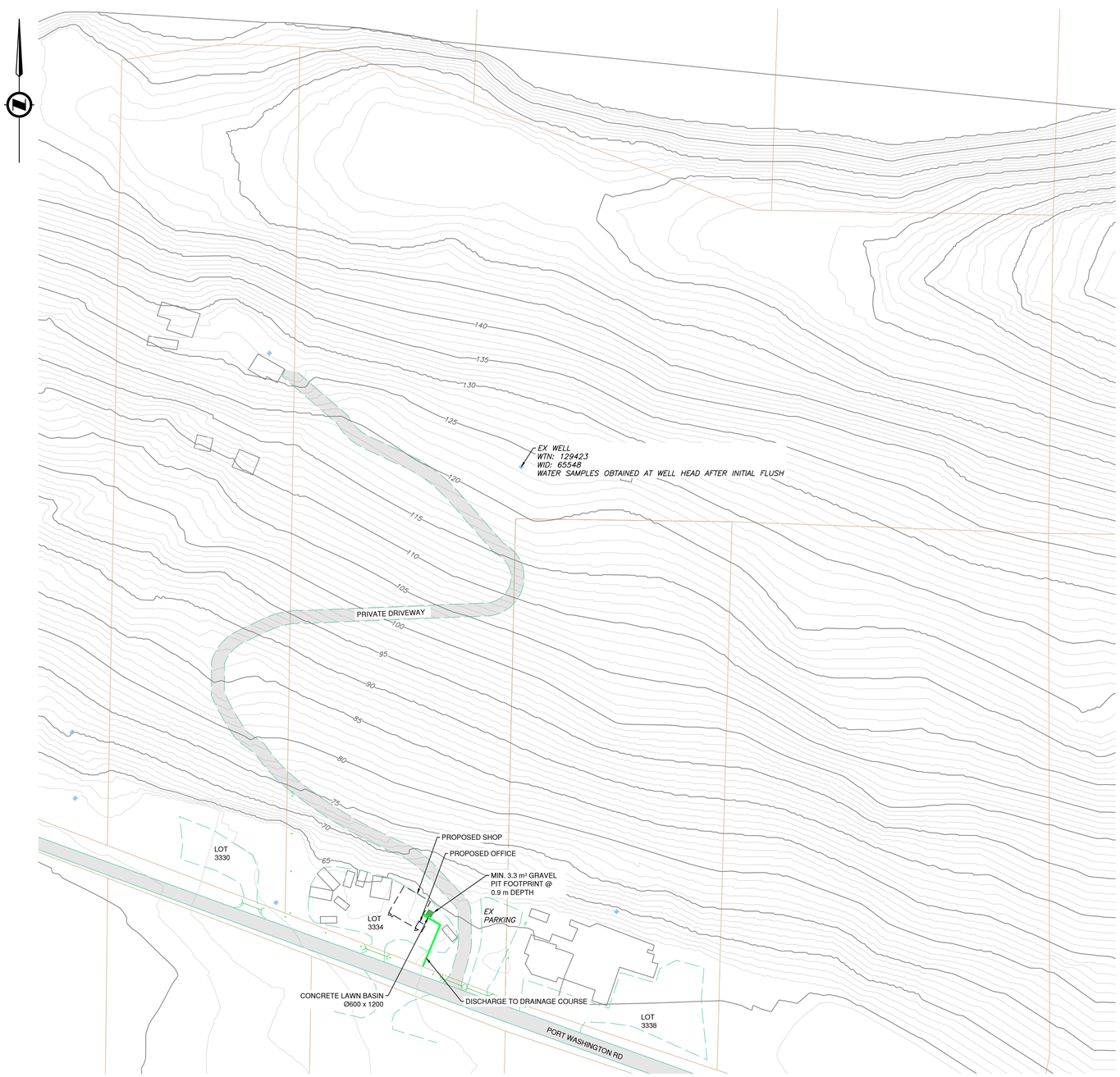
Approved By:

Mike Seymour, P.L.Eng.
Principal
mike@msrsolutions.ca

Prepared For:

Braedon Bigham
Big Dig'em Excavating Ltd.
3334 Port Washington Road
Pender Island, BC, V0N 2M1
braedonsbigdigem@shaw.ca

Appendix A: Site Plan



SITE PLAN
SCALE: 1:1000

LOCATION PLAN
SCALE: 1:10000

GENERAL NOTES

1. WORK TO BE COMPLETED DURING DRY WEATHER ONLY.
2. ALL WORKS TO BE COMPLETED AS PER CURRENT STANDARDS AND LATEST EDITION OF THE BC BUILDING CODE.
3. ALL CONSTRUCTION AND MATERIALS TO BE IN ACCORDANCE WITH THE LATEST REVISION OF THE MASTER MUNICIPAL CONSTRUCTION DOCUMENTS (MMCD), AND THE BC BUILDING CODE 2024, UNLESS OTHERWISE NOTED.
4. IF A CONFLICT BETWEEN THE SPECIFICATIONS ARISES, THE MOST STRINGENT SPECIFICATION SHALL APPLY.
5. ANY CONFLICTS BETWEEN THESE DRAWINGS AND SITE CONDITIONS TO BE REPORTED TO ENGINEER PRIOR TO CONSTRUCTION.
6. CONFIRM LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTACT BC1 CALL FOR UNDERGROUND UTILITY LOCATIONS.
7. LOCATE STORMWATER COLLECTION AND CONVEYANCE WORKS ACCORDINGLY WITH SITE GRADING TO CAPTURE SURFACE RUNOFF.
8. CONTRACTOR TO ENSURE ALL PERMITS AND APPROVALS ARE ACQUIRED PRIOR TO CONSTRUCTION.
9. CONTRACTOR NOT TO COMMENCE BACKFILL OPERATION UNTIL THE EXCAVATION AND WORKS HAVE BEEN APPROVED BY THE ENGINEER.
10. CONTRACTOR TO OBTAIN PERMIT FROM CRD PRIOR TO DEPOSIT OR REMOVAL OF SOILS ON THIS SITE.
11. EQUIPMENT TO BE IN ACCORDANCE WITH THE MANUFACTURER'S LITERATURE ON BACKFILL AND COMPACTION.
12. ALL PIPE BEDDING AND BACKFILL AS PER MMCD SPECIFICATIONS.
13. EXCAVATE TO LINES AND LEVELS NECESSARY TO COMPLETE THE WORKS. MINIMUM SIDE SLOPES OF EXCAVATIONS SHALL NOT EXCEED 1:1 IN SOIL AND 1:0.25 IN ROCK, UNLESS NOTED OTHERWISE BY GEOTECHNICAL CONSULTANT.
14. BACKFILL TO GRADES INDICATED IN LAYERS NOT TO EXCEED 300mm. ALL BACKFILL SHALL BE COMPACTED TO 98% STANDARD PROCTOR DENSITY AT OPTIMUM MOISTURE CONTEXT.
15. IF ARCHEOLOGICAL MATERIAL IS ENCOUNTERED, STOP ALL EXCAVATION AND CONSULT A QUALIFIED ARCHEOLOGIST PRIOR TO THE CONTINUATION OF WORKS.

DESIGN NOTES

1. LENGTH, WIDTH, AND DEPTH OF GRAVEL PIT TO BE CONFIRMED ON SITE. FIELD FIT AS REQUIRED, MAINTAIN A MINIMUM CUBIC VOLUME OF 3.3 m^3 AND MINIMUM 0.3 m OF COVER SOIL OVER THE GRAVEL.
2. MAINTAIN A MINIMUM OF 0.3 m NATIVE SOIL FROM BOTTOM OF GRAVEL PIT TO BEDROCK.
3. DIRECT STORMWATER RESTRICTING OUTLET AND OVERFLOW DISCHARGE TO DRAINAGE COURSE.
4. LOCATE STORM WATER WORKS OUTSIDE OF DRIVEWAY AND PROTECT FROM VEHICULAR TRAFFIC.

EROSION AND SEDIMENT CONTROL

1. TO PROTECT THE SOIL, WATER, AND VEGETATIVE RESOURCES OF THE DEVELOPMENT, ONLY THOSE AREAS NECESSARY TO CONSTRUCT THE WORKS AND SERVICES CONTAINED IN THE ENGINEERING DRAWINGS ARE TO BE DISTURBED.
2. PRIOR TO AND DURING CONSTRUCTION, THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR CONTROLLING EROSION AND SEDIMENT TRANSFER BY UTILIZING SUCH MEASURES AS CONSTRUCTION OF INTERCEPTOR DITCHES, SILT FENCES, HAY BALE STRUCTURES, SEDIMENT CONTROL PONDS, SEDIMENT TRAPS, STAGED GRAVEL FILTERS, OR OTHER METHODS HE MAY DEEM NECESSARY TO PREVENT DISCHARGE OF SEDIMENT TO WATERCOURSES.
3. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR DAMAGES RESULTING FROM IMPROPER EROSION AND SEDIMENT CONTROL MEASURES UNDERTAKEN BY THE CONTRACTOR.
4. PRIOR TO SUBSTANTIAL COMPLETION THE CONTRACTOR SHALL PREPARE AND REVIEW WITH THE OWNER A PLAN WHEREBY THE OWNER WILL UPON FINAL COMPLETION ASSUME RESPONSIBILITY FOR ONGOING EROSION AND SEDIMENT CONTROL MEASURES ON THIS SITE.

1:1000 0 20 60m

1:10,000 0 200 600m

PRELIMINARY – FOR DISCUSSION PURPOSES ONLY
JULY 2025

ISLANDS TRUST

BC 1C
CALL BEFORE YOU DIG!
1-800-474-6886
THE CONTRACTOR IS TO CALL BC ONE CALL AND HAVE EXISTING U/G SERVICES STAKED PRIOR TO ANY CONSTRUCTION

ISSUED

REV.	DESCRIPTION	DATE	DRAWN	CHECKED	APPR
1	PRELIMINARY	2025.07.22.	AM	LN	MS

MSR SOLUTIONS INC.
INNOVATIVE ENGINEERING SOLUTIONS
125 - 662 GOLDSTREAM AVENUE, LANGFORD
B.C. V9B 0N8
OFFICE: (250) 479 - 5164
admin@msrsolutions.ca
PERMIT TO PRACTICE #1001876

STAMP

SCALE:	AS SHOWN
DESIGN:	LN
DRAWN:	AM
CHECKED:	JA
APPROVED:	MS

CLIENT: BIG DIG'EM EXCAVATING LTD

PROJECT: 3334 PORT WASHINGTON RD
SITE PLAN

PROJECT NO.	SHEET NO.	DRAWING NO.	REVISION NO.
25-970	1 OF 2	C01	1

M:\MSR Projects\25-970 Big Digem - 3334 Port Washington Rd\03-Drawings\Design\C01 25-970 SITE PLAN CURRENT.dwg, 2025-07-22 1:32:26 PM, luke.mclssen, ISO full bleed A1 (841.00 x 594.00 MM)

Appendix B: Water Quality Testing Results

MSR Solutions
*B Inv admin@msrsolutions.ca
#125-662 Goldstream Ave
Victoria, BC
V9B 0N8
TEL: 250 479-5164
cole@msrsolutions.ca

26Jun25 2:51p W188128
Source: Well
Type of Sample: Water
No. of Samples: 1
Arrival temp.: 9.3C
PD B1227B 2606U

	Site Code	Date	Time	CFU/100 ml TC	T-NC	CFU/100 ml FC	F-NC	CFU/100 mL E.coli
1	Well Sample	26Jun25	11:00	0	27600	0	200	0

WATER DISTRICT SCREEN

	Sample	Date	Time	Lactose Fermentors	Coliforms Total	Fecal	E.coli	Total Aeromonas
1	Well Sample	26Jun25	11:00	276	ND	ND	ND	0.18

	Sample	Date	Time	Sulfur Reducing/ Iron Bacteria	Yeast/Fungi	TPC*
1	Well Sample	26Jun25	11:00	ND/ present	ND / ND	22272

* All counts are colony forming units per milli-litre

TC = total coliform bacteria FC = fecal coliform bacteria (aka Thermotolerant Coliforms)
NC = non-coliform bacteria ND = none detected
TPC = total plate count- spread plate method - 35C/48hr TGEA FDA/BAM 9th ed, Oct 2020
CFU = colony forming units

Results may be adversely affected if samples are submitted to the laboratory more than 24 to 30 hours after collection.

E. coli = Escherichia coli, FDA/BAM 9th ed, Oct 2020
Bergy's Manual of Systematic Bacteriology vol 1, AOAC 1984; J.Clin.Micro., J.Intern.Systm.Bact.

Comments:
For Interpretation of Results:
Total, Fecal Coliforms or E.coli present greater than 0 CFU/100mL (0 CFU/mL):
IF Coliform numbers exceed safe limits for drinking water-
water is not suitable for drinking without treatment.

Total Non-coliform bacteria (=Lactose Fermentors) equal to or greater than 200 CFU/100mL (2.0 CFU/mL):
IF the number organisms present exceed recommended guidelines for drinking water; treatment is strongly recommended.

If Total Plate Count bacteria are -
A) greater than 100 CFU/mL:
high numbers of microbial organisms indicate that this water supply should be monitored on a seasonal basis.
B) greater than 500 CFU/mL:
the number of organisms present exceed recommended guidelines for drinking water; treatment is strongly recommended.

- See following page for chemistry results -

W. Riggs
Sr. Microbiologist

M.B. LABS LTD
T: 250 656-1334 E: info@mblabs.com W: www.mblabs.com

EMAILED
JUL 03 2025
8:58PS

MSR Solutions
*B Inv admin@msrsolutions.ca
#125-662 Goldstream Ave
Victoria, BC
V9B 0N8
TEL: 250 479-5164
cole@msrsolutions.ca

26Jun25 2:51p
Source: Well
Type of Sample: Water
No. of Samples: 1

Arrival temp.: 9.3C
PD B1227B 2606U

Sample: Well Sample - 26Jun25 11:00

ELEMENTS		SAMPLE	UNITS	Maximum Limits In Drinking Water*
1) Aluminium	Al	0.097	mg/L	no limit listed
2) Antimony	Sb	<0.500	ug/L	6.00 ug/L
3) Arsenic	As	2.50	ug/L	10.0 ug/L
4) Barium	Ba	0.014	mg/L	2.00 mg/L
5) Beryllium	Be	<0.003	mg/L	no limit listed
6) Boron	B	0.258	mg/L	5.00 mg/L
7) Cadmium	Cd	<0.010	ug/L	7.00 ug/L
8) Calcium	Ca	40.1	mg/L	200 mg/L
9) Chromium	Cr	0.003	mg/L	0.050 mg/L
10) Cobalt	Co	<0.005	mg/L	no limit listed
11) Copper	Cu	<0.008	mg/L	1.00 mg/L
12) Gold	Au	<0.040	mg/L	no limit listed
13) Iron	Fe	0.155	mg/L	0.300 mg/L
14) Lanthanum	La	<0.020	mg/L	no limit listed
15) Lead	Pb	6.32	ug/L	5.00 ug/L
16) Magnesium	Mg	9.79	mg/L	50.0 mg/L
17) Manganese	Mn	0.184	mg/L	0.120 MAC 0.020 AO
18) Mercury	Hg	<0.010	ug/L	1.00 ug/L
19) Molybdenum	Mo	<0.005	mg/L	no limit listed
20) Nickel	Ni	<0.004	mg/L	no limit listed
21) Phosphorus	P	<0.010	mg/L	no limit listed
22) Potassium	K	0.560	mg/L	no limit listed
23) Scandium	Sc	<0.050	mg/L	no limit listed
24) Selenium	Se	<0.500	ug/L	5.0 ug/L
25) Silicon	Si	16.7	mg/L	no limit listed
26) Silver	Ag	<0.010	mg/L	no limit listed
27) Sodium	Na	34.4	mg/L	200 mg/L
28) Strontium	Sr	0.560	mg/L	no limit listed
29) Tin	Sn	<0.020	mg/L	no limit listed
30) Titanium	Ti	<0.010	mg/L	no limit listed
31) Tungsten	W	<0.050	mg/L	no limit listed
32) Vanadium	V	<0.010	mg/L	no limit listed
33) Zinc	Zn	0.006	mg/L	5.00 mg/L
Hardness (mg/L $CaCO_3$)		140	mg/L	75-150 mg/L = moderately hard
pH		7.51	units	7.0 to 10.5

* As per Canadian or B.C. Health Act Safe Drinking Water Regulation BC Reg 230/92, & 390 Sch 120, 2001. Task Force of the Canadian Council of Resource and Environment Ministers - Guidelines for Canadian Drinking Water Quality, 2020.

Comments:
Lead: toxic and accumulates in body tissues; Lead may come from old lead pipes, solders, or industrial discharges. Even small amounts can contribute to learning disability in children.
Manganese: high amounts can cause staining of laundry, porcelain & plumbing fixtures & an undesirable tastes. Not considered toxic-caution children under 6 months

R. Bilodeau
Analytical Chemist

H. Hartmann
Sr.Analytical Chemist

RB

MSR Solutions
*B Inv admin@msrsolutions.ca
#125-662 Goldstream Ave
Victoria, BC
V9B 0N8
TEL: 250 479-5164
cole@msrsolutions.ca

26Jun25 2:51p
Source: Well
Type of Sample: Water
No. of Samples: 1
Arrival temp.: 9.3C
PD B1227B 2606U

SAMPLE	DATE	TIME	Alkalinity (mg/L)	NH_3-N (ug/L)	Cl^- (mg/L)	Colour (TCU)	E.C. (uS/cm)
Well Sample	26Jun25	11:00	225	ND	8.12	2.01	425
Lab Blank			ND	ND	ND	ND	ND
So			0.100	0.254	0.015	0.300	0.300
REF. VALUE			100	10.0	10.0	10.0	147
STD ± 2SD			103 ± 6.22	9.66 ± 0.560	10.8 ± 0.811	9.78 ± 0.744	143 ± 11.2

SAMPLE	DATE	TIME	CORROSIVITY (Is @20C)	F^- (mg/L)	S^{2-} (ug/L)	TKN (mg/L)	NO_3-N (ug/L)
Well Sample	26Jun25	11:00	0.078	ND	ND	ND	4.00
Lab Blank				ND	ND	ND	ND
So				0.007	0.007	0.012	0.160
REF. VALUE				1.00	50.0	1.00	10.0
STD ± 2SD				1.06 ± 0.057	50.6 ± 4.12	1.04 ± 0.056	9.85 ± 0.660

SAMPLE	DATE	TIME	NO_2-N (ug/L)	SO_4^{2-} (mg/L)	T.O.C. (mg/L)	T&L (mg/L)	TDS (mg/L)
Well Sample	26Jun25	11:00	1.80	6.86	ND	ND	246
Lab Blank			ND	ND	ND	ND	ND
So			0.300	0.075	0.300	0.070	0.010
REF. VALUE			10.0	10.0	10.0	1.00	200
STD ± 2SD			9.77 ± 0.497	10.6 ± 0.622	9.55 ± 0.560	1.03 ± 0.067	206 ± 13.3

SAMPLE	DATE	TIME	Turbidity (NTU)	UVT (%)
Well Sample	26Jun25	11:00	5.78	97.3
Lab Blank			ND	ND
So			0.015	0.003
REF. VALUE			10.0	90.0
STD ± 2SD			9.55 ± 0.623	90.2 ± 0.022

SD = standard deviation; REF VALUE = primary or secondary reference material
STD = secondary standard calibrated to primary standard reference material
So = standard deviation at zero analyte concentration; method detection limit is generally considered to be 3x So value
ND = none detected n/a = not applicable

R. Bilodeau
Analytical Chemist

H. Hartmann
Sr.Analytical Chemist