
AGENDA

Date: Tuesday, September 29, 2026
Time: 1:00 PM
Location: Boardroom at 4 – 121 McPhillips Avenue | Salt Spring Island BC V8K 2T6

- | | |
|---|------------|
| 1. AGENDA | 5 minutes |
| 1.1 Approval of Agenda | |
| 2. PROCEDURAL BUSINESS | 5 minutes |
| 2.1 Election of the Chair | |
| 3. MINUTES OF PREVIOUS MEETINGS | 5 minutes |
| <i>Please propose amendments to the draft minutes as worded resolutions in writing to be presented at the meeting</i> | |
| 3.1 Draft Minutes of the Meeting – <i>For Adoption</i> | Page 2 |
| 4. HEARINGS | 60 minutes |
| 4.1 PLBOV20260029 - Clamshell Island – B. Fossen | Page 4 |
| 5. ADJOURNMENT | |



Salt Spring Island Board of Variance Meeting Minutes

Date of Meeting: Wednesday, August 6, 2025

Location: United Church Upper Hall
111 Hereford Ave, Salt Spring Island

Members Present: George Ward, Member
Robert Rush, Member
Lisa Floritto, Member

Staff Present: Rob Pingle, Planning Technician

Others Present: Stuart Black, Applicant
Takako Black, Applicant
Dawn Black, Applicant
Peter Black, Applicant

These minutes follow the order of the agenda although the sequence may have varied.

Planning Technician Pingle called the meeting to order at 2:00 p.m.

1. APPROVAL OF AGENDA

By general consent the agenda was approved as presented.

2. PROCEDURAL BUSINESS

2.1 Election of the Chair

Planning Technician Pingle explained the process.

By general consent Member George Ward was elected as the Chair.

3. MINUTES

3.1 BOV Meeting of August 23, 2024

By general consent the minutes were approved as presented.

3.2 BOV Meeting of August 26, 2024

By general consent the minutes were approved as presented.

4. HEARINGS

4.1 PLBOV20250248 – S. Black – 365 Isabella Point Road

Planning Technician Pingle presented a staff report regarding a Board of Variance to vary setbacks from lot lines and the sea as well as a room not connected to the dwelling for the property at 365 Isabella Point Road.

The applicant spoke to the application.

SS-BOV-2025-001

It was MOVED and SECONDED,

That, having considered the matters set out in s.542 (1)(c) of the Local Government Act, and having found that undue hardship would be caused to the applicant if s.531 (1) of the Local Government Act is complied with, the Salt Spring Island Board of Variance approve application PLBOV20250248 as presented and shown on Schedule A, B and C of the Notice of Hearing.

CARRIED

3. ADJOURNMENT

By general consent the meeting adjourned at 3:12 p.m.

CERTIFIED CORRECT:

George Ward, Chair

Rob Pingle, Recorder

File No.: PLBOV20260029

X-File: SS-DVP-2022.1

SS-BE-2021.121

DATE OF MEETING: September 29, 2026

TO: Salt Spring Island Board of Variance

FROM: Rob Pingle, Planning Technician
Salt Spring Island Team

COPY: Jason Youmans, Regional Planning Manager

SUBJECT: Siting variance to reduce the setback to the natural boundary of the sea for a septic field
Applicant: Bradley Fossen
Location: Clamshell Islet, SSI (001-375-458)

REPORT SUMMARY

The purpose of this report is to provide the Salt Spring Island Board of Variance with an application to relax the setback requirement for a sewage disposal field from the natural boundary of the sea from 30 meters (98.4 ft) to 10 metres (32.8 ft) as illustrated in figure 3.

To grant this variance, the Board should be satisfied that the variance is minor and the property owner would experience hardship if forced to comply with the regulations of the Land Use Bylaw. The criteria for issuing a variance are discussed in the Board of Variance section of this report.

This application is being made under Section 540 (a) (i) of the *Local Government Act* for a variance to a bylaw respecting the siting, size or dimensions of a building or other structure.

BACKGROUND

Clamshell Islet is a 0.45 ha (1.1 Acres) property located within the Rural Islet (Ri) zone 250 metres northeast of BC Ferries Terminal in Long Harbour. This application was submitted to allow construction of a sewage disposal field to service a proposed single-family dwelling. Due to the configuration and limited width of the island, it is not possible to site the proposed sewage disposal field in compliance with the required setback regulations.

Section 4.5.1 of the Land Use Bylaw states that:

*4.5.1 No sewage disposal field or seepage pit may be located within:
(1) 30 m of the natural boundary of the sea;*

The applicant previously applied for a variance to permit the construction of a sewage disposal field to service a proposed six-bedroom dwelling. First Nations notified of that variance permit application expressed concern. The Salt Spring Local Trust Committee subsequently denied the application, noting the opposition received through the referral process.

The applicant has now submitted a board of variance application proposing a revised dispersal system design (Type 3 effluent) intended to support a three-bedroom single-family dwelling. A site context is provided in Attachment 1 while maps, plans and photographs can be found in Attachment 2.

ANALYSIS

Policy/Regulatory

Official Community Plan (OCP)

The subject property is designated Islet Residential under Salt Spring Island Official Community Plan Bylaw No. 434. The following Conservation Land Use Objectives and Policies are relevant to this proposal:

- B.8.1.1.3 To identify small islets in the Plan area zoned for residential use, but with fragile and sensitive natural environments.
- B.8.1.2.2 Zones within the Watershed and Islet Residential Designation will continue to allow the uses allowed under current zoning. Existing commercial and institutional zones will remain, but zoning changes should not be made to locate additional new or higher impact developments on lands in this Designation.

Land Use Bylaw (LUB)

The subject property is zoned Rural Islet (Ri) in the Salt Spring Island Land Use Bylaw No. 355, 1999 (LUB). The applicant is seeking to vary the following regulation in the Salt Spring Island land use bylaw:

*4.4.1 No sewage disposal field or seepage pit may be located within:
(1) 30 m of the natural boundary of the sea;*

If the variance is approved, it will allow the construction of sewage infrastructure for a proposed 3-bedroom house.

Intent of Regulations being varied:

Section 542 (c) (v) of the LGA states that the Board may grant a minor variance if the Board is of the opinion that the variance does not defeat the intent of the bylaw. Although the Board must form its own opinion, the following assessment of the intent of the regulation may assist:

- Protection of the sensitive ecosystems
- Protection of development from natural hazards

Issues and Opportunities

Site Configuration and Zoning

The subject property is zoned Rural Islet under the Salt Spring Island Land Use Bylaw. This zone permits a single-family dwelling and associated accessory buildings on the subject property.

The land use bylaw requires that sewage disposal fields be set back 30 metres from the natural boundary of the sea. Given that the subject property is approximately 45 metres at its widest point, achieving this setback is not physically possible. As a result, while the zoning permits a dwelling, the servicing infrastructure to support that use cannot comply without a variance. The applicant is therefore seeking to reduce the setback from 30 metres to 10 metres.

To support the request, the applicant has provided a narrative (Attachment 3), and an Onsite Wastewater Treatment (OSWT) Site Capability Assessment (Attachment 4) for a type 3 sewerage system design prepared by a Professional Engineer.

Type 3 effluent is domestic wastewater that has undergone advanced treatment to meet BC Sewerage System Regulation standards, including BOD_5 and $TSS \leq 10$ mg/L and fecal coliforms ≤ 400 CFU/100 mL. Type 3 systems use enhanced biological treatment and disinfection and require ongoing certified maintenance.

If the Board refuses the variance, the applicant would need to pursue alternative wastewater options, most likely a holding tank requiring regular pump-out and off-site disposal.

British Columbia Standard Practice Manual Setback

The BC Sewerage System Standards Practice Manual (SPM) guides the planning, installation and maintenance of onsite wastewater disposal systems in the Province. The SPM establishes a 15 metre setback from marine or other water bodies for dispersal systems. Any proposal to reduce this setback must use a performance-based design approach.

The attached OSWT Site Capability Assessment outlines how the proposed performance-based dispersal field has been designed to meet, and in several respects exceed, the applicable requirements of the BC Sewerage System Regulation, the BC Sewerage Practice Manual, and Engineer and geoscientists of BC professional practice guidelines. The report describes the design features and performance measures intended to provide an enhanced level of environmental protection, including protection of the adjacent marine environment.

Existing Solar Shed

An additional issue on the subject property is the construction of an accessory building (“Solar Shed”) before the establishment of a principal use, which is not permitted under current zoning. Although the SS LTC has identified the broader issue of accessory buildings without a principal use as a project since 2016, no regulatory amendments have been completed. As rezoning is the only available mechanism to authorize this structure, staff have not required the applicant to address the existing accessory building at this time.

Sensitive Ecosystem

Clamshell Islet is designated as a woodland ecosystem under Islands Trust Sensitive Ecosystem Inventory (SEI). As noted in the Islands Trust Conservancy [Sensitive Ecosystem Guide](#), woodland ecosystems “are dry and open forests dominated by a mix of deciduous and coniferous tree species. Arbutus, Douglas-fir and Garry oak dominated woodlands are among the most sensitive and biologically diverse woodland ecosystems in the islands Trust Area.”

Potential impacts of granting to variance

Granting a variance can create an expectation in the community with regard to future applications. As variances consider the unique circumstances pertaining to a particular situation that may warrant the relaxation of a specific zoning regulation, each application should be evaluated on its own merits.

Circulation

[Section 541](#) of the Local Government Act and Section 19 of [Salt Spring Island Board of Variance Bylaw. 442](#) require that notice be provided to owners and tenants of the subject property and the adjacent land.

The legislation and the bylaw do not define the term “adjacent.” Consistent with established practice, staff applied a 100-metre notification radius and did not expand the notification area for this application. As the subject island is not located within 100 metres of any other property, a notice was only provided to the property owner. A copy of the notice is included as Attachment 5.

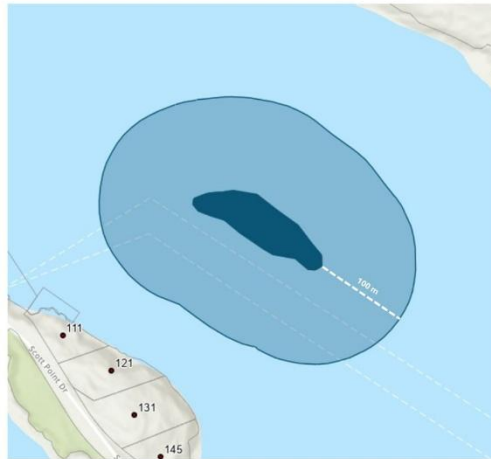


Figure 1 - Notice Distance

First Nations

The Islands Trust reviews all applications to ensure the preservation and protection of cultural heritage, archaeological sites, and ancestral places. A previous [development variance permit](#) (DVP) application submitted in 2022 for a sewage-setback reduction on the subject property was referred to First Nations with treaty and territorial interests on Salt Spring Island. Responses were received from Malahat Nation, Cowichan Tribes, and Lyackson First Nation. Those Nations expressed opposition to the proposed variance. Correspondence from First Nations about the previous development variance permit application is available in the staff report [here](#).

As previously discussed, the legislation and local bylaw only requires notice of a Board of Variance application to be given to the owners and tenants in occupation of the subject land and adjacent land. It is staff's understanding that First Nations are not statutory notice recipients for a board of variance application. Accordingly, the application was not circulated to First Nations as part of the statutory Board of Variance notification process.

Board of Variance

This application is being made under Section 540 (a) of the *Local Government Act*:

- 540 A person may apply to a board of variance for an order under Section 542 if the person alleges that compliance with any of the following would cause the person hardship:
- (a) a bylaw respecting
 - i. the siting, dimensions or size of a building or structure, or
 - ii. the siting of a manufactured home in a manufactured home park;

A Board of Variance may order that a minor variance be permitted provided that a number of conditions have been met. It is up to the Board of Variance to determine what constitutes a minor variance and whether or not hardship has been proven.

542 (1) on an application under section 540, the board of variance may order that a minor variance be permitted from the requirements of the applicable bylaw, or that the applicant be exempted from section 531 (1), if the board of variance

- (a) has heard from the applicant and any person notified any person notified under section 541,
- (b) finds that undue hardship would be caused to the applicant if the bylaw or 531 (1) is complied with, and
- (c) is of the opinion that the variance or exemption does not do any of the following:
 - (i) result in inappropriate development of the site;
 - (ii) adversely affect the natural environment;
 - (ii) substantially affect the use and enjoyment of adjacent land;
 - (iii) vary permitted uses and densities under the applicable bylaw;
 - (iv) defeat the intent of the bylaw.

Section 542 (2) establishes that the board of variance must not make an order that would:

- (a) be in conflict with a covenant registered under section 219 of the [Land Title Act](#) or section 24A of the *Land Registry Act*, R.S.B.C. 1960, c. 208;
- (b) deal with a matter that is covered in a land use permit or covered in a land use contract;
- (c) deal with a matter that is covered by a phased development agreement under Division 12 [*Phased Development Agreements*];
- (d) deal with a flood plain specification under section 524 (3);
- (e) apply to a property
 - (i) for which an authorization for alterations is required under Part 15 [*Heritage Conservation*],
 - (ii) for which a heritage revitalization agreement under section 610 is in effect, or
 - (iii) that is scheduled under section 614 (3) (b) [*protected heritage property*] or contains a feature or characteristic identified under section 614 (3) (c) [*heritage value or character*].

Staff confirm that the following requirements set out in LGA section 541 and 542 have been met. Specifically:

- The statutory notification was mailed out.
- The variance would not be in conflict with any covenants, permits, land use contract, phased development agreement, floodplain, or heritage protection provisions.

In considering the application, the Board should be satisfied that the requirements under LGA Section 542 are met.

Submitted By:	Rob Pingle, Planning Technician	September 11, 2026
Concurrence:	Jason Youmans, Regional Planning Manager	September 14, 2026

ATTACHMENTS

1. Site Context
2. Maps, Plans, Photographs
3. Applicant's Narrative
4. OSWT Site Capability Report
5. Notice

ATTACHMENT #1 – SITE CONTEXT

LOCATION

Legal Description	LOT 222, COWICHAN DISTRICT, CONTAINING 1.10 ACRES MORE OR LESS
PID	001-375-458
Civic Address	Clamshell Islet (0.45 ha - 1.1 Acres)

LAND USE

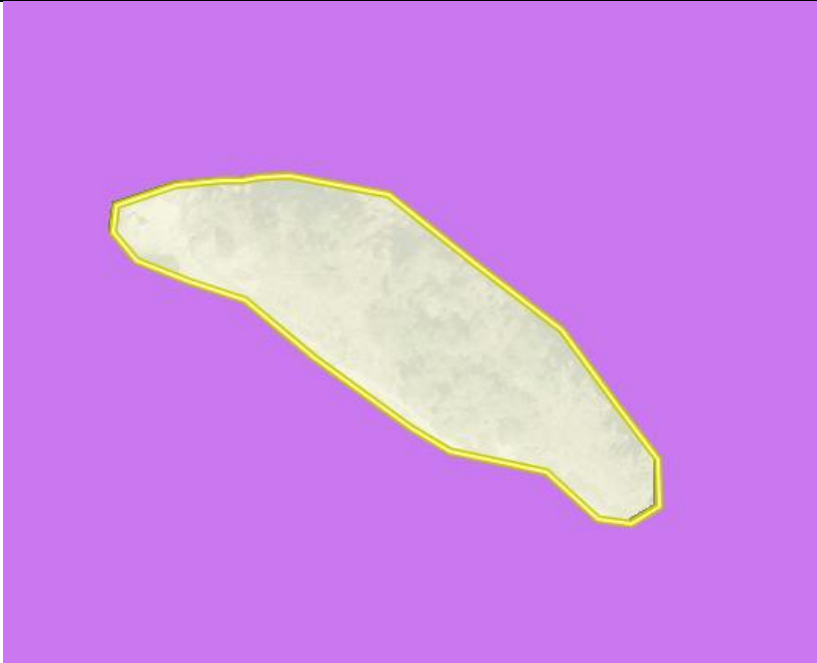
Current Land Use	Developed with accessory buildings (unpermitted)
Surrounding Land Use	North (across Long Harbour): Residential East: n/a South (across Long Harbour): BC Ferry terminal, Residential, General Employment West: BC Ferry terminal

HISTORICAL ACTIVITY

File No.	Purpose
SS-BP-2021.148	Boathouse – not approved
SS-DVP-2022.1	Variance for sewage disposal field – Not approved
PLCL20250344	Referral requesting Authorization for a Private Moorage system on a Private Island – Not approved – Requires rezoning
PLSRP20250202	Soil removal
SS-BP-2021.148	New - Boathouse - Clam Shell Island
SS-BP-2022.23	New - SFD - Clam Shell Island
SS-BP-2022.24	Accessory Building

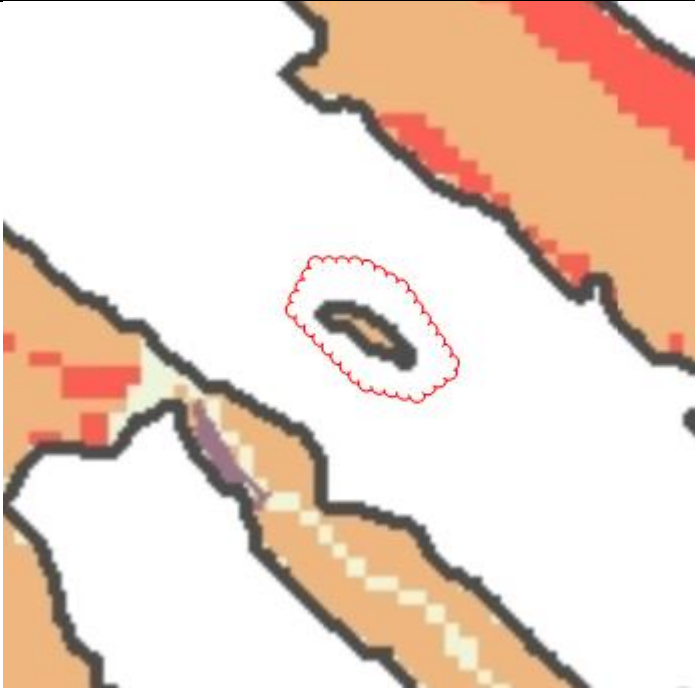
POLICY/REGULATORY

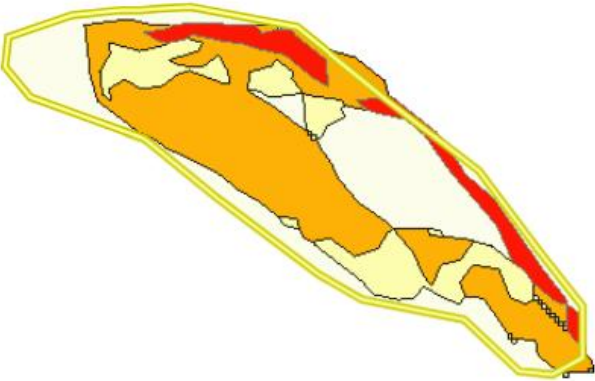
Official Community Plan Designations	Watershed and Islet Residential (WIR) DPA 3- Shoreline Foreshore
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Land Use Bylaw	Rural Islet (Ri) <table border="1"> <thead> <tr> <th></th><th>Ri</th></tr> </thead> <tbody> <tr> <td colspan="2">Principal Uses, Buildings and Structures</td></tr> <tr> <td><i>Single-family dwellings</i></td><td>◆</td></tr> <tr> <td>Lighthouse stations</td><td>◆</td></tr> <tr> <td><i>Agriculture</i></td><td>◆</td></tr> <tr> <td><i>Public service uses</i></td><td>◆</td></tr> <tr> <td colspan="2">Accessory Uses</td></tr> <tr> <td><i>Seasonal cottages</i> subject to Section 3.14</td><td>◆</td></tr> <tr> <td><i>Home-based business use</i>, subject to Section 3.13</td><td>◆</td></tr> </tbody> </table> 4.5.1 No sewage disposal field or septage pit may be located within: (1) 30 m of the natural boundary of the sea;		Ri	Principal Uses, Buildings and Structures		<i>Single-family dwellings</i>	◆	Lighthouse stations	◆	<i>Agriculture</i>	◆	<i>Public service uses</i>	◆	Accessory Uses		<i>Seasonal cottages</i> subject to Section 3.14	◆	<i>Home-based business use</i> , subject to Section 3.13	◆
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Accessory Uses																			
<i>Seasonal cottages</i> subject to Section 3.14	◆																		
<i>Home-based business use</i> , subject to Section 3.13	◆																		
Other Regulations	Provincial interest – foreshore																		
Covenants	None																		
Bylaw Enforcement	SS-BE-2021.121																		

SITE INFLUENCES

Islands Trust Conservancy	No referral/process requirements identified per: Policy 3.3.ii]
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Regional Conservation Strategy	 Rated as medium relative value in RCP
Species at Risk	None mapped
Sensitive Ecosystems	 Woodland

Hazard Areas	 ■ High Risk ■ Moderate Risk ■ Low Risk
Archaeological Sites	Potential indicated. By copy of this report, the owners and applicant should be aware that there is still a chance that the lot may contain previously unrecorded archaeological material that is protected under the <i>Heritage Conservation Act</i>. If such material is encountered during development, all work should cease and Archaeology Branch should be contacted immediately as a <i>Heritage Conservation Act</i> permit may be needed before further development is undertaken. This may involve the need to hire a qualified archaeologist to monitor the work.
Climate Change Adaptation and Mitigation	Potential GHG emission changes resulting from approval consistent with single family house development. Potential impacts on proposed development from anticipated or possible climate change induced hazards, e.g. sea level rise unknown.

Shoreline Classification	 Low Rock/Boulder Sea Cliff
Shoreline Data in TAPIS	None mapped

ATTACHMENT 2 – MAPS, PLANS, DRAWINGS, PHOTOGRAPHS

2.1 MAP

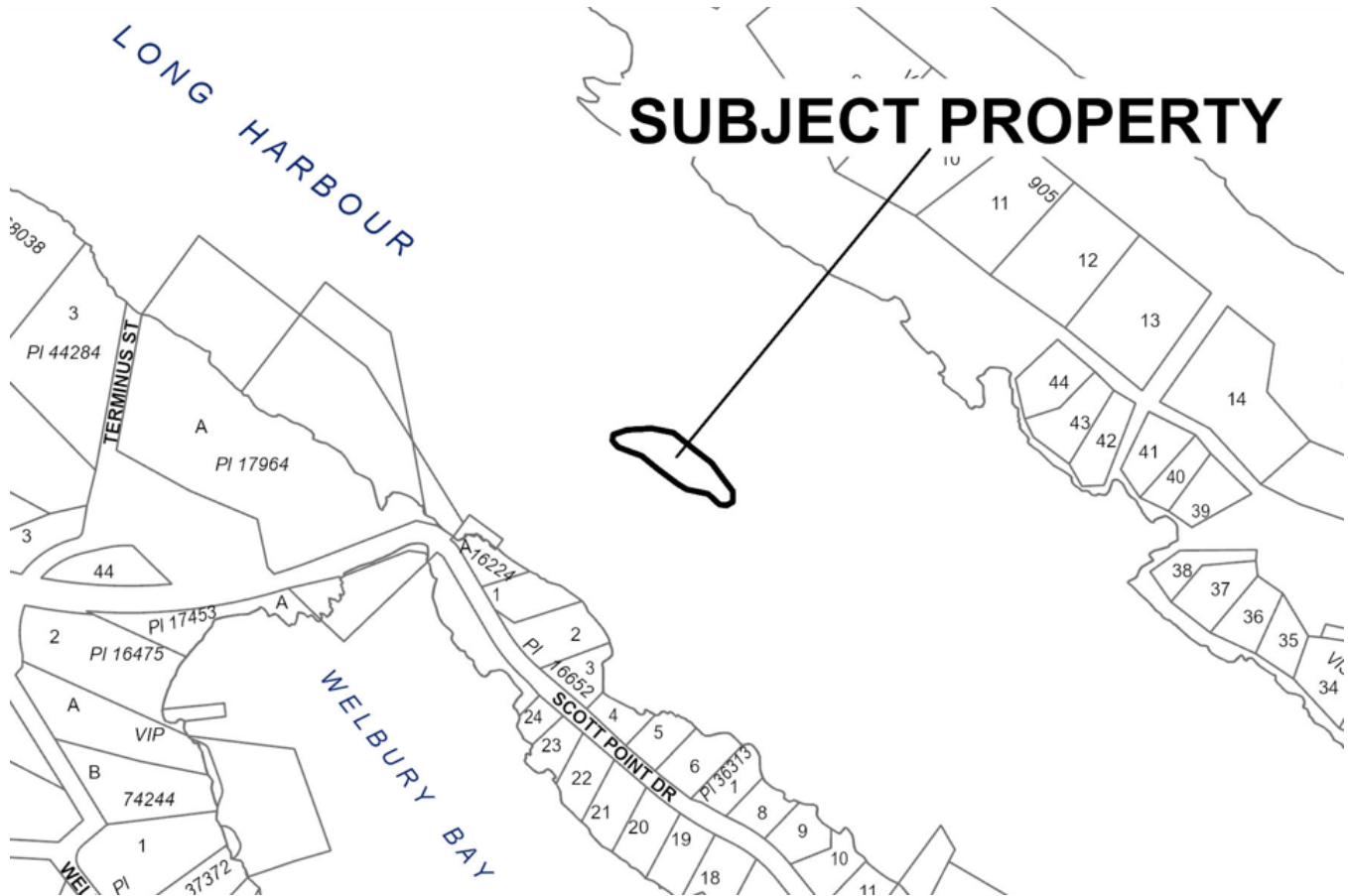


Figure 1 - Subject Property

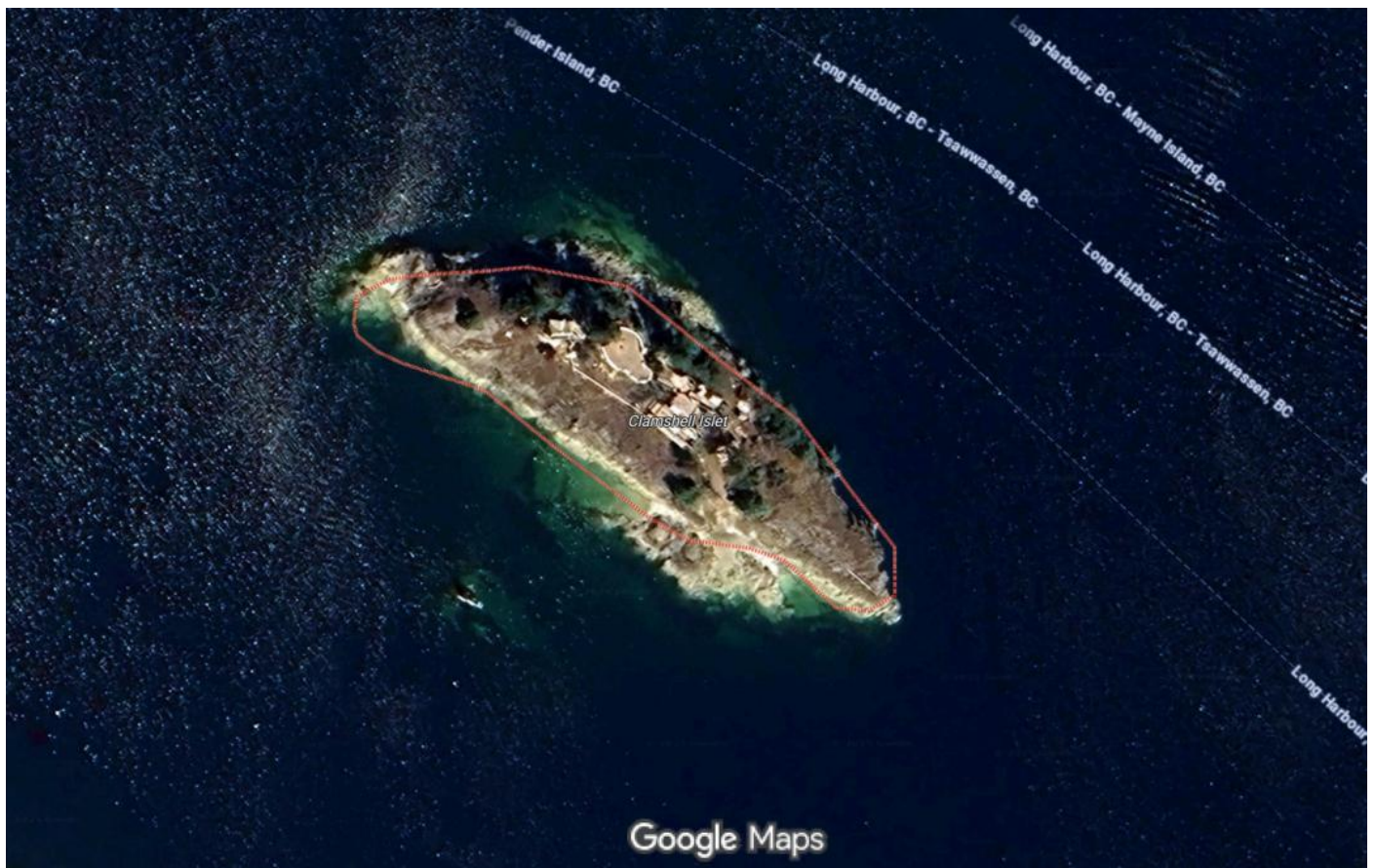


Figure 2 - Subject Property Satellite View

DPA 3



2026-06-22, 10:10:31 a.m.

 Property Boundaries

World_Hillshade

 Shoreline - Forshore (Map 20)



0 45 90 180 ft
0 12.5 25 50 m

1:1,040
Sources: Esri, Vantor, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatasystemen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap, and the GIS user community. Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User

Islands Trust
Islands Trust GIS Department

Figure 3 – DPAs

2.2 PLANS

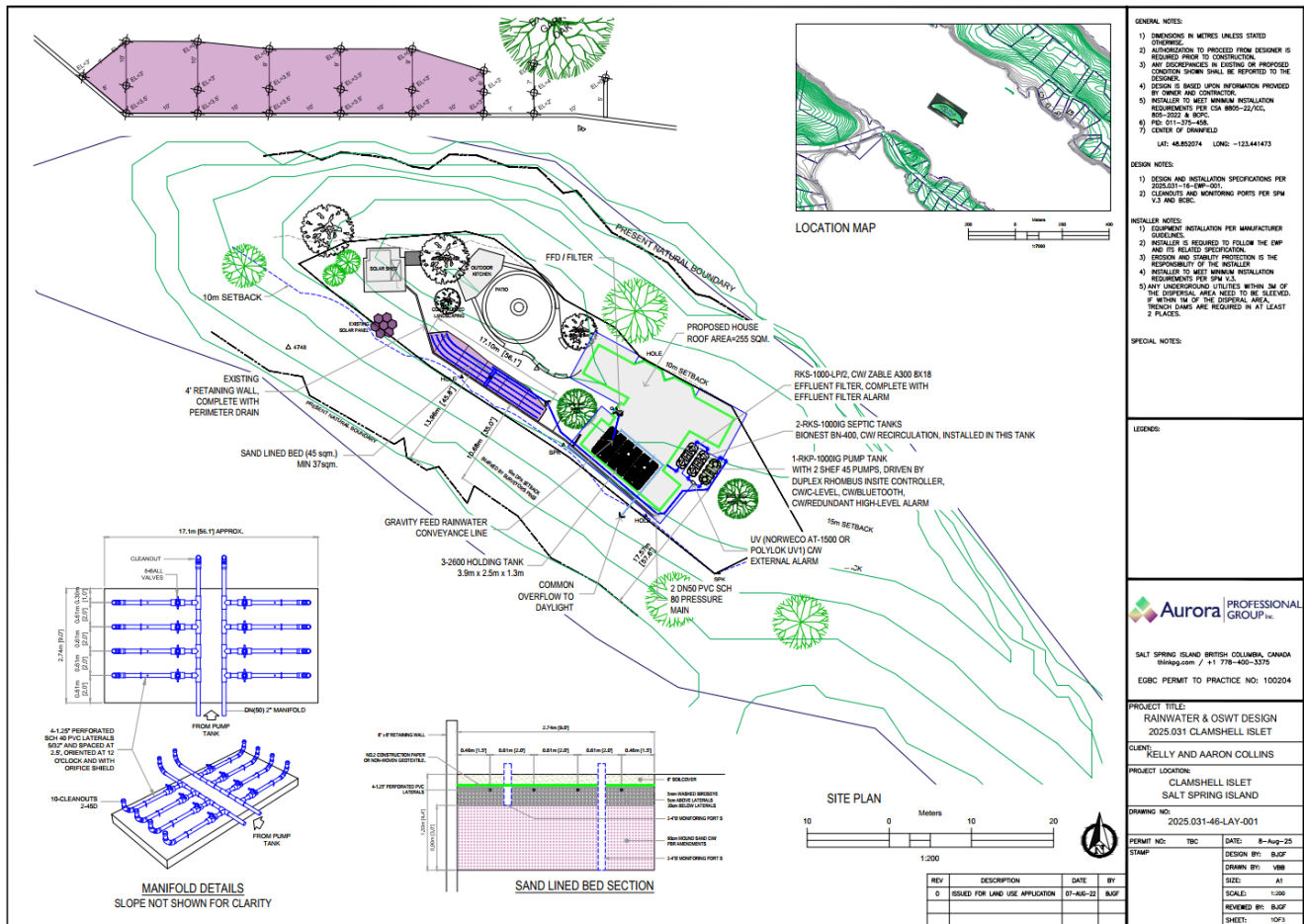
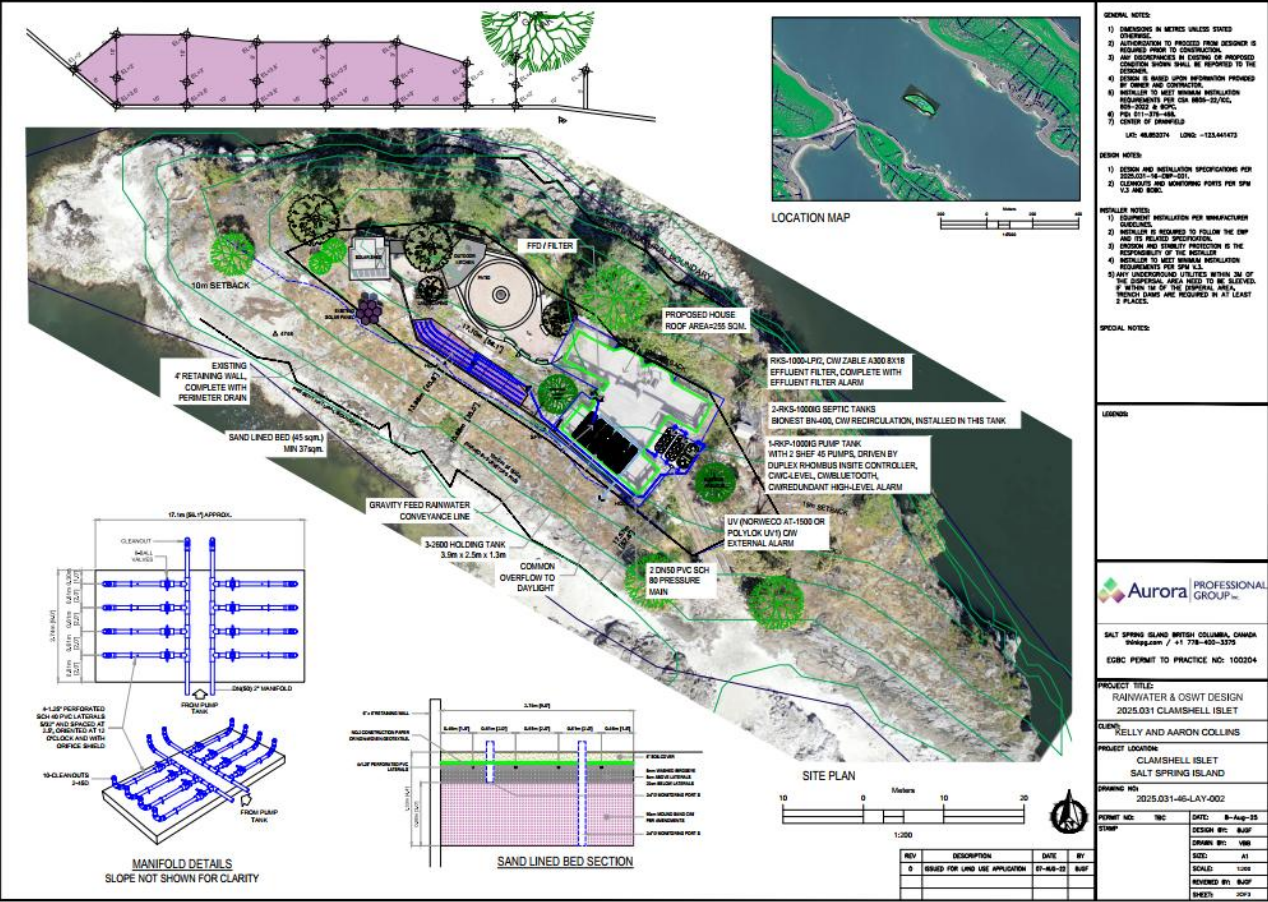


Figure 4 - Site Plan

2.3 PLANS



2.4 SITE PHOTOS



Figure 6 – Solar Shed (2022 photo)

File: 2025.031

Via: IT Portal

Date: June 26, 2026
Attention: Salt Spring Island Board of Variance, c/o Islands Trust Local Planning Services
Re: Board of Variance Application PLBOV20260029
Clamshell Islet (PID: 001-375-458), Salt Spring Island, the “subject parcel”
On Behalf of: Kelly and Aaron Collins

Dear Members of the Board of Variance,

This letter is submitted on behalf of the owners of the subject parcel, Kelly and Aaron Collins, in support of their application to the Salt Spring Island Board of Variance (the “Board”, under section 542 of the *Local Government Act*). It is provided as a stand-alone narrative and may be circulated with the Board’s hearing notice. The supporting engineering rationale is contained in the referenced Site Capability Assessment (2025.031-16-EFR-001, the “Engineering Report”) and drawing set (2025.031-46-20-LAY-001/002), which are attached but not reproduced here.

Variance Requested

The applicant requests that the Board make an order under section 542 permitting a minor variance of *Salt Spring Island Land Use Bylaw No. 355* (the “Bylaw”) as follows:

- A. Subsection 4.5.1(1), which provides that no sewage disposal field or septage pit may be located within 30 m of the natural boundary of the sea, be varied to permit a sewage disposal field no closer than 10 m to the natural boundary of the sea.

No other variance is sought. As explained herein, the siting of the dwelling, tanks, and ancillary structures can be achieved in accordance with the Bylaw’s requirements, with the benefit of the geotechnical certification already on file; only the disposal field setback under Subsection 4.5.1(1) cannot be met on this parcel.¹

The Board’s Authority and the Test Under Section 542

Under section 542(1) of the *Local Government Act*, the Board may order a minor variance where it has heard the applicant and any person entitled to notice, and finds that undue hardship would be caused to the applicant if the Bylaw were complied with, provided that the variance does not: (i) result in inappropriate development of the site; (ii) adversely affect the natural environment; (iii) substantially affect the use and enjoyment of adjacent land; (iv) vary the permitted uses and densities under the

¹ The proposed dwelling, septic tanks, and ancillary structures may be sited no closer than 10 m to the natural boundary of the sea under Subsection 4.4.2 of the Bylaw, which permits the 15 m water-body setback for buildings and structures to be reduced to 10 m where an engineer certifies that the natural boundary is located on non-erodible material. A geotechnical assessment addressing this point is on file (Ryzuk Geotechnical, File 10851-1, dated November 9, 2021). Subsection 4.4.1 further exempts a pumphouse from the 15 m setback. Accordingly, only the disposal field setback under Subsection 4.5.1(1) requires a variance.

Bylaw; (v) defeat the intent of the Bylaw; or (vi) vary the application of the Bylaw in relation to residential rental tenure.²

Because the Board, and not staff, is the decision-maker on this application, and because staff do not provide a recommendation on a Board of Variance application as they would on a development variance permit, this letter sets out the applicant's case against each element of that test. We address hardship first, then why the variance is minor, and then each of the limitations in section 542(1)(c).

Undue Hardship Arising From the Land Itself

The subject parcel is a small, undeveloped islet in Long Harbour, measuring approximately 50 m by 160 m. Its surface is predominantly exposed bedrock, with only sparse, naturally deposited soils in shallow depressions, and it is bounded on all sides by the natural boundary of the sea.

The consequence of this geometry is decisive: **the entire developable area of the parcel lies within the 30 m setback established by Subsection 4.5.1(1)**. There is no location anywhere on the parcel where a sewage disposal field could be sited in compliance with the Bylaw.

The hardship does not stem from cost, convenience, or owner preference. It is a function of the parcel's physical conditions, its size, configuration, and bedrock topography, and is absolute rather than relative. This is the circumstance the Board's undue hardship jurisdiction is intended to address: a natural site condition that renders compliance with a generally applicable regulation impossible, independent of any action by the owner. The constraint is specific to this parcel and is not shared by other properties we are aware of, but it is likely a common circumstance for islets.

Why the Variance Is Minor

Although the departure (from 30 m to 10 m) may appear large in isolation, the variance has a minor real effect and impact for three reasons.

First, the 30 m figure in Subsection 4.5.1(1) is a conservative, Salt Spring-specific policy buffer rather than a health-protection threshold. The governing provincial standard for the separation between a dispersal system and a marine water body under the BC Standard Practice Manual is 15 m, and a professionally engineered performance-based design may depart from that distance where justified.³

² *Local Government Act*, R.S.B.C. 2015, c. 1, s. 542(1). A decision of the Board of Variance is final under s. 542(4).

³ Ralston, I., Payne, M., & ASTTBC (2014), *Sewerage System Standard Practice Manual*, Version 3, BC Ministry of Health, Table II-19, which establishes a 15 m setback from a dispersal system to a marine water body; a departure from this design standard is addressed through a performance-based design, as set out in the Engineering Report (2025.031-16-EFR-001).

Neighbouring Islands Trust land-use bylaws do not impose an equivalent 30 m residential disposal-field setback from the sea, which confirms that the 30 m distance reflects a local policy choice rather than a universal measure required to protect health or the marine environment.⁴

Second, the protective purpose served by the setback is fully achieved by the proposed design at 10 m. The proposed system is a certified Type 3 treatment system discharging to a sand-lined dispersal field, deliberately sized at conservative Type 1 loading rates as a double-barrier approach. It is engineered to water-quality objectives that are substantially more stringent than the applicable EGBC guideline objectives for ocean water used for swimming, and it incorporates redundant safeguards and effluent monitoring under a certified maintenance plan.⁵ In other words, the outcome the setback is meant to secure – protection of the sea and of human health – is delivered, and arguably exceeded, at the reduced setback.

Third, the physical works are modest, and the incremental encroachment is small in real terms: a single residential dispersal field on a single-family parcel, engineered, monitored, and maintained. The variance does not open the door to intensification or to any broader relaxation of the Bylaw.

The Variance Does Not Offend the Limitations in Section 542(1)(c)

Measured against each of the limitations in section 542(1)(c), the requested variance is consistent with the statutory test:

- 1 Inappropriate development of the site:** A single-family dwelling is a permitted principal use in the Rural Islet (Ri) zone. The proposed onsite sewerage system is a conventional, certified technology, professionally designed for the site. Servicing a permitted dwelling with an engineered onsite system is an appropriate use of this parcel.
- 2 Adverse effect on the natural environment:** The design adopts water-quality objectives exceeding the applicable guideline, employs a double-barrier treatment approach, and includes ongoing effluent monitoring under a certified maintenance plan. No tree removal is required, and the parcel is not mapped within any sensitive marine ecosystem area beyond the DPA-03 foreshore designation, which lies seaward of the proposed works. The variance is protective of, not adverse to, the marine environment.

⁴ By way of comparison, the *Mayne Island Land Use Bylaw No. 146* does not fix a residential disposal-field setback from the sea, noting instead that siting of septic disposal systems is regulated under the provincial *Sewerage System Regulation* and that Ministry of Health practices establish setbacks of between 10 and 30 m for different types of systems; and the *North Pender Island Land Use Bylaw No. 224* applies its sea disposal-field setback only to fields used for agricultural, commercial, or industrial purposes. These comparators are provided for context only; each Islands Trust area is governed by its own bylaw.

⁵ As set out in the Engineering Report, the system is designed to median objectives of coliform bacteria < 1 CFU/100 mL, nitrate nitrogen < 10 mg/L, and ammonia nitrogen < 1 mg/L, as against the EGBC guideline objectives (Onsite Sewerage Systems, 2018, Table A-3, for ocean water with swimming but no shellfish harvesting) of < 200 CFU/100 mL, < 20 mg/L, and < 3.5 mg/L respectively. Safeguards include enhanced septic-tank retention, a high-performance effluent filter with an alarm, redundant pumps and high-level alarms, a redundant UV alarm, an oversized pump tank that permits timed dosing with increased emergency reserve, and a permeable reactive barrier amendment for double-barrier nutrient attenuation.

- 3 Substantial effect on the use and enjoyment of adjacent land:** The subject parcel is an islet with no immediately adjacent occupied uplands. The engineered design protects the surrounding marine receptor, the only meaningfully adjacent interest, to a standard that exceeds the guideline.
- 4 Variance of permitted uses and densities:** The application does not change the permitted use or density. It supports a single single-family dwelling of three bedrooms, well within the density permitted in the Ri zone. No additional dwelling unit, lot, or density is created.
- 5 Defeating the intent of the Bylaw:** This element is addressed in full below; in short, the intent of Subsection 4.5.1 is the protection of marine water quality, which the proposed design achieves.
- 6 Residential rental tenure:** The application has no bearing on the application of the Bylaw in relation to residential rental tenure.

The Variance Meets the Intent of the Bylaw

Subsection 4.5.1 sits within Part 4 of the Bylaw under the heading “Setbacks From Water Bodies – Water Quality Protection.” The evident purpose of the 30 m setback is to protect the quality of the sea from the effects of sewage effluent by maintaining separation between a dispersal field and the marine environment. A fixed setback is a simple, prescriptive tool for achieving that purpose across the great majority of parcels, where ample land is available.

On a parcel where a compliant setback is physically impossible, the purpose of the setback is better served by an engineered, performance-based design than by the prescriptive distance itself, in terms of outcome and performance boundaries. The proposed system is designed and will be operated and maintained to deliver effluent quality at the compliance boundary that exceeds the applicable guideline objectives. Granting the variance, therefore, gives effect to the intent of Subsection 4.5.1 – protection of marine water quality – rather than defeating it.

This conclusion is reinforced by the Bylaw’s own zoning scheme. The Ri zone contemplates single-family residential use serviced by an individual on-site sewage system and an on-site supply of potable water.⁶ The parcel cannot be lawfully occupied without an on-site sewerage system, and approvals at the building-permit stage require proof of adequate on-site sewage capacity. Yet the geometry of the islet makes a Bylaw-compliant disposal field impossible. The requested variance is the only means by which the servicing of the zone itself presupposes can be provided. Read as a whole, the Bylaw’s intent is advanced, not encumbered, by granting the variance.

Comparable Relief Recently Granted on Salt Spring Island

The relief requested is consistent with relief recently granted on Salt Spring Island for the same Bylaw provision. By resolution dated 11 July 2024, the Salt Spring Island Local Trust Committee issued Development Variance Permit PLDVP20240030 (248 Welbury Drive), varying Subsection 4.5.1(1) to permit a sewage disposal field within 10.0 m of the natural boundary of the sea, in support of a

⁶ *Salt Spring Island Land Use Bylaw No. 355*, Subsection 9.10.3, identifies an individual onsite sewage treatment system and an adequate supply of potable water as the servicing basis for the Rural Islet (Ri) zone. Proof of adequate onsite sewage capacity and potable water is also required by the Capital Regional District and Island Health at the building-permit stage. Currently, the building permit relies upon a holding tank permit.

comparable performance-based Type 3 design.⁷ While that permit was issued by the Local Trust Committee under a different process and is not binding on the Board, it demonstrates that a 10 m disposal-field setback, supported by an engineered design, has been found acceptable and workable on Salt Spring Island and is protective of the marine environment. The precedence review is not exhaustive.

Existing Utility Structure and Sequencing

For completeness, the applicant notes that a small solar utility structure is currently on the parcel to house the electrical and service equipment required for an off-grid island parcel. The structure complies with all applicable lot-line setbacks and has an enclosed floor area of approximately 10.6 m². Its open, covered deck is not enclosed and is therefore not counted as floor area under the Bylaw.⁸ The principal dwelling is expected to be completed by the end of this year. Because the parcel cannot be granted occupancy without the onsite sewerage system that is the subject of this application, the servicing infrastructure and the dwelling are being brought into place together; the requested variance is the step that allows the servicing of the parcel, and in turn the dwelling, to proceed.

The holding tank presently relied upon at the building-permit stage is an interim arrangement only, and the requested variance is the means of replacing it with a permanent, engineered onsite system. A holding tank provides no sewage treatment and relies entirely on operational diligence and periodic hauling; the health authority itself treats it as a fallback reserved for parcels where an onsite sewerage system cannot be installed. The variance, therefore, enables the more protective servicing outcome.⁹

Closing

For the reasons above, the applicant respectfully submits that compliance with Subsection 4.5.1(1) would cause undue hardship arising from the physical characteristics of the parcel, that the requested variance is minor, and that it satisfies each of the limitations in section 542(1)(c) – including, in particular, that it does not defeat the intent of the Bylaw. We respectfully request that the Board make an order permitting the variance.

⁷ Salt Spring Island Local Trust Committee, Development Variance Permit PLDVP20240030, issued 12 July 2024 pursuant to a resolution passed 11 July 2024, varying Subsection 4.5.1(1) to permit a sewage disposal field within 10.0 m of the natural boundary of the sea (248 Welbury Drive; PID 004-775-236).

⁸ Under the Bylaw's definition of "floor area," the horizontal area of a building is included only where more than 60 per cent of the area between the roof and the floor is enclosed by walls and windows; the open covered deck does not meet that threshold and is therefore excluded.

⁹ A holding tank effects no treatment of sewage. Under the *Sewerage System Regulation*, B.C. Reg. 326/2004, it is a watertight container holding domestic sewage until removal for treatment, and is expressly excluded from the definition of a "sewerage system." Island Health, the health authority administering the *Sewerage System Regulation* on Salt Spring Island, advises that a sewage holding tank is an option "when it is not possible to install a sewerage system on a parcel of land" (*Sewerage & Subdivision*, Onsite Sewage Disposal, islandhealth.ca). The proposed Type 3 engineered system, by contrast, actively treats effluent on site and thereby better serves the protective purpose underlying the setback.

We would be pleased to attend the hearing to present the application, answer the Board's questions, and facilitate a site visit so that members may see the parcel's constraints firsthand. Please do not hesitate to contact the undersigned with any questions or requests for further information.

Kind Regards,

Bradley Fossen, P.Eng.

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OSWT Site Capability Assessment

LONG FORM

PROJECT No: 2025.031

PROJECT NAME: CLAMSHELL ISLET

DOCUMENT No.: 2025.031-16-EFR-001

FORM No. APG-40-FRM-007

1: Form Revision Log

Revision #	Date	By	Description
0	31-Oct-2020	BF	Issued for Use

	OSWT Site Capability Assessment	Project: 2025.031
Form No.: APG-40-FRM-007	Doc No.: 2025.031-16-EFR-001	Revision: R.1

1 PROJECT DEFINITION

Table 1: Summary Information

Project No.	2025.031	Project Name:	Clamshell Islet
Site Type:	☒ New Construction ☐ Replacement ☐ Repair / Alteration	Prepared by:	Bradley Fossen
Owners / Client:	Kelly and Aaron Collins	Jurisdiction:	Islands Trust / VIHA
Legal Description	District Lot 222, Cowichan Land District, Portion SM ISLE IN LONG HBR	PID # (Parcel Identifier Number)	001-375-458
Common Address	TBC	Folio. # (Tax Assessment Roll #)	01-764-12063.000
Engineer of Record	Bradley Fossen	Project Stage:	Design
Owner Declaration Completed:	☒ Yes ☐ No	Required Daily Design Flow:	1300 LPD
Influent Type	☒ Typical Residential, reduced water volume ☐ Other:	Water Source:	Rainwater Catchment
Equipment Used	☐ Auger (7 cm) ☒ Clinometer ☒ Compass ☐ Engineer's Tape ☐ Excavator ☐ Field Soils Kit ☐ Infrared Camera ☐ Line Locator ☐ Pipe camera ☐ Permeameter (Pask, 101.6 mm) ☐ Range Finder ☐ Rotary Laser ☐ Sampling Kit ☐ Scale ☐ Sieve (10 mesh) ☐ Shovel and Hand Tools ☐ Soil Probe (4 ft)		
Purpose of Report:	• Provide guidance on regulations and bylaws that may affect onsite wastewater treatment system (OSWTS) design and siting. • Complete a Site Assessment as defined under the Sewerage System Regulation.¹ • Recommend a location and type of onsite sewerage system. • Provide a report in support of land use application.		

Document Revision #	Date	By	Description
0	12-Aug-2025	BJGF	Issued for Land Use Application
1	05-Jul-2026	BJGF	Updated for BoV; edits for clarity

¹ Sewerage System Regulation, Pub. L. No. B.C. Reg. 326/2004 (2018).
https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/326_2004/

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1.1 DOCUMENT PURPOSE

This document provides site and soils assessments for the purposes of OSWT design and construction specifications development, pursuant to the BC SSR.

This document also serves to support a land use application. Therefore, it includes further information and consideration of local bylaws and regulations.

1.2 RISK CATEGORIZATION

The following table denotes what classification of design this project has been assigned and whether or not a project-specific risk review is required.

Table 2: Risk Category

Risk Category ²			Date	By	Comment
☐ Global (Low Risk)	☒ Global (Repetitive Moderate Risk)	☐ Project Risk Review Required	08-Aug-2025	BJGF	A peer review will be required as part of the detailed design.

1.3 APPLICABLE STANDARDS OF PRACTICE

The following table indicates what standards of practices, codes, or regulations were utilized in the design for this project. These documents form the key, “top-level,” design basis for the project.

We note that other regulations may also have jurisdiction on the project and that this list is not exhaustive. Further, additional documents and references may be indicated later where warranted.

Table 3: Applicable Design References.

A Basis of this Design Filing	Code, Standard of Practice, Regulation
☐	BC Municipal Wastewater Regulation
☒	BC Sewerage System Regulation
☒	BC Standard Practice Manual, Version 3
☒	EGBC Professional Practice Guideline on Onsite Sewerage Systems
☒	Other: Minnesota Pollution Control Agency et al., “Design Guidance for Large Subsurface Wastewater Treatment Systems,” 2016.

1.4 DEPARTURES

Any departures from the above documents, when indicated as a design basis document, shall be documented herein, along with rationale, mitigation measures, and any supporting references to do. Departures may be more fully considered during the detailed design phase, when additional rationale and measures are provided.

² In the cases of a global risk categorization, a global risk assessment must already be in place.

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2 SUMMARY

The subject property, Clamshell Islet (PID: 001-375-458), is a challenging site due to its geometry, topography, and full perimeter adjacency to the ocean (Long Harbour). The islet is approximately 50 m wide by 160 m long and consists predominantly of exposed bedrock, with limited depressions containing thin, naturally deposited soils. All developable land is located within 30 m of the natural boundary of the sea, creating a hardship situation where no bylaw-compliant dispersal field can be located without a variance.

Given the parcel constraints and reduced development intensity (3-bedroom residence), the proposed onsite sewerage system is a Bionest BN-400 Type 3 treatment system with effluent recirculation, discharging to a sand-lined trench dispersal system sized at Type 1 loading rates for a double-barrier treatment approach. The system is conceived as a performance-based design with objectives more stringent than the applicable EGBC guidelines, supported by engineered redundancies and ongoing compliance monitoring, as detailed later in this report.

2.1 PERFORMANCE-BASED APPROACH

The system will be designed and certified as a performance-based design under the BC Sewerage System Regulation and the EGBC Professional Practice Guidelines for Onsite Sewerage Systems.³

For performance-based design, we typically use water quality objectives specified in the EGBC Guidelines.

Guideline Requirements (EGBC Table A-3 – “Ocean water, with swimming but no shellfish harvesting”):⁴

- Median coliform bacteria: < 200 CFU/100 ml
- Median nitrate nitrogen: < 20 mg/L
- Median ammonia nitrogen: < 3.5 mg/L

However, in consideration of the constraints for this parcel, more stringent water quality objectives will be applied:

Proposed System Objectives:

- Median coliform bacteria: < 1 CFU/100 ml
- Median nitrate nitrogen: < 10 mg/L
- Median ammonia nitrogen: < 1 mg/L

Rationale for stricter objectives:

- Proximity to marine receptor: The dispersal system is sited 10 m from the natural boundary of the sea due to unavoidable hardship constraints (the entire developable area lies within the 30 m marine setback).

³ EGBC. (2018). Onsite Sewerage Systems. In EGBC Professional Practice Guidelines - Civil and Transportation Infrastructure (Version 1.).

⁴ Ibid.

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- Recreational use: The adjacent shoreline is expected to be used for swimming by the landowners and other contact recreation.
- Limited vertical separation buffer: There is limited natural soil depth for soil-based treatment; effluent renovation must occur within the vertical column of the dispersal system, before percolating to the natural boundary of the sea.

How the proposed objectives exceed the guidelines:

- Pathogen reduction: Coliform bacteria target reduced by 99.5% beyond the guideline limit.
- Nutrient reduction: Nitrate target reduced by 50% and ammonia target reduced by over 70% from guideline values.
- Treatment redundancy: Dispersal field is sized at Type 1 loading rates for Type 3 effluent, lowering hydraulic loading well beyond standard practice to ensure exceptional pathogen attenuation.
- Reliability safeguards: High-performance effluent filter with alarm, redundant UV alarm, redundant pumps, PRB amendments for additional nutrient attenuation, oversized pump tank with timed dosing.

These design features provide additional protection against process upsets, safeguarding the adjacent marine environment and ensuring long-term compliance with the stricter performance objectives adopted.

OSWT systems constructed in the absence of a suitable depth and type of soil require departing from the BC Ministry of Health Standard Practice Manual (SPM)⁵. As such, a suitable OSWTS should be designed by a professional and meet the requirements of a “Performance-Based Design” as defined in the EGBC Professional Practice Guideline for Onsite Sewerage Systems (PPGOSS)⁶ to be compliant with the BC Sewerage System Regulation.

The detailed design shall note any departures from the SPM standards and guidelines within a filing to the Health Authority. At this time, the SPM departures are generally understood to be:

- Reducing the required setback of a dispersal system from a marine water body, which is 15m⁷ to 10m.
- Reducing the required setback of a dispersal system from a downslope drain (retaining wall drain), which is 7.5m⁸ to 0m.
- Reducing the vertical separation with native soils from 25 cm⁹ to 0 cm.

With the concept design described in this report, it is possible to meet the requirements of the BC SSR without creating a health hazard, provided the system is operated and maintained in accordance with a certified maintenance plan.

However, doing so will require a land-use variance regarding setback distances.

⁵ Ralston, I., Payne, M., & ASTTBC. (2014). Sewerage System Standard Practice Manual. BC Ministry of Health (Version 3). Government of British Columbia.

⁶ EGBC. (2018). Onsite Sewerage Systems. In EGBC Professional Practice Guidelines - Civil and Transportation Infrastructure (Version 1.).

⁷ Ralston, I., Payne, M., & ASTTBC. (2014). Sewerage System Standard Practice Manual. In BC Ministry of Health (Version 3). Government of British Columbia. Table II-19 (p. II-31 (“From Dispersal System” & “Marine water body”).

⁸ Ibid. (“From Dispersal System” & “Break-out point or downslope drain”).

⁹ Ibid. Table II-17.

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- i) The setback distance of a disposal system from the natural boundary of the sea would vary from 30 m to 10m¹⁰.

Though not requiring a land-use bylaw variance, the setback distance of tanks may be required, along with the proposed building structures, which will need to meet the requirements of 4.4.2 of the bylaw, in order to be placed less than 15m from the natural boundary of the sea, but no closer than 10m to the natural boundary of the sea.¹¹

3 GENERAL OBSERVATIONS AND ASSESSMENTS

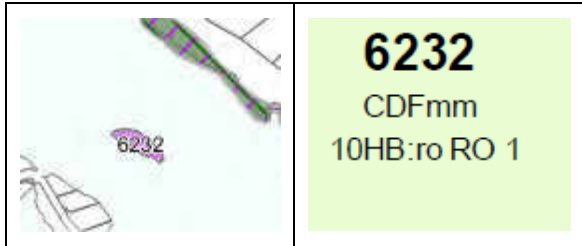
Table 4: General Observations and Assessments, by Element

Element	Assessment	Constraints & Potential Departures
Previous Professional Reviews	Ryzuk memo 10851-1, dated November 09, 2021.	With Geotech certification, structures can be placed no closer than 10m from the natural boundary of the sea, provided the shoreline has been confirmed as non-erodible, per Bylaw No. 355 4.4.2.
Site and System History	The site is partially developed. The parcel was previously the subject of a dispersal-system variance application (SS-DVP-2022.1) under a different owner, for a 6-bedroom dwelling; that application was denied in December 2022. The subject application is submitted under new ownership and reflects a substantially revised design (3-bedroom residence, Type 3 treatment system) in response to the prior file.	No impact on OWSTS design.
Future Site Development	The Owner has planned a three-bedroom residence, consistent with the reduced-intensity design described in this report. A small solar utility structure is also present on the parcel to house electrical and service equipment for the off-grid site; it contains no plumbing fixtures and does not contribute to sewage flow.	
Neighbouring Property Features	Not Applicable.	
Title and Land Data	There are no land title issues that would impede an OSWTS.	
Zoning & building use bylaw	Salt Spring Island Local Trust Committee Land Use Bylaw No. 355 (consolidated) was reviewed for zoning and building use considerations. Zoning falls under the Islands Trust. This property is zoned as "Ri – Rural Islet" and "S8 – Shoreline 8." Section 4.4 addresses setbacks from water bodies. A structure, such as a septic tank, may not be sited within 15m of the natural boundary of any	

¹⁰ Islands Trust, & Salt Spring Island Local Trust Committee. (2019). Bylaw No. 355 Salt Spring Island Land Use Bylaw Section 4.5.1.

¹¹ Ibid. Section 4.4.2.

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Element	Assessment	Constraints & Potential Departures
	water body. However, per Section 4.4.2, the 15m setback can be reduced to 10m, with Geotech approval. Section 4.5 addresses setbacks from water bodies. A "sewage disposal field" or "seepage pit" is not to be located within 30m of the natural boundary of the sea.	Departing from Section 4.4.2 requires a geotechnical engineer's approval. Departing from Section 4.5.1(1) will require an approved bylaw development permit variance (land use application).
Protected Areas	Protected Areas potential was reviewed via the Islands Trust "MapIT" service. There are no Protected Areas designated on or near the subject property.	
Sensitive Areas	 The parcel has been previously mapped as a Coastal Douglas-fir, non-forested biogeoclimate.¹² Unit 6232 CDFmm (Coastal Douglas-fir Biogeoclimate Unit) Sparse Rock Outcrop, 10% Herbaceous, subclass rock (not dominated by shrubs)	Protective measures are not a requirement of the land use application. We note that a dispersal system would be placed in an already disturbed area, with no requirement for tree removal. Care should be taken to protect the nearby Garry Oak, such as using flagging and a barrier during construction.
Development Permit Areas	Development Permit Area potential was reviewed via the Islands Trust "MapIT" service. The subject property is within one development permit area, per Islands Trust Official Community Plan Bylaw No. 434: Development Permit Area No. 03, Shoreline, Foreshore portion. This does not influence the location of an OSWTS as components will reside outside of the development permit area.	
Climate Considerations	Climate is classified as Warm-Summer Mediterranean ¹³ . Marine weather conditions exist, with warm summers and periods of high rainfall and occasional freezing.	Significant cold weather freeze protection is not required, though OSWTS components shall be covered as a measure of frost-protection.

¹² Islands Trust and Government of British Columbia, "Salt Spring Island (Central) Sensitive Ecosystem Mapping Airphoto - 2005," 2005. [Online]. Available: <https://islandstrust.bc.ca/document/salt-spring-island-sensitive-ecosystem-mapping-4/>

¹³ Canada Open Government Portal. "Climatic Regions." Atlas of Canada, 3rd Edition. 1957. <https://open.canada.ca/data/en/dataset/09ffaeb5-ec8f-5bb5-bdcb-3436ccf26f58>.

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Element	Assessment	Constraints & Potential Departures
Well Registry	BC Water Resources was consulted to confirm whether any registered water wells were in the area. There are no wells within 30m of the subject property.	
Well Survey	A survey of nearby areas did not note any unregistered water wells.	
Riparian Areas	Freshwater riparian areas have not been noted by the Islands Trust MapIT tool. No inland water bodies or watercourses that would provide fish habitat were observed on the subject property at the time of our assessment.	
Nitrogen and Phosphorous Reduction	There are no downgrade wells, water bodies at risk of eutrophication, or short-distance up-grade wells within a short distance from the proposed dispersal area. However, there is a high likelihood that the shoreline will be utilized for swimming. Further, the design relies upon a departure from the 15 m BC SPM setback to a marine water body, to 10m.	System to meet performance boundary water quality objectives specified by designer, which are more restrictive than the EGBC Professional Practice Guideline for Onsite Sewerage Systems, Table A-3, "Ocean water, with swimming but no shellfish harvesting."
Buried Infrastructure	There are no existing underground service lines near the proposed dispersal area. However, due to space limitations, sewerage components may be installed near potable water components.	Ensure 3m setback between sewerage components and potable water components. If that setback cannot be maintained, install an impermeable barrier and/or sleeve potable water piping and apply other mitigations as prescribed by the engineer.
Boundary Conditions, Exposure Pathways, and Breakout Risks	There are two primary breakout conditions, which will form the boundary conditions for the performance-based design: - Retaining wall perimeter drain. - Potentially, the building perimeter drain, if it resides in the same area as the dispersal system.	Include sampling and monitoring as part of a certified maintenance plan for a performance-based design.
Vegetation	There is little to no vegetation within the proposed dispersal area and sparse soil.	Provide suitable plant varieties for the Owner's landscaping plan.

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4 SOILS ASSESSMENTS

Soil assessments for this subject parcel are not applicable, as there are sparse soils available for soil-based treatment.

Table 5: General Site Soil Assessment¹⁴

Site Slope	Percent: ~55% Downsloping: SWbS Linear Up/Down Linear Across	Proposed Dispersal Area Slope	Percent: >15% Downsloping: SWbS Linear Up/Down Linear Across
Geology and Terrain	Pacific Border Province: Puget Trough (Nanaimo Lowland) // The subject property is a small islet, with a natural boundary to the sea (Long Harbour) surrounding its entire perimeter. The islet has a constrained shape, measuring approximately 50 m in width and 160 m in length. The surface mostly consists of bedrock, with some depressions that contain sparse, naturally deposited soils. Between the development area and the natural boundary of the sea, the property mainly features sea cliffs, coastal banks or bluffs, and low rocks or boulders. General soil categorization is not applicable; SIFT ID = N/A.		
Surface Water	Surface water is inferred to collect in pockets of bedrock in different areas of the subject property, though not within the available dispersal area, eventually following local topography to the natural boundary of the sea.		
Seepage, springs	Description of water sources: Precipitation Water State ¹⁵ : N/A		
Direction of Shallow Groundwater Flow	It is estimated that shallow groundwater flows with the natural grade of the available dispersal area, SWbS.		
Drainage ¹⁶	Excessively Drained	Drains	Side slope building drain and downslope retaining wall drain.
Slope Condition		Erosion Condition: Refer to Geotech report.	
		Stability Condition: Refer to Geotech report.	
Vegetation (Common name)	General: Barren / Grassland / Shrub	Dispersal: Sparing shrubs and mosses.	
Cover	General: Tree (>25% canopy cover)	Dispersal: Barren (<5%)	

¹⁴ Nomenclature and descriptions per National Soil Survey Center, US Department of Agriculture, P. J. Schoeneberger, D. A. Wysocki, and E. C. Benham. 2012. Field Book for Describing and Sampling Soils. NRCS Publications.

¹⁵ **Water State:** Wet: Non-satiated (no free water), Wet: Satiated (free water easily visible)

¹⁶ **Drainage:** Subaqueous Drainage (free water above soil), Very Poorly Drained (Water is at or near the soil surface during much of the growing season), Poorly Drained (The soil is wet at shallow depths periodically during the growing season or remains wet for long periods, Somewhat Poorly Drained (The soil is wet at a shallow depth for significant periods during the growing season), Moderately Well Drained (Water is removed from the soil somewhat slowly during some periods of the year), Well Drained (Water is removed from the soil readily but not rapidly), Somewhat Excessively Drained (Water is removed from the soil rapidly), Excessively Drained (Water is removed from the soil very rapidly)

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Table 6: Notes from Field Program Activities

Soil assessments are not applicable, as there are sparse native soils for ground dispersal. The dispersal system will need to be manufactured from specified sands and other materials.

Table 7: Comments on Water Table and Seasonal High-Water Table

The available dispersal area is primarily bedrock; a seasonal high-water table does not exist. Shallow groundwater flow is inferred to be in the direction of the topography and of a high velocity owing to the significant slope and lack of soil.
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Table 8: Comments on Receiving Area¹⁷

A receiving area does not exist. For that reason, water deposited from the dispersal system must meet boundary condition requirements within the vertical column of a manufactured soil stratigraphy, prior to draining to the shoreline.

5 SYSTEM ADVISORY

The proposed onsite sewerage system (OSWTS) will be designed and installed in accordance with the BC Sewerage System Regulation (SSR), the BC Standard Practice Manual (SPM, Version 3), and the EGBC Professional Practice Guidelines for Onsite Sewerage Systems (2018). Given the site's constraints, the design will adopt a performance-based approach with more stringent objectives than the applicable EGBC Table A-3 guidelines.

5.1 DESIGN BASIS

- Treatment: Bionest BN-400 Type 3 treatment unit with effluent recirculation for nutrient attenuation, followed by sand-lined trench dispersal sized to Type 1 loading rate sand-lined trench dispersal system.
- Performance Targets: Median coliform bacteria < 1 CFU/100 ml; median nitrate nitrogen < 10 mg/L; median ammonia nitrogen < 1 mg/L.
- The minimum required area of infiltrative surface (AIS) is 36m².
- Redundancy and Reliability: Enhanced septic tank retention time, high-performance effluent filter with alarm, redundant UV alarm, redundant pumps and high-level alarms, PRB-amended sand layer, oversized pump tank with timed (micro) dosing.

5.2 PATHOGEN AND NUTRIENT ATTENUATION

The detailed design and health filing shall include calculations and rationale for pathogen and nutrient attenuation.

As a concept design check, our calculations of pathogen attenuation are based on fecal coliform reduction as a proxy. Each inch (2.54 cm) of non-saturated soil (sand) contributes to treatment and percolate quality, reducing fecal organisms.¹⁸ In the proposed drainfield configuration, we expect groundwater quality to meet

¹⁷ For OSWTS, the Receiving Area is typically in reference to the area 7.5m downslope from the infiltrative surface.

¹⁸ See Porcher, E., Eddy, G., Ballavance, B., Brett, F., Quinn, A., Nordberg, B., Stark, S., McCarthy, B., Sahli, D., Hower, C., Wespelal, M., Lindlief, D., Karnowski, M., Christensen, H., & Heskett, N. (2016). Design Guidance for Large Subsurface Wastewater Treatment Systems. In Minnesota Pollution Control Agency. Section – Attachment 5.

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the water quality objective of <1 CFU/100 ml fecal coliform within the vertical column of the dispersal field. With a loading rate of less than 38 LPD/m² and 24 daily doses to 90cm of sand, the inferred reduction of fecal organisms is 0.187 log/2.54 cm. At 90 cm of sand, the expected fecal organism reduction is estimated at 6.62 log, resulting in a concentration of <<0 CFU/ml at the base of the sand layer. We anticipate that the <0 CFU/ml (median) performance objective will be achieved at approximately 73 cm of sand, which provides a 17 cm safety margin for additional sand treatment. This parameter will be included in our detailed design. We note that this calculation is based solely on regular septic effluent and soil-based treatment. Under normal system operating conditions, pathogen reduction is primarily completed by the secondary effluent treatment system (Bionest with UV disinfection). As such, this is our basis for a double-barrier treatment approach.

The Bionest, with recirculation, has also been verified to reduce nitrogen (both ammonia and nitrate) concentrations down to 2 mg/l, which immediately meets our performance requirements.¹⁹ As a double-barrier nutrient treatment approach, the sand system would also be amended with a permeable reactive barrier (PRB), which enhances soil-based nitrogen attenuation.^{20,21} A likely configuration for the PRB would be a saturated wood chip media trench that is the final treatment step after percolate travels through the sand media., which would be expected to provide 80-90% nitrate removal.²² The final configuration would be determined during detailed design.

6 OPERATIONAL AND MAINTENANCE REQUIREMENTS:

The system is to be operated under a certified maintenance plan, with effluent quality sampling at prescribed intervals

6.1 COMPLIANCE BOUNDARIES

- Retaining wall perimeter drain within the dispersal zone.

6.2 MONITORING PARAMETERS

- Effluent testing at the pump chamber and compliance boundary for coliform bacteria, nitrate nitrogen, ammonia nitrogen at the following frequency:
 - 1 month after commissioning;
 - 7 months after commissioning;
 - 13 months after commissioning;
 - 25 months after commissioning;
 - Yearly thereafter.

¹⁹ GLOBE Performance Solutions, "Verification Statement BIONEST SA-3, SA-3D, and BN-400 Wastewater Treatment Systems," GLOBE Perform. Solutions, pp. 1–2, 2019.

²⁰ C. Humphrey, S. Pradhan, E. Bean, M. O'Driscoll, and G. Iverson, "Preliminary evaluation of a permeable reactive barrier for reducing groundwater nitrate transport from a large onsite wastewater system," *Am. J. Environ. Sci.*, vol. 11, no. 4, pp. 216–226, 2015, doi: 10.3844/ajessp.2015.216.226.

²¹ T. J. Lynn, M. Peterson, S. J. Ergas, and J. R. Mihelcic, "Application of denitrifying wood chip bioreactors for management of residential non-point sources of nitrogen," pp. 1–14, 2017, doi: 10.1186/s13036-017-0057-4.

²² We note that at this point in the vadose zone, almost all ammonia has already been converted to nitrate, and so nitrate becomes the parameter to evaluate.

	OSWT Site Capability Assessment	Project: 2025.031
Form No.: APG-40-FRM-007	Doc No.: 2025.031-16-EFR-001	Revision: R.1

- All alarms (effluent filter, high level, UV) to be tested during each maintenance visit.
- Alongside an overall maintenance plan meeting the requirements of the BC SPM.

6.3 ADVISORY

Any modification to the treatment process, dispersal method, or performance objectives must be reviewed and approved by the Engineer of Record and the Health Authority. Changes to drainage or building occupancy must be reviewed before implementation.

6.4 RISK STATEMENT

The proposed system is located on a highly constrained site adjacent to a marine environment likely to be used for swimming. Environmental risks are mitigated through strict water quality standards that exceed regulatory requirements, engineered redundancies to mitigate potential process disruptions, and regular compliance monitoring. Public health risks are managed by pathogen removal that exceeds provincial standards at the dispersal point, with a safety factor, and by anticipated total pathogen elimination within the vertical column of the constructed dispersal stratigraphy, thereby protecting the marine environment and the safety of swimmers.

Multiple fail-safes, redundant process alarms, and proactive maintenance safeguard system reliability. We assess that in this configuration, risks to the natural environment and personnel health will be mitigated.

	OSWT Site Capability Assessment	Project: 2025.031
Form No.: APG-40-FRM-007	Doc No.: 2025.031-16-EFR-001	Revision: R.1

7 ATTACHMENTS

Include in Owner Report	Include with Report
A. ☐ Site Evaluation Worksheets	☐
B. ☒ Aurora Professional Group Inc. General Conditions	☐
C. ☐ Aurora Professional Group Inc. OQM	☐
D. ☐ Archeological Potential Map	☐
E. ☒ Contours Map	☒
F. ☒ Development Permit Areas Map	☒
G. ☐ Health Orders	☐
H. ☐ Infrared Camera Report	☐
I. ☒ Land Survey	☒
J. ☒ ParcelMap	☒
K. ☐ Photo Log	☐
L. ☐ Pipe Camera Report	☐
M. ☐ Previous Sewerage System Filings	☐
N. ☐ Proximate Wells Map	☐
O. ☐ Sampling Records	☐
P. ☒ Satellite Map <i>Choose an item.</i>	☒
Q. ☒ Proposed System Drawings	☒
R. ☒ Third Party Reports	☒
S. ☐ Well Records	☐
T. ☐ Land Title Records	☒

	OSWT Site Capability Assessment	Project: 2025.031
Form No.: APG-40-FRM-007	Doc No.: 2025.031-16-EFR-001	Revision: R.1

8 DISCLAIMERS

- When installed per our guidance, any sewerage components described in this report can reasonably be expected to operate in a manner that does not create a health hazard. However, this is contingent on the Owner operating their sewerage system as designed and following the requirements of the most up-to-date maintenance plan for their system.
- This report relates only to the subject property.
- Our investigations and assessments rely on public information that has the potential to be inaccurate. Further, our testing of soils cannot reveal all underground conditions. We endeavour to make all reasonable efforts to manage this uncertainty; however, it cannot be eliminated.
- Should site conditions change, this report becomes void.
- The use of this report shall be in its entirety; that is, assessments can not be used piece-meal.
- Any design drawings or constructed works that are based on the assessments and conclusions in this report should be provided to its author for review.

9 SIGN OFF

Engineer of Record: Bradley Fossen, P.Eng.

EGBC PERMIT TO PRACTICE #1000204



RYZUK GEOTECHNICAL

Engineering & Materials Testing

6-40 Cadillac Ave, Victoria, BC, V8Z 1T2 Tel: 250-475-1131 E-mail: mail@ryzuk.com www.ryzuk.com

November 9, 2021

File No: 10851-1

Dinny Corcoran
1776 Pinewood Drive
Pemberton, BC
V0N 2L3

Attn: Dinny Corcoran (by email: dinnycorcoran@hotmail.com)

Re: Proposed Single Family Residence
Clamshell Islet – Salt Spring Island, BC

As requested, we attended the referenced site on November 2, 2021 to visually assess the foreshore conditions related to the possible construction of a single family residence for the subject property. This report summarizes the results of our investigation and associated recommendations as such relate to the foreshore condition. Our work in this regard has been carried out in accordance with the previously accepted Terms of Engagement.

The site is a small islet approximately 0.5 ha in area located 250 m northeast of the BC Ferries Terminal in Long Harbour, Salt Spring Island. Based on the Islands Trust digital mapping dataset the islet has about 375 m of undeveloped shoreline which rises from mean seal level to an elevation of 10 m geodetic in the central portion of the islet. The islet is approximately 160 m long and 50 m wide and elongate in a northwest – southeast direction, similar to Long Harbour. Current development is limited to a small storage shed.

The subject site consists of exposed, moderately steep (approximately 30 degrees from horizontal) sandstone bedrock slopes on the southwest side of the islet. The northeast shoreline is more steeply sloped, with exposed sandstone bedrock seacliffs. We observed there to be occasional bedrock boulders residing on the gentler slopes on the southwest of the islet and on a wavecut platform at sea level off the northeast portion of the islet.

The bedrock slopes are mostly bare but in places have a veneer of topsoil which hosts moss, occasional shrubs and scattered arbutus trees. There is a small isolated pocket of native soil which we observed within a shallow bedrock basin in the south central portion of the islet. The native soils exposed are dense to very dense brown silt and sand with gravel. The soils exposed were observed to be approximately 0.5 m in thickness and occur atop similar sandstone bedrock.

Based on regional geology mapping of Salt Spring Island by the BC Geological Survey (Open File 2009-11) the sandstone exposed on the islet is part of the Geoffrey Formation of the Cretaceous

Nanaimo Group. This formation is described as a thick bedded sandstone, with bedforms indicating deposition from turbidity currents. This is consistent with our observations on site, thickly bedded, weathered sandstone bedrock is present and forms the foreshore area for the circumference of the islet.

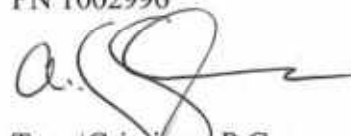
We observed that in places the sandstone bedrock hosts a sub-vertical fracture set which preferentially weathers and this weathering is enhanced below the high-water mark. The boulder material we observed on the site is probably a result of the of surficial weathering action of ice, water and wind over the past 10,000 years since exposure of the ground surface after the most recent glacial retreat.

Closure

Based on our observations on site during our reconnaissance and review of geological mapping in the area, it is our professional opinion that the exposed sandstone bedrock comprising the foreshore of Clamshell Islet is non-erodible within the design life of a residential structure, approximately 75 years.

We trust the preceding is suitable for your purposes at present. Please do not hesitate to contact our office if we can be of further assistance.

Sincerely,
Ryzuk Geotechnical
PN 1002996



Tony Grimson, P. Geo
Geoscientist



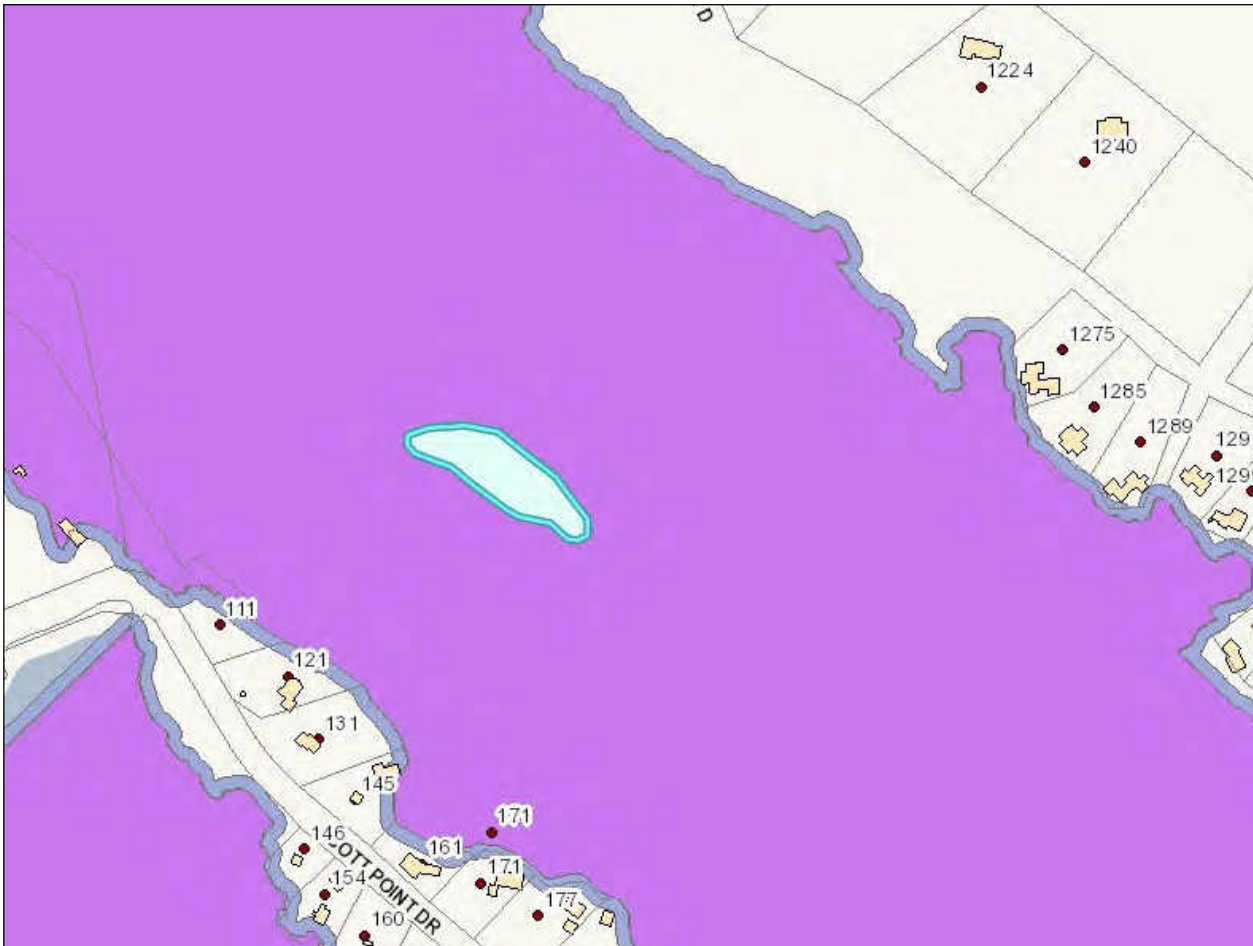
Christian Flanagan, P. Eng.
Project Manager



Clamshell Island - DPA

LEGEND Operational Layers

- Building Footprints
- Civic Address
- Shoreline - Foreshore
- Shoreline - On-land portion



229.3 0 114.7 229.3 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Islands Trust



1:4,514

November 23, 2021

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. Islands Trust makes no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

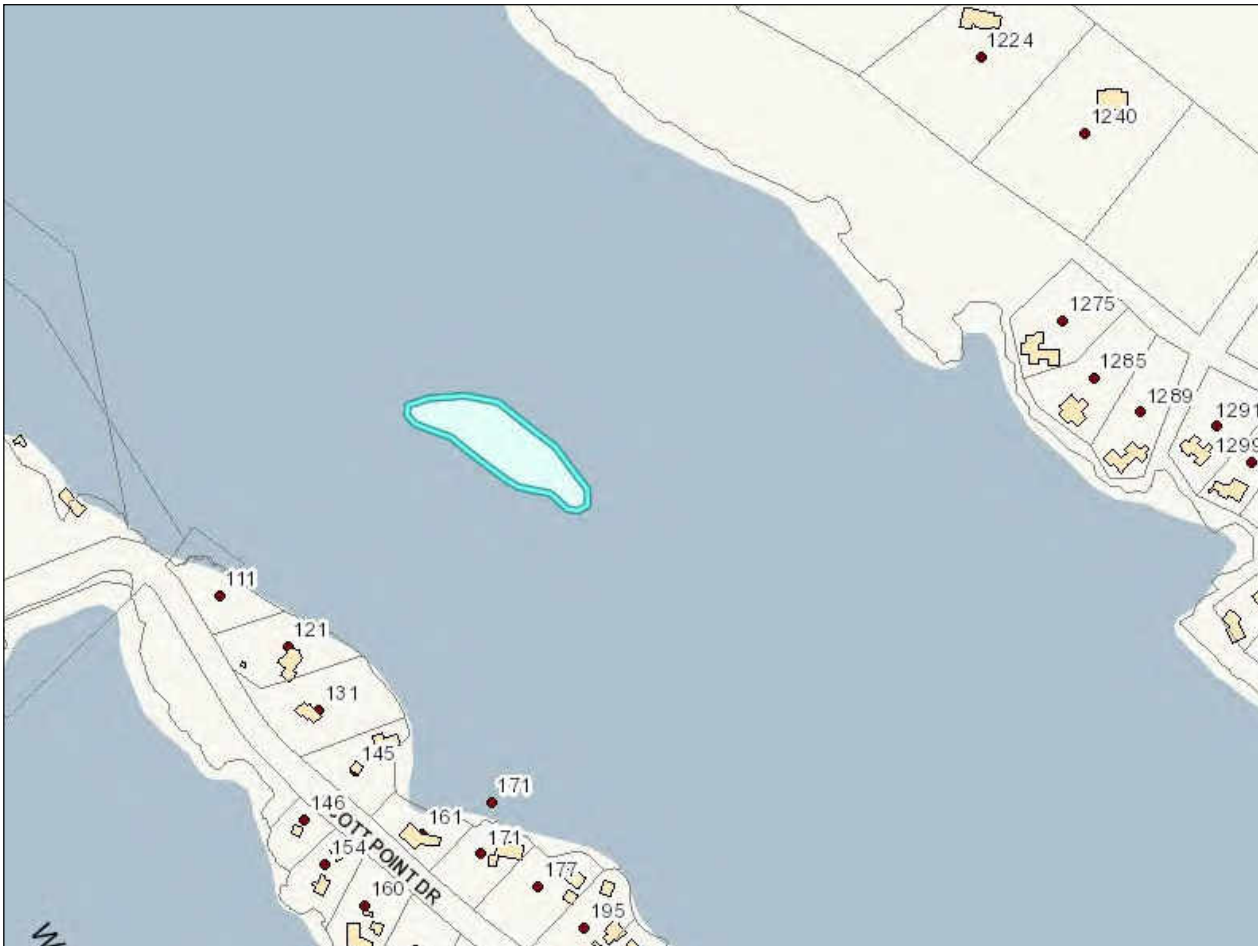




Clamshell Islet - Parcel

LEGEND Operational Layers

- Building Footprints
- Civic Address



229.3 0 114.7 229.3 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
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1:4,514

November 23, 2021

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THIS MAP IS NOT TO BE USED FOR NAVIGATION





Clamshell Islet - Satellite

LEGEND Operational Layers

- Building Footprints
- Civic Address



229.3 0 114.7 229.3 Meters

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1:4,514

November 23, 2021

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THIS MAP IS NOT TO BE USED FOR NAVIGATION

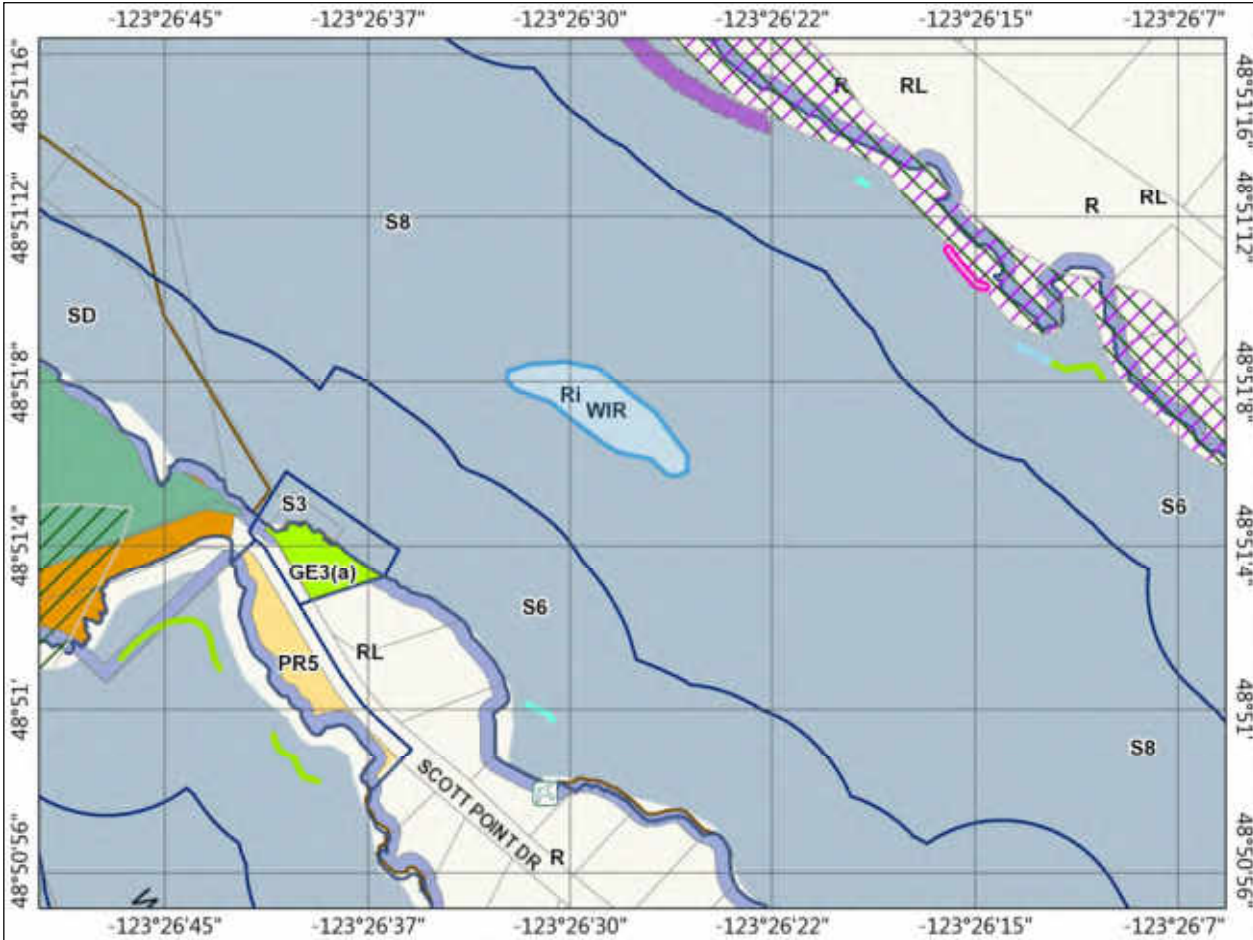




001-375-458 ZONING AND ECOSYSTEMS

LEGEND Operational Layers

- Heron Rookery
- Raptor Nest
- Sea Bird Colony
- Eelgrass
 - <all other values>
 - Flat
 - Patch
 - Fringing, Patchy
 - Fringing, Continuous
 - Fringing
 - Flat, Patchy
 - Flat Continuous
- Forage Fish
 - Pacific Sand lance
 - Surf Smelt
 - Surf Smelt/ Pacific Sand lance
- Bull Kelp
- Tertiary Class
 - Herbaceous
 - Sand
 - Freshwater
 - Wetland
 - Riparian
 - Older Forest
 - Cliff
 - Mature Forest
 - Intertidal
 - Woodland
 - Seasonally Flooded
- Secondary Class
 - Herbaceous
 - Sand
 - Freshwater
 - Wetland
 - Riparian
 - Older Forest
 - Cliff
 - Mature Forest
 - Intertidal
 - Woodland



229.3 0 114.7 229.3 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Islands Trust



1:4,514

January 2, 2022

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. Islands Trust makes no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

THIS MAP IS NOT TO BE USED FOR NAVIGATION

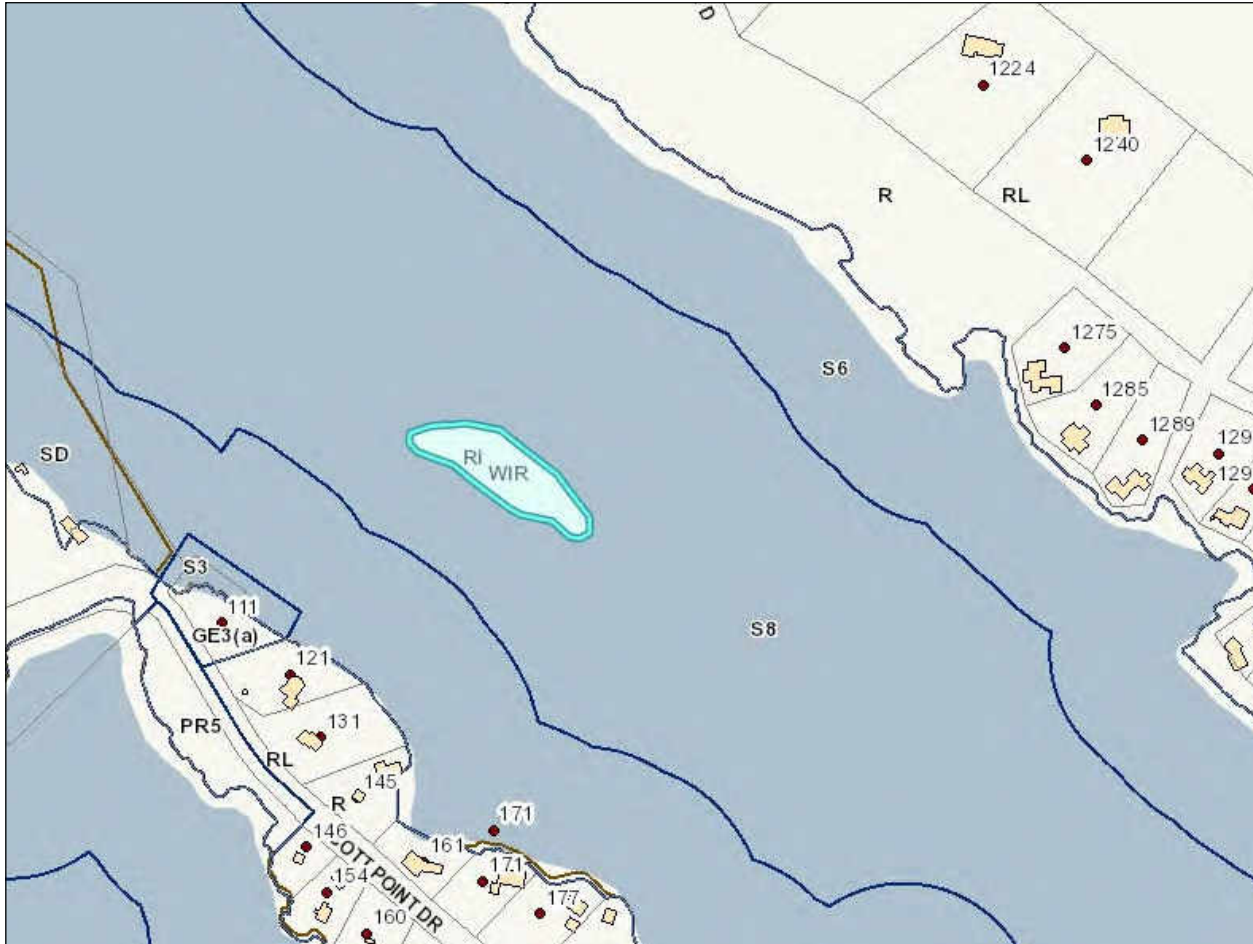




Clamshell Islet - Zoning

LEGEND Operational Layers

- Building Footprints
- Civic Address
- Zoning
- Water Management Areas
- Land Use Designation



229.3 0 114.7 229.3 Meters

WGS_1984_Web_Mercator_Auxiliary_Sphere
© Islands Trust



1:4,514

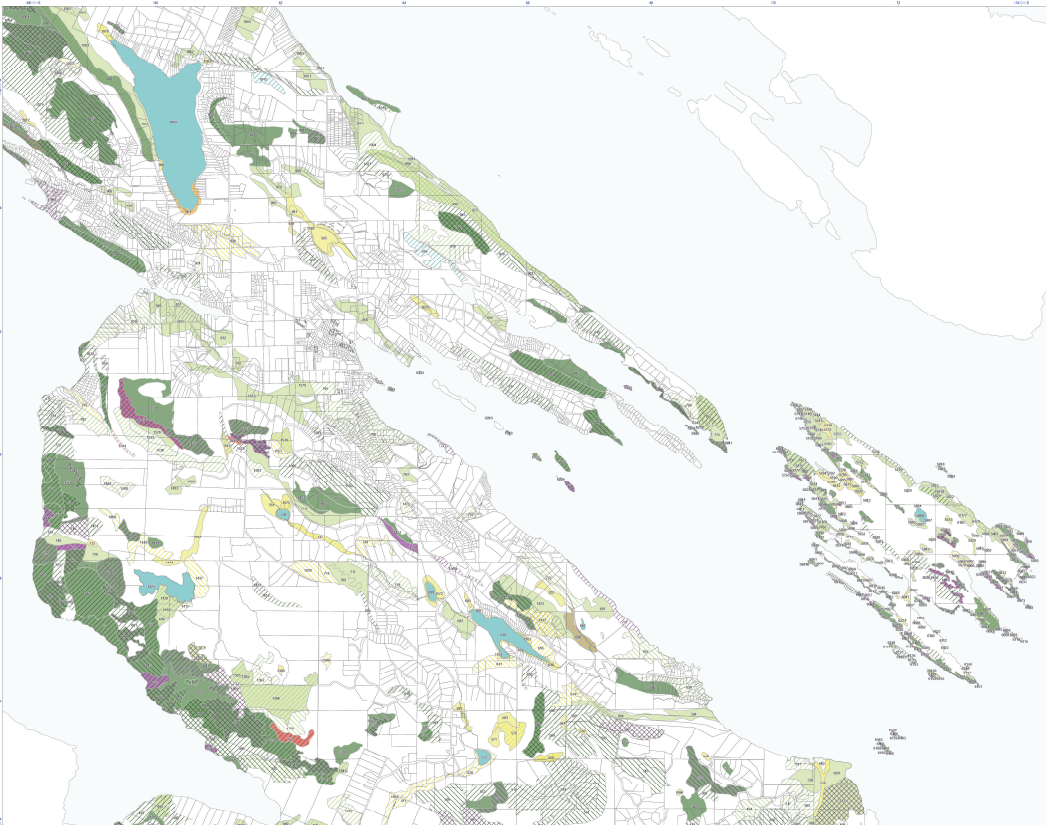
November 23, 2021

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. Islands Trust makes no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

THIS MAP IS NOT TO BE USED FOR NAVIGATION



Sensitive and Terrestrial Ecosystems Label	
1	2
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79	80
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93	94
95	96
97	98
99	100



What is a Sensitive Ecosystem?

For the purposes of this study, an ecosystem is considered to be a portion of the landscape with relatively uniform natural vegetation.

Sensitive ecosystems are those which are fragile and/or rare, or those ecosystems which are ecologically important because of the diversity of species they support.

Sensitive and Terrestrial Ecosystems Label

The map shows that areas indicated by the BSE and TSE codes are in the range of 100m to 200m. The map shows that the areas indicated by the BSE and TSE codes are in the range of 100m to 200m.

Structural Stage & Designation

Designation	Structural Stage
1	1
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Terrestrial Ecosystem Map Codes and Site List Tables	
Map Code	Site List Table
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100	100



Salt Spring Island (Central) Sensitive Ecosystem Mapping Airphoto - 2005

Scale 1:25,000
1:17,000 (original scale 1:10,000)

Sensitive Ecosystems

Sensitive ecosystems are fragile and/or rare, or those ecosystems which are ecologically important because of the diversity of species they support.

Wetland (WB)

Herbaceous (HB)

Shrubland (SB)

Forest (FB)

Wetland (WB)

Herbaceous (HB)

Shrubland (SB)

Forest (FB)

Other Important Ecosystems

Mature Forest (MF)

Ecosystem Map Symbols

Example of a primary sensitive Woodland ecosystem with a secondary sensitive Herbaceous ecosystem

Example of a secondary sensitive Herbaceous and tertiary sensitive Woodland ecosystem mixed with a non-sensitive primary ecosystem

Example of a tertiary sensitive Herbaceous ecosystem mixed with a primary important Mature Forest ecosystem

SKETCH PLAN OF PROPOSED HOUSE LOCATION ON DISTRICT LOT 222, COWICHAN DISTRICT. (CLAMSHELL ISLET)



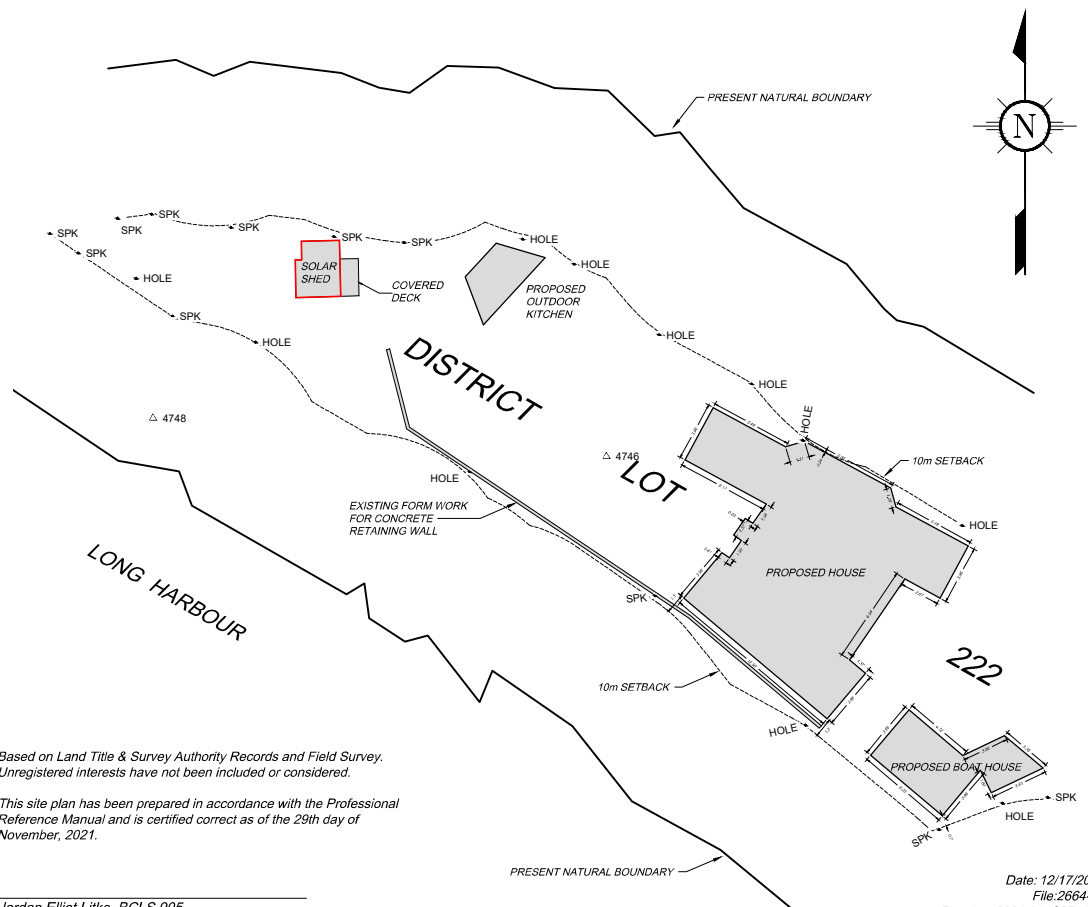
The intended plot size of this plan is 432mm in width by 279mm in height (B-size) when plotted at a scale of 1:250.

All distances are in metres and decimals thereof, unless otherwise noted.

LEGEND

- △ denotes Traverse Hub placed
- ★ denotes Spike placed or hole drilled

Proposed building locations are shown to exterior face of concrete footing.



© Polaris Land Surveying Inc. 2021. Polaris accepts no responsibility or liability for any damages that may be suffered by a third party as a result of any decisions made, or actions taken based on this document.

Based on Land Title & Survey Authority Records and Field Survey. Unregistered interests have not been included or considered.

This site plan has been prepared in accordance with the Professional Reference Manual and is certified correct as of the 29th day of November, 2021.

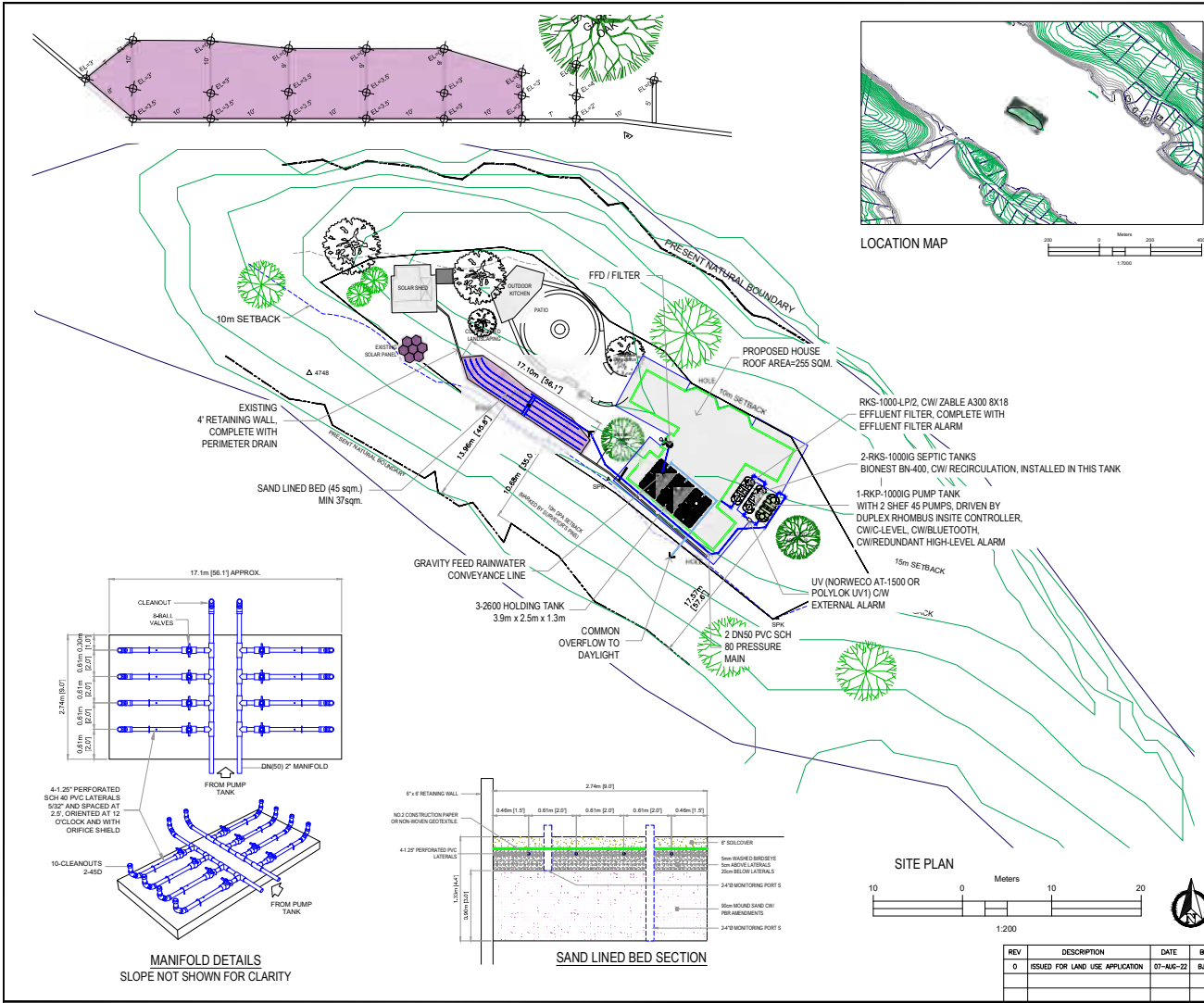
Jordan Elliot Litke, BCLS 905
This document is not valid unless digitally signed.



Mailing & delivery address:
204 - 149 Fulford-Ganges Road,
Salt Spring Island, BC, V8K 2K9

Toll Free: (877) 603 7398
Telephone: (250) 537 5502
SSI@plsi.ca
www.plsi.ca

Date: 12/17/2021
File: 2664-01
Drawing: 2664-01_C3D.dwg
Layout: B-Landscape



GENERAL NOTES:

- 1) DIMENSIONS IN METRES UNLESS STATED OTHERWISE
- 2) AUTHORIZATION TO PROCEED FROM DESIGNER IS REQUIRED PRIOR TO CONSTRUCTION.
- 3) ANY DISCREPANCIES IN EXISTING OR PROPOSED CONDITIONS SHOWN SHALL BE REPORTED TO THE DESIGNER.
- 4) DESIGN IS BASED UPON INFORMATION PROVIDED BY OWNER AND CONTRACTOR.
- 5) INSTALLER TO MEET MINIMUM INSTALLATION REQUIREMENTS PER CSA B653-22/02.
- 6) PDS 011-375-468.
- 7) CENTER OF DRAINFIELD

LAT: 48.852074 LONG: -123.441473

DESIGN NOTES:

- 1) DESIGN AND INSTALLATION SPECIFICATIONS PER 2025.031-16-OWP-001.
- 2) CLEANOUTS AND MONITORING PORTS PER SPW V.3 AND BDC.

INSTALLER NOTES:

- 1) EQUIPMENT INSTALLATION PER MANUFACTURER GUIDELINES.
- 2) INSTALLER IS REQUIRED TO FOLLOW THE EWP AND ITS RELATED SPECIFICATION.
- 3) DESIGN AND STABILITY PROTECTION IS THE RESPONSIBILITY OF THE INSTALLER.
- 4) INSTALLER TO MEET MINIMUM INSTALLATION REQUIREMENTS PER SPW V.3.
- 5) ANY UNDERGROUND UTILITIES WITHIN 3M OF THE DISPOSAL AREA NEED TO BE SLEEVED. IF WITHIN 1M OF THE DISPOSAL AREA, TRENCH DAMS ARE REQUIRED IN AT LEAST 2 PLACES.

SPECIAL NOTES:

LEGENDS:

Aurora PROFESSIONAL GROUP INC.

SALT SPRING ISLAND, BRITISH COLUMBIA, CANADA
thinkpp.com / +1 778-400-3375

EOBC PERMIT TO PRACTICE NO: 100204

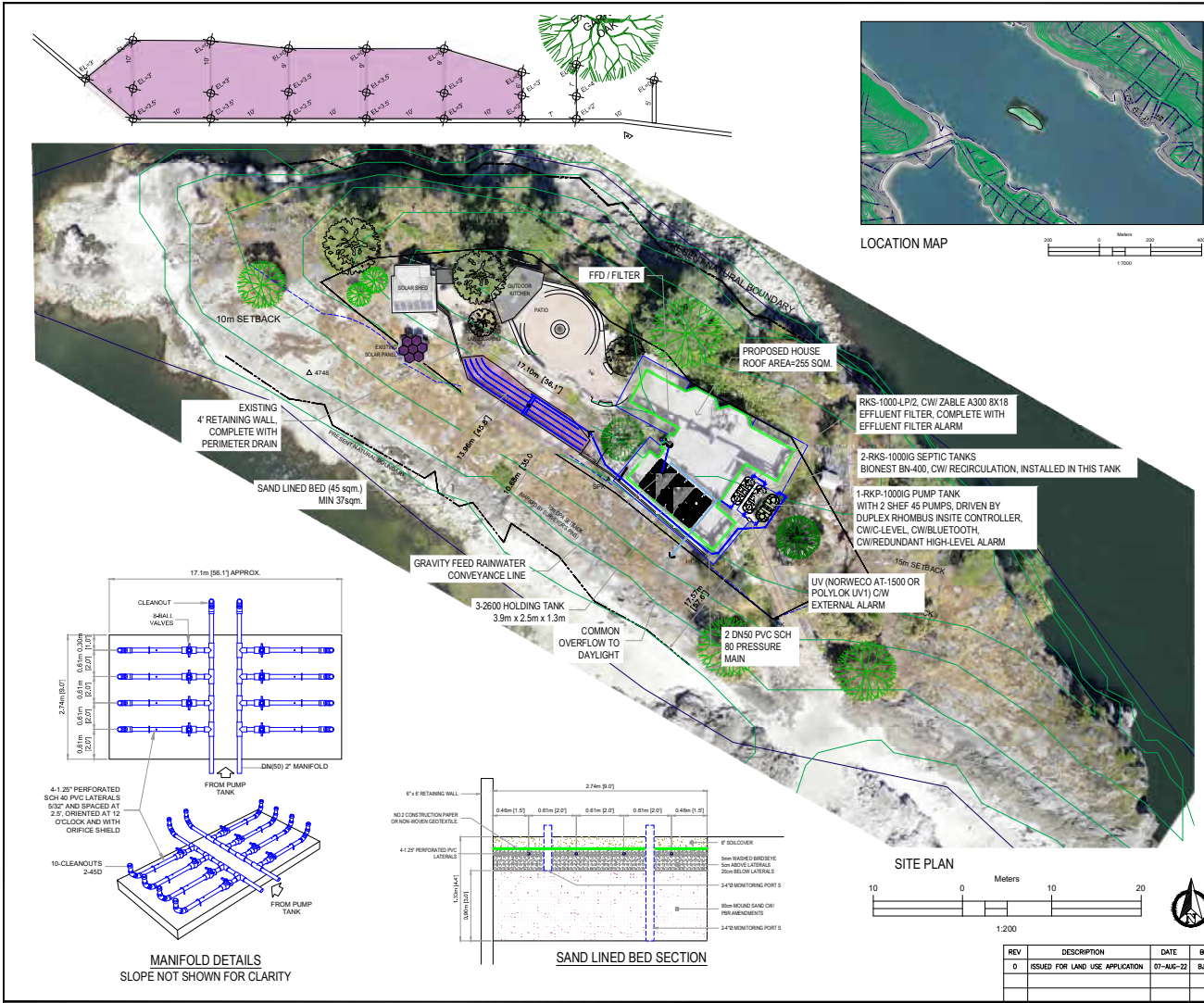
PROJECT TITLE:
RAINWATER & OSWT DESIGN
2025.031 CLAMSHELL ISLET

CLIENT:
KELLY AND AARON COLLINS

PROJECT LOCATION:
CLAMSHELL ISLET
SALT SPRING ISLAND

DRAWING NO:
2025.031-46-LAY-001

PERMIT NO:	TRC	DATE:	8-Aug-25
DESIGN BY:	BJGF	DRAWN BY:	VBB
SIZE:	A1	SCALE:	1:200
REVIEWED BY:	BJGF	SHEET:	10/13



GENERAL NOTES:

- 1) DIMENSIONS IN METRES UNLESS STATED OTHERWISE
- 2) AUTHORIZATION TO PROCEED FROM DESIGNER IS REQUIRED PRIOR TO CONSTRUCTION.
- 3) ANY DISCREPANCIES IN EXISTING OR PROPOSED CONDITIONS SHOWN SHALL BE REPORTED TO THE DESIGNER.
- 4) DESIGN IS BASED UPON INFORMATION PROVIDED BY OWNER AND CONTRACTOR.
- 5) INSTALLER TO MEET MINIMUM INSTALLATION REQUIREMENTS PER CSA B605-22/02, B605-2022 & B605.
- 6) PDS 011-375-466.
- 7) CENTER OF DRAINFIELD

LAT: 48.852074 LONG: -123.441473

DESIGN NOTES:

- 1) DESIGN AND INSTALLATION SPECIFICATIONS PER 2025.031-16-OWP-001.
- 2) CLEANOUTS AND MONITORING PORTS PER SPW V.3 AND B605.

INSTALLER NOTES:

- 1) EQUIPMENT INSTALLATION PER MANUFACTURER GUIDELINES.
- 2) INSTALLER IS REQUIRED TO FOLLOW THE CWP AND ITS RELATED SPECIFICATION.
- 3) DESIGN AND STABILITY PROTECTION IS THE RESPONSIBILITY OF THE INSTALLER.
- 4) INSTALLER TO MEET MINIMUM INSTALLATION REQUIREMENTS PER SPW V.3.
- 5) ANY UNDERGROUND UTILITIES WITHIN 3M OF THE DISPERAL AREA NEED TO BE SLEEVED. IF WITHIN 1M OF THE DISPERAL AREA, TRENCH DAMS ARE REQUIRED IN AT LEAST 2 PLACES.

SPECIAL NOTES:

LEGENDS:

Aurora PROFESSIONAL GROUP INC.

SALT SPRING ISLAND, BRITISH COLUMBIA, CANADA
thinkppg.com / +1 778-400-3375

EOBC PERMIT TO PRACTICE NO: 100204

PROJECT TITLE:
RAINWATER & OSWT DESIGN
2025.031 CLAMSHELL ISLET

CLIENT:
KELLY AND AARON COLLINS

PROJECT LOCATION:
CLAMSHELL ISLET
SALT SPRING ISLAND

DRAWING NO:
2025.031-46-LAY-002

PERMIT NO: TRC DATE: 8-Aug-25
DESIGN BY: BJGF
DRAWN BY: VBB
SIZE: A1
SCALE: 1:200
REVIEWED BY: BJGF
SHEET: 2 OF 3

VERIFICATION STATEMENT

GLOBE Performance Solutions

Verifies the performance of

BIONEST SA-3, SA-3D, and BN-400 Wastewater Treatment Systems

Developed by Bionest Technologies Inc.
Shawinigan, QC, Canada

Registration: GPS-ETV_VR2019-09-30

In accordance with

ISO 14034:2016

**Environmental Management —
Environmental Technology Verification (ETV)**



John D. Wiebe, PhD
Executive Chairman
GLOBE Performance Solutions

September 30, 2019
Vancouver, BC, Canada



Verification Body
GLOBE Performance Solutions
404 – 999 Canada Place | Vancouver, B.C | Canada | V6C 3E2

Verification Statement – BIONEST SA-3, SA-3D, and BN-400
Registration: GPS-ETV_VR2019-09-30
Page 1 of 3

Performance claim(s)

The BIONEST SA-3, the BIONEST SA-3D, and BN-400 are wastewater treatment systems for household use. The BN-400 and SA-3 models are equivalent in conception differing only by size of the bioreactor.

The BIONEST SA-3 system is a submerged fixed film bioreactor using a non-biodegradable media. The BIONEST SA-3 system is a stand-alone wastewater treatment system. The system was tested in compliance with NQ 3680-910/2000-06-16 MI (2004-09-10) at a hydraulic capacity of 1,260 L/day. The system (at influent temperature ranging between 14.2-21.4°C, pH in the range of 7.3-8.3, with an average CBOD5 of 259 mg/l, TSS of 250.4 mg/l and Fecal coliforms of 3 161 246 CFU/100ml) was capable of reducing CBOD5 to less than 3 mg/l, TSS to less than 4 mg/L, and fecal coliform organisms to less than 5 000 CFU/100ml.

The BIONEST SA-3 was also tested under similar conditions in compliance with NSF/ANSI Standard 40 – Residential Wastewater Treatment Systems between March 14, 2005 and August 2005 and was capable of reducing TKN and TON concentrations to less than 2 mg/L.

The BIONEST SA-3D is a stand-alone wastewater treatment system with UV disinfection. The system was tested in compliance with NQ 3680-910/2000-06-16 MI (2004-09-10) at a hydraulic capacity of 1,260 L/day. The system (at influent temperature ranging between 14.2-21.4°C, pH in the range of 7.3-8.3, with an average CBOD5 of 259 mg/l, TSS of 250.4 mg/l and Fecal coliforms of 3 161 246 CFU/100ml) was capable of reducing CBOD5 to less than 3 mg/l, TSS to less than 4 mg/L, and fecal coliform organisms to less than 5 CFU/100ml.

Testing completed under NQ 3680-910/2000-06-16 MI (2004-09-10) was conducted at the Bureau de Normalisation du Québec Laboratory based in Québec city, Québec while testing under NSF/ANSI Standard 40 - Residential Wastewater Treatment Systems 04/10/2015/060 was conducted at the NSF facility in Waco, Texas.

Technology description and application

The Bionest system is a submerged fixed film bioreactor using a non-biodegradable media. The treatment train takes place in two tanks installed in series. The primary treatment uses a conventional two-compartment septic tank equipped with an effluent filter. The second tank is called the “bioreactor.”

The wastewater flows to the bioreactor by hydraulic displacement from the primary treatment tank. Treatment in the bioreactor is achieved using a biological process of microbial culture, fixed to a synthetic media, in an aerobic condition. The media is a non-toxic polymer ribbon, engraved to facilitate the fixation of microbial culture, having a relative density of 1.04. A specific quantity of Bionest media is placed in the two compartments of the bioreactor. It is provided with a linear air pump and with fine bubble air diffusers. A recirculation pump is installed in the last compartment of the bioreactor and returns part of the effluent to the first compartment of the septic tank to provide de-nitrification.

The BIONEST SA-3, the BIONEST SA-3D the BN-400 are wastewater treatment systems for household use. The technology developed by Bionest is based on the well-established principle of biological digestion of residential sewage using sequential biological reactors operated under forced aerobic conditions.

The BIONEST SA-3D is a stand-alone wastewater treatment system with UV disinfection. The BIONEST SA-3 and the BN-400 systems are stand-alone wastewater treatment systems without UV disinfection. The BN-400 and the SA-3 models are equivalent in conception differing only by the size of the bioreactor. The hydraulic loading rate and the hydraulic retention time of the two models are virtually the same.

Verification

This verification was first completed in September 2007 and has been considered valid for subsequent renewal periods every three (3) years thereafter.

Two separate experiments were conducted and data was submitted to the verification process. The first set of data was obtained between August 2004 and February 2005 when testing the system for its efficiency to treat residential sewage water and to remove suspended solids, BOD5 and fecal coliform using the NSF/ANSI 40-2000 test protocol. Testing was completed at the BNQ facility in Québec city, Québec, and was intended to verify the conformity of the equipment with BNQ standard NQ3680-910/200-06016 MI (2004-09-10).

The second experiment aimed at assessing the system's efficiency to treat residential sewage water and its conformity with NSF/ANSI 40-2004 standard. The data submitted from this experiment was obtained by conducting additional sampling not included in the NSF standard. Samples were collected and analyzed to evaluate the equipment ability to reduce TKN and TON concentrations. This portion of the testing was completed between March and August 2005 at the NSF Wastewater Technology Test Facility located in Waco, Texas under environmental conditions closer to Canadian summer conditions than to winter conditions.

The original verification was completed by Centre National en Électrochimie et Technologies Environnementales Inc. (CNETE) using Canadian ETV's General Verification Protocol (March, 2000). This ETV renewal is considered to meet the equivalency of an ETV verification completed using the International Standard *ISO 14034:2016 Environmental management – Environmental technology verification (ETV)*.

What is ISO 14034:2016 Environmental management – Environmental technology verification (ETV)?

ISO 14034:2016 specifies principles, procedures and requirements for environmental technology verification (ETV) and was developed and published by the International Organization for Standardization (ISO). The objective of ETV is to provide credible, reliable and independent verification of the performance of environmental technologies. An environmental technology is a technology that either results in an environmental added value or measures parameters that indicate an environmental impact. Such technologies have an increasingly important role in addressing environmental challenges and achieving sustainable development.

For more information on the BIONEST SA-3, SA-3D and BN-400 please contact:

Bionest Technologies Inc.
55, 12e Rue, C.P. 10070
Shawinigan, QC
G9T 5K7 Canada
Tel: (819) 538-5662 / Toll-Free: 1 (866) 538-5662
Fax: (819) 538-5707
www.bionest.ca

For more information on ISO 14034:2016 / ETV please contact:

GLOBE Performance Solutions
404 – 999 Canada Place
Vancouver, BC
V6C 3E2 Canada
Tel: 604-695-5018 / Toll-Free: 1-855-695-5018
etv@globeperformance.com
www.globeperformance.com

Limitation of verification - Registration: GPS-ETV_2019-09-30

GLOBE Performance Solutions and the Verification Expert provide the verification services solely on the basis of the information supplied by the applicant or vendor and assume no liability thereafter. The responsibility for the information supplied remains solely with the applicant or vendor and the liability for the purchase, installation, and operation (whether consequential or otherwise) is not transferred to any other party as a result of the verification.



SALT SPRING ISLAND BOARD OF VARIANCE
NOTICE OF HEARING
PLBOV20260029

ATTACHMENT 5

NOTICE is hereby given pursuant to Section 541 of the *Local Government Act* that there will be a Hearing of the Salt Spring Island Board of Variance on **Tuesday, September 29, 2026, at 1:00 PM**, in the Islands Trust Salt Spring Boardroom, 4-121 McPhillips Ave, Salt Spring Island, BC.

The Board will consider the appeal to vary the Salt Spring Island Land Use Bylaw, 1999 respecting the siting of a proposed septic field within the setback to the natural boundary of the sea, as shown on the attached Schedule 'A' specifically as follows:

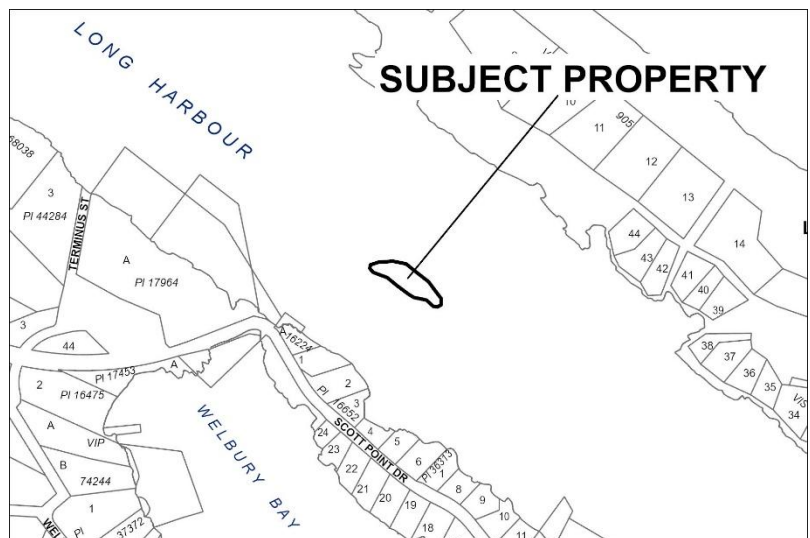
- Section 4.5.1, Water Quality Protection, to decrease the setback to the natural boundary of the sea from 30 m to 10 m to permit the siting of a proposed septic field.

For the property located at **Clamshell Islet, Salt Spring Island Local Trust Area**, legally described as:

LOT 222, COWICHAN DISTRICT, CONTAINING 1.10 ACRES MORE OR LESS (PID: 001-375-458)

The location of the subject property is shown on the attached sketch.

Any person whose property may be affected by an appeal to a Board of Variance has the right to be heard and give evidence at the hearing, or to be represented by some other person authorized by them in writing to do so.



Written submissions may be delivered as follows:

1. To the Secretary to the Salt Spring Island Board of Variance, at the office of Islands Trust 4 - 121 McPhillips Ave, Salt Spring Island, BC, V8K 2T6, or by email to ssiinfo@islandstrust.bc.ca, before **4:00 p.m. Monday, September 28, 2026**.
2. After **4:00 p.m. Monday, September 28, 2026** by attending the hearing on **Tuesday, September 29, 2026** and making a representation to the Salt Spring Island Board of Variance.

Enquiries or questions should be directed to: Rob Pingle, Planning Technician at (250) 537-9144, for Toll Free Access, request a transfer via Enquiry BC: In Vancouver 604-660-2421 and elsewhere in BC 1-800-663-7867; or by email to: ssiinfo@islandstrust.bc.ca.

All applications are available for review by the public. Written comments made in response to this notice will also be available for public review. A copy of the notice and additional information can also be viewed on the Islands Trust webpage www.islandstrust.bc.ca by following the links to the Salt Spring Island LTC applications webpage.

Rob Pingle
Secretary to the Salt Spring Island Board of Variance

Schedule 'A' Site Plan

