

- c. Detailed grading and rainwater management plans for the proposed development of the site which integrate the preliminary engineered plans for civil works, the recommendations of the Qualified Environmental Professional, and the landscape plans for the proposed development.
 - d. A copy of the development proforma that was previously presented to members of Council, for public distribution ahead of a public hearing.
 - e. Details of the ERIF Housing Association, its directors and constitution under the *Societies Act*, to inform the preparation of a draft Housing Agreement bylaw.
2. **THAT**, subject to receipt of the above, Council direct staff to expedite the return of the development proposal and bylaws to Council for consideration of readings and referral to a public hearing.

BACKGROUND:

ERIF Sustainable Solutions (ERIF) approached the community of Ucluelet with a suite of concepts for delivering housing. ERIF first introduced themselves to Council as a delegation at the June 11, 2024, Council meeting. ERIF also held a well-attended community open house on September 11, 2024, at the Ucluelet Community Centre. A preliminary Council discussion on the proposal was held September 24, 2024 (see **Appendix A**). ERIF submitted an initial information package September 20, 2024 (see **Appendix D**). A number of additional application items and correspondence have since been submitted to round out the application. Most recently Council endorsed the tsunami flood risk tolerance level at its November 26, 2024, meeting (see **Appendix C2 & C5**). The completed Flood Assessment was received December 4, 2024 (see **Appendix C1**).

THE PROPOSAL:

The ERIF team has presented plans for a development on the 221 Minato Road site including 262 units: 211 residential apartments, 11 residential / vacation rental houses (+ secondary suites), 29 vacation rental apartments and a 1,200m² commercial building (see **Figure 1**).

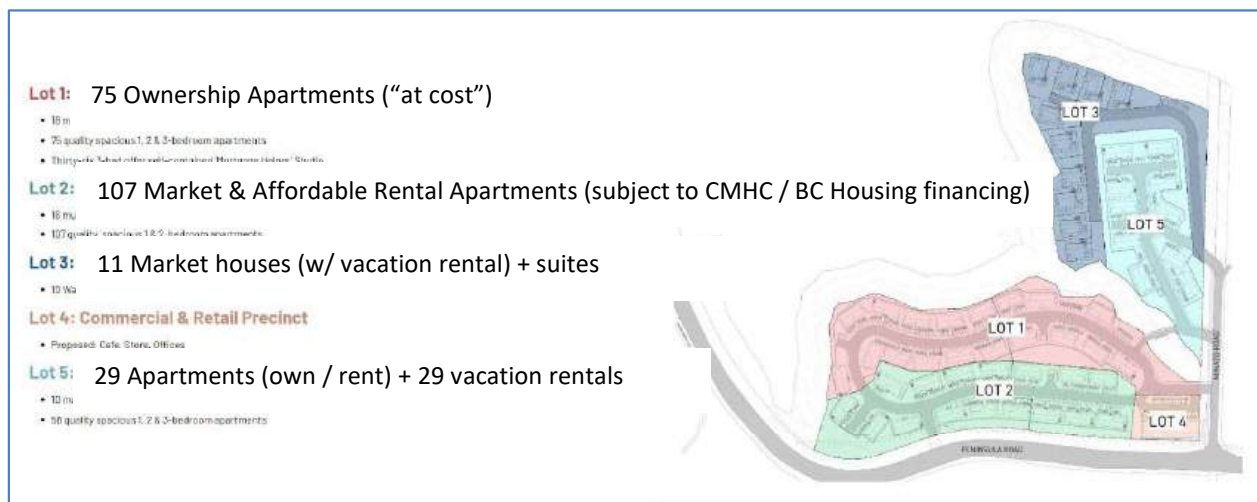


Figure 1: proposed development blocks

The proposed building form (for all but the 11 waterfront houses) is 2-storey modular clusters of 1-, 2- and 3-bedroom apartments that the applicant intends to construct using their modular system. A total of 55 buildings are shown in the project summary. The applicant states that their combination of a modular core with SIPS panel framing will reduce building costs to achieve greater affordability. The plan includes a total of 398 surface parking spaces (see **Appendices C10 & D**).

The first phase of the development would include the 11 market waterfront homes with vacation rentals, the commercial building on the corner of Minato Road and Peninsula Road, and 29 apartment condos to be sold “at cost” (with the price to be determined) – see **Figure 2**.

ERIF states that future phases (including the 107 market and affordable rental units) would depend on obtaining preferential financing from CMHC and/or BC Housing, and on full absorption of units in the preceding phase. Those attainable and affordable rental units, plus secondary suites in the waterfront homes (likely long-term rentals) represent 45% of the total proposed dwellings.

Phasing plan reference (p.19 of ERIF application)	Construction Phase	# units	description	subject to:
Stage A	One	29	below-market sales on part of "Lot 1" (at cost)	prices to be determined
Stage B		11 + 11	waterfront lots w/ STRs + suites on "Lot 3"	
Stage C		1,200 m ²	commercial on "Lot 4"	
TUP on Lot 5			temporary manufacturing / assembly facility on "Lot 5"	
Stage D	Two	39	rental housing on part of "Lot 2": 70% market / 30% affordable	if government financing subsidy available
Stage E	Three	46	below-market sales on remainder of "Lot 1"	if stage A sells out
		68	rental housing on remainder of "Lot 2": 70% market / 30% affordable	if stage D fully rented & government financing available
Stage F	Four	29 + 29	market sales and rentals + STRs on "Lot 5"	if 60 units occupied on Lots 1 and/or 2

Figure 2: content of proposed development phases

PROPOSED BYLAW CHANGES:

OCP Bylaw:

The proposal would require amendment to the Official Community Plan (OCP) bylaw. A draft OCP amendment bylaw has been prepared that would remove conflicts between the development proposal and the current OCP mapping and pertinent development policies. Council indicated in the discussion on September 24, 2024, that due to the housing and affordability offered, it may create an exception to the currently adopted policies in the OCP bylaw for this development. The draft bylaw is found in **Appendix E**.

Zoning Bylaw:

The current zoning of the property is a site-specific comprehensive development zone CD-6 – Minato Road, which was adopted in 2022 for a 212-unit proposed housing development on the same site. ERIF is proposing to replace the CD-6 zoning regulations to suit the current development proposal. A draft zoning amendment bylaw is found in **Appendix F**. This bylaw was

drafted by ERIF and has not been altered by staff other than minor corrections (to avoid conflicts within the structure of the existing zoning bylaw) and necessary formatting.

ADDITIONAL APPLICATION DETAILS:

The site plan provided by ERIF maximizes the number of buildings on the site. To achieve the density shown, the plan proposes the following:

- Clear most of the remaining trees on the site;
- Remove the 30m treed buffer adjacent to Peninsula Road;
- Construction of extensive retaining walls and regrading the site to create areas above the tsunami flood construction level of 10.7m.

The site plan appears to be developed without first completing a full site analysis. Proceeding with development approvals - without first fully understanding and accommodating sensitive features of the land that should be protected - could place the housing development at risk of delays. The need to understand and shape the development to suit the archaeological and ecological values of the land is prioritized by existing Ucluelet policy and was understood at the time of the previous rezoning in 2022. At the time, Council and the owners placed a covenant on the title of the property to enable the further site studies and engineering to follow, but with assurance that the work would be completed prior to subdivision and development. ERIF was made aware of these requirements of the 221 Minato Road property when they were first looking at potential development sites in May and early June.

Archaeological:

The Preliminary Field Reconnaissance (updated November 2024) identified four areas on and adjacent to the site of archaeological value and cultural use. The report notes, *“the Yuuʔuʔiʔpaḥ Government – Ucluelet First Nation requests complete avoidance of the one (1) registered archaeological sites DfSj-TBA, the two (2) identified areas of potential, and the one (1) traditional use site.”* More detailed information on the civil works near these features – including grading, utilities and rainwater discharge – would ensure avoiding impacts from the proposed development. The application currently states that care will be taken to avoid removing trees in the traditional use area wherever possible (see **Appendix C4**), but the current civil plans appear to show grading work and construction overlapping that area (see **Appendix D**).

Environmental assessment:

As identified in 2022, further environmental assessment and wetland delineation work was necessary prior to subdivision or development. An environmental assessment report was submitted by ERIF which updates a 2017 assessment provided by Aquaparian Environmental Consulting on measures to mitigate site impacts by the previous landowners. This report does not map the existing environmental features on the site or analyse the impacts that the proposed development would have on the ecological feature of the site and the adjacent park land. An

overview of the ecological context is provided, but the analysis commissioned does not map out existing sensitive features on site, overlay the proposed development, and then comment on the expected impacts or provide recommendations to avoid harm. That typical scope of a pre-development biophysical assessment is what the Ucluelet OCP (and covenant on title) calls for. Staff are recommending that a biophysical assessment of the site be completed – as is typical for [development in BC](#) and as required by the Ucluelet OCP bylaw.

In 2023 a developer (the District Group) considered purchasing the 221 Minato Road property; as part of their due diligence and preparing a development application they engaged a Qualified Environmental Professional (QEP) to do a biophysical analysis of the site. Although they did not complete their development application or submit the final results of the QEP site assessment, a preliminary plan was provided to the District indicating 5 wetland areas (with 15m setbacks) on the property, in locations now shown to be filled and developed on the ERIF plans (see **Figure 3**).



Figure 3: preliminary 2023 site plan indicating wetlands

Other recent developments in Ucluelet have come under scrutiny by the Ministry of Environment, with one receiving a provincial order to stop the site development and prepare a wetland remediation and offsetting plan – a process that delayed the development over 18 months. Understanding the site, before proceeding with development, is prudent to avoid unexpected delays and costs. Completing the investigation and wetland delineation according to current provincial standards early in the process can avoid putting the housing development project at risk.

The proposal includes significant impervious areas of roof surfaces, paving, parking areas and roadways. The plans for the civil works show stormwater discharge into an area that flows to an existing stream corridor providing fish and other aquatic habitat. Runoff volume calculations should be coordinated with the landscape design and be coordinated with the QEP for recommendations on mitigation measures and whether provincial permitting processes will be necessary. **Figures 4 - 8** identify areas of concern that should be assessed by a QEP.

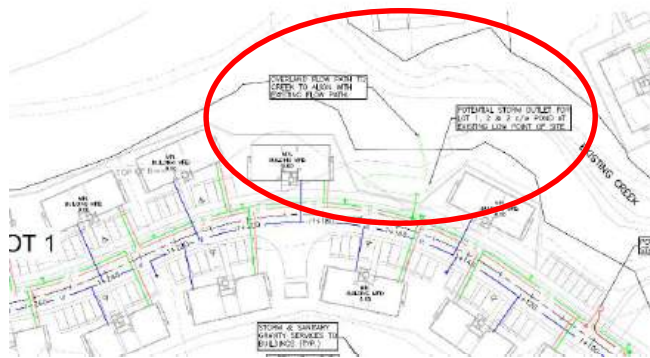


Figure 4. Civil drawing C02. Storm outlet from lots 1 and 2 to creek. Volume?

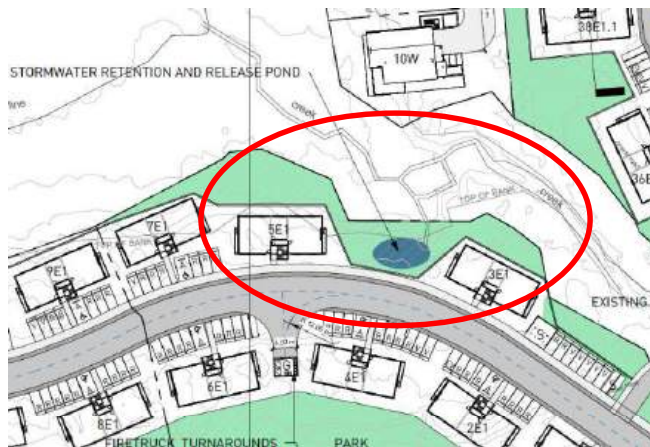


Figure 5. Architectural drawing A201. Pond construction requiring a provincial permit for changes in and about a stream?

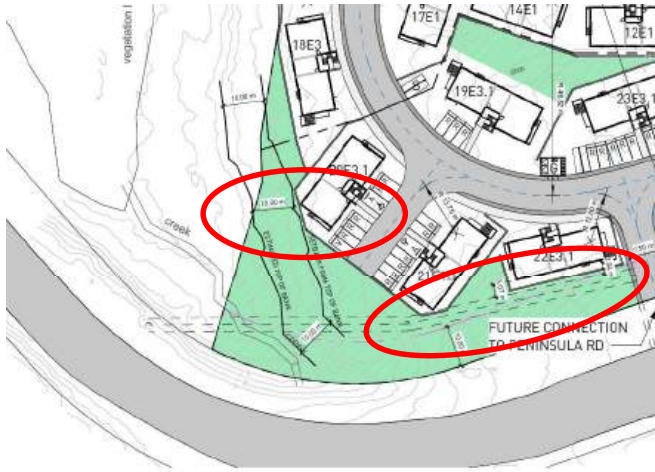


Figure 6. Architectural drawing A201. Retaining wall footings within setback from fish-bearing stream? Also, building setback from overhead hydro lines?

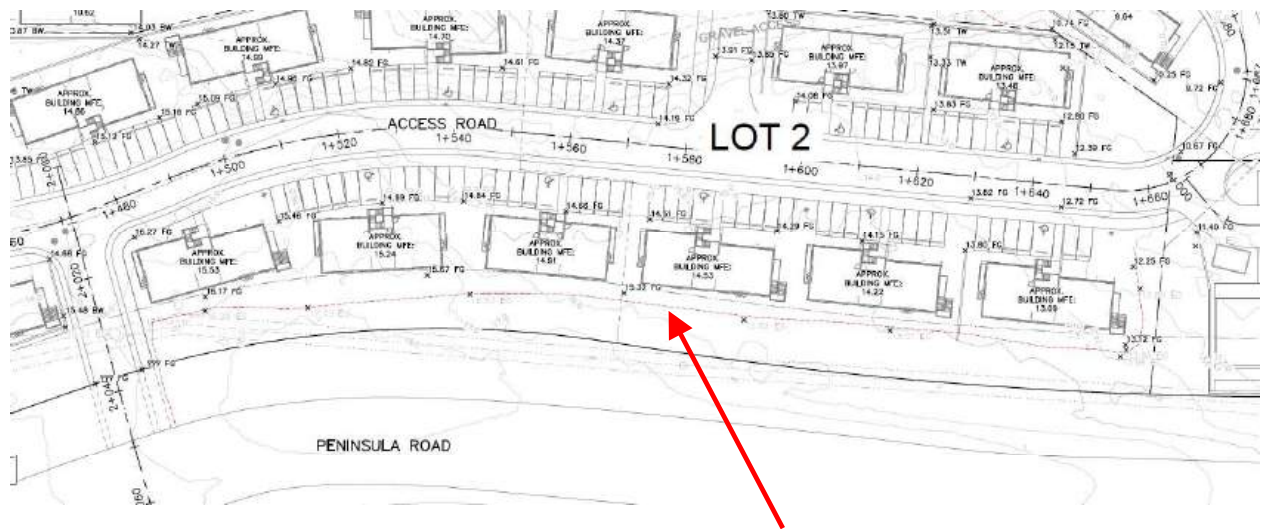


Figure 7. Civil drawing C03. Edge of excavation (dashed red line) within root zone of trees to be “preserved wherever possible.”

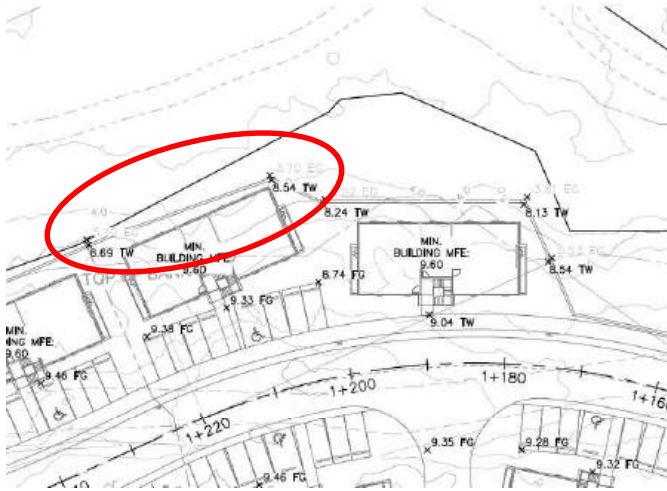


Figure 8. Civil drawing C03. Retaining walls and fill (18 – 23 feet in height to reach 10.7m tsunami flood plain) at edge of park, within root zone of trees?

OTHER INFORMATION TO FOLLOW:

Site Servicing:

A site servicing report prepared by Herold Engineering is included in **Appendix D**, along with a report on the feasibility of temporary on-site wastewater storage by Creus Engineering. Review and comment by the District’s engineering consultants is underway, with results expected by the beginning of the new year.

An area of note, following receipt of the KWL flood assessment, is minor regrading of Minato Road to raise a low area above 10.7m as part of the off-site upgrades required for the new site access to the proposed development.

Emergency Services:

Staff have not yet had an opportunity to provide full comment on the suitability of the proposed development for Fire and Emergency Services. This should precede a public hearing.

Development Proforma:

At the September 24, 2024, meeting Council members stated that the development proforma – shared with Council by the applicant – is convincing evidence that the proposed approach to the development program and site plan is necessary to achieve housing affordability. To ensure that the bylaw amendment process is not subject to challenge, that information which Council is considering should be made available to the public. Its release should be with sufficient time for the public to review and analyse ahead of a public hearing.

Housing Agreement:

Given the information provided on the proposal, servicing and amenities, staff consider that a phased development agreement (PDA) is not the best tool for this development. The one shared amenity that might lend itself to a PDA is the park space on Lot 1 at the edge of Lot 2. A PDA would contain detailed plans for the park, play features etc., with detailed costing along with a commitment to the timing of the park construction. Given the relative size of the park in the overall development, staff recommend that the park details could more simply be handled as part of the Development Permit covering the adjacent multi-family housing buildings.

Housing Agreements should be developed for the Lots 1 and 2 ownership and rental units. A Housing Agreement bylaw could be drafted when more detail is provided on the ERIF Housing Association and the mechanisms for financing the construction and operation of those units. Separate housing agreements on the development parcels would also provide the owner with more flexibility than a phased development agreement (which would need to contain all the details and timing commitments for each phase before a public hearing is held on the PDA bylaw).

ALTERNATIVE OPTIONS:

Staff understand Council's interest in expediting this application, however as noted above, a complete QEP assessment and site analysis should be completed prior to proceeding with bylaw amendment and prior to issuance of an environmental Development Permit. Addressing the potential conflicts noted above could result in a different site plan, and would normally be completed prior to proceeding with development approvals by Council. If Council chooses to proceed ahead of receiving the full site assessment, staff would then recommend amending the restrictive covenant currently on title to ensure those items are completed prior to subdivision. There is a risk in this approach, that the development might need to backtrack if site plan adjustments triggered further amendments to the OCP or zoning.

With the receipt of the flood assessment, the package has been referred to the Yuułu?iŋ?ath Government for early review under Council policy 13-6830-01 for a period of 30 days. As Council has indicated its interest in fast-tracking this proposal, it should provide guidance if an alternative process is desired. The Yuułu?iŋ?ath Government is already aware of some aspects of the proposed development, and a letter was submitted after the September 24, 2024, Council discussion (see **Appendix B**). As soon as the outstanding components of the site analysis and application information discussed above is received, staff will expedite completion of the bylaws and presentation of additional review materials in preparation for a public hearing.

A	Obtain complete site analysis and application information while other aspects of the review proceed.	<u>Pros</u>	<ul style="list-style-type: none"> Allows avoidance of impact on sensitive ecological, archaeological and cultural features. Reduces risk of delays to the project later on. Enables preparation of Housing Agreement bylaw Enables concurrent review by Yuuʼuʼiifʼaʼth Government. Consistent with municipal bylaws, policies and provincial best practices.
		<u>Cons</u>	<ul style="list-style-type: none"> Delay for the development to proceed .
		<u>Implications</u>	<ul style="list-style-type: none"> Once outstanding information is received, staff would expedite bylaw preparation and bring the application back to Council for consideration of readings and referral to a public hearing.
B	Proceed with bylaw readings and public hearing. [not recommended at this time]	<u>Pros</u>	<ul style="list-style-type: none"> Would expedite the process.
		<u>Cons</u>	<ul style="list-style-type: none"> Risk of delays later in the process. Risk of harm to sensitive ecological and cultural resources. Incomplete information disclosed ahead of public hearing. Decision prior to completing YG referral process.
		<u>Implications</u>	<ul style="list-style-type: none"> Staff would give notice of a public hearing.
		<u>Wording of Motion</u>	<ol style="list-style-type: none"> THAT Council give first reading to <i>Ucluelet Official Community Plan Amendment Bylaw No. 1366, 2024</i>. THAT Council direct staff to refer <i>District of Ucluelet Official Community Plan Amendment Bylaw No. 1366, 2024</i>, to the Yuuʼuʼiifʼaʼth Government, the Ministry of Transportation and Infrastructure and the School District 70 Board of Education for a period of 30 days for comment. THAT Council give second reading to <i>Ucluelet Official Community Plan Amendment Bylaw No. 1366, 2024</i>. THAT Council give first and second readings to <i>Ucluelet Zoning Amendment Bylaw No. 1367, 2024</i>. THAT Council indicate that adoption of the OCP amendment and Zoning amendment bylaws would be subject to the owners registering a Section 219 covenant on the subject property to ensure the following is provided as a matter of public interest: [insert conditions]. THAT Council refer <i>Ucluelet Official Community Plan Amendment Bylaw No. 1366, 2024</i>, and <i>Ucluelet Zoning Amendment Bylaw No. 1367, 2024</i>, to a public hearing.

NEXT STEPS:

This stage of approvals (timing dependent of submissions of complete application materials) includes the following steps authorized by Council:

- a. Consider OCP amendment bylaw
- b. Consider Zoning amendment bylaw
- c. Consider Housing Agreement bylaw
- d. Public Hearing (OCP amendment, rezoning and housing agreement bylaws)
- e. Amend or replace the restrictive covenant on the property title (e.g., replace with housing agreements)
- f. Adopt bylaws
- g. Issue environmental DP to enable subdivision and site works
- h. Authorize municipal off-site infrastructure works

Subsequent steps (some may progress concurrently with the above - timing will depend on the developer's decisions and their consultants' timing to provide the required plans and analyses):

- i. Subdivision - Preliminary Layout Assessment
- j. Final Subdivision
- k. Development Permit(s) for individual multi-family and commercial sites
- l. Building Permit applications for each structure

Respectfully submitted: **Bruce Greig, Director of Community Planning**
Duane Lawrence, Chief Administrative Officer



REPORT TO COUNCIL

Council Meeting: September 24, 2024

500 Matterson Drive, Ucluelet, BC V0R 3A0

FROM: BRUCE GREIG, DIRECTOR OF COMMUNITY PLANNING **FILE NO:** 3030-01 PRE-APP 24-06_221 MINATO

SUBJECT: PRELIMINARY DISCUSSION - 221 MINATO ROAD (ERIF)

REPORT NO: 24-97

ATTACHMENT(S): APPENDIX A - PRELIMINARY PLANS
 APPENDIX B - RECENT PROPERTY HISTORY
 APPENDIX C - S.219 COVENANT CB265207 EXCERPTS

RECOMMENDED PROCESS:

This report aims to gauge Council's general sense of the community interest for a potential housing development at 221 Minato Road, and the degree of support or concern for specific aspects of the preliminary proposal and its impacts. Potential questions to consider and discuss are presented at the end of the report – Council may have others. Staff recommend that Council resolutions on these matters is not appropriate at this time, since a formal application has not yet been submitted; a more general discussion and comment on initial impressions or concerns may be helpful as the applicants finalize their plans for submission and formal review.

BACKGROUND:

ERIF Sustainable Solutions (ERIF) have approached the community of Ucluelet with an intriguing suite of concepts for delivering housing. ERIF first introduced themselves to Council as a delegation at the June 11, 2024, Council meeting. ERIF also held a well-attended community open house on September 11, 2024, at the Ucluelet Community Centre.

Staff have met several times with the ERIF team and are pleased with the open communication on the 221 Minato Road property. As with all developments proposing affordable and attainable housing options, staff are committed to moving things forward as quickly as possible. The discussions to date have been fruitful and have fleshed out a number of areas and possibilities for identifying and clearing hurdles for the housing concept and proposed development at 221 Minato Road.

The ERIF team has a number of unanswered questions about the site and its feasibility for the development program they are pursuing. Answers to some of those questions hinge on decisions by the municipality. Some technical questions can be resolved at the staff level, but others will depend on decisions made by Council.

THE PRELIMINARY PROPOSAL:

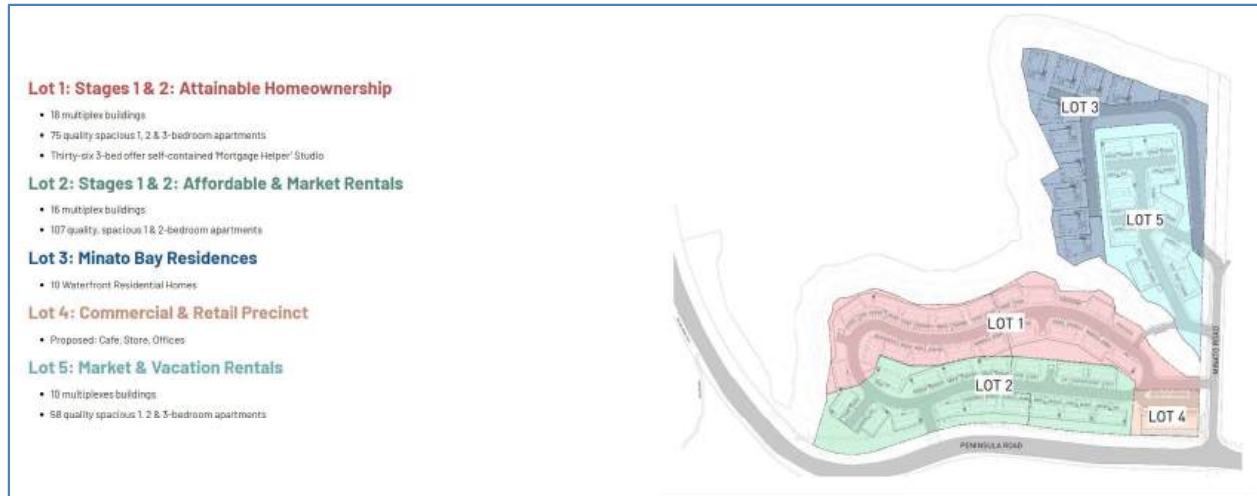
The ERIF team has presented preliminary plans for a development on the 221 Minato Road site including 221 residential units, 29 vacation rentals and a 1,200m² commercial building.



The proposed housing program currently includes:

“240 Apartments:
 75 Attainable Homeownership
 53 Affordable Rentals (CMHC)
 83 Market Sales and Rentals
 29 Vacation Rentals
 10 Waterfront Homes”

The proposed building form is 2-storey modular clusters of 1-, 2- and 3-bedroom apartments that would employ an innovative construction system. A total of 55 buildings are shown in the project summary. The combination of a modular core with SIPS panel framing is a creative approach to managing building costs. The plan includes a total of 398 surface parking spaces (see **Appendix A**).



PROPERTY BACKGROUND:

A brief outline of recent development steps is included in **Appendix B**. The current zoning of the property is a site-specific comprehensive development zone CD-6 – Minato Road that was created with the adoption of zoning amendment Bylaw No. 1312, 2022. That rezoning process began with a Committee-of-the-Whole meeting discussion [May 24, 2022](#), with a similar discussion of the site and high-level feedback to the proponent on their preliminary plans. That report includes a discussion of the background issues on the site. The CD-6 zoning permits up to 212 housing units on the property in a mix of single-family, duplex and multi-family forms. A mix of affordable and attainable rental and ownership housing was included, totalling 78% of the total units.

With the 2022 rezoning, there were a handful of issues that were not fully resolved – the owners wished to seek support for the zoning with the intent of following up with further engineering, archaeological and environmental work. Those items would need to be addressed prior to subdivision and development of the land, which could follow. The owners agreed to register a section 219 restrictive covenant on title to ensure that their commitments would be met, further details and studies would be provided, and that the development would proceed as proposed. A copy of the relevant excerpts from the registered covenant is found in **Appendix C**. The owners have subsequently provided the promised road and park dedication, and have obtained a licence of occupation for their existing bridge.

CONTEXT & PROCESS:

ERIF is pursuing an aggressive timeline and assessing how best to address issues in their application.

The purpose of this report is to provide a chance for ERIF to gauge the degree of Council support on several issues that may inform the project design and steps forward. This report is, by necessity, at a high level since we are not yet at the point of receiving a complete application - this report does not provide a complete staff analysis and recommendations for decisions. Once a formal application has been received and a full review has been completed Council will be able to consider

any request made by the developer. Until that time staff are presenting this information for guidance purposes only. No decisions of Council are being requested at this time.

SUMMARY OF TECHNICAL CHALLENGES:

As with any development, there are a number of technical issues that the need to be solved prior to subdivision and construction on the site at 221 Minato Road. Much of this work involves engineering analysis and design to ensure the safe and appropriate infrastructure is installed to support the development, while protecting sensitive and/or valuable features on- and off-site. The 2022 covenant in Appendix C provides a starting point. In some cases the requirements are set by bylaw, standard engineering practice and/or regulatory requirements of other agencies (e.g., Ministry of Transportation and Infrastructure). A brief overview of these items is listed below.

As proponents develop their plans, a balancing of site servicing and construction costs is part of their decision-making. The ERIF team has requested confirmation of some areas where Council decisions would affect the costs borne by the developer. Those are highlighted in the questions at the end of this report.

A. Site Servicing

The proponent will need to provide all on-site infrastructure including roads, sidewalks, water, sewer, electrical and data, street lighting, etc. The adequacy of municipal off-site water and sewer infrastructure is the subject of current engineering work by the District. A strategy for addressing the known sewer capacity issues in this catchment area, and funding options, will be presented to Council at an upcoming meeting – expected in October. The mechanism and degree of developer contributions will doubtless factor into the total project costs.

B. Tsunami Flood Hazard

The District's flood hazard mapping identified that the land at 221 Minato Road may be at risk of flooding in the event of a tsunami. Provincial guidance would point new development away from areas identified as being potentially subject to those types of hazards. The District's interim flood risk tolerance policy enables the property owner to propose an engineered solution to mitigate flood risks. The ERIF team are aware of the further work necessary to confirm the tsunami flood reference plane and possible mitigation features – and their costs – and confirming that a qualified engineer can provide a flood assurance statement to enable subdivision and development in those areas. In other words, the exact areas where housing construction will be feasible has not yet been confirmed. Staff understand that ERIF has engaged a consultant to do the engineering work; the results of that analysis will presumably confirm the site suitability or may trigger changes to the development approach and site plan.

C. Environmental and Archaeological assessment of the site:

As identified in 2022, further environmental assessment and wetland delineation work is necessary prior to subdivision or development. While a change in the zoning could

proceed ahead of those studies being completed, there is a risk that the results may identify areas unsuitable for development. Generally, best practice is to have complete site analysis prior to developing a site plan, but approvals can proceed with the understanding that the developer may have to change course as the work is completed.

D. Site Access, Circulation and Road Design:

No detailed plans have been submitted for the proposed road and pedestrian infrastructure beyond what is shown on the site plan. The site plan shows surface parking spaces backing directly onto the proposed road – this configuration treats the street more as the drive aisle for a parking lot, which is effective and safe at only the lowest speeds. Review and comment on whether this is possible while meeting the needs of emergency access would happen after an application has been made.

A comparable road cross-section might be the design for the current OceanWest phase 5 subdivision extending Forbes Road to Marine Drive. A pathway separated by a planted boulevard, integrated surface drainage design and parallel on-street parking spaces where space allows have consistently been part of recent residential subdivisions in Ucluelet.

As noted above, the completion of environmental assessment and wetland delineation may require some realignment of the proposed roads.

A consideration to be explored with this development is the appropriate use of public roads versus private lanes. The developers are encouraged to think ahead to the legal structure of individual fee-simple and/or strata lots and how they will connect to municipal services – this can influence where public roads and service mains extend into the property, and the extent of private service connections.

Q. Do Council members have any initial concerns about a road configuration with limited pedestrian facilities and vehicle parking spaces backing onto the roadway?

POLICY ISSUES AND QUESTIONS:

1. Park Land Dedication:

As noted above, the owners of the property have already dedicated the road right-of-way to widen Minato Road and the park land to protect the marine shoreline and stream corridor, as was promised in 2022. The ERIF team are requesting confirmation that no further park dedication will be required for the future development of the site.

Staff generally consider this to be a reasonable request, but note the following:

- If the complete environmental assessment and wetland delineation identifies further sensitive areas that should be protected, park dedication is a stronger conservation tool than a covenant on private property. Such areas might be better protected and maintained long term as additions to the park corridors; and,

- With 250 new homes there should be some consideration of play space. Tugwell Field and the Lions Park are the nearest existing park play spaces. From the corner of Minato Road and Peninsula Road, it is 1.1km to the nearest playground, requiring children and families to cross the highway to access suitable play spaces. A small green space is shown on the site plan; either a strata-maintained play space (with ongoing strata maintenance costs) or public park dedication for a play area should be considered within the proposed new neighbourhood.

Q: Do Council members have any initial concerns with the concept of no additional park land dedication for this development?

2. Construction of Public Trails:

Currently, the property owner has committed to constructing, at their cost, gravel pedestrian trails within the stream corridor and shoreline park areas as part of the development of the property (see covenant sections 2(c), 2(d) and 4 of the covenant in **Appendix C**). Olsen Bay is a very sensitive marine ecosystem, and can be impacted by disturbance as minor as footprints. It is therefore important that appropriate trails or protections be constructed within the park areas before new residents begin to occupy the site, to enable people to experience the landscape (and connect to the Wild Pacific Trail) without inadvertently damaging the environment. The ERIF team are requesting that constructing trails, and the costs, be borne by the municipality.

Q: Do Council members have any initial concerns with the concept of taking on the cost of constructing the trails, and making this a priority capital project so that trails can be completed prior to occupancy of the site by new residents?

3. Peninsula Road 30m Buffer and Further Lot Clearing:

The Ucluelet OCP bylaw includes policy 3.163 which applies to this, and other areas designated for comprehensive development planning:

“Policy 3.163 A 30-metre wide tree buffer with no development must be provided along both sides of the Pacific Rim Highway.”

The intent of this policy has been to maintain a forested entry into the community. Approaching Ucluelet is an experience of traveling through the forest, with glimpses of the surrounding mountains and Olsen Bay, before arriving in town. The proposed development plan would change the experience of how residents and visitors approach and arrive in the community.

The site plan with the 2022 rezoning maintained the 30-m treed buffer adjacent to Peninsula Road (see site plan attached to covenant in **Appendix C**). OCP Policy 3.162 prohibits the wholesale clearing of land on development sites, and points to tree retention as a community priority:

“Policy 3.162 Clear-cutting tracts of land greater than 0.5 hectare is prohibited; habitat protection and tree retention is to guide and form the character of the development.”

The OCP Policy 3.171 further points to tree retention as a priority:

“Policy 3.171 The area on Minato Road north of Peninsula Road is designated for Future Comprehensive Planning. This area is envisioned as a residential community with potential for guest accommodation, with significant tree retention. The shoreline and marine wetlands of Olsen Bay is recognised as having important ecosystem values. No development should approach within 30m of the high water mark of Olsen Bay. A greenbelt should be maintained along stream corridors and the shoreline.”

The site plan provided by ERIF maximizes the number of buildings on the site. To achieve the density shown, the plan proposes the following:

- Clear most of the remaining trees on the site (excluding dedicated park areas);
- Remove the 30m treed buffer adjacent to Peninsula Road;
- Extensive retaining walls and regrading to create areas above potential flood construction level.

The retained trees around the new neighbourhood would effectively be limited to those standing in the park areas.

Q: Do Council have any initial concerns with a proposal to remove a 30-metre treed buffer along Highway 4 and substantial tree clearing throughout the developable lands that would maximize the area for housing construction on the 221 Minato Road site, and which would diverge from OCP Policies 3.162, 3.163 and 3.171 meant to limit the clearing of trees and changes to the public entrance to town?



Figure 1. Aerial photo showing 221 Minato Road and areas cleared by previous owner



Figure 2. Areas of further clearing (tan) per proposed site plan.

4. Highway 4 Speed Reduction:

Watt Consulting has analysed the traffic impacts, access and turning movements for the proposed development. One item noted by the traffic engineers is that the speed limit drops to 50km/h near Minato Road, and with the proposed development it would be beneficial for the safety and comfort of road users to move the transition from 70km/h to 50km/h further west. ERIF has asked if the District would support or make a request to the Ministry of Transportation and Infrastructure to change the speed transition point on the highway.

Staff note that parking on the road edge near the Ancient Cedars trailhead to the Wild Pacific Trail is less than ideal. Reducing the speed limit to 50km/h northwest of that point – perhaps at the corner near the Olsen Bay pump station – could improve the safety and comfort of road users at that point as well. Travel time for a vehicle travelling at 50km/h vs 70km/h over that distance would mean an additional 20 seconds to reach town.

Q: Do Council members support extending the 50km/hr speed zone northwest by approximately 1000m and staff making a request to MoTI in advance of receiving a development application by ERIF.

5. Qualifying Local Renters and Buyers:

The ERIF proposal suggests that the affordable and market rentals shown on proposed Lot 2 would be developed with financing support from BC Housing and CMHC. These programs typically see preferential financing based on a percentage of units to be rented at below-market rates to qualifying households.

The attainable ownership units shown on the proposed Lot 1 are described as below-market ownership units supported by the ERIF Not-for-Profit Housing Association including a 5% vendor take-back loan to help with down payments. The proponents have described the sale of these units and the qualification of buyers would be handled by the ERIF association and RE/Max. Typical with non-market housing agreements, qualifying buyers and monitoring housing agreements is done by a third party – either a housing authority or non-profit housing organization experienced in property management. The S.219 covenant provided by the owners for the 2022 rezoning committed to entering into Housing Agreements and covenants to ensure the affordability and qualification criteria of buyers. This is typical with non-market housing; a recent example is the Lot 13 development where housing agreements specify that qualified buyers cannot own other property, must fall within the agreed income levels and must have been a resident of the west coast for an agreed-to period of time.

Q: Do Council members expect that if a zoning amendment and other approvals are granted, the affordable and/or attainable housing units would need to be ensured through housing agreements and covenants that are administered and monitored by the municipality or an experienced qualified third-party?

6. Commercial Component:

The ERIF proposal includes a 1,200m² commercial building right at the corner of Minato Road. The building site would be within the 30m buffer discussed above. That area of the site is also shown as “parks and open space” on the OCP Schedule A Long-Range Land-Use Plan. Schedule A shows the balance of the property as a mix of single-family and multi-family residential. Nearby properties to the southeast on Peninsula Road have commercial designations.

Q: Do Council members have any initial concerns with the concept of extending a commercial designation to the area on the corner of Minato Road?

7. Vacation Rentals:

A number of recent rezonings for housing developments have proposed components of tourist accommodation, but these have consistently failed to gain Council support as the community prioritizes housing. The prior designation of the property at 221 Minato included tourist commercial (in alignment with the former campground zoning on a portion of the property). Since 2022 the zoning and OCP designations on the property have been for residential uses only.

The ERIF proposal shows short-term vacation rentals as a component for the 10 waterfront market homes on Proposed Lot 3 and 29 of the units on proposed Lot 5. The ERIF team have indicated the need for the short-term vacation option to off-set the costs of developing affordable housing. The 2022 rezoning proposal for 221 Minato initially included short-term rentals as a proposed use in 47 of the units - but that component was not supported by Council and was removed from the proposal to focus the development on housing.

Q: Do Council members have any initial concerns over a component of short-term vacation rentals in the current proposal at 221 Minato Road?

8. Temporary Use Permit:

ERIF has enquired if a TUP would be possible to situate a temporary manufacturing site on the phase 5 portion of the development to facilitate the construction process. No details have been provided at this time.

Q: Subject to meeting environmental and servicing requirements, and subject to public comment, do Council members have any initial concerns with the concept of a temporary manufacturing facility on the eastern portion of the site?

NEXT STEPS:

- To keep moving on their desired timeline, in the coming days ERIF will need to submit a complete application for rezoning and environmental development permit:
 - a. These would set the stage for the subsequent applications for subdivision and further development permits for the proposed multi-family building sites. Those

applications can follow at a point when there is confidence in the alignment of parcel boundaries, roads and services.

- b. The applicant will need to provide a complete set of [application materials](#) and fees as one package.
 - c. The application will need to include a statement of the housing mix and the levels of affordability, addressing [OCP](#) policy 3.143 and 3.134
 - d. The application should include an updated environmental assessment and archaeological assessment: if these are not available yet, at least submit statements from the consultants confirming their engagement, process and timing.
- First stage of approvals (timing dependent of submissions of complete application materials) would include the following authorized by Council:
 - e. Consider OCP amendment bylaw;
 - f. Consider Zoning amendment bylaw;
 - g. Consider Housing Agreement bylaw;
 - h. Consider Phased Development Agreement Bylaw;
 - i. Public Hearing (OCP amendment, rezoning, housing agreement and phased development agreement bylaws)
 - j. Amend or replace the restrictive covenant on the property title;
 - k. Adopt bylaws
 - l. Issue environmental DP to enable subdivision and site works;
 - m. Authorize municipal off-site infrastructure works;
 - Subsequent applications (some may progress concurrently with the above - timing will depend on the developer’s decisions and their consultants’ timing to provide the required plans and analyses):
 - k. Subdivision - Preliminary Layout Assessment
 - l. Final Subdivision
 - m. Development Permit(s) for individual multi-family and commercial sites
 - n. Building Permit applications for each structure

Council discussion on the questions above will assist staff and the ERIF team in gauging the degree of comfort with the direction indicated by the preliminary details of the development, as the proponent finalizes their plans. Staff look forward to seeing more details on the ERIF proposal and

continuing to work through the development approvals process to see a housing development take shape on the site that meets the community needs and expectations.

Respectfully submitted: **Bruce Greig, Director of Community Planning**
 Duane Lawrence, Chief Administrative Officer

SITE PLAN



PROPOSED SUBDIVISION

Subdivision Lots

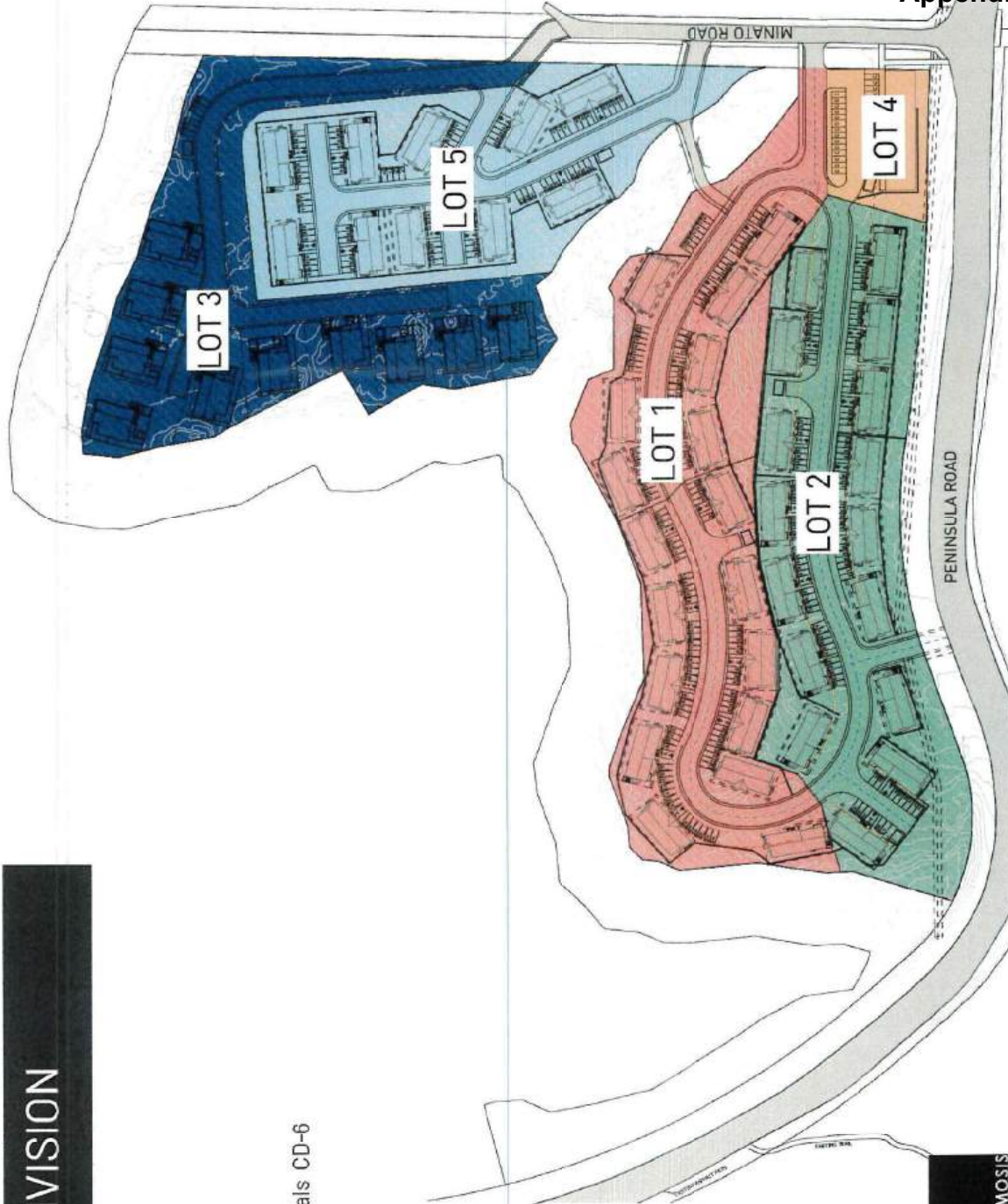
- LOT 1: Below-Market Sales CD-6
- LOT 2: Affordable Rentals 30% & Market Rentals CD-6
- LOT 3: Ten Waterfront Homes CD-6
- LOT 4: Small Business & Retail Precinct CS2
- LOT 5: Market Apartments CD-6

Incorporating Updates to:

- Official Community Plan
- By Law Update CD-6
- Rezone Lot 4 as CS2
- Site Covenant Restrictions

With Agreement for:

- Licence of Occupation for Bridge
- Subdivision Approval
- Phased Development Plan
- Strata Title for Lot 1 and Lot 5



MINATO ROAD - PROPERTIES | 221 MINATO ROAD, UCLUELET | 2024-08-29

FORMOSIS
ARCHITECTURE

PROJECT DATA

PROJECT DATA															
	Buildings	Units	1 Bed	2 Bed	3 Bed	4 Bed	Total Suites	Total Gross Floor Area (m ²)	Parking Req'd	Visitors Req'd	Total Parking Req'd	Parking Provided	Visitors Provided	Accessible Provided	Total Parking Provided
South Site															
Lot 1 Stage 1 Attainable	7	0	2	13	14		29	1,444 m ²	29	6	35	29	5	5	39
Lot 1 Stage 2 Attainable	11	0	4	20	22		46	2,261 m ²	46	10	56	42	12	5	59
Lot 2 Stage 1 Housing	6	12	6	21	0		39	1,197 m ²	39	8	47	62	11	9	82
Lot 2 Stage 2 Housing	10	20	16	32	0		68	1,938 m ²	68	14	82	42	10	5	57
Lot 4 Commercial	1							1,200 m ²	30		30	27		2	29
Sub-Totals	35	32	28	86	36		182	8,040 m²	212	38	250	202	38	26	266
North Site															
Lot 5 Market Rentals	10	14	8	30	6		58	2,014 m ²	58	12	70	62	12	10	84
Lot 3 Waterfront Home Lots	10					10	10	3,500 m ²	40	8	48	40	8		48
Sub-Totals	20	14	8	30	6	10	68	5,514 m²	98	20	118	102	20	10	132
Totals	55	46	36	116	42	10	250	13,554 m²	310	58	368	304	58	36	398

ATTAINABLE HOME SALES

Lot 1 Stage 2: Eagle 1/3
Strata Attainable Sales
46 Apartments - Sales

UNITS	No.
Multiplexes	11
1 Bedroom	4
2 Bedroom	20
3 Bedroom	22
Adaptable Studios	22
Parking	78

Lot 1 Stage 1: Eagle 1/3
Strata Attainable Sales
29 Apartments - Sales

UNITS	No.
Multiplexes	7
1 Bedroom	2
2 Bedroom	13
3 Bedroom	14
Adaptable Studios	14
Parking	63

AFFORDABLE RENTALS: 30%

Lot 2 Stage 1: Eagle 1.1/3.1
30% Affordable Rental
39 Apartments - Rent

UNITS	No.
Multiplexes	6
1 Bedroom	18
2 Bedroom	21
3 Bedroom	0
Adaptable Studios	0
Parking	39

Lot 2 Stage 2: Eagle 1.1/3.1
30% Affordable Rental
68 Apartments - Rent

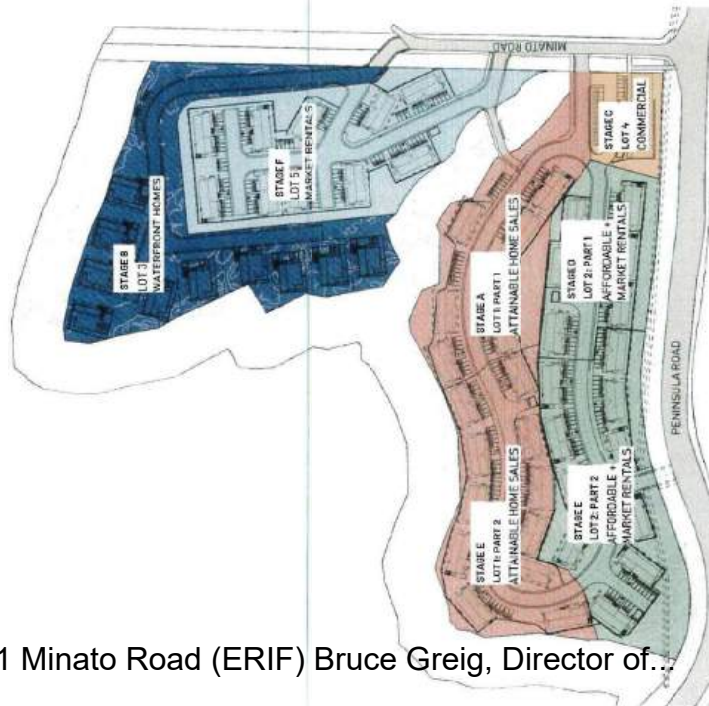
UNITS	No.
Multiplexes	10
1 Bedroom	32
2 Bedroom	24
3 Bedroom	0
Adaptable Studios	0
Parking	59



MINATO ROAD 221 MINATO ROAD, UCLUELET | 2024-08-29

FORMOSIS REALTY INC.

PHASED
DEVELOPMENT PLAN



MINATO ROAD PROPERTIES | 221 MINATO ROAD, UCLUELET | 2024-08-28

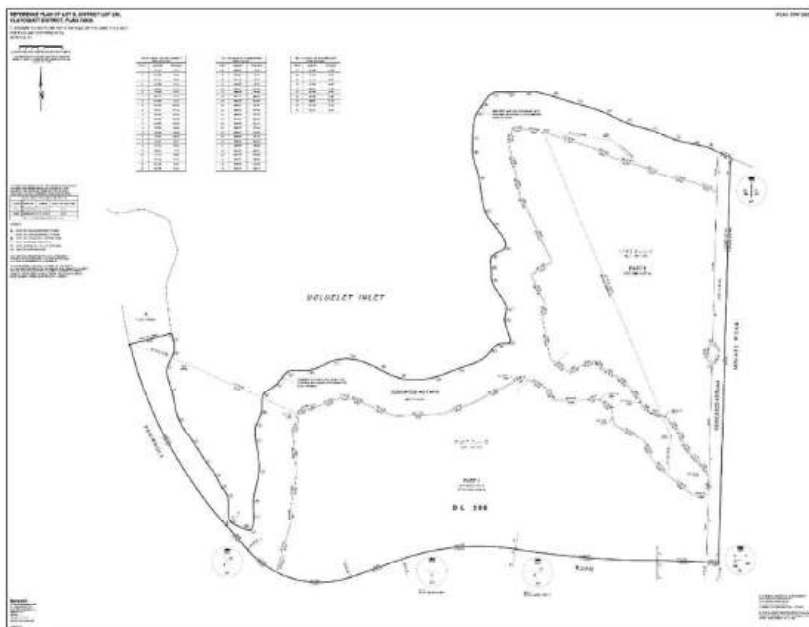


Stages	Built Form & Type	Title & Conditions
<p>Stage A</p>	<p>LOT 1: PART 1</p> <ul style="list-style-type: none"> Attainable Home Sales - Below-Market Homeownership 7 Multiplex Buildings 29 Keys 2 x 1-bedroom 13 x 2-bedroom 14 x 3-bedroom 	<ul style="list-style-type: none"> Sales Strata Titled Six Eagle 1 & Three Eagle 3 Note: Studios not to be separated in count as will be strata titled and sold in 3-bedroom apartments. Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental.
<p>Stage B Concurrent with Stage A</p>	<p>LOT 3: Waterfront Homes</p> <ul style="list-style-type: none"> 10 x Waterfront Family Home 	<ul style="list-style-type: none"> Fee Simple Subdivision (Home Association) Designed with option for intergenerational living with self-contained studio available for long-term and/or short-term rentals. CONDITION: Stage A construction concurrent with Stage B.
<p>Stage C</p>	<p>LOT 4: Commercial Precinct</p> <ul style="list-style-type: none"> 600m2 Ground Floor Retail - Cafe, Store, Etc. 600m2 Upper Floor Offices 	<ul style="list-style-type: none"> Held in one line. NOTE: Phase D and E may be brought forward if government funding available and demand for rentals and sales is fully taken up.
<p>Stage D</p>	<p>LOT 2 - PART 1:</p> <ul style="list-style-type: none"> Affordable Rentals - 30% of Keys Market Rentals 6 Multiplex Buildings 38 Keys 18-bedroom 21 x 2-bedroom. 	<ul style="list-style-type: none"> Held in one line. CONDITION: Subject to government funding and approval timing. Three Eagle 1 & Two Eagle 2 (Same floor plan but may be adaptably leased as 2-bedroom plus separate studio - not as a 3-bedroom).
<p>Stage E</p>	<p>LOT 1: PART 2</p> <ul style="list-style-type: none"> Attainable Home Sales - Below-Market Homeownership 11 Multiplex Buildings 46 Keys 4 x 1-bedroom 20 x 2-bedroom 22 x 3-bedroom Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental. <p>LOT 2 - PART 2:</p> <ul style="list-style-type: none"> Affordable Rentals - 30% of Keys Market Rentals 10 Multiplex Buildings 68 Keys 32 x 1-bedroom 24 x 2-bedroom 	<p>LOT 1: PART 2 - Sales Strata Titled</p> <ul style="list-style-type: none"> Nine Eagle 1 & Two Eagle 3 Note: Studios not to be separated in count as will be strata titled and sold in 3-bedroom apartments. Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental. CONDITION: Subject to and commencing after Attainable Homes in Lot 1 Part 1 are sold out. <p>LOT 2 - PART 2</p> <ul style="list-style-type: none"> Held in one line. CONDITION: Subject to government funding and commencing when grant funding received and Lot 2; Part 1 fully leased. (Same floor plan but may be adaptably leased as 2-bedroom plus separate studio - not as a 3-bedroom)
<p>Stage F</p>	<p>LOT 4: Market Apartments:</p> <ul style="list-style-type: none"> Market rentals and sales. 10 multiplex buildings. 58 Keys. 22 x 1-bedroom 30 x 2-bedroom 6 x 3-bedroom 	<ul style="list-style-type: none"> Strata Titled Apartments for long-term and short term vacation rentals.

PAST APPLICATIONS:

A number of steps toward development have occurred in recent years on the property at 221 Minato Road:

- 2017: rezoning application for campground and guest house (later withdrawn)
- 2017: previous owners cleared much of the site (without first obtaining a development permit)
- 2018: new zoning application for campground and guest house uses
- 2019: DP issued for restoration of riparian areas
- 2020: rezoning bylaw No. 1244 adopted
- 2020: DP issued for subdivision (to create campground parcel and guest house parcel). Subdivision not completed by owners.
- 2022: Change of ownership – rezoning application for 212 housing units; bylaw No. 1312 adopted January, 2023. S.219 covenant registered by owners to ensure commitments (see **Appendix C**).
- 2023: owners submit survey plan for dedication of park and road (as proposed with the rezoning of the property). Expansion of the Minato Road alignment, shoreline and stream park corridors are now transferred to the District.
- 2023: the District Group submits incomplete rezoning and subdivision applications for the property, with authorization from the current owners.
- 2024: the District Group applications are withdrawn.
- 2024: Licence of Occupation granted to the current owners of the property to allow continued use of the existing bridge spanning the stream (park) corridor.



Survey plan of park and road dedication

TERMS OF INSTRUMENT – PART 2

COVENANT (Section 219 *Land Title Act*)

THIS COVENANT dated for reference the ___ day of _____, 2022 is

BETWEEN:

MINATO DEVELOPMENT CORP. (BC1281485)

2842 – 140 Street
Surrey BC V4P 2H9

(the “Grantor”)

AND:

DISTRICT OF UCLUELET

Box 999
200 Main Street
Ucluelet BC V0R 3A0

(the “District”)

WHEREAS:

- A. The Grantor is the registered owner of land located at 221 Minato Road in Ucluelet, British Columbia and more particularly described as:

PID: 026-487-764
Lot B District Lot 286 Clayoquot District Plan VIP79908

(the “Land”);

- B. Section 219 of the *Land Title Act* permits the registration of a covenant of a negative or positive nature in favour of the District, in respect of the use of land or buildings, or the building on land;
- C. The Grantor has applied to the District for a rezoning of the Land to permit the development of housing on the Land, and in connection with the Grantor’s application for rezoning the Grantor has offered grant this Covenant to the District;
- D. The Grantor wishes to grant this Covenant to the District to confirm it will not subdivide or develop the Land except generally in accordance with the development plan prepared in conjunction with the Grantor’s rezoning application and presented to the District Council and the public in connection with the application;

THIS COVENANT is evidence that in consideration of the payment of TWO DOLLARS (\$2.00) by the District to the Grantor, and other good and valuable consideration (the receipt and sufficiency of which are acknowledged by the parties), the Grantor covenants and agrees with the District, in accordance with section 219 of the *Land Title Act*, as follows:

Definitions

1. In this Covenant:

- (a) "Affordable Housing Units" means any of the housing units with price, occupancy or tenure restrictions in accordance with the Housing Agreements;
- (b) "Development Plan" means the drawing attached to this Agreement as Schedule A;
- (c) "Director" means the District's Director of Community Planning;
- (d) "Housing Agreements" means, collectively, the housing agreements and covenants to be registered in respect of housing units under s. 4 of this Agreement;
- (e) "Median Income" means the current median annual household income for all Ucluelet households, as published by Statistics Canada.

Restrictions on Use, Subdivision and Development of the Land

2. The Grantor will not alter, subdivide or develop the Land for any purpose, and although nothing in this covenant affects or limits the Grantor's right to apply for a subdivision or any permit from the District in relation to the Land, neither the District nor its approving officer shall be obliged to approve any alteration, subdivision or development of the Land, until and unless the Grantor has complied with all of the following conditions and requirements:

- (a) Before March 1st, 2023, or such later date as the District may agree to in its sole discretion, the Grantor must dedicate as park the areas shown outlined in black and labelled P-1 on the Development Plan, and must dedicate as road the area shown hatched and labelled "Road Dedication" and "Future Parking Area" on the Development Plan.
- (b) The Grantor must provide all of the following, in writing, to the District:
 - (i) an archaeological assessment of the site and the proposed development with recommendations for any mitigation measures, design changes and/or permitting requirements to protect archaeological and cultural resources;
 - (ii) an assessment by a Qualified Environmental Professional (QEP) of the ecological resources of the Lands and surrounding ecosystem, with recommendations for how the proposed development can avoid and/or mitigate impacts on terrestrial and marine ecosystems or enhance the existing ecological function of the site;
 - (iii) grading and rainwater management plans for the proposed development of the Lands (incorporating the recommendations of the QEP and landscape plans for the proposed development);
 - (iv) engineering analysis and design for safe vehicular and pedestrian access to the proposed residential development on the Lands in a location and configuration to the satisfaction of both the District and BC Ministry of Transportation and Infrastructure;

- (v) engineering analysis and design of off-site works and services required to ensure that District infrastructure will accommodate the impact of the proposed development on the Lands, including water, sanitary, roads and pathways;
 - (vi) proposed phasing and servicing plans, identifying thresholds for when infrastructure upgrades (including road access, water, sewer) would be necessary before additional housing units are constructed;
 - (vii) proposed layout and approach to subdivision (including all proposed elements of fee-simple, bare land strata, or building stratas) identifying proposed property boundaries and the location and extent of public and private infrastructure, facilities, roads, pathways, parks, open space, etc.;
 - (viii) more detailed plans for proposed road and open space design including plans for public / shared recreation and play infrastructure;
 - (ix) description of proposed green building measures including electrical vehicle charging at all units;
 - (x) engineering analysis of all aspects of the proposed development on the Lands located in areas identified as subject to tsunami flood hazard, according to District of Ucluelet Tsunami Risk Tolerance Interim Policy 8-5280-1.
- (c) The Grantor must provide to the District, and receive the Director’s approval of, a detailed plan for the construction of gravel-surfaced pedestrian trails, viewing platforms, and associated infrastructure, to the District’s Wild Pacific Trail standards, in the approximate alignment shown on the Development Plan (the “Trail Plan”).
- (d) The Trail Plan must:
- (i) specify trail alignments that achieve the following objectives:
 - A. minimize impact on the natural environment
 - B. minimize pedestrian encroachment into the salt marsh and intertidal areas;
 - C. minimize tree removal;
 - D. maximize the experience by trail users;
 - E. fit the character of the existing municipal trail network;
 - (ii) include stairs, bridges, boardwalks, ramps, railings and other similar trail structures as reasonably necessary to achieve the above-noted objectives;
 - (iii) include view platform designs that are of a scale and quantity to allow future residents and trail users to enjoy the views (minimum 800 square feet, in two separate platforms);
 - (iv) include archaeological and environmental assessment and oversight as necessary during construction.

- (e) The Grantor must grant to the District and register on title to the Land, a housing agreement (or agreements) under s. 483 of the *Local Government Act* and a restrictive covenant (or covenants) under s. 219 of the *Land Title Act*, all to the satisfaction of the Director, to ensure the following:
 - (i) At least ten rental housing units with rental rates restricted to ensure affordability for households earning a maximum of 80% of Median Income, with the following unit mix: four units with one bedroom, four units with two bedrooms, and two units with three bedrooms;
 - (ii) At least 88 rental housing units with rental rates restricted to ensure affordability for households earning between 80% and 100% of Median Income, with the following unit mix: 40% of the units with one bedroom, 40% of the units with two bedrooms, and 20% of the units with three bedrooms;
 - (iii) At least 67 houses or townhouses with rental or sale prices restricted to be affordable for households earning up to 130% of median income, with a mix of unit sizes.

and the Director may require the Grantor to include in the Housing Agreements additional terms and conditions respecting the timing and phasing of any development of the Lands, to ensure construction and occupancy of any Affordable Housing Units is reasonably proportionate to the subdivision of lots and/or issuance of building permits for other residential uses on the Lands and without limiting the Director's discretion under this section, the Grantor agrees that Affordable Housing Units must comprise at least 65% of housing units constructed in the first phase of development of the Lands.

- 3. If the Grantor wishes to construct a bridge in the area to be dedicated as park but marked "Licence of Occupation Area" the Grantor must first request from the District a licence for that purpose, and the District will grant the licence provided it requires the Grantor to maintain liability insurance in an amount satisfactory to the Director, acting reasonably, and to indemnify the District against any claims that might be made against the District as a result of the existence or use of the bridge, and provided further that the Grantor agrees to construct and operate the bridge in a manner that causes no disruption or minimal disruption to the public use of and right to pass through the dedicated park.
- 4. Despite any construction that may have been authorized after the Grantor has fulfilled its obligations under section 2 of this Agreement, the use or occupancy of any building on the Land is further restricted as follows:
 - (a) No building on the Land shall be used or occupied until and unless the Grantor has completed the construction of the portion of trail in the area labeled T-1 in the Development Plan, in accordance with the Trail Plan;
 - (b) No building on the areas of the Land labeled B, C and D on the Development Plan shall be used or occupied until and unless the Grantor has completed the construction of the portion of trail in the area labeled T-2 in the Development Plan, in accordance with the Trail Plan;

- (c) No building on the areas of the Land labeled E, F or G on the Development Plan shall be used or occupied until and unless the Grantor has completed the construction of the portion of trail in the area labeled T-3 on the Development Plan, in accordance with the Trail Plan.

Inspections

- 5. The District and any of its officers and employees may enter on the Land at all reasonable times, to inspect the Land for the purpose of ascertaining compliance with this Covenant.

Amendment

- 6. This Covenant may be altered or amended only by an agreement in writing signed by the parties.

No Public Law Duty

- 7. Whenever in this Covenant the District is required or entitled to exercise any discretion in the granting of consent or approval, or is entitled to make any determination, take any action or exercise any contractual right or remedy, the District may do so in accordance with the contractual provisions of this Covenant only and will not be bound by any public law duty, whether arising from the principles of procedural fairness or the rules of natural justice or otherwise.

No Obligations on District

- 8. The rights given to the District by this Covenant are permissive only and nothing in this Covenant:
 - (a) imposes any duty of care or other legal duty of any kind on the District to the Grantor or to anyone else;
 - (b) obliges the District to enforce this Covenant, which is a policy matter within the sole discretion of the District; or
 - (c) obliges the District to perform any act, or to incur any expense for any of the purposes set out in this Covenant.

No Effect on Laws or Powers

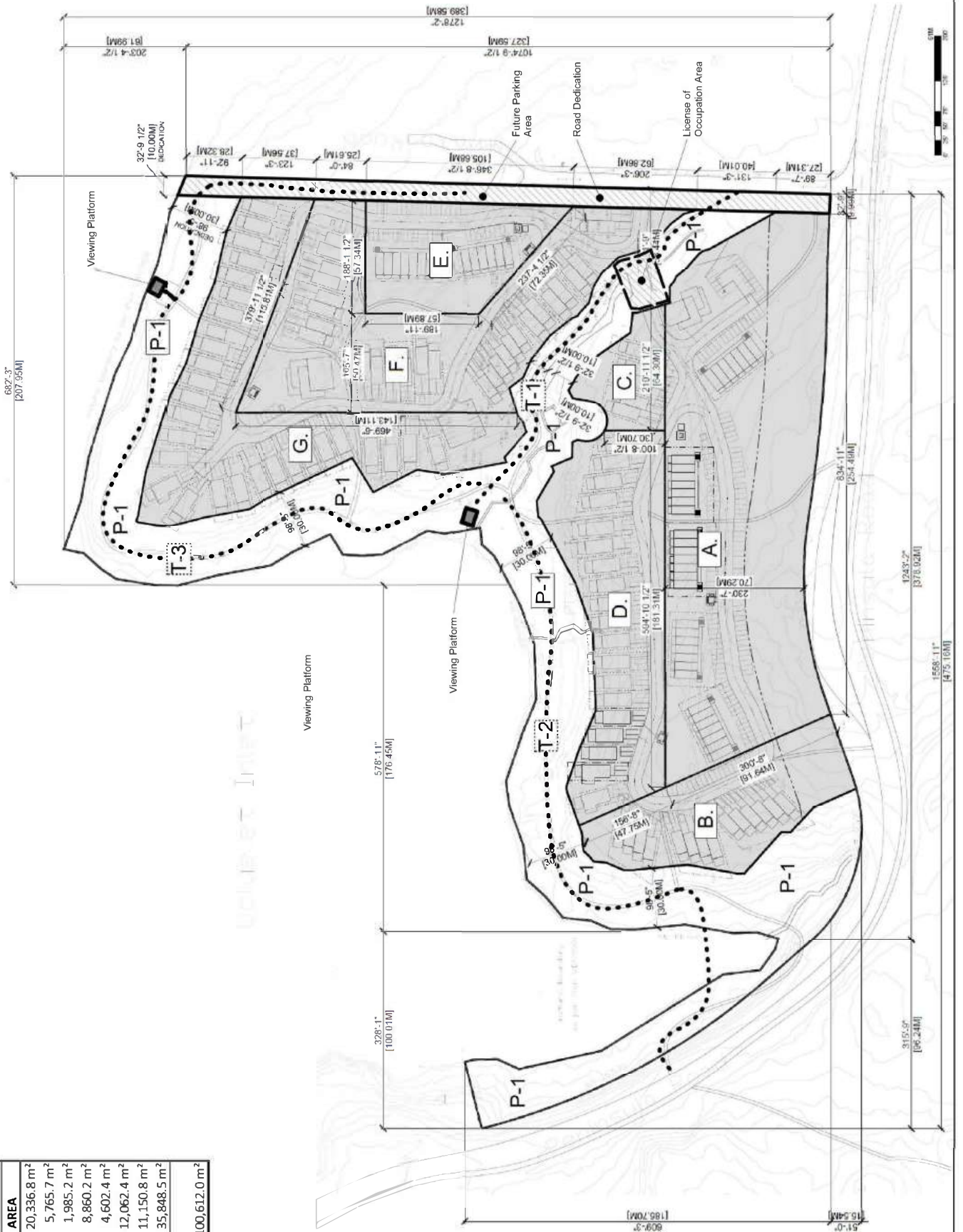
- 9. This Covenant does not,
 - (a) affect or limit the discretion, rights or powers of the District under any enactment or at common law, including in relation to the use or subdivision of the Land;
 - (b) affect or limit any law or enactment relating to the use or subdivision of the Land; or
 - (c) relieve the Grantor from complying with any law or enactment, including in relation to the use or subdivision of the Land.

District's Right to Equitable Relief

Schedule A

DRAFT 2022-05-30

LAND USE AREAS	AREA
A.	20,336.8 m ²
B.	5,765.7 m ²
C.	1,985.2 m ²
D.	8,860.2 m ²
E.	4,602.4 m ²
F.	12,062.4 m ²
G.	11,150.8 m ²
P-1	35,848.5 m ²
Total	100,612.0 m ²



Duane Lawrence, Chief Administrative Officer

Mr. Lawrence presented this report.

2024.2285.REGULAR *IT WAS MOVED AND SECONDED:*

- **THAT** Council direct staff to provide a letter of support for the Chamber of Commerce 2024 Rural Economic Diversification and Infrastructure Program grant application in support of a Community Economic Development Capacity Building project;
- **THAT** Council direct staff to allocate \$35,000 to the Chamber of Commerce in support of the Community Economic Development Capacity Building project for 2024; and,
- **THAT** Council direct staff to include for consideration an allocation of \$35,000 in the 2025 and 2026 budgets for the development of an economic development agreement with the Chamber of Commerce.

CARRIED.

8.4 Preliminary Discussion - 221 Minato Road (ERIF)
Bruce Greig, Director of Community Planning

Mr. Greig presented this report.

The following outlines questions that Council considered and related Council discussion:

Do Council members have any initial concerns about a road configuration with limited pedestrian facilities and vehicle parking spaces backing onto the roadway?

- Council discussed this matter and noted that it is not a concern.
- Council noted that the configuration is essential to keeping the development affordable.
- Council noted the need for a pathway within the development and that vehicles backing onto a roadway is common in other subdivisions, and necessary for increased density.

Do Council members have any initial concerns with the concept of no additional parkland dedication for this development?

- Council noted that there is a considerable park dedication already in the area.
- Council noted the ecological value of Olsen Bay and the sensitivity of this ecosystem.
- Council noted that the lack of a complete environmental assessment and wetland delineation, which may identify further spaces which should be protected.

Do Council members have any initial concerns with the concept of

taking on the cost of constructing the trails, and making this a priority capital project so that trails can be completed prior to occupancy of the site by new residents?

- Council noted that this is a means of keeping the cost of the development down.
- Council further noted that Resort Municipality Initiative funding could be used for trail development.
- Council noted the need to protect Olsen Bay, and the trail could help achieve this.

Do Council members have any initial concerns with a proposal to remove a 30-metre treed buffer along Highway 4 and substantial tree clearing throughout the developable lands that would maximize the area for housing construction on the 221 Minato Road site, and which would diverge from OCP Policies 3.162, 3.163 and 3.171 meant to limit the clearing of trees and changes to the public entrance to town?

- Council noted the trees should be sustained as they provide a benefit to the residents in the subdivision and for the appeal they provide at the entryway into the community.
- Council further noted that this should receive public input and a compromise should be considered.
- Council noted that the terrestrial habitat benefit on the site is limited.
- Council noted that the site is currently disturbed, and this would result in the treed entrance to town being moved about 800 m to the north and would not have a negative visual impact.
- Council noted that this sacrifice may be necessary for the requested density.
- Council noted concerns with tree blowdown when eliminating a buffer.

Do Council members support extending the 50km/hr speed zone northwest by approximately 1000m and staff making a request to the Ministry of Transportation and Infrastructure (MoTI) in advance of receiving a development application by ERIF.

- Council noted support for this proposal, especially given the road parking at the Ancient Cedar loop trail entrance.
- Council noted that it would have limited impact on transportation times.
- Council noted that it may be beneficial to reduce the speed limits to 40 km/h throughout town rather than reducing speeds only in this area.

Do Council members expect that if a zoning amendment and other approvals are granted, the affordable and/or attainable housing units

would need to be ensured through housing agreements and covenants that are administered and monitored by the municipality or an experienced qualified third-party?

- Council noted the need to develop a Housing Authority to administer and monitor the affordable and attainable portions of the development.
- Council noted that a Housing Authority would be useful for other developments.

Do Council members have any initial concerns with the concept of extending a commercial designation to the area on the corner of Minato Road?

- Council noted that this location may be ideal for services like convenience stores near the new housing.
- Council noted other approved commercial developments near this site at the entrance of town.

Do Council members have any initial concerns over a component of short-term rentals (STRs) in the current proposal at 221 Minato Road?

- Council noted that STRs may be supportable where affordable housing is provided as part of the development.
- Council noted that the STRs may be essential to allow the development of affordable housing.
- Council noted that STRs may be essential revenue for the homeowners in this proposed development.
- Council expressed concern that the ten waterfront homes could become whole home STRs sitting vacant when not rented. In response Staff clarified that the zoning bylaw could be tailored to prohibit whole home STRs in this development.

Subject to meeting environmental and servicing requirements, and subject to public comment, do Council members have any initial concerns with the concept of a temporary manufacturing facility on the eastern portion of the site?

- Council noted that this may be necessary to get the affordable housing.
- Council noted that a manufacturing facility may create less noise and waste than a typical construction site. Council also noted that the District limits the manufacturing facility's impact on the environment.
- Council noted the temporary manufacturing facility is fundamental to the developer's approach to building affordable housing.

9. NOTICE OF MOTION

There were no notices of motion.



District of Ucluelet
200 Main Street, Ucluelet, BC V0R 3A0
Attn: Duane Lawrence, CAO

October 4, 2024

Re: Comment for Record - 221 Minato Road (Erif)

Dear Mr. Lawrence,

This letter is in response to the Council Meeting held Tuesday, September 24, 2024, specifically agenda item 8.1 Preliminary Discussion - 221 Minato Road (Erif). With the understanding a full application has not been submitted for development of the property and a Preliminary Field Reconnaissance (PFR) will be provided, the Yuutu?it?ath Government would like to ensure the following comments are on record.

It is our understanding of conversations with Erif representatives that the remaining vegetation at 221 Minato Road would not be removed, as proposed in image (b) below.

To remove the current vegetation as presented, the land would be near clear cut. Respectfully and sustainably, we recommend the remaining vegetation and setbacks remain intact. It is known the land was originally felled without District approval, in a culturally and ecologically sensitive area. It is of value to note that the green X on image (a), marks the location of the traditional use site, consisting of seven contemporary culturally modified trees (CMT's), that we encountered during the survey.

It is in Yuutu?it?ath's best interest to preserve as much forested areas as possible, to maintain traditional harvesting areas, as well as the cultural identity and spiritual wellness of the Yuutu?it?ath. This is directly related to the health of the forests and protection of sensitive areas.

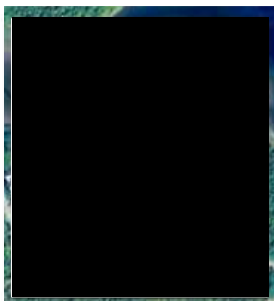


Image (a)



Image (b)

Sincerely,

Melissa Boucha, Manager of Intergovernmental Affairs

Cc: John Rankin, Director of Intergovernmental Affairs, Yuutu?it?ath Government
Carey Cunneyworth, Director of Culture, Language, and Heritage, Yuutu?it?ath Government
Bruce Greig, Director of Community Planning, District of Ucluelet

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Flood Assessment 221 Minato Road, Ucluelet

Final Report
December 4, 2024
KWL Project No. 4558.001

Prepared for:
ERIF Economic Restoration Infrastructure Fund



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Executive Summary

ERIF Economic Restoration Infrastructure Fund (ERIF) plans to subdivide and develop the waterfront property at 221 Minato Road, Ucluelet, BC with a mix of multi-family residential, single-family residential and commercial real estate. Based on District of Ucluelet mapping, the property is known to be partially in the tsunami flood hazard zone. To support a subdivision application, the District of Ucluelet (DoU) have requested a flood assessment and assurance statement. ERIF have retained Kerr Wood Leidal Associates to conduct coastal storm and tsunami flood assessments for the project site, which are summarized in this report.

The project site is located on Olsen Bay, within Ucluelet Inlet, on the West Coast of Vancouver Island. The 10 hectare site is irregularly shaped. There is a 30 m wide riparian buffer (DoU parkland) between the site and the Bay so that the property is not directly fronting on the ocean. The shared boundary with the riparian buffer is approximately 1,000 m long. A five-lot subdivision is proposed. Lot 1 and 2 (multi-family residential) and Lot 4 (commercial) are up-slope on the project site, with an elevation ranging from 6 to 15 m. Lot 5 (multi-family residential) is somewhat down-slope with an elevation ranging from 6 to 10 m. Lot 3 borders the waterfront riparian zone, with an elevation of 5 to 7 m. None of the buildings on these lots are proposed to serve as tsunami refuge structures.

Previous work, completed by the District of Ucluelet, generated coastal storm and tsunami flood hazard maps. Based on this work, the DoU have included coastal storm Flood Construction Levels (FCLs) in their Official Community Plan bylaw. The bylaw does not provide similar tsunami Flood Construction Levels. An interim policy statement from the DoU makes allowance for development in the tsunami flood hazard area provided a flood assessment is conducted by a qualified professional (QP) according to provincial guidance, and that the QP identifies safe building conditions for each lot.

Coastal storm flood hazard at the project site was assessed based on the FCL maps published in the DoU bylaws. A FCL of 4.3 m CGVD28 is indicated at the project site. The coastal storm setback limit is contained mostly within the riparian buffer zone but limit does make small incursions into the project site at two locations.

Regulatory and professional practice guidance for development in tsunami flood hazard areas is still developing. This assessment makes use of guidance in Provincial and Engineers and Geoscientists of British Columbia (EGBC) documents, however it is noted that this guidance has been developed primarily for riverine and coastal storm flooding applications. Where necessary the assessment is supported by literature from additional sources and the professional opinion of the authors. Importantly, this assessment is based on a single very large rupture of the Cascadia Subduction Zone (CSZ), and includes the effects of rupture-induced subsidence, high tide, and relative sea level rise. The tide level is specified 0.9 m higher than minimum recommended guidance, which introduces conservatism in the hazard estimates and has an effect similar to adding a freeboard.

Tsunami flood hazard for the project site was initially assessed based on the existing site topography. For the design tsunami, the maximum water level over the project site (including subsidence) was found to be 10.7 m CGVD28. In this scenario Lots 1, 2, 4, and 5 are partially inundated, while Lot 3 is near-fully inundated.

To mitigate tsunami hazard, ERIF have proposed to use landfill supported by retaining walls to raise Lots 1, 2, 4, and 5 to the lot-specific tsunami FCL, 10.7 m CGVD28. They have proposed to structurally raise the houses of Lot 3 on columns to the lot-specific tsunami FCL, 9.7 to 10.6 m CGVD28. The effect of these building mitigation measures was assessed by modifying the tsunami model to represent the proposed land raising. The results of the modelling show that the land raising is effective at protecting Lots 1, 2, 4, and 5 from flooding during the design tsunami event.

While the proposed raising of houses in Lot 3 will lower their risk of damage, the flood hazard during the design tsunami flood event would still be high. Based on the regulatory guidance available, it was judged that a risk assessment was required to justify the development of this Lot. A simple risk assessment was conducted to



quantify the risk to people and property. A key assumption in this assessment is that all residents will be instructed to evacuate in the event of a tsunami, and that a well-developed evacuation plan is in place. The risk assessment estimated a 1:142,000 chance of death annually due to tsunami, and the DoU has confirmed that they will tolerate this risk level for the development of Lot 3.

A flood mitigation plan was developed with a number of requirements focused on minimizing coastal and tsunami flood risk. The plan is the same for Lots 1, 2, 4, and 5, and slightly different for Lot 3. These mitigation plans include both building mitigation measures and planning mitigation measures. Of significant importance is that the Strata Council for each lot develops an emergency management plan which directs residents to evacuate during a tsunami event. Refer to Section 7 for details on the flood mitigation plan.

Based on the findings of this report and subject to implementation of the flood mitigation plan of Section 7, we assure that the proposed subdivision and development may be *used safely for the use intended*. With this statement we mean that the coastal and tsunami flood risk to the development falls below the DoU's stated threshold. A flood assurance statement is provided in Appendix E which formalizes this statement.



1. Introduction

It is understood that ERIF Economic Restoration Infrastructure Fund (ERIF) plans to subdivide and develop the waterfront property at 221 Minato Road, Ucluelet, BC (the project site) with a mix of multi-family residential, single-family residential and commercial real estate.

Tsunami hazard mapping published by the District of Ucluelet (DoU) in 2020 indicates that portions of this property are within the tsunami flood hazard zone [1]. Consequently, the DoU Approving Officer has stated:

For subdivision, development permit and/or building permit, the District will need to receive a Flood Assurance Statement sealed by a qualified professional meeting the Provincial requirements to allow new development in identified flood risk areas.

ERIF have retained Kerr Wood Leidal Associates Ltd. (KWL) to provide coastal engineering support for this project. This report provides an assessment of the coastal storm and tsunami flood hazards, a risk assessment of the proposed development, and a summary of proposed flood mitigation measures. The findings of this report will support the issuance of a Flood Assurance Statement.

1.1 Project Site

The project site is located on Olsen Bay, within Ucluelet Inlet, on the West Coast of Vancouver Island (see Figure 1-1). The site is within the District of Ucluelet. The 10 hectare site is irregularly shaped. There is a 30 m wide riparian buffer (DoU parkland) between the site and the Bay so that the property is not directly fronting on the ocean. The shared boundary with the riparian buffer is approximately 1,000 m long (see Figure 1-2). The property is bisected by a small creek. A second creek intersects its southern margin. The southern portion of the property slopes steeply from the shoreline to elevations greater than 10 m CGVD28. The northern portion of the property slopes more gently from the shoreline and eventually plateaus at approximately 8 m CGVD28. The property is subject to coastal storm and tsunami flood hazards from the sea, and riverine flood hazards from the two small creeks.

The boundaries of the proposed five lot subdivision are shown in Figure 1-2. The proposed development plan is shown in Appendix A. The proposed uses of each lot area as follows:

- Lot 1: Multi-family residential (75 units)
- Lot 2: Multi-family residential (107 units)
- Lot 3: Single-family residential (11 units)
- Lot 4: Commercial
- Lot 5: Multi-family residential (58 units)

It is understood that each lot will be under strata title and each managed with a separate strata council.

ERIF understands that the project site is within the tsunami hazard area and the proposed development plan reflects some initial building mitigation measures to support mitigating tsunami risk:

- Ground level on Lots 1, 2, 4, and 5 will be raised above the tsunami flood construction level using tsunami-resistant retaining walls.
- Homes on Lot 3 will be raised above the tsunami flood construction level on a tsunami-resistant platform that would allow the tsunami to flow below the buildings.

It is understood that these measures are intended to reduce damage to these buildings, and that the buildings will not serve as tsunami refuge structures.



1.2 Project Understanding

The main goals of this work are to assess the coastal storm and tsunami flood hazards at the project site, evaluate the proposed development, and develop a set of conditions under which the development could be considered *suitable for the intended use*. This involves the following tasks:

- Specification of design coastal storm and tsunami events, including the flood levels, and estimation of the associated flood hazards.
- Evaluation of the adequacy of the initial proposed building mitigation measures, and consideration of the possible need for supplemental building mitigation measures.
- Evaluation of the flood risk based on the proposed development plan, including proposed mitigation measures.
- Confirmation that the flood risk is acceptable based on the DoU's tolerance for risk.
- Preparation of a flood mitigation plan that incorporates the proposed building mitigation measures, appropriate planning mitigation measures.
- Completion of a Flood Assurance Statement confirming the site is suitable for the intended use.

1.3 Key Terminology

Term	Abbreviation	Description
Building Mitigation Measures	-	Flood mitigation measures which are implemented through engineering of the built environment
Planning Mitigation Measures	-	Flood mitigation measures which are implemented through planning mechanisms such as bylaws, control of land use and emergency management actions.
Tsunami Flood Level	TFL	The maximum water level during the tsunami relative to a fixed vertical datum, plus the rupture-induced land subsidence relative to that same datum. Includes the effects of tides and relative sea level rise.
Tsunami Flood Reference Plane	TFRP	Equivalent to Tsunami Flood Level.
Tsunami Flood Construction Level	-	The Tsunami Flood Level plus any appropriate freeboard or safety factor.
Coastal Storm Flood Level	CFL	The maximum wave runup elevation during the design storm. Includes the effects of tides, surge, and sea level rise.
Coastal Storm Flood Construction Level	-	The Coastal Storm Flood Level plus an appropriate freeboard, usually 0.6 m.
Flood Construction Level	FCL	Uses the Flood Level (coastal or tsunami) plus an allowance for Freeboard to establish the elevation of the underside of a wooden floor system or top of concrete slab for habitable buildings

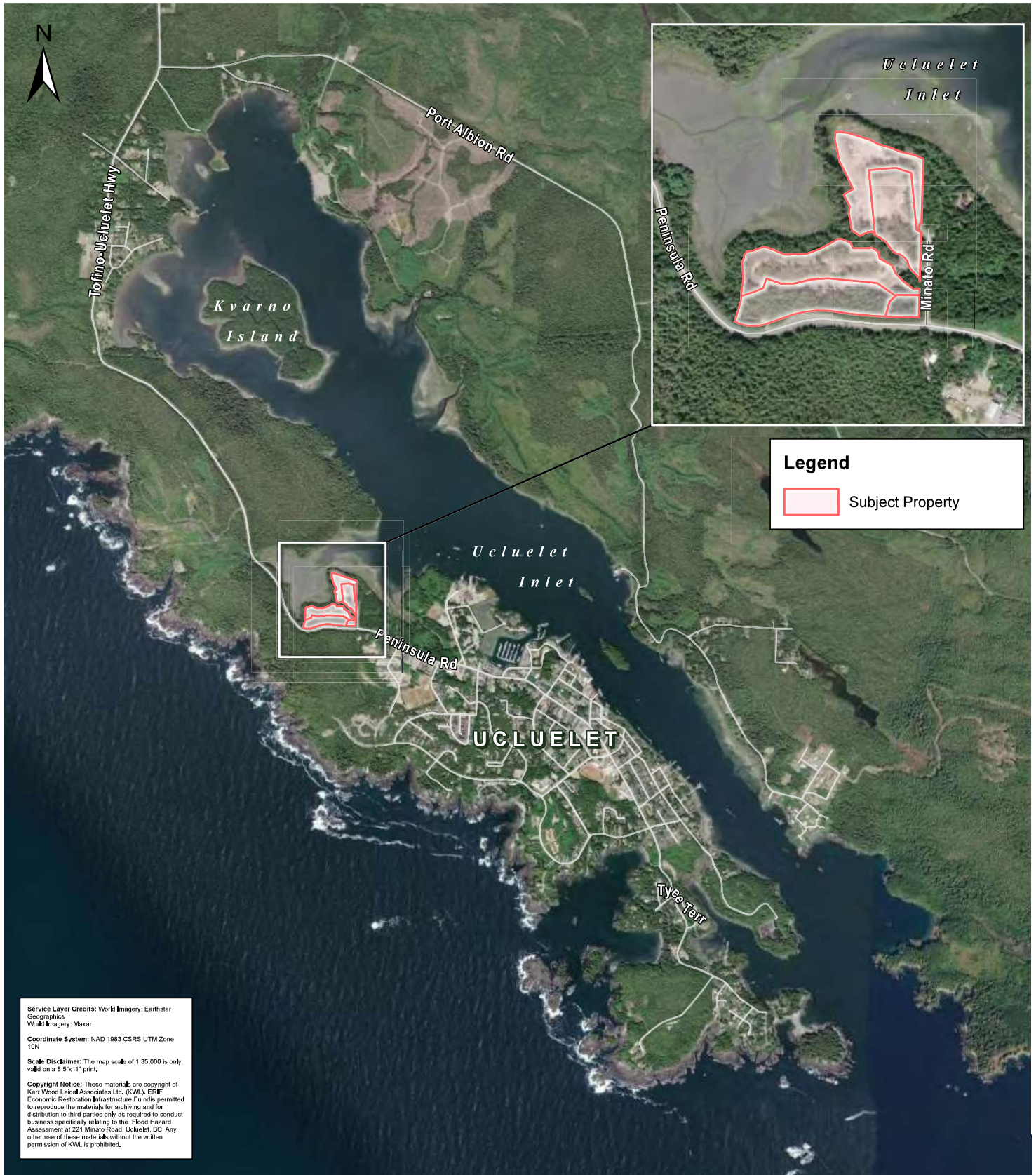


Term	Abbreviation	Description
Natural Boundary		Means the visible high watermark of any lake, river, stream or other body of water where the presence and action of the water are so common and usual and so long continued in all ordinary years as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, in respect to vegetation, as well as in respect to the nature of the soil itself (BC Land Act, Section 1).
Present Natural Boundary	PNB	The present state of the Natural Boundary.
Future Natural Boundary	FNB	The future state of the Natural Boundary.

1.4 Datum

Vertical elevations in this report are specified relative to a vertical datum. Generally Canadian Geodetic Vertical Datum of 1928 (CGVD28) is used except where referencing elevations from other sources.

ERIF Economic Restoration Infrastructure Fund
Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC



Project No. 4558.001
Date November 2024
Scale 1:35,000
0 250 500 1,000 m

Project Location

Figure 1-1

ERIF Economic Restoration Infrastructure Fund
Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC





2. Background

2.1 Previous Work

In 2020, Ebbwater Consulting and Cascadia Coast Research completed coastal flood hazard mapping for the District of Ucluelet [1]. This mapping included coastal storm and tsunami flood hazard mapping. Many scenarios were modelled and several were mapped. Coastal storm flood levels, including the effects of sea level rise, tides, storm surge, and waves, were determined for each combination of the following parameters:

- Relative sea level rise: 0 m, 0.5 m, 1.0 m, and 2.0 m
- Return period: 15, 50, 100, 200 and 500 years

For tsunami, five different tsunami scenarios generated from the Cascadia Subduction Zone (CSZ) were modelled based on fault rupture models developed in 2018 by the University of Victoria and the Geological Survey of Canada [2]. These included one buried rupture, two trench breaching, and two splay faults. All fault ruptures are based on 500 years of fault locking and stress accumulation and a rupture along the full linear extent of the CSZ. The flood levels calculated as part of this work were tabulated for shoreline reaches surrounding Ucluelet. Based on the flood levels at Transect 24, the closest to the project site, the tsunami flood levels are much higher than the coastal storm flood levels, by a factor of about 2.

In 2022 Ebbwater Consulting completed a technical report for a previous owner of the project site. The report proposed Tsunami Flood Construction Levels at the project site [3]. This work was based on the results of the 2020 modelling and mapping work, and also provides a preliminary risk assessment for the proposed development. However, the authors have declined to provide an accompanying Flood Assurance Statement, citing lack of coastal engineering expertise. Consequently, this work has been deemed insufficient by the Ucluelet Approving Officer for the purposes of supporting a subdivision application.

2.2 Regulatory Guidance

Through the Local Government Act, the Province of British Columbia (the Province) grants local governments the authority to manage flood hazards. Mechanisms of management may include the designation of flood hazard areas, regulation of land within flood hazard areas, the development of Flood Construction Levels and setbacks, and the implementation of structural mitigation works. To support applications for development in flood hazard areas, a local government may require a flood assessment report to be completed by a Qualified Professional (QP). In Ucluelet, three primary sources of guidance are available to the QP completing a Flood Hazard Assessment:

1. The Province of BC “Flood Hazard Area Land Use Management Guidelines”. [4]
2. Engineers and Geoscientists BC (EGBC) Professional Practice Guidelines “Legislated Flood Assessments in a Changing Climate in BC”. [5]
3. Bylaws and policies developed by the District of Ucluelet. [6] [7]

The following subsections summarize the guidance from each of these sources which is pertinent to the proposed subdivision.



BC Flood Hazard Area Land Use Management Guidelines

Originally developed in 2004, the Flood Hazard Area Land Use Management Guidelines (FHALUMG) were updated in 2018 to account for advances in the understanding of climate change, sea level rise, and tsunami flood risk [4].

The original 2004 guidance for management of coastal storm and tsunami flood hazards relies heavily on the concept of the natural boundary. The natural boundary is determined by a surveyor based on the observed high-water mark. The updated guidance acknowledges sea level rise may alter the natural boundary in the future. The suggested approaches for calculating the FCL were updated so that they no longer rely on the current natural boundary. However, setback guidance still refers to the natural boundary and now requires an estimate of its future position. Minimal guidance for estimating the position of the future natural boundary (FNB) is provided.

The FHALUMG anticipate that the management of land use in coastal flood hazard areas may require flood assessments to be completed by a QP and provides some direction on acceptable levels of coastal storm and tsunami flood hazard.

Section 3.5.5.1 and 3.5.5.2 of FHALUMG provides some guidance on acceptable levels of coastal storm flood hazard:

The building setback should be at least the greater of 15 m from the future estimated Natural Boundary of the sea at Year 2100, or landward of the location where the natural ground elevation contour is equivalent to the Year 2100 FCL.

All lots created through subdivision should have viable building sites on natural ground that is above the Year 2100 FCL and comply with the setback guidelines noted above.

Section 3.5.6 of FHALUMG provides some guidance on acceptable levels of tsunami hazard:

A subdivision application in a tsunami prone area must include a report by a suitably qualified Professional Engineer, experienced in coastal engineering who must formulate safe building conditions for each proposed lot based on a review of recent Tsunami hazard literature including the report, “Modelling of Potential Tsunami Inundation Limits and Run-Up”, by AECOM for the Capital Regional District, dated June 14, 2013, plus the historical report, “Evaluation of Tsunami Levels Along the British Columbia Coast”, by Seaconsult Marine Research Ltd., dated March 1988. At a minimum, building conditions should protect improvements from damage from a tsunami of equal magnitude to the March 28, 1964 tsunami that resulted from the Prince William Sound, Alaska earthquake and a possible Cascadia Subduction Zone earthquake.

Setback requirements should be established on a site-specific basis and take into account tsunami hazards. The setback must be sufficient to protect buildings and must be at least 30 metres from the Year 2100 estimated natural boundary.



Legislated Flood Assessments in a Changing Climate in BC

The standard of practice for Flood Hazard Assessment is provided in Engineers and Geoscientists BC (EGBC) Professional Practice Guideline, “Legislated Flood Assessments in a Changing Climate in BC”, Version 2.1 (2018).

Section F3.2 provides guidance on subdivision approvals in a flood hazard area:

A new subdivision should only be considered for a floodplain that is not protected by a standard/adequate Dike if:

- *the local government has adopted an appropriate bylaw or land use regulation that provides for subdivision with knowledge of the Flood Hazard;*
- *a standard/adequate Dike is constructed as part of the development (in which case, Section F3.3 of this appendix applies); or*
- *the QP concludes that the site may be suitable for the intended use.*

A QP may conclude that the site may be suitable for the intended use if the local authority accepts that the proposed subdivision may proceed in the absence of a standard/adequate Dike, and at least one of the following conditions applies:

- *The subdivision site is located on the flood fringe (i.e., its removal from the floodplain would not increase the designated flood level) and the ground is fully raised to the 200-year return period flood level plus Freeboard (with consideration of protection of the landfill slope against erosion).*
- *The subdivision site would only nominally increase the current development density on the floodplain, and is not in a high hazard area of the floodplain (i.e., an avulsion path, a flood velocity greater than 1 m/s, a flood depth greater than 2.5 m, and/or where safe access and egress is not possible).*
- *The subdivision site would only nominally increase the current development density in the floodplain, and a Risk Assessment is undertaken whereby the local government establishes a tolerable level of Risk and the QP assessment confirms that the Risk would be within this level.*

District of Ucluelet Bylaws and Policy

The DoU has two policy documents relating to development in flood hazard areas: the Official Community Plan [6], and the Interim Policy for Tsunami Risk Tolerance [7].

The Official Community Plan (OCP) was adopted in May of 2022. The OCP includes policies to refine Flood Construction Levels (2.34) and conduct flood risk mapping (2.50). It includes requirements for flood assessment in Natural Hazard Development Permit Areas (DPA VIII), including identification of the natural boundary, setbacks, and Flood Construction Levels. The OCP includes mapping of FCLs for coastal storm flooding, but not tsunamis. **The reach which covers the project site has a Coastal Storm FCL of 4.5 m CGVD2013.**

The DoU does not designate Development Permit areas for coastal flooding, however, it does exercise its ability to require professional assessment and certification of construction under section 56 of the Community Charter. Coastal storm FCL and tsunami hazard areas, derived from the 2020 mapping



project, are included as supplementary maps in the OCP. The following statement is included with a note on flood hazards:

It is District policy that it is in the public interest for new subdivisions and developments to be planned to avoid areas of potential flood risk.

The *Tsunami Risk Tolerance – Interim Policy* [7] relaxes this statement on complete avoidance and provides some direction on acceptable hazard levels for development in the tsunami flood zone. Table 2-1, reproduced from [7], provides the minimum acceptable elevations for a range of uses. Though not stated, it is assumed that, like the FCL, the *minimum acceptable elevation* applies to the underside of a wooden floor system or top of a concrete floor slab. The minimum elevation for new residential or commercial buildings on new lots is given by the Tsunami Flood Reference Plane (TFRP). This term is not defined within the DoU bylaw or policy documents but is assumed for the purpose of this assessment to be the same TFRP defined in Appendix A of [1] – i.e., the maximum water level attained during a design tsunami event due to the combined effects of ambient water levels (tide and sea level rise), the tsunami wave crest, and land subsidence. While Coastal Storm Flood Construction Levels are provided in OCP Map 4, TFRP levels are not provided. The DoU Flood Mapping work of 2020 [1] provides the TFRP for a range of sea level rise and tsunami scenarios.

Table 2-1: DoU Minimum Acceptable Elevations for Different Uses (Table 1 from [7])

Proposed Facility or Use	Minimum Elevation	Reference
New critical infrastructure (e.g. health care, emergency, seniors' housing, core water infrastructure, core sewage treatment infrastructure, evacuation routes, etc.)	18 m tsunami planning elevation	OCP Map 6
Key buildings for assemblies of people (schools, daycare facilities, etc.)	Tsunami Flood Reference Plane + 50%	Site-specific analysis by suitably qualified Professional Engineer experienced in coastal engineering
Public Infrastructure (e.g., roads, sewer pump stations, etc.)	Tsunami Flood Reference Plane +50%	Site-specific analysis by suitably qualified Professional Engineer experienced in coastal engineering
New residential and commercial buildings on <u>new</u> lots	Tsunami Flood Reference Plane	Site-specific analysis by suitably qualified Professional Engineer experienced in coastal engineering
New buildings on <u>existing</u> lots	Coastal Storm FCL	OCP Map 4
Accessory buildings, storage, parking, industrial uses on <u>new</u> lots	Coastal Storm FCL	OCP Map 4
Private infrastructure	Coastal Storm FCL	OCP Map 4

A following section of the *Tsunami Risk Tolerance – Interim Policy* provides guidance for approval of buildings or structures within areas identified as being subject to tsunami hazard:

Any subdivision approval of new lots where building sites would overlap areas identified as being subject to potential tsunami hazard will be subject to the following:

- *a report by a qualified professional engineer experienced in coastal engineering who must determine the tsunami flood reference plane for the site and formulate safe*



building conditions for each lot, per the current BC Flood Hazard Area Land Use Management Guidelines;

- *certification by a qualified professional engineer that the building site can be safely constructed for the intended use with habitable spaces and electrical / mechanical systems located above the applicable minimum elevations set out in Table 1;*
- *the report by the qualified professional engineer must reference current structural standards for tsunami loads and effects including, as a minimum, ASCE/SEI 7-16, Minimum Design Loads and Associated Criteria for Buildings and Other Structures or subsequent best practices and standards;*
- *the report by the qualified professional engineer must address the anchoring of foundations to bedrock; and,*
- *a restrictive covenant registered on title of the property:*
 - *restricting the use of the land to meet the conditions specified in the professional's report enabling the land to be used safely for its intended use;*
 - *containing conditions respecting reimbursement by the owner for any expenses that may be incurred by the municipality as a result of a breach of a covenant; and,*
 - *indemnifying the District of Ucluelet and the Province of British Columbia from any liability or claim for property damages, injury or loss of life resulting from flooding.*

Gaps in Regulatory Guidance for Tsunami

The regulatory guidance on tsunami hazard assessment in BC is still developing. The FHALUMG requires that flooding due to the 1964 Alaska tsunami be evaluated, however many studies have shown that the CSZ poses a larger threat to most of the BC coastline (e.g., [1]). The FHALUMG also requires evaluation of flood hazards from a tsunami generated by a potential fault rupture of the CSZ, however it does not provide guidance on the characteristics of the fault rupture that should be assumed.

Design Fault Rupture

Even if the fault geometry is known, two general characteristics of a rupture which must be defined are the *recurrence interval* and the *rupture mechanism*.

1. **Recurrence Interval:** This is the time since the last major rupture of the fault. The longer the fault is locked, the more stress accumulates, the more likely a rupture is imminent, and the larger the rupture magnitude can be expected. The last major fault rupture of the CSZ occurred in the year 1700, which is 324 years before present. By the year 2100, the fault would have locked for 400 years. The average recurrence interval for a rupture of the CSZ is about 500 years, and this value has been used by many for the purposes of hazard assessment [2].
2. **Rupture Mechanism:** This refers to the physical movement of the tectonic plates during rupture, and how they deform the seafloor. Scientific understanding of the CSZ is still developing. Scientists have posited a number of potential rupture models based on limited observations of the fault geomechanics [2]. The deformation of the seafloor and resulting tsunami wave varies greatly with some of these rupture models. Currently there is no clear evidence to indicate that any of these models are more likely than others.



Freeboard

For riverine and coastal flooding, the FHALUMG suggests that a freeboard should be added to the calculated flood level to account for uncertainties when specifying a Flood Construction Level. Freeboard is typically 0.3 m or 0.6 m depending on the analysis approach. The FHALUMG provides no guidance on the applicability of freeboard to tsunami flooding.

The DoU Tsunami Risk Tolerance – Interim Policy states the minimum acceptable building elevation for residential and commercial buildings is equal to the tsunami flood reference plane, without any additional freeboard or safety factor [7].

Setback

The FHALUMG suggests that where there is significant tsunami risk, the building setback should be established on a site-specific basis and should be at least 30 m from the estimated future natural boundary, unless the building is constructed on bedrock. While this guidance is clear, the reasoning behind it is not. It is presumed that this is an allowance for erosion, which may be due to the combined effects of coastal processes during the lifetime of the building, and hydrodynamic processes associated with the design event.

Mitigation Measures

The regulatory guidance in [4] and [5] discuss the following flood mitigation measures for coastal and riverine flooding:

- Raising of buildings to FCL by landfill.
- Raising of buildings to FCL by structural means.
- Protection of buildings by a standard dike.

None of the available regulatory guidance suggests acceptable approaches to tsunami flood mitigation.

Specifications from the American Society of Civil Engineers [8] [9] [10], provide design guidance for buildings in tsunami hazard areas. These specifications state:

- Structural landfill is not permitted in high hazard coastal areas, but is permitted in lower hazard coastal areas.
- Raised buildings with an open lower floor are an acceptable tsunami flood mitigation option.
- Tsunami barriers, similar to a sea dike, are an acceptable tsunami flood mitigation option.



3. Coastal Storm Flood Hazard Assessment

Flood hazards result from inundation of normally dry land. Flood hazard assessment does not consider the consequences of that inundation. Flood hazard for a specific event is most often quantified in terms of flood extent, flood depth, and current speed. Understanding the flood hazard over a given site provides an important basis for determining whether development is appropriate, and to plan how that land may be safely and effectively used.

Coastal flood hazard was assessed for the 2020 DoU Flood Mapping project [1]. Based on this work the DoU OCP states explicitly that the coastal storm FCL of the reach which includes the project site is 4.5 m CGVD2013 (4.3 m CGVD28). This FCL includes the effects of tides, storm surge, wave runup, 1 m of sea level rise, and 0.6 m of freeboard. Application of this FCL to the subject project is consistent with the above-noted regulatory guidance. See Figure B-1 for a map indicating the coastal storm flood hazard area (area below the FCL based on the existing topography). Only in a few small places within the project site is the natural ground elevation below the coastal storm FCL.



4. Tsunami Flood Hazard Assessment

This section summarizes the tsunami flood hazard at the project site.

4.1 Methods

This section outlines the methods used to assess the tsunami flood hazard at the project site. These methods are based on the regulatory guidance summarized in Section 2.2, supported by the professional opinion of the authors.

Relative Sea Level Rise

The available regulatory guidance provides a clear directive to account for 1 m of sea level rise when planning out to the year 2100 (roughly the design life of the proposed development). In addition, the vertical motion of the land should be considered. Much of BC is moving upwards due to isostatic rebound following the end of the last ice-age. Along the West Coast of Vancouver Island, the land is also moving upwards (tectonic uplift) due to strain accumulation from the locking of the CSZ. Some of the uplift due to locking can be expected to be rapidly reversed due to subsidence during the next fault rupture. The magnitude of uplift due to isostatic rebound is uncertain. Given that the isostatic rebound over the next 100 years is likely relatively small (a few decimeters at most) and the uncertainty in the magnitude of sea level rise is large, a conservative approach is taken, and a relative sea level rise (RSLR) value of 1.0 m is used in this assessment.

Fault Rupture Scenario

The FHALUMG suggests that the design tsunami scenario should consider at least the 1964 Alaska Tsunami and a potential tsunami generated by a rupture of the CSZ. The 2020 DoU Flood Mapping project demonstrated that the CSZ is the much greater tsunami hazard to the DoU. Given the significant uncertainty in the fault rupture of the CSZ it is deemed appropriate to base the design case on the largest credible event for which a rupture model is available, in this case Splay Fault A of Gao et al [2]. This rupture model is based on 500 years of strain accumulation and has a moment magnitude of 9.0. It should be noted that larger ruptures of the CSZ are estimated to have occurred in the paleo-tsunami record [11], but they are generally associated with rupture intervals longer than 500 years and no rupture models are currently available for this event so it cannot be modelled with accuracy.

Tsunami Model

This assessment is based on a specific model scenario from the 2020 DoU Flood Mapping Project:

- Ambient water level is set at 3.0 m CGVD28, which includes 1 m RSLR and 2 m of tide height.
- The Spay Fault A rupture model of Gao et al [2] is used.

The mapping from the previous project was examined and judged to be appropriate for use in this site-specific assessment.

It is noteworthy that the tidal allowance of 2.0 m corresponds roughly to higher high water large tide (HHWLT); the largest tide expected in any given year. Typical practice is for the tsunami modelling to be run with a tide level of at least mean high water (MHW) [12]. The difference between HHWLT and MHW at Ucluelet is about 0.9 m.



While a freeboard is not used in this tsunami hazard assessment, the conservative specification of the tidal condition relative to typical practice serves a similar purpose. This approach also has the advantage that the conservatism is propagated through the tsunami model so that the conservatism is reflected not only in the resulting water levels, but also in the current speeds. This may be important for the design of structural mitigation measures.

Land Subsidence

The CSZ runs parallel to the continental shelf offshore of BC. Locking of the plates causes stress accumulation which is causing downward movement of the sea floor along the fault and upward movement of the land along the West Coast of Vancouver Island, including the DoU. When the CSZ ruptures that accumulated stress and vertical land movement will be released. Offshore, along the fault line, this will create a near-instantaneous upward movement of the sea floor which initiates the tsunami wave. Along the West Coast of Vancouver Island, the land will near-instantaneously drop (subside) down by about 2 m. When considering tsunami flood hazard this subsidence must be accounted for. Accordingly, the tsunami flood level is calculated relative to the undeformed topography as the sum of:

- the maximum water level (including the effects of RSLR and tide) during the design event relative to a fixed vertical datum; and
- the local subsidence relative to the same fixed datum.

Vertical land motion data is a primary output of the fault rupture model. This data is input as a boundary condition to the tsunami wave model, so that both the bathymetry/topography and the sea surface are offset by the vertical land motion estimated by the fault rupture model.

Flood Hazard Area

The extents of the flood hazard area are defined as any areas which experience a non-zero flood depth during the design tsunami event.

4.2 Results and Discussion

Maximum tsunami flood extents and flood levels are shown in Figure C-1. Flood levels include the effects of relative sea level rise, tide, tsunami, and land subsidence. The tsunami extents cover most of the project site, and the tsunami flood levels range from 9.7 m to 10.7 m CGVD28.

Maximum tsunami flood depths are shown in Figure C-2 based on existing ground elevations. Flood depths range from 0 to 5 m over the project site, with the greatest inundation at Lot 3.

Maximum current speeds are shown in Figure C-3. Current speeds over the project site range from 0 to 5 m/s. Locations with a deeper flood depth tend to have a higher maximum current speed.

Figure C-4 shows the areas of the project site with high flood hazard, as defined in [5], where depth is greater than 2.5 m or current speed is greater than 1 m/s. This figure provides an indication of which areas may be considered higher hazard and unsuitable for development without additional mitigation measures. It is understood, however, that the thresholds for high hazard areas provided in [5] were developed for river flooding and their applicability to tsunami flooding is not clear.



5. Flood Mitigation Assessment

The previous section analyzed the tsunami flood hazard based on the existing site conditions. However, two initial building mitigation measures have been proposed by ERIF:

1. Raise Lots 1, 2, 4, and 5 above the tsunami FCL using landfill contained by tsunami-resistant retaining walls. Retaining wall alignment is indicated in Figure A-1.
2. Raise homes on Lot 3 above the tsunami FCL on a tsunami-resistant platform that would allow the tsunami to flow below the buildings.

This section evaluates the adequacy of these proposed measures given the coastal storm and tsunami flood hazards for existing site conditions. The tsunami flood hazard is then re-evaluated to reflect these proposed building mitigation measures.

5.1 Setbacks

The FHALUMG [4] provides guidance for building setbacks. For the coastal storm flood hazard, the guidelines recommend a minimum setback of 15 m from the Future Natural Boundary (FNB), or landward of the location where the natural ground elevation corresponds to the associated FCL, whichever is the greatest; and in the case of tsunami hazards a minimum distance of 30 m from the FNB. Locating these setbacks requires that the location of the FNB be estimated.

The natural boundary reflects the historic impact of the presence and action of water on the shoreline soils and vegetation. The project site is exposed to low levels of wind-wave energy, so it is reasonable to assume that the Present Natural Boundary (PNB) is driven primarily by tidal water levels. Plan EPP129243 indicates the PNB as determined by a BC Land Surveyor. The surveyed PNB follows the 2 m CGVD28 contour closely, which is approximately equal to the elevation of higher high water large tide. For the purpose of determining the FHALUMG recommended setbacks at the project site, the FNB may be estimated by applying a 1 m RSLR allowance to the existing PNB (i.e., the FNB is estimated to rise to an elevation of 3 m CGVD28).

Figure D-1 shows the surveyed PNB, the estimated FNB, the 15 m minimum coastal storm setback, and the 30 m minimum tsunami setback recommended by the FHALUMG.

5.2 Adequacy of Proposed Building Mitigation Measures

Lots 1, 2, 4, and 5

Under existing conditions, the topography of Lots 1, 2, 4, and 5 are nearly all above the coastal storm FCL and shoreward of the associated FHALUMG recommended minimum coastal storm setback. Only on one small area near the north boundary of Lot 1 does the existing topography dip down below the coastal storm FCL.

Under existing conditions Lots 1, 2, 4, and 5 would only be partially flooded by the design tsunami event. The maximum tsunami flood level is about 10.7 m CGVD28. These lots are located on the flood fringe, and it appears to be practical to fully raise the ground to the tsunami FCL for flood protection as per the development plan. This flood mitigation approach is in concordance with Section F3.2 of [5]. The tsunami FCL will be confirmed as part of the analysis in Section 5.3.



While the FHALUMG states that for tsunami flooding, buildings should be set back at least 30 m from the FNB, it is assumed that the purpose of this provision is to mitigate against erosion. Since the land on these lots will be raised, the retaining walls must be designed to by a qualified professional engineer to withstand the design tsunami including seismic effects, hydrodynamic loading, debris impact, and scour. The design may or may not require construction of the retaining walls into bedrock, but will be required to adequately address erosion concerns, and so will have an equivalent functional performance with respect to prevention of undermining of building foundations. Based on these requirements it is judged acceptable to relax the tsunami setbacks to 15 m from the FNB. Buildings must be setback from the retaining walls as indicated in Figure A-1.

Lot 3

Under existing conditions, nearly all of Lot 3 is above the coastal storm FCL and shoreward of the associated FHALUMG recommended minimum coastal storm setback. Only at one small area near the creek mouth does the existing topography dip down below the coastal storm FCL.

Lot 3 would be nearly completely flooded during the design tsunami. Flood depths are 3 m over much of the lot, and up to 5 m in some places. Current speeds in Lot 3 are up to 5 m/s and therefore the lot is considered a high flood hazard area [5]. The tsunami flood level ranges from about 9.7 to 10.6 m. Lot 3 is not on the flood fringe (i.e., it is not contiguous with dry land), and it does not appear practical to fully raise the ground to the tsunami FCL. As an alternative, structural raising of the buildings to the tsunami FCL may be feasible for flood mitigation. The tsunami FCL elevation will be confirmed as part of the analysis in Section 5.3.

To minimize damage to the buildings of Lot 3 and the risk of damage to other structures in the tsunami flood hazard area, the buildings of Lot 3 could be structurally raised on piles or columns above the FCL so that the tsunami may be allowed to flow underneath. This approach would elevate the main building out of the flood hazard zone, and minimizes the loading on the building due to hydrodynamic forces. It also does not remove the building footprint from the floodplain, so has negligible flood risk transfer impacts. It is not suggested that these buildings be designed as tsunami refuge structures, so these buildings must be evacuated in a tsunami event. Design standards for this type of flood resistant building (Category II) are provided in [8] and [9].

While the foundations of the buildings on Lot 3 must be designed not to fail during the design tsunami, including from the effects of erosion, they do not necessarily need to be designed to endure repeated coastal flooding. As such the buildings on Lot 3 should be sited landward on the coastal storm setback indicated in Figure D-1.

5.3 Re-Assessment of Tsunami Hazard

A new tsunami simulation was developed to evaluate the tsunami flood hazard with the retaining walls and landfill shown in the proposed development plan (Figure A-1). This simulation was based directly on the model developed for the DoU mapping project [1]. The only change from the original simulation was to raise the model topography to 10.7 m within Lots 1, 2, 4, and 5. No changes were made to the topography of Lot 3. It is assumed that the buildings on Lot 3 are raised on platforms which are hydrodynamically transparent to the tsunami wave (using piles or columns).

First, the potential transfer of tsunami hazard due to implementation of the mitigation measures was assessed. The impact to neighbouring areas of the floodplain was quantified by comparing the results of the tsunami simulation with and without the proposed land raising at the project site. It was found that the land raising would increase the maximum flood level in Olsen Bay by about 0.05 m, and by about



0.01 m in the wider Ucluelet Inlet. This is deemed a negligible change in tsunami hazard and therefore acceptable.

Next, the change in flood hazard at the project site was investigated. The tsunami hazard with the proposed land raising are illustrated in Figures D-2 (flood levels and extents), D-3 (flood depths), D-4 (current speed), and D-5 (high hazard areas). While there would be still some minor flooding on Lots 1, 2, 4, and 5 it would be very shallow (≤ 0.1 m) and therefore tolerable. Based on this assessment, the land-raising flood mitigation measures would be effective at mitigating flood risk on Lots 1, 2, 4, and 5. Based on this assessment, and the conserve specification of the tide level noted in Section 4.1 (Tsunami Model), the tsunami FCL of Lots 1, 2, 4, and 5 is assessed at 10.7m CGVD28.

Tsunami conditions on Lot 3 would not change significantly with the proposed land raising. The tsunami flood level ranges from 9.7 to 10.6 m CGVD28 over the lot. Lot 3 remains a high flood risk area based on the criteria of [5].

Given that Lot 3 is in a high flood hazard area, and is not on the flood fringe, the EGBC Professional Practice Guidelines provide only one avenue to permitting development. As per Section 3.2 of [5]:

The subdivision site would only nominally increase the current development density in the floodplain, and a Risk Assessment is undertaken whereby the local government establishes a tolerable level of Risk and the QP assessment confirms that the Risk would be within this level.

The first requirement is that the development only nominally increase density in the floodplain. The term “nominal” is not defined or elaborated upon. It seems reasonable that the current development plan to construct 11 houses could be considered a nominal increase to the development density in the floodplain within the DoU. The DoU District Council has reviewed the current development plan and confirmed in a letter that they consider the 11 proposed houses on Lot 3 to be a nominal increase in development density [13].

The second requirement is that the DoU establishes a tolerable level of risk, and that a tsunami flood risk assessment is carried out and confirms that the proposed development of Lot 3 is below the tolerable risk level. A tsunami flood risk assessment for Lot 3 is presented in the next section.



6. Tsunami Risk Assessment – Lot 3

Flood risk is determined based on assessment of the flood hazard and the consequences of the flooding. It is most often quantified in terms of mortality and economic losses and these metrics may be annualized to normalize the assessment process. Depending on the degree of detail of the risk assessment, multiple flooding events may be considered.

6.1 Risk Assessment Methods

This section outlines the methods used to assess the tsunami flood hazard at the project site. The selected approach for risk assessment is outlined in [5]:

A Flood Risk Assessment (FRA) involves estimating the likelihood that a flood will occur and cause some magnitude and type of damage or loss. Following are the principal steps in the Risk Assessment:

1. Identify Flood Hazard Scenarios. These are defined as distinct outcomes from a given hazard that result in some direct Consequence (e.g., fatalities, damage to a building, environmental damage, intangibles such as human suffering) and are based on the results of the hazard assessment described in Section D: Flood Hazard Assessments. They can include different return periods for the same hazard, variable flood extent or Flood Intensity, multi-hazard chains of events, or different consequence chains.
2. Estimate the probability of a Hazard Scenario resulting in some undesirable outcome. This is based on the estimated likelihood that the hazard will occur, reach the Element at Risk when it is present within the hazard zone, and cause the undesirable outcome. These may include a range of outcomes in categories such as economic loss, environmental damage, safety, and corporate or political reputation.
3. Estimate the Consequences of the unwanted outcome including economic losses; human health and loss of life; environmental losses; cultural/historic losses; and intangibles such as psychological distress. Details are described in Section E2.2.
4. Define Tolerable Risk criteria.
5. Prioritize Risk reduction strategies

Flood Risk can be expressed as:

$$R = P_H * P_{S:H} * P_{T:S} * V * E$$

where:

- R = total Flood Risk;
- P_H = annual exceedance probability of a flood occurring;
- $P_{S:H}$ = spatial probability that the flood will reach the Element at Risk;
- $P_{T:S}$ = temporal probability that the Element at Risk will be present when the flood occurs (for fixed infrastructures and homes this is equal to 1);
- V = the Vulnerability, or probability of loss of life or the proportion of an asset loss to total loss; and
- E = the number of people at Risk or the homes and infrastructures at Risk.



Hazard Scenario

As in Section 4.1, risk has been evaluated based on a single largest-credible tsunami hazard scenario with implementation of the proposed mitigation measures (land raising). The use of a single hazard scenario for risk assessment is appropriate given the non-random nature of rupture along a given fault zone. Put another way, it is highly unlikely that more than one tsunami-generating rupture of the CSZ occurs within the design life of the proposed development.

Probability of Consequences

The time-dependent probability of a full rupture of the CSZ is estimated in [14] and [15] based on the paleo-tsunami record. This record represents a range of rupture moment magnitudes, many of which are estimated to be smaller than the 9.0 Mw rupture model used in this assessment, but a few of which are estimated to be larger [11]. For the year 2100, the annual occurrence probability is estimated to be about 0.2%; equivalent to a 1:500-year return period. Here the occurrence probability is taken as equivalent to the exceedance probability (P_H).

For the purposes of this assessment all people living on Lot 3, and all assets located below the flood level, are assumed to be at risk. i.e., $P_{S:H}=100\%$.

For fixed infrastructure the Element at Risk will always be present, so the temporal probability is $P_{T:S}=100\%$. People, on the other hand, spend about 70% of their time at home on average [16], i.e., $P_{T:S}=70\%$. Note that the impact of evacuation is not considered here but is considered in quantification of consequences (loss of life).

Elements at Risk

In this risk assessment, the evaluated elements at risk are limited to people and built infrastructure. It should be noted, however, that all infrastructure at risk will be the responsibility of either the homeowner or the strata corporation of Lot 3. The DoU will not own or maintain this infrastructure.

Eleven detached houses, each with a secondary suite, are planned for Lot 3, for a total of 22 residences. According to 2021 census data, the average occupancy in the Ucluelet area is 2.3 per residence [17]. This yields an expected total of 51 people living on Lot 3.

ERIF have provided an estimate of the total value of the infrastructure damage during the design tsunami event. Note that damage to habitable spaces elevated above the Flood Construction Level are not included in these totals, but there is still potential for damage to these spaces due to floating debris.

Repairs to homes: \$2.75M. Includes replacement of break-away wall panels on uninhabitable lower floors, stair replacement, and landscaping.

Common area servicing and infrastructure: \$1.6M. Includes landscaping, damage to roads, sewage and water pipe and pump systems.



Estimation of Risk

Loss of Life

The probability of mortality rate¹ as a function of tsunami height is estimated in [18] for the 2011 Japanese tsunami. For a tsunami height of approximately 10 m, the estimated mortality rate ranges from 3 to 5% with a best estimate of 4%. Another study estimated the mortality rate as a function of flood depth in New Orleans during Hurricane Katrina [19]. For a flood depth 3 m, the estimated mortality rate ranges from about 0.5% to 4% with a best estimate of 2%. It should be stressed that these estimates are specific to the social and geographic conditions of the studied event and region. Important is the variation in available warning, emergency planning procedures, and the age and robustness of the building stock. While there is variance between and within these studies, they do provide similar estimates of the mortality rate during a large flooding event.

The proposed flood mitigation measures influence the selection of an appropriate mortality rate in this application. With suitable emergency management plan, most residents should be able to evacuate to high ground, only about 300 m away, before the tsunami arrives. Further, the development is being designed with safe evacuation routes in mind. Given these factors, a mortality rate on the low range of the observed data of has been selected for use in this analysis. i.e., $V_{life}=0.5\%$

Economic Losses

Given the limited scope of this assessment, it was possible to directly estimate the present-day costs of the potential economic losses due to damage to infrastructure located below the FCL directly as \$4.35M. i.e., $V * E = \$4.35M$.

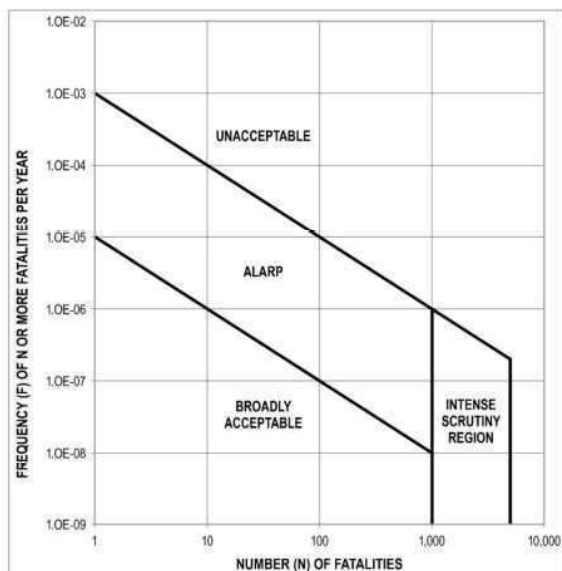


Figure 6-1: F-N curves to evaluate the risk to life loss of groups (source Kendall et al. 1977).
 Reproduced from [5]

¹ Number of deaths as a percentage of total population.



6.2 Risk Results and Discussion

Using the methods of Section 6.1, the total economic losses on Lot 3 due to the design tsunami event are estimated to be \$4.35M. The annualized economic losses can be calculated as:

$$R_{econ} = P_H * P_{S:H} * P_{T:S} * V * E = 0.002 * 1 * 1 * \$4,350,000 = \$8,700$$

The expected mortality during the design tsunami event can be calculated as:

$$R_{life} = P_{S:H} * P_{T:S} * V_{life} * E = 1 * 0.70 * 0.005 * 51 = 0.18 \text{ people}$$

This suggests only about a 18% chance that one person on Lot 3 dies during the design tsunami event.

The annual chance of death annually due to tsunami to any of the residents of Lot 3 can be calculated as:

$$P_m = P_H * P_{S:H} * P_{T:S} * V = 0.002 * 1 * 0.70 * 0.005 = 0.0007\% = 1/142,000$$

The potential loss of life during the design event is 0.18 people (i.e., <1), and the annualized infrastructure losses are \$8,700. Based on the risk matrix provided in Table 6-1, this puts the overall risk at of the proposed development at “low”. Given this overall risk level and the guidance in Table E-2 of [5], the current analysis is deemed a suitable assessment of the risk and no further refinement of this assessment is necessary.

Table 6-1: Matrix to Determine the Level of Risk Assessment Needed Based on the Exposure of a Development and Vulnerable Populations to Flood Hazards (reproduced from [5])

Potential Loss of Life for Applied Return Period	Annualized Potential Building Loss (\$)				
	<1,000	1,000 to 10,000	10,000 to 100,000	100,000 to 1,000,000	>1,000,000
>100	VH	VH	VH	VH	VH
10 to 100	H	H	VH	VH	VH
2 to 10	H	H	H	H	VH
1 to 2	M	M	M	H	H
0	VL	L	M	M	H

Notes:
 VH = Very High; H = High; M = Moderate; L = Low; VL = Very Low

In the United Kingdom maximum tolerable risk of death to an individual is 1:100,000 annually for a new development. The Netherlands uses a more stringent maximum risk tolerance of 1:1,000,000 annually. A plot indicating ranges of risk acceptability levels is provided in Figure 6-1 (reproduced from [5]). This plot suggests that an annual risk of death to a single person is “broadly acceptable” below a likelihood of 1:100,000, and unacceptable above 1:1000. Between these to thresholds is the *as low as reasonably possible* (ALARP) zone, where mitigation measures should be used to reduce the risk to as low as reasonably possible.

Risk tolerance is a community value, and so should be defined by representatives of the community. ERIF have been engaged with District Council, including sharing a draft version of this report. Based on this engagement, the District Council have passed a motion stating an acceptable risk tolerance specific



to this development at an annual chance of death due to tsunami of 1 in 142,000 [13]. It is understood that this statement of risk acceptance does not apply to any other development.

It should be noted that the acceptability of these risk metrics is sensitive to the mortality rate (V_{life}) that is assumed. A low mortality rate has been used in these calculations based on the relative accessibility of high ground, the assumption that all residents will be instructed to evacuate in the event of a tsunami, and that a well-developed evacuation plan is in place.



7. Flood Mitigation Plan

This section summarizes the proposed flood mitigation measures that would allow the QP to conclude that the land may be *suitable for intended use*. Both coastal storm and tsunami flood hazards have been considered in the development of this plan.

This mitigation plan has been developed considering that residents of all lots will be directed to evacuate in the event of a tsunami according to a well-developed evacuation plan.

7.1 Lots 1, 2, 4, and 5

The flood mitigation measures for Lots 1, 2, 4, and 5 are summarized below.

- The Tsunami FCL is 10.7 m CGVD28.
- The Tsunami FCL must be achieved through compacted landfill.
- No basements are permitted.
- Landfill must be supported by tsunami resistant retaining walls in the indicative location and extent shown in Figure A-1.
- Retaining walls must be designed by a qualified professional engineer with reference to ASCE 7-22 and 22-14 [9] [8] so that they do not fail during the design tsunami event. Seismic, hydrodynamic, debris impact, and erosion processes must be accounted for in the design. With reference to [4] and [7], the design should have the performance equivalent to building onto bedrock.
- Buildings must be set back at least 15 m from the FNB, as indicated by the coastal setback line in Figure D-1. Buildings must be setback from the retaining walls as indicated in the development plan (Figure A-1).
- Foundations of buildings protected by tsunami-resistant retaining walls should be designed by an appropriately qualified professional engineer, but do not necessarily need to be constructed into bedrock.
- Suitable emergency egress must be provided for any enclosed areas below the FCL.
- Prior to occupation each Strata Council must develop and approve an emergency management plan which directs residents to evacuate in the event of a tsunami.
- The emergency management plan must be developed in coordination with relevant professionals contributing to this project, as well as the DoU Emergency Management Coordinator. The plan should consider the following:
 - identification of an Emergency Response Coordinator and their responsibilities;
 - identification of the responsibilities of the Strata and responsibilities of the DoU;
 - prioritization of evacuation in the event of a tsunami and provide an evacuation plan;
 - specification of requirements for evacuation route signage; and
 - specification of training requirements for persons of responsibility, and education opportunities for the residents.



7.2 Lot 3

The flood mitigation measures for Lot 3 are summarized below.

- The Tsunami FCL for Lot 3 varies over the property from 9.7 to 10.6 m CGVD28, as indicated by Figure D-2. The FCL corresponds to the highest tsunami flood level affecting each building.
- The Tsunami FCL must be achieved through structural means.
- The buildings must be raised on columns or piles such that the underside of the platform is above the FCL and the tsunami may flow freely below platform.
- All houses on Lot 3 must be designed by a qualified professional with reference to ASCE 7-22 and 22-14 [9] [8] so that they do not fail during the design tsunami event. Seismic, hydrodynamic, and erosion processes must be accounted for in the design. The design should also consider potential debris impact and damming. With reference to [4] and [7], the design should have the performance equivalent to building onto bedrock.
- Buildings must be located landward of the coastal storm setback limit (Figure D-1).
- Building space below the FCL must not be used for habitation, the storage of goods susceptible to damage by exposure to floodwaters, or siting of fixed equipment susceptible to damage by exposure to floodwaters. Parking of licensed vehicles is acceptable.
- Suitable emergency egress must be provided for any enclosed areas below the FCL.
- Buildings must include an emergency egress route, such as a deployable ladder, in case the primary stairs access is damaged.
- Stair or ramp access must be provided on the west and north side of Lot 5, so that residents of Lot 3 may evacuate directly onto Lot 5.
- Prior to occupation the Strata Council must develop and approve an emergency management plan which directs all residents to evacuate in the event of a tsunami.
- The emergency management plan should be developed in coordination with relevant professionals contributing to this project, as well as the DoU Emergency Management Coordinator. The plan should consider the following:
 - identification of an Emergency Response Coordinator and their responsibilities;
 - identification of the responsibilities of the Strata and responsibilities of the DoU;
 - prioritization of evacuation in the event of a tsunami and provide an evacuation plan;
 - specification of requirements for signage in building areas below FCL;
 - specification of requirements for evacuation route signage; and
 - specification of training requirements for persons of responsibility, and education opportunities for the residents.
- The strata council must introduce a bylaw to prohibit buildings and items which may become hazardous floating debris during a tsunami. These bylaws would:
 - limit the storage of large volumes of building materials;
 - limit outbuildings of any type (including temporary structures) to one building less than 10 m²; and
 - prohibit the storage of recreational vehicles and shipping containers on site.



7.3 Minato Road

It is understood that Minato Road is a DoU asset and is outside the scope of the proposed development. However, to support safe evacuation of residents of the proposed development, it is suggested that Minato Road be raised to 10.7 m CGVD28 between Peninsula Road and the access to Lot 5.

7.4 Future Changes to Building, Site, and Floodproofing Measures

Any changes to the buildings, or floodproofing measures which impact the flood risk at the sites must be reviewed by a QP and approved by the DoU. Examples of changes which would require QP review include, but are not limited to:

- alteration of the site grade;
- alteration of buildings below the Flood Construction Level;
- alterations to land retaining structures;
- construction of additional buildings or outbuildings.



8. Residual Risk and Safe Use

As with the majority of flood mitigation plans, there remains residual risk to the development. The risk due to the design tsunami has been assessed in this report and has been deemed acceptable by the DoU. There remains the possibility, however unlikely, that a tsunami could be larger than the design tsunami used in this assessment. This creates residual risk which is not assessed in this report.

Based on the findings of this report and subject to implementation of the flood mitigation plan of Section 7, we assure that the proposed subdivision and development may be *used safely for the use intended*. With this statement we mean that the coastal and tsunami flood risk to the development falls below the DoU's stated threshold. A flood assurance statement is provided in Appendix E which formalizes this statement.



9. Next Steps

The following outlines the steps required to implement the flood mitigation plan presented in this flood assessment.

- A QP will support the design team by providing tsunami conditions (flood level, current speed, etc.) and other specialist advice as needed.
- Each building permit application will include a QP confirmation that the building design meets the applicable requirements of the flood mitigation plan.
- Following the issuance of building permits for Lot 3, the QP will stay informed of construction progress to verify that the required measures are being appropriately implemented.
- Prior to an issuance of occupancy permits, a QP will visit the project site and constructed buildings to ensure that the buildings comply with the flood mitigation plan, and provide a sealed confirmation memo.
- Prior to the issuance of occupancy permits, a QP will review each strata corporation's emergency management plan and relevant bylaws to ensure they comply with the flood mitigation plan, and provide a sealed memo indicating their findings.



10. Limitations of this Report

This report shall remain valid for five years from the time of sealing, or until Ucluelet or Provincial flood policy or guidelines change, whichever is sooner. Any future redevelopment of the site will be subject to the flood management policies in place at the time of the redevelopment.



11. References

- [1] Ebbwater Consulting, "District of Ucluelet Coastal Flood Mapping," 2020.
- [2] D. Gao, K. Wang, T. L. Insua and M. Sypus, "Defining megathrust tsunami source scenarios for northernmost Cascadia," *Natural Hazard*, p. 445–469, 2018.
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- [12] National Tsunami Hazard Mitigation Program Mapping and Modeling Subcommittee, "Tsunami Modeling and Mapping: Guidelines and Best Practices. Part I: Tsunami Inundation Modeling," NTHMP, 2021.
- [13] M. McEwen, *Re: Flood Assessment 221 Minato Road, Ucluelet*, District of Ucluelet, 2024.
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- [15] K. Goda and R. De Risi, "Time-dependent probabilistic tsunami risk assessment: application to Tofino, British Columbia, Canada, subjected to Cascadia subduction earthquakes," *Natural Hazards*, vol. 1, no. 7, 2024.
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12. Report Submission

Peer Review:

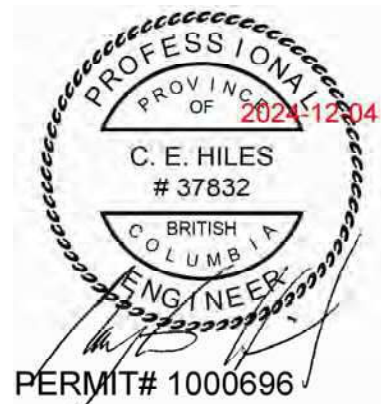
Phillipe St-Germain, P.Eng.

Coastal Engineer – PSG Ocean Inc.

Prepared by:

KERR WOOD LEIDAL ASSOCIATES LTD.

Clayton Hiles, P.Eng., M.A.Sc.
Qualified Professional – Senior Coastal
Engineer



Reviewed by:

Eric Morris, P.Eng.
Senior Coastal Engineer

Reviewed by:

Mike V. Currie, M.Eng., P.Eng., FEC
Senior Water Resources Engineer



Statement of Limitations

This document has been prepared by Kerr Wood Leidal Associates Ltd. (KWL) for the exclusive use and benefit of ERIF Economic Restoration Infrastructure Fund for the Flood Assessment 221 Minato Road, Ucluelet. No other party is entitled to rely on any of the conclusions, data, opinions, or any other information contained in this document.

This document represents KWL's professional judgement based on the information available at the time of its completion and as appropriate for the project scope of work. Services performed in developing the content of this document have been conducted in a manner consistent with that level and skill ordinarily exercised by members of the engineering profession currently practising under similar conditions. No warranty, express or implied, is made.

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Revision History

Revision #	Date	Status	Revision	Author
0	December 4, 2024	Final	Final for release	CEH



Appendix A

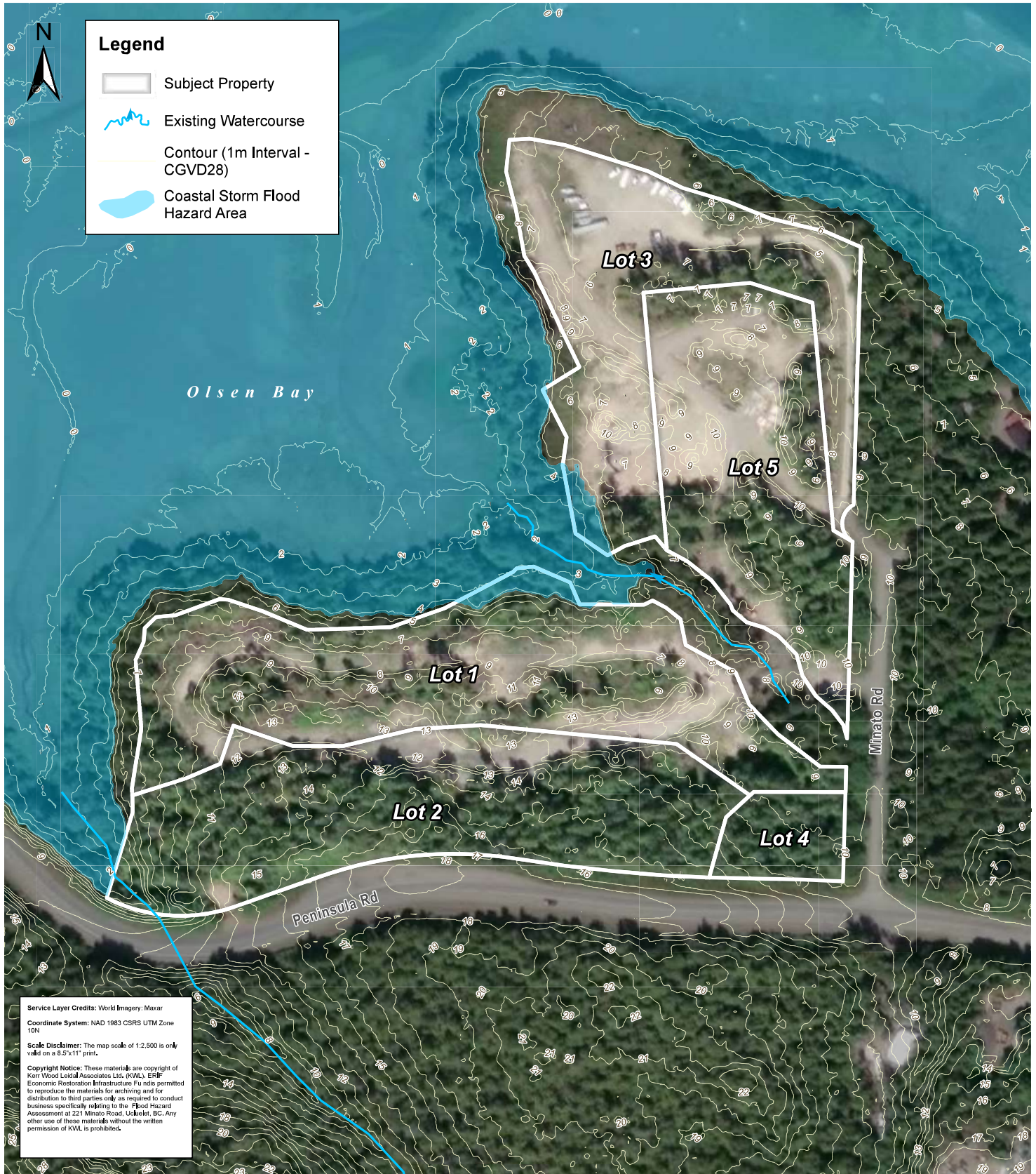
Proposed Site Plan



Appendix B

Coastal Flood Hazard Plots

ERIF Economic Restoration Infrastructure Fund
Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC



Project No. 4558.001

Date November 2024

Scale 1:2,500

0 12.5 25 50 m

Coastal Storm Flood Hazard Area

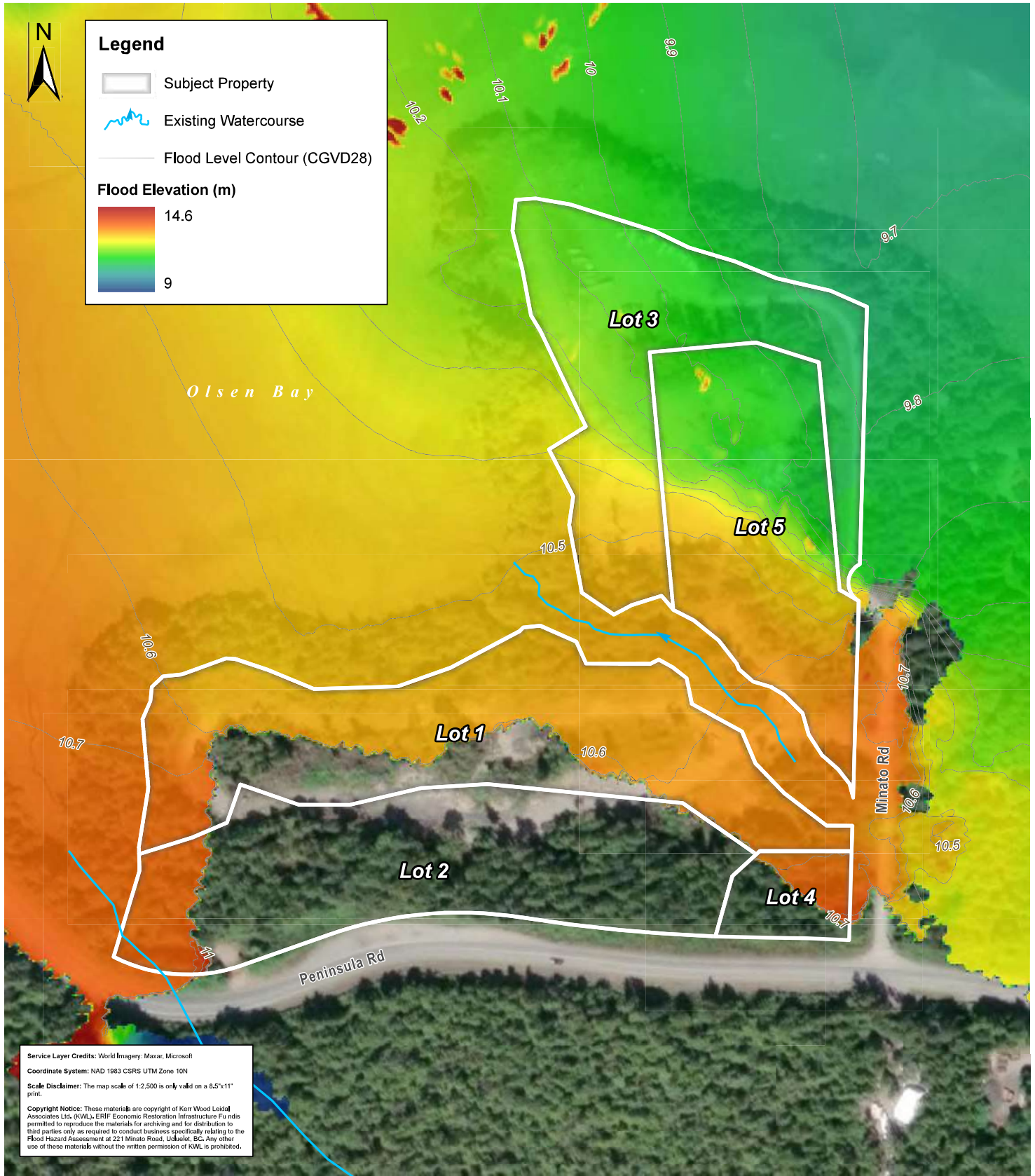
Figure B-1



Appendix C

Tsunami Flood Hazard Plots

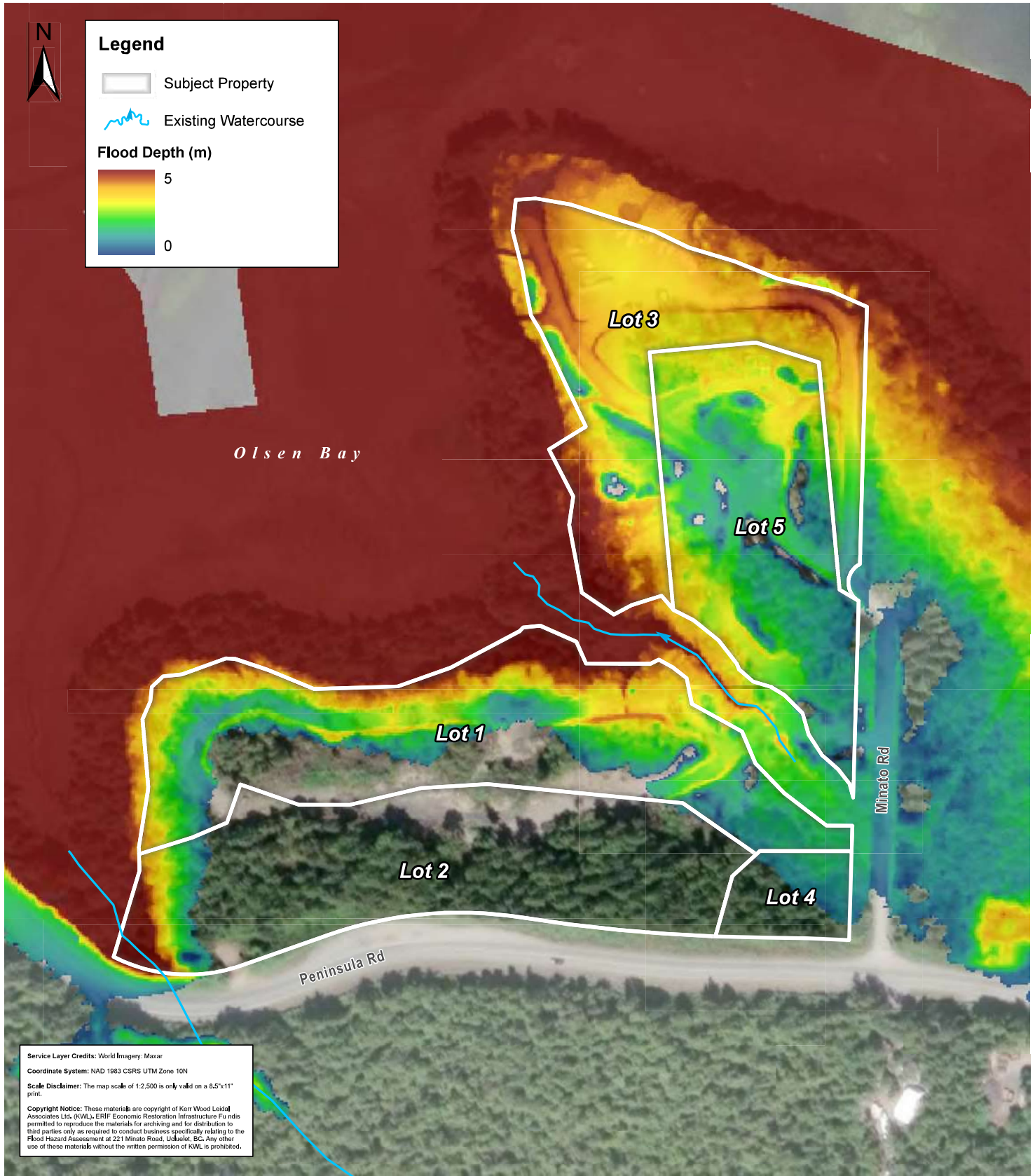
ERIF Economic Restoration Infrastructure Fund Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC



Project No. 4558.001
Date November 2024
Scale 1:2,500
0 12.5 25 50 m

Tsunami Maximum Flood Extents and Levels

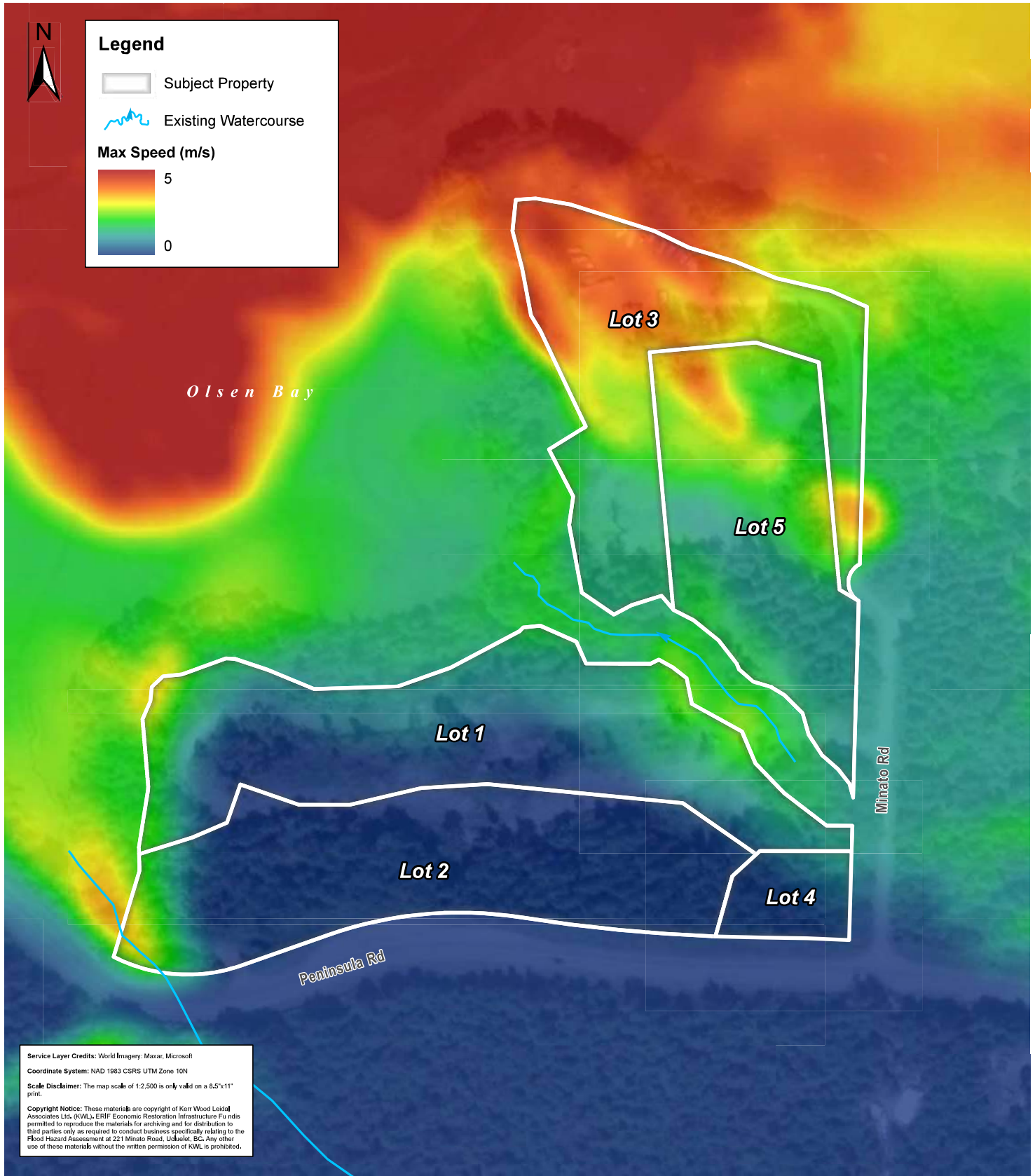
Figure C-1



Project No. 4558.001
Date November 2024
Scale 1:2,500
0 12.5 25 50 m

Tsunami Maximum Flood Levels

Figure C-2

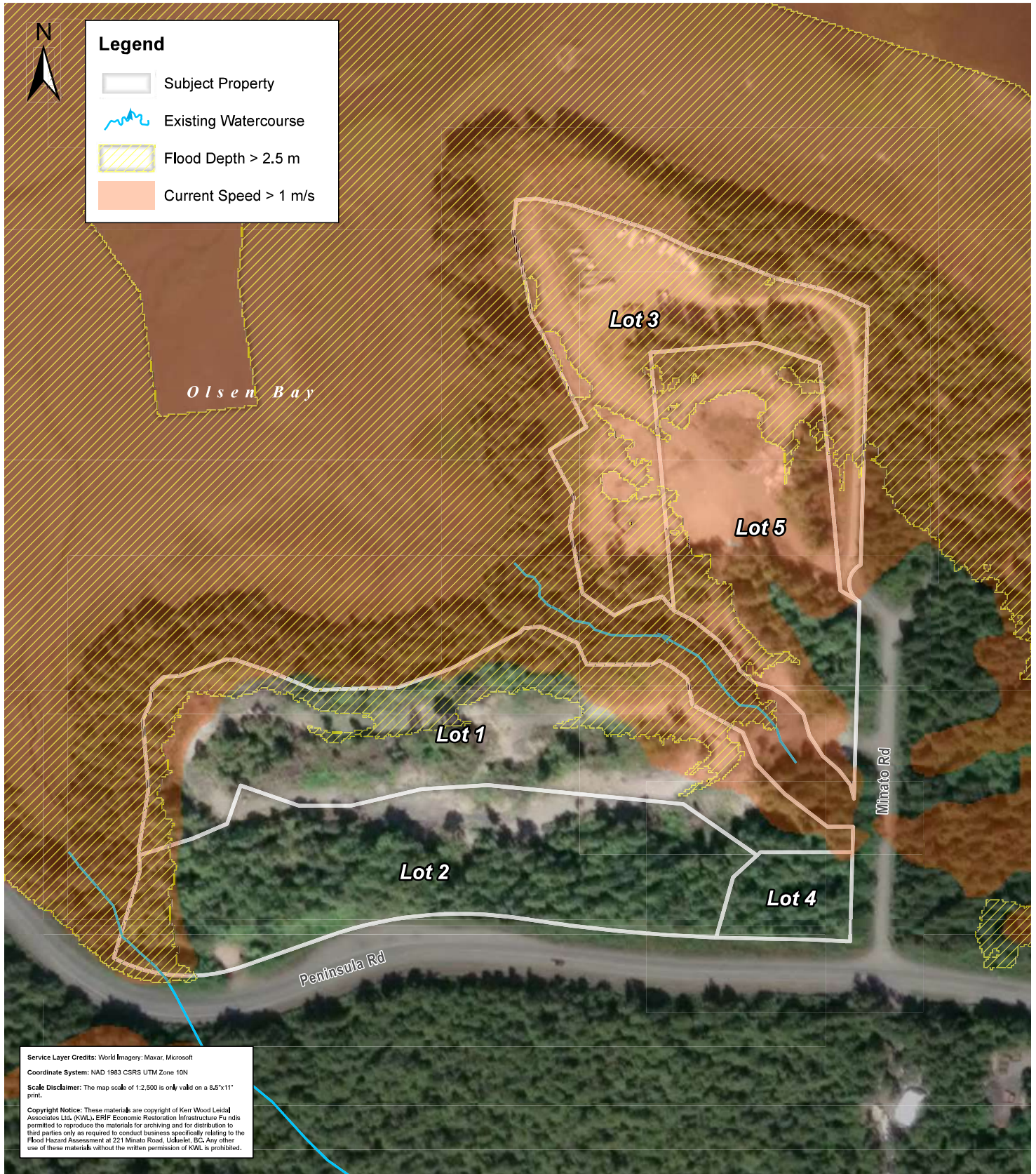


Project No. 4558.001
Date November 2024
Scale 1:2,500
0 12.5 25 50 m

Tsunami Maximum Current Speed

Figure C-3

ERIF Economic Restoration Infrastructure Fund
Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC



Project No. 4558.001
Date November 2024
Scale 1:2,500
0 12.5 25 50 m

Tsunami High Flood Hazard Area

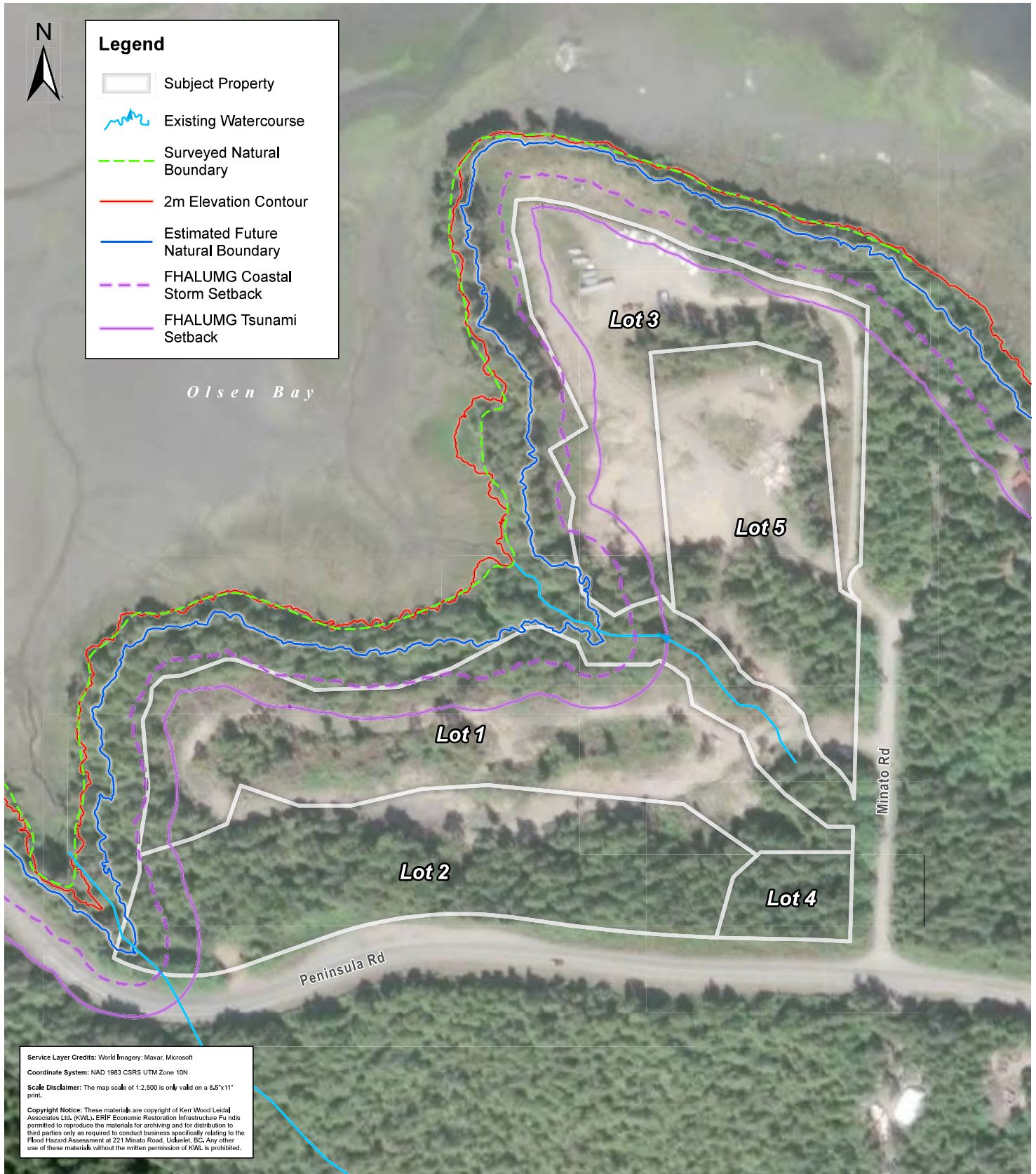
Figure C-4



Appendix D

Flood Mitigation Plots

ERIF Economic Restoration Infrastructure Fund
 Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC

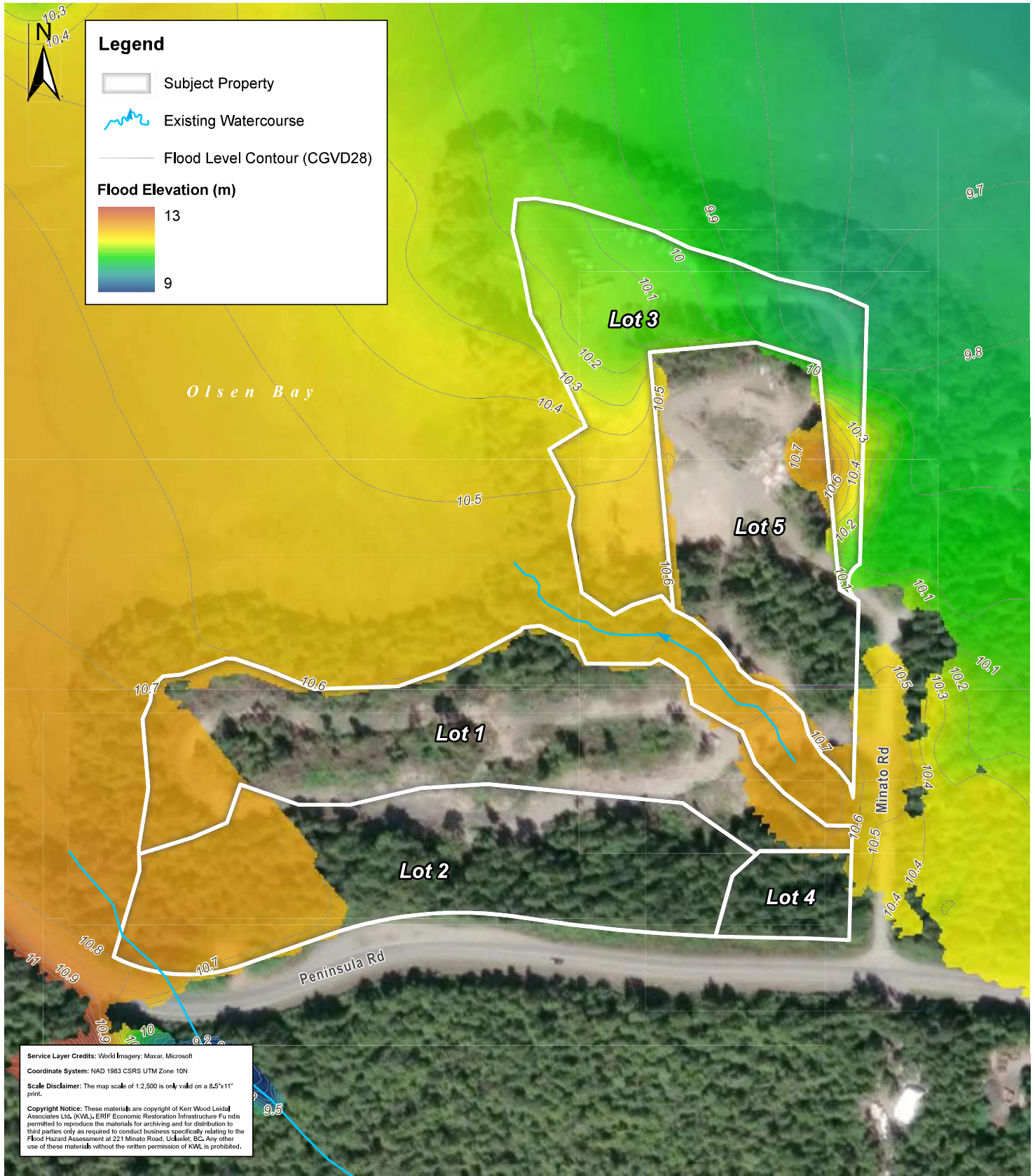


Project No. 4558.001
 Date December 2024
 Scale 1:2,500
 0 12.5 25 50 m

Natural Boundary and Setbacks

Figure D-1

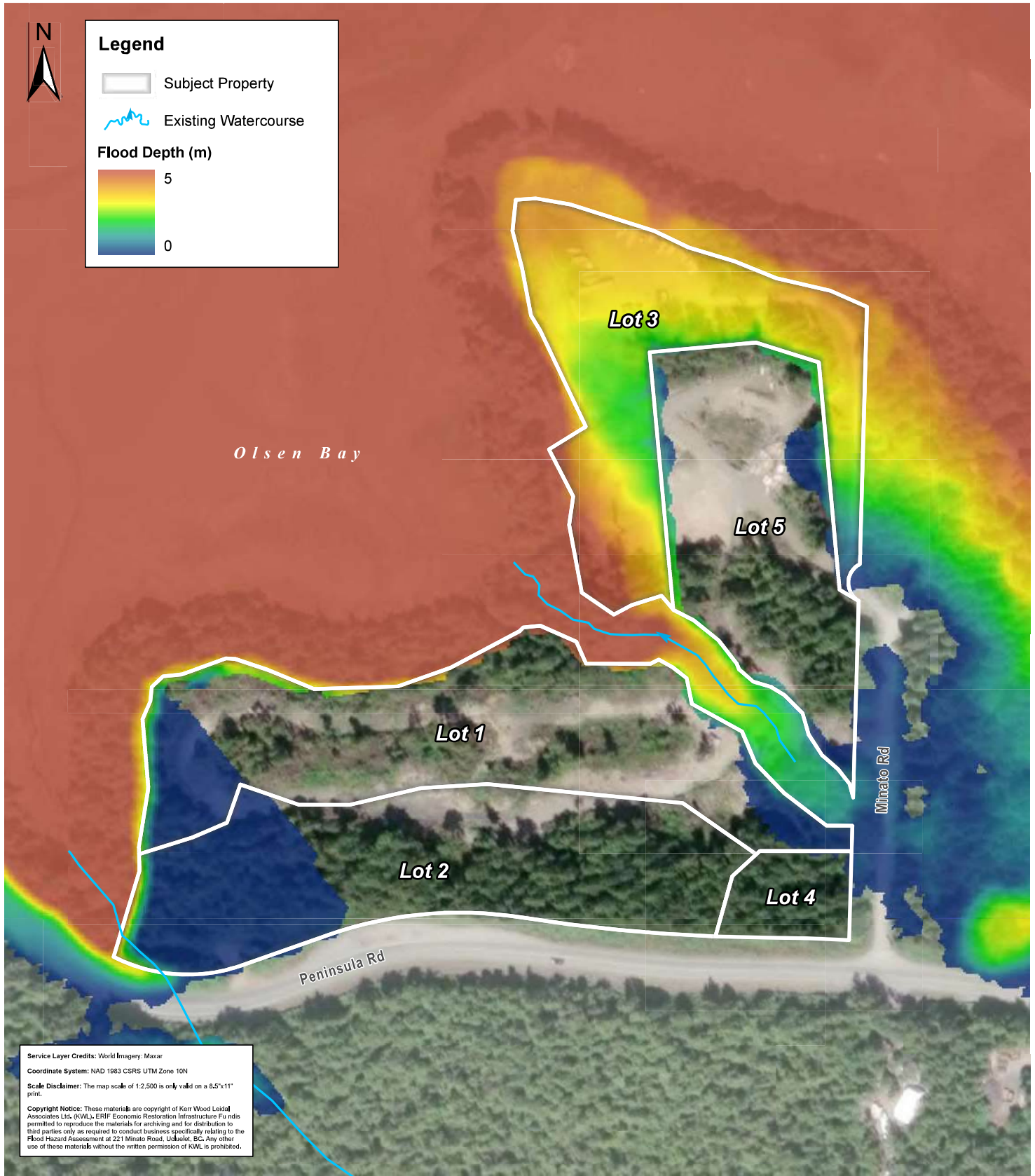
ERIF Economic Restoration Infrastructure Fund
 Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC



Project No. 4558.001
 Date November 2024
 Scale 1:2,500
 0 12.5 25 50 m

Tsunami Maximum Flood Extents and Levels with Proposed Landfill

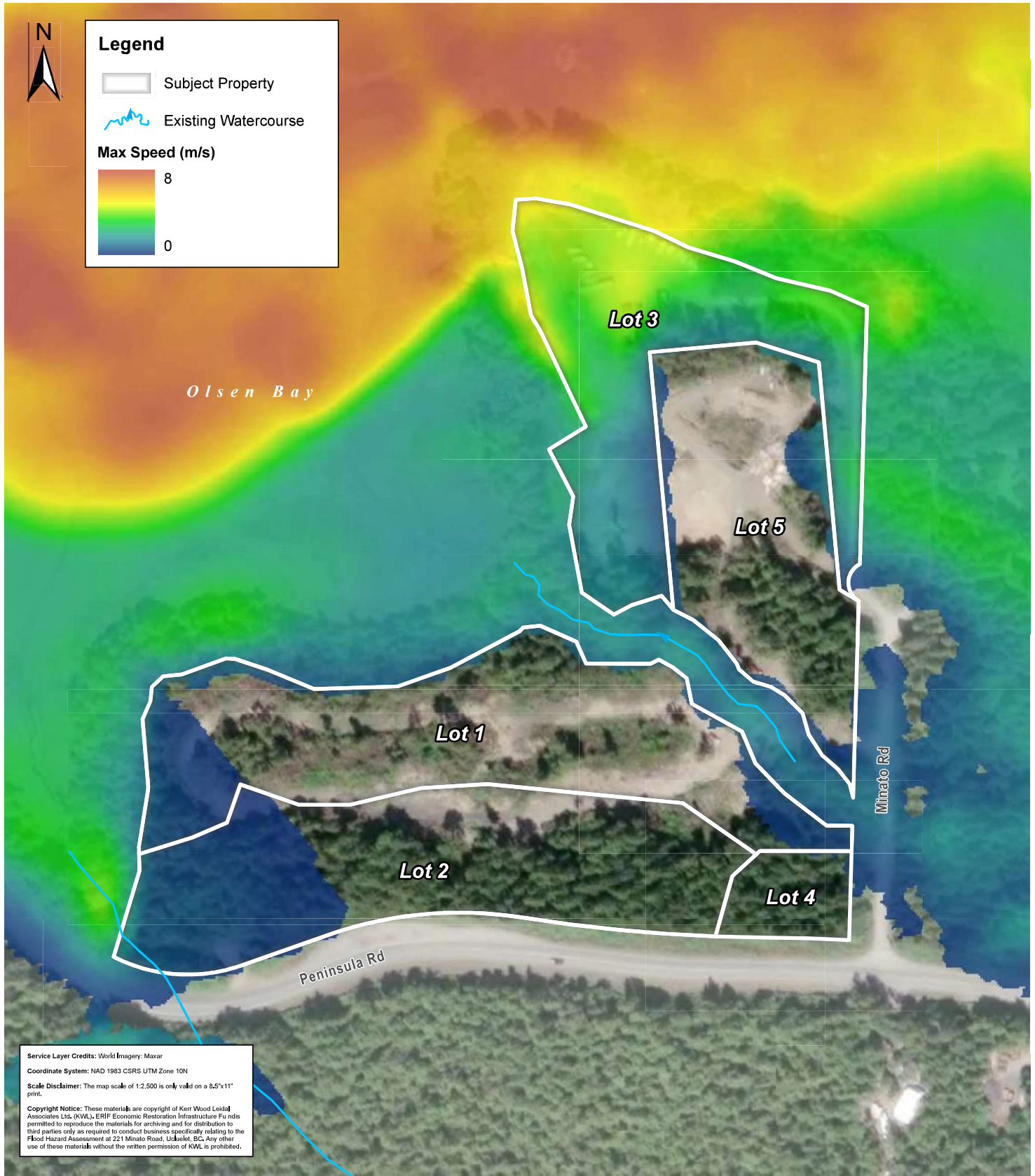
Figure D-2



Project No. 4558.001
Date November 2024
Scale 1:2,500
0 12.5 25 50 m

Tsunami Maximum Flood Levels with Proposed Landfill

Figure D-3

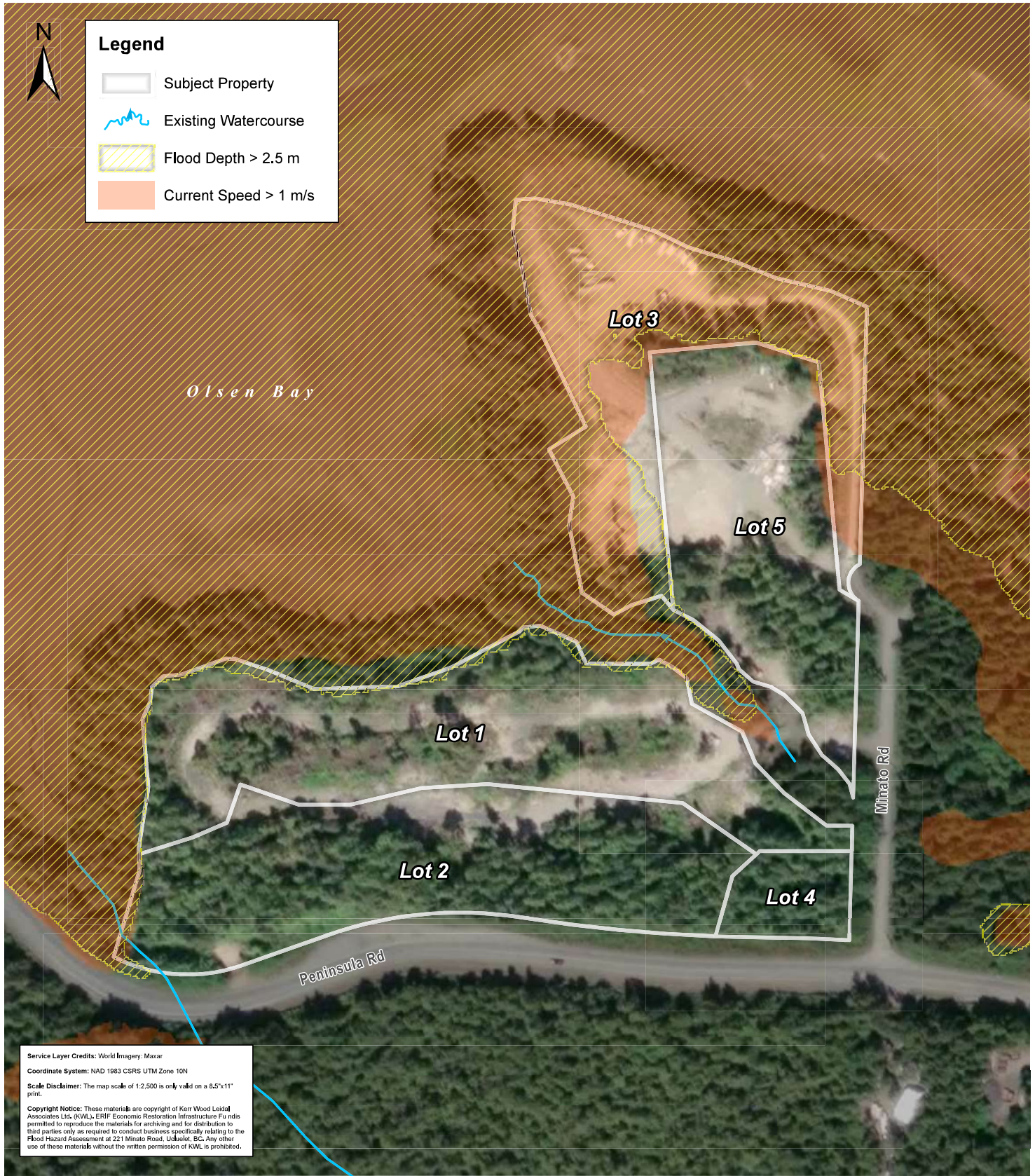


Project No. 4558.001
Date November 2024
Scale 1:2,500
0 12.5 25 50 m

Tsunami Maximum Current Speed with Proposed Landfill

Figure D-4

ERIF Economic Restoration Infrastructure Fund
Flood Hazard Assessment at 221 Minato Road, Ucluelet, BC



Project No. 4558.001
Date November 2024
Scale 1:2,500
0 12.5 25 50 m

**Tsunami High Flood Hazard Area
with Proposed Landfill**

Figure D-5



Appendix E

Flood Assurance Statement

FLOOD ASSURANCE STATEMENT

Note: This statement is to be read and completed in conjunction with the current Engineers and Geoscientists BC *Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC* (“the guidelines”) and is to be provided for flood assessments for the purposes of the *Land Title Act*, Community Charter, or the *Local Government Act*. Defined terms are capitalized; see the Defined Terms section of the guidelines for definitions.

To: The Approving Authority

Date: October 22, 2024

The District of Ucluelet
200 Main Street, Ucluelet, BC, V0R 3A0
 Jurisdiction and address

With reference to (CHECK ONE):

- Land Title Act* (Section 86) – Subdivision Approval
- Local Government Act* (Part 14, Division 7) – Development Permit
- Community Charter (Section 56) – Building Permit
- Local Government Act* (Section 524) – Flood Plain Bylaw Variance
- Local Government Act* (Section 524) – Flood Plain Bylaw Exemption

For the following property (“the Property”):

221 Minato Rd, Ucluelet, BC

Legal description and civic address of the Property

The undersigned hereby gives assurance that he/she is a Qualified Professional and is a Professional Engineer or Professional Geoscientist who fulfils the education, training, and experience requirements as outlined in the guidelines.

I have signed, sealed, and dated, and thereby certified, the attached Flood Assessment Report on the Property in accordance with the guidelines. That report and this statement must be read in conjunction with each other. In preparing that Flood Assessment Report I have:

[CHECK TO THE LEFT OF APPLICABLE ITEMS]

- 1. Consulted with representatives of the following government organizations:
The District of Ucluelet Planning Department
- 2. Collected and reviewed appropriate background information
- 3. Reviewed the Proposed Development on the Property
- 4. Investigated the presence of Covenants on the Property, and reported any relevant information
- 5. Conducted field work on and, if required, beyond the Property
- 6. Reported on the results of the field work on and, if required, beyond the Property
- 7. Considered any changed conditions on and, if required, beyond the Property
- 8. For a Flood Hazard analysis I have:
 - 8.1 Reviewed and characterized, if appropriate, Flood Hazard that may affect the Property
 - 8.2 Estimated the Flood Hazard on the Property
 - 8.3 Considered (if appropriate) the effects of climate change and land use change
 - 8.4 Relied on a previous Flood Hazard Assessment (FHA) by others
 - 8.5 Identified any potential hazards that are not addressed by the Flood Assessment Report
- 9. For a Flood Risk analysis I have:
 - 9.1 Estimated the Flood Risk on the Property
 - 9.2 Identified existing and anticipated future Elements at Risk on and, if required, beyond the Property
 - 9.3 Estimated the Consequences to those Elements at Risk

FLOOD ASSURANCE STATEMENT

10. In order to mitigate the estimated Flood Hazard for the Property, the following approach is taken:
- 10.1 A standard-based approach
 - 10.2 A Risk-based approach
 - 10.3 The approach outlined in the guidelines, Appendix F: Flood Assessment Considerations for Development Approvals
 - 10.4 No mitigation is required because the completed flood assessment determined that the site is not subject to a Flood Hazard
11. Where the Approving Authority has adopted a specific level of Flood Hazard or Flood Risk tolerance, I have:
- 11.1 Made a finding on the level of Flood Hazard or Flood Risk on the Property
 - 11.2 Compared the level of Flood Hazard or Flood Risk tolerance adopted by the Approving Authority with my findings
 - 11.3 Made recommendations to reduce the Flood Hazard or Flood Risk on the Property
12. Where the Approving Authority has not adopted a level of Flood Hazard or Flood Risk tolerance, I have:
- 12.1 Described the method of Flood Hazard analysis or Flood Risk analysis used
 - 12.2 Referred to an appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk
 - 12.3 Made a finding on the level of Flood Hazard or Flood Risk tolerance on the Property
 - 12.4 Compared the guidelines with the findings of my flood assessment
 - 12.5 Made recommendations to reduce the Flood Hazard or Flood Risk
13. Considered the potential for transfer of Flood Risk and the potential impacts to adjacent properties
14. Reported on the requirements for implementation of the mitigation recommendations, including the need for subsequent professional certifications and future inspections.

Based on my comparison between:

[CHECK ONE]

- The findings from the flood assessment and the adopted level of Flood Hazard or Flood Risk tolerance (item 11.2 above)
- The findings from the flood assessment and the appropriate and identified provincial or national guideline for level of Flood Hazard or Flood Risk tolerance (item 12.4 above)

I hereby give my assurance that, based on the conditions contained in the attached Flood Assessment Report:

[CHECK ONE]

- For subdivision approval, as required by the *Land Title Act* (Section 86), "that the land may be used safely for the use intended":
 - [CHECK ONE]
 - With one or more recommended registered Covenants.
 - Without any registered Covenant.
- For a development permit, as required by the *Local Government Act* (Part 14, Division 7), my Flood Assessment Report will "assist the local government in determining what conditions or requirements it will impose under subsection (2) of this section [Section 491 (4)]".
- For a building permit, as required by the *Community Charter* (Section 56), "the land may be used safely for the use intended":
 - [CHECK ONE]
 - With one or more recommended registered Covenants.
 - Without any registered Covenant.
- For flood plain bylaw variance, as required by the *Flood Hazard Area Land Use Management Guidelines* and the *Amendment Section 3.5 and 3.6* associated with the *Local Government Act* (Section 524), "the development may occur safely".
- For flood plain bylaw exemption, as required by the *Local Government Act* (Section 524), "the land may be used safely for the use intended".

FLOOD ASSURANCE STATEMENT

I certify that I am a Qualified Professional as defined below.

Date
December 4, 2024

Prepared by
Clayton Hiles, P.Eng

Name (print)
Signature

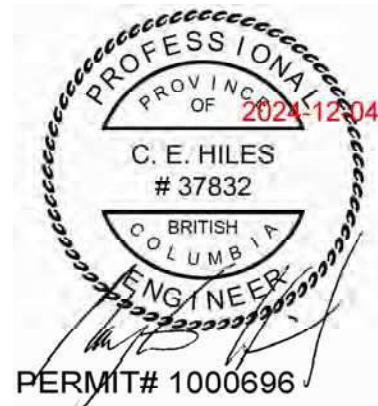
844 Courtney St #400,
Address
Victoria, BC V8W 1C4

(250) 595-4223
Telephone

chiles@kwl.ca
Email

Reviewed by
Eric Morris, P.Eng

Name (print)
Signature



(Affix PROFESSIONAL SEAL here)

If the Qualified Professional is a member of a firm, complete the following:

I am a member of the firm Kerr Wood Leidal Associates
and I sign this letter on behalf of the firm. (Name of firm)



Kerr Wood Leidal Consulting Engineers
300 – 41856 Still Creek Drive
Burnaby, BC, V5C 6G9

November 28, 2024

To Whom It May Concern,

RE: Flood Assessment 221 Minato Road, Ucluelet

I am writing to notify you that Council adopted the following resolutions at the November 26, 2024, Regular Meeting:

THAT Council direct staff to prepare a letter acknowledging the risk assessment provided by Kerr Wood Leidal Consulting Engineers in their report 'Flood Assessment 221 Minato Road, Ucluelet' as acceptable, on the condition that the BC drafted waiver is signed protecting staff and Council from any liability.

THAT Council has reviewed the Risk Assessment prepared by Kerr Wood Leidal for 221 Minato Road, Ucluelet and confirms that the risk set out in the report is acceptable including:

1. That the development may proceed in the absence of a standard dike.
2. That the development of Lot 3 with 11 houses represents a nominal increase to the housing density on the DoU tsunami floodplain.
3. That the risk of mortality associated with the development of Lot 3 at 1:142,000 annually is acceptable.

Sincerely,

A handwritten signature in blue ink, appearing to read 'M. McEwen', written over a horizontal line.

Marilyn McEwen, Mayor



REGULAR MEETING OF COUNCIL

George Fraser Community Room, Ucluelet Community Centre,
500 Matterson Drive, Ucluelet, and
Electronically via Zoom ([Ucluelet.ca/CouncilMeetings](https://ucluelet.ca/CouncilMeetings))
Tuesday, November 26, 2024 @ 4:00 PM

LATE ITEM(S)

	Page
1. LATE ITEMS	
1.1. 221 Minato Road - OCP & Subdivision Application - Flood Assurance Statement <i>Joshua Hunt, CEO, ERIF Sustainable Solutions</i> 221 Minato Road - OCP & Subdivision Application - Flood Assurance Statement	3 - 10

November 19th, 2024

Incorporation No: BC 1319635
2200, 885 Georgia St West, Vancouver, British Columbia, CA V6C 3E8

To:

Mayor and Councillors

communityinput@ucluelet.ca

Copied to:

Duane Lawrence, CAO
Bruce Greig, Director of Community Planning
John Towgood, Municipal Planner
District of Ucluelet

RE: 221 MINATO ROAD – OCP & SUBDIVISION APPLICATION – FLOOD ASSURANCE STATEMENT

Dear Councillors,

ERIF Economic Restoration Infrastructure Fund Inc (ERIF) is pleased to provide the following supplementary documents for the OCP Amendment and Subdivision proposed for the Development Permit for 221 Minato lodged on September 20, 2024, and Revision A lodged November 3.

The DOU requested a further flood report and Flood Assurance Statement to support subdivision and development of the site. This report has been prepared by BC's most highly regarded Costal Engineers, Kerr Wood Leidal (KWL) and the draft flood documents have been submitted.

The Flood Hazard Assessment supports the proposed development of Lots 1, 2, 4, and 5 and a Flood Assurance Statement can be issued for these lots.

A Flood Risk Assessment is provided for the final Lot, Lot 3, which is proposed to develop with eleven single family homes. This risk assessment supports the proposed development of Lot 3 and can be finalised with written support from Council.

The Flood Report is marked as 'draft' because in section 8, the flood engineers request that Council review the Risk Assessment for Lot 3 (excerpted below) and confirm that the 'low' risk level identified is acceptable. Once this is received the flood Report will be finalised and Flood Assurance Statement issued. This confirmation of acceptable risk is required because the DOU Tsunami Interim Policy does not provide a general acceptable risk level, but requires a site-specific assessment.

The Risk Assessment provides detailed modelling of the potential economic and physical loss to the eleven homes on Lot 3 in the event of major tsunamis. It confirms the assessed risk level as 'low' with a ratio of 1:142,000 annual chance of fatality. It sets out international best practices standard of risk assessment and provides support for this risk level being acceptable by those standards.

In response to this risk assessment, ERIF has prepared a detailed Risk Management Plan with evacuation plan, carefully reviewed with Ucluelet's Fire Chief responsible for emergency response. ERIF has proposed structural mitigation measures to raise the homes above the reported flood level. KWL have tested this modelling and confirmed their assessed risk levels support the proposed development as safe and suitable for a Flood Assurance Statement.

To finalise the report and provide the requested Flood Assurance Statement, KWL's flood engineer has requested correspondence from the Council to confirm the risk level is acceptable noting:

The Council has reviewed the Risk Assessment prepared by Kerr Wood Leidel for 221 Minato Road, Ucluelet and confirms that the risk set out in the report is acceptable including:

- That this development may proceed in the absence of a standard dike.
- That the development of Lot 3 with 11 houses represents a nominal increase to the housing density on the DoU tsunami floodplain.
- That the risk of mortality associated with the development of Lot 3 is acceptable (1:142,000 annually).

We ask that the Council provide this correspondence so that the Flood Engineers can finalise their report and provide the requested Flood Assurance Statement.

With the flood documentation as the final document requested now complete for this submission, we ask that the Council consider the proposed OCP and By Law Amendment for subdivision and development at their upcoming meeting on December 10 2024. This will enable us to provide appropriate public notice periods before the end of the year.

We trust this report provides what is required to move forward with the letter requested. Please reach out if there are any further questions we can assist with.

We look forward to the application being presented to Council so we can move toward construction of this much needed housing to provide for Ucluelet's flourishing future.

In partnership,



Joshua Hunt

CEO – ERIF Sustainable Solutions

Report link: <https://drive.google.com/drive/folders/1ytjEWqk6VT2PAzUVmQ1-Vc9qkq9C5JVJ?usp=sharing>



ERIF ECONOMIC RESTORATION INFRASTRUCTURE FUND
Flood Assessment 221 Minato Road, Ucluelet
Draft Report
November 14, 2024

6. Tsunami Risk Assessment – Lot 3

Flood risk is determined based on assessment of the flood hazard and the consequences of the flooding. It is most often quantified in terms of mortality and economic losses and these metrics may be annualized to normalize the assessment process. Depending on the degree of detail of the risk assessment, multiple flooding events may be considered.

6.1 Risk Assessment Methods

This section outlines the methods used to assess the tsunami flood hazard at the project site. The selected approach for risk assessment is outlined in [5]:

A Flood Risk Assessment (FRA) involves estimating the likelihood that a flood will occur and cause some magnitude and type of damage or loss. Following are the principal steps in the Risk Assessment:

1. Identify Flood Hazard Scenarios. These are defined as distinct outcomes from a given hazard that result in some direct Consequence (e.g., fatalities, damage to a building, environmental damage, intangibles such as human suffering) and are based on the results of the hazard assessment described in Section D: Flood Hazard Assessments. They can include different return periods for the same hazard, variable flood extent or Flood Intensity, multi-hazard chains of events, or different consequence chains.
2. Estimate the probability of a Hazard Scenario resulting in some undesirable outcome. This is based on the estimated likelihood that the hazard will occur, reach the Element at Risk when it is present within the hazard zone, and cause the undesirable outcome. These may include a range of outcomes in categories such as economic loss, environmental damage, safety, and corporate or political reputation.
3. Estimate the Consequences of the unwanted outcome including economic losses; human health and loss of life; environmental losses; cultural/historic losses; and intangibles such as psychological distress. Details are described in Section E2.2.
4. Define Tolerable Risk criteria.
5. Prioritize Risk reduction strategies

Flood Risk can be expressed as:

$$R = P_H * P_{S,H} * P_{T,S} * V * E$$

where:

- R = total Flood Risk;
- P_H = annual exceedance probability of a flood occurring;
- $P_{S,H}$ = spatial probability that the flood will reach the Element at Risk;
- $P_{T,S}$ = temporal probability that the Element at Risk will be present when the flood occurs (for fixed infrastructures and homes this is equal to 1);
- V = the Vulnerability, or probability of loss of life or the proportion of an asset loss to total loss; and
- E = the number of people at Risk or the homes and infrastructures at Risk.

KERR WOOD LEIDAL ASSOCIATES LTD.
consulting engineers



Hazard Scenario

As in Section 5.3, risk has been evaluated based on a single largest-credible hazard scenario with implementation of the proposed mitigation measures (land raising). The use of a single hazard scenario for risk assessment is appropriate given the non-random nature of rupture along a given fault zone. Put another way, it is highly unlikely that more than one tsunami-generating rupture of the CSZ occurs within the design life of the proposed development.

Probability of Consequences

The time-dependent probability of a full rupture of the CSZ is estimated in [11] and [12]. For the year 2100, the annual occurrence probability is estimated to be about 0.2%; equivalent to a 1:500-year return period. Here the occurrence probability is taken as equivalent to the exceedance probability (P_H).

For the purposes of this assessment all people living on Lot 3, and all assets located below the flood level, are assumed to be at risk. i.e., $P_{S,H}=100\%$.

For fixed infrastructure the temporal probability that the Element at Risk will always be present, so $P_{T,S}=100\%$. People, on the other hand, spend about 70% of their time indoors at home on average, and about 6% of their time outdoors (including at their home) [13]. Given that the habitable space of homes is to be raised above the flood construction level, and the homes are to be designed to withstand the earthquake and tsunami, it might be considered reasonable to assign risk only for the time they are outdoors. However, any residents which failed to evacuate could be stuck in their homes without functioning utilities and without a means of egress, which could have negative impacts on mortality, especially for vulnerable populations. For the purpose of this assessment, it has been assumed that the residents have a 70% chance of being at home and exposed to tsunami hazard. i.e., $P_{T,S}=70\%$.

Elements at Risk

In this risk assessment, the evaluated elements at risk are limited to people and built infrastructure. It should be noted, however, that all infrastructure at risk will be the responsibility of either the homeowner or the strata corporation of Lot 3. The DoU will not own or maintain this infrastructure.

Eleven detached houses, each with a secondary suite, are planned for Lot 3, for a total of 22 residences. According to 2021 census data, the average occupancy in the Ucluelet area is 2.3 per residence [14]. This yields an expected total of 51 people living on Lot 3.

ERIF have provided an estimate of the total value of the infrastructure damage during the design tsunami event. Note that habitable spaces of homes are to be elevated above the Flood Construction Level, so are not included in these totals.

Repairs to homes: \$2.75M. Includes replacement of break-away wall panels on uninhabitable lower floors, stair replacement, and landscaping.

Common area servicing and infrastructure: \$1.6M. Includes landscaping, damage to roads, sewage and water pipe and pump systems.



Estimation of Risk

Loss of Life

The probability of mortality as a function of tsunami height is estimated in [15] for the 2011 Japanese tsunami. For a tsunami height of approximately 10 m, the estimated mortality rate ranges from 3 to 5% with a best estimate of 4%. Another study estimated the mortality rate as a function of flood depth in New Orleans during Hurricane Katrina [16]. For a flood depth 3 m, the estimated mortality rate ranges from about 0.5% to 4% with a best estimate of 2%. It should be stressed that these estimates are specific to the social and geographic conditions of the studied event and region. Important is the variation in available warning, and the age and robustness of the building stock. While there is variance between and within these studies, they do provide similar estimates of the mortality rate during a large flooding event.

The proposed flood mitigation measures influence the selection of an appropriate mortality rate in this application. With suitable emergency management plan, most residents should be able to evacuate to high ground, only about 300 m away, before the tsunami arrives. Further, the proposed homes will be designed to withstand the design tsunami with habitable space above the flood level. So even if a resident fails to evacuate, the risk to that person sheltering in these homes is still substantially lower than in a conventional home constructed at grade. Given these factors, a mortality rate on the low range of the observed data of has been selected for use in this analysis. i.e., $V_{life}=0.5\%$

Economic Losses

Given the limited scope of this assessment, it was possible to directly estimate the potential economic losses due to damage to infrastructure located below the FCL directly as \$4.35M. i.e., $V * E = \$4.35M$.

Risk Tolerance

Risk tolerance is a community value, and so should be defined by representatives of the community. It is understood that ERIF have been engaging with emergency management personnel as well as District Council to discuss the issue of risk tolerance. ERIF have reported that DoU has no pre-established risk criteria or tolerance for risk.

In the United Kingdom maximum tolerable risk of death to an individual is 1:100,000 annually for a new development. The Netherlands uses a more stringent maximum risk tolerance of 1:1,000,000 annually. A plot indicating ranges of risk acceptability levels is provided in Figure 6-1 (reproduced from [5]). This plot suggests that an annual risk of death to a single person is "broadly acceptable" below a likelihood of 1:100,000, and unacceptable above 1:1000. Between these thresholds is the *as low as reasonably possible* (ALARP) zone, where mitigation measures should be used to reduce the risk to as low as reasonably possible.

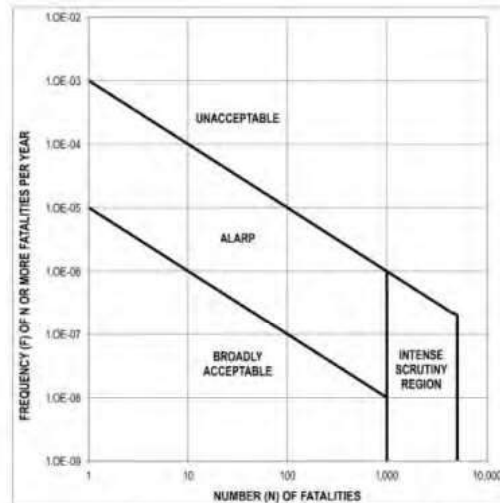


Figure 6-1: F-N curves to evaluate the risk to life loss of groups (source Kendall et al. 1977).
 Reproduced from [5]

6.2 Risk Results and Discussion

Using the methods of Section 6.1, the total economic losses on Lot 3 due to the design tsunami event are estimated to be \$4.35M. The annualized economic losses can be calculated as:

$$R_{econ} = P_H * P_{S,H} * P_{T,S} * V * E = 0.002 * 1 * 1 * \$4,350,000 = \$8,700$$

The expected mortality during the design tsunami event can be calculated as:

$$R_{life} = P_{S,H} * P_{T,S} * V_{life} * E = 1 * 0.70 * 0.005 * 51 = 0.18 \text{ people}$$

This suggests only about a 18% chance that someone on Lot 3 dies during the design tsunami event. This can be restated as about a 1:142,000 chance of death annually due to tsunami to any of the residents of Lot 3. Based on the guidance in the [5], this level of risk falls in a category of risk which is "broadly acceptable".

However, the representatives of the District of Ucluelet should review this analysis and the estimated risk level and determine for themselves if this level of risk is acceptable to the community. This community feedback must be integrated into this report and used as a basis for determining the acceptable level of risk for the proposed development. **The report cannot be completed until this feedback is obtained.** The potential loss of life during the design event is 0.18 people (i.e. <1), and the annualized infrastructure losses are \$8,700. Based on the risk matrix provided in Table 6-1, this puts the overall risk at of the proposed development at "low". Given this overall risk level and the guidance in Table E-2 of [5], the current analysis is deemed a suitable assessment of the risk and no further refinement of this assessment is necessary.



Table 6-1: Matrix to Determine the Level of Risk Assessment Needed Based on the Exposure of a Development and Vulnerable Populations to Flood Hazards (reproduced from [5])

Potential Loss of Life for Applied Return Period	Annualized Potential Building Loss (\$)				
	<1,000	1,000 to 10,000	10,000 to 100,000	100,000 to 1,000,000	>1,000,000
>100	VH	VH	VH	VH	VH
10 to 100	H	H	VH	VH	VH
2 to 10	H	H	H	H	VH
1 to 2	M	M	M	H	H
0	VL	L	M	M	H

Notes:
 VH = Very High; H = High; M = Moderate; L = Low; VL = Very Low

DRAFT



8. Input Required from the DoU

Feedback from the DoU District Council is needed to facilitate the completion of this report. The DoU District Council must provide written feedback indicating if they accept or not the following:

- That this development may proceed in the absence of a standard dike.
- That the development of Lot 3 with 11 houses represents a *nominal* increase to the housing density on the DoU tsunami floodplain.
- That the risk of mortality associated with the development of Lot 3 is acceptable (1:142,000 annually).

DRAFT

November 21st, 2024

Incorporation No: BC 1319635
 2200, 885 Georgia St West, Vancouver, British Columbia, CA V6C 3E8

Duane Lawrence, CAO
 Bruce Greig, Director of Community Planning
 John Towgood, Municipal Planner
 District of Ucluelet

**RE: 221 MINATO ROAD – OCP, SUBDIVISION, DEVELOPMENT PERMIT APPLICATION –
 UPDATED ARCHEOLOGIST REPORT AND ENVIRONMENTAL REPORT COMMENTS**

Dear Duane, Bruce and John,

ERIF Economic Restoration Infrastructure Fund Inc (ERIF) herein provides an updated Archaeological Report for the proposed development for 221 Minato, superseding the report previously lodged.

The 2022 Covenant Restrictions on the property require a further Environmental Report, Archaeologist report and engineering analysis for tsunami flood hazard as follows:

2(b)(i)	Archaeological Assessment	(i) an archaeological assessment of the site and the proposed development with recommendations for any mitigation measures, design changes and/or permitting requirements to protect archaeological and cultural resources;
2(b)(ii)	Environmental Assessment	an assessment by a Qualified Environmental Professional (QEP) of the ecological resources of the Lands and surrounding ecosystem, with recommendations for how the proposed development can avoid and/or mitigate impacts on terrestrial and marine ecosystems or enhance the existing ecological function of the site;
2(b)(x)	Engineering for Tsunami	(x) engineering analysis of all aspects of the proposed development on the Lands located in areas identified as subject to tsunami flood hazard, according to District of Ucluelet Tsunami Risk Tolerance Interim Policy 8-5280-1.

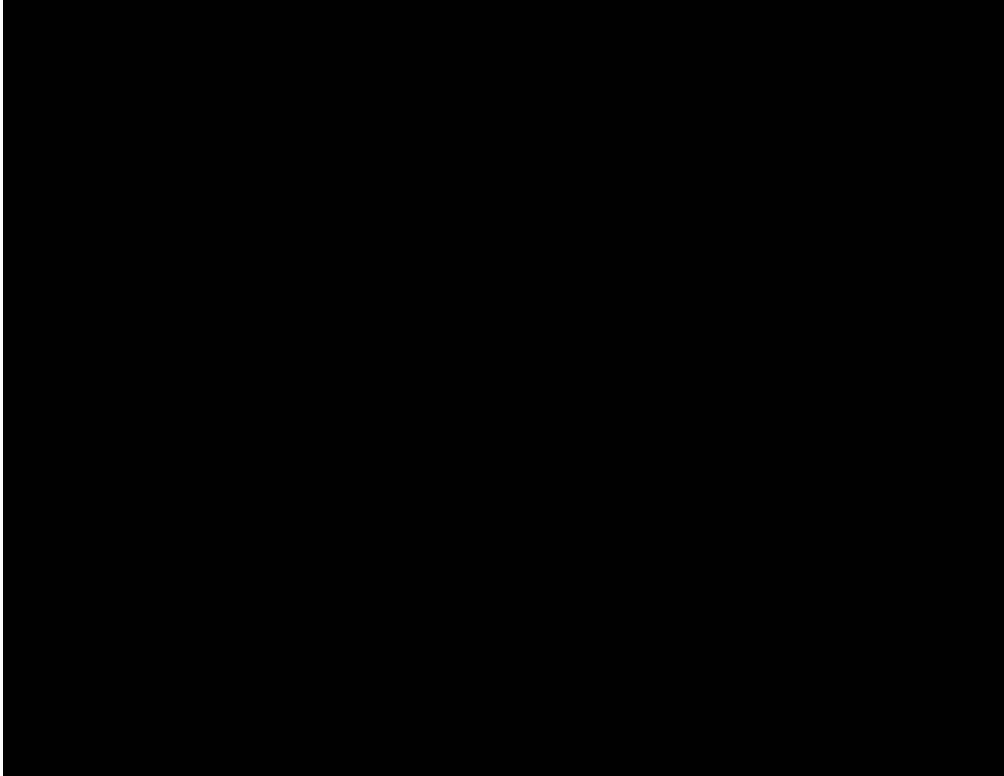
The reports have now been prepared and submitted to support the proposed development of the site while protecting the site’s environmental and cultural resources.

The updated **Archaeological Report** by Yuułu?if?ath Government - Ucluelet First Nation (UFN) Department of Culture, Language & Heritage is here: https://drive.google.com/drive/folders/1JKBJOzjt_V10KuGP-ZzjNz4IHHLQNw4N?usp=sharing

You will see that the erroneous line has been updated to remove the confusion in how it was framed. The updated report reads:

“Construction of this proposed residential development would require significant alterations to the land consisting of extensive ground alterations and it was communicated to UFN that further tree felling requirements will be kept to a minimum to remove danger trees and to facilitate the site plan, which was not provided at the time of this assessment but has been provided since. “

You queried the position of the identified locations against the site plan. To assist in this assessment, please find below overlaid the Archaeologist mapped sites and the lodged Masterplan. The image below overlays the site plan and the identified areas of cultural significance, which are situated in the waterfront areas dedicated back to DOU to the north and west of the site. The traditional use cedars noted closest to Peninsula Road are not protected by the Heritage Conservation Act but all care will be taken to preserve them wherever possible.



The **Environmental Impact Assessment** Report by Aquaparian is here as previously submitted in October 2024: <https://drive.google.com/drive/folders/1PhoU17Ksa3SZQuO-ODkmXPkfmnAhtBXw?usp=sharing>

The Environmental Report provides an assessment of 48 pages and we believe addresses all items required in the covenant restrictions as follows:

- the first 27 pages carefully document the current site (ecological resources of the land and surrounding ecosystem) as required.
- Pages 31-36 present thirty-three recommendations for how the proposed development can avoid or mitigate impacts on the terrestrial and marine ecosystem as the covenant restriction directs.
- The report pages 29-31 further document a riparian regeneration plan for planting to enhance the existing ecological function of the site, including details of tree types being planted and suitable sources for native plants and seeds to regenerate the land.

ERIF has provided the below map of tree coverage and relative to the site masterplan. In addition,

- an Arborist Report mapping sitka spruce and danger trees and
- an initial Landscaping Plan

were lodged with the Development Permit application.



ERIF was pleased to provide our update on the DOU's requests for a further **Flood Hazard Assessment** which has been supplied for Lot 1,2,4,5. The document is linked here: <https://drive.google.com/drive/folders/1ytjEWqk6VT2PAzUVmQ1-Vc9qkq9C5JVJ>. We have also provided the Flood Risk Assessment for Lot 3 and asked that Council provide a letter the KWL Coastal Engineers confirming their acceptance of the flood risk level assessed. When that is received, the report will have the 'draft' watermark removed and the Flood Assurance Statement will be issued.

With all required documents complete we would appreciate your consideration of the first and second reading for OCP and By Law Amendment being prepared for the December 10 2024 Council meeting. This would enable notice to be provided before end of year and progression to third reading and Development Permit at Council's first meeting in January 2025.

We are committed to providing much needed affordable and attainable housing and thank you for your work in reviewing our submission to provide this sustainable solution for Ucluelet's housing future.

Please reach out if there are any further questions we can assist with.

In partnership,

Joshua Hunt

CEO – ERIF Sustainable Solutions

November 19th, 2024

Incorporation No: BC 1319635
2200, 885 Georgia St West, Vancouver, British Columbia, CA V6C 3E8

To:

Mayor and Councillors

communityinput@ucluelet.ca

Copied to:

Duane Lawrence, CAO
Bruce Greig, Director of Community Planning
John Towgood, Municipal Planner
District of Ucluelet

RE: 221 MINATO ROAD – OCP & SUBDIVISION APPLICATION – FLOOD ASSURANCE STATEMENT

Dear Councillors,

ERIF Economic Restoration Infrastructure Fund Inc (ERIF) is pleased to provide the following supplementary documents for the OCP Amendment and Subdivision proposed for the Development Permit for 221 Minato lodged on September 20, 2024, and Revision A lodged November 3.

The DOU requested a further flood report and Flood Assurance Statement to support subdivision and development of the site. This report has been prepared by BC's most highly regarded Costal Engineers, Kerr Wood Leidal (KWL) and the draft flood documents have been submitted.

The Flood Hazard Assessment supports the proposed development of Lots 1, 2, 4, and 5 and a Flood Assurance Statement can be issued for these lots.

A Flood Risk Assessment is provided for the final Lot, Lot 3, which is proposed to develop with eleven single family homes. This risk assessment supports the proposed development of Lot 3 and can be finalised with written support from Council.

The Flood Report is marked as 'draft' because in section 8, the flood engineers request that Council review the Risk Assessment for Lot 3 (excerpted below) and confirm that the 'low' risk level identified is acceptable. Once this is received the flood Report will be finalised and Flood Assurance Statement issued. This confirmation of acceptable risk is required because the DOU Tsunami Interim Policy does not provide a general acceptable risk level, but requires a site-specific assessment.

The Risk Assessment provides detailed modelling of the potential economic and physical loss to the eleven homes on Lot 3 in the event of major tsunamis. It confirms the assessed risk level as 'low' with a ratio of 1:142,000 annual chance of fatality. It sets out international best practices standard of risk assessment and provides support for this risk level being acceptable by those standards.

In response to this risk assessment, ERIF has prepared a detailed Risk Management Plan with evacuation plan, carefully reviewed with Ucluelet's Fire Chief responsible for emergency response. ERIF has proposed structural mitigation measures to raise the homes above the reported flood level. KWL have tested this modelling and confirmed their assessed risk levels support the proposed development as safe and suitable for a Flood Assurance Statement.

To finalise the report and provide the requested Flood Assurance Statement, KWL's flood engineer has requested correspondence from the Council to confirm the risk level is acceptable noting:

The Council has reviewed the Risk Assessment prepared by Kerr Wood Leidel for 221 Ucluelet and confirms that the risk set out in the report is acceptable including:

- That this development may proceed in the absence of a standard dike.
- That the development of Lot 3 with 11 houses represents a nominal increase to the housing density on the DoU tsunami floodplain.
- That the risk of mortality associated with the development of Lot 3 is acceptable (1:142,000 annually).

We ask that the Council provide this correspondence so that the Flood Engineers can finalise their report and provide the requested Flood Assurance Statement.

With the flood documentation as the final document requested now complete for this submission, we ask that the Council consider the proposed OCP and By Law Amendment for subdivision and development at their upcoming meeting on December 10 2024. This will enable us to provide appropriate public notice periods before the end of the year.

We trust this report provides what is required to move forward with the letter requested. Please reach out if there are any further questions we can assist with.

We look forward to the application being presented to Council so we can move toward construction of this much needed housing to provide for Ucluelet's flourishing future.

In partnership,



Joshua Hunt

CEO – ERIF Sustainable Solutions

Report link: <https://drive.google.com/drive/folders/1ytiEWqk6VT2PAzUVmQ1-Vc9qkq9C5JVJ?usp=sharing>



ERIF ECONOMIC RESTORATION INFRASTRUCTURE FUND
Flood Assessment 221 Minato Road, Ucluelet
Draft Report
November 14, 2024

6. Tsunami Risk Assessment – Lot 3

Flood risk is determined based on assessment of the flood hazard and the consequences of the flooding. It is most often quantified in terms of mortality and economic losses and these metrics may be annualized to normalize the assessment process. Depending on the degree of detail of the risk assessment, multiple flooding events may be considered.

6.1 Risk Assessment Methods

This section outlines the methods used to assess the tsunami flood hazard at the project site. The selected approach for risk assessment is outlined in [5]:

A Flood Risk Assessment (FRA) involves estimating the likelihood that a flood will occur and cause some magnitude and type of damage or loss. Following are the principal steps in the Risk Assessment:

1. Identify Flood Hazard Scenarios. These are defined as distinct outcomes from a given hazard that result in some direct Consequence (e.g., fatalities, damage to a building, environmental damage, intangibles such as human suffering) and are based on the results of the hazard assessment described in Section D: Flood Hazard Assessments. They can include different return periods for the same hazard, variable flood extent or Flood Intensity, multi-hazard chains of events, or different consequence chains.
2. Estimate the probability of a Hazard Scenario resulting in some undesirable outcome. This is based on the estimated likelihood that the hazard will occur, reach the Element at Risk when it is present within the hazard zone, and cause the undesirable outcome. These may include a range of outcomes in categories such as economic loss, environmental damage, safety, and corporate or political reputation.
3. Estimate the Consequences of the unwanted outcome including economic losses; human health and loss of life; environmental losses; cultural/historic losses; and intangibles such as psychological distress. Details are described in Section E2.2.
4. Define Tolerable Risk criteria.
5. Prioritize Risk reduction strategies

Flood Risk can be expressed as:

$$R = P_H * P_{S,H} * P_{T,S} * V * E$$

where:

- R = total Flood Risk;
- P_H = annual exceedance probability of a flood occurring;
- $P_{S,H}$ = spatial probability that the flood will reach the Element at Risk;
- $P_{T,S}$ = temporal probability that the Element at Risk will be present when the flood occurs (for fixed infrastructures and homes this is equal to 1);
- V = the Vulnerability, or probability of loss of life or the proportion of an asset loss to total loss; and
- E = the number of people at Risk or the homes and infrastructures at Risk.

KERR WOOD LEIDAL ASSOCIATES LTD.
consulting engineers



Hazard Scenario

As in Section 5.3, risk has been evaluated based on a single largest-credible hazard scenario with implementation of the proposed mitigation measures (land raising). The use of a single hazard scenario for risk assessment is appropriate given the non-random nature of rupture along a given fault zone. Put another way, it is highly unlikely that more than one tsunami-generating rupture of the CSZ occurs within the design life of the proposed development.

Probability of Consequences

The time-dependent probability of a full rupture of the CSZ is estimated in [11] and [12]. For the year 2100, the annual occurrence probability is estimated to be about 0.2%; equivalent to a 1:500-year return period. Here the occurrence probability is taken as equivalent to the exceedance probability (P_H).

For the purposes of this assessment all people living on Lot 3, and all assets located below the flood level, are assumed to be at risk. i.e., $P_{S,H}=100\%$.

For fixed infrastructure the temporal probability that the Element at Risk will always be present, so $P_{T,S}=100\%$. People, on the other hand, spend about 70% of their time indoors at home on average, and about 6% of their time outdoors (including at their home) [13]. Given that the habitable space of homes is to be raised above the flood construction level, and the homes are to be designed to withstand the earthquake and tsunami, it might be considered reasonable to assign risk only for the time they are outdoors. However, any residents which failed to evacuate could be stuck in their homes without functioning utilities and without a means of egress, which could have negative impacts on mortality, especially for vulnerable populations. For the purpose of this assessment, it has been assumed that the residents have a 70% chance of being at home and exposed to tsunami hazard. i.e., $P_{T,S}=70\%$.

Elements at Risk

In this risk assessment, the evaluated elements at risk are limited to people and built infrastructure. It should be noted, however, that all infrastructure at risk will be the responsibility of either the homeowner or the strata corporation of Lot 3. The DoU will not own or maintain this infrastructure.

Eleven detached houses, each with a secondary suite, are planned for Lot 3, for a total of 22 residences. According to 2021 census data, the average occupancy in the Ucluelet area is 2.3 per residence [14]. This yields an expected total of 51 people living on Lot 3.

ERIF have provided an estimate of the total value of the infrastructure damage during the design tsunami event. Note that habitable spaces of homes are to be elevated above the Flood Construction Level, so are not included in these totals.

Repairs to homes: \$2.75M. Includes replacement of break-away wall panels on uninhabitable lower floors, stair replacement, and landscaping.

Common area servicing and infrastructure: \$1.6M. Includes landscaping, damage to roads, sewage and water pipe and pump systems.



Estimation of Risk

Loss of Life

The probability of mortality as a function of tsunami height is estimated in [15] for the 2011 Japanese tsunami. For a tsunami height of approximately 10 m, the estimated mortality rate ranges from 3 to 5% with a best estimate of 4%. Another study estimated the mortality rate as a function of flood depth in New Orleans during Hurricane Katrina [16]. For a flood depth 3 m, the estimated mortality rate ranges from about 0.5% to 4% with a best estimate of 2%. It should be stressed that these estimates are specific to the social and geographic conditions of the studied event and region. Important is the variation in available warning, and the age and robustness of the building stock. While there is variance between and within these studies, they do provide similar estimates of the mortality rate during a large flooding event.

The proposed flood mitigation measures influence the selection of an appropriate mortality rate in this application. With suitable emergency management plan, most residents should be able to evacuate to high ground, only about 300 m away, before the tsunami arrives. Further, the proposed homes will be designed to withstand the design tsunami with habitable space above the flood level. So even if a resident fails to evacuate, the risk to that person sheltering in these homes is still substantially lower than in a conventional home constructed at grade. Given these factors, a mortality rate on the low range of the observed data of has been selected for use in this analysis. i.e., $V_{life}=0.5\%$

Economic Losses

Given the limited scope of this assessment, it was possible to directly estimate the potential economic losses due to damage to infrastructure located below the FCL directly as \$4.35M. i.e., $V * E = \$4.35M$.

Risk Tolerance

Risk tolerance is a community value, and so should be defined by representatives of the community. It is understood that ERIF have been engaging with emergency management personnel as well as District Council to discuss the issue of risk tolerance. ERIF have reported that DoU has no pre-established risk criteria or tolerance for risk.

In the United Kingdom maximum tolerable risk of death to an individual is 1:100,000 annually for a new development. The Netherlands uses a more stringent maximum risk tolerance of 1:1,000,000 annually. A plot indicating ranges of risk acceptability levels is provided in Figure 6-1 (reproduced from [5]). This plot suggests that an annual risk of death to a single person is "broadly acceptable" below a likelihood of 1:100,000, and unacceptable above 1:1000. Between these thresholds is the *as low as reasonably possible* (ALARP) zone, where mitigation measures should be used to reduce the risk to as low as reasonably possible.

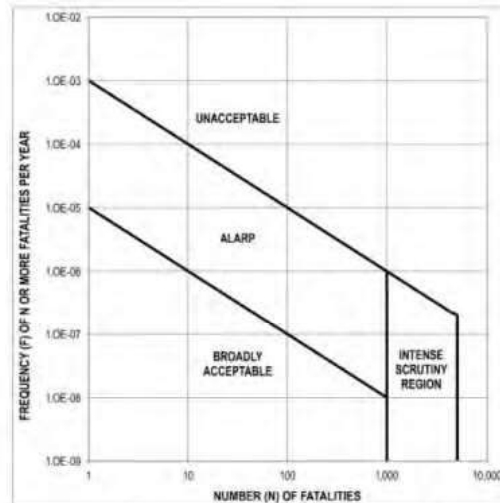


Figure 6-1: F-N curves to evaluate the risk to life loss of groups (source Kendall et al. 1977).
 Reproduced from [5]

6.2 Risk Results and Discussion

Using the methods of Section 6.1, the total economic losses on Lot 3 due to the design tsunami event are estimated to be \$4.35M. The annualized economic losses can be calculated as:

$$R_{econ} = P_H * P_{S,H} * P_{T,S} * V * E = 0.002 * 1 * 1 * \$4,350,000 = \$8,700$$

The expected mortality during the design tsunami event can be calculated as:

$$R_{life} = P_{S,H} * P_{T,S} * V_{life} * E = 1 * 0.70 * 0.005 * 51 = 0.18 \text{ people}$$

This suggests only about a 18% chance that someone on Lot 3 dies during the design tsunami event. This can be restated as about a 1:142,000 chance of death annually due to tsunami to any of the residents of Lot 3. Based on the guidance in the [5], this level of risk falls in a category of risk which is "broadly acceptable".

However, the representatives of the District of Ucluelet should review this analysis and the estimated risk level and determine for themselves if this level of risk is acceptable to the community. This community feedback must be integrated into this report and used as a basis for determining the acceptable level of risk for the proposed development. **The report cannot be completed until this feedback is obtained.** The potential loss of life during the design event is 0.18 people (i.e. <1), and the annualized infrastructure losses are \$8,700. Based on the risk matrix provided in Table 6-1, this puts the overall risk at of the proposed development at "low". Given this overall risk level and the guidance in Table E-2 of [5], the current analysis is deemed a suitable assessment of the risk and no further refinement of this assessment is necessary.



Table 6-1: Matrix to Determine the Level of Risk Assessment Needed Based on the Exposure of a Development and Vulnerable Populations to Flood Hazards (reproduced from [5])

Potential Loss of Life for Applied Return Period	Annualized Potential Building Loss (\$)				
	<1,000	1,000 to 10,000	10,000 to 100,000	100,000 to 1,000,000	>1,000,000
>100	VH	VH	VH	VH	VH
10 to 100	H	H	VH	VH	VH
2 to 10	H	H	H	H	VH
1 to 2	M	M	M	H	H
0	VL	L	M	M	H

Notes:
 VH = Very High; H = High; M = Moderate; L = Low; VL = Very Low

DRAFT



8. Input Required from the DoU

Feedback from the DoU District Council is needed to facilitate the completion of this report. The DoU District Council must provide written feedback indicating if they accept or not the following:

- That this development may proceed in the absence of a standard dike.
- That the development of Lot 3 with 11 houses represents a *nominal* increase to the housing density on the DoU tsunami floodplain.
- That the risk of mortality associated with the development of Lot 3 is acceptable (1:142,000 annually).

DRAFT

Bruce Greig

From: Juliette Green <juliette.g@erif.ca>
Sent: November 4, 2024 3:01 AM
To: Duane Lawrence; Bruce Greig; John Towgood
Cc: Joshua Hunt; Jodie Thompson; Sarah H
Subject: 221 Minato Rd - DP Revision A - Supplementary Reports and Flood Update
Attachments: 221Minato DP Revision A Lodged November 3 2024.pdf; ERIF DP Revision A for 221 Minato Cover November 3 2024.docx

[External]

Dear Duane, Bruce and John,

ERIF Economic Restoration Infrastructure Fund Inc. is pleased to provide the following supplementary documents in support of our Development Permit (DP) application for 221 Minato Road, originally lodged on September 20, 2024.

This email completes all requirements as outlined in the DP checklist. The further Flood Hazard Assessment and Flood Assurance Statement for Lots 1, 2, 4, & 5, and the Risk Management Plan for Lot 3 are currently being completed and are scheduled for submission in the next 1-2 weeks. Please find below details about the indepth work that is being carried out by the coastal engineers and the most recent update.

Supplementary Documentation

To supplement the original application, we have now lodged the following documents:

- 1) Archaeological Preliminary Field Reconnaissance Report for 221 Minato Road – prepared by Yuuutu?it?ath Government (UFN) Department of Culture, Language, and Heritage.
- 2) Addition of Eleventh Waterfront Home in Lot 3 – As part of the emergency management planning for Lot 3, the placement of the tenth home was revised, and an additional, eleventh home has been added to the northern section of the site. The DP application has been updated to reflect this adjustment. Each item has been updated as minimally as possible to reflect the eleventh home on Lot 3. All amendments have been marked in *blue italics* for ease of review.

You will also see the clarifications requested regarding title types for each subdivided lot and the phased development plan.

Please find the **updated submission attached** in both word and PDF formats, sharing all renewed links in one location for ease of reference.

Further Flood Report and Flood Assurance Statement

ERIF are very conscious of the delay on the further Flood Report requested and are doing all we can to expedite this.

These delays occurred as the site-specific Flood Report prepared by Ebbwater (who we understood was as the DOU’s preferred consultant and advisor) was unfortunately not accepted by the DoU as sufficient.

The DoU have requested a further Flood Assurance Statement, which is a level of documentation not *required* under the Provincial Guidelines, but within the municipalities *discretion* to request or not. Ebbwater, who prepared all Ucluelet flood mapping and modelling, the site-specific Flood report for 221 Minato, and advises the DOU on flood matters, unfortunately confirmed that they are not qualified to provide a Flood Assurance Statement.

As a result ERIF has faced substantial cost and delay duplicating the previous flood mapping. We have persevered to contract coastal engineers of the highest calibre in BC, who were on the panel contributing to the drafting of the Provincial Guidelines. As the Flood Assurance Statement is such a high standard of modelling, policy and indemnity, it has taken multiple levels of qualified engineers and now further independent review to prepare this, with additional costs exceeding \$42,000 for this report alone.

The current status is that the reports have been taken to an Independent Reviewer this week, who is one of BC's highest authorities on tsunamis. KWL's update is below:

"The Flood Hazard Assessment, Flood Risk Assessment and Risk Mitigation report has been prepared to draft. This work has reviewed modelling and mapping previously completed for the DoU, integrated engineering and planning documents from ERIF, and conducted additional tsunami modelling to evaluate the proposed flood mitigation measures. The current outlook is that ERIFs proposed development of this site is looking favourable and able to be supported, but this will depend on Council's feedback regarding tolerable risk levels.

In an abundance of care, we are having the report independently reviewed next week. Once that process has been completed, and any outstanding issues addressed, we anticipate we will be able to issue a Flood Assurance Statement as you have requested." (Clayton Hiles, KWL, November 2nd).

We appreciate the DOU patiently waiting on this extensive process to provide the Flood Assurance Statement. We expect to provide this additional Flood Assurance Statement you have requested in 1-2 weeks.

Fees and Submission Timelines

We will be coming in later today to pay the DP application and Temporary Use Permit fees. With this submission, we believe the Development Permit is complete in accordance with the checklist you supplied, and the additional Flood Study requested will be supplied as soon as possible.

In the meantime, we ask that you do all you can to continue to process our Development Permit application lodged Sept 20. We appreciate that you have mentioned previously that you are processing the DP as a priority. Given our objective to commence construction early in the new year, we kindly request an update on the anticipated timeline for DP approval once the remaining Flood reports are submitted.

Similarly, for the Temporary Use Permit application lodged Sept 30, we have now submitted the stamped engineers drawings and we will pay the permit application fee later today. Could you also advise a timeline for the temporary use permit approval please.

Please let us know if any further clarification or documentation is needed. I will write again immediately when the further flood reports can be supplied.

We thank you again for your work in reviewing the lodged documents and look forward to speaking further with you as the application progresses.

With thanks
Juliette Green

**Juliette Green | Strategic Impact
Director**

✉ juliette.g@erif.ca | www.erif.ca



IMPORTANT: The contents of this email and any attachments are confidential. They are intended for the named recipient(s) only. If you have received this email by mistake, please notify the sender immediately and do not disclose the contents to anyone or make copies thereof.

From: Clayton Hiles <CHiles@kwl.ca>
Sent: Saturday, November 2, 2024 9:15 AM
To: 'Juliette Green' <juliette.g@erif.ca>; 'Joshua Hunt' <joshua.h@erif.ca>
Cc: File <File@kwl.ca>
Subject: 221 Minato Tsunami hazard Update

Hi Juliette and Josh,

I just wanted to provide an update on the reports you have requested for 221 Minato and appreciate your patience as we have worked through this process.

The Flood Hazard Assessment, Flood Risk Assessment and Risk Mitigation report has been prepared to draft. This work has reviewed modelling and mapping previously completed for the DoU, integrated engineering and planning documents from ERIF, and conducted additional tsunami modelling to evaluate the proposed flood mitigation measures. The current outlook is that ERIFs proposed development of this site is looking favourable and able to be supported, but this will depend on Council's feedback regarding tolerable risk levels.

In an abundance of care, we are having the report independently reviewed next week. Once that process has been completed, and any outstanding issues addressed, we anticipate we will be able to issue a Flood Assurance Statement as you have requested.

Thanks again for your patience,

KWL File # 4558.001



Clayton Hiles PEng | Coastal Engineer

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8017

+1 (778) 677-
7682



Sent from the unceded traditional territory of the Xwsepsum (Esquimalt) and Ləkʷəŋən (Songhees), and WSÁNEĆ (Saanich) Peoples. We are grateful for the opportunity to work from this land.



Preliminary Field Reconnaissance of proposed residential development at 221 Minato Road, Ucluelet BC.



Prepared for: ERIF

Author: Carey Cunneyworth (UFN)

First Nation Traditional Territory: Ucluelet First Nation

Survey Date: August 29, 2024

Field Director: Carey Cunneyworth

Survey Crew: Tyson Touchie Jr (UFN)
Jay Millar (UFN)

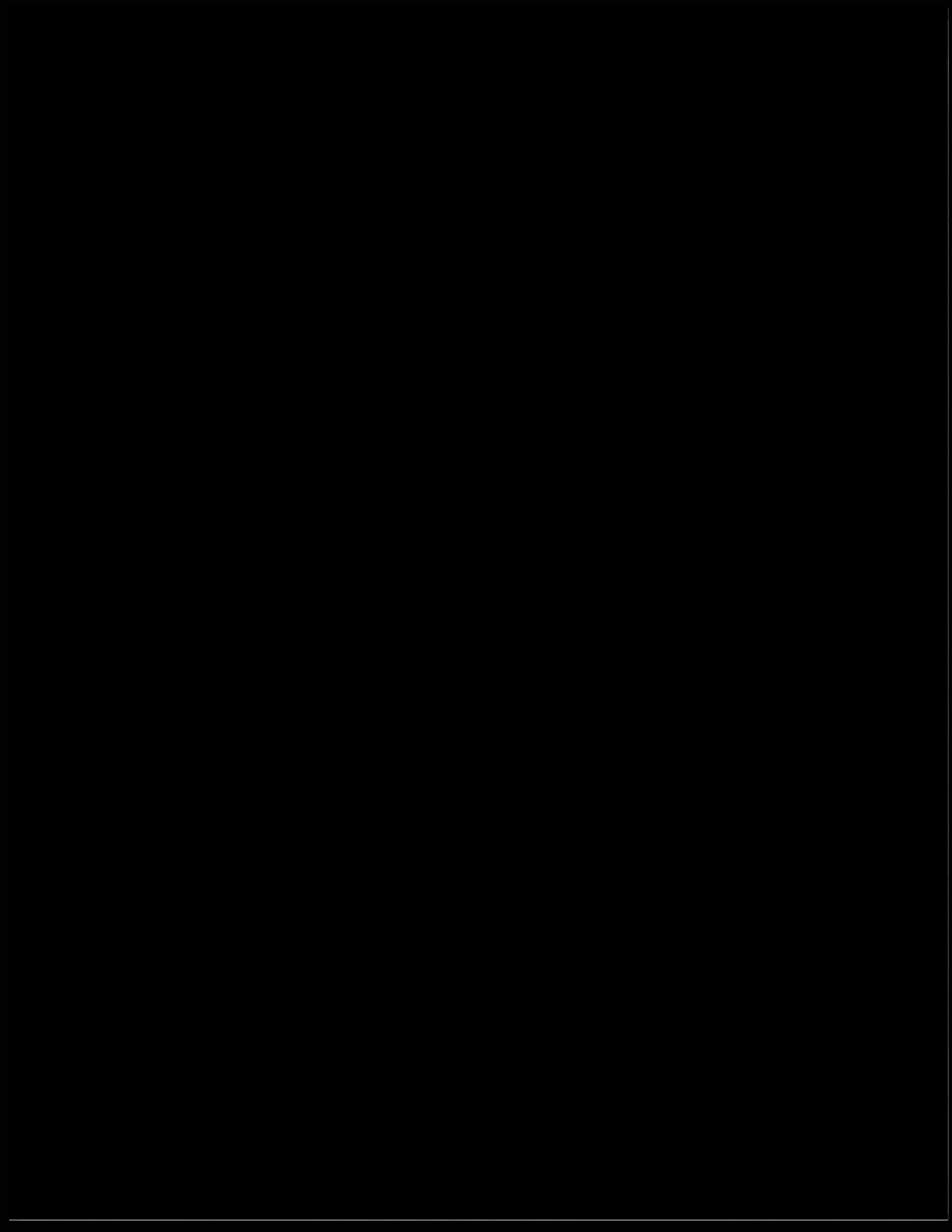
Attachments: Figure 1, Photos 1-3

Archaeological: Yes

Borden #: DfSj-TBA/UFN2024_001

Site Registration: Carey Cunneyworth

Cover Photo: Tyson Touchie showing CMT 1,
C.Cunneyworth, img_8177.jpg



1.0 INTRODUCTION

1.1 Objectives

The objectives of this Preliminary Field Reconnaissance (PFR) survey and report are to:

- (a) Identify the above-ground and/or naturally exposed archaeological, cultural, and heritage resources;
- (b) Record and determine the extent of possible impacts to existing and new archaeological sites by the proposed development;
- (c) Identify and evaluate areas of archaeological potential within the development that may require subsurface testing or monitoring;
- (d) Make recommendations regarding any further archaeological work that may be required, and ways in which possible developmental impacts to the existing archaeological, cultural or heritage resources can be reduced or alleviated.

1.2 Survey and Report Summary

One (1) new archaeological site consisting of one (1) culturally modified tree (CMT) and one (1) traditional use site (TUS) consisting of seven (7) contemporary CMTs were encountered during this survey. Two (2) areas of sub-surface archaeological potential were identified during this survey. No other pre-1846 archaeological, or cultural features were identified during this survey.

Due to the archaeological findings and cultural significance of this area, as well as the impact that this proposed development at C'iiluk^wis (Olsen Bay) will have on the Yuułu?ił?atḥ community and to Yuułu?ił?atḥ territory, further consultation with the Yuułu?ił?atḥ government – Ucluelet First Nation will be required.

Further archaeological work may be required in relation to this proposed development and recommendations are made in section 7.0.

2.0 Background

2.1 General

In June of 2024, ERIF consulted the Ucluelet First Nation (UFN) concerning a proposed 24.8-acre residential development at 221 Minato Road on partially cleared private lands. Construction of this proposed residential development would require significant alterations to the land consisting of extensive ground alterations and it was communicated to UFN that further tree felling requirements will be kept to a minimum to remove danger trees and to facilitate the site plan, which was not provided at the time of this assessment but has been provided since. Due to the close proximity of this proposed development to registered archaeological sites and known ethnographic sites, UFN considers the area to be of high archaeological potential and requested that a PFR be conducted.

2.3 Archaeological and Ethnographic Research

The location of this proposed development falls entirely within the known traditional territory of the Yuułu?ił?atḥ (Ucluelet First Nation). The Yuułu?ił?atḥ are a Nuu-chah-nulth group that have resided on the shores of the Ucluelet Inlet and surrounding area since time immemorial.

Archaeological sites on the Ucluelet Peninsula dates Yuułu?il?ath occupation in the area back to over 4000 years ago, with Yuułu?il?ath oral histories stretching further back in time. The Yuułu?il?ath ancestors evolved with this land over millennia and maintained a deep relationship with it by following a seasonal calendar that involved rotational movement through family-owned places and resources. These ancestors cared for the land and resources, and in return the land and resources supported them. The modern day Yuułu?il?ath are a post-contact consolidation of at least seven (7) previously independent primary groups that each consisted of multiple sub-groups and families.

The modern Yuułu?il?ath are made up of the following primary groups:

- Yuułu?il?ath
- Hu?u?ath
- Kínaxuumas?ath
- Hitaçu?ath
- K'waayimta?ath
- Hinapii?is?ath
- Waayi?ath

Prior to conducting fieldwork, archaeological site potential was addressed by reviewing the literature and speaking with the UFN community for known archaeological and ethnographic sites in close proximity to and within the study area.

[REDACTED]

C'iiluk^wis is the Yuułu?il?ath place meaning “soft beach” now known as Olsen Bay. It is described as the “shallow soft bottomed bay reaching close to the road”

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

Permit #: Non-Permit
Temporary #: N/A
Borden #: N/A
Date of visit: August 29, 2024



Photo 1: Jay Millar (UFN) and Tyson Touchie Jr (UFN) with TUS CMTs. Looking N, C.Cunneyworth, img_8166.jpg

3.0 ASSESSMENT METHODS

The field team examined pertinent archaeological site maps and ethnographic maps, as well as aerial photographs and legal boundary maps prior to conducting the actual survey. This assisted in modelling the field reconnaissance and targeting the areas of highest potential within the survey areas.

This field survey occurred on August 29th, 2024, and consisted of one UFN archaeologist and two UFN field technicians traversing the defined survey area spaced 5-20m apart. This survey concentrated primarily within the timbered and undeveloped areas of the study area, as well as along the shoreline. All standing and fallen timber within the study area were inspected for cultural modification. All natural exposures were visually inspected for subsurface archaeological deposits. Subsurface testing was not permitted during this PFR survey.

4.0 SURVEY RESULTS

4.1 Field Survey

This survey consisted of foot traverse across the entire 24.8-acre property including the entire shoreline which is situated on the south and southwest shores of C'iiłuk^wis or Olsen Bay. C'iiłuk^wis or Olsen Bay is located near the mid-point of the Ucluelet harbor on the south side and is between the Yuułuʔiłʔatḥ ancestral village of ʔakmqis and the ancestral and current home village of Hitacu. The survey area is accessed by Minato Road which leads to a road at the entrance of the study area and continues through the study area as roundabouts. This study area has been partially cleared in association with road development through the property.

The survey area generally consisted of an undulating and flat forested terrace with poor drainage along the shoreline and at lower elevations (1-5m), and the undeveloped middle and upper elevations (5-25 m) generally consisted of hummocky and undulating minor slopes with mixed coastal forest including mature old growth. Visibility across the survey area ranged from very poor (1-10 m) in the northeastern portion due to very dense coastal salal and huckleberry undergrowth, to good (10-20 m) in the middle and higher elevations where there are lower amounts of undergrowth in well-spaced forest. Forest composition generally consisted of mixed hemlock and cedar under 100cm diameter, with some old growth cedars measuring over 200 cm in diameter. Large spruce were encountered along the shoreline, and some yew were noted throughout the study area. Deadfall and blowdown amounts were considered low-moderate. No evidence of historical logging in the form of sawn stumps or logs was encountered in the undeveloped forested areas or outside the cleared areas impacted by the built roads.

Survey visibility ranged from very poor - good depending on the forest cover and understory density and survey coverage was achieved across 90% of the total area. Visually inspected natural exposures showed no evidence of any previously unregistered buried archaeological deposits. All exposed rock was inspected for modifications, shelters and overhangs, and no archaeological remains were encountered within any geological features.

One (1) previously unregistered western red cedar CMT was encountered and recorded during this survey. One (1) traditional use site and two (2) areas of subsurface archaeological potential were identified during this survey.

No other surface or subsurface archaeological findings were identified within the survey area during this PFR.

4.2 CMT Site DfSj-TBA / UFN2024-0001

This site is composed of a single standing old growth western red cedar showing both plank removal and kindling removal scars. Remnant toolmarks on plank notches indicate the use of a 6 cm metal adze.

Based off of the CMT feature typology, the planking technique employed, its estimated age class at time of modification, and the extent of deterioration of the CMT feature, it is highly likely that this CMT predates 1846 and is thereby protected by the *B.C. Heritage Conservation Act* (HCA RSBC 1996, Chapter 187) as an archaeological site.

4.3 Traditional Use Site

This site consists of seven (7) standing tapered bark strip CMTs showing healing lobe thickness under 5 cm, dating this site to be post-1846 and is therefore not protected by the HCA.

However, as this site is evidence that this forest is currently being used by the Yuułuꞑilꞑath or other indigenous people for traditional harvesting and/or other practices that are integral to the cultural identity and wellness of the Yuułuꞑilꞑath. This site and surrounding forest is considered to be of cultural significance to the Yuułuꞑilꞑath Government – Ucluelet First Nation and its preservation is expected.

4.4 Areas of Potential

These two (2) areas consist of flat terraces above the high tide line and immediately within the tree line at the base of gentle – moderate slopes in areas of good soil development suitable for sub-surface testing. Due to the general scarcity of landforms like these in the area and their suitability to short term human occupation and/or use, the accessibility to these landforms from the water, and the known Yuułuꞑilꞑath presence in the area, the Yuułuꞑilꞑath Government – Ucluelet First Nation considers these areas to have further archaeological potential for sub-surface findings such as shell middens and/or lithic scatters.

Permit #: Non-Permit
Temporary #: N/A
Borden #: DfSj-TBA/UFN2024_001
Date of visit: August 29, 2024



Photo 2: 6 cm metal adze toolmark on CMT 1. Looking E, C.Cunneyworth, img_8173.jpg



Photo 3: Bottom plank notch of CMT 1. Looking E, C.Cunneyworth, img_8174.jpg

7.0 RECOMMENDATIONS

Based on the results of this assessment, further archaeological work could be required. The following recommendations are made for this proposed development and in the cases any unidentified archaeological features or sites be encountered after this survey.

7.1 Avoidance

Complete avoidance of the one (1) registered archaeological site DfSj-TBA as well as the two (2) identified areas of potential, and the one (1) traditional use site that are located within the study area will provide the maximum protection from potential impacts resulting from the proposed residential development.

The Yuułuʔiłʔatḥ Government – Ucluelet First Nation requests complete avoidance of the one (1) registered archaeological sites DfSj-TBA, the two (2) identified areas of potential, and the one (1) traditional use site.

Should any construction and/or development take place within the immediate vicinity of the above-mentioned sites, a Yuułuʔiłʔatḥ representative should be on site to act as a monitor.

7.2 Mitigation

If complete avoidance from proposed development related impacts is either not feasible or practical for any of the archaeological and/or cultural resources found within or immediately adjacent this proposed development, then mitigation of these features and sites will be required. Any proposed impact, removal, alteration, or destruction of archaeological remains, including CMTs, will require that the proponent applies for, and obtains, a Heritage Conservation Act (HCA) Section 12.4 Site Alteration Permit (SAP).

Should any future construction and/or development fall within or immediately adjacent the areas of potential, further consultation with the Yuułuʔiłʔatḥ Government – Ucluelet First Nation would be required, and subsurface testing under a Heritage Inspection Permit (HIP) may be required.

7.3 General Recommendations

1. That *ERIF* inform all contractors who will be involved with building activities in the proposed development area that archaeological remains in the Province of British Columbia are protected from disturbance, intentional or inadvertent, by the Heritage Conservation Act (RSBC 1996, Chapter 87) and Section 51 of the Forest Practices Code Act (1995);
2. That *ERIF* inform contractors that, in the event that previously unidentified archaeological remains (including culturally modified trees) are encountered during building activities, that all activities with potential impacts to the remains must be halted, and the Ucluelet First Nation must be contacted upon discovery, and be informed of the location, the type/s of archaeological remains encountered, and the nature of the disturbance.

8.0 REFERENCES

Applaud, Brian, and Ray Kenny

1996 ***British Columbia Archaeological Impact Assessment Guidelines***. Ministry of Small Business, Tourism and Culture, Archaeology Branch, Victoria.

Brolly, Richard, and Brian Pegg

1998 ***Archaeological Investigations in Ucluelet Traditional Territory***. HCA 1995-048. Prepared by Arcas Consulting Archaeologists LTD

Inglis, R.I, and J.C Haggarty

1986 ***Pacific Rim National Park Ethnographic History***. Report on File, Western Canada Services Centre, Parks Canada, Archaeological Services, Victoria, BC.

Kammler, Henry

2016 ***NCN Barkley Sound Dictionary***. Work in Progress.

Pojar, Jim, and Andy Mackinnon

2004 ***Plants of Coastal British Columbia***. Ministry of Forests and Lone Pine Publishing. Vancouver, BC.

Stryd, Arnoud H.

1997 ***Culturally Modified Trees of British Columbia: A Handbook for Identification and Recording of Culturally Modified Trees***. Ministry of Forests, Vancouver Forest Region, Nanaimo.

November 3rd, 2024

Incorporation No: BC 1319635
2200, 885 Georgia St West, Vancouver, British Columbia, CA V6C 3E8

Attn:

Duane Lawrence, CAO
Bruce Greig, Director of Community Planning
John Towgood, Municipal Planner
District of Ucluelet

RE: 221 MINATO ROAD – DEVELOPMENT PERMIT APPLICATION – REVISION A

Dear Duane, Bruce and John,

ERIF Economic Restoration Infrastructure Fund Inc is pleased to provide the following supplementary documents for the Development Permit for 221 Minato lodged on September 20, 2024.

To supplement the original application, this lodgement provides this newly lodged final report:

Archaeological Preliminary Field Reconnaissance Report for 221 Minato Rd by Yuułu?it?ath Government - Ucluelet First Nation (UFN) Department of Culture, Language and Heritage:
https://drive.google.com/file/d/1OAKJS3KbL57G_KO_bDRihN2svfxqSKLt/view?usp=sharing

With the lodgement of this report the Development Permit Checklist is complete.

Additional Flood Report

In addition to the site-specific Flood Report already supplied, ERIF aim to lodge the further Flood Study and Flood Assurance Statement in the next 1-2 weeks. Currently being finalised through an Independent Review, the Flood Hazard Assessment, Risk Assessment Study with Risk Management Plan, and the Flood Assurance Statement will be uploaded to this folder when received:

<https://drive.google.com/drive/folders/1ytjEWqk6VT2PAzUVmQ1-Vc9qkq9C5JVJ?usp=sharing>

Addition of Eleventh Waterfront Home in Lot 3: In the process of refining the emergency management for Lot 3 with the flood consulting engineers and Ucluelet's Fire Chief, it was agreed that changing the placement of the tenth home was required and an eleventh home could be added to the north of the site. The Development Permit application has been updated to reflect this.

Updates to existing lodged reports:

Where required to reflect the 11th home in Lot 3, minor changes have been made to the draft proposals as follows:

- a. Stamped Masterplan provided by Formosis including Zoning Analysis: *updated to reflect the eleventh home in Lot 3.*
- b. Overview of Development: *updated pages 1, p5 data table, p7 and p8 masterplan images, p9 with updated image and additional strata title details, p10 with updated image.*
- c. Appendix A - Draft Bylaw Revisions. *Updated pages: p1, p5 Project Data Table, p7 Image, p8, p10 to reference 11 waterfront homes on Lot 3. Updated p9 with precise terminology for strata title types.*
- d. Appendix B - Draft Covenant Restrictions. *Minor change to update image on p12.*
- e. Appendix C - Draft Subdivision Plan noting Easements and Covenants: while the subdivision boundaries have not changed, there is a minor repositioning of the entry road to

accommodate the homes to the north of Lot 3. We have also taken this opportunity to respond to the District of Ucluelet's queries on title and Strata types in more detail with input from our consulting surveyor team by *updating the cover letter Appendix C from our DP lodgement below.*

- f. Appendix D - Draft Phased Development Plan & Phased Development Agreement. *Minor change to update images on p18 and p19.*

Where lodged documents have been updated, any in-text updates have been marked in *blue italics* so they can be easily identified, and all changes have been detailed in the table below.

Ongoing Collaborations: These works to be continued and updated:

- A. Flood Hazard Assessment, Flood Risk Assessment and Flood Assurance Statement by Coastal Engineers Kerr Webb Leidel to follow within 1-2 weeks.
- B. Confirmation of off-site servicing scope and design in coordination with Civil Engineers and District of Ucluelet.
- C. Detailed design of tsunami resilient structures and retaining walls for Build Permit in collaboration with Coastal, Structural and Geotechnical engineering teams.
- D. Early Works Permit Application following approval of Development Permit and Temporary Use Permit.

We thank you again for doing all you can to continue to expedite processing our Development Permit application lodged September 21st and Temporary Use Permit lodged September 30th, while we await the additional Flood report. Please reach out if there are any further questions we can assist with.

We look forward to presentation of the application to Council for approval at your earliest convenience so we can get underway with bringing this development to life for the benefit of the Ucluelet community and it's future economic and social growth.

In partnership,



Joshua Hunt

CEO – ERIF Sustainable Solutions

APPENDIX A - Log of Updated Documents – November 3, 2024

This is the listing and direct links to the updated documents to reflect the Masterplan update to eleven homes on Lot 3, supplementary archaeological and link to upload requested flood reports.

#	Lodged Document	Document Link
	Application	
	Rezoning and Subdivision	
7	Subdivision Lot Layout provided by Formosis <ul style="list-style-type: none"> a) Application Drawings b) Site context c) Topographical and geographical features d) Property lines, setbacks, proposed buildings and structures e) Grading and rainwater plans 	<p>SUPERSEDED Formosis subdivision lodged September 2024: https://drive.google.com/file/d/1XxXeZBfdcNPsp3LC0Yy-MTeEtQYw-ODq/view?usp=sharing</p> <p>UPDATED Formosis subdivision lodged November 3, 2024: https://drive.google.com/file/d/111xBx_FBMP-z373xTL7SZp7YUYa_EtHn/view?usp=sharing <i>The subdivision lot lines are unchanged, but the northernmost road of Lot 3 has been repositioned, two homes added to the north and one home removed from the south of Lot 3.</i></p>
	Development Permit	
9	Overview of Application	<p>SUPERSEDED Overview of Application lodged September 2024: https://www.canva.com/design/DAGO4rcs5fs/hZRtm0s7iluBJicN28-ICQ/view?utm_content=DAGO4rcs5fs&utm_campaign=designshare&utm_medium=link&utm_source=editor</p> <p>UPDATED Overview of Application lodged November 3, 2024: https://drive.google.com/file/d/111xBx_FBMP-z373xTL7SZp7YUYa_EtHn/view?usp=sharing <i>Updated pages: p1, p5 Project Data Table, p7 Image, p8, p10 to reference 11 waterfront homes on Lot 3. Updated p9 with precise terminology for strata title types.</i></p>
10	Masterplan provided by Formosis including Zoning Analysis	<p>SUPERSEDED Masterplan lodged September 2024: https://drive.google.com/file/d/1XxXeZBfdcNPsp3LC0Yy-MTeEtQYw-ODq/view?usp=sharing</p> <p>UPDATED Masterplan lodged November 3, 2024: https://drive.google.com/file/d/111xBx_FBMP-z373xTL7SZp7YUYa_EtHn/view?usp=sharing <i>Updated A001, A201, A202, A203 to show 11 waterfront homes on Lot 3.</i></p>
	Supporting Consultant Reports	
20	Archaeological Report by Yuuľu?iif?ath Government - Ucluelet First Nation (UFN) Department of Culture, Language & Heritage	<p>SUPERSEDED Interim Archaeological Report lodged September 2024: https://drive.google.com/file/d/1XtHRCnwaJWRMF8kmxp_08dK9YLIHLUIQ/view?usp=sharing</p> <p>UPDATED Final Archaeological Report lodged November 2024: https://drive.google.com/file/d/1OAKJS3KbL57G_KO_bDRihN2svfxqSKLt/view?usp=sharing</p>

25	Flood Hazard Report and Flood Assurance Statement by KWL (2024)	Existing Link for upload: https://drive.google.com/drive/folders/1ytiEWqk6VT2PAzUVmQ1-Vc9qkq9C5JVJ?usp=sharing Updated to provide Flood Hazard Assessment, Flood Assurance Statement for Lots 1,2,4,5. The Risk Assessment Report and subsequent Flood Assurance Statement for Lot 3 will be added to this link as soon as available.
Draft Proposals for Review		
A.	Draft Bylaw Revisions	SUPERSEDED Draft By Law Revisions lodged September 2024: https://docs.google.com/document/d/1FSbn8FNnsy3qjSzUh1mavNRluIw6pfiw/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true UPDATED Draft By Law Revisions lodged November 2024: https://docs.google.com/document/d/1MDtgiGVJuMb7iFi4WW6Dm6-iyKWgLxbS/edit?usp=sharing&oid=104541964235100947456&rtpof=true&sd=true <i>Updated as follows:</i> <ul style="list-style-type: none"> • p2 image • p3 Table 6.3.1 amended to show 11 waterfront homes, • p3 table CD6.4 amended to show new lot coverage for Lot 3 with extra home, • p3 CD6.6 amended to allow additional 1m height for waterfront homes to accommodate potential increase in habitable flood level, • p4 CD6.7 table amended to front and rear setback for Lot 3 homes with updated road position.
B.	Draft Covenant Restrictions	SUPERSEDED Draft Covenant Restrictions lodged September 2024: https://drive.google.com/file/d/196Z9trECIEt9WnyBcKZuQgTD4qnn8dmt/view?usp=sharing UPDATED Draft Covenant Restrictions lodged November 2024: https://drive.google.com/file/d/1YrM8Ccoa1BdRqj_AOPr3BUPpUZOGUxy/view?usp=sharing <i>Page 12 Appendix 1 updated with image of November 3 v2 Masterplan</i>
D.	Draft Phased Development Plan & Phased Development Agreement – refer to appendix F	SUPERSEDED Draft Phased Development Agreement lodged September 2024: https://docs.google.com/document/d/1L25VN9kXSXqjSEF-gNXroewtg_xWzuUS/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true UPDATED Draft Phased Development Agreement lodged November 2024: https://docs.google.com/document/d/1F6KqgGjTf6wa5FhHMK18QL1I_gTOKHnzJ/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true <i>Page 18 Schedule B Masterplan updated with image of November 3 v2 Masterplan. Page 19 Phasing Plan updated with v2 image.</i>

APPENDIX B – Updated Log of Current Application – All Lodged Documents with November 3 Links

This is the listing and direct links to all documents outlined in the Development Application Checklist and Covenant Restrictions, noting the new links updated on November 3, 2024:

#	Lodged Document	Document Link
Application		
1	Application Form	https://drive.google.com/file/d/1vUqBnnZlk9T7IKUDEbkSTFBuzLGQRXO9/view?usp=drive_link
2	DOU’s Development Permit Application Checklist	https://drive.google.com/file/d/1t9luV59fluXCRDZYG0L6FZO2L_wLrzH2/view?usp=sharing
3	Title Search & State of Title Certificate	Title Search: https://drive.google.com/file/d/161dYcijTeTela3HbKpwQ1fla7C3Kzyj/view?usp=sharing State of Title: https://drive.google.com/file/d/161dYcijTeTela3HbKpwQ1fla7C3Kzyj/view?usp=sharing
4	Site Disclosure Statement	https://drive.google.com/file/d/1cDqHcxmbzPI4nUuWI59CYGt9trHNTfa5/view?usp=drive_link
5	Written Statement of Intent	https://drive.google.com/file/d/1p17QF4qN1KTZ2DTdGl2GyoleCvzZoL-ed/view?usp=sharing
Rezoning and Subdivision		
6	Municipality Policies List and Links	https://docs.google.com/document/d/1HbGalTgZwUJgGnLElzP3i7kQ1G_Duj6/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true
7	Subdivision Lot Layout provided by Formosis f) Application Drawings g) Site context h) Topographical and geographical features i) Property lines, setbacks, proposed buildings and structures j) Grading and rainwater plans	a - d. Formosis ‘Link Updated November 3’: https://drive.google.com/file/d/111xBx_FBMP-z373xTL7SZp7YUYa_EtHn/view?usp=sharing e. Herold Engineering: https://drive.google.com/file/d/13JZlm9w2sKTcf4csR5ke-Bdf_7eAFbSU/view?usp=sharing
8	Draft Subdivision Plan provided by Williamson & Associates Professional Surveyors	https://drive.google.com/file/d/1i4nAUxAHJUudN1skFdLn3yqkLFs1EnxK/view?usp=sharing .DWG: https://drive.google.com/file/d/1HICp6L4enUgaSBbqww_mPfc3QmbyyS-/view?usp=sharing
Development Permit		
9	Overview of Application	https://www.canva.com/design/DAGUhlh4VCI/ZZ_JJzAcdrJlz11C0c9hUg/view?utm_content=DAGUhlh4VCI&utm_campaign=designshare&utm_medium=link&utm_source=editor – Link Updated November 3

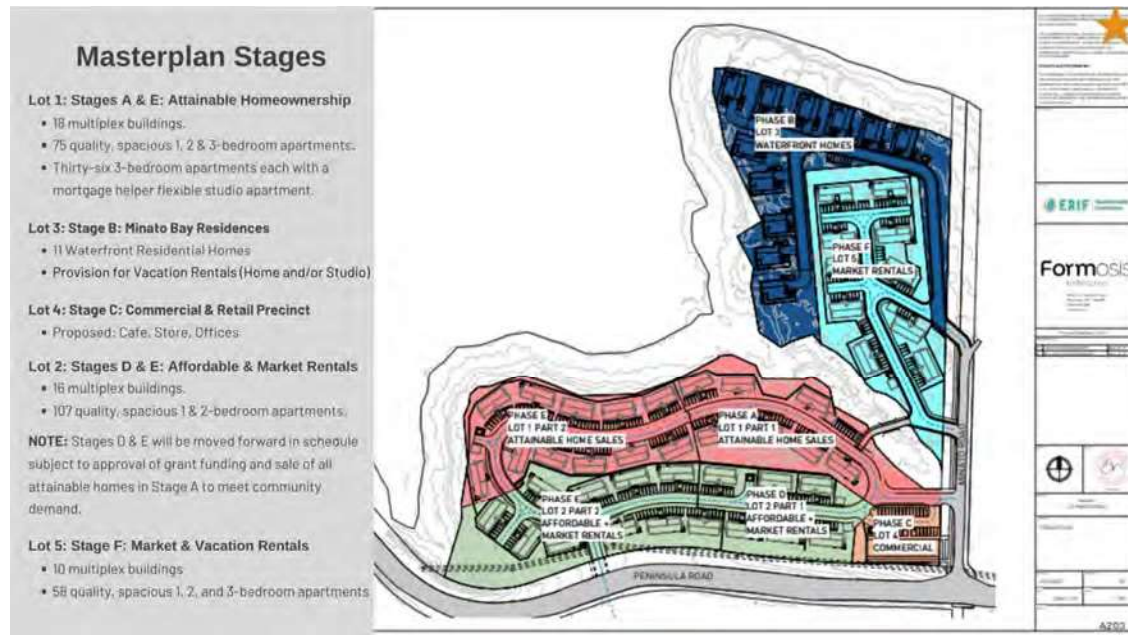
10	Masterplan provided by Formosis including Zoning Analysis	Formosis 'Link Updated November 3': https://drive.google.com/file/d/111xBx_FBMP-z373xTL7SZp7YUYa_EtHn/view?usp=sharing
11	Built Forms – Eagle 1 Plans	https://drive.google.com/file/d/1ZzyOd56F2DwQWU-iyq_Qg-B1JcQy8uiT/view?usp=sharing
12	Built Forms – Eagle 3 Plans	https://drive.google.com/file/d/1E0LOkhqNqZtpxi0VGLwLzfWqSP-z1OeW/view?usp=sharing
13	Built Forms – Waterfront Homes	https://drive.google.com/file/d/1jmK4k2thvZ0g9WD1KylsnLulrgoA0QYB/view?usp=sharing
Supporting Consultant Reports		
14	Environmental Report provided by Aquaparian	Drive for report added: https://drive.google.com/drive/folders/1PhoU17Ksa3SZQuO-ODkmXPkfmnAhtBXw?usp=sharing
15	Tree Report provided by Joe Carlaozzi	https://drive.google.com/file/d/1ihxdH2FO7UKQbRdExk8G1WR0S-zcVDsM/view?usp=sharing
16	Draft Servicing Plan prepared by Herold Engineers	https://drive.google.com/file/d/13JZlm9w2sKTcf4csR5ke-Bdf_7eAFbSU/view?usp=sharing
17	Stormwater Management Servicing Plans by Herold Engineers	https://drive.google.com/file/d/13JZlm9w2sKTcf4csR5ke-Bdf_7eAFbSU/view?usp=sharing
18	Interim Sewage Solution Design Proposal prepared by Creus Engineering	https://drive.google.com/file/d/1w0XEzLsX_o6TgZJblmGfE4PvjZZmzFtW/view?usp=sharing
19	Traffic Impact Report by Watt Consulting	https://drive.google.com/file/d/1-0u5454ShDO8kuLuytizHks6dQrZB1gn/view?usp=sharing
20	Archaeological Report by Yuuľu?if?ath Government - Ucluelet First Nation (UFN) Department of Culture, Language & Heritage	https://drive.google.com/file/d/1OAKJS3KbL57G_KO_bDRihN2svfxqSKLt/view?usp=sharing – Link Updated November 3
21	Landscaping Plan by MacDonald Gray	https://drive.google.com/file/d/1L4BY5JthEyqVLaAWnju8Qr7HLBEvBPZa/view?usp=sharing
22	Geotechnical Reports by Geopacific	March 2024: https://drive.google.com/file/d/1Pbkaz4obVlyggOAO9nJGfJZ4hxmgjEUt/view?usp=sharing Sep 2023: https://drive.google.com/file/d/1J0oDoyHva3TmDft3xWAPN7YuUTuau3cu/view?usp=sharing
23	Site Specific Flooding Coastal Report by Ebbwater (2022)	https://drive.google.com/file/d/1qxYSLu61D1jkLij--2hC-byi1nmPg6dE/view?usp=sharing
24	Tsunami resilient building design by Stantec Hydrotechnical and Structural Engineers (July 2024)	https://drive.google.com/file/d/1zUabbA3_XKyv5khMR5CAPWOKTAfF-9ka/view?usp=sharing

25	Flood Hazard Report and Assurance by KWL (2024)	KWL Flood Hazard Assessment, Lot 3 Risk Assessment, Flood Assurance Statement across all lots – to be uploaded mid November: https://drive.google.com/drive/u/2/folders/1ytiEWqk6VT2PAzUVmQ1-Vc9qkq9C5JVJ
26	Contamination Screening Report by Thurber (2023)	https://drive.google.com/file/d/15xVxNZ2fOsMVtTg_W-UQHXRScKRP7Lt/view?usp=sharing
Draft Proposals for Review		
A.	Draft Bylaw Revisions	https://docs.google.com/document/d/1MDtgiGVJuMb7iFi4WW6Dm6-iyKWgLxbS/edit?usp=sharing&oid=104541964235100947456&rtpof=true&sd=true – Link Updated November 3
B.	Draft Covenant Restrictions	Draft Proposal for Review Satisfaction of Existing Covenant Restrictions: https://docs.google.com/document/d/1-6VDI-UTIqCNTDSVtkE96pyVwDtyy5rS/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true 2024 Draft Covenant Restrictions Link Updated November 3: https://drive.google.com/file/d/1YrM8Ccoa1BdRqj_AOPr3BUPpUZOGUxy/view?usp=sharing
C.	Draft Subdivision Plan noting Easements and Covenants – refer to appendix D	https://drive.google.com/file/d/1i4nAUxAHJUudN1skFdLn3yqkLFs1EnxK/view?usp=sharing <i>Appendix D updated in letter below.</i>
D.	Draft Phased Development Plan & Phased Development Agreement – refer to appendix F	https://docs.google.com/document/d/1F6KqgGjTf6wa5FhHMK18QL1IgT0KHnzJ/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true – Link Updated November 3

**UPDATED APPENDIX C – Proposed Environmental Development Permit - Draft Subdivision Plan
noting Easements and Covenants**

Proposed Subdivision

Being submitted concurrently with the zoning amendment is an application to subdivide the remaining 16.57 acres, following the 8.85 acres park dedication, into five lots. The southern portion of the site will focus on attainable home ownership (Lot 1), and affordable rentals (Lot 2) with a commercial space to the corner of Minato and Peninsula Roads (Lot 4). The northern portion of the site is intersected by the central stream which has been provided to the District of Ucluelet as Parkland Dedication. This portion will accommodate *eleven* waterfront homes (Lot 3) and multiplex units which will be strata titled and sold, or where possible held for market rental.



Legal Title

LOT 1: PHASED BUILDING STRATA (Attainable Homes)

This lot will have zero lot setback and will have 'construction stages' of Stage 1 (29 apartments/7 builds) then Stage 2 (11 buildings). The associated section of the private road will be constructed in conjunction with each Stage and each has it's own emergency vehicle access provisions. The lot will also have 'Strata Phases' in 18 phases as each building will be a phase, and when each multiplex completes, it will be surveyed and can be sold as attainable house and be occupied.

LOT 2: FEE SIMPLE TITLE (Affordable Rentals)

This does not require a municipal road as it has a frontage to Peninsula Rd. No need for this to be Bare Lot Strata as all rentals being held in one title/portion of land by one owner as affordable rentals.

LOT 3 FEE SIMPLE TITLE ACCESSED BY COMMON LOT (or Bare Land Strata) Waterfront Homes

This lot proposed to use Fee Simple Subdivision for 11 waterfront homes with 'access by common lot' (private entry road) under a Home Association. This model is more common in the interior and is

under s312 of the Land Title Regulation and permits access via shared interest in common lot (private road entry). An alternative title if this is not supported can be Bare Land Strata.

LOT 4: BUILDING STRATA (Commercial)

CS2 zoned commercial build with office space above and retail below, in four strata titled sections.

LOT 5: PHASED BUILDING STRATA (Market Multiplex)

This will have 'Strata Phases' in 10 phases as each building will be a phase, and when each multiplex completes construction it will be surveyed and can be occupied, and sold if not retained for rental.

Commercial Zoned Lot 4

This is the proposed existing zoning to be used for Lot 4.

CS-2 Zone – SERVICE COMMERCIAL

This Zone is intended for convenient shopping opportunities for those travelling in vehicles and those commercial uses which, due to their service nature, may require larger lot areas. Vibrancy is added with mixed uses including residential and tourist commercial accommodation.

CS-2.1 Permitted Uses:

CS-2.1.1 The following uses are permitted, but secondary permitted uses are only permitted in conjunction with a principal permitted use.

- (1) Principal:
 - (a) Hotel
 - (b) Motel
 - (c) Mixed Commercial/Residential
 - (d) Mixed Commercial/Resort Condo
 - (e) Office
 - (f) Tourist Information Booth
 - (g) Retail, including supermarket
 - (h) Convenience Store
 - (i) Restaurant
 - (j) Bistroy/Café
 - (k) Take Out Food Services
 - (l) Personal Services
 - (m) Commercial Recreation
 - (n) Studio
 - (o) Community Use
- (2) Secondary:
 - (a) Accessory Residential Dwelling Unit

CS-2.1.2 For Peninsula Road and Main Street, and for properties fronting either, Mobile Vending is also a principal permitted use.

CS-2.2 Lot Regulations

CS-2.2.1 Minimum Lot Size:

- (1) Hotel: 1,000 m² (¼ acre)
- (2) Motel: 1,000 m² (¼ acre)
- (3) All other uses: 800 m² (8,600 ft²)
- CS-2.2.2 Minimum Lot Frontage: 15 m (50 ft)
- CS-2.2.3 Minimum Lot Width: N/A
- CS-2.2.4 Minimum Lot Depth: N/A

CS-2.3 Density:

- CS-2.3.1 Maximum Number
 - (1) Mixed Commercial/Residential: 4 residential dwelling units per 1,000 m² (¼ acre) lot area
 - (2) Accessory Residential Dwelling Unit: 1 per 250 m² (2,700 ft²) non-residential gross floor area
- CS-2.3.2 Maximum Floor Area Ratio: 0.60
- CS-2.3.3 Maximum Lot Coverage: 30%

CS-2.4 Maximum Size (Gross Floor Area):

- CS-2.4.1 Principal Building:
 - (1) Restaurant: 40 seats or 167 m² (1,800 ft²)

CS-2.6 Minimum Setbacks:

CS-2.6.1 The following minimum setbacks apply, as measured from the front lot line, rear lot line and side lot line(s), respectively:

	(a) Front Yard Setback	(b) Rear Yard Setback	(c) Side Yard – Interior Setback	(d) Side Yard – Exterior Setback
(1) Principal	0 m (0 ft)	3 m (10 ft)	1.5 m (5 ft)	3 m (10 ft)
(2) Accessory	15 m (50 ft)	1.5 m (5 ft)	1.5 m (5 ft)	3 m (10 ft)

CS-2.6.2 In addition, the minimum yard setback of 4.5 m (15 ft) applies to all lot lines abutting Peninsula Road.

Easements

Positive and Negative Easements will be granted between the lots as follows, in the form of a Restrictive Covenant on title after settlement. An easement is the right to the use of or a right to restrict the use of the land of another person in some way. A positive easement gives the owner as right to do a positive act on another person’s land. A negative easement imposes restriction on the owner. The easement always accommodates the dominant tenement e.g. a servient owner grants the dominant owners a right of way over the servient owner’s property,

Positive covenants:

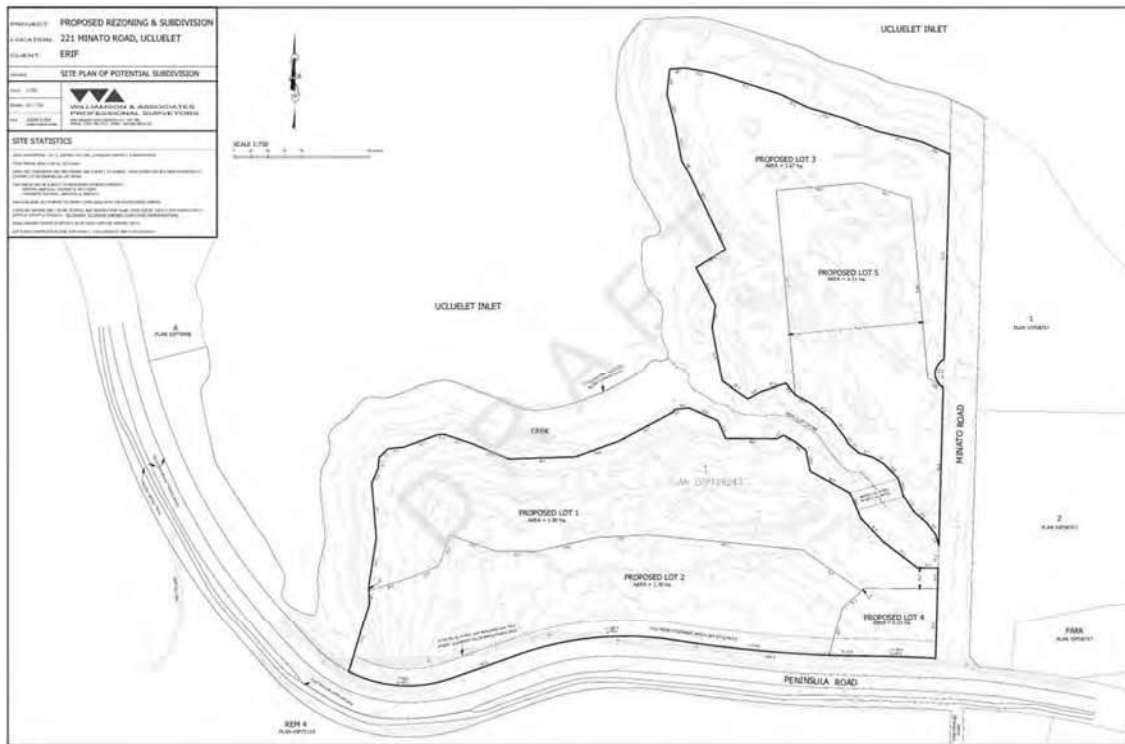
- Lot 1 subservient to Lot 2 and Lot 4 by permitting services to pass through underground and sharing the roadway.
- Lot 2 subservient to Lot 4 and Lot 1 by permitting services to pass through underground and sharing the roadway.
- Lot 4 subservient to Lot 2 and Lot 1 by permitting services to pass through underground and sharing the roadway.
- Lot 3 subservient to Lot 5 for services and right of way to pass through.
- *Lot 5 subservient to Lot 3 for pedestrian egress right of way, and Lot 3 subservient to Lot 5 for same.*

Sewer and Water Metering

Despite the right of ways exchanged, this is a fairly simple subdivision as each lot has its own water and sewer access. The interim sewage storage solution was acknowledged as more suitable to be shared with all back to one lot.

Request for Variance on Minimum Street Frontage

Lot 1 requires a variance against usual bylaws to permit a narrow street frontage of minimum 10m though which services and driveway can run to unlock this hidden land.



APPENDIX D – Draft Phased Development Plan and Draft PDA Agreement

We are developing homes that seamlessly integrate with Ucluelet's stunning natural surroundings. This project is more than just housing—it's a master-planned community where sustainable, affordable homeownership meets modern design, benefiting local families and workers. This initiative will leave a lasting legacy, strengthening and enhancing the resilience of Ucluelet for generations to come.

Concept and Environmental Harmony:

The architecture is inspired by the coastal beauty of Ucluelet, using natural wood finishes, earthy tones, and expansive windows to bring the outdoors inside. Our homes are designed to blend into the landscape, preserving trees and green spaces, while reflecting the serene environment that surrounds them. This creates a peaceful living experience that aligns with nature.

Quality Building Technology and Materials:

Each residence is constructed with sustainable building materials and innovative techniques to ensure minimal environmental impact and high energy efficiency.

A Commitment to Sustainability and Community:

The apartments offer thoughtfully designed 1, 2, and 3-bedroom units with open-concept layouts to maximize space and light. Three-bedroom units include self-contained studios that can serve as rental units, helping to offset living costs.

Outdoor living spaces, including decks and patios, allow residents to enjoy the natural environment. The community plan incorporates green spaces, recreational areas, and bike paths that link to Ucluelet's wider trail network. Amenities like picnic areas, natural seating, and storage for kayaks and surfboards encourage an active, outdoor lifestyle.

Designed to foster both environmental stewardship and a sense of community. The integration of communal areas and paths ensures that residents not only live in harmony with nature but also with each other.



Stages	Built Form & Type	Title & Conditions
Stage A	LOT 1: PART 1 <ul style="list-style-type: none"> Attainable Home Sales - Below-Market Homeownership 7 Multiplex Buildings 29 Keys 2 x 1-bedroom (15 x 3-bedroom) 14 x 3-bedroom <p>Note: Services civic, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Phased Building Strata Title Construction Stage Part F for 7 buildings/ 29 apartments. Six Eagle 1 & Three Eagle 3 each Eagle constructed as a Strata Phase so each building can be completed then surveyed and occupied. Note: Studios not to be separated or rented as will be strata titled and sold in 3-bedroom apartments, but studios can be long term leased.
Stage B Concurrent with Stage A	LOT 3: Waterfront Homes <ul style="list-style-type: none"> 11 x Waterfront Family Home accessed by common lot being private road entry <p>Note: Services civic, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Fee Simple Subdivision (Home Association) or Bare Land Strata Designed with option for intergenerational living with self-contained studio available for long-term and/or short-term rentals. CONDITION: Stage A construction concurrent with Stage B.
Stage C	LOT 4: Commercial Precinct <ul style="list-style-type: none"> 600m2 Ground Floor Retail - Cafe, Store, Etc. 600m2 Upper Floor Offices 	<ul style="list-style-type: none"> Building Strata Title: Commercial Two office areas above, two retail areas below NOTE: Phases D and E may be brought forward if government funding available and demand for rentals and sales is fully taken up.
Stage D	LOT 2 - PART 1: <ul style="list-style-type: none"> Affordable Rentals - 50% of Keys Market Rentals 6 Multiplex Buildings 39 Keys <p>Note: Services civic, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Fee Simple Subdivision - Held on one title for affordable rentals. CONDITION: Subject to government funding and approval timing. Three Eagle 1 & Two Eagle 3 Same floor plan but may be adaptably leased as 2-bedroom plus separate studio - not as a 3-bedroom.
Stage E	LOT 1: PART 2 <ul style="list-style-type: none"> Attainable Home Sales - Below-Market Homeownership 11 Multiplex Buildings 46 Keys 4 x 1-bedroom (30 x 2-bedroom) (2 x 3-bedroom) Note: 3-bedroom apartments include a studio apartment which can be long term leased separately, but are not counted separately. Construction Stage Part 2 for 11 buildings/ 46 apartments. Studio apartments available for long-term rental. LOT 2 - PART 2: <ul style="list-style-type: none"> Affordable Rentals - 30% of Keys Market Rentals 10 Multiplex Buildings 49 Keys 36 x 1-bedroom (32 x 2-bedroom) <p>Note: Services civic, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> LOT 1: PART 2 - Phased Building Strata Title Nine Eagle 1 & Two Eagle 3 each Eagle constructed as a Strata Phase so each building can be completed then surveyed and occupied. Note: 3-bedroom apartments include a studio apartment which can be long term leased separately, but are not counted separately. Construction Stage Part 2 for 11 buildings/ 46 apartments. CONDITION: Subject to and commencing after Attainable Homes in Lot 1 Part 1 are sold out. LOT 2 - PART 2 Fee Simple Subdivision - Held on one title for affordable rentals. CONDITION: Subject to government funding and commencing when grant funding received and Lot 2: Part 1 fully leased. NOTE: Same floor plan but may be adaptably leased as 2-bedroom.
Stage F	LOT 5: Market Apartments: <ul style="list-style-type: none"> Market rentals and sales. 10 multiplex buildings. 39 Keys. <p>Note: 22 x 1-bedroom (15 x 2-bedroom) 14 x 3-bedroom will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Phased Building Strata Title Initial temporary use as Construction Facility. Apartments for long-term and short term vacation rentals or sale. Ten multiplex buildings each constructed as a Strata Phase so each building can be completed then surveyed and occupied.

Bylaw 1350 2024 Phased Landscaping Agreement

The building and all associated works, including but not limited to civil, stormwater, services, roadworks, retaining and planting will be only obligated to be delivered concurrently with the stage that is being constructed.

Phased Landscape

- 22 Plans may be approved for large-scale developments at the discretion of the Manager to enable the completion of the landscape plan in phases and the submission of the related security deposit at each phase. The Applicant is required to request a phased approach to the execution of the landscape plan at the time of Development Permit application, clearly identifying on the submitted landscape plan the proposed phases and related cost estimates for each phase.

[Proposed PDA Agreement – Link Updated November 3](#)

CLICK LINK ABOVE TO OPEN DRAFT AGREEMENT

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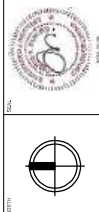
CONTRACT



Formosis Architecture
 210011 Columbus Street
 Yonkers, NY, USA 10550
 formosis.ca

Project Number: 2412

DATE	DESCRIPTION
2024-10-25	ISSUED FOR PERMITTING
2024-10-25	REVISIONS FOR PERMITTING



MINATO
 221 MINATO ROAD

COVER SHEET

CLIENT	UCLULEET
DATE	2024-10-25

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Appendix C - Report 24-129



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DATE: 10/20/2024



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PROJECT NUMBER:	2412
DATE:	10/20/2024
SCALE:	AS SHOWN
REVISIONS:	01



PROJECT: MINATO
 221 MINATO ROAD

DATE: 2024-10-25
 SCALE: 1" = 750'

PROJECT: MINATO
 221 MINATO ROAD

DATE: 2024-10-25
 SCALE: 1" = 750'

PROJECT: MINATO
 221 MINATO ROAD

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 CHECKED BY: UCLULET
 DATE: 2024-10-25
 SCALE: 1:750
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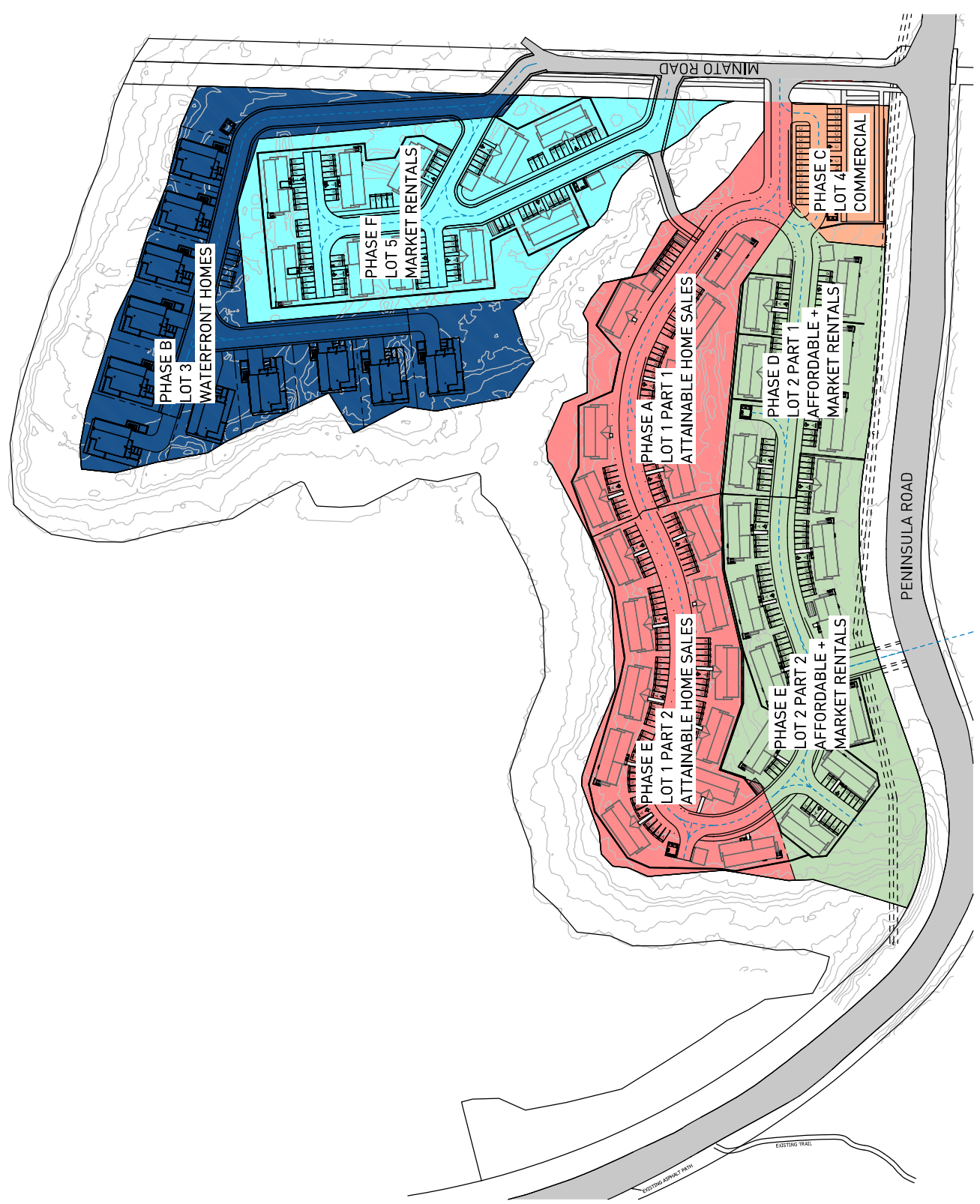
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MINATO ROAD
 221 MINATO ROAD

STAGING PLAN



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CONSULTANTS



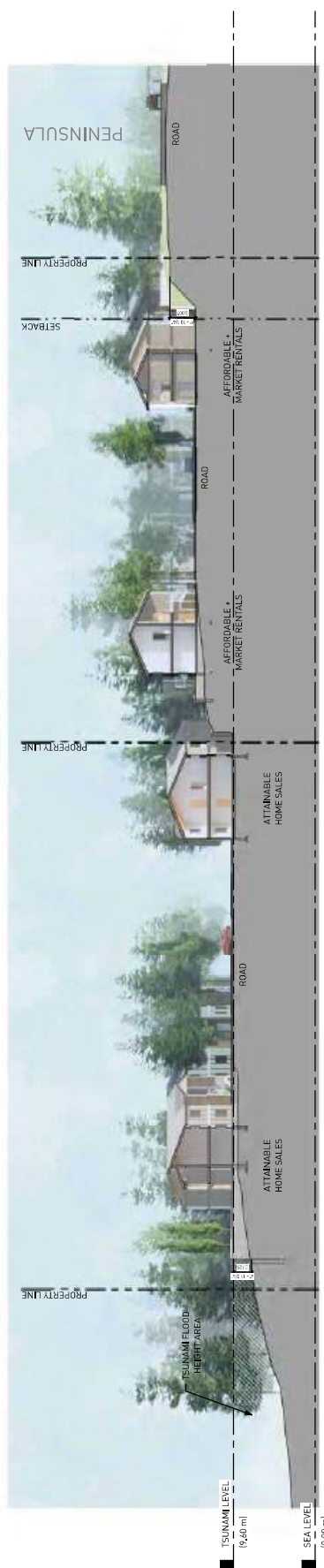
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ISSUED FOR PERMITS
DATE: 2024-10-25



PROJECT: MINATO 221 MINATO ROAD
DATE: 2024-10-25
SCALE: 1/8" = 1'-0"
PROJECT NO: 2412
CLIENT: UCLULET
LOCATION: UCLULET
DATE: 2024-10-25
SCALE: 1/8" = 1'-0"
PROJECT NO: 2412

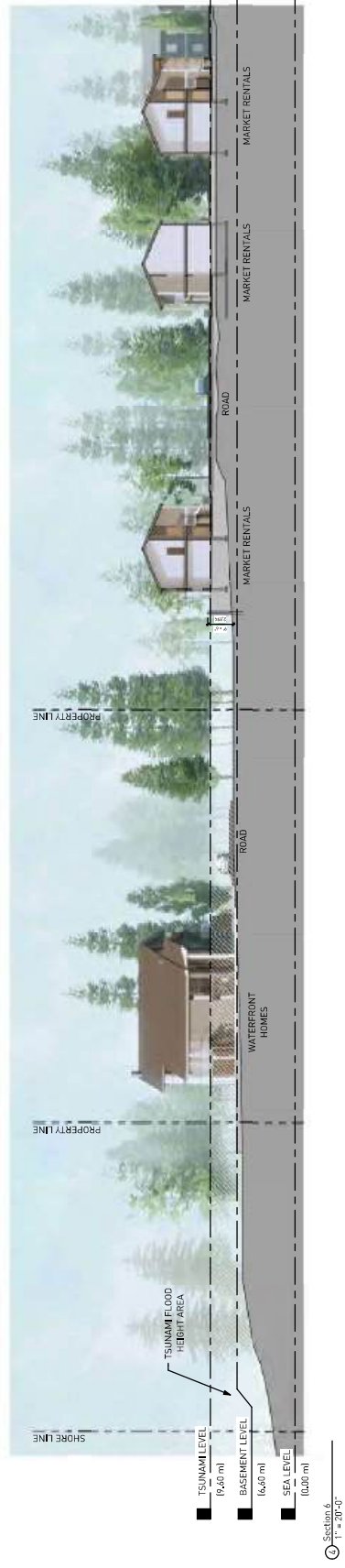
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Section 2
1/8" = 1'-0"



Section 3
1/8" = 1'-0"



Section 4
1/8" = 1'-0"

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DATE: 10/20/2022



DATE: 10/20/2022



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Yonkers, NY 10585
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Project Number: 2412

DATE: 10/20/2022	SCALE: 1/8"=1'-0"
STATUS: FOR REVIEW	DATE: 10/20/2022
BY: ARCHITECT	DATE: 10/20/2022



PROJECT: MINATO
221 MINATO ROAD

DESCRIPTION: AERIAL VIEW OF SITE LOOKING TOWARDS UCCULET

CLIENT: UCCULET

DATE: 2022-10-20

PROJECT NO.: 2412

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DATE: 10/20/2024



210011 Columbus Street
Vermont, VT 05495
formosis.ca

Project Number: 2412
21 ISSUED FOR PERMITTING
22 REVISIONS FOR PERMITTING
23 REVISIONS FOR PERMITTING



MINATO
221 MINATO ROAD

AERIAL VIEW OF COMMON AREA
PARK

DATE: 2024-10-25

PROJECT NO. 2412

1802



Bruce Greig

From: Joshua Hunt <joshua.h@erif.ca>
Sent: October 8, 2024 7:27 AM
To: Bruce Greig
Cc: Juliette Green; Jodie Thompson; sarah.h@igvnexus.com; Duane Lawrence; John Towgood; James Macintosh
Subject: Re: 221 Minato Road
Attachments: Reply to Bruce 1- 20241007.docx

[External]

Hi Bruce

We appreciate the opportunity to provide clarification on the specific components mentioned in our proposal.

I thought the easiest way to answer the questions is write my responses in blue on the attached word document that shows your questions and then our answers to them.

We are committed to transparency and would be happy to provide further documentation or meet to discuss these details in greater depth.

Thank you again for your support and guidance throughout this process.

Kind Regards,

Joshua Hunt | CEO

📞 (236) 507 - 4309 | ✉ joshua.h@erif.ca | 🌐 www.erif.ca



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On Fri, Oct 4, 2024 at 12:19 PM Bruce Greig <bgreig@ucluelet.ca> wrote:

Hi Joshua, Juliette and Jodie;

Thank you for submitting materials for development applications at 221 Minato Road. We have begun reviewing the materials submitted to date. We'll circulate portions for external reviews when all the pieces are in; meanwhile we've started to review the package.

We have not reviewed all the details of the various consultant reports yet.

A few areas stand out where clarification is needed, and we want to put them to you as early as possible.

A. Housing mix and affordability:

The application materials submitted propose leaving the specifics of affordability to a later date. While it is understandable that a developer wants flexibility, there is also a need to clearly disclose what the landowner / applicant will commit to - so that the public can form a clear understanding when commenting to Council in a public hearing on the bylaws. While we can process the application based on the information provided, it would be strengthened by being clearer on the unit mix, rent / price and eligibility (income, residency, etc.). Some things to consider:

ERIF's legal structure is composed of a company and not-for-profit with a mandate to provide restorative benefits to communities, whether that be in the supply of affordable and attainable housing or the creation of green energy sources.

The reason at this early stage, the exact levels of attainable housing have not been outlined, are that there are still a lot of costs in this project that are yet to be ratified.

One such unknown cost is from the DoU itself. As you would understand, it is hard (actually near impossible) for any entity that plans to sell and rent apartments at cost price to the community, to outline a sales price when the DoU has not told us what the costs of connecting to town services will be. In addition, there are other costs, like building the retaining wall for the purposes of lifting the construction levels to meet new Tsunami flood levels that are still under consultation with the required levels and then the required engineering still being worked through.

As such, it would be crazy to put ERIF (an organization established for the purpose of doing good) at this early stage, into a position of potential bankruptcy by enforcing a commitment to supply a certain number of attainable homes, at a certain price when we are still working on solidifying what the project costs will be. Particularly when management of costs is the only way that affordable housing can actually be provided.

- The OCP bylaw Policy 3.143 requires that rezoning applications involving more than 5 units dwelling units shall provide a statement describing the affordable housing components achieved by the proposal.

Lot 2 of the project, with 107 apartments will be financed by CMHC and/or BC Housing under their affordable rental scheme. CMHC funding requirements dictate that a minimum of 30% of the 107 apartments in this section of the development will be rented at 79% of the median rentals of this area. CMHC dictates to us what this rental amount will be (outlined further below). We are also working with BC Housing who have stated that they would also be interested in contributing to this project which would enable ERIF to increase the CMHC minimum beyond 30%. Likewise, BC Housing dictates to us what this rental amount will be for these apartments. The rest of the apartments in this Lot will be rented at market rates applicable to this area.

ERIF's desire is to provide as many affordable rentals as is commercially viable but CMHC, as the principal funder dictates to us what commercial viability looks like, which is, that the funding is conditional upon achieving a 1.1 DCR.

I'd be happy to go through these numbers with Staff so they can see exactly how it all comes together as the requirements of these government initiatives are quite involved and restrictive if this helpful.

- Policy 3.134 targets a minimum of 75% of housing in new developments to be **attainable** by Ucluelet resident households.

Sorry but I think I must have missed something here. Bruce, can you check for me that this minimum is correct as it doesn't seem to make sense? If it is correct, I can see how with the price of land and increasing construction costs it's a near impossibility for any traditional developer to build anything other than tiny, one-bedroom homes in Ucluelet, if at all.

This is what the rental and sale price based on the below DoU definition of the term "attainable housing" actually looks like:

2021 Census - median household gross income in Ucluelet = \$83,000

- | | | |
|------------|----|---|
| Attainable | a) | Adjusted income = up to 120% of median income = \$ 99,600 |
| | b) | Restriction of up to 30% of adjusted income allocated to housing cost = Max Rental = \$29,880 pa or \$2,483 per month |

2024 Market Rental (per month) 2 Bed = \$2200 – 2500. 3-Bed = \$2400 - 2900

Mortgage = loan serviceability of \$29,880 pa would allow for borrowings of up to \$550,000. At a 90% lend this would mean that the maximum purchase price of a property is \$611,000.

Then from a developer's point of view. If they could purchase land at \$600k and were to build 2 apartments on it at an average build cost of \$425/ sq ft the largest apartment that can be built is 731 sq/ft which would be tiny 2 bedroom or a spacious 1-bedroom dwelling.

I think we need to work together to change this. Thanks for bringing this to my attention as I don't think this is the actual intent of the DoU – the community needs housing, and we should work together to provide this.

If what is listed above as a minimum requirement is truly needed to allow this project to proceed, ERIF could simply eliminate all 3-bedroom options and only provide 1- and 2-bedroom apartments. This would ensure that 240 of our 250 dwellings that are being constructed on the site, fall within the DoU definition of “attainable housing”. I don't think this is the right direction to go as I think the community would benefit from having a 3-bedroom mix within the project and await your thoughts on this.

- The OCP bylaw defines “**affordable housing**” as: *“housing costing 30% or less of annual household income suitable for households of low and moderate income, equal to 80% or less than the median household income in the District of Ucluelet, as reported by Statistics Canada and as defined by Canada Mortgage Housing Corporation, CMHC”.*

DoU Affordable Definition

2021 Census – median gross household income in Ucluelet = \$83,000

- a) Adjusted income = 80% of median income = \$ 66,400
- b) Restriction of up to 30% of adjusted income allocated to housing costs =
Max Rental = \$19,920 pa or \$1,660 per month

To date CMHC has not told us what criteria will be for people to qualify for the affordable rentals of Lot 2 – they have only told us what the proposed rental rates will be.

CMHC have provided the following (which we consider to be grossly inaccurate based on current local rates): Median Rents: 1 bed = \$900, 2 Bed = \$1170, 3 Bed = \$1450. Therefore, the rents and what CMHC require ERIF not-for-profit to charge on 30% of the site for affordable housing are as follows: 1 Bed = \$743, 2 Bed = \$972, 3 Bed = \$1200.

As you can see, these affordable rental rates are far below current market rates in Ucluelet and even the DoU definition and as such I don't think the DoU should be placing additional restrictions and covenants on the land when this part of the project is being funded by CHMC. They as the principal funder, will be the governing body who will ensure the rental rates and eligibility criteria are being met.

In addition to CMHC funding we are talking to BC Housing who have a different formula and criteria that they use and determine what rental rates will be charged. I think it would be crazy for DoU to also add their covenant restrictions to the site when you have CMHC and BC Housing both already providing restrictions particularly when the intent is to provide as much affordable housing as we can.

I think a good way forward would be for the DoU to place a restriction on Lot 2 that any development on this Lot must be built and funded by CHMC and/or BC Housing under their affordable rental schemes. This will determine and ensure the adequate number of affordable rentals being delivered to the community

- Council has adopted a policy to clarify what is meant by attainable:
*“**attainable**” housing is considered housing that is affordable to Ucluelet households earning 120% or less than the median gross household income, as determined by the latest census, spending no more than 30% of their household income on housing costs”.*

ERIF’s commitment to Council is that Lot 1 will be built with 0% developers’ margin and will be offered for sale back to the local community. I have no problem not calling the apartments attainable housing if this is in conflict to the DoU definition.

When we discussed the application criteria with some Councillors, the Mayor and Staff we all decided that we do not want these apartments means or income restricted. The criteria we agreed on is listed on page 7 of the linked document below.

https://www.canva.com/design/DAGO_-duZyg/OER4r0hHyku5GFzGrXaWWQ/view?utm_content=DAGO_-duZyg&utm_campaign=designshare&utm_medium=link&utm_source=editor#7

It would be foolish of me to proceed with this development and have ERIF holding the debt on a project with 0% margin because of a restriction on the title of the property saying who does or doesn't qualify to buy these properties. I don't believe it is the intent of the DoU to restrict housing to its local people and this type of covenant could do just that.

The statement describing the mix of housing components should use these terms consistent with the definitions above. Units that fall outside the definition of affordable or attainable are still valuable, but it needs to be clear what is actually being proposed.

Yes agreed – terminology needs to be consistent and defined. At this stage within the DP submission this is what we have proposed:

- Lot 1 defined “at cost” – 75 apartments sold with 0% developer’s margin. The goal is to make these apartments "attainable" per DoU definition. However, since we don't yet know the total project costs, including costs from the DoU, we can't confirm if we'll meet these criteria for "attainable" pricing (maximum sales price of \$611,000 and maximum rent of \$29,880 per year or \$2,483 per month). However, it's unlikely the 3-bedroom units will meet this definition, so if 75% of the units must be "attainable," ERIF’s only option maybe to remove the 3-bedroom configuration from the plans.

- **Lot 2 defined as CMHC “affordable”** – 107 apartments. As this is going to be financed by CMHC under their affordable rental scheme, the project will need to comply with CMHC criteria which may differ from the DoU definition. ERIF request a reprieve from the DoU “affordable” definition with a qualifier based solely on the government principal funder enforcing their restrictive covenants as has been outlined above.

Lot 3, 4 and 5 make up a total of 28% of the density of the site but carry 50% of the land acquisition costs so that ERIF can help deliver low-cost housing to the community in Lots 1 & 2.

- **Lot 3 defined as market** - 10 waterfront homes - does not fall within the DoU definitions of “affordable” or “attainable”.

- **Lot 4 defined as commercial** – facility on the corner of Minato and Peninsula.

- **Lot 5 defined as market** - 58 apartments for sale or rental. We do anticipate that a large number of these apartments might still qualify under the DoU “attainable” housing definition but this will be based on demand.

In the housing statement, please also describe the anticipated strata fees for the proposed affordable and/or attainable sales units. Strata fees are included in the total housing costs when assessing affordability against household incomes.

As we are applying concurrently for DP as well as subdivision changes, we understand this question but as outlined above, ERIF is undertaking to provide low-cost housing to the community through strategic allocation of the site so that costs can be managed to make this project viable. To this end, strata fees will be as efficient and cost effective as possible.

But it is too early for us to put together a strata budget which will be included in the apartment contracts when they have been formed. It is an important part of the process, but we are just not at this stage yet until final master planning has been completed and approved and costs quantified.

However, as a reply we intend our strata fees to be an open book of actual costs, initially outlined by ERIF but then annually set by the apartment owners via a committee/council. Where typically for developments such as these the costs would include some fixed and some variable cost items like:

1. **Rates:** paid to Council (usually based on land value but can include surcharges for upgrade of roads and services) – yet to be advised by DoU.
2. **Water / Sewerage:** with a base contribution for each property for the sewage and connection fees. Then usage may be sub metered based on actual usage for each unit. If not sub metered, it would be shared as a proportionate contribution based on unit holdings.

3. **Power:** shared as a proportionate contribution to BC Hydro expenses based on unit holdings for shared costs like power to streetlights and shared EV stations (if not a pay-as-you-go model). Also note we are in the process of seeking a grant for solar for the project which will further reduce the costs of electricity and the strata fees.
4. **Maintenance:** contribution to maintenance of common area (usually based on an internally drafted 20-year maintenance plan, such as road maintenance, arborist and landscaping etc).
5. **Fire and other emergency service requirements** (e.g. annual checks and reporting, often higher for multiplex and determined by local regulations, and fire provider pricing e.g. does each building require X number of fire extinguishers that need to be checked and refilled annually?).
6. **Insurances:** a strata owner would usually need to contribute to insurance costs that are held collectively across the development for all buildings. We may propose for Lot 3 that there is a nominal strata insurance, and each home is individually insured. For Lot 1 this will likely be a shared strata policy and each unit holder contributing proportionate to their ownership.
7. **Strata management costs:** if there is an external management company for strata there would be an administrative cost to this. They would coordinate the repairs and maintenance for owners. Possibly ERIF could bill this to Lot 1. For Lot 3 and similar projects this may be managed directly by owners if a small number of lots. If combining say 10 waterfront homes and 21 smaller single-family homes in Lot 5 we may need to review this and allow for strata management fees, but need to keep these as low as possible as it's a big put off to potential owners to have outgoings that would not apply to other freestanding homes.
8. **Waste:** hoping we can arrange municipal collection included in rates. We are discussing with Mayco Noel at Ozzard Waste Management to ensure we are designing whatever is needed to get municipality collection e.g. can he collect from our enclosed bear proof bin bays or do these need to be hauled to the street frontage (noting that the frontage for Lot 1 to Minato is very narrow at 12m wide so bins there would be problematic). For the waterfront homes and potentially single-family Lot 5 what are the bin types and will owners bring them to the kerb of the private road? We want minimum fuss of hauling bins to a collection point) or this may end up having to be a strata cost), and to comply with whatever is needed so they can be collected from the private road loops not hauled to street frontage.

Strata costs will be allocated as being proportionate to the unit holdings (i.e. a 3-bedroom unit would contribute more than a 1-bedroom, relative to the total built area in the strata and are usually expressed as a ratio of total holdings e.g. 20:800).

Further detail will be necessary to understand the following elements mentioned in the proposal:

- Not-for-profit housing organization

ERIF Housing Association, a not-for-profit entity, will oversee the attainable homeownership initiative and rental units within the project of Lots 1 and 2. This organization is dedicated to addressing local housing needs, ensuring that profits are reinvested into the community rather than being driven by developer profit margins. We will engage a rental management company with 5+ years of experience to manage the affordable rentals properties.

- Sub-committee of the not-for-profit housing association

A dedicated sub-committee within ERIF Housing Association will be formed to develop and implement qualification criteria for the attainable homeownership initiative. This group will be responsible for ensuring transparency and fairness in the allocation of homes, working closely with local stakeholders to prioritize Ucluelet residents. We have suggested that the committee is made up of a member of council, chamber of commerce, a social welfare organisation and a representative from ERIF Housing Association.

- Qualification criteria (e.g., residency, incomes)

Our qualification criteria for the attainable homeownership initiative is included in the DP application and is designed to prioritize Ucluelet residents and workers. The primary criterion is that applicants must use the property as their primary residence, with further prioritization for those who have lived in Ucluelet or the surrounding areas for at least one year. Income criteria will not be imposed, but the initiative will ensure homes are allocated to individuals and families committed to the community.

- Rent caps

For the 107 affordable rental units, we are committed to aligning rent levels with CHMC and/or BC Housing affordable housing definitions.

- Price caps

The attainable homeownership units will be sold at below-market rates, reflecting the efforts to minimize construction costs and eliminate developer profit. Final pricing will be determined based on ongoing evaluations and final costings, ensuring affordability for local families.

- Resale caps

To preserve affordability over time and prevent property speculation, resale caps will be enforced. Should a homeowner wish to sell within the first five years, ERIF Housing Association will have the first right to repurchase the property at the

original purchase price plus a modest percentage (3% for each year held). This ensures long-term affordability while allowing homeowners some flexibility for future resale.

Please also describe the proposed duration of affordable and/or attainable agreements.

The affordability duration for Lot 2 is set by CMHC and is 20 years. As far as our intention for Lot 1 sales at cost, as per page 7 listed above, ERIF provides a 3-year term.

The details of the commitment to affordability will need to be drafted in a housing agreement, and attached as a schedule to a housing agreement bylaw, ahead of the public hearing.

We aim to collaborate with the Council and possibly the Chamber of Commerce to define the criteria and ensure the project benefits the community without straining ERIF or the project itself.

B. Approach to subdivision:

Appendix D in the application materials describes the proposed lots. A few questions to help us define the zoning amendment and phased development agreement bylaws:

- Proposed Lot 1 is described as “strata titled for affordable sales with zero lot setback or phased development”. Does this mean creating a **phased strata** over Lot 1, or **separate strata-titled buildings** (i.e., neighbouring stratas within the area of Lot 1) or does it refer to elements that would be included in a **phased development agreement**? They each have different implications for what needs to go into the bylaws.

Lot 1 – below market sales / attainable is proposed as a **Residential Phased Strata** and we are in the process of preparing Form P allowing for our buildings on site to be constructed in sequenced phases.

Our intent is to build each stage with a phase per building and obtain building occupancy at the completion of the phase allowing for sale and occupancy of the apartments as soon as practicable.

(For our clarity purposes – we propose on this Lot that a strata plan will be registered after the first phase is completed, and as the development progresses, each subsequent phase is merged with the original strata plan rather than create a new strata corporation every time a strata plan is filed in the Land Title Office.)

On Lot 1 we will construct 7 multiplex buildings, 75 apartments which will have ONE strata corporation. 29 Apartments in Stage 1 (2 x 1 bed, 13 x 2 bed, 14 x 3 bed) and in Stage 2, 46 Apartments (4 x 1 bed, 20 x 2 bed, 22 x 3 bed).

Stage 1

Phase 1 = Building 1E3 – common = surf & kayak storage, parking, garbage storage

Phase 2 = Building 2E1 – common facilities = parking

Phase 3 = Building 3E1 – common facilities = parking

Phase 4 = Building 4E1 – common facilities = parking

Phase 5 = Building 5E1 - common facilities = parking

Phase 6 = Building 6E1 - common facilities = parking

Phase 7 = Building 7E1 - common facilities = parking



Stage 2

Phase 8 = Building 8E1 – common facilities = parking

Phase 9 = Building 9E1 – common facilities = parking

Phase 10 = Building 10E1 – common facilities = parking

Phase 11 = Building 11E1 – common facilities = parking

Phase 12 = Building 12E1 - common facilities = parking

Phase 13 = Building 13E1 - common facilities = parking

Phase 14 = Building 14E1 - common facilities = parking

Phase 15 = Building 15E3 - common facilities = parking

Phase 16 = Building 16E3 – common = surf & kayak storage, parking, garbage storage

Phase 17= Building 17E1 - common facilities = parking

Phase 18 = Building 18E3 – common = surf & kayak storage, parking, garbage storage



In respect to common facilities for this Lot they are noted above and include surf & kayak storage facilities, parking bays and garbage storage.

In respect to the phased strata, ERIF is requesting a zero-lot setback for construction on this lot based on section 238(2) of the SPA providing that parcels in a phased strata plan that will be consolidated on deposit of a phase are deemed to be consolidated for the purpose of enabling a building inspector to issue a building permit in respect of a building.

In reference to the Phased Development Agreement our understanding was that this agreement formalized the commitment we have made to the DoU in respect of which dwellings, and lots will be completed and in what order, ensuring that we have in writing that low cost is the priority of this development site. This agreement therefore is the overarching document of that commitment rather than specific to strata allocations.

- Proposed Lot 2 is described as “Bare Lot Strata all held in one line as affordable rentals”. Does this mean each building containing rental units would be located on a separate legal parcel created by bare land strata? And those parcels would be held under common ownership (but possibly sold separately)? Please clarify what “held in one line” refers to: we believe this may need a bit of translation from Aussie to Canuck.

Lot 2 – defined as CMHC “affordable”

We will need further guidance from you in respect to how this portion is subdivided.

The intent here is to have all buildings (and apartments) owned by ERIF Housing Association (this was our reference to being held in one line) and rented under CMHC restrictions for a period of 20 years. After this time (20 years) the buildings will then continue with ERIF Housing Association providing local community housing. ERIF aren’t anticipating selling these apartments and therefore separate strata isn’t required. There is no phasing required but construction will occur over two stages.

On Lot 2 we will construct 16 multiplex buildings, 107 apartments which will be owned and managed through not-for-profit ERIF Housing Association. 39 Apartments in Stage 1 (18 x 1 bed, 21 x 2 bed, 0 x 3 bed) and in Stage 2, 68 Apartments (36 x 1 bed, 32 x 2 bed, 0 x 3 bed).

ERIF Housing Association would be responsible for ALL costs including any maintenance and repairs including on any common use areas and there is no strata contributions etc as these properties are simply rentals. It is proposed that tenants will be responsible for utilities in addition to their rental but no additional on costs.

It is our understanding that a **bare land strata plan** may not be the right option for this intention and so ask for your guidance here. (Again, for our clarity, a bare land strata is a one that is defined with reference to land survey markers rather than floors, walls, or ceilings (SPA, s 1(1)). A bare land strata plan will not depict buildings located within a strata lot, including if the building existed when the bare land strata plan was created. However, a bare land strata plan will depict buildings located on common property.)

- Proposed Lot 3 refers to a “fee simple subdivision... with common lot under home association”: does the common lot refer to the road? If so, that would not be a fee-simple subdivision (a fee-simple subdivision would require public road dedication).

We would like to request further guidance from you in respect to how this portion is subdivided.

The intent here is to create 10 individual lots which will be sold and owned by individual parties. We anticipate the road to be private, held and managed as common property by a Housing Society consisting of each of the 10 lot owners. Lot owners are responsible for all costs on their lot up to where their driveway meets the road. We do not require build

covenants on this subdivision as ERIF are building all houses on Lot 3 and will sell completed dwellings.

The advice that we have been given was that proposal could be managed by a bare land strata but it would be great if you could confirm.

If bare land strata is going to be proposed (phased or not) within any of the Lots, the application should show the area of each of those proposed bare land strata parcels: we would need to know the areas to enable us to draft the bylaws. If any of the lots are proposed to be developed as a phased strata (building strata or bare land strata) then you will also need to define what amenities or common facilities will be provided for the use of the strata owners, with each phase.

Noted

C. Phasing:

Separate from how title to the various parcels of land and units are legally defined, the application also proposes a phased development agreement (PDA). The details of the PDA will have to be worked out prior to Council sending it (along with OCP amendment and zoning amendment bylaws) to a public hearing. To expedite the drafting of a phased development agreement, please provide a framework for discussion. This can be simply a list of a) the specified bylaw provisions you wish the agreement to cover, and b) those items that you foresee will be constructed with each phase of the development. This includes servicing and utilities; the timing for each phase of clearing, grading and retaining walls; environmental remediation or enhancement features; landscaping; parks & playground features – many of the items listed on pages 7 to 9 of the application materials package. In a number of places, the application refers to detailed designs to be provided at a later date; the PDA will define the scope and timing of when those will be delivered.

The application materials do not exactly describe the project phases in a way that matches what would be committed to in the PDA, which is fine – but we need to clarify. For the purpose of phasing, it looks like you intend to approach construction in four phases as follows (please confirm):

The framework you requested was provided upon submission.

Please refer to Appendix F – Draft Phased Development Plan and Draft PDA Agreement within the [Cover Letter](#) (page 19). This references the triggers in which these phases will be executed rather than specific dates. Two examples of these triggers are as follows:

- Lot 2 Part 1: will commence upon approval of government funding and once the DP approval is in place.
- Lot 1 Part 2: will commence when Lot 1 Part 1 Attainable Homes have sold out which allows the market to respond to the demand. respond to market demand for housing.

On this table it is also noted that servicing civils, stormwater, landscaping/planting will be done in aligned with construction processes per each phase. Each phase will have the lot completed in its entirety including landscaping, public amenities, green energy measures, etc. For further explanation please refer to the Proposed PDA (found on page 20) as an individual document here:

<https://drive.google.com/file/d/1i4nAUxAHJUudN1skFdLn3yqkLFs1EnxK/view?usp=sharing>. It's worth noting that this document is based off a template used by Nanaimo Municipality for their Phased Development Agreements.

- Page 4 Section 4.1 states the Specified Bylaw Provisions.
- Page 5 Section 7.1 Servicing Agreement states in respect to works and services that “the Developer covenants and agrees that it will enter into a Works and services agreement with the District in accordance with the requirements of the District’s Bylaw”.
- For each construction phase, please identify any proposed environmental protection, extent of clearing, earthworks, on- and off-site servicing, green energy measures, public amenities, etc. These will be spelled out in the PDA document.

ERIF is dedicated to supporting communities towards sustainable infrastructure, carbon neutrality and expediting reconciliation. These principles find echoes in the 221 Minato Road project's environmental assessment. As we embark on the development, we are deeply committed to minimizing our impact on the existing tree population and ensuring their continued vitality. We are aware of the previous owner's unethical actions that damaged the ecosystem. We want to emphasize that our approach is entirely different.

Our Approach:

- Tree Preservation: is at the upmost importance. Wherever possible, we will strive to preserve existing trees. Our team will carefully assess each tree, prioritizing preservation at every opportunity.
- Regeneration and Restoration: We are dedicated to not only preserving existing trees but also actively contributing to the site's ecological richness. We have a comprehensive regeneration plan in place:
 - Plant a diverse array of native trees and vegetation throughout the development including but not limited to 31 western hemlock trees, 20 Western redcedar and 15 Sitka spruce within the restoration area. The density of the regenerating tree saplings is approximately 3-5 trees per 100m² which is approximately 114 naturally regenerated trees within the restoration area.
 - Use organic soil on site as a growing medium for planting areas and salvage native plants, logs and stumps with soil and live native vegetation. This will assist in incorporating native plant seed banks and add natural local form and character to the development.

- Use of naturally stacked rock and include pocket plantings using native coastal vegetation. All seeding will include recognized west coast seed mix (i.e. clover, vetch, wildflower).
- Culturally Mindful: The Yuułuᑭitᑭath Government - Ucluelet First Nation (UFN) were engaged to conduct a preliminary field reconnaissance (PFR) on the culturally modified trees present on the site. These trees do not affect our masterplan and will be outlined in the full archaeologist report
- Environmental Specialists: We have also engaged a team including Environmental Biologist from Aquaparian and a local Arborist who will oversee the setback reduction process. Their expertise will ensure that any tree which is classified as dangerous under WorkSafe BC Regulation Section 26.11 is removed in such a way that minimizes disruption to the surrounding ecosystem. Aquaparian will also be engaged as part of the retaining wall design where they interact with parklands to protect the trees in those zones and their root structures.

At ERIF, we believe that responsible development and environmental preservation can go hand in hand. We are dedicated to creating a vibrant community at 221 Minato Road while ensuring the protection and enhancement of the natural environment.

D. Temporary Use Permit:

- Is the proposal to erect the manufacturing facility before or after the construction of retaining walls and regrading in the area of proposed Lot 5?

Yes, we plan to erect the temporary structure prior to the construction of the required retaining walls while leaving adequate space for these walls to be built while the temporary structure is in place.

- The application refers to the temporary building as being insulated, but also describes a fabric-covered steel structure. Please clarify.

While the temporary building is a single skin vinyl membrane on a steel structure, it does offer insulation properties and will be heated to maintain a controlled working environment for our construction staff.

Our temporary building supplier has advised that they don't tend to assign an insulation value to the single skin vinyl membrane. Their installers will do their best to seam and seal, so we will have decent control of the airflow and suggest that we allow for expanding foam in the blocks (as they always have some gap at the seams). They have also advised that depending on the final layout etc, some clients have opted to trim the blocks in foam board and plywood to reduce the thermal bridge at the blocks.

- The application refers to a treed buffer remaining to screen the view of construction on Lots 1 and Lot 3: does this refer to trees on- or off-site? Please clarify.

We intend to leave as many trees as possible on site to create a division, privacy and screening between all buildings, stages and lots. Additional trees will be planted between Lot 3 and Lot 5 to create further screening and to beautify this area that has been cleared by previous owners.

- If electrical demand for the facility exceeds the existing 400A service prior to new Hydro services to “Lot 5”, will generators be used?

Based on our current assessments, we do not anticipate electrical demand to exceed the existing 400A service available on-site. Should additional power be required in the future, it will be evaluated and addressed appropriately by application the BC Hydro through our expert consultants Electrical Engineers at RB Electrical. Additional capacity is more likely to be created through the broader BC Hydro electrification process rather than interim need for generators.

Fees:

As we discussed when you were in the office last week, it would be appropriate to submit the fees once you have all the initial materials together for your application including the tsunami flood engineering report and the report on the archaeological assessment. A summary of the application fees at this stage:

- OCP amendment: \$1,600 plus \$500 per HA over 1 HA based on developable lands: \$4,600
- Zoning Amendment: \$1,000 plus \$500 per HA over 1 HA: \$4,000

(Site area: 6.67 HA/16.47 AC)

- Development Permit (environmental): \$1,000 plus \$500 per HA over 1 HA: \$4,000
- Development Variance Permit: \$600
- Temporary Use Permit: \$350
- Public hearing fee: \$700
- Notification fee: \$500 x 2 (OCP/rezoning/DVP plus separate for TUP)

Total: \$15,250

At this point it would be premature to process a subdivision application, as the bylaw amendments and permits listed above are pre-cursors to the subdivision of the land. A subdivision application could be reviewed as the zoning, on- and off-site servicing and specific terms of a phased development agreement become clearer. At that time, the fees would be:

- Subdivision: \$800 plus \$150 per lot
 - Development Permits (form & character – commercial and multi-family) for individual phases of building and associated landscaping: \$1,000
 -
-

I hope all the above helps.

We look forward to receiving the flood engineering report and the report on the archaeological assessment. We will expedite the review and collection of comments back from the internal and external referrals, and will let you know of any further areas for clarification.

As always, please don't hesitate to contact me if you have any questions.

Regards,

Bruce

Bruce Greig

Subject: FW: 221 Minato Road

From: Bruce Greig
Sent: October 4, 2024 12:19 PM
To: Joshua Hunt <joshua.h@erif.ca>; Juliette Green <juliette.g@erif.ca>; Jodie Thompson <jodie.t@erif.ca>; sarah.h@ignexus.com
Cc: Duane Lawrence <dlawrence@ucluelet.ca>; John Towgood <JTowgood@ucluelet.ca>; James Macintosh <jmacintosh@ucluelet.ca>
Subject: 221 Minato Road

Hi Joshua, Juliette and Jodie;

Thank you for submitting materials for development applications at 221 Minato Road. We have begun reviewing the materials submitted to date. We'll circulate portions for external reviews when all the pieces are in; meanwhile we've started to review the package.

We have not reviewed all the details of the various consultant reports yet.

A few areas stand out where clarification is needed, and we want to put them to you as early as possible.

A. Housing mix and affordability:

The application materials submitted propose leaving the specifics of affordability to a later date. While it is understandable that a developer wants flexibility, there is also a need to clearly disclose what the landowner / applicant will commit to - so that the public can form a clear understanding when commenting to Council in a public hearing on the bylaws. While we can process the application based on the information provided, it would be strengthened by being clearer on the unit mix, rent / price and eligibility (income, residency, etc.). Some things to consider:

- The OCP bylaw Policy 3.143 requires that rezoning applications involving more than 5 units dwelling units shall provide a statement describing the affordable housing components achieved by the proposal.
- Policy 3.134 targets a minimum of 75% of housing in new developments to be **attainable** by Ucluelet resident households.
- The OCP bylaw defines "**affordable housing**" as: "*housing costing 30% or less of annual household income suitable for households of low and moderate income, equal to 80% or less than the median household income in the District of Ucluelet, as reported by Statistics Canada and as defined by Canada Mortgage Housing Corporation, CMHC*".
- Council has adopted a policy to clarify what is meant by attainable: "**“attainable” housing** is considered housing that is affordable to Ucluelet households earning 120% or less than the median gross household income, as determined by the latest census, spending no more than 30% of their household income on housing costs”.

The statement describing the mix of housing components should use these terms consistent with the definitions above. Units that fall outside the definition of affordable or attainable are still valuable, but it needs to be clear what is actually being proposed.

In the housing statement, please also describe the anticipated strata fees for the proposed affordable and/or attainable sales units. Strata fees are included in the total housing costs when assessing affordability against household incomes.

Further detail will be necessary to understand the following elements mentioned in the proposal:

- Not-for-profit housing organization
- Sub-committee of the not-for-profit housing association
- Qualification criteria (e.g., residency, incomes)
- Rent caps
- Price caps
- Resale caps

Please also describe the proposed duration of affordable and/or attainable agreements.

The details of the commitment to affordability will need to be drafted in a housing agreement, and attached as a schedule to a housing agreement bylaw, ahead of the public hearing.

B. Approach to subdivision:

Appendix D in the application materials describes the proposed lots. A few questions to help us define the zoning amendment and phased development agreement bylaws:

- Proposed Lot 1 is described as “strata titled for affordable sales with zero lot setback or phased development”. Does this mean creating a **phased strata** over Lot 1, or **separate strata-titled buildings** (i.e., neighbouring stratas within the area of Lot 1) or does it refer to elements that would be included in a **phased development agreement**? They each have different implications for what needs to go into the bylaws.
- Proposed Lot 2 is described as “Bare Lot Strata all held in one line as affordable rentals”. Does this mean each building containing rental units would be located on a separate legal parcel created by bare land strata? And those parcels would be held under common ownership (but possibly sold separately)? Please clarify what “held in one line” refers to: we believe this may need a bit of translation from Aussie to Canuck.
- Proposed Lot 3 refers to a “fee simple subdivision... with common lot under home association”: does the common lot refer to the road? If so, that would not be a fee-simple subdivision (a fee-simple subdivision would require public road dedication).

If bare land strata is going to be proposed (phased or not) within any of the Lots, the application should show the area of each of those proposed bare land strata parcels: we would need to know the areas to enable us to draft the bylaws. If any of the lots are proposed to be developed as a phased strata (building strata or bare land strata) then you will also need to define what amenities or common facilities will be provided for the use of the strata owners, with each phase.

C. Phasing:

Separate from how title to the various parcels of land and units are legally defined, the application also proposes a phased development agreement (PDA). The details of the PDA will have to be worked out prior to Council sending it (along with OCP amendment and zoning amendment bylaws) to a public hearing. To expedite the drafting of a phased development agreement, please provide a framework for discussion. This can be simply a list of a) the specified bylaw provisions you wish the agreement to cover, and b) those items that you foresee will be constructed with each phase of the development. This includes servicing and utilities; the timing for each phase of clearing, grading and retaining walls; environmental remediation or enhancement features; landscaping; parks

& playground features – many of the items listed on pages 7 to 9 of the application materials package. In a number of places, the application refers to detailed designs to be provided at a later date; the PDA will define the scope and timing of when those will be delivered.

The application materials do not exactly describe the project phases in a way that matches what would be committed to in the PDA, which is fine – but we need to clarify. For the purpose of phasing, it looks like you intend to approach construction in four phases as follows (please confirm):

Construction Phase	description	subject to:
Phased development plan reference (p.19 of ERIF application)		
Stage A Stage B Stage C TUP on Lot 5	One below-market sales on part of "Lot 1" waterfront lots + STRs on "Lot 3" commercial on "Lot 4" temporary manufacturing / assembly facility on "Lot 5"	prices to be determined
Stage D	Two rental housing on part of "Lot 2": 70% market / 30% affordable	if government financing sub
Stage E	Three below-market sales on remainder of "Lot 1" rental housing on remainder of "Lot 2": 70% market / 30% affordable	if stage A sells out if stage D fully rented & gove
Stage F	Four market sales and rentals + STRs on "Lot 5"	if 60 units occupied on Lots

For each construction phase, please identify any proposed environmental protection, extent of clearing, earthworks, on- and off-site servicing, green energy measures, public amenities, etc. These will be spelled out in the PDA document.

D. Temporary Use Permit:

- Is the proposal to erect the manufacturing facility before or after the construction of retaining walls and regrading in the area of proposed Lot 5?
- The application refers to the temporary building as being insulated, but also describes a fabric-covered steel structure. Please clarify.
- The application refers to a treed buffer remaining to screen the view of construction on Lots 1 and Lot 3: does this refer to trees on- or off-site? Please clarify.
- If electrical demand for the facility exceeds the existing 400A service prior to new Hydro services to “Lot 5”, will generators be used?

Fees:

As we discussed when you were in the office last week, it would be appropriate to submit the fees once you have all the initial materials together for your application including the tsunami flood engineering report and the report on the archaeological assessment. A summary of the application fees at this stage:

- OCP amendment: \$1,600 plus \$500 per HA over 1 HA based on developable lands: \$4,600
- Zoning Amendment: \$1,000 plus \$500 per HA over 1 HA: \$4,000
(Site area: 6.67 HA/16.47 AC)
- Development Permit (environmental): \$1,000 plus \$500 per HA over 1 HA: \$4,000
- Development Variance Permit: \$600
- Temporary Use Permit: \$350
- Public hearing fee: \$700
- Notification fee: \$500 x 2 (OCP/rezoning/DVP plus separate for TUP)

At this point it would be premature to process a subdivision application, as the bylaw amendments and permits listed above are pre-cursors to the subdivision of the land. A subdivision application could be reviewed as the zoning, on- and off-site servicing and specific terms of a phased development agreement become clearer. At that time, the fees would be:

- Subdivision: \$800 plus \$150 per lot
- Development Permits (form & character – commercial and multi-family) for individual phases of building and associated landscaping: \$1,000
-

I hope all the above helps.

We look forward to receiving the flood engineering report and the report on the archaeological assessment. We will expedite the review and collection of comments back from the internal and external referrals, and will let you know of any further areas for clarification.

As always, please don't hesitate to contact me if you have any questions.

Regards,
Bruce



Bruce Greig
Director of Community Planning
District of Ucluelet
200 Main Street, Ucluelet, B.C. V0R 3A0
Phone: 778-748-8484

Bruce Greig

From: Juliette Green <juliette.g@erif.ca>
Sent: October 4, 2024 6:39 PM
To: Marilyn McEwen (Ucluelet Mayor); Shawn Anderson (Ucluelet Council); Mark Maftei (Ucluelet Council); Ian Kennington (External); Jennifer Hoar (Ucluelet Council)
Cc: Bruce Greig; Duane Lawrence; John Towgood; Joshua Hunt; Jodie Thompson; sarah.h@igvnexus.com; Ian Kennington (Ucluelet Council)
Subject: Council Q&A for 221 Minato Rd
Attachments: 2024-09-24_DOU_Regular_Meeting_ERIF_Q&As_241005.pdf

Follow Up Flag: Flag for follow up
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[External]

Dear Mayor and Council,

We value your feedback on ERIF's proposed development at 221 Minato Rd shared at your Meeting on September 24th. Thank you for your comments, support and points for further discussion.

To ensure alignment and address any outstanding questions, we have prepared this summary of the key points raised by the Councillors during the meeting, along with responses from our executive team supplying additional information.

We value your input as we move forward with the application process and invite you to reach out if you require further clarification or have any additional questions.

We thank you for the opportunity to partner with you in bring this project to life, make them attainable for the local community, and contribute to the flourishing future of Ucluelet.

Best regards,

Juliette Green

Juliette Green | Strategic Impact Director

✉ juliette.g@erif.ca | 🌐 www.erif.ca



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September 24, 2024: DOU Regular Meeting Q&As

Appendix C Report 24-129

Q1) Do Council members have any initial concerns about a road configuration with limited pedestrian facilities and vehicle parking spaces backing onto the roadway?

DOU

IK: “My home backs onto a roadway. I don’t think this is different to what we have in the community at the moment. I personally don’t have a problem with it.”

MM: “I concur. There are a lot of constraints to this site that means we are going to have to accept some compromises. I don’t believe this is anything to get overly worried about as part of the preliminary plan.”

MMM: “The configuration of this property is to create density, which keeps the affordability aspect in parcel.”

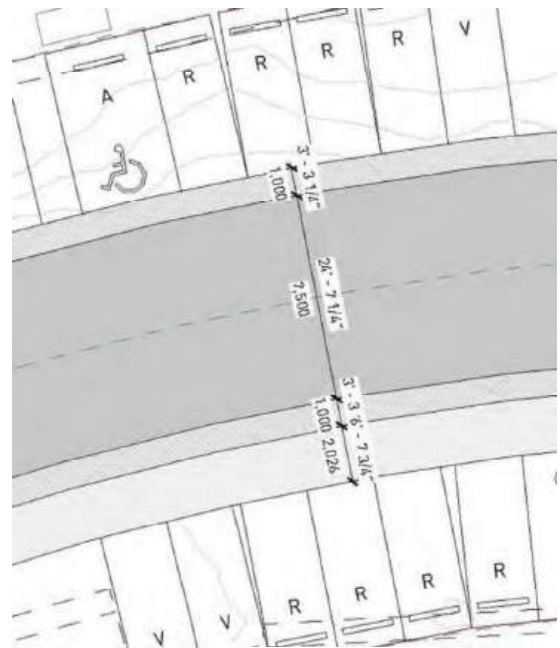
SA: “I concur.”

JH: “I don’t want a pedestrian pathway to be completely ignored. I agree with you IK that this is happening in other subdivisions.”

ERIF

ERIF has partnered with traffic consultants Watt Consulting to optimise the road and traffic flows for the site. The design balances resident safety, accessibility, and efficient land use to maximise the number of affordable homes.

To ensure highest safety, the road will be a private road with a capped speed limit of 15kph, ensuring a slower and safer environment. To enhance pedestrian use, we have incorporated a 2-meter-wide pedestrian path and additional 1-meter-wide shoulder around all roads (as shown in Appendix A). The loop road structure was recommended by Watt Consulting for best traffic flows. Care has been taken to ensure careful compliance with emergency vehicle access, with turning bays in each stage of the development, and an additional emergency exit point to Peninsula Road, which has the support of BC Ministry of Transport. For additional information, please refer to the [traffic engineering report](#).



Appendix A

Q2) Do Council members have any initial concerns with the concept of no additional park land dedication for this development?

DOU

IK: “The parkland dedication has already been made. The District have control of that asset and it’s considerable, I think it’s good enough.”

MM: “I don’t see a problem with the trail construction costs being worn by the Municipality. They have been forthright about approaching this by keeping costs down, I’m quite willing to meet them on a pragmatic playing field. I agree with highlighting ecological value of Olsen Bay. We should consider potential impacts now to plan for them. I’d like to see it protected, and we have every chance of doing that with ERIF moving forward.”

SA: “I agree with IK that there is a sufficient amount of parkland dedicated at this point. It’s an efficient use of space. We will do what we need to do to get the affordable housing in there.”

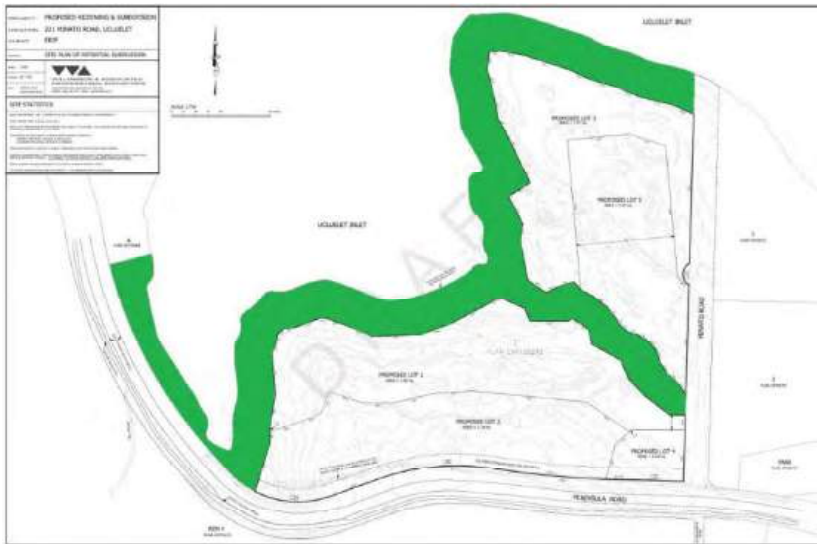
JH: “A little concerned not having the complete Environmental assessment and wetland delineation, which might ID more spaces that need to be protected. I understand there has already be a large park dedication here. Cautiously not concerned.”

MMM: “I believe they are in the progress of getting this completed.”

ERIF

The 2022 rezoning committed extensive lands as parkland dedication through the waterfront and middle creek area. Nearly 30% of the site was committed at that time, and this has now been legally confirmed as dedicated by the DOU. The original commitment exceeded the typical 5% parkland dedication and creates a natural reserve protecting this land.

With this land now legally dedicated, it creates a strong protection for the water features. This is confirmed in the Environmental Impact Assessment prepared by Aquaparian which can be viewed by [clicking here](#).



Appendix B highlights the Parkland Dedication areas now on title which includes a 30-meter shoreline dedication (coloured in green on the Appendix B), protecting the waterfront zone. The area is blessed with nearby trails, bike paths, and existing parks offering ample opportunities for outdoor recreation.

Appendix B

A dedicated recreation space is proposed for the affordable rental and attainable homeownership communities of Lot 1 and 2 to enjoy which is shown in the Appendix C.

These amenities, combined with the green spaces within the development itself, offer an abundance of green space and recreational opportunities to enjoy. We value the Councillor's support to uphold the existing parkland dedication, as further reduction in available land would impact the viability of this project to meet Ucluelet's housing needs.



Appendix C

Q3) Do Council members have any initial concerns with the concept of taking on the cost of constructing the trails, and making this a priority capital project so that trails can be completed prior to occupancy of the site by new residents?

DOU

SA: "The way it's worded is as if the onus is back on us, but at the same time the only way this moves forward is keeping costs low, maintaining it's affordability. We are in a housing crisis, I believe the trails are important but I also believe we can bare that cost. RMI funding for the future. I wouldn't hold their feet to fire on this."

MMM: "Yes RMI money would be available for trails."

MM: "One thing that sets this developer apart is they were quite forthright about their costs. I think it would be a mistake to put them in a position where they are on the hook for a major financial investment, which is separate from what they approached us to do, affordable housing."

IK: "Nothing further to do add. I agree this is an ecologically sensitive area and we potentially need something temporary to protect it. Not saying we need to build the trail before this housing is occupied. There may be a more cost-effective solution to doing that protection. Trail yet to be discussed."

JH: "We want this site protected. We don't people in housing accessing this with no protection, which is where the idea of the trail originated. We have access to RMI funds, I have no issues with taking over the cost but I do think this needs to be prioritised."

ERIF

The waterfront land has been dedicated back to the DOU, giving the Council time to consult with the community, plan trails and seek RMI funding. Part of this process may consider the Environmental Assessment Report recommendation that the Council preserve this area in its natural state as a wildlife corridor. ERIF do not see the construction of potential trails as needing to be a pre-condition of approval of the construction of the proposed homes, or their occupation. There will be natural separation of the waterfront from the homes with retaining walls and fencing, designed to complement the natural form and character of the site, in collaboration with the environmental biologist consultants, geotechnical and structural engineering teams.

Q4) Do Council have any initial concerns with a proposal to remove a 30-meter tree buffer along Highway 4 and substantial tree clearing throughout the developable lands that would maximize the area for housing construction on the 221 Minato Road site, and which would diverge from OCP Policies 3.162, 3.163 and 3.171 meant to limit the clearing of trees and changes to the public entrance to town?

DOU

MM: "I have some initial concerns. I think we need to have a deeper discussion with ERIF about this plan. It's the entrance to the community. The bulk of this lot has already been cleared, what is remaining there is of questionable ecological value in terms of terrestrial habitat. I don't want these trees cut down. I think this is something we need to hear the public's opinion on."

IK: "Everyone loves trees. Our current entrance into town is a drive through forest that leads to a pile of tires. We have an opportunity to increase it's visual value and create an entrance into a community. If housing is as critical as we all know it is, there will be tough choices on how we deliver our housing target of 800 homes within the next 20 years. We need housing, people are literally crying out for it."

MMM: "This is another one of those little sacrifices that may need to occur to create that density."

SA: "I agree. With the OCP stipulations on tree coverage it seemed more of a form of character as opposed to an ecological refuge. I would want to showcase this project off."

JH: "It's hard for me to get rid of a tree buffer. I understand to get density we need to narrow it down, but almost making it non-existent, I have problems with that."

MMM: "Also another issue is if you clear a lot of trees, the remaining can become danger trees because they have been protected by the others for so long. It may be a reason to remove the trees so there aren't any danger trees."

JH: "Yes, the trees were cleared to close to the upper edge of that property those trees may go over in a storm. I don't see the point of their tiny strip of green at that point."

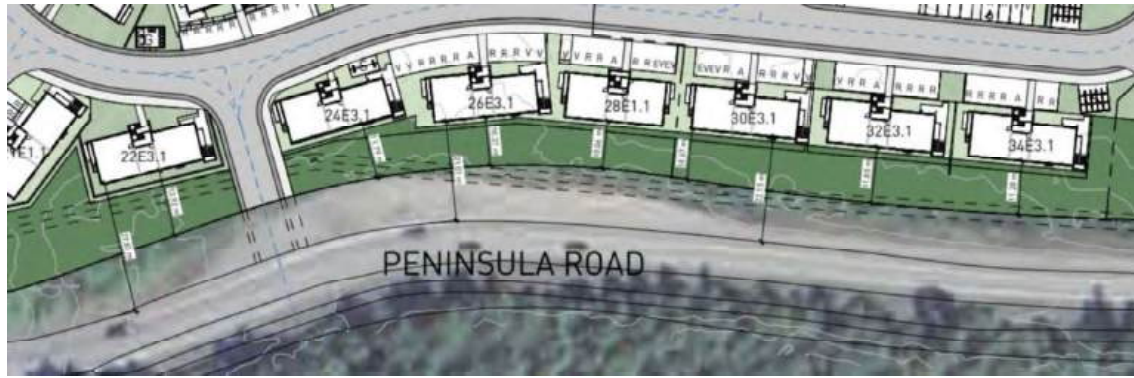
ERIF

The proposed change is not a complete removal of the 30-meter buffer in the OCP, but a reduction to 10 meters from the boundary line, and approximately 20 meter setback from Peninsula Road. An accurate siting of the development relative to the road has been prepared and is linked here: [221 Minato's Planting Analysis](#), also referred below in Appendix D. Detailed distances have been marked on the supporting documentation to demonstrate the treed

setback

that

will



Appendix D

Unfortunately, due to clearing and site use by former owners, there has been substantial damage to some trees impacting their health and safety. The trees have been assessed by a formal Arborist tree survey and qualified Danger Tree assessor as recommended by the environmental biologist. They have been further reviewed in the Archaeology report which found no protected trees of significant cultural value will be lost.



Appendix E

In addition to retaining respected consultants for the assessment and preservation of existing trees, ERIF will also invest in the regeneration and enhancement of the site's ecological richness. We have a comprehensive regeneration plan in place set out in the Environmental report:

- Plant a diverse array of native trees and vegetation throughout the development including but not limited to 31 western hemlock trees, 20 Western redcedar and 15 Sitka spruce within the restoration area. The density of the regenerating tree saplings is approximately 3-5 trees per 100m² which is approximately 114 naturally regenerated trees within the restoration area.
- Use organic soil on site as a growing medium for planting areas and salvage native plants, logs and stumps with soil and live native vegetation. This will assist in incorporating native plant seed banks and add natural local form and character to the development.

- Use of naturally stacked rock and include pocket plantings using native coastal vegetation. All seeding will include recognized west coast seed mix (i.e. clover, vetch, wildflower).

Aquaparian will also be engaged as part of the retaining wall design to ensure where these walls interact with parklands and they contribute to protection of the trees in those zones and their root structures, and enhance the native habitats. Their expertise will ensure that any tree which is classified as dangerous under WorkSafe BC Regulation Section 26.11 is removed in such a way that minimizes disruption to the surrounding ecosystem. Arborists and biologist consultant will oversee works where required to preserve and enhance existing tree buffers in the substantial parkland dedication areas, which comprise nearly 30% of the site.

Our commitment to environmental stewardship extends beyond the Peninsula Road setback. Throughout the 221 Minato Road development, we are prioritizing sustainable practices and habitat restoration. We are creating extensive green spaces, restoring riparian areas, and implementing measures to protect local wildlife. This plan will not only compensate for any trees lost during the setback reduction but will also enhance the overall biodiversity of the site.

We aim to create a community-friendly interface from this site and prioritize affordable housing so Ucluelet can continue to grow and thrive. After detailed review in the [Environmental Assessment report](#), [Tree survey](#) and [Archaeological report](#) we believe that the proposed building layout and proposed setback from Peninsula Road strikes the best balance to achieve our environmental restoration goals for the area while providing affordable housing in the time of great need. Dedicated Parkland will ensure the highest protection of key tree areas near the shoreline and creek, enhanced by significant planting and regeneration works.

Q5) Do Council members support extending the 50km/hr speed zone northwest by approximately 1000m and staff making a request to MoTI in advance of receiving a development application by ERIF.

DOU

JH: “I am totally for this. That 50km should have been moved further outside of town ages ago. The parking that happens around Ancient Cedars zone has been really unsafe.”

SA: “I echo that 100%. I like the idea of pushing out the town a little more. It would be another 20 seconds to reach town.”

MM: “Cart before the horse to approach MoTI ahead of the development application (if the two are linked).”

IK: “We were going to reduce speed limits across town. I wonder whether this is part of the same conversation. Generally 50km/hr, it could be slower, but I would support it.”

MMM: “I would support it. I agree, larger conversations are needed to look at all of town.”

ERIF

ERIF supports the Council’s views that reduction in the speed of Peninsula Road would benefit the Ucluelet community and both pedestrian and cyclist use of the area, particularly with Ancient Cedars access and the Health Clinic. The MoTI has confirmed that if the Municipality wish to present this proposal they will work with you to undertake the necessary review by the MOTI Chief Engineer which can take some time.

However, the Traffic Impact Assessment prepared by Watt Consulting, and the proposed traffic design for the development does not recommend nor require a reduction in speed on Peninsula Road. The report supports development of 221 Minato Road by upgrading Minato Road to be a municipal road and as the access road for the development. This report has been filed with MOTI under file number 2024-04965. MOTI have given their initial written support for the proposal for residential access from Minato Road, noting this road is within the Municipal boundary and permitting falls under DOU. They have expressed in-concept support for a gated emergency access to Peninsula Road, which will enable future-proofing for future OCP plans for Peninsula Road. ERIF continue to work with MOTI to finalise the formal approvals of the Minato/Peninsula intersection.

Q6) Do Council members expect that if a zoning amendment and other approvals are granted, the affordable and/or attainable housing units would need to be ensured through housing agreements and covenants that are administered and monitored by the municipality or an experienced qualified third-party?

DOU

SA: “[ERIF] sat us down and showed us the numbers, it was astounding. This would work out to be incredibly affordable for people. I do think it needs to be run by a housing incorporation or an at arm’s length group.”

MMM: “I don’t believe it takes long to set up a housing authority.”

IK: “There is a critical first phase of this development that will warrant the formation of a housing authority, which will go on to have greater impact throughout the community for other small housing developments. This is the kickstarter for that.”

SA: “ERIF suggested approaching the community first. That was their suggestion first off. There will be a vetting process, but I thought having the community first was a great first step.”

JH: “We are at the point where a housing authority or third party would be very worthwhile. I don’t think the municipality should be doing it themselves.”

MM: “Short answer is yes. One unequivocal fact that the community needs affordable housing. It’s something unambiguous with no debate. We have an opportunity to partner with a developer that has that in mind. It’s not the municipality’s role, but whatever we can do to kickstart it we should. It would be a mistake not to explore that, encourage it and support it.”

ERIF

ERIF Housing Association, a not-for-profit organization, has been created to manage the attainable homeownership initiative. ERIF has prepared a Draft Housing Agreement and Covenant Restrictions in our Development Permit application to confirm the commitment to affordable homes. We have established draft eligibility criteria for the attainable home ownership initiative and welcome your feedback. The applications will be administered by the Gray Team and the not-for-profit with a selection panel formed to ensure a fair and transparent assessment of applications against these criteria. This panel would ideally include representatives from the Municipality, the Chamber of Commerce, and a welfare organization. Similar developments have faced difficulties of much-needed dwellings remaining vacant due to overly restrictive requirements, and a transparent and responsive process will ensure financial sustainability for all parties involved. ERIF Housing Association, in conjunction with a rental management company, will oversee the affordable rental processes, governed by the

grant-funding restrictions. Fair, transparent and accessible eligibility criteria is essential, whether administered by ERIF's not-for-profit organization, or by partnering with a municipality-established housing cooperative. By working together, we can ensure the development remains financially viable, while the housing cooperative serves the community's needs and future growth.

Q7) Do Council members have any initial concerns with the concept of extending a commercial designation to the area on the corner of Minato Road?

DOU

JH: "I am not adverse to having a small commercial development. Where would the residents buy their milk? If this is going to be a neighborhood with young kids maybe there is a daycare. There are options."

MMM: "They want places to buy their products close by. I am in support of this."

IK: "I do support the integration of commercial into residential neighbourhoods for this project."

MM: "I wholeheartedly agree with the milk statement. Adding 250 doors, requires their needs to be serviced."

SA: "I agree with all statements. This will add another pocket to town."

ERIF

We value Council's comments and have allowed for adaptable spaces that can include retail store, other commercial and office space, giving priority to convenience of the local residents.

Q8) Do Council members have any initial concerns over a component of short-term vacation rentals in the current proposal at 221 Minato Road?

DOU

IK: "The only concern I have is public perception. When ERIF showed us the numbers, the sliding scales showed how we could pay for affordable housing. The profit margins are very calculated, it needs to be just enough to balance the scales. There are other developments that have come to town who aren't offering us anything. This sets a precedent, if you want limited STRs, you need to provide something to the community. I believe it supportable."

MM: "This has been the opposite to usual STR conversations. I don't support STR but I understand the math here. As reluctant as I am to support an STR, if that is the way forward than I would definitely consider that it's the best out of a bad situation. As it's been presented, I have difficulty criticizing it."

SA: "The STRs are few compared to the whole project. Prop up wages deficit through providing affordable housing (for example: Vancouver nurse coming to do work locally)."

JH: "The only hesitation I have on this is that the 10 waterfront homes would be a part of the whole house short-term rentals."

MMM: "I don't believe they would be whole-house STRs. They would just have a unit that would be a short-term rental."

JH: "It's not apparent from the way it's written, so I am unsure. Although I may not be an STR fan, it does allow this project to get off the ground."

ERIF

Appendix C - Report 24-129

The Development Permit seeks support for Lots 3 and 5 only to have a short-term rental component. These dwellings will support the financial feasibility of the affordable and attainable home development. To ensure a balanced mix of housing options, we could implement restrictions such as:

- At least one long-term rental (4+ months) or owner-occupied unit within each building: This would guarantee a certain level of permanent residency in all areas of the development. The remaining unit/s or suite/s would permit vacation rentals. This would allow for some flexibility while maintaining a predominantly long-term rental focus.
- Alternatively, within Lot 3 and Lot 5, a specific number of buildings could be designated for short-term rentals. This would limit the concentration of vacation rentals and help preserve the neighbourhood's character.
- By incorporating these measures, we can create a development that provides both short-term rental opportunities and a stable residential community for financially viable attainable home ownership and affordable rentals in Ucluelet.

Q9) Subject to meeting environmental and servicing requirements, and subject to public comment, do Council members have any initial concerns with the concept of a temporary manufacturing facility on the eastern portion of the site?

DOC

MMM: "I believe this is only 1 option they are looking at."

SA: "I know people who are desperate for housing. There is light at the end of the tunnel. There is a price to pay for getting this done quickly, I don't believe this is an expensive price."

IK: "All developments will need to be built. A manufacturing facility is actually going to produce less noise and less waste compared to traditional construction."

MM: "ERIF have a vertically integrated manufacturing capacity which makes this feasible. I agree this is a no-brainer that allows the developer to offer this product. Subject to environment reports."

JH: "I concur with previous statements. I am not adverse."

MM: "This will also make the process much quicker. That is something else to consider."

ERIF

ERIF values the support expressed by the Council for a Temporary Access Permit to enable high-quality, all-seasons construction of the homes greener, smarter, and faster by establishing an on-site Construction Facility. The Temporary Use Permit has been lodged with the Municipality on September 30 and is linked here: [ERIF Temporary Use Permit Application](#).



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DATE: 2024-10-25

PROJECT NUMBER: 2412

Formosis Architecture
 214011 Columbia Street
 Vancouver, BC V6A 2K5
 formosis.ca

ERIF Sustainable Solutions

221 MINATO ROAD
 COVER SHEET

DATE: 2024-10-25

A001

PROJECT INFORMATION

LEGAL ADDRESS
 LOT 15 DISTRICT LOT 286 & 471 & 472 & 473, CLAYCOUDD
 DISTRICT PLAN W/7906

CIVIC ADDRESS
 221 MINATO ROAD, UCLULET, BRITISH COLUMBIA, V1R

PP
 024-487-764

ZONING
 CD-6

OCCUPANCY
 C. RESIDENTIAL
 D. BUSINESS AND PERSONAL SERVICES
 E. MERCANTILE

SITE AREA
 10,026 HECTARES

LEGEND

- RESIDENTIAL PARKING
- VEHICLE PARKING
- ACCESSIBLE PARKING
- EV CHARGER PARKING
- COMMERCIAL PARKING
- GARBAGE ENCLOSURE
- SURF SHED
- LARGE SURF SHED

UNIT TYPE LEGEND

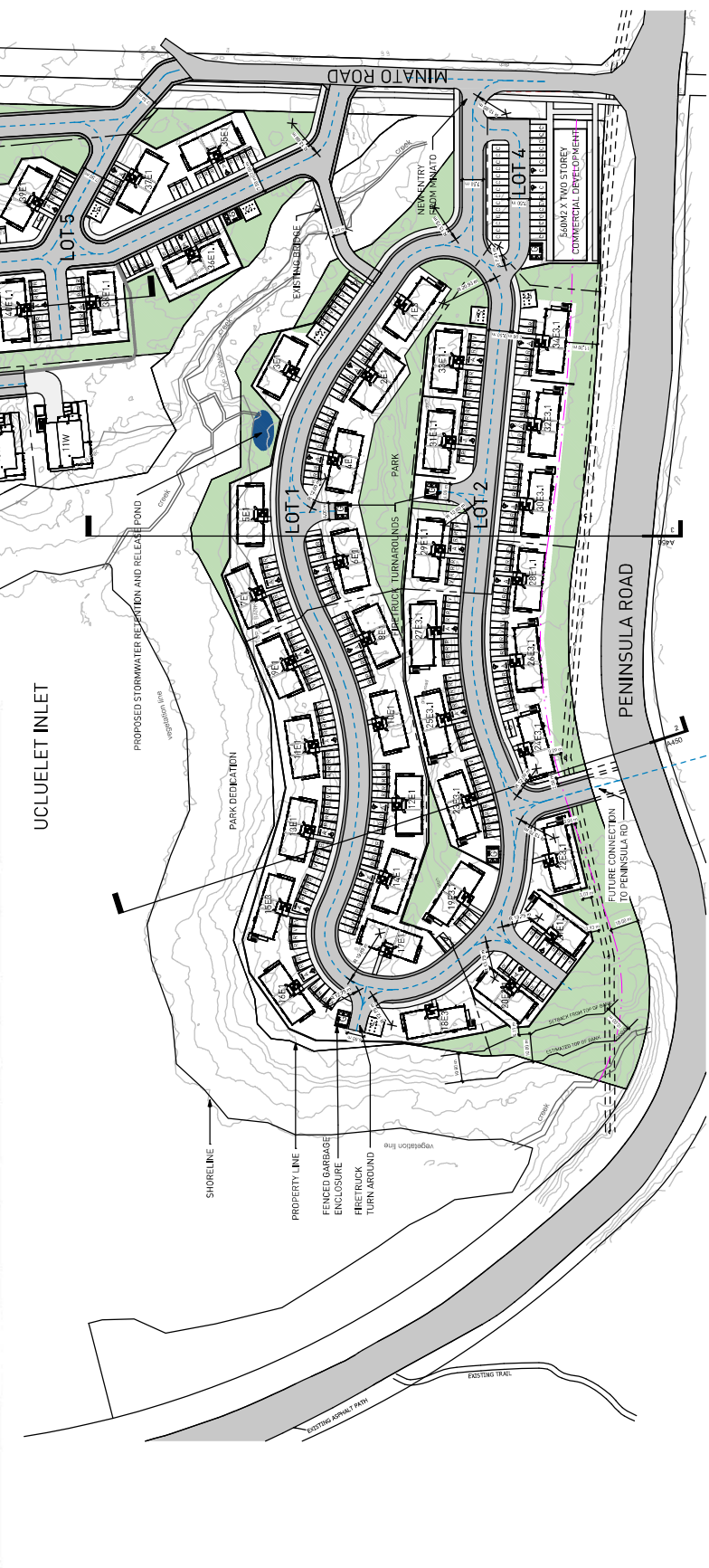
(E1.01) EAGLE 1 2x (2 BEDS) / 2x (3 BEDS)
 (E1.02) EAGLE 2 2x (2 BEDS) / 4x (3 BEDS)
 (E2.01) EAGLE 3.1 2x (2 BEDS) / 4x (3 BEDS)
 (E2.02) EAGLE 3.2 2x (2 BEDS) / 4x (3 BEDS)
 (E2.03) EAGLE 3.3 2x (2 BEDS) / 4x (3 BEDS)
 (W) WATERFRONT DETACHED HOME

SETBACKS AND HEIGHTS

Setback	Height	Area	Volume
Front	3.0m	10,026 m ²	30,078 m ³
Rear	3.0m	10,026 m ²	30,078 m ³
Side	3.0m	10,026 m ²	30,078 m ³
Roof	3.0m	10,026 m ²	30,078 m ³
Other	3.0m	10,026 m ²	30,078 m ³

221 MINATO ROAD, UCLULET, PROJECT DATA

Lot	Area (m ²)	Volume (m ³)	Height (m)	Setback (m)	Notes
Lot 1	1,000	3,000	3.0	3.0	
Lot 2	1,000	3,000	3.0	3.0	
Lot 3	1,000	3,000	3.0	3.0	
Lot 4	1,000	3,000	3.0	3.0	
Lot 5	1,000	3,000	3.0	3.0	
Lot 6	1,000	3,000	3.0	3.0	
Lot 7	1,000	3,000	3.0	3.0	
Lot 8	1,000	3,000	3.0	3.0	
Lot 9	1,000	3,000	3.0	3.0	
Lot 10	1,000	3,000	3.0	3.0	
Lot 11	1,000	3,000	3.0	3.0	
Lot 12	1,000	3,000	3.0	3.0	
Lot 13	1,000	3,000	3.0	3.0	
Lot 14	1,000	3,000	3.0	3.0	
Lot 15	1,000	3,000	3.0	3.0	
Lot 16	1,000	3,000	3.0	3.0	
Lot 17	1,000	3,000	3.0	3.0	
Lot 18	1,000	3,000	3.0	3.0	
Lot 19	1,000	3,000	3.0	3.0	
Lot 20	1,000	3,000	3.0	3.0	
Lot 21	1,000	3,000	3.0	3.0	
Lot 22	1,000	3,000	3.0	3.0	
Lot 23	1,000	3,000	3.0	3.0	
Lot 24	1,000	3,000	3.0	3.0	
Lot 25	1,000	3,000	3.0	3.0	
Lot 26	1,000	3,000	3.0	3.0	
Lot 27	1,000	3,000	3.0	3.0	
Lot 28	1,000	3,000	3.0	3.0	
Lot 29	1,000	3,000	3.0	3.0	
Lot 30	1,000	3,000	3.0	3.0	
Lot 31	1,000	3,000	3.0	3.0	
Lot 32	1,000	3,000	3.0	3.0	
Lot 33	1,000	3,000	3.0	3.0	
Lot 34	1,000	3,000	3.0	3.0	
Lot 35	1,000	3,000	3.0	3.0	
Lot 36	1,000	3,000	3.0	3.0	
Lot 37	1,000	3,000	3.0	3.0	
Lot 38	1,000	3,000	3.0	3.0	
Lot 39	1,000	3,000	3.0	3.0	
Lot 40	1,000	3,000	3.0	3.0	
Lot 41	1,000	3,000	3.0	3.0	
Lot 42	1,000	3,000	3.0	3.0	
Lot 43	1,000	3,000	3.0	3.0	
Lot 44	1,000	3,000	3.0	3.0	
Lot 45	1,000	3,000	3.0	3.0	
Lot 46	1,000	3,000	3.0	3.0	
Lot 47	1,000	3,000	3.0	3.0	
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Lot 49	1,000	3,000	3.0	3.0	
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Lot 87	1,000	3,000	3.0	3.0	
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Lot 89	1,000	3,000	3.0	3.0	
Lot 90	1,000	3,000	3.0	3.0	
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Lot 93	1,000	3,000	3.0	3.0	
Lot 94	1,000	3,000	3.0	3.0	
Lot 95	1,000	3,000	3.0	3.0	
Lot 96	1,000	3,000	3.0	3.0	
Lot 97	1,000	3,000	3.0	3.0	
Lot 98	1,000	3,000	3.0	3.0	
Lot 99	1,000	3,000	3.0	3.0	
Lot 100	1,000	3,000	3.0	3.0	



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DO NOT SCALE THE DRAWINGS.

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ERIF Sustainable Solutions

Formosis Architecture

21041 Columbia Street
 Vancouver, BC, V6A 9E5
 formosis.ca

Project Number: 2412

DATE	DESCRIPTION
2024-10-25	ISSUED FOR PERMITS
2024-10-25	REVISIONS

Appendix C - Report 24-129

MINATO 221 MINATO ROAD

UCLULET

SCALE: 1:750

DATE: 2024-10-25

PROJECT NO: 2412

DATE: 2024-10-25

SCALE: 1:750

DATE: 2024-10-25

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DATE: 02/24/2025



280411 Columbus Street
 Worcester, MA 01605
 formosis.ca

PROJECT NUMBER:	2412
DATE:	02/24/2025
SCALE:	AS SHOWN
DATE:	02/24/2025



PROJECT: MINATO
 ADDRESS: 221 MINATO ROAD

DATE: 2024-10-25
 SCALE: 1:750

PROJECT: MINATO
 ADDRESS: 221 MINATO ROAD

APPENDIX C - REPORT 24-129



202

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DATE: 10/20/2024



Formosis Architecture
28001 Columbus Street
Norwood, MA 01968
formosis@formosis.com

Project Number: 2412

DATE PREPARED	10/20/2024
DESIGNED BY	FORMOSIS
CHECKED BY	FORMOSIS
DATE FOR REVIEW	10/20/2024
DATE FOR REVISION	10/20/2024



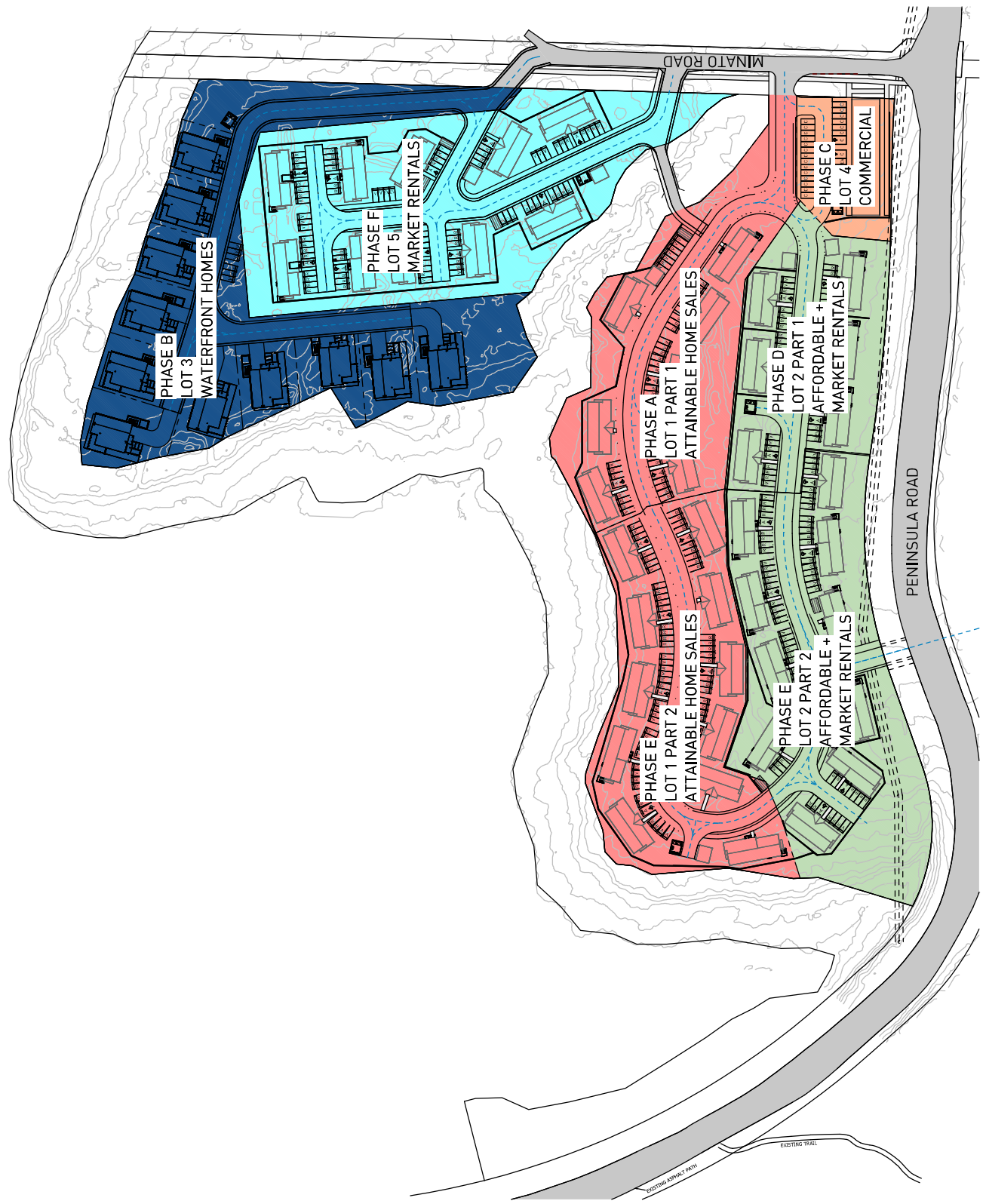
MINATO ROAD
221 MINATO ROAD

STAGING PLAN

DATE: 2024-10-25
SCALE: 1:750

PROJECT NO: 2403

Appendix C - Report 24-129



EXISTING APPAL PAVE
EXISTING WALL

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DATE: 2024-10-25

SCALE: 1/8" = 1'-0"

PROJECT: 221 MINATO ROAD

DATE: 2024-10-25

SCALE: 1/8" = 1'-0"

PROJECT: 221 MINATO ROAD

DATE: 2024-10-25

SCALE: 1/8" = 1'-0"

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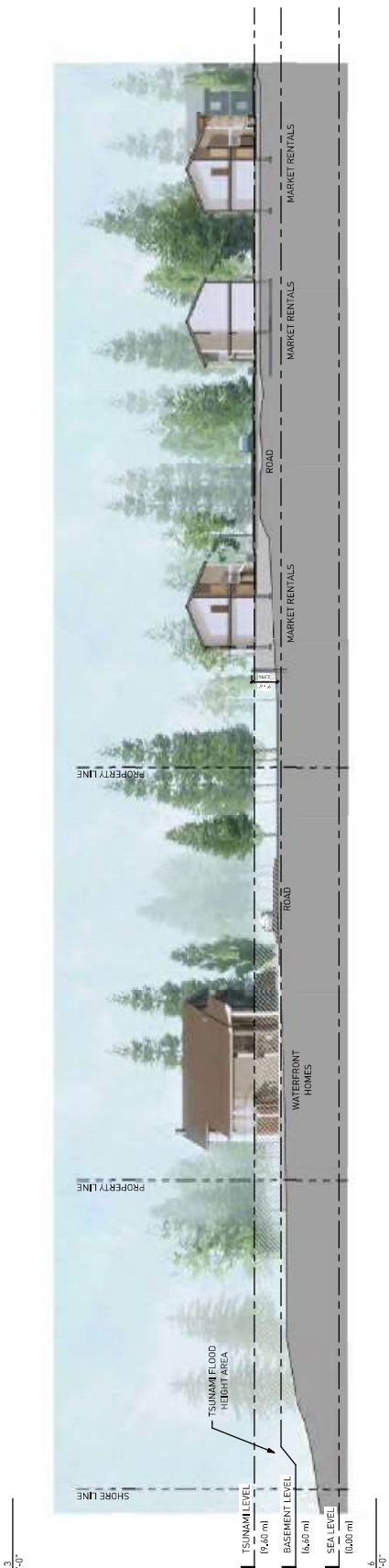
PROJECT: 221 MINATO ROAD

DATE: 2024-10-25

SCALE: 1/8" = 1'-0"

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DATE: 2024-10-25



Formosis Architecture
20001 Columbus Street
Yonkers, NY 10585
formosisca.com

Project Number: 2412

ISSUED FOR PERMITTING

REVISIONS

DATE: 2024-10-25

SCALE: 1/8" = 1'-0"

PROJECT: 221 MINATO ROAD

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Formosis Architecture
20001 Columbus Street
Yonkers, NY 10585
formosisca.com

Project Number: 2412

ISSUED FOR PERMITTING

REVISIONS

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SCALE: 1/8" = 1'-0"

PROJECT: 221 MINATO ROAD

DATE: 2024-10-25

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CONTRACT NO.



DATE



Formosis
Architecture
28041 Columbus Street
Yonkers, NY 10585
formosis.ca

Project Number: 2412

DATE	DESCRIPTION
2024-10-25	ISSUED FOR PERMITTING
2024-10-25	REVISIONS FOR DESIGN



MINATO
221 MINATO ROAD

MINATO
221 MINATO ROAD

MINATO
221 MINATO ROAD

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221 MINATO ROAD

MINATO
221 MINATO ROAD

MINATO
221 MINATO ROAD

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DATE: 10/20/2024



Formosis Architecture
 28041 Columbus Street
 Yorba Linda, CA 95676
 formosisca.com

PROJECT NUMBER:	2412
DATE:	10/20/2024
DESIGNED BY:	ERIF
DESIGNED FOR:	ERIF



PROJECT: MINATO
 221 MINATO ROAD

CLIENT: AERIAL VIEW OF COMMON AFFINITY PARK

DESIGNED BY: UCLUELET

DATE: 2024-10-20

PROJECT NO.: 2412



Bruce Greig

From: Juliette Green <juliette.g@erif.ca>
Sent: September 26, 2024 6:32 AM
To: Joshua Hunt; Duane Lawrence; Bruce Greig; John Towgood; Jodie Thompson
Subject: Re: DP Submission - 221 Minato Road
Attachments: ERIF DP Application 221 Minato Cover Sept 20 2024.pdf

[External]

Dear Duane, Bruce, John and Team

We are pleased to present the Environmental Assessment Report from Aquaparian for 221 Minato Rd. The direct link to the document is here and has been uploaded to the Appendix links:

<https://drive.google.com/drive/folders/1PhoU17Ksa3SZQuO-ODkmXPkfmnAhtBXw;>

We have taken considerable care to ensure this document provides a detailed plan for regeneration of the forest, further planting, and best protection of the Creek and Waterfront through the Parkland Dedication areas given back to the District which are nearly 30% of the original site area. We are proactively following these recommendations, proceeding with Tree Survey and Assessment and fostering continual collaboration between our amazing consultants, engineers, biologists, geotech all working together to plan build methodology that protects and preserves the natural beauty of the site.

I noted the comment on the Archaeological report being in interim report format. We will follow up on the final report from Yuuṭuṭitṭath Government - Ucluelet First Nation (UFN) Department of Culture, Language & Heritage and will provide this as soon as it is available. To confirm the identified sites are within the parkland dedication areas, in the interim, Carey Cunneyworth prepared this map.

<https://drive.google.com/file/d/1u0s8Rg082iU00fkk0v2F7YqhUySKKi46/view?usp=sharing>

The final document you have requested is the further Flood Hazard Assessment and Flood Assurance Statement. As you know from our meeting on Monday with Clayton Hiles, one of BC's most preeminent Coastal Engineers, we aim to have this report back within a week.

I trust the supporting brief on tsunami, drawing on the guidance of our engineers and expert consultants, was helpful to confirm that the Municipality has discretion in what is requested and considered in the subdivision and DP approval process. ERIF has provided Ebbwater's site-specific report on the flood levels as required in the Interim Tsunami Policy. Nonetheless we will press on with preparing the further Flood Hazard Assessment study and Flood Assurance Statement as requested.

The physical documents for ERIF's application for the By Law Update, Subdivision, Environmental and Build Development Permits have been lodged at your office. We followed the DP checklist to ensure this was a complete set so trust this meets your requirements.

ERIF also came to the District office yesterday to pay the lodgement fees but were advised the staff had not yet calculated the invoice. We look forward to receiving the invoice at your earliest convenience so the submission fees can be paid.

We trust you have all you require to commence assessment of the applications. ERIF will forward the additional Flood Study and Assurance Statement as soon as they are available.

Thank you for reviewing the documentation and working with us on this wonderful opportunity for Ucluelet's future growth.

With thanks

Juliette Green

Juliette Green | Strategic Impact Director

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From: Joshua Hunt <joshua.h@erif.ca>

Sent: Saturday, September 21, 2024 5:42 AM

To: Duane Lawrence <dlawrence@ucluelet.ca>; Bruce Greig <bgreig@ucluelet.ca>; John Towgood <JTowgood@ucluelet.ca>; Juliette Green <juliette.g@erif.ca>; Jodie Thompson <jodie.t@erif.ca>

Subject: DP Lodgement - 221 Minato Road

Dear Duane, Bruce, John and District of Ucluelet Team

On behalf of ERIF, we are delighted to present the Rezoning, Subdivision and Development Permit applications for 221 Minato Road.

Please find attached the Cover Letter which links all the required documentation for the application. You will also see a supporting presentation here: [Development Permit \(18SEPT20204\) - 221 Minato Road Ucluelet \(canva.com\)](#). Hard copy versions will be supplied at our meeting on Tuesday and we will visit the office to arrange application fees.

We are committed to working with you to deliver high quality attainable and affordable homes for Ucluelet and contribute to thriving future economic and community growth. We thank you for your consideration.

Please note that there are two outstanding items that we will provide when received as soon as possible: 1) Flood Hazard Report and Assurance by KWL: this deliverable is well underway and will be supplied as soon as possible. Thank you for meeting with ERIF and our consultant team on Monday at 12 pm to discuss this further.

2) Environmental Report by Aquaparian: this report is being finalised and will be submitted shortly.

Each of the supporting documents are available in the linked files and our team are readily available to assist with any questions regarding the documentation as we progress through the approval process.

We look forward to meeting with Council this coming Tuesday. We thank you for your work reviewing the supplied reports and documentation to support our application. In the meantime, if you have any questions or require further clarification, please do not hesitate to contact us.

Thank you for your time and assistance with this exciting opportunity to serve Ucluelet.

In partnership,

Kind Regards,

Joshua Hunt | CEO

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1.0 INTRODUCTION & BACKGROUND

Aquaparian Environmental Consulting Ltd (Aquaparian) has been retained by ERIF Sustainable Solutions to provide an updated Environmental Impact Assessment Report (EA) report for a rezoning application for a proposed multi-family residential development located at 221 Minato Road in the District of Ucluelet, BC. The proposed development is at the rezoning and development permit application phase.

An Environmental Impact Assessment (EA) report was originally produced for the property by Aquaparian in May of 2017 for the past owners of the property in preparation for a proposed campground, RV use and single-family residence. The original owner of the property BNEE Enterprises cleared much of the forest stand on the property including the clearing and encroachment into municipal development permit areas (DPA) resulting in contravention of District of Ucluelet (DOU) DPA riparian and foreshore protection and Provincial land development guidelines and regulations. The property was understood to contain large, mature trees with several considered old-growth in classification, fish bearing watercourses with associated forested swamps, and wildlife trees. The property also contains a foreshore connection to Ucluelet Inlet with intertidal / estuarine mudflats and marine saltmarsh which is considered very sensitive. The 2017 EIA and 2018 Vegetation Management Plan (VMP) was produced to address the impacted conditions of the DPAs following site clearing. The VMP was never fully completed and based on follow-up site visits including a recent site assessments on August 8 and September 17, 2024, portions of the impacted DPAs have undergone natural infilling of understory vegetation, but additional vegetation planting works should be conducted to restore the vegetation setbacks.

In 2019, A Section 11 Notification under the *Water Sustainability Act* was submitted to replace a log stringer road crossing bridge over the main access road with a new wooden box culvert crossing. A revised EIA report was produced by Aquaparian in July of 2022 for proposed rezoning of the property to Campground and Guest House zoning with a foreshore setback, stream riparian and Minato Road trail land dedication for park which was approved by the DOU. As understood, the Parkland Dedication is now locked in on title and finalized within a 2023 property survey. The 30m foreshore setback and creek riparian corridors within the property are now legally protected as parkland and in the care and ownership of the District of Ucluelet. The park land dedications total 8.8 acres or 30% of the site leaving a buildable area of 16 acres. A rezoning amendment application has been submitted to the DOU for Comprehensive Development (CD) to allow for a proposed mixed, multi-family and single-family residential development. Park dedication for the foreshore setback and stream setback has been included in this rezoning application. This revised EA report is for the new proposed rezoning. Because the DOU Official Community Plan was recently updated in 2022 this assessment report has also been revised to address the new environmental DPA guidelines.



A site location image is included as Figure 1a and an image showing the boundary of the subject property is included as Figure 1b. A selection of photographs taken during the 2017 site assessment and most recent on August 8, 2024 are included as Appendix A.

1.1 Project Description

The proposed multi-family residential development project is at the preliminary planning stage and is expected to be constructed in a phased approach with multiplex residential dwellings and ten detached homes, with mixed use for attainable homeownership, community-run affordable rentals and market rentals and ownership. A 30m setback from the foreshore and a 10m riparian setback from a stream in the centre of the property is dedicated as park and now is owned by the District of Ucluelet. A 10m wide land dedication along the west side of Minato Road property boundary is positioned outside of any development and owned by the Municipality. The remaining 16 acres of buildable area is divided into the north section to the west of the Minato Road and the south section to the north of Peninsula Road. The north section includes two road access points off Minato Road, waterfront residential homes and holding apartments. A pedestrian bridge over the central stream (middle) is to connect the north and south sections. The south section includes a new access road off Minato Road, a future road access off Peninsula Road, apartments, a commercial development in the southeast corner and park space in the centre. It is understood that the DOU has agreed to reduce the vegetation corridor setback along Peninsula Road to 10m starting from the property lot line.

Initial development plans for the property are illustrated in conceptual drawings produced by Formosis Architecture for ERIF Sustainable Solutions (developer) and included as Appendix B. Proposed project phasing is as follows (See Appendix B):

- Phase A – Lot 1 Part 1 Attainable Home Sales;
- Phase B – Lot 3 Waterfront Homes;
- Phase C – Lot 4 Commercial Development;
- Phase D – Lot 2 Part 1 Affordable & Market Rentals;
- Phase E – Lot 1 Part 2 Attainable Home Sales and Lot 2 Part 2 Affordable & Market Rentals; and,
- Phase F – Lot 5 Market Rentals.

1.2 Regulatory Review

The following is a review of regulations that may apply (but not limited to) development of the property:

- District of Ucluelet Development Permit Areas (DPAs) – Official Community Plan (OCP) Bylaw No. 1306, 2022



The OCP identifies that the property is subject to the following Environmental DPAs:

- **DPA V – Terrestrial Ecosystems (Mature Forest)** - This Development Permit Area includes mature forests and wildlife habitat that could be subject to degradation due to development or harmful uses.

Guidelines

E.V.1. Development should be planned to avoid intrusion into DPA V areas of the site and to minimize the impact of any activity on these areas.

E.V.2. Development permit applications that encroach on areas designated as DPA V should include a report prepared by a qualified environmental professional outlining the following information:

- a. detailed site plan (1:250 or larger) identifying the location of property lines, proposed development and natural features including any Sitka Spruce, krummholz tree forms, nesting trees or wildlife corridors;
- b. an impact statement describing effects of proposed development on the natural features and ecosystems on the site;
- c. measures necessary to avoid wildlife conflict and any adjustments to the development plan where necessary to avoid established wildlife corridors;
- d. guidelines and procedures for mitigating habitat degradation including limits of proposed leave areas;
- e. recommendations for timing, construction standards, and where further assessment is necessary (e.g., seasonal nesting bird surveys),
- f. habitat compensation alternatives, where compensation is approved.

DPA VI – Stream and Riparian Areas Protection - include the lands within 30 metres of streams and watercourses and include watercourses, lakes, streams, ponds and wetlands identified as fish-supportive habitat or connected to watercourses. For a ravine less than 60 metres wide, the DPA applies to a strip on both sides of the stream measured from the high-water mark to a point that is 30 metres beyond the top of the ravine bank.

A section of the stream through the centre of the property (Middle Stream) is within a shallow gully that benches down to an elevation that meets the foreshore but does not completely fit the definition of a ravine which is a narrow, steep-sided valley that is commonly eroded by running water and has a slope grade greater than 3:1.

Guidelines

E.VI.1. Development or alteration should be planned to avoid intrusion into DPA VI areas of the site and to minimize the impact of any activity on these areas.



E.VI.2. Development permit applications that would encroach on areas designated as DPA VI should include a report prepared by a qualified environmental professional outlining the following information:

- detailed site plan (1:250 or larger) identifying the natural boundary and a line 30 metres from the natural boundary;
- an impact statement describing effects of proposed development on the natural conditions;
- measures deemed necessary to protect the integrity of streamside protection and enhancement areas from the effects of development;
- guidelines and procedures for mitigating habitat degradation including limits of proposed leave areas; and,
- habitat compensation alternatives, where compensation is approved.

E.VI.3. Development permit applications should include a vegetation management plan indicating the extent of proposed buffer areas and the proposed management of vegetation in these areas.

E.VI.4. Based on the biophysical assessment of the site within an area designated DPA VI, works or protective measures such as the planting or retention of trees or vegetation may be required to preserve, protect, restore or enhance stream, watercourses, fish habitat or riparian areas.

E.VI.5. In the absence of a report from a qualified environmental professional, a minimum buffer of 30 metres should be preserved between the high water mark of the watercourse and any building or structure.

E.VI.6. The total amount of impervious cover on property adjacent to a watercourse should minimize impact on the receiving aquatic environment. Consideration should be given to reducing impervious cover through reduction in building footprint and paved areas, exceeding the minimum riparian setback where feasible, and use of on-site infiltration.

DPA VII – Marine Shoreline

Guidelines

E.VII.1. This DPA applies to all lands within 30 metres, measured horizontally in both landward and seaward directions, from the natural boundary of the ocean.

E.VII.2. Unless otherwise exempt, prior to undertaking any development on the lands within DPA VII, the owner of the lands must obtain a Development Permit, the application for which must include an assessment report that has been prepared by a Qualified Environmental Professional, with demonstrated experience regarding the subject matter. The assessment report will identify how the proposed development will affect aquatic resources, and recommend measures to reduce or mitigate any negative impacts, such as the:

- i. Appropriate siting of buildings, structures, roads, driveways, parking areas, trails, paths, and utilities;
 - ii. Retention or restoration of native vegetation and soils;
 - iii. Removal of invasive species;
 - iv. Designation of buffer areas to protect environmentally sensitive features or habitat;
 - v. Specification of any activities that may occur within the buffer areas; and
 - vi. Must state that the proposal is suitable for the area intended for development.
- E.VII.3. Land shall be retained in its natural state where possible, preserving indigenous vegetation and trees. If an adequate suitable building envelope exists on a parcel outside of the DPA, the proposed development should be directed to that site or area. Encroachment into the DPA shall only be permitted where the applicant can demonstrate that the encroachment is necessary to protect environmentally sensitive features, due to hazardous conditions or topographical considerations, or to relate the development to surrounding buildings and structures.
- E.VII.4. The removal of trees and vegetation within DPA VII is discouraged and must be limited to only those areas that must be cleared to support the development. Any clearing required to accommodate roads, buildings, structures, and utilities, with the exception of necessary hydraulic, percolation, or geotechnical testing, shall not occur until after the issuance of a Development Permit to minimize the potential for soil erosion, runoff and spread of invasive species.

OCP Pg. 74 - General Future Comprehensive Planning Area Policies

Policy 3.171 The area on Minato Road north of Peninsula Road is designated for Future Comprehensive Planning. This area is envisioned as a residential community with potential for guest accommodation, with significant tree retention. The shoreline and marine wetlands (salt marsh) of Olsen Bay is recognized as having important ecosystem values. No development should approach within 30m of the high-water mark of Olsen Bay. A greenbelt should be maintained along stream corridors and the shoreline.

The 2022 re-zoning included Restrictive Covenant requirements (DOU Report to Council Meeting Notes dated June 7, 2022) prior to submission of a development permit including the following that are related to the environment:

- The following areas dedicated as Park:
 - 1) Area extending 30m inland from the natural boundary of the sea and watercourse located in the southwest corner of the Lands;
 - 2) An area extending 10m on either side of the identified watercourse running through the approximate centre (middle) of the lands;

- The following areas dedicated as Road:
 - 1) A 10m strip parallel to the east boundary of the Lands for widening of the Minato Road public road right-of-way and extension to the shore of Olsen Bay;
- Archaeological assessment of the site and the proposed development with recommendations for any mitigation measures, design changes and/or permitting requirements to protect archaeological and cultural resources;
- Assessment by a Qualified Environmental Professional (QEP) of the ecological resources of the Lands and surrounding ecosystem, with recommendations for how the proposed development can avoid and / or mitigate impacts on terrestrial and marine ecosystems or enhance the existing ecological function of the site;
- Grading and rainwater management plans for the proposed development of the Lands (incorporating the recommendations of the QEP and landscape plans for the proposed development);
- A proposed plan for construction (and phasing if appropriate) at the Owner's cost for gravel-surfaced pedestrian trails in the approximate alignment shown on the Development Plan, and:
 - i. Constructed to the Ucluelet Wild Pacific Trail construction standards;
 - ii. Following specific site-determined alignment to the satisfaction of the Director of Community Planning to achieve the following:
 - 1) Minimize impact on the natural environment;
 - 2) Specifically, minimize possibility of pedestrian encroachment into the salt marsh and intertidal areas of Olsen Bay;
 - 3) Minimize tree removal;
 - 4) Maximize the experience by trail users; and,
 - 5) Fit the character of the municipal trail network.
 - iii. Including stairs, bridges, boardwalks, ramps, railings and other similar trail structures as reasonably necessary to achieve the above; and,
 - iv. Including archaeological and environmental assessment and oversight as necessary during construction.
- Comprehensive Development 6 Zone - Minato Road

The subject property was rezoned (Zoning Bylaw Amendment No. 1312, 2022) from GH: Guest House and CG: Campground to CD 6: Comprehensive Development 6 Zone – Minato Road and P-1: Public Institutional (park dedication).
The CD-6 Zone is intended for the development of a mix of multi-family and single-family residential development providing for a mix of sizes, types and tenures including affordable rental, market rental, attainable ownership (under a housing agreement covenant) and market ownership homes.

- **Provincial Riparian Areas Protection Regulation (RAPR)**

The provincial RAPR (2019) calls on local governments to protect riparian areas during residential, commercial and industrial development. The purpose of the RAPR is to protect the features, functions and conditions vital for maintaining stream health and productivity. The RAPR applies to all municipal regions along the east side of Vancouver Island from Victoria to Campbell River and inland to Port Alberni. The West Coast communities of Tofino and Ucluelet have also recognize the RAPR and the policy guidelines in protecting watercourses including all streams, rivers, lakes, ponds, and wetlands. These watercourses are considered protected if they support fish or flow into fish bearing waters and are to be considered as Development Permit Areas (DPA) requiring protective riparian buffers.

- **Section 34 of the Provincial Wildlife Act**

Section 34 of the Provincial Wildlife Act states that a person commits an offence if the person, except as provided by regulation, possesses, takes, injures, molests or destroys:

- (a) a bird or its egg,
- (b) the nest of an eagle, peregrine falcon, gyrfalcon, osprey, heron or burrowing owl; or
- (c) the nest of a bird not referred to in paragraph (b) when the nest is occupied by a bird or its egg.

In areas with no local government tree protection bylaws, outside of the nesting season, a landowner has the right to cut down any trees right up to and beside a tree containing the nest. During the nesting season, such an activity may 'molest' the nesting birds, and could result in an offence (supported under the federal Migratory Bird Convention Act, 1994). Provincial guidelines indicate the songbird nesting season is from March 15th to August 15th of a given year.

*Eagle, Osprey, Great Blue Heron and Pileated Woodpecker nests are all provincially protected year-round, whether or not the nest is in use (as per the Provincial Wildlife Act). Bald eagles, ospreys and herons typically nest in forest stands near the ocean (including near protected coves). Bald eagle nesting season generally starts in January and extends until the end of August of a given year. Nesting activity can occur outside these dates depending on the weather.

Breach of provincial regulations may have occurred including Section 34 of the Provincial Wildlife Act for the protection of migratory birds nesting with special emphasis

on the protection of any Eagle, Osprey or heron nests / nest trees which are protected all year round. Due to the pre-assessment site clearing, nests could not be identified.

- **Provincial Water Sustainability Act (WSA), Section 11 (2016)**

Prohibits any changes in or about a stream without submitting a provincial Section 11 Notification or Approval of proposed works or receiving an Approval from the BC Ministry of Environment. Changes in and about a stream is defined in the WSA as:

- Any modification to the nature of a stream, including any modification to the land, vegetation and natural environment of a stream or the flow of water in a stream or,
- Any activity or construction within a stream channel that has or may have an impact on a stream or a stream channel; includes culvert and bridge installations.

No works such as Culvert or Bridge Installation are to be completed without Notification or Approval by the Province.

- **BC Heritage Conservation Act.**

All archaeological sites, recorded or not, are protected under the Heritage Conservation Act and must not be altered or damaged without a site alteration permit from the Archaeology Branch. Culturally Modified Trees (CMT) are protected under the BC Heritage Act and require a permit before removal. Old growth trees may also be protected under the BC Heritage Act depending on species, size and significance. If a cultural find is identified on site, all works around the location of the find area to stop immediately and the province notified. An archaeologist with experience in local first nations knowledge is to be retained through the province or from local first nations (Ucluelet FN or Toquaht Nation).

- **Federal Fisheries Act Section 35**

Fish and fish habitat protection provisions under the *Fisheries Act* (2019) include the following:

- No person shall carry on any work, undertaking or activity, other than fishing, that results in the death of fish; and,
- No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat. The definition of harmful alteration, disruption or destruction of fish habitat is any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes of fish.

- **Federal Fisheries Act Section 36**

Environment and Climate Change Canada administers Section 36 of the *Fisheries Act*, the key pollution prevention provision, prohibiting the deposit of deleterious substances into waters frequented by fish, unless authorized by regulations under the *Fisheries Act* or other federal legislation. A deleterious substance can be any substance that, if added to any water, would degrade or alter its quality such that it could be harmful to fish, fish habitat or the use of fish by people.

Changes to the federal *Fisheries Act* in 2019 have re-focused efforts on protecting both fish and fish habitat and include the productivity of commercial, recreational and Aboriginal fisheries. Changes to the *Fisheries Act* include the prohibition against causing serious harm to fish that are part of or support a commercial, recreational and Aboriginal fishery (as per Section 35), and includes the prohibiting the altering the passage for fish and modifying the flow of watercourses.

- **Federal Migratory Birds Convention Act, 1994.**

Most species of birds in Canada are protected under this *Act*. “Migratory birds” are defined by Article I of the Convention which names the families and sub-families of birds protected, and provides some clarification of the species included. In general, birds not falling under federal jurisdiction within Canada include grouse, quail, pheasants, ptarmigan, hawks, owls, eagles, falcons, cormorants, pelicans, crows, jays, kingfishers, and some species of blackbirds.

Vegetation clearing in the nesting season may result in an impact to birds protected under this *Act* and are required to undertake a bird nest presence survey prior to any clearing works. Provincial and federal migratory bird protection measures restrict tree and understory vegetation clearing outside the expected migratory bird nesting window (outside the period between March 15 to August 15).

2.0 MINATO ROAD PROPERTY SITE DESCRIPTION

The subject parcel is located within mostly undeveloped lands northwest of the Village of Ucluelet. The property is irregularly-shaped with a total area of 24.8 acres and legally identified as follows:

Lot 1, District Lot 286, Clayoquot District, Plan EPP129243 (PID: 032-135-084).

The subject property is bounded to the north and west by Olsen Bay which is a sheltered bay in the Ucluelet Inlet, to the south by Peninsula Road and to the east by Minato Road. The western

portion of the parcel are the remains of a narrow-forested strip that follows a curve along Peninsula Road around the bay for approximately 175m. The property supports the lower reaches of two watercourses that flow into Olsen Bay. Both watercourses are understood to be fish-bearing near their confluence with the ocean. The Middle Stream bisects through the centre of the site and the Western Stream is located in the western portion of the site near Peninsula Road.

The property is gently sloping towards the ocean with the higher land being along Peninsula Road. A section of intact forest consists of mature second-growth coastal western hemlock forest with some veteran western redcedar and Sitka spruce trees. The northern edge of the property primarily consists of salt marsh habitat influenced by upland drainage and tidal mudflat. The western side of the property includes a bench of land which is partially cleared. The previous owner of the property BNEE Enterprises grubbed and removed most of the remaining tree stumps and stockpiled them to the sides of the development property. Over the past seven years, the remaining stand of trees and foreshore embankment along the northern edge of the development show signs of erosion and sloughing resulting in the further loss of several trees. Google Earth aerial imagery showing the forested site in 2016 prior to clearing works and the post-clearing conditions is included as Figure 2.

3.0 ENVIRONMENTAL SETTING

The following section provides an overview of biophysical attributes and land use of the site based on 2017 site survey and subsequent August 8, 2024 site survey.

3.1 Physical Resources

The physical resources of the region are interrelated and are influenced by the surficial geology, topography, climate and drainages of the surrounding environment. These physical attributes are described as follows:

3.1.1 *Topography*

The property slopes moderately down from Peninsula Road which forms the southern boundary of the property into a gentle slope north towards the ocean. Much of the property is greater than 7-10m above sea level. The western portion of the site between Peninsula Road and the sheltered bay is a low-lying depression with pockets of wet soils and ponded water with a high-water table. Surface flows drain north towards the shoreline. The area of the treeline down to the saltmarsh along the northwest side of the property includes a forested bench while the treeline area along the northern property boundary is a steep slope to the intertidal.

3.1.2 *Climate*

The property is found within the Coastal Western Hemlock Submontaine Very Wet Maritime CWHvh1 subzone variant. The CWHvh1 is restricted to the southwest coast at low elevations between sea level and approximately 200m. The CWHvh1 is restricted to a narrow coastal fringe on the outer coast of southwest Vancouver Island near Port Renfrew to Quatsino Sound (Green and Klinka, 1994). The proximity of the site to the Pacific Ocean moderate temperatures and results in a common occurrence of fog, cloud and drizzle throughout the year. Precipitation varies widely in this sub-region, with lowest values occurring in the local rain shadow on the north eastern part of Vancouver Island at Bull Harbour (Green R.N. and Klinka, K, 1994).

The mean annual precipitation in the area ranges between 2009 to 3943 mm. The mean annual temperature is 9.1 °C. The Ucluelet area has experienced both above average winter rainfalls and hot dry summer months over the past five to six years indicating coastal climatic change.

3.1.3 *Land/soil*

A review of the Ministry of Environment Technical Report 17, Soils of Southern Vancouver Island identified the most common soils within the subject property are comprised of the Hankin Soil Association, with the taxonomic classification of Duric Ferro-Humic Podzol (Jungen, Technical Report 17).

Hankin soils occur in the Western redcedar subzone of the Coastal Western Hemlock – Pacific Silver fir (*Amabilis fir*) within the Estevan Coastal Plan. The soils have developed in cobble, gravelly fine and/or gravelly sand colluvial morainal deposits, less than 1m thick overlaying argillite bedrock (Jungen, Technical Report 17). Slopes typically vary between 1 to 30% with elevation from sea level to 600m.

3.1.4 *Surface Water*

The subject property contains two streams that support fish use within their lower reaches below Peninsula Road and close to the confluence with the ocean. The streams are fed by upland groundwater sources and stormwater runoff coming from ditching along Peninsula Road and Minato Road and likely support amphibians throughout their length in the property. A small perched skunk cabbage and sedge dominated swamp forms a fanned floodplain for the Middle Stream and a second small upper drainage helps to attenuating seasonal run-off from the property. The stream and drainage combine in the floodplain and flow

into Ucluelet Inlet and through a salt marsh that encompasses much of the shoreline within the bay and are considered key environmentally sensitive features on the property worthy of protection. A second stream (Western Stream) is located at the southwestern end of the property boundary within a steeply incised stream channel. The fish-bearing stream crosses under Peninsula Road in a large diameter culvert (1.5m² dia) and directs flows into Olsen Bay. This watercourse also receives road run-off from Peninsula Road.

A small drainage is also located at the northeast corner of the property and was excavated out by the previous owner with clearing for additional road access into the property. The drainage receives directed run-off from ditches on both sides of an interior access road within the subject property and directs flows down the foreshore embankment. Requirements for erosion control at this location may be required.

3.1.5 Groundwater

The low-lying seepages in the western portion of the site have a high-water table that appears to be directly influenced by surface run-off and seasonal perched groundwater conditions. Saturated soils and ponded water throughout the property indicate water to be at or close to the surface forming small creeks and forested wetlands. These creeks flow during winter and wet summer months.

3.2 BIOLOGICAL RESOURCES

3.2.1 Flora

The CWHvh1 zonal forests (Coastal Western Hemlock Submontaine Very Wet Maritime CWHvh1 subzone variant) are dominated by Western hemlock (*Tsuga heterophylla*), Sitka spruce (*Picea sitchensis*), western redcedar (*Thuja plicata*) and minor amounts of amabilis fir (*Abies amabilis*). Major under story vegetation commonly includes salal (*Gaultheria shallon*), Alaskan blueberry (*Vaccinium alaskaense*), red huckleberry (*Vaccinium parvifolium*), deer fern (*Blechnum spicant*), step moss (*Hylocomium splendens*) and lanky moss (*Rhytidiadelphus loreus*). Evergreen huckleberry (*Vaccinium ovatum*) is a minor species on zonal sites, but more common on drier sites (Green and Klinka, 1994).

The initial site survey of the property was completed on April 25, 2017 after the forest stand of the property had been mostly cleared which prevented a thorough and detailed survey of the forest stand and its biological attributes. The original

survey was also completed before the typical growing season for flowering plants.

Observation of the remaining forest stand noted the property to be represented by the vegetation Site Series 01 (CwHw –Salal) and Site Series 13 (CwSs – Skunk Cabbage) (Green, R.N and K. Klinka, 1994). Trees and shrubs were observed to be associated with wet and poor nutrient environments. Western redcedar represented the dominant tree species. Subdominant tree species included Western hemlock, Sitka spruce and red alder (*Alnus rubra*). Minor amounts of Amabilis fir were present. The shrub layer within Site Series 01 is dominated by salal, red huckleberry, false azalea (*Menziesia ferruginea*), evergreen huckleberry, deer fern and Alaskan blueberry. The shrub layer within Site Series 13 also includes salal, red huckleberry, false azalea, and evergreen huckleberry. The coastal western hemlock zone is characterized by a forest floor composed of a dense litter of needles and small branches. Cool, damp and acidic conditions favour a moss layer build up over time that may have been present prior to clearing (Green, R.N and K. Klinka, 1994).

3.2.2 Fauna

The coastal rainforest of western Vancouver Island supports a broad diversity of wildlife including large and small mammals, bats, songbirds and amphibians. Large terrestrial mammals expected to be found within the forests within and adjacent to the parcel include black bear (*Ursus americanus*), black tailed deer (*Odocoileus hemionus*), cougar (*Puma concolor*) and wolf (*Canis lupus*). Smaller mammals commonly associated with the CWHvh1 zone include American mink (*Mustela vison*), ermine (*Mustela erminea*), river otter (*Lontra canadensis*) and several species of mice and voles. The wetter areas likely support several amphibians including Northwestern Salamander (*Ambystoma gracile*), Pacific tree frog (*Hyla regilla*) and red-legged frog (*Rana aurora*). The salt marsh habitat provides habitat for many species of mammals including shrews, mice, voles, racoons and river otters. Some of the fish species that are likely to use the marsh area tidal channels for food, shelter and breeding include herring, salmon, cutthroat trout, stickleback, sole flounder and surf perch.

Wildlife observations during the site visit included several black-tailed deer and a mother black bear with two juvenile cubs within the northern end of the site utilizing habitat between the salt marsh area and the forested stands. Black bears are expected to frequent the area regularly foraging on sedge grasses in the saltmarsh and the root systems of skunk cabbage in the adjacent forested swamps. The property may also include avian cavity nesters including Pileated

woodpecker (*Dryocopus pileatus*) in which cavity holes were observed in some of the trees. Bald eagles (*Haliaeetus leucocephalus*) were observed flying overhead of the property. Banana slugs (*Ariolimax columbianus*) were observed in the study area. Harbour seal (*Phoca vitulina*) vocalizations were noted from within the sheltered bay. Several wildlife paths were observed throughout the subject parcel and because the property has seen minimal change over the past two to three years since its original clearing, the property is expected to be visited by other animals including various mustelids, wolves and cougars.

3.2.3 Birds

A detailed bird survey was outside the scope of this study. No obvious bird nests were observed at the time of the site visit (April 25, 2017 or August 8, 2024). The area is suitable habitat for eagle, osprey and heron nesting use due to the ocean front location and presence of mature trees though no obvious raptor nests were observed. Many species of songbirds were observed at the time of the assessment and the area is still likely used by various songbirds for foraging and nesting. Many wildlife trees were observed with pileated woodpecker holes in the trunk that may be later utilized by secondary cavity nesting species. A number of bird species are expected to utilize the area throughout the year such as humming birds, woodpeckers, northwestern crow, American robin (*Turdus migratorius*), common raven (*Corvus corax*), warblers, vireo's, thrush, hawks and owls; as well many marine birds will use the area such as Great Blue Heron (*Ardea herodias*), Brant geese (*Branta bernicla*), Canada geese (*Branta canadensis*), mallards (*Anas platyrhynchos*), greater yellowlegs (*Tringa melanoleuca*), sandpipers, kingfishers, mergansers, green-winged teals (*Anas carolinensis*), gadwalls, plovers, snipe, bald eagles and ospreys (*Pandion haliaetus*).

Review of the Wildlife Tree Stewardship (WITS) nest inventory database did not identify the presence of any recorded bald eagle nests within the property. The closest eagle nest identified was located approximately 800m northwest of the subject property (Nest BAEA-108-307). A search of the remaining forest stand did not result in the observations of feathers, guano splashes, pellets, or prey remains at the base of trees or within open areas. The nesting period for bald eagles on Vancouver Island is typically mid-February to the end of June but can be weather dependant. Osprey are typically active between mid-April to the beginning of July, while Great blue-herons nest between March and September.

Remaining trees within the property are expected to support suitable nesting platforms and cavity nesting opportunities for various hawks and owls including

Northern Goshawk (*Accipiter gentilis*), Barred Owls (*Strix varia*), and Western screech owl (*Otus kennicottii*). The property is well positioned close to the ocean and to open forest patches where mice and song birds can be hunted. Ancillary information from the property's new owners have noted observations of owl use within the property.

3.2.4 Fisheries

Two streams are located within the Minato Road property. The Middle Stream located in the centre of the southern half of the property is classified as an S4 stream (<1.5m fish bearing) and receives drainage from highway run-off and groundwater seepage. The drainage is mostly confined in a narrow channel within the cleared development area and then braids out as it flows down a topographic bank leading to the ocean. A small second drainage channel also meets the Middle Stream below in a small gully which includes stream floodplain characteristics. The Middle Stream has a length of more than 160m within the property and has an average channel width of 1.2m with a gravel and silt streambed substrate. A portion of the riparian stream corridor was previously cleared (2017) for the bridge crossing and along the side of the road to the north of the bridge, but then follows into a mostly intact forest stand. Vegetation restoration works were recommended within a 10m protective buffer on either side of the watercourse (following Provincial RAPR Guidelines). At the point of topographic change, the creek flows within a small defined gully with a high groundwater table which is dominated by western hemlock, western redcedar, Sitka spruce, skunk cabbage, deer fern, evergreen huckleberry, salmonberry, giant horsetail, red huckleberry, false azalea, salal, false lily-of-the-valley, slough sedge and moss species. This stream is also tidally influenced and likely supports habitat at its confluence for rearing coho salmon parr. Aquaparian proposes where the creek flows down into the gully that riparian protection measures start at the top of the gully embankment in order to ensure bank stability and protection of the lower swamp / floodplain.

The additional site assessment on September 17, 2024 confirmed the location of the municipal Parkland Dedication / property boundary (lot marker stakes) and confirmed that the top of bank for the Middle Stream gully would be protected within the parkland. As understood, ERIF will allow for an additional one metre buffer protection beyond the Parkland Dedication boundary for building works.

A second small watercourse (Western Stream) is located on the far western boundary of the property (outside the proposed development) and is classified as an S3 stream (1.5-5m wide fish-bearing). The watercourse has a channel length of approximately 110m within the property. Reach 1 of this stream (Western

Stream) is tidally influenced. The stream enters the property through a large 1.5m diameter corrugated metal culvert buried under Peninsula Road. The culvert is slightly hanging but should allow the passage of fish during moderate to high seasonal stream flows. The stream is approximately 2m in width, 20cm deep near the estuary with a gravel streambed. The watercourse is flat, braided in sections with undercuts from streamside roots and flows are highly tannin in colour. The Western Stream flows through the undisturbed forested area of the site within the southwestern portion and is identified under the BC CDC as fish-bearing with a coho salmon (*Oncorhynchus kitsutch*). A copy of the provincial Habitat Wizard search results has been included as Appendix C. It is understood that this stream will be protected within the foreshore Parkland Dedication and the 10m Peninsula Road setback put in place by the DOU.

Within the District of Ucluelet, all watercourses, lakes, streams, ponds and wetlands identified as fish-supportive habitat or connected to watercourses are protected and are considered as DPAs that include the lands within 30 metres of the watercourse measured from the high-water mark. The development of the property may require submission of a Development Permit application to allow encroachment into the 30m for the middle stream.

The sensitive marine saltmarsh and forested buffer comprising the shoreline of the property is protected under the Marine Shoreline DPA VII. This DPA applies to all lands within 30 metres, measured horizontally in both landward and seaward directions, from the natural boundary of the ocean. The previous owner did significantly encroach into this 30m setback when they cleared large sections of the property. The 30m setback has been identified as “Parkland Dedication” and this area was planned to encompass a public trail. The foreshore DPA is considered an important corridor for wildlife utilizing the back area of Ucluelet Inlet and Olsen Bay. The installation of a community trail within the 30m setback should include further discussion with the DOU and consideration of this area remaining as a wildlife corridor rather than community trail by the DOU.

Any proposed installation of new culverts or stream-crossing bridges during development of the property will require approval from the DOU as owner of the stream park dedications areas, as well as completion of a provincial *Water Sustainability Act (WSA)* Notification with the Ministry of Forests, Lands, Natural Resource Operations (FLNRO). Stormwater management applications may also require further approvals under the *WSA*.

3.2.5 *Species-at-Risk*

The Species-at-Risk Act (SARA) is designed to prevent or reduce the likelihood of wildlife species becoming extinct or extirpated and to provide for the recovery and management of endangered, threatened and species of special concern as a result from harm by human activity. Provisions of SARA include prohibiting the taking or possession of listed species and the damaging or destruction of their residents and critical habitat.

Red-Listed species includes any ecological community, and indigenous species and subspecies that is extirpated, endangered, or threatened in British Columbia. Red-listed species and sub-species may be legally designated as, or may be considered candidates for legal designation as Extirpated, Endangered or Threatened under the Wildlife Act.

Blue-Listed species includes any ecological community, and indigenous species and subspecies considered to be of special concern (formerly vulnerable) in British Columbia.

A search of the BC Species and Ecosystem Explorer Database for red and blue-listed vertebrates, invertebrates, vascular, non-vascular plants and lichens within the Vancouver Island region, South Island, Alberni-Clayoquot Regional District, Coastal Western Hemlock BGC Zone for habitats including: Forest, Ocean, Riparian, Stream/River and Wetland resulted in 25 red-listed species and 57 blue-listed species. The BC CDC species search results have been included as Appendix D.

The BC iMap website identified the following provincially red-listed rare species within the study area: Seaside Centipede Lichen (*Heterodermia sitchensis*). The last observation was in 2001 (Occurrence Record #28392) of two thalli observed on small twigs of a Sitka spruce located on the headland near the shoreline (refer to Figure 3). A narrow buffer of approximately ~8m was left intact along the shoreline at the northern tip of the property by the previous property owner where the rare lichen had been recorded except where a few trees were removed for a wooden deck that extends out towards the shoreline. Aquaparian inspected the area of the 2001 identification and could not identify any Seaside Centipede Lichen occurrences.

The following includes a description of sensitive wildlife species that are considered as potentially to be found either within the subject property or within the adjacent lands immediately surrounding the subject lands:

**Seaside Centipede Lichen (*Heterodermia sitchensis*): Red-listed
(COSEWIC Status Endangered)**

This lichen is a pale greyish, leafy, basally attached lichen. It can be recognized by the presence of marginal cilia and tiny urn-like structures near the lobe tips. In Canada, it occurs only in coastal British Columbia, where it ranges 210km from northern Vancouver Island south to Pacific Rim National Park. Within this region, it is known exclusively from the Very Wet Hypermaritime subzone of the Coastal Western Hemlock Zone. Throughout its range, this lichen occurs exclusively at seaside on nitrogen-enriched twigs in the lower canopy of old Sitka spruce trees (BC CDC).

This rare species of lichen was identified in the provincial iMap database as occurring in only two locations in the area including the northern tip of the subject property on old Sitka spruce trees near the shoreline. The only other known location of the species was identified at the end of Seaplane Base Road approximately 0.8km east of the subject parcel.

No occurrences of this lichen species were identified by Aquaparian during the August 2024 site survey of the lower branches of Sitka spruce trees in the area. A detailed survey was not completed as part of the scope of this Biophysical Assessment. The area of the past 2001 identification of this species will be protected within the 30m marine DPA. If future removal of vegetation is required for the proposed marine trail, a detailed species identification assessment may be required.

Marbled Murrelet (*Brachyramphus marmoratus*): Blue-listed

A chunky seabird with a black bill and an entirely dark tail. The nesting season is late March to late September. In coastal areas, the bird is mainly in salt water within 2 km of shore, including bays and sounds; not uncommon up to 5 km offshore; occasionally also on rivers and lakes usually within 20 km of ocean. Nesting is found in old growth forest, especially stands of large Sitka spruce and western hemlock. In British Columbia, the adult diet during the breeding season is mostly fishes, primarily Pacific Sandlance and Pacific Herring (BC CDC).

It is believed that calm marine waters of Ucluelet Inlet likely provide foraging opportunities for murrelets, however, due to the flat profile of the subject property, Murrelets are not expected to utilize the surrounding forest lands.

Townsend's Big-eared Bat (*Corynorhinus townsendii*): Blue-listed

In Canada, it is restricted to British Columbia. On the coast, it inhabits Vancouver Island, the Gulf Islands and the Vancouver area. In British Columbia this species is associated with a variety of habitats from coastal forests to arid grasslands of the interior. Its elevational range in the province is from sea level to 1070 metres, although most occurrences are from low elevations. Although it is widespread across most of southern British Columbia, this bat is particularly vulnerable to human activity. The only nursery colony found in British Columbia was in the attic of a house on Vancouver Island; it consisted of about 60 females and their young. A late flyer, Townsend's Big-eared Bat emerges an hour or so after dark. It is an agile bat that is capable of flying at slow speeds. Food habits have not been studied in British Columbia (BC CDC). The area surrounding the subject parcel may provide foraging and perching habitat for these bats.

Keen's Myotis (*Myotis keenii*): Blue-listed

These bats frequently use moist to wet coniferous forest habitats. The distributional range suggests an association with coastal forest habitat. Apparently, this bat is associated with mature forests. Across its range it has been found roosting in southwest-facing rock crevices, among geothermally heated rocks, in tree cavities, in bark crevices, and in buildings. Tree cavities and loose bark are important natural roost sites and may be limiting in some parts of the range. Known maternity roosts and summer feeding areas in British Columbia are at elevations below 240 meters; known hibernation sites occur above 400 meters in caves over 100 meters long. These bats have been observed foraging over hot spring pools and clearings above scrubby salal (BC CDC). Surrounding forests and estuary may provide foraging opportunities for these bats.

Northern Red-legged Frog (*Rana aurora*): Blue-listed

Range extends from southwestern British Columbia, including Vancouver Island in Canada, south along the coast of the United States. Red-legged frogs have been observed in a variety of aquatic and terrestrial habitats. They breed in shallow, littoral zones of lakes, temporary and permanent pools, wetlands, bogs and fens in close proximity to forests. Lotic habitats with little to no flow may be utilized by red-legged frogs, and riparian areas are important for newly metamorphosed froglets. Outside of the breeding season, red-legged frogs primarily utilize all forest and woodland types, but individuals are occasionally found in more open and rural areas such as shrubland/chaparral,

cropland/hedgerow, old fields, and suburban/orchard. Red-legged frogs are most common at elevations below 500m with low slopes and containing moist, mature/old forest in some areas (BC CDC). Moist forest conditions within the property likely support the red-legged frog.

A northern red-legged frog occurrence is identified within the provincial Habitat Wizard database approximately 1.3km southeast of the subject property and extending approximately 1km in a southeast direction. The small wet forested swamps likely support red-legged frogs.

Western Toad (*Anaxyrus boreas*): Blue-listed

Western toads have been observed in a variety of aquatic and terrestrial habitats. They breed in shallow, littoral zones of lakes, temporary and permanent pools and wetlands, bogs and fens, and roadside ditches. Toads utilize a variety of terrestrial habitats in BC, including all forest and woodland types, shrubland/chaparral, savanna, cropland/hedgerow, grassland/herbaceous cover, old fields, and suburban/orchard. Hibernacula are located in areas with loose soils and burrows. Toads have been observed using downed wood for cover in recent clearcuts (BC DCD). Wet areas within the property may provide suitable habitat for this species.

Ermine (*Mustela erminea anguinae*): Blue-listed

Ermine are endemic to Vancouver Island and they inhabit a variety of forest and woodland habitats. Ermine are highly adaptable predators, easily invading small burrows to feed on voles, mice, and young rabbits. They also eat earthworms, frogs, and squirrels, climbing trees and swimming if necessary. In the summer, the Ermine's coat is brown, but in the winter it is pure white except for the tip of the tail, which stays black. Ermine population density tends to fluctuate as rodent populations fluctuate. Ermine prefer coniferous or mixed forests and streamside woodlands (BC CDC). The forest habitat within and adjacent to the parcel may support this species. The two riparian corridors likely provide suitable habitat for ermine to utilize.

Wandering Salamander (*Aneides vagrans*): Blue-listed

This salamander is widespread on Vancouver Island and neighboring islands in British Columbia, and also has been found on the mainland. Habitat ranges from moist coniferous forests; in forest edge, forest clearings, talus, and burned over areas. The salamander is usually found under bark, in rotten logs, or in rock crevices. It may aggregate in decayed logs in summer. Logs are the primary

microhabitat in spring, summer, and fall on Vancouver Island. It lays eggs in cavities in rotten logs, in rock crevices, under bark, or among vegetation. The wandering salamander feeds on small arthropods and is inactive in cold temperatures and hot, dry weather (BC CDC). The subject parcel contains damp and wet areas with downed logs that may support this species.

Vancouver Island Western Water Shrew (*Sorex navigator brooksi*): Blue-listed

This shrew is endemic to Vancouver Island and occurs along watercourses. They are dependent on high-quality intact riparian systems and found over a large part of Vancouver Island. They live in a diverse range of stream habitats, from narrow to wide streams, from slow-moving to moderately-fast flowing waters. The substrate of the streambed is usually cobble or gravel, and the stream typically has a complex environment with instream coarse woody debris, and dense riparian vegetation (shrubs and herbs). They are found at low elevations, in a variety of forest types and age classes, as long as the riparian corridor is intact. The primary threat to habitat of the Vancouver Island common water shrew is loss, fragmentation, and degradation due to urban development, as well as forest practices that affect riparian habitat and water quality (BC CDC June 2019). This shrew is relatively rare but has been found mostly in southern and eastern Vancouver Island, but may occur as far west as Ucluelet.

Cutthroat Trout (*Oncorhynchus clarkia clarkia*): Blue-listed

Cutthroat trout (*clarkii subspecies*) are anadromous meaning this cutthroat trout subspecies spawns and rears in freshwater (small streams and large rivers) but can also forage in tidal waters as an adult. Some resident fish spend their entire life in freshwater. Cutthroat will forage in tidal estuaries but are typically found up freshwater systems utilizing all inflowing systems including stream mainstems, tributaries, lakes and forested swamps (BC CDC). The streams within the subject property provide suitable habitat for cutthroat trout.

Northern pygmy owl, *swarhi* species (*Glaucidium gnoma swarhi*): Blue-listed

There are three species of the seven owl species recognized in North America that breed in BC. The *swarhi* subspecies is endemic to Vancouver Island and adjacent islands. These owls are crepuscular, feeding on small mammals, reptiles, amphibians, a variety of bird species and invertebrates using a perch and pounce hunting method. They forage along roads through forested areas,

openings within continuous forest, open stands, riparian corridors and open habitats along lakeshores and higher elevations. Forage sites include shrub, pole sapling, young, mature or old forest seral stages. This obligate secondary cavity nester is dependent on woodpecker or natural cavities in coniferous trees. Nesting sites include young forest with suitable wildlife trees, mature forest or old forest sites. (Cooper and Beauchesne, 2004). The mature riparian forest habitat of the study area may provide suitable habitat for this species.

Western Screech Owl *kennicottii* subspecies (*Megascops kennicottii kennicottii*): Blue-listed

The range of this small owl extends from south-coastal and southeastern Alaska, south through coastal British Columbia to coastal Oregon. In Canada, the species occurs only in British Columbia in two regions: along the coast of BC including Vancouver Island, but excluding the Queen Charlotte Islands, and in the southern interior part of the province, with most of the interior birds being found in the Okanagan Valley. This subspecies has a very low population in Canada where it depends on lower elevation mature riparian woodlands for nesting and roosting. This owl prefers open forest for foraging and requires cavities in old, large trees for nesting and roosting. Populations have apparently declined in southern Vancouver Island and the Lower Mainland concurrently with the recent arrival of the Barred Owl, which is likely a predator of this species. The Western Screech-owl is a nocturnal, non-migratory species that is territorial year-round (BC CDC). The western screech owl may use the mature riparian forest habitat of the study area and adjacent lands.

Brandt's Cormorant (*Phalacrocorax penicillatus*): Red-listed

This species of marine bird is a resident throughout the year near nesting areas, but ranges more widely when not breeding. Post-breeding dispersal from colonies on the west coast of the United States occurs in July and August as thousands move north to the waters of southern British Columbia and Puget Sound; a gradual movement southward begins in September and October, but at least 10,000 to 15,000 overwinter in Puget Sound, the Strait of Georgia, and Juan de Fuca Strait. The range is mainly the inshore coastal zone, especially in areas having kelp beds; also around some offshore islands; less commonly, inshore on brackish bays; in winter, mostly around sheltered inlets and other quiet waters. Typically they nest on flat or gently sloping surfaces on the tops of rocky islands along the coast, favoring protected leeward sides of islands; they frequently nest with other sea birds and may sometimes use wider ledges of mainland cliffs. The nest is built on the ground by both sexes and may be re-used

in the subsequent year. Egg laying occurs mainly in June in British Columbia. The cormorant gathers in flocks in feeding areas. Gulls commonly prey on eggs and chicks. Ucluelet Inlet likely provides suitable foraging habitat for Brandt's Cormorant.

Great blue heron, *fannini* subspecies (*Ardea herodias fannini*): Blue-listed

Great blue heron is a large wading bird residing along the Pacific coast from southeastern Alaska south to Washington. Nests are colonially in tall Sitka spruce, western red cedar, western hemlock, pine, red alder and black cottonwood. Isolation from disturbance appears to be an important factor in nest site selection. Foraging habitat includes aquatic areas generally less than 0.5m deep, such as: marine intertidal areas, estuaries, riparian areas, wetlands, freshwater lakes, and muskegs. These areas are generally within 5 km of the nest site, although some areas have been identified up to 33km away (BC CDC). The salt marsh and tidal mudflat intertidal area surrounding the subject property provides ideal foraging habitat for this species. No heron nests were identified within or adjacent to the subject property.

3.2.6 *Sensitive Ecosystem Inventory*

The Sensitive Ecosystems Inventory of East Vancouver Island and the Gulf Islands (SEI) systematically identified and mapped specific rare and fragile ecosystems. The purpose of the SEI project was to identify remnants of rare and fragile terrestrial ecosystems and to encourage land-use decisions that will ensure the continued integrity of these ecosystems.

Seven sensitive ecosystem types were mapped in the east coast of Vancouver Island study area as follows: Wetland, Woodland, Riparian, Older Forest (>100yrs), Terrestrial Herbaceous, Sparsely Vegetated and Coastal Bluff. Two other important ecosystems were mapped for their general biodiversity and wildlife habitat values: Older Second Growth Forest (60-100yrs) and Seasonally Flooded Agricultural Fields.

Within the study area, an SEI pilot project to map SEI attributes on Weyerhaeuser West Island Timberlands lands was conducted. The model and objectives for SEI mapping on the West Island Timberlands are somewhat different than previous SEI projects because there is a single tenure holder, an existing GIS with Terrestrial Ecosystem Mapping (TEM), forest cover and other relevant data, and regulations requiring reserves for some of the ecosystem types identified in previous SEI inventories (e.g., riparian, wetland, old forest). A combination of previous SEI project categories and those rare natural plant

communities on the BC Conservation Data Centre tracking lists (Red and Blue) were used to define a single GIS map layer.

In addition to the Provincial Red- and Blue-listed plant communities, a local “landscape rarity” sub-category was created within the Rare Community (RC) category. Landscape rarity was defined as site series or other ecosystems that collectively represent 2% of the Defined Forest Area (DFA). These ecosystems were subdivided into three rarity classes based on their total area as follows:

- la 1 – less than 10 ha (51 units)
- la 2 – 10 ha to 50 ha (30 units)
- la 3 – 51 ha to 210 ha (39 units).

The subject parcel is located within Mapsheet 092C093 and mapped SEI habitat units include the shoreline salt marsh ecosystem that is identified as la1: Landscape Rarity Class 1: less than 10ha (May 2017 report).

The property was observed to support four habitat units including a mature second-growth forest with some old growth conifers spread throughout the property; riparian stream habitat found along the two identified streams dominated by skunk cabbage, salal and deer fern pockets, small pocket wetlands dominated by skunk cabbage and slough sedge, and salt marsh shoreline habitat dominated by salt-tolerant sedge and unique shrub habitat.

A description of the four vegetation communities are as follows:

Second-growth Older Forest (OSG:CWH)

The forest is identified as an Older Second Growth Forest dominated by conifers within the Coastal Western Hemlock (CWH) bio-geoclimatic zone. Trees within the stand average 100 years or greater. The forest floor is composed of a dense litter of needles and small branches and favouring a cool moist moss ground layer built up over time.

The majority of the site appeared to have consisted of a second growth forest stand with much of the canopy cover dominated by Western redcedar, Western hemlock and Sitka spruce. Minor tree species also included Red alder and Amabilis fir. Western redcedar dominated the canopy of the property near Peninsula Road with Western redcedar and Western hemlock dominating the eastern portion of the lot and older Western redcedar with mature Sitka spruce dominating the western portion of the property. Several large mature redcedars were identified within the intact tree stand with tree diameters ranging from 76 to

123cm (DBH). A number of large Sitka spruce with a DBH of 112 to 140cm were also documented.

Understory vegetation predominantly consisted of salal, salmonberry (*Rubus spectabilis*), evergreen huckleberry, deer fern, licorice fern (*Polypodium glycyrrhiza*), red huckleberry, and sword fern (*Polystichum munitum*). Other species present include bracken fern (*Pteridium aquilinum*), Scotch broom (*Cytisus scoparius*) and reindeer lichen (*Cladonia rangiferina*). Mosses and lichens noted included Oregon-beaked moss (*Eurhynchium oregonum*).

Down and dead logs, fallen wood debris and the trunks of old growth cedars were commonly covered with several moss species, liverworts, hanging lichens and ferns. Mosses included Oregon beaked moss, lanky moss, tree moss, step moss and cat-tail moss (*Isothecium myosuroides*). Thick hanging lichens including witches' hair (*Alecteria sarmentosa*) were common amongst old-growth trees.

Riparian Mature Forest (RI:5) – mature forest

Mature riparian forests generally have a dominant canopy cover with the understory more developed where the canopy opens. Forest stands are generally 80 to 200 years in age. The riparian vegetation along the identified streams is dominated by skunk cabbage, salal, common horsetail (*Equisetum arvense*), deer fern, red huckleberry, Solomon's seal (*Polygonatum multiflorum*), Oregon beaked moss and witches' hair. Canopy cover species includes Western hemlock, Western redcedar and Sitka spruce. The riparian areas of the subject parcel include streamside riparian zones along both sides of the two identified streams and the riparian zone of the ocean shoreline.

Pocket Wetland (WN:sp)

These forested pocket swamps typically have a fluctuating water table, often with shallow surface water and are nutrient rich on mineral soils dominated by rushes, sedges or grasses. Wet forest pockets located in the low-lying portion of the parcel within the shallow gully adjacent to the Middle Stream supported both aquatic and saturated soil tolerant species such as skunk cabbage (CwSs – Skunk Cabbage) and slough sedge.

Salt Marsh Habitat (WN:ms)

These wetlands area characterized by permanent, seasonal or diurnal flooding of nutrient rich waters and include salt marsh estuary. The two small streams within

the property were found to be connected at confluence with salt marsh habitat dominated by Lyngby's sedge (*Carex lyngbyei*), Pacific silverweed (*Argentina pacifica*) and sweet gale (*Myrica gale*) and reed canary grass (*Phalaris arundinacea*) thickets near the tide line. Other salt tolerant species included common rush (*Juncus effusus*), slough sedge, sea watch (*Angelica lucida*), marsh jaumea (*Jaumewa carnososa*), sea plantain (*Plantago maritima*), common arrowgrass (*Triglochin maritima*), sea milkwort (*Lysimachia maritima*), Pacific glasswort (*Salicornia pacifica*), common horsetail, cinquefoil (*Potentilla palustris*) and bracken fern. Sweet gale along the upper marsh was also associated with large western redcedar and sitka spruce, minor amounts of amabilis fir and Pacific crabapple (*Malus fusca*). The lower reach (Reach 1) of both streams were also associated with skunk cabbage, salmonberry, willow *sps*, dwarf dogwood (*Cornus canadensis*), wild strawberry (*Fragaria virginiana*) and salmonberry.

Vegetation that could be identified within the cleared portions of the property include western redcedar, western hemlock, Sitka spruce, salal, evergreen huckleberry and deer fern. It is expected that the cleared section of forest resembled the forest stand previously identified along the southern boundary of the property. Other emerging species within the previously cleared portion of the site include red alder sapling, shore pine sapling, salmonberry, common rush, pearly everlasting, common dandelion, thimbleberry, grass species and invasive species including Scotch broom, evergreen blackberry and Himalayan blackberry.

3.3 LAND USE

3.3.1 Present Land Use

The subject parcel was extensively cleared of its native forest by BNEE Enterprises in winter of 2017, followed by grubbing and grading of tree stumps and the stripping of organic soils. The previous owner also laid out a series of access roads throughout the property. The owner of property was instructed in 2018 to follow a vegetation management plan to re-instate impacted vegetation buffers along the foreshore and along the Middle Stream. It appears that revegetation of these areas has occurred primarily through natural regeneration of understory vegetation and some seedling trees with the exception to the required tree density. The new multi-family development will require completion of the proposed revegetation plan by planting of additional trees within vegetation buffers as previously requested for the property and also to a level that would meet rainwater or stormwater management standards for a large residential build-out. The new development should include a Stormwater Management Plan and a Landscape Management / Preservation Plan that meets residential development standards for regions subjected to extreme levels of rainfall.

Construction of retaining walls should follow form and character of the natural environment explore the used of naturally stacked rock and pocket plantings using native coastal vegetation.

3.3.2 *Special Places*

The study area falls within the lands traditionally occupied by the Yuułuʔiłʔatḥ (Ucluelet) First Nation which are part of the collective Nuu-Chah-Nulth First Nation. A review of cultural and historical information for the subject parcel was conducted through the BC Archaeological Branch of the Ministry of Forests, Land and Natural Resource Operations (MFLNRO). Provincial records indicate that there are no known archaeological sites known within the property.

However, the property and the shoreline estuary were likely used as a food source and gathering place for local first nation groups. As such, prior to any further land alterations, the owner should be prepared to retain a Professional Archaeologist to review the activities, and where warranted, have the archaeologist conduct a site walk of the property to identify any potential unknown or unprotected archaeological material. As understood, ERIF has retained a professional archaeologist from Yuułuʔiłʔatḥ Government – Ucluelet First Nation to complete an assessment and report of cultural findings within the property.

4.0 RIPARIAN RESTORATION

Requirements for vegetation restoration works within the property were based on site conditions identified in the 2017 EIA report and based on a compliance letter produced for the property by the DOU dated December 13, 2018. The following requirements as per page 2 of the district letter remedial vegetation works. Figure 4 includes an image of the proposed restoration areas within the foreshore and riparian setbacks of the property. Because development plans within the property have changed and the pioneering or infilling of native plants species has taken hold throughout the property within the past seven years, vegetation remediation works within DPAs will require further revisions.

Vegetation remediation of the site is to include the following:

- Along the impacted 10m riparian buffer strip protected by the Parkland Dedication for the Middle Stream headwaters including inflowing side channels, some natural regeneration has occurred from the existing seed bank in the soils. The understory appears to be well

established with red alder Sitka spruce and western redcedar saplings, salmonberry, baldhip rose, Scotch broom, common horsetail, salal, deer fern, common rush, slough sedge and reed canary grass. To enhance the riparian habitat and to ensure the natural tree canopy density of the surrounding intact riparian area is achieved, **Aquaparian recommends removal of invasive plant species including Scotch broom and planting 20 western hemlock trees within the restoration area on the south side of the Middle Stream interspersed with existing riparian vegetation;**

- If ERIF proposes removal and replacement of the existing Middle Stream bridge crossing, this could be restored for parkland use for pedestrian or bike access or re-instate graded streambanks using native trees and shrubs; and,
- Along the impacted 30m coastal parkland dedication area now owned by the DOU within the north end of the property, the previously cleared areas have naturally regenerated with understory vegetation including red alder, western hemlock, shore pine, Sitka spruce and western redcedar saplings, deer fern, bracken fern, salmonberry, evergreen huckleberry, Scotch broom, evergreen blackberry, Himalayan blackberry, thimbleberry, salal, common rush, pearly everlasting, common dandelion, clover and grass species. **Aquaparian recommends removal of invasive species including Himalayan blackberry and Scotch broom and planting of additional trees to increase the density of the existing tree saplings.** The trees in the intact portion of the setback are approximately 5m apart on average. The density of the regenerating tree saplings is approximately 3-5 trees per 100m² which is approximately 114 naturally regenerated trees within the restoration area (based on an area of 2850m²). The original revegetation plan recommended 160 native trees to be planted within the coastal restoration area. Therefore, Aquaparian recommends that an additional 46 native trees be planted within the coastal restoration area interspersed with existing native vegetation.

Where possible, use stockpiled organic soil on site as a growing medium for planting areas and salvage native plants, logs and stumps with soil and live native vegetation to transplant within the site and incorporate into the planting plan for landscaping. This will assist in incorporating native plant seed banks and add natural local form and character to the development

4.1 PLANTING PLAN

The re-instatement of natural trees and shrub vegetation is intended to help stabilize the soils and improve natural habitat in the riparian zones. The Parkland Dedication areas now owned by the DOU are riparian setbacks and restoration areas that are to be considered as No-Go zones and left to naturally infill after planting. Native plant species were selected based on existing native species and suitability to the site conditions. The following tree species have been included in the planting plan to achieve desired restoration results and have been selected for the restoration areas within the foreshore and riparian restoration areas (see Table 1).



Table 1. Parkland Dedication Planting Plan

Common Name	Species	Spacing	Size	Quantity	Cost Per	Total
Riparian Planting Plan: plant trees interspersed with existing vegetation within the restoration area on the south side of the Middle Stream.						
Coastal western hemlock	<i>Tsuga heterophylla</i>	5m ²	2 Gallon	20	\$20	\$400
Sub-total				20		\$400
Coastal Planting Plan: plant trees interspersed with existing vegetation within the restoration area of the 30m shoreline Parkland Dedication in the northern portion of the property.						
Western redcedar	<i>Thuja plicata</i>	5m ²	2 Gallon	20	\$20	\$400
Sitka spruce	<i>Picea sitchensis</i>	5m ²	2 Gallon	15	\$20	\$300
Western hemlock	<i>Tsuga heterophylla</i>	5m ²	2 Gallon	11	\$20	\$220
Sub-total				46		\$920
TOTAL				66		\$1320

*Note: cost estimates are based on the Streamside Native Plants Wholesale Price Guide. Costs may vary depending on supplier.

Plant in fall or early spring and irrigate immediately and as necessary within the first 2-3 growing seasons. Pocket plant trees by digging a planting hole twice the size of the pot and add a mixture of topsoil and a handful of bone meal to the planting hole to reduce drought stress and maximize survival. Replace any dead trees within the first two seasons.

4.2 PLANT SOURCE

Streamside Native Plants

7455 Island Highway West, Bowser, BC V0R 1G0
Phone/Fax: 250-757-9999 / Toll Free: 1-877-570-3138
<https://www.streamsidenativeplants.com/>
E-mail: orderdesk@streamsidenativeplants.com

Green Thumb Nurseries

6261 Hammond Bay Road, Nanaimo BC V9T 5M4
Phone: 250-758-0808
E-mail: greenthumbnurseriesnanaimo@gmail.com

5.0 ENVIRONMENTAL PROTECTION MEASURES

The following are environmental protection measures recommended to incorporate regulatory measures identified in the District of Ucluelet's Official Community Plan (OCP) and for lands within the environmental DPAs: Terrestrial Ecosystems; Marine Shoreline; and, Stream and Riparian Areas Protection:



- Clearing of vegetation should occur outside the songbird nesting season of March 15 – August 15. QEP to be provided clearing plan well prior to vegetation clearing in order to complete a pre-clearing survey;
- If additional vegetation is to be removed during the active bird nesting season (March 15 – August 15) a QEP should be retained to conduct pre-clearing bird nest surveys to prevent committing an offense as defined by the Provincial Wildlife Act section 34 and federal Migratory Bird Act. Pileated Woodpecker nests are provincially protected year-round, whether or not the nest is in use (as per the Provincial *Wildlife Act*). A Pileated Woodpecker nest survey will have to be conducted by a QEP prior to any tree removal;
- If any additional mature, old-growth, dead standing trees or snags will require removal for proposed development a bat and owl nesting survey is recommended prior to removal;
- The completion of a proper Archaeological Assessment to determine the presence of cultural use including chance finds during excavations (completed as understood);
- That further development within the property includes a Landscape Management / Preservation Plan which includes the protection of remaining native coastal vegetation, and watercourse features, including sensitive shoreline saltmarsh habitat and restoration of impacted / over-cleared areas, noting that some of these areas have been dedicated back to DOU ownership as parkland;
- That the owner of the new residential development retains a local landscaping company to complete all native re-vegetation / restoration works remaining to be completed for the 30m waterfront park area and along the Middle Stream. The restored vegetation setback along the Middle Stream is recommended to be isolated from public access using wooden rail fencing;
- Remove invasive plant species (such as Himalayan blackberry and Scotch broom) that have become established within the restoration areas of the 30m waterfront park area and within the riparian setback of the Middle Stream. Check annually and remove any re-emerging invasive plant species.
- Remove the wooden deck structure along the shoreline within the northern portion of the property. Remove any refuse, soil or mulch piles, woody debris or construction debris from the coastal setback area and allow natural vegetation to infill.

- If further vegetation removal is required outside of the protective setbacks, retain large stumps with soil and live native plants and transplant to vegetated areas to provide habitat value;
- Complete a Danger Tree assessment by a certified Danger Tree assessor. Potential Danger Trees under 100ft in height and located within the 30m foreshore buffer are to fall in place and not removed unless a livable structure is deemed to be a target. Retain stumps in place if possible (cut to at least 10ft tall);
- As per Terrestrial Ecosystem (Mature Forest) DPA guidelines (DOU OCP), the detailed site plan for the development will need to identify any natural features including Sitka Spruce trees and nesting trees. Aquaparian recommends surveying Sitka Spruce trees 60cm DBH or larger, retain if possible and including on the site plan. Additional protection areas may be recommended to protect stands of these trees;
- No road crossing, culvert installations or bridge installation are to be completed without the completion of a Section 11 Notification / Approval as per the Provincial *Water Sustainably Act*;
- That the Middle Stream, Western Stream and any associated tributaries (including ditches) and wetlands be incorporated into a Stormwater Management Plan (SMP) for the development. All road, buildings or infrastructure run-off should be directed to naturally vegetated or constructed ditches/swales before being directed to native streams or shoreline;
- Wherever possible, with seismic and flood considerations, that constructed retaining walls for housing should follow form and character of the natural environment and include the use of naturally stacked rock and include pocket plantings using native coastal vegetation. All seeding should include recognized west coast seed mix (i.e. clover, vetch, wildflower) and not a rye grass mix.
- Ensure all proposed buildings, foundations, retaining walls, vegetation removal and excavations are outside of the environmental protective setbacks. If development is planned near the setback boundaries, then the root systems of adjacent large diameter trees along the boundary may require protection from damage such as compaction of root systems by heavy equipment and rock retaining wall construction. A tree survey of adjacent trees may be required to determine the need for tree protection fencing around the drip line of these trees (Typically 6 x the diameter of the tree).
- That the 30m Park Dedication areas given to the DOU along the foreshore and dedicated along the Middle Stream be extended by an additional setback under

covenant restriction of one meter in order to protect the stability of the banks. The stormwater design to the Middle Creek to include top of benched embankment area.

- That the development provides a minimum 10m setback from the top of bank for the Western Stream, targeting 15m wherever possible, with consultation with Aquaparian on retaining wall design if required in this area to enhance the protection of the Western Stream.
- It is recommended that Aquaparian and a Qualified Geotechnical Engineer be consulted in the design of retaining walls to enhance protection of the foreshore and Middle Stream.
- Because of the sensitivity of the saltmarsh and understanding that the foreshore and its riparian forest stand provides a significant wildlife corridor for small and large mammal species (in particular bears, wolves and cougars) that further discussions occur with the DOU about the installation of a public trail. Aquaparian recommends that the 30m waterfront park be protected from development as a wildlife corridor and not include a public trail;
- Further earthworks are to be completed during the dry season to prevent sediment migration. If earthworks cannot be completed during the dry months, sediment and erosion measures should be implemented (i.e. silt fence) to prevent migrating sediments from the site. Earthworks proposed within 30m of the foreshore or 15m of streams and ditches to include Environmental Construction Monitoring and turbidity monitoring;
- All fill brought to the site is to be clean i.e. free of hazardous contaminants and locally sourced;
- No deleterious substances such as sediment, fuel, oil, paint, concrete wash water or uncured concrete are to enter streams, ditches or marine waters;
- All heavy equipment used for the development to be clean and free of leaks and inspected daily. Full spill kits are to be present on all machinery;
- A spill response plan is to be in place with emergency contact numbers in case of accidental spill;
- Excavated topsoil piles, if left on site for any length of time, are to be either covered by tarps or surrounded by silt fencing to prevent migration of fines if a heavy rain event occurs;

- Bare soils should be seeded with Westcoast seed mix and covered in a layer of straw as soon as possible following construction;
- The natural site surface flow drainage pattern throughout the property be used as natural stormwater drainage features for future developments (subject to engineering design); and,
- As part of stormwater management requirements, that roadways, laneway and vehicle parking pads explore the use of permeable pavers or gravels strip to include ground water recharge and reduced surface run-off within the property.

6.0 ADDITIONAL DEVELOPMENT STUDIES

As part of the development permit process for the project, the following studies / tasks are further expected:

- Survey of significant Sitka Spruce trees with the property prior to any further vegetation clearing works;
- As per the federal and provincial migratory bird act, completion of migratory bird nesting surveys if vegetation clearing works are proposed to occur between March 15 and August 15 of a given year. Confirmation that no bald eagle nesting within the property prior to clearing.
- That installation of bridges, culverts, stormwater outfall / headwalls within the property include the acquisition of Provincial (Regulatory) WSA Notifications or Approvals, in addition to approval by the DOU as the parkland owner.
- Prior to the site preparation or construction that a project specific Construction Environmental Management Plan (CEMP) is produced that addresses environmental mitigation measures to be incorporated for development construction activities; including additional land clearing, grading, road building, installation of utility services, excavations, erosion and sediment control, concrete works etc.
- Expected that portions of the project will require environmental monitoring services including erosion and sediment control and stormwater management during site preparation, bridge or culvert installations, stormwater outfall installations and retaining wall installations near the foreshore at the north end of the development.

7.0 SUMMARY

The subject parcel is located northwest the Village of Ucluelet in an area of mostly undeveloped lands north of Peninsula Road. The subject parcel was originally zoned Rural Residential (RU) followed by approved re-zoning for Campground and Guest House. In early 2023, the land was re-zoned as Comprehensive Development. At the time of the original environmental site visit, a large portion of the property was cleared which included encroachment into the 30m marine foreshore DPA and also across a fish bearing watercourse (Middle Stream). The site is characterized by a mature second-growth coastal western hemlock forest with some veteran western redcedar and Sitka spruce trees and two fish-bearing streams running through the property and draining into a sheltered bay and sensitive saltmarsh habitat. The subject property also contains remains of mature / old growth trees, wildlife trees and habitat for various birds, as well as habitat for large and small mammals. The marine foreshore also appears to act as a corridor for wildlife within the surrounding area.

8.0 CONCLUSION

Aquaparian Environmental Consulting Ltd (Aquaparian) was retained by the new property owners (ERIF/Minato Road Development Co) of 221 Minato Road in Ucluelet to update the Environmental Impact Assessment report originally produced for the property by Aquaparian in May of 2017. The original owner of the property BNEE Enterprises cleared large sections of the mature old growth forest without municipal approval and encroachment into development permit areas (DPA) resulting in contravention of District of Ucluelet DPA protection and Provincial land development guidelines and regulations. Vegetation restoration compensation measures required to reinstate DPAs was never carried out. Future re-zoning for approved residential development have included local council to create Restrictive Covenants requiring the restoration of impacted sensitive vegetation communities within the property prior to allowing approval for construction or infrastructure installation. All works within environmentally sensitive vegetation and restoration areas to be directed and monitored by a Qualified Environmental Professional.

9.0 CLOSURE

This report has been completed in accordance with generally accepted biological practices. No other warranty is made, either expressed or implied. Aquaparian trusts that the information provided in this report meets your requirements.



221 Minato Road Environmental Assessment
September 2024

Any questions regarding information provided in this document, please contact the undersigned at (250) 591-2258.

Respectfully submitted,

AQUAPARIAN ENVIRONMENTAL CONSULTING LTD.

Prepared by:

Review & Prepared by:



Chris Zamora B.Sc, R.P.Bio
Senior Biologist/Principal

Crystal Campbell, Environmental Tech.

<https://netorg5387218.sharepoint.com/sites/Shared/Shared Documents/Documents/Projects/Projects/N894 Ucluelet 221 Minato Road/Sep 2024 BA/221 Minato Road EA - September 23, 2024.docx>



203-321 Wallace Street, Nanaimo, BC V9R 5B6
SARAH BONAR 250-714-8446 CHRIS ZAMORA 250-714-8864

10.0 REFERENCES

- Aquaparian Environmental Consulting Ltd, March 2017. 221 Minato Road, Ucluelet BC Environmental Impact Assessment, May 2017. Pp. 34.
- Aquaparian Environmental Consulting Ltd, March 8, 2018. 221 Minato Road, Ucluelet BC Vegetation Management Plan. Pp 26.
- British Columbia Breeding Bird Atlas. 2008. Data accessed from NatureCounts, a node of the Avian Knowledge Network, Bird Studies Canada. Available: <http://www.naturecounts.ca/>. Accessed: April 20, 2017.
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- B.C. Conservation Data Centre: CDC iMap [web application]. 2017. Victoria, British Columbia, Canada. Available: <http://maps.gov.bc.ca/ess/sv/cdc/> (April 20, 2017).
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- BC Ministry of Environment. Habitat Wizard Database Internet Website: http://webmaps.gov.bc.ca/imf5/imf.jsp?site=moe_habwiz
- BC Ministry of Environment. Soils of British Columbia. <http://www.env.gov.bc.ca/soils/landscape/3.5columbia.html>
- Community Mapping Network. Wildlife Tree Stewardship Atlas. <http://cmnmaps.ca/wits/> (Accessed April 21, 2017)
- Cooper, J. and Beauchesne, S.M. 2004. "Vancouver Island" Northern Pygmy-owl *Glaucidium gnoma swarthy*. Accounts and Measures for Managing Identified Wildlife – Accounts V. Available: https://www2.gov.bc.ca/assets/gov/environment/natural-resource-policy-legislation/accounts-measures-for-managing-identified-wildlife/birds_vancouver_island_northern_pygmy_owl.pdf (Accessed November 24, 2021).
- Green R.N. and K. Klinka. 1994. A field Guide to Site Identification and Interpretation for the Vancouver Forest Region. Province of British Columbia, Ministry of Forests Research Branch.
- Matsuda, Brent M, David M. Green and Patrick T. Gregory. 2006 Amphibians and Reptiles of British Columbia. Royal BC Museum Handbook.

FIGURE 1
SITE LOCATION MAP
UCLUELET, BC



Figure 1. Site Location Map
221 Minato Road, Ucluelet, BC

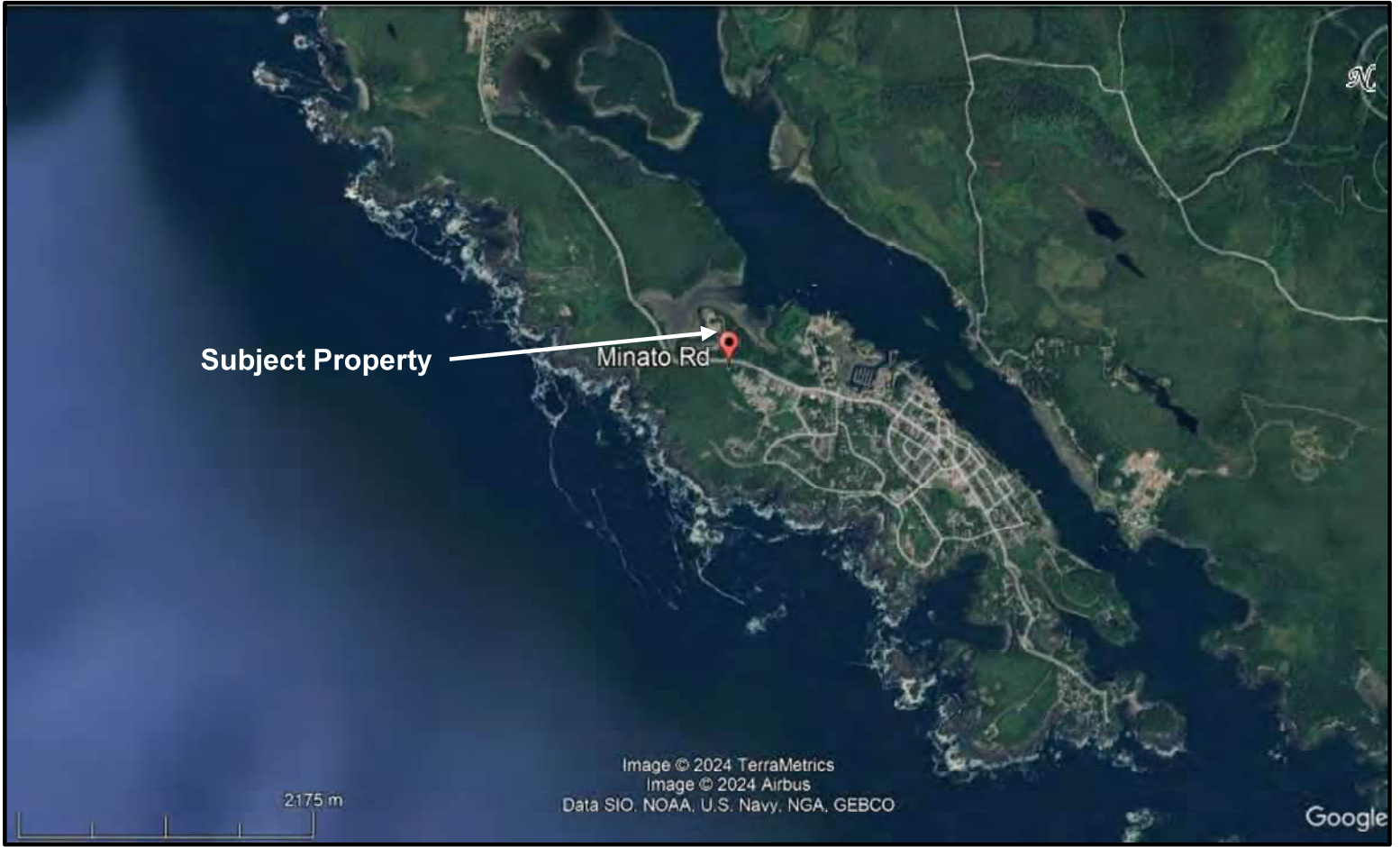


FIGURE 2
GOOGLE EARTH IMAGES OF MINATO ROAD PROPERTY



August 2016 – Pre-Clearing



August 2019 – Post-Clearing



May 2023



Figure 2

FIGURE 3
221 MINATO ROAD – BC IMAP SEARCH RESULTS





Figure 3

FIGURE 4
221 MINATO ROAD – VEGETATION REMEDIATION AREA(S)



**FIGURE 4. RESTORATION AREAS
221 MINATO ROAD, UCLUELET BC**

Site Plan of:

**Lot B, District Lot 282,
Layoquot District, Plan VIP79908**

Parcel Identifier: 026-487-764



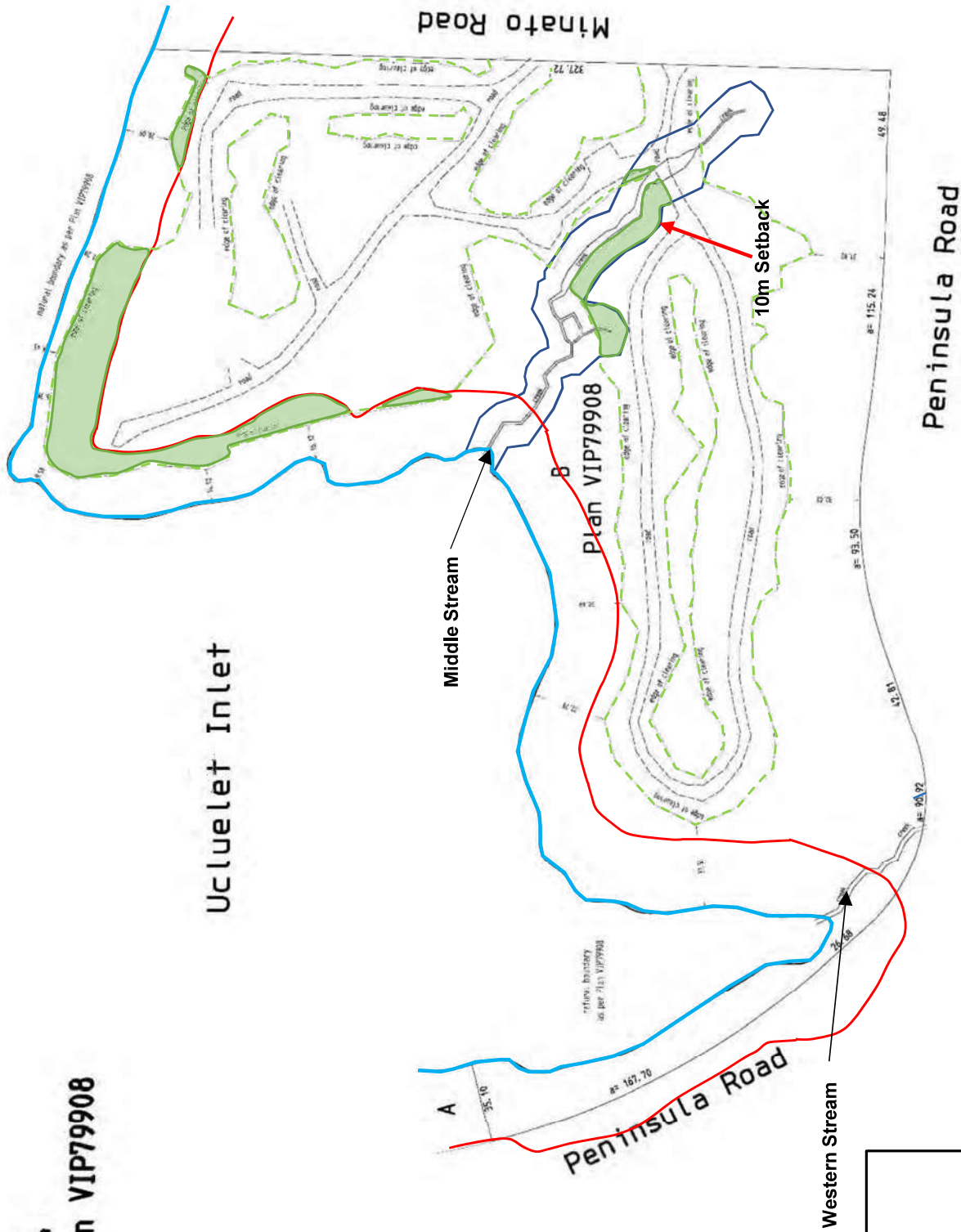
(Plot on Arch D sheet)



The following non-financial charges are shown on the current title and may affect the property:

2024-2025 - Covenant

Parcel dimensions shown herein are derived from land title office records.



LEGEND:

- Coastal Setback (30m)
- Streamside Setback (10m)
- Shoreline Natural Boundary
- Edge of clearing boundary
- Restoration Areas

APPENDIX A
SITE PHOTOGRAPHS 2017 & 2024



203-321 Wallace Street, Nanaimo, BC V9R 5B6
SARAH BONAR 250-714-8446 CHRIS ZAMORA 250-714-8864

March 2017

Appendix A: Site Photographs



Photo 1: View of entrance leading into Minato Rd and southern half of property.

Photo 2: View of logs and stumps stockpiled to side of road



Photo 3: View of the Middle Stream and stringer log bridge. 6" flow clearance. Bridge has since been replaced. Flows toward ocean.

Photo 4: View of the Middle Stream and stringer log bridge. Riparian vegetation to be re-established.



Photo 5: View of the Middle Stream where it crosses log bridge. Riparian area cleared to left side of bridge.

Photo 6: View along main access road; south end of development. Road cleared to edge of 30m highway setback.





Photo 7: View on opposite side of road alignment. Pondered water along road at upper end of the Middle Stream side channel; Southern half of property.

Photo 8: Impacted drainage. Area to be integrated into stormwater management plan for site. Overflow from the Middle Stream in the southern half of property.



Photo 9: 2017 Image of cleared and grubbed section of site in northern half of property. Portion of foreshore buffer area cleared during tree removal.

Photo 10: Cleared section of site within 30m foreshore buffer. 30m foreshore riparian buffer to be re-established.



Photo 11: Stockpiled soil burying the base of some trees in 30m foreshore DPA needs to be removed.

August 2024



Photo 12. August 2024: Showing the site access road off Minato Road with shed and woody debris piled along the side of the road. Southern half of property.



Photo 13. The site entrance forks. One side leads west to a bridge crossing the upper end of the Middle Stream.



Photo 14. New wooden bridge over the Middle Stream. Southern half of property.



Photo 15. Gravel loop road through southern section of the site with deep ditches along the sides of the road.



Photo 16. The riparian vegetation within the restoration area adjacent to the Middle Stream have regenerated with understory species and sparse tree saplings. Aquaparian recommends planting more native trees in this area to complete the remediation.



Photo 17. Showing the Middle Stream channel within shallow ravine located in southern half of property.



Photo 18. The Middle Stream outlets to Olsen Bay through an estuarine salt marsh comprised of Lyngby's sedge.



Photo 19. The riparian tree line transitions to salt marsh near the northern tip of the property. Here the salt marsh is dominated by sea asparagus and transitions to a tidal mudflat.



Photo 20. Showing the tidal mudflat within the sheltered Olsen Bay within Ucluelet Inlet adjacent to the subject property and its northern tip.



Photo 21. The remaining riparian habitat within the 30m foreshore setback along the western property boundary (northern half). Some leaning trees and a wildlife snag. Trees to be left in place.



Photo 22. View of the cleared area in the north-central portion of the property with wood mulch piles. The 30m foreshore setback area (where stumps are located adjacent to the tree line) that was previously cleared has been regenerating with understory species and some tree saplings. Additional native tree plantings are required in this area to achieve the restoration result that was previously recommended.



Photo 23. Photo showing two juvenile black bears on top of mulch piles near the northwestern property boundary. The foreshore riparian area acts as an important wildlife corridor.



Photo 24. The cleared area at the northern tip of the property where vehicles, trailers and boats are presently parked.



Photo 25. Narrow band of riparian trees along the northern tip of property. The wooden deck at shoreline built by previous owner without permit and should be removed.



Photo 26. The regenerated foreshore riparian restoration area near the northern tip of the site.



Photo 27. The road that terminates at the northern tip has ditching alongside the road that drains toward the foreshore setback.



Photo 28. An excavated stormwater detention pond just south of the northern tip of the property in 30m setback to be infilled and revegetated.



Photo 29. The Western Stream enters the southwest portion of the property from a large diameter culvert that crosses Peninsula Road. Showing culvert outlet.



Photo 30. Showing the Western Stream channel.

APPENDIX B

Minato Road Development

Multi-family Rezoning Application Package

Formosis Architecture



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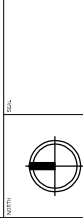
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DATE: 01/11/2022



Formosis Architecture
 210411 Columbus Street
 Providence, RI 02903
 formosis.com

Project Number: 2412
 DRAWN BY: [Name]
 CHECKED BY: [Name]



LOCATION	MINATO ROAD 221 MINATO ROAD
DATE	2022-09-19
SCALE	
PROJECT	COVER SHEET
OWNER	UCLULET
DESIGNER	KC
DATE	2022-09-19
SCALE	
PROJECT	001

Appendix C - Report 24-129



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210471 Columbus Street
 Westwood Hills, MA 01983
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Project Number: 2412

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Project Number: 2412

Project Number: 2412

Project Number: 2412

Project Number: 2412

Project Number: 2412

Project Number: 2412

Project Number: 2412

Project Number: 2412

PROJECT INFORMATION

LEGAL ADDRESS
 LOT 10 DISTRICT LOT 286 & 471 & 472 & 473, CLAYCOUOT DISTRICT, PLAN WP7916

CIVIC ADDRESS
 221 MINATO ROAD, UCLULET, BRITISH COLUMBIA, V1R 6Z6-487-764

PP
 024-487-764

ZONING
 CD-6

OCCUPANCY
 N/A VACANT

EXISTING
 C. MULTI-UNIT RESIDENTIAL

PROPOSED
 D. BUSINESS AND PERSONAL SERVICES
 E. MERCANTILE

SITE AREA
 10.06 HECTARES

LEGEND

- RESIDENTIAL PARKING
- VEHICLE PARKING
- ACCESSIBLE PARKING
- EV CHARGER PARKING
- COMMERCIAL PARKING
- GARBAGE ENCLOSURE
- SURF SHED
- LARGE SURF SHED

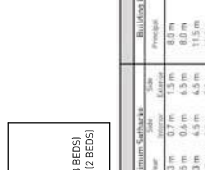
UNIT TYPE LEGEND

- (E.1) EAGLE 1 2x (2 BEDS) / 2x (3 BEDS)
- (E.2) EAGLE 2 2x (2 BEDS) / 4x (3 BEDS)
- (E.3.1) EAGLE 3.1 2x (5 STUDS) / 2x (1 BEDS) / 2x (2 BEDS)

STAIRCASE TYPE

Staircase Type	Minimum Rise	Maximum Rise	Minimum Width	Maximum Width	Minimum Headroom	Maximum Headroom
1	19.0 mm	23.0 mm	1.0 m	1.5 m	2.0 m	2.5 m
2	19.0 mm	23.0 mm	1.0 m	1.5 m	2.0 m	2.5 m
3	19.0 mm	23.0 mm	1.0 m	1.5 m	2.0 m	2.5 m
4	19.0 mm	23.0 mm	1.0 m	1.5 m	2.0 m	2.5 m

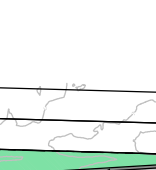
PROPOSED STORMWATER RETENTION AND RELEASE POND



PROJECT DATA

Building	Units	Total Area (sqm)	Net Area (sqm)	Volume (m³)	Weight (kg)
1	9	2339	1733	13,200	1,320,000
2	11	4,026	2,972	22,770	2,277,000
3	10	2,812	2,109	16,270	1,627,000
4	10	2,812	2,109	16,270	1,627,000
5	10	2,812	2,109	16,270	1,627,000
6	10	2,812	2,109	16,270	1,627,000
7	10	2,812	2,109	16,270	1,627,000
8	10	2,812	2,109	16,270	1,627,000
9	10	2,812	2,109	16,270	1,627,000
10	10	2,812	2,109	16,270	1,627,000
11	10	2,812	2,109	16,270	1,627,000
12	10	2,812	2,109	16,270	1,627,000
13	10	2,812	2,109	16,270	1,627,000
14	10	2,812	2,109	16,270	1,627,000
15	10	2,812	2,109	16,270	1,627,000
16	10	2,812	2,109	16,270	1,627,000
17	10	2,812	2,109	16,270	1,627,000
18	10	2,812	2,109	16,270	1,627,000
19	10	2,812	2,109	16,270	1,627,000
20	10	2,812	2,109	16,270	1,627,000
21	10	2,812	2,109	16,270	1,627,000
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23	10	2,812	2,109	16,270	1,627,000
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25	10	2,812	2,109	16,270	1,627,000
26	10	2,812	2,109	16,270	1,627,000
27	10	2,812	2,109	16,270	1,627,000
28	10	2,812	2,109	16,270	1,627,000
29	10	2,812	2,109	16,270	1,627,000
30	10	2,812	2,109	16,270	1,627,000
31	10	2,812	2,109	16,270	1,627,000
32	10	2,812	2,109	16,270	1,627,000
33	10	2,812	2,109	16,270	1,627,000
34	10	2,812	2,109	16,270	1,627,000
35	10	2,812	2,109	16,270	1,627,000
36	10	2,812	2,109	16,270	1,627,000
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38	10	2,812	2,109	16,270	1,627,000
39	10	2,812	2,109	16,270	1,627,000
40	10	2,812	2,109	16,270	1,627,000
41	10	2,812	2,109	16,270	1,627,000
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97	10	2,812	2,109	16,270	1,627,000
98	10	2,812	2,109	16,270	1,627,000
99	10	2,812	2,109	16,270	1,627,000
100	10	2,812	2,109	16,270	1,627,000

PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



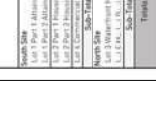
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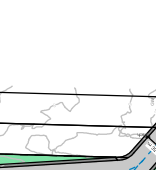
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PROPOSED STORMWATER RETENTION AND RELEASE POND



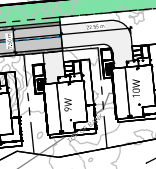
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PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



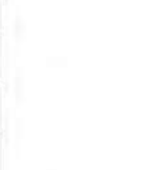
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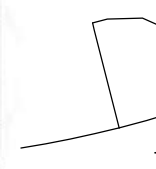
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PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



PROPOSED STORMWATER RETENTION AND RELEASE POND



221 MINATO ROAD, UCLULET, BC - PROJECT DATA

Project Number: 2412

210471 Columbus Street, Westwood Hills, MA 01983, formosisa.com

Project Number: 2412

Project Number: 2412

Project Number: 2412

Project Number: 2412

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Formosis Architecture
 28001 Columbus Street
 Worcester, MA 01605
 formosis.com

Project Number: 2412
 DRAWN BY: [Name]
 CHECKED BY: [Name]

DATE: 2024-09-19
 SCALE: 1:750
 SHEET NO.: 202

TITLE: SATELLITE PLAN OVERLAY
 PROJECT: MINATO 221 MINATO ROAD
 LOCATION: UCIULET, SP

APPENDIX C - Report 24-129



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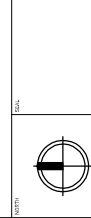
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DATE: 01/20/2024



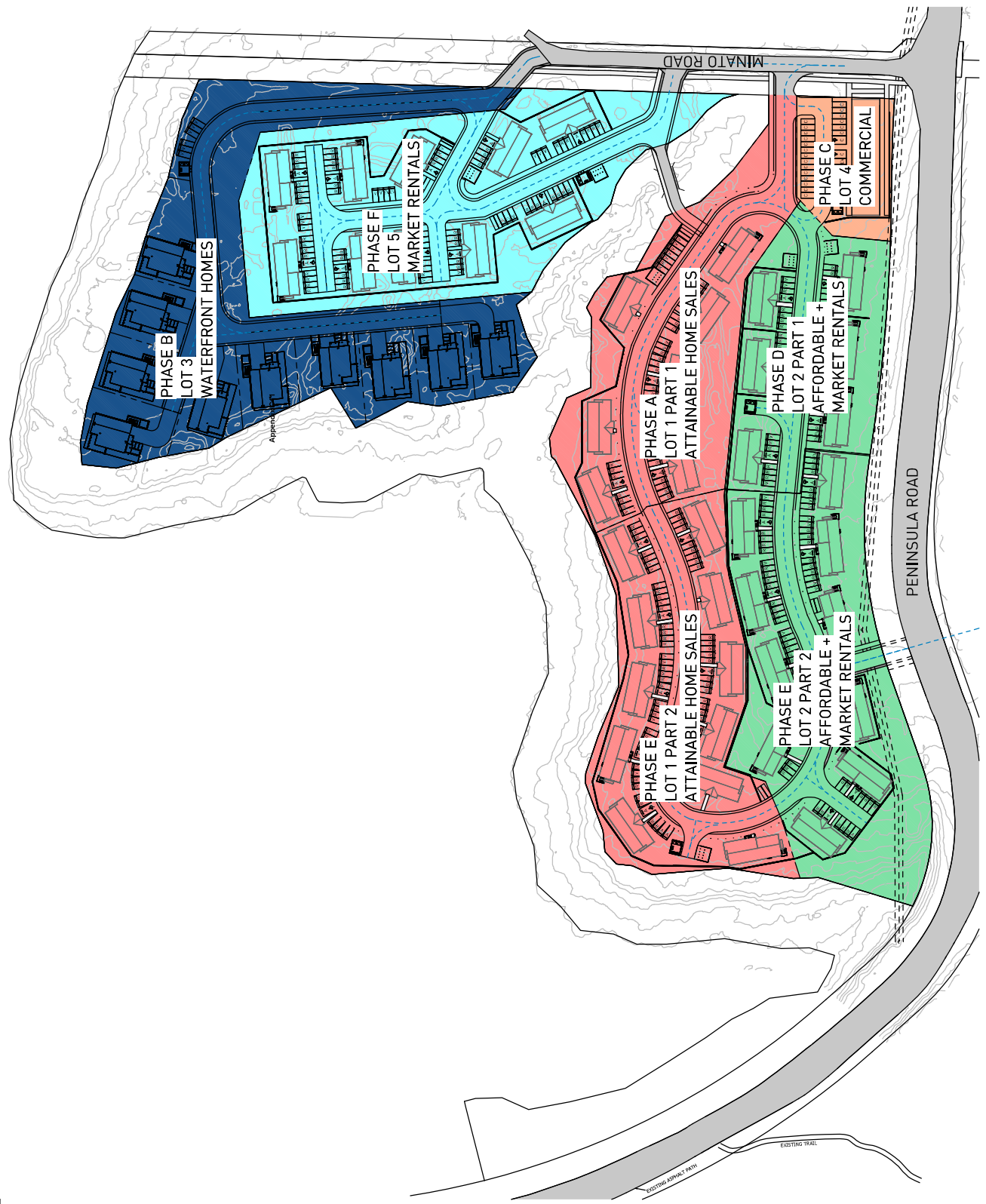
Formosis Architecture
 28041 Columbus Street
 Weymouth, MA 01985
 formosis.ca

Project Number: 2412
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 DATE: 01/20/2024



PROJECT NAME	MINATO
ADDRESS	221 MINATO ROAD
DATE	2024-01-19
SCALE	1:750
PROJECT NUMBER	2412
PHASE	STAGING PLAN
DESIGNED BY	SP
CLIENT	UCLULET

Appendix C - Report 24-129



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PROJECT NUMBER: 2412

STATUS: FOR RETENTION

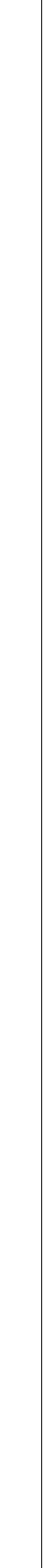
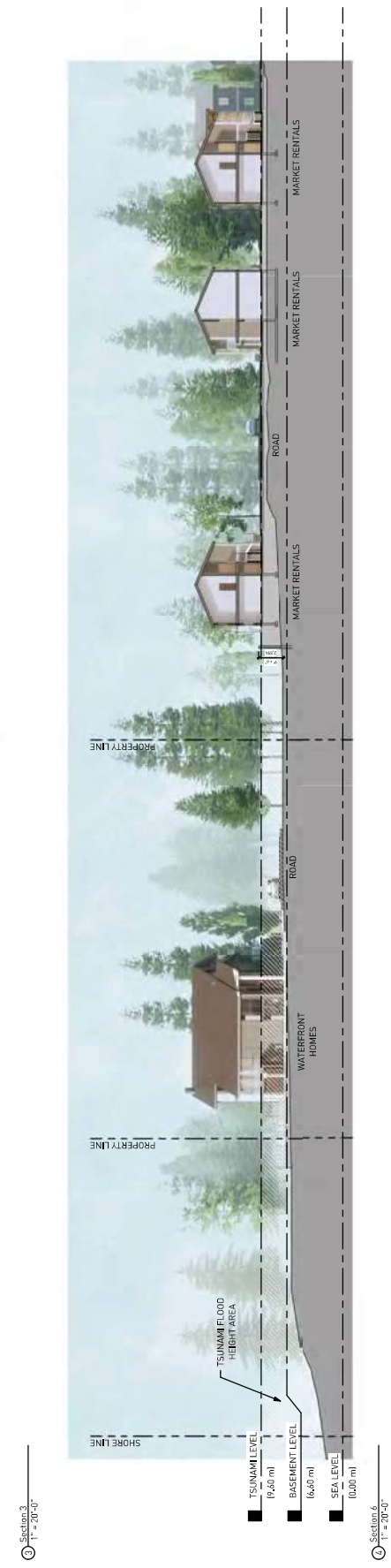
DATE: 2024-09-19



Formosis Architecture
 210411 Columbus Street
 Worcester, MA 01605
 formosis.ca

PROJECT: MINATO
 ADDRESS: 221 MINATO ROAD
 DRAWING: SITE SECTION
 CLIENT: UCLULET
 DATE: 2024-09-19
 SCALE: 1/8" = 1'-0"

APPENDIX C11



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CONSULTANT



Appendix C11

CONSULTANT



Formosis Architecture
 210011 Columbus Street
 Worcester, MA 01605
 formosis.com

Project Number: 2412
 DRAWN BY: [blank]
 CHECKED BY: [blank]

DATE: [blank]
 SCALE: [blank]

NO. [blank]
 TITLE: [blank]

DATE: [blank]
 SCALE: [blank]

PROJECT: MINATO
 221 MINATO ROAD

DATE: [blank]
 SCALE: [blank]

PROJECT: MINATO
 221 MINATO ROAD

DATE: [blank]
 SCALE: [blank]

PROJECT: MINATO
 221 MINATO ROAD

DATE: [blank]
 SCALE: [blank]

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FORMOSIS ARCHITECTURE



Formosis Architecture
 210011 Columbus Street
 Worcester, MA 01605
 formosis.com

Project Number: 2412
 DRAWN BY: [blank]
 CHECKED BY: [blank]
 DATE: [blank]

STATUS: [blank]

PROJECT: [blank]

DATE: [blank]

SCALE: [blank]

PROJECT: [blank]

DATE: [blank]

SCALE: [blank]

PROJECT: [blank]

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DATE: [blank]

SCALE: [blank]

PROJECT: [blank]

DATE: [blank]

SCALE: [blank]

PROJECT: [blank]

DATE: [blank]

SCALE: [blank]



APPENDIX C

BC HABITAT WIZARD SITE SEARCH RESULTS





habwiz Mapping

Legend

All Fish points

POINT_TYPE_CODE

● Observation

● Summary

Stream Centre Line Network

WDIC_SFFTP_CODE

100 - Coastline

1000 - Single-line blue/line, main

1050 - Single-line blue/line, throu

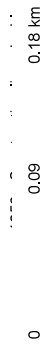
1100 - Single-line blue/line, seco

1150 - Single-line blue/line, seco

1200 - Construction line, main fl

1250 - Construction line, double

1300 - Construction line, secon



1: 4,514

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Datum: NAD83

Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Key Map of British Columbia



APPENDIX D
BC CONSERVATION DATA CENTRE SYSTEM EXPLORER
SEARCH RESULTS





















Search Results 82 records [Modify Search \(/pub/eswp/search.do?method=change\)](#) [New Search \(/pub/eswp/search.do?method=reset\)](#) [Print \(/pub/eswp/results_print.do\)](#) [Export Results](#) [Help](#)

Show 100 rows Column Visibility Sort Order
 Scientific Name
 Ascending

Scientific Name	English Name	Provincial	BC List	Global	COSEWIC	SARA
<i>Accipiter atricapillus laingi</i> (/pub/eswp/reports.do?elcode=ABNKC12062)	American Goshawk, <i>laingi</i> subspecies	S2 (2010)	Red	G5T2 (2016)	T	1-T (2003)
<i>Aechmophorus occidentalis</i> (/pub/eswp/reports.do?elcode=ABNCA04010)	Western Grebe	S1S2B,S2N (2023)	Red	G5 (2016)	SC	1-SC (2017)
<i>Aneides vagrans</i> (/pub/eswp/reports.do?elcode=AAAAD01060)	Wandering Salamander	S3 (2022)	Blue	G4 (2005)	SC	1-SC (2018)
<i>Ardea herodias fannini</i> (/pub/eswp/reports.do?elcode=ABNGA04011)	Great Blue Heron, <i>fannini</i> subspecies	S3B,S4N (2022)	Blue	G5T4 (2016)	SC	1-SC (2010)
<i>Asio flammeus</i> (/pub/eswp/reports.do?elcode=ABNSB13040)	Short-eared Owl	S3B,S1N (2022)	Blue	G5 (2016)	T	1-SC (2012)
<i>Bolboschoenus fluviatilis</i> (/pub/eswp/reports.do?elcode=PMCPY0Q0P0)	river bulrush	S2S3 (2019)	Blue	G5 (2024)		
<i>Botaurus lentiginosus</i> (/pub/eswp/reports.do?elcode=ABNGA01020)	American Bittern	S3B,SNRN (2015)	Blue	G5 (2016)		
<i>Brachyramphus marmoratus</i> (/pub/eswp/reports.do?elcode=ABNNN06010)	Marbled Murrelet	S3 (2022)	Blue	G3 (2016)	T	1-T (2003)
<i>Branta bernicla</i> (/pub/eswp/reports.do?elcode=ABNJB05010)	Brant	S3M (2015)	Blue	G5 (2016)		
<i>Buteo lagopus</i> (/pub/eswp/reports.do?elcode=ABNKC19130)	Rough-legged Hawk	S3N (2015)	Blue	G5 (2016)	NAR	
<i>Butorides virescens</i> (/pub/eswp/reports.do?elcode=ABNGA08010)	Green Heron	S3S4B (2015)	Blue	G5 (2016)		
<i>Calidris canutus</i> (/pub/eswp/reports.do?elcode=ABNNF11020)	Red Knot	S3?M (2022)	Blue	G4 (2016)	T	1-T (2010)
<i>Collophrys johnsoni</i> (/pub/eswp/reports.do?elcode=ILEPE2100)	Johnson's Hairstreak	S2? (2020)	Red	G3 (2017)	SC	
<i>Cardamine angulata</i> (/pub/eswp/reports.do?elcode=PDBRA0K010)	angled bittercress	S3 (2019)	Blue	G5 (1988)		
<i>Cardellina canadensis</i> (/pub/eswp/reports.do?elcode=ABPBX16030)	Canada Warbler	S3B (2022)	Blue	G5 (2016)	SC	1-T (2010)
<i>Castilleja ambigua</i> var. <i>ambigua</i> (/pub/eswp/reports.do?elcode=PDSCR0D401)	estuarine paintbrush	S3 (2019)	Blue	G5T5 (2015)		
<i>Cerastium fischerianum</i> (/pub/eswp/reports.do?elcode=PDCAR060E0)	Fischer's chickweed	S3 (2019)	Blue	G4 (2016)		
<i>Cervus elaphus roosevelti</i> (/pub/eswp/reports.do?elcode=AMALC01013)	Roosevelt Elk	S3S4 (2017)	Blue	G5T4 (2016)		
<i>Chordeiles minor</i> (/pub/eswp/reports.do?elcode=ABNTA02020)	Common Nighthawk	S3S5B (2022)	Blue	G5 (2016)	SC	1-SC (2023)
<i>Chrysemys picta</i> pop. 1 (/pub/eswp/reports.do?elcode=ARAAD01015)	Painted Turtle - Pacific Coast Population	S1S2 (2018)	Red	G5T2Q (2007)	T	1-T (2021)
<i>Coccyzus americanus</i> (/pub/eswp/reports.do?elcode=ABNRB02020)	Yellow-billed Cuckoo	SXB (2022)	Red	G5 (2016)		
<i>Coenonympha californiana insulana</i> (/pub/eswp/reports.do?elcode=ILEPN6038)	Common Ringlet, <i>insulana</i> subspecies	S1 (2021)	Red	G5T3T4 (1998)		
<i>Corynorhinus townsendii</i> (/pub/eswp/reports.do?elcode=AMACC08010)	Townsend's Big-eared Bat	S3 (2022)	Blue	G4 (2016)		
<i>Cryptomastix devia</i> (/pub/eswp/reports.do?elcode=IMGAS93010)	Puget Oregonian	SX (2015)	Red	G2 (2017)	XT	1-XT (2005)
<i>Cypseloides niger</i> (/pub/eswp/reports.do?elcode=ABNUA01010)	Black Swift	S2S4B (2022)	Blue	G4 (2016)	E	1-E (2019)
<i>Deroceras hesperium</i> (/pub/eswp/reports.do?elcode=IMGAS87020)	Evening Fieldslug	SH (2015)	Red	G2Q (2013)	DD	
<i>Eremophila alpestris strigata</i> (/pub/eswp/reports.do?elcode=ABPAT0201L)	Horned Lark, <i>strigata</i> subspecies	SXB (2019)	Red	G5T2 (2016)	E	1-E (2005)
<i>Erythranthe dentata</i> (/pub/eswp/reports.do?elcode=PDSCR1B0X0)	tooth-leaved monkey-flower	S3 (2019)	Blue	G5 (1990)		

Appendix 1 24-129

Scientific Name	English Name	Provincial	BC List	Global	COSEWIC	SARA
 <i>Euphagus carolinus</i> (pub/eswp/reports.do?elcode=ABPBX5010)	Rusty Blackbird	S3S4B (2015)	Blue	G4 (2016)	SC	1-SC (2009)
 <i>Euphydryas editha taylora</i> (pub/eswp/reports.do?elcode=IILEPK405K)	Edith's Checkerspot, <i>taylora</i> subspecies	S1 (2021)	Red	G4G5T1 (2008)	E	1-E (2003)
 <i>Euphyes vestris</i> (pub/eswp/reports.do?elcode=IILEP77100)	Dun Skipper	S2S3 (2020)	Blue	G5 (2020)	T	1-T (2003)
 <i>Falco peregrinus anatum</i> (pub/eswp/reports.do?elcode=ABNKD06071)	Peregrine Falcon, <i>anatum</i> subspecies	S2? (2011)	Red	G4T4 (2016)	NAR	
 <i>Falco peregrinus pealei</i> (pub/eswp/reports.do?elcode=ABNKD06073)	Peregrine Falcon, <i>pealei</i> subspecies	S3S4 (2019)	Blue	G4T3 (2016)	SC	1-SC (2003)
 <i>Falco rusticolus</i> (pub/eswp/reports.do?elcode=ABNKD06080)	Gyr Falcon	S3S4B,SNRN (2015)	Blue	G5 (2016)	NAR	
 <i>Glaucidium gnoma swarthi</i> (pub/eswp/reports.do?elcode=ABNSB08015)	Northern Pygmy-Owl, <i>swarthi</i> subspecies	S3S4 (2018)	Blue	G4G5T3T4Q (2019)		
 <i>Gulo gulo luscus</i> (pub/eswp/reports.do?elcode=AMAJF03011)	Wolverine, <i>luscus</i> subspecies	S3 (2010)	Blue	G4T4 (2016)	SC	1-SC (2018)
 <i>Gulo gulo vancouverensis</i> (pub/eswp/reports.do?elcode=AMAJF03014)	Wolverine, <i>vancouverensis</i> subspecies	SH (2017)	Red	G4TH (2016)	SC	1-SC (2018)
 <i>Hemphillia burringtoni</i> (pub/eswp/reports.do?elcode=IMGAS59010)	Keeled Jumping-slug	S2? (2015)	Red	G3 (2023)	SC	1-SC (2005)
 <i>Hemphillia dromedarius</i> (pub/eswp/reports.do?elcode=IMGAS59040)	Dromedary Jumping-slug	S2 (2024)	Red	G3G4 (2005)	T	1-T (2005)
 <i>Hydroprogne caspia</i> (pub/eswp/reports.do?elcode=ABNNM08020)	Caspian Tern	S2S4B (2024)	Blue	G5 (2016)	NAR	
 <i>Icaricia saepiolus insulanus</i> (pub/eswp/reports.do?elcode=IILEPG6013)	Greenish Blue, <i>insulanus</i> subspecies	SH (2021)	Red	G5TH (2018)	E	1-E (2003)
 <i>Icteria virens</i> (pub/eswp/reports.do?elcode=ABPBX24010)	Yellow-breasted Chat	S2B (2018)	Red	G5 (2016)	E	1-E (2003)
 <i>Larus californicus</i> (pub/eswp/reports.do?elcode=ABNNM03110)	California Gull	S1B,SNRN (2022)	Red	G5 (2016)		
 <i>Lasiurus cinereus</i> (pub/eswp/reports.do?elcode=AMACC05032)	Hoary Bat	S3S4 (2022)	Blue	G3G4 (2022)	E	
 <i>Limnodromus griseus</i> (pub/eswp/reports.do?elcode=ABNNF16010)	Short-billed Dowitcher	S1S2B,S2S3M (2023)	Red	G3 (2024)		
 <i>Limosa haemastica</i> (pub/eswp/reports.do?elcode=ABNNF08020)	Hudsonian Godwit	S1B (2022)	Red	G4 (2016)	T	
 <i>Megascops kennicottii kennicottii</i> (pub/eswp/reports.do?elcode=ABNSB01042)	Western Screech-Owl, <i>kennicottii</i> subspecies	S2S3 (2017)	Blue	G4G5T4 (2016)	T	1-T (2005)
 <i>Melanerpes lewis</i> (pub/eswp/reports.do?elcode=ABNYF04010)	Lewis's Woodpecker	S2S3B (2022)	Blue	G4 (2016)	T	1-T (2012)
 <i>Melanitta americana</i> (pub/eswp/reports.do?elcode=ABNJB17040)	Black Scoter	S3S4N (2015)	Blue	G5 (2016)		
 <i>Melanitta perspicillata</i> (pub/eswp/reports.do?elcode=ABNJB17020)	Surf Scoter	S3B,S4N (2015)	Blue	G5 (2016)		
 <i>Microtus townsendii cowani</i> (pub/eswp/reports.do?elcode=AMAFF11042)	Townsend's Vole, <i>covani</i> subspecies	S1 (2024)	Red	G5T1 (2016)		
 <i>Musculium partumeium</i> (pub/eswp/reports.do?elcode=IMBIV50020)	Swamp Fingernaildam	S2S4 (2015)	Blue	G5 (2015)		
 <i>Mustela richardsonii anguinae</i> (pub/eswp/reports.do?elcode=AMAJF02014)	Ermine, <i>anguinae</i> subspecies	S3 (2010)	Blue	G5T3 (2016)		
 <i>Myotis lucifugus</i> (pub/eswp/reports.do?elcode=AMACC01010)	Little Brown Myotis	S3S4 (2022)	Blue	G3G4 (2024)	E	1-E (2014)
 <i>Nannopterum auritum</i> (pub/eswp/reports.do?elcode=ABNFD01020)	Double-crested Cormorant	S3S4 (2015)	Blue	G5 (2016)	NAR	
 <i>Nycticorax nycticorax</i> (pub/eswp/reports.do?elcode=ABNGA11010)	Black-crowned Night-Heron	S1 (2022)	Red	G5 (2016)		
 <i>Ophiogomphus occidentis</i> (pub/eswp/reports.do?elcode=IIODO12140)	Sinuous Snaketail	S3 (2023)	Blue	G5 (2015)		
 <i>Oporornis agilis</i> (pub/eswp/reports.do?elcode=ABPBX11020)	Connecticut Warbler	S3B (2024)	Blue	G4G5 (2016)		
 <i>Oreamnos americanus</i> (pub/eswp/reports.do?elcode=AMALE02010)	Mountain Goat	S3 (2024)	Blue	G5 (2016)		
 <i>Oxalis oregana</i> (pub/eswp/reports.do?elcode=PDOXA010M0)	redwood sorrel	S3 (2019)	Blue	G5 (1990)		

Scientific Name	English Name	Provincial	BC List	Global	COSEWIC	SARA
<i>Patagioenas fasciata</i> ((pub/eswp/reports.do?elcode=ABNPB01080))	Band-tailed Pigeon	S3S4 (2022)	Blue	G4 (2016)	SC	1-SC (2011)
<i>Pelecanus erythrorhynchos</i> ((pub/eswp/reports.do?elcode=ABNFC01010))	American White Pelican	S1B (2022)	Red	G4 (2016)	NAR	
<i>Phalaropus lobatus</i> ((pub/eswp/reports.do?elcode=ABNNF20020))	Red-necked Phalarope	S3B,SNRM (2023)	Blue	G4G5 (2016)	SC	1-SC (2019)
<i>Pinicola enucleator carlottae</i> ((pub/eswp/reports.do?elcode=ABPY03013))	Pine Grosbeak, <i>carlottae</i> subspecies	S3 (2005)	Blue	G5T3 (2016)		
<i>Pluvialis dominica</i> ((pub/eswp/reports.do?elcode=ABNNB02030))	American Golden-Plover	S3S4B (2015)	Blue	G5 (2016)		
<i>Pristiloma johnsoni</i> ((pub/eswp/reports.do?elcode=IMGAS80050))	Broadwhorl Tightcoil	S3 (2015)	Blue	G3 (2013)		
<i>Progne subis</i> ((pub/eswp/reports.do?elcode=ABPAU01010))	Purple Martin	S3S4B (2022)	Blue	G5 (2016)		
<i>Prophyaon coeruleum</i> ((pub/eswp/reports.do?elcode=IMGAS62030))	Blue-grey Taildropper	S2S3 (2024)	Blue	G3G4 (2010)	T	1-T (2019)
<i>Prosartes smithii</i> ((pub/eswp/reports.do?elcode=PMLLOR050))	Smith's fairybells	S3? (2022)	Blue	G5 (1990)		
<i>Rana aurora</i> ((pub/eswp/reports.do?elcode=AAABH01021))	Northern Red-legged Frog	S3 (2022)	Blue	G4 (2015)	SC	1-SC (2005)
<i>Recurvirostra americana</i> ((pub/eswp/reports.do?elcode=ABNND02010))	American Avocet	S2S3B (2023)	Blue	G5 (2016)		
<i>Setophaga castanea</i> ((pub/eswp/reports.do?elcode=ABPBX03220))	Bay-breasted Warbler	S2B (2022)	Red	G5 (2016)		
<i>Setophaga virens</i> ((pub/eswp/reports.do?elcode=ABPBX03100))	Black-throated Green Warbler	S3B (2024)	Blue	G5 (2016)		
<i>Sorex navigator brooksi</i> ((pub/eswp/reports.do?elcode=AMABA01154))	Western Water Shrew, <i>brooksi</i> subspecies	S3 (2024)	Blue	G5T2T3 (2019)		
<i>Staalaa gwaii</i> ((pub/eswp/reports.do?elcode=IMGAS5A010))	Haida Gwaii Slug	S2? (2024)	Red	G2? (2016)	SC	1-SC (2018)
<i>Sterna forsteri</i> ((pub/eswp/reports.do?elcode=ABNNM08090))	Forster's Tern	S1B (2022)	Red	G5 (2016)	DD	
<i>Sympetrum vicinum</i> ((pub/eswp/reports.do?elcode=IODO61140))	Autumn Meadowhawk	S3S4 (2023)	Blue	G5 (2015)		
<i>Synthliboramphus antiquus</i> ((pub/eswp/reports.do?elcode=ABNNN07030))	Ancient Murrelet	S2S3B,S4N (2022)	Blue	G4 (2016)	SC	1-SC (2006)
<i>Tanypteryx hageni</i> ((pub/eswp/reports.do?elcode=IODO02010))	Black Petaltail	S2S3 (2023)	Blue	G4 (2000)		
<i>Tringa incana</i> ((pub/eswp/reports.do?elcode=ABNNF03010))	Wandering Tattler	S3B (2024)	Blue	G4G5 (2016)		
<i>Tyto alba</i> ((pub/eswp/reports.do?elcode=ABNSA01010))	Barn Owl	S3 (2022)	Blue	G5 (2016)	T	1-T (2018)
<i>Ursus arctos</i> ((pub/eswp/reports.do?elcode=AMAJB01020))	Grizzly Bear	S3? (2015)	Blue	G4 (2022)	SC	1-SC (2018)

Showing 1 to 82 of 82 entries

First Previous **1** Next Last

Search Criteria

Animals OR Plants OR Lichens
 AND BC Conservation Status: Red (Extirpated, Endangered, or Threatened) OR Blue (Special Concern)
 AND 'Regional Districts': Regional District of Alberni-Clayoquot
 AND Habitat Subtypes: Conifer Forest - Moist/wet, Estuary, Marsh, Mudflats - Intertidal, Old Forest, Riparian Forest, Stream/River, Vernal Pools/Seasonal Seeps
 AND BGC Zone, Subzone: CWHvh
 Sort Order: Scientific Name Ascending

Notes

1. Citation: B.C. Conservation Data Centre. 2024. BC Species and Ecosystems Explorer. B.C. Minist. of Environ. Victoria, B.C. Available: <https://a100.gov.bc.ca/pub/eswp/> (<https://a100.gov.bc.ca/pub/eswp/>) (accessed Sep 9, 2024).
2. The data contained in the Results Export in BCSEE are provided under the Open Government License - BC (<http://www.data.gov.bc.ca/local/dbc/docs/license/OGL-vbc2.0.pdf>).
3. We welcome your comments at cdccdata@gov.bc.ca.

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Appendix Report 24-129

Bruce Greig

From: Duane Lawrence
Sent: September 10, 2024 12:14 PM
To: Juliette Green; joshua.h@erif.ca; jodie.t@erif.ca
Cc: Ian Kennington (Ucluelet Council); Jennifer Hoar (Ucluelet Council); Marilyn McEwen (Ucluelet Mayor); Mark Maftai (Ucluelet Council); Shawn Anderson (Ucluelet Council); Bruce Greig
Subject: 221 Minato Development Project

Hello Josh, Juliette, and Jodie,

Sorry for the short delay on getting back to you. I wanted to complete a full review and provide a more detailed update with respect to our discussions related to your proposed development, as we understand it, as well as advise you of some action items we will be undertaking to provide the requested clarity of key issues your team has identified.

We understand that you have a number of unanswered questions about the site and its feasibility for the development program you are pursuing. We also understand that the answers to a number of your questions hinge on decisions by the municipality. Some areas can be resolved at the staff level, but others will depend on decisions made by the Council. Staff are pleased with the open communication from ERIF and are committed to moving things forward as quickly as possible.

The discussions to date have been fruitful and have fleshed out a number of areas and possibilities for clearing hurdles for this housing concept. ERIF is pursuing an aggressive timeline and to move forward at this pace we see the following steps as key:

1. Submit a complete application for rezoning and environmental development permit.
 - a. These will set up for the subsequent applications for subdivision and further development permits for the multi-family building sites. Those applications can follow at a point when there is confidence in the alignment of parcel boundaries, roads and services.
 - b. Provide a complete set of [application materials](#), and fees - submit all items as one package.
 - c. Include a statement of the housing and the levels of affordability (see [OCP](#) policy 3.143 and 3.134)
 - d. Include an updated environmental assessment and archaeological assessment: if these are not available yet, at least submit statements from your consultants confirming their engagement, process and timing.

2. Regardless of your application timing, staff will prepare a report for Council to consider at its September 24 meeting to enable a chance for ERIF to gauge the degree of Council support on a number of issues that may inform steps forward. This will by necessity be at a high level, since they will not have a complete application with staff analysis and recommendation for decisions. Council will have to keep an open mind to the future decisions made on the formal application. This is also an opportunity for ERIF to share what you heard at your open house. Questions we will prompt Council to consider:

- a. Proposed no additional park dedication beyond the stream and shoreline areas already obtained from the past zoning approvals;
 - b. The municipality is being asked to take on the construction of trails;
 - c. Compromise of the 30m forested buffer along the highway entering town, proposed to achieve number of housing units;
 - d. District request to Ministry of Transportation and Infrastructure to reduce speed limit on Hwy to 50km/h starting roughly at the Olsen Bay pumphouse;
 - e. Expectation for arms length vetting of qualifying tenants / purchasers (housing authority function – not by developer or realtor);
 - f. Small Commercial node at corner of Minato and Peninsula;
3. First stage of approvals (timing dependent of submissions of complete application materials) would include the following authorized by Council:
- a. Adopt rezoning bylaw;
 - b. Agree to amend or replace restrictive covenant on the property title;
 - c. Issue environmental DP to enable subdivision and site works;
 - d. Adopt PDA bylaw;
 - e. Adopt Housing Agreement Bylaw (?);
 - f. Authorize off-site works (not sure of the shape of this)
4. Subsequent approvals:
- a. Subdivision Preliminary Layout Assessment
 - b. Final Subdivision
 - c. DP for individual multi-family and commercial sites

Site suitability:

A. Tsunami

- i. For subdivision, development permit and/or building permit, the District will need to receive a Flood Assurance Statement sealed by a qualified professional meeting the Provincial requirements to allow new development in identified flood risk areas – see Appendix I of the professional practice guidance for engineers and geoscientists on [legislated flood assessments](#) in BC.
- ii. DoU staff would be pleased to meet with ERIF and your consultants to review what is needed to enable municipal approvals and clarify requirements;
- iii. The DoU Interim policy allows for the District to contemplate a development in a known flood risk area provided the development meets the provincial requirements. The interim policy should not be considered as the guiding document to determine flood risk levels. These levels can only be determined by a qualified engineer.

B. Sanitary

- i. District will provide updated cost estimates for site servicing and potential timing
- ii. District will require additional information on flow, to be able to verify how an on-site retention tank could work as an interim sanitary solution. The District will need clarity from ERIF if your development is prepared to fund this work or if you are

asking the DoU to do this. Our existing master plan includes adding a flow meter at the Hemlock lift station when it is redeveloped. If ERIF would like the DoU to completed this in advance of the planned replacement in 2025 Council will need to approve the added ~\$30,000 expense which would normally be included in the redevelopment of the lift station. Doing it in advance could mean we would undertake this work twice.

- iii. District anticipates a detailed report to go to Council in early October upon receipt of engineering reports for solutions; Actions and timing will be determined based off of this report through Council direction.

C. Water Supply and Power

- i. DoU will review existing reports as part of REZ/DP application
- ii. Determination of adequate water/power supply can only be verified once full details of power and water requirements have been determined and verified by DoU

D. Traffic Management

- i. DoU will review traffic modeling with REZ/DP application.
- ii. If modeling meets MOTI requirements the District should be able to support the proposal as presented
- iii. Provided a speed reduction along HWY 4 is supported by Council, DOU would submit request to MoTI for a speed reduction.

E. Roads

- i. DoU to review road proposals as part of REZ/DP and subdivision applications, DoU can undertake a preliminary review when drawings are provided. For the Minato Road cross section – new Forbes Road section in OceanWest phase 5 might be a good indication

F. Parking and private roads

- i. DOU will review road alignments, emergency access with REZ/DP application
- ii. The latest plan shows a pattern where all parking spaces back out onto the road and Staff have noted this as a safety concern. The road effectively acts as the drive aisle to a parking lot. This layout would only function at extremely low traffic speeds and is not seen as ideal for most subdivisions.
- iii. Further discussion necessary on what is private road and what is public. Consider maintenance of utilities (water main looping, hydrants and sewer mains) and also the legal setup of lots / stratas and the long-term cost of maintaining infrastructure (and the impact of strata costs on total housing costs and long term affordability)

G. Subdivision

- i. Council will need to consider a reduced frontage on Hwy 4, as part of ERIF DP application. Staff plan on presenting this to Council on the 24th for initial comments. Note that Council will not be able to commit to this until a full application has been received.
- ii. Reduced street frontage (width of Lot 1 frontage on Minato Road) would depend on your environmental report and need approval from Council. Road location is very close to stream corridor; updated environmental assessment and wetland delineation may shift the proposed layout of road access and lot lines.

H. Parkland

- i. Council decision required to confirm no additional dedications with this subdivision (see above).

I. Environmental Assessment

- i. Highly recommended to expedite this to ensure proposed layout works on the site; delineation of ESA's and wetlands may prompt changes to lot lines and road layout – this could impact what the developer requests in the zoning. Completing the site analysis before committing to a site layout would avoid the risk of going back to adjust - but that may be the risk/cost of fast-tracking the approvals.

J. Phased Development Agreement

- i. This project lends itself to a PDA. A PDA bylaw will need to be adopted by Council with the rezoning. Details will need to be available before a bylaw is presented to Council - at least to the degree that the agreement framework can be defined.

K. Zoning Update

- i. DoU can only confirm full support for a rezoning application once we have received the details and complete a full review. Details (housing types, affordability, site plan, environmental impacts, etc.) need to be confirmed in your DP and Rezoning Application. Gauging Council support for the overall density and the mix of market / non-market housing will be key for ERIF (see above re: September 24th).
- ii. DoU anticipates the removal and replacement of the existing covenant to reflect ERIF's affordable housing plans and strategy at rezoning.

L. DP and Operational/Early Works

- i. DoU would require, at a minimum, Archaeologist Report, Environmental Report, Flood Assurance Statement prior to subdivision assessment. Full civil engineering design is required for on- and off-site works prior to subdivision approval.
- ii. DoU under a PDA can potentially approve preliminary works provided the Owner acknowledges that any works undertaken on the site would be at the Owners risk. Without a complete application package the DoU can not provide any guarantees that no revisions to plans would be required and approvals on any one matter would be provided.

1. Review of existing site reports/plans/documents

- iii. DoU anticipates that the detailed site reports ERIF has received on the site will meet the application requirements but can only confirm that this is the case once we receive an application package and have an opportunity to review them in detail against the application. As soon as a complete application package has been received we will start this process.

M. Temporary Use Permit

- i. ERIF enquired if a TUP would be possible to situate a temporary manufacturing site on the phase 5 portion of the development in order to facilitate the construction process. It is possible for this to be considered although would need to be applied

for separately from DP process and approved by Council. We would need to review this in detail but in theory a TUP could be contemplated by Council for this purpose.

If you have any questions please do not hesitate to reach out.

Regards,



Duane Lawrence
Chief Administrative Officer

Box 999, 200 Main Street
Ucluelet, B.C., V0R 3A0
Phone: 778-748-8477

The District of Ucluelet acknowledges the traditional territories, lands and waters of the Yuułu?if?ath on which the District of Ucluelet operates.

Bruce Greig

From: Joshua Hunt <joshua.h@erif.ca>
Sent: September 20, 2024 12:43 PM
To: Duane Lawrence; Bruce Greig; John Towgood; Juliette Green; Jodie Thompson
Subject: DP Lodgement - 221 Minato Road
Attachments: ERIF DP Application 221 Minato Cover Sept 20 2024.pdf

Follow Up Flag: Follow up
Flag Status: Completed

[External]

Dear Duane, Bruce, John and District of Ucluelet Team

On behalf of ERIF, we are delighted to present the Rezoning, Subdivision and Development Permit applications for 221 Minato Road.

Please find attached the Cover Letter which links all the required documentation for the application. You will also see a supporting presentation here: [Development Permit \(18SEPT20204\) - 221 Minato Road Ucluelet \(canva.com\)](#). Hard copy versions will be supplied at our meeting on Tuesday and we will visit the office to arrange application fees.

We are committed to working with you to deliver high quality attainable and affordable homes for Ucluelet and contribute to thriving future economic and community growth. We thank you for your consideration.

Please note that there are two outstanding items that we will provide when received as soon as possible:

- 1) Flood Hazard Report and Assurance by KWL: this deliverable is well underway and will be supplied as soon as possible. Thank you for meeting with ERIF and our consultant team on Monday at 12 pm to discuss this further.
- 2) Environmental Report by Aquaparian: this report is being finalised and will be submitted shortly.

Each of the supporting documents are available in the linked files and our team are readily available to assist with any questions regarding the documentation as we progress through the approval process.

We look forward to meeting with Council this coming Tuesday. We thank you for your work reviewing the supplied reports and documentation to support our application. In the meantime, if you have any questions or require further clarification, please do not hesitate to contact us.

Thank you for your time and assistance with this exciting opportunity to serve Ucluelet.

In partnership,

Kind Regards,

Joshua Hunt | CEO

Appendix D - Report 24-129

📞 [\(236\) 507 - 4309](tel:(236)507-4309) | ✉ joshua.h@erif.ca | 🌐 www.erif.ca



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September 20th, 2024

Incorporation No: BC 1319635
2200, 885 Georgia St West, Vancouver, British Columbia, CA V6C 3E8

Attn:

Duane Lawrence, CAO

Bruce Greig, Director of Community Planning

John Towgood, Municipal Planner

District of Ucluelet

RE: 221 MINATO ROAD – DEVELOPMENT PERMIT APPLICATION

Dear Duane, Bruce and John,

ERIF Economic Restoration Infrastructure Fund Inc is delighted to present this application for a Development Permit (both Environmental and Multi Family Permits) for the lands located at 221 Minato Road. Our entire team is grateful for the opportunity to contribute to the development of this project and honored to be a part of the much-needed housing solution for Ucluelet.

Application Items

1. Application Form
2. DOU's Development Application Checklist
3. Title Search & State of Title Certificate
4. Site Disclosure Statement
5. Written Statement of Intent

Rezoning and Subdivision

6. Municipality Policies List and Links
7. Subdivision Lot Layout provided by Formosis
8. Draft Subdivision Plan provided by Williamson & Associates Professional Surveyors

Development Permits – Environmental and Multi Family

9. Overview of Application
10. Masterplan provided by Formosis including Zoning Analysis
11. Build Forms - Eagle 1 Plans
12. Build Forms - Eagle 3 Plans
13. Build Forms - Waterfront Homes

Supporting Consultant Reports

In addition, the following consultant reports have been provided:

14. Environmental Report provided by Aquaparian
15. Tree Report provided by Joe Carlaozzi
16. Draft Servicing Plan prepared by Herold Engineers
17. Stormwater Management Servicing Plans by Herold Engineers
18. Interim Sewage Solution by Creus Engineering
19. Traffic Impact Report by Watt Consulting and commenced approval with MoTI
20. Interim Archaeological Report by Yuufu?i?ath? Government - Ucluelet First Nation (UFN)
Department of Culture, Language & Heritage

21. Landscaping Plan by MacDonald Gray
22. Geotechnical Reports by Geopacific
23. Site Specific Tsunami Report by Ebbwater
24. Tsunami resilient design by Hydrotechnical and Structural Engineers with Stantec
25. Flood Hazard Report and Assurance by KWL
26. Contamination Screening Report by Thurber

Draft Proposals: We have also provided these draft documents to progress the approval process:

- A. Draft Bylaw Revisions
- B. Draft Covenant Restrictions
- C. Draft Subdivision Plan noting Easements and Covenants
- D. Draft Phased Development Plan & Phased Development Agreement

Document Appendix: The appendices which follow are:

- A. Log of Current Lodgement documents
- B. Our Solutions outlining the proposed solutions for the site development.
- C. Rezoning Amendment and Draft Bylaw
- D. Proposed Environmental Development Permit - Draft Subdivision Plan noting Easements and Covenants
- E. Proposed Multi Family and Commercial Site Development Permit
- F. Draft Phased Development Plan and Draft PDA Agreement
- G. Official Community Plan (OCP) Variations
- H. Log of Additional Site-Specific Supporting Reports

Ongoing Collaborations: These works to be continued and updated:

- A. Flood Hazard Assessment and Flood Assurance Statement by Coastal Engineers Kerr Webb Leidel to follow immediately after lodgement.
- B. Confirmation of off-site scope and design in coordination with Civil Engineer and District of Ucluelet.
- C. Coordination with MoTI for proposed site access off Peninsula Road.
- D. Interim Archaeological Report will be substituted with Final Report.
- E. Detailed design of tsunami resilient structures and retaining walls for Build Permit in collaboration with Coastal Engineer, Structural Engineers and Geotechnical engineering team.
- F. Lodgement of a Temporary Use Permit and Early Works Permit Application.

We welcome the opportunity to provide this housing solution to the Ucluelet partnering with the Council and Municipality for a future abundant in economic and community growth.

In partnership,



Joshua Hunt

CEO – ERIF Sustainable Solutions

Cc: Jon Mara, President/Director, Minato Development Corporation

Chris Bozman, President, Saltwater Building Co.

APPENDIX A - Log of Current Application – Lodged Documents

This is the listing and direct links to all documents outlined in the Development Application Checklist and Covenant Restrictions:

#	Lodged Document	Document Link
Application		
1	Application Form	https://drive.google.com/file/d/1vUqBnnZlk9T7IKUDEbkSTFBuzLGQRXO9/view?usp=drive_link
2	DOU’s Development Permit Application Checklist	https://drive.google.com/file/d/1t9luV59fluXCRDZYG0L6FZO2L_wLrzH2/view?usp=sharing
3	Title Search & State of Title Certificate	Title Search: https://drive.google.com/file/d/161dYjciITeTela3HbKpwQ1fla7C3Kzyj/view?usp=sharing State of Title: https://drive.google.com/file/d/161dYjciITeTela3HbKpwQ1fla7C3Kzyj/view?usp=sharing
4	Site Disclosure Statement	https://drive.google.com/file/d/1cDqHcxmbzPI4NuWl59CYGt9trHNTfa5/view?usp=drive_link
5	Written Statement of Intent	https://drive.google.com/file/d/1t1AwmsL98EtK-8gihF5U2e7RE16EwxM/view?usp=sharing
Rezoning and Subdivision		
6	Municipality Policies List and Links	https://docs.google.com/document/d/1HbGalTgZwUJgGnLEzlp3i7kQ1G_Duj6/edit?usp=sharing&ouid=116257945114196824088&rtpof=true&sd=true
7	Subdivision Lot Layout provided by Formosis a) Application Drawings b) Site context c) Topographical and geographical features d) Property lines, setbacks, proposed buildings and structures e) Grading and rainwater plans	a - d. Formosis: https://drive.google.com/file/d/1XxXeZBfdcNPSp3LC0Yy-MTeEtQYw-ODq/view?usp=sharing e. Herold Engineering: https://drive.google.com/file/d/13JZlm9w2sKTcf4csR5ke-Bdf_7eAFbSU/view?usp=sharing
8	Draft Subdivision Plan provided by Williamson & Associates Professional Surveyors	https://drive.google.com/file/d/1i4nAUxAHJUudN1skFdLn3yqkLFs1EnxK/view?usp=sharing .DWG: https://drive.google.com/file/d/1HICp6L4enUgaSBbqwW_mPFc3QmbyyS-/view?usp=sharing
Development Permit		
9	Overview of Application	https://www.canva.com/design/DAGO4rcs5fs/hZRtm0s7iluBJicN28-ICQ/view?utm_content=DAGO4rcs5fs&utm_campaign=designshare&utm_medium=link&utm_source=editor
10	Masterplan provided by Formosis including Zoning Analysis	https://drive.google.com/file/d/1XxXeZBfdcNPSp3LC0Yy-MTeEtQYw-ODq/view?usp=sharing
11	Built Forms – Eagle 1 Plans	https://drive.google.com/file/d/1ZzyOd56F2DwQWU-iyq_Qg-B1JcQy8uiT/view?usp=sharing
12	Built Forms – Eagle 3 Plans	https://drive.google.com/file/d/1E0LOkhqNqZtpxi0VGLwlfWgSP-z1OeW/view?usp=sharing
13	Built Forms – Waterfront Homes	https://drive.google.com/file/d/1jmK4k2thvZ0g9WD1KyIsnLulrgoAQQYB/view?usp=sharing

Supporting Consultant Reports		
14	Environmental Report provided by Aquaparian	Link for pending live upload: https://drive.google.com/drive/folders/1PhoU17Ksa3SZQuO-ODkmXPkfmnAhtBXw?usp=sharing
15	Tree Report provided by Joe Carlaozzi	https://drive.google.com/file/d/1ihxdH2FO7UKQbRdExk8G1WR0S-zcVDsM/view?usp=sharing
16	Draft Servicing Plan prepared by Herold Engineers	https://drive.google.com/file/d/13JZIm9w2sKTcf4csR5ke-Bdf_7eAFbSU/view?usp=sharing
17	Stormwater Management Servicing Plans by Herold Engineers	https://drive.google.com/file/d/13JZIm9w2sKTcf4csR5ke-Bdf_7eAFbSU/view?usp=sharing
18	Interim Sewage Solution Design Proposal prepared by Creus Engineering	https://drive.google.com/file/d/1w0XEzLsX_o6TgZlBlmGfE4PvjZZmzFtW/view?usp=sharing
19	Traffic Impact Report by Watt Consulting	https://drive.google.com/file/d/1-Ou5454ShDO8kuLuytizHks6dQrZB1gn/view?usp=sharing
20	Interim Archaeological Report by Yuufu?i?ath Government - Ucluelet First Nation (UFN) Department of Culture, Language & Heritage	https://drive.google.com/file/d/1XtHRCnwaJWRMF8kmp_08dk9YLHLUIQ/view?usp=sharing
21	Landscaping Plan by MacDonald Gray	https://drive.google.com/file/d/1112JCIO0bzHlxtujApHZg1ryS9t0NHXq/view?usp=sharing
22	Geotechnical Reports by Geopacific	March 2024: https://drive.google.com/file/d/1Pbkaz4obVlygQAO9nJGfJZ4hxmgiEUt/view?usp=sharing Sep 2023: https://drive.google.com/file/d/1J0oDoyHva3TmDft3xWAPN7YuUTuau3cu/view?usp=sharing
23	Site Specific Flooding Coastal Report by Ebbwater (2022)	https://drive.google.com/file/d/1qxYSLu61D1jklj--2hC-byi1nmPg6dE/view?usp=sharing
24	Tsunami resilient building design by Stantec Hydrotechnical and Structural Engineers (July 2024)	https://drive.google.com/file/d/1zUabbA3_XKyv5khMRS5CAPWOKTAFf-9ka/view?usp=sharing
25	Flood Hazard Report and Assurance by KWL (2024)	Link for pending live upload: https://drive.google.com/drive/folders/1PhoU17Ksa3SZQuO-ODkmXPkfmnAhtBXw?usp=sharing
26	Contamination Screening Report by Thurber (2023)	https://drive.google.com/file/d/15xVxNZ2fOsMVtTg_W_-UQHXRScRP7Lt/view?usp=sharing
Draft Proposals for Review		
A.	Draft Bylaw Revisions	https://docs.google.com/document/d/1FSbn8FNnsy3qjSzUh1mavNRIulw6pfiw/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true
B.	Draft Covenant Restrictions	Draft Proposal for Review Satisfaction of Existing Covenant Restrictions: https://docs.google.com/document/d/1-6VDI-UTlqCNTDSVtkE96pyVwDtyy5rS/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true 2024 Draft Covenant Restrictions: https://drive.google.com/file/d/196Z9trECIEt9WnyBcKZuQgTD4qnn8dmt/view?usp=sharing

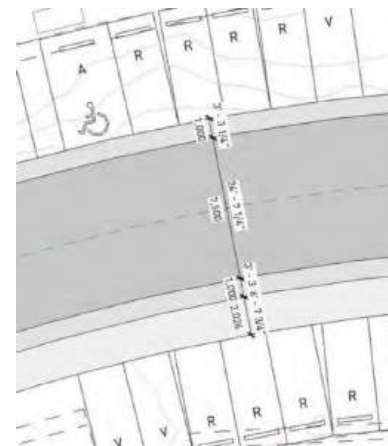
C.	Draft Subdivision Plan noting Easements and Covenants – refer to appendix D	https://drive.google.com/file/d/1L25VN9kXSXqjSEF-qNXroewtg_xWzuUS/view?usp=sharing
D.	Draft Phased Development Plan & Phased Development Agreement – refer to appendix F	https://docs.google.com/document/d/1L25VN9kXSXqjSEF-qNXroewtg_xWzuUS/edit?usp=sharing&oid=116257945114196824088&rtpof=true&sd=true

The following results from a careful analysis of the site's unique characteristics, ensuring harmony with the surrounding environment. By anticipating and addressing both current and future challenges, this development is designed to remain a valuable and relevant asset for years to come. The approach prioritizes safety at all stages of the development, green energy, and community integration while ensuring compliance with all relevant regulations and guidelines.

Site Specific

1. **Tsunami Report:** A comprehensive Tsunami Report has been conducted in close collaboration with Coastal, Structural, and Geotechnical Engineers. The report's findings have informed the incorporation of building resiliency measures into the development design, ensuring it is equipped to mitigate risks from potential natural disasters. Safety and resilience remain paramount in our approach.
2. **Servicing and Off-Site Infrastructure:** The development's servicing and infrastructure plans will align with the District of Ucluelet's upgrade rollouts once a timeline is shared. In the interim, we are prepared to implement on-site storage systems if required, while ensuring necessary upgrades to the Hemlock pump station's monitoring system are coordinated to meet community standards.
3. **Power Supply:** The BC Hydro upgrades currently underway along Highway 4 into Tofino demonstrate a proactive approach to meeting the increasing energy demands of the region. The replacement of existing poles with taller structures capable of accommodating additional power lines will enhance the capacity and reliability of the power distribution system. These improvements are essential to supporting planned developments, such as the new wastewater treatment facility, ensuring a robust power supply for the community, and the new proposed development at 221 Minato Road.

Furthermore, the underground infrastructure installation near the Highway 4 junction, as part of the power line upgrade from the Long Beach substation, strengthens the connection between Tofino and the primary power source. By bolstering the transmission capabilities, BC Hydro is taking significant steps to address the growing energy needs and promote future development. The comprehensive nature of these upgrades instils confidence that the power infrastructure in Tofino will be well-equipped to support the anticipated load requirements at 221 Minato, facilitating seamless operations and fostering continued growth.



4. **Sidewalk Typical Road Cross Section:** The proposed road as pictured to the right will be 7.5m, with 1m shoulder each side then a 1.5m-2m sidewalk suitable for pedestrians and cyclists.

1. **Green Measures:** The proposed green energy measures for the 221 Minato Road development are designed to meet Step 3-4 of the BC Energy Step Code, ensuring energy efficiency and sustainability.

Key features include:

- **EV Charging Stations:** Installed in the parking areas of the multiplex and commercial precinct to support green transportation and future-proof the development for electric vehicle use.
- **Above Standard Glazed Windows:** Enhancing energy efficiency by improving thermal insulation and reducing heat loss, while also increasing noise reduction for residents.
- **Advanced Insulation:** Utilizing high-performance insulation materials to minimize energy consumption and maintain stable internal temperatures in all units.
- **Structural Insulated Panels (SIPs):** Incorporated into the building structure to increase energy efficiency by providing superior insulation and reducing air leakage.
- **Solar Panels:** Integrated into the design to harness renewable energy, reducing reliance on the grid and lowering the carbon footprint of the development. Subject to grant funding, there is opportunity for solar power throughout 221 Minato to create the largest rooftop solar installation in British Columbia.
- **Battery Storage System:** Integrated with solar panels, the battery system stores excess energy for backup during power outages, ensuring continuous power supply and reducing grid reliance.
- **LED Internal and External Lighting:** Energy-efficient LED lighting will be used throughout all residential units and communal areas to further reduce energy consumption.
- **Energy-Efficient Appliances:** All units will feature high-efficiency appliances to promote lower energy usage.
- **High-efficiency HVAC Systems:** Advanced heating, ventilation, and air conditioning systems that use less energy and reduce emissions. Dehumidifiers are also installed to maintain optimal indoor humidity levels, enhancing air quality and comfort while preventing moisture buildup.
- **Heat Recovery Ventilation (HRV) Systems:** These systems improve indoor air quality while recovering heat from exhaust air, reducing the overall energy needed for heating.
- **Smart Thermostats:** Integrating smart thermostat systems for individual units to allow residents to optimize heating and cooling, further increasing energy savings.
- **Native Landscaping:** Planting native species that require less water and maintenance, which also supports local biodiversity and ecosystem health.
- **Sustainable Building Materials:** Using eco-friendly, recycled, and locally sourced materials wherever possible.
- **Natural Lighting:** Maximizing natural light with large windows and thoughtful building orientation, reducing the need for artificial lighting and improving resident well-being.

- **Low/Non-Toxic Materials:** The development will utilize low or non-toxic materials, including eco-friendly paints and finishes, to improve indoor air quality and promote a healthier living environment.

Green Space and Communal Areas

The 221 Minato Road development prioritizes communal areas and green space to enhance the quality of life for residents and create vibrant public spaces that align with Ucluelet's community values. Key features of the communal spaces and green initiatives include:



Green Space & Community Enhancements:

- **Existing Bridge:** the existing licence of occupation will continue to use the bridge during the construction process on completion of all development the bridge can be preserved for transit and emergency exit. Consideration will be given to the being repurposed a walking and biking bridge to foster active transportation and safe, pedestrian-friendly connectivity.
- **Community Gathering Areas:** Natural lumber seating and picnic tables to be installed in key locations, creating inviting communal spaces for residents and visitors to gather.
- **Communal Enhancements:** The communal areas will be enhanced with lighting, pet stations and bike racks.
- **EV Charging Stations:** Dedicated electric vehicle charging stations will be provided within the multiplex parking and commercial precinct parking, supporting the shift to sustainable transportation.
- **Recreation Pathways:** A bike path connecting the development to Ucluelet's existing bike paths, with routes to both Ucluelet town and Tofino, ensuring the development is well-integrated with the broader community.
- **Surfboard & Kayak Storage:** Communal storage for surfboards and kayaks will be offered to encourage active recreation and make use of the natural surroundings.
- **Natural Play Areas:** Retained natural stumps, logs, and play spaces will be incorporated into the green spaces, offering residents a unique and eco-friendly outdoor experience. These areas will double as seating spots, encouraging interaction with the natural environment.

Forest Area Regeneration: A significant effort will be made to regenerate forest areas within the development, preserving and enhancing Ucluelet's natural landscape. The preserved forest zones will provide natural buffers, offer wildlife habitats, and serve as additional green space for the community.

Environmental and Archaeological Assessments: Our Environmental and Archaeological Reports, along with tree preservation initiatives, ensure that the natural beauty of the site is preserved. It is important to note that 30% setback of the land, already titled to the District of Ucluelet, is designated as park dedication. This ensures the protection and long-term conservation of the area's environmental integrity.

Green Parking Rationale: We propose reducing parking to 1 space per unit, (a reduction from the current bylaw of 1.5) supported by green transport options such as bike paths and public transport connections. Many units, particularly three-bedroom ones, are designed for families who prioritize sustainable living, reducing the need for excessive car usage.

Community Integration

1. **Bikeways and Pathways:** The development features bike paths and pedestrian walkways, seamlessly connecting with Ucluelet and Tofino's green transport networks. These pathways support green transportation, encouraging residents to reduce car usage and embrace eco-friendly travel options.
2. **Parks and Play Areas:** Our design includes thoughtfully planned parks, play areas, and community amenities that promote outdoor activity and social engagement. These spaces are designed to blend with the natural landscape, offering residents a welcoming environment for recreation.
3. **Proposed Plans for Roads and Public Recreation Areas:** The development will integrate more detailed designs for roadways and open spaces, in line with the District of Ucluelet's request. These designs will focus on shared recreation and play infrastructure, ensuring accessibility and community use. We look forward to working closely with the District to finalize these plans, making sure they meet the needs and expectations of the broader Ucluelet community.
4. **Wild Pacific Trail:** - Should the Wild Pacific Trail extension proceed, ERIF is fully committed to ensuring seamless access throughout its implementation.
5. **Traffic and MOTI** – The proposed development does not necessitate a reduction in the speed limit on Peninsula Road to 50 kph as a prerequisite for commencement. Ongoing coordination with the MOTI is focused on establishing safe and efficient site access directly from Peninsula Road, ensuring the project can proceed without impacting existing traffic flow or safety.

Environment

- **Proposed No Additional Park Dedication Beyond the Stream and Shoreline Areas Already Obtained from Past Zoning Approvals:**
 - The proposed development at 221 Minato Road does not include additional park dedication beyond the stream and shoreline areas that were already obtained during past zoning approvals with a provision of 30 metres. These existing dedications align with our vision for environmental stewardship and community access to natural spaces. The stream and shoreline areas will be carefully preserved, ensuring continued public access and ecological protection as per Aquaparians Environmental Report.

- **The Municipality is Being Asked to Take on the Construction of Trails:**
 - We recognize the District's concerns regarding the construction of trails and appreciate the importance of these connections within the community, particularly along the preserved stream and shoreline areas. As the setbacks and preserved land are titled as municipal property, we will fully support the Municipality's future direction for these areas. While we are committed to ensuring that the development integrates well with the community, we believe the construction and long-term maintenance of the trails should align with the District's broader vision for public amenities. We look forward to collaborating on how best to support this initiative.

- **Compromise of the 30m Forested Buffer Along the Highway Entering Town, Proposed to Achieve Number of Housing Units:**
 - The 30m forested buffer along the highway is a critical element in maintaining the visual appeal and natural character of the entrance to Ucluelet. While our current proposal involves a partial compromise of this buffer to accommodate the necessary number of attainable housing units, we are committed to minimizing any environmental and aesthetic impact. We are open to reviewing the site layout and exploring alternatives that could preserve as much of the buffer as possible while still meeting the housing targets that are essential for addressing Ucluelet's housing needs.

- **District Request to Ministry of Transportation and Infrastructure to Reduce Speed Limit on Highway to 50 km/h Starting Roughly at the Olsen Bay Pumphouse:**
 - We fully support the District's request to the Ministry of Transportation and Infrastructure to reduce the speed limit on the highway to 50 km/h starting at the Olsen Bay pumphouse. This measure will significantly improve traffic safety as the town's population increases and will provide a safer environment for residents and visitors entering Ucluelet. A lower speed limit will also complement the development's goals of creating a pedestrian-friendly and interconnected community.

- **Expectation for Arm's Length Vetting of Qualifying Tenants / Purchasers (Housing Authority Function – Not by Developer or Realtor):**
 - We are committed to working with the District to establish a clear, transparent process that prioritizes Ucluelet residents and meets the community's housing goals. We agree with the District's expectation for an arm's length process for vetting qualifying tenants and purchasers.
 - We are proposing that this process is managed by ERIF Housing Association, and the vetting facilitated through a selection committee that could include members from District staff, council, chamber of commerce, etc. The sales of the properties will be managed by The Gray Team RE/MAX Mid Island Realty. We welcome an open discussion regarding the best way forward and are very keen to hear your suggestions on alternatives that ensures transparency, fairness, and adherence to the eligibility criteria, particularly for the attainable homeownership and affordable rental units.

- **Small Commercial Node at Corner of Minato and Peninsula:**
 - The inclusion of a small commercial node at the corner of Minato and Peninsula is intended to provide essential services to the new residential community and enhance its overall walkability. This commercial space will be designed to offer retail, hospitality, and office

services that complement the needs of the residents and contribute to the local economy. We envision this node as a community hub that fosters social and economic activity while aligning with the character of Ucluelet.

Proposal to Amend Zone CD-6:

The purpose of this application is to amend the CD-6 Bylaw for the lands located at 221 Minato Road to further create a path forward to providing much needed housing in the District of Ucluelet.

Currently, the property is zoned CD-6 Minato Road and was newly rezoned at the beginning of 2023. The proposed amendment follows many of the same principals and objectives, including but not limited to:

- Providing a significant component affordable housing type to the community.
- Provide a variety of affordable rental units.
- Provide a component of market rental housing with appropriately managed vacation rentals as the final stage after affordable housing needs have been met.
- Maintain the 30-metre Park Dedication along the shoreline and the 10-metre buffer along the central stream.
- First phases of development to occur in the southern portion of the property targeting attainable home ownership and affordable rental.

Where the revised proposal differs is in the following:

- Provide a mix of housing to a maximum of 250 residences.
- Amend the zone to allow for flexibility in sequencing.
- Provide a second site access along Peninsula Road.
- Provide a dedicated parcel for future subdivision and land sale and/or partnership with a non-for-profit agency for the purpose of providing affordable housing.

The drafted Comprehensive Development zone included within this submission outlines residential land use including medium density multi-family buildings, and ten waterfront homes. The rezoning differs from the previous approval as we seek approval for commercial zoning on the corner of Minato Road and Peninsula Road to activate the corner frontage and increase community amenity. This is consistent with the surrounding lots in the Official Community Plan Long Range Use Plan for 'SC' Service Commercial lots. A zoning land use map has been included as part of the CD zone to further map out where the proposed built forms will be positioned on site.

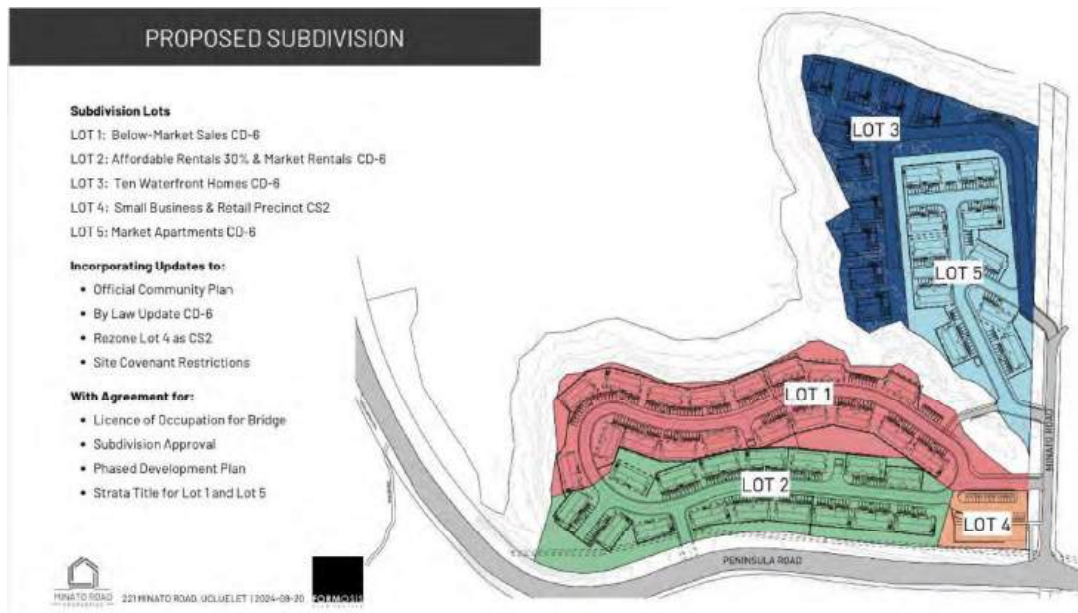
With the anticipated continued population growth, a near zero vacancy rate and limited housing stock, ERIF is committed to providing Ucluelet with quality, well designed residential homes. Our driving passion is to develop attainable home ownership and affordable rentals, and these have been prioritised in the first phases of the development. Establishing a not-for-profit entity to manage these homes, great care, consideration and consultation has been given to create a transparent process for waitlists of the homes, led by the community for the community, prioritizing the needs of the existing residents of Ucluelet and local businesses to have access to those homes to build our local economy.

The balance of the site to the North of the Middle Creek Parkland Dedication seeks to provide the financial feasibility to support the attainable sales below market pricing. The ten waterfront homes will be constructed in the first phase concurrently with the attainable homes of Lot 1 to create highly desirable housing key development team members will invest in to call Ucluelet home. The balance of waterfront homes will be sold once constructed and to maximise returns we seek their approval for short term rental use, leased in one or more suites.

In addition, the medium density multiplex designs provide units for rental and sales at market value, supporting the heavy discounting of the attainable homes by maximising their profitability as short-term rentals.

Proposed Subdivision

Being submitted concurrently with the zoning amendment is an application to subdivide the remaining 16.57 acres, following the 8.85 acres park dedication, into five lots. The southern portion of the site will focus on attainable home ownership (Lot 1), and affordable rentals (Lot 2) with a commercial space to the corner of Minato and Peninsula Roads (Lot 4). The northern portion of the site is intersected by the central stream which has been provided to the District of Ucluelet as Parkland Dedication. This portion will accommodate ten waterfront homes (Lot 3) and multiplex units which will be strata titled and sold, or where possible held for market rental.



Legal Title

Lot 1 – Strata Titled for affordable sales with zero lot setback or phased development.

Lot 2- Bare Lot Strata all held in one line as affordable rentals

Lot 3 – Fee simple Subdivision for 10 waterfront homes with common lot under Home Association, with permission for ‘vacation rental’ letting.

Lot 4 – CS2 zoned commercial build with office space above and retail below.

Lot 5 – Bare Lot Strata and each unit strata titled, both for sale and rental at market including ‘vacation rental’ letting.

CS-2 Zone – SERVICE COMMERCIAL

This Zone is intended for convenient shopping opportunities for those travelling in vehicles and those commercial uses which, due to their service nature, may require larger lot areas. Vibrancy is added with mixed uses including residential and tourist commercial accommodation.

CS-2.1 Permitted Uses:

CS-2.1.1 The following uses are permitted, but secondary permitted uses are only permitted in conjunction with a principal permitted use:

- (1) Principal:
 - (a) Hotel
 - (b) Motel
 - (c) Mixed Commercial/Residential
 - (d) Mixed Commercial/Resort Condo
 - (e) Office
 - (f) Tourist Information Booth
 - (g) Retail, including supermarket
 - (h) Convenience Store
 - (i) Restaurant
 - (j) Bistro/Café
 - (k) Take Out Food Services
 - (l) Personal Services
 - (m) Commercial Recreation
 - (n) Studio
 - (o) Community Use
- (2) Secondary:
 - (a) Accessory Residential Dwelling Unit

CS-2.1.2 For Peninsula Road and Main Street, and for properties fronting either, Mobile Vending is also a principal permitted use.

CS-2.2 Lot Regulations

CS-2.2.1 Minimum Lot Size:

- (1) Hotel: 1,000 m² (¼ acre)
 - (2) Motel: 1,000 m² (¼ acre)
 - (3) All other uses: 800 m² (8,600 ft²)
- CS-2.2.2 Minimum Lot Frontage: 15 m (50 ft)
 CS-2.2.3 Minimum Lot Width: N/A
 CS-2.2.4 Minimum Lot Depth: N/A

CS-2.3 Density:

- CS-2.3.1 Maximum Number
- (1) Mixed Commercial/Residential: 4 residential dwelling units per 1,000 m² (¼ acre) lot area
 - (2) Accessory Residential Dwelling Unit: 1 per 250 m² (2,700 ft²) non-residential gross floor area
- CS-2.3.2 Maximum Floor Area Ratio: 0.60
 CS-2.3.3 Maximum Lot Coverage: 30%

CS-2.4 Maximum Size (Gross Floor Area):

- CS-2.4.1 Principal Building:
- (1) Restaurant: 40 seats or 167 m² (1,800 ft²)

CS-2.6 Minimum Setbacks:

CS-2.6.1 The following minimum setbacks apply, as measured from the front lot line, rear lot line and side lot line(s), respectively:

	(a) Front Yard Setback	(b) Rear Yard Setback	(c) Side Yard - Interior Setback	(d) Side Yard - Exterior Setback
(1) Principal	0 m (0 ft)	3 m (10 ft)	1.5 m (5 ft)	3 m (10 ft)
(2) Accessory	15 m (50 ft)	1.5 m (5 ft)	1.5 m (5 ft)	3 m (10 ft)

CS-2.6.2 In addition, the minimum yard setback of 4.5 m (15 ft) applies to all lot lines abutting Peninsula Road.

Easements

Positive and Negative Easements will be granted between the lots as follows, in the form of a Restrictive Covenant on title after settlement. An easement is the right to the use of or a right to restrict the use of the land of another person in some way. A positive easement gives the owner as right to do a positive act on another person’s land. A negative easement imposes restriction on the owner. The easement always accommodates the dominant tenement e.g. a servient owner grants the dominant owners a right of way over the servient owner’s property,

Positive covenants:

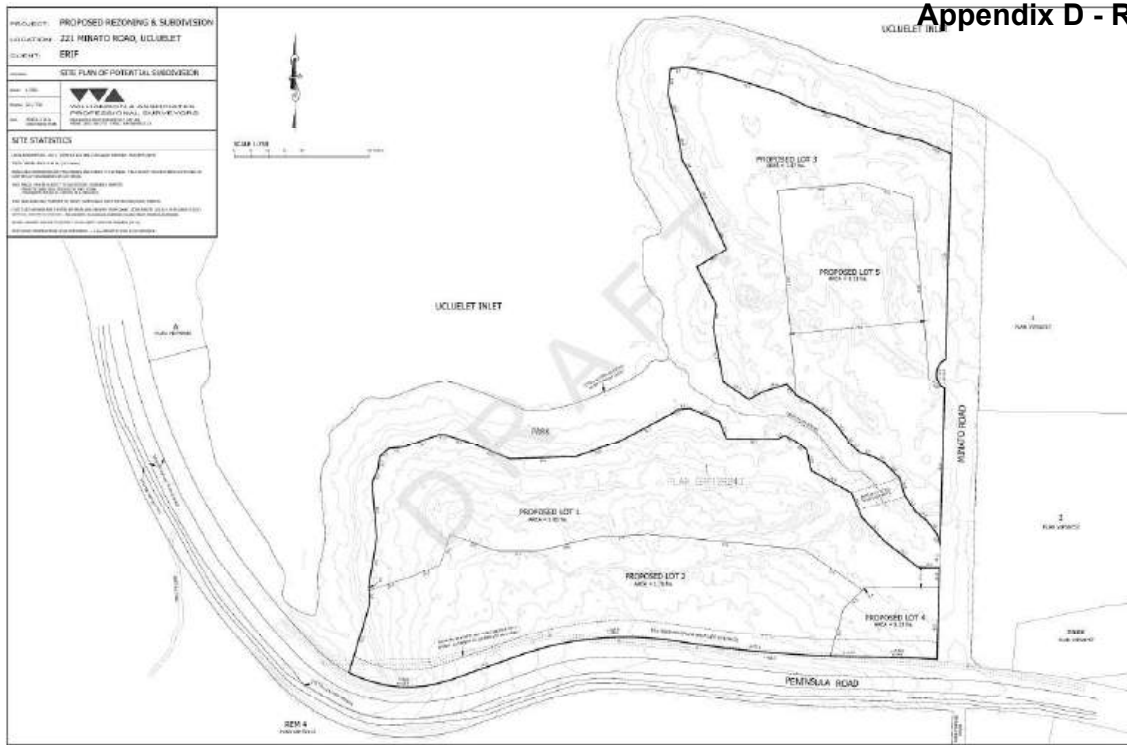
- Lot 1 subservient to Lot 2 and Lot 4 by permitting services to pass through underground sand sharing the roadway.
- Lot 2 subservient to Lot 4 and Lot 1 by permitting services to pass through underground sand sharing the roadway.
- Lot 4 subservient to Lot 2 and Lot 1 by permitting services to pass through underground sand sharing the roadway.
- Lot 3 subservient to Lot 5 for services and right of way to pass through.

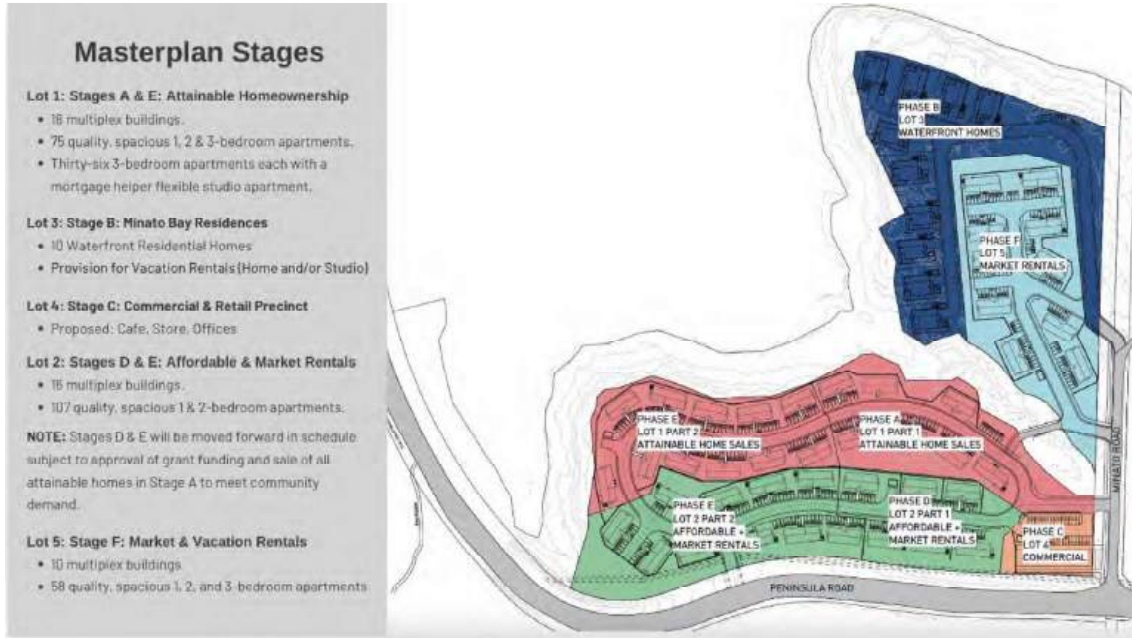
Sewer and Water Metering

Despite the right of ways exchanged, this is a fairly simple subdivision as each lot has its own water and sewer access. The interim sewage storage solution was acknowledged as more suitable to be shared with all back to one lot.

Request for Variance on Minimum Street Frontage

Lot 1 requires a variance against usual bylaws to permit a narrow street frontage of minimum 10m though which services and driveway can run to unlock this hidden land.





PROJECT DATA, 221 MINATO ROAD, UCLUELET																						
	Buildings	Units	1Bed	2Bed	3Bed	4Bed	5Bed	Total Suites	Total Gross Floor Area (m ²)	Lot Area	Floor Space Ratio	Building Footprint	Lot Coverage	Typical Building Height	Parking Req'd	Visitors Req'd	Total Parking Req'd	Parking Provided	Visitors Provided	Accessible Provided	Total Parking Inventory	
South Site																						
Lot 1 Stage 1 Attainable	7	0	2	13	14			29	2,579 m ²	19,600 m ²	0.34	1,289 m ²	17%	8 m	29	6	35	44	9	5	58	
Lot 1 Stage 2 Attainable	11	0	4	20	22			46	4,034 m ²			2,027 m ²		8 m	44	10	54	51	10	8	49	
Lot 2 Stage 1 Housing	4	4	12	6	21	0		39	2,282 m ²			1,541 m ²		6 m	20	0	47	28	5	5	38	
Lot 2 Stage 2 Housing	10	20	16	32	0			68	3,812 m ²	11,100 m ²	0.30	1,966 m ²	18%	8 m	68	14	82	47	12	5	44	
Lot 4 Commercial	1								1,200 m ²	2,400 m ²	0.50	600 m ²	25%	11 m	30		30	27		2	29	
Sub-Totals	35	20	22	66	56			182	13,927 m²	39,100 m²		6,944 m²			212	36	250	197	35	25	258	
North Site																						
Lot 3 Waterfront Homes	10						10	10	2,750 m ²	14,400 m ²	0.19	1,389 m ²	10%	11.5 m	40	8	48	40	6		46	
Lot 5 Market Rentals	10		14	8	30	6		58	3,743 m ²	13,400 m ²	0.28	1,881 m ²	14%	8 m	58	12	70	62	12	18	84	
Sub-Totals	20	14	8	30	6	10		68	6,518 m²	27,800 m²		3,264 m²			98	20	118	102	18	18	130	
Totals	55	44	34	114	42	10		250	20,445 m²	66,900 m²	0.31	10,348 m²	15%		310	56	348	299	53	33	388	

The intention of the development proposal is to provide the following Affordable Rentals and Attainable Home Ownership sales, subject to site conditions, funding and approvals.

ATTAINABLE HOME SALES			
Lot 1 Stage 2: Eagle 1/3 Strata Attainable Sales		Lot 1 Stage 1: Eagle 1/3 Strata Attainable Sales	
46 Apartments - Sales		29 Apartments - Sales	
UNITS	No.	UNITS	No.
Multiplexes	11	Multiplexes	7
1 Bedroom	4	1 Bedroom	2
2 Bedroom	20	2 Bedroom	13
3 Bedroom	22	3 Bedroom	14
Adaptable Studios	22	Adaptable Studios	14
Parking	78	Parking	63

AFFORDABLE RENTALS: 30%			
Lot 2 Stage 1: Eagles 1.1/ 3.1		Lot 2 Stage 2: Eagle 1.1/3.1	
30% Affordable Rental		30% Affordable Rental	
39 Apartments - Rent		68 Apartments - Rent	
UNITS	No.	UNITS	No.
Multiplexes	6	Multiplexes	10
1 Bedroom	18	1 Bedroom	32
2 Bedroom	21	2 Bedroom	24
3 Bedroom	0	3 Bedroom	0
Adaptable Studios	0	Adaptable Studios	0
Parking	39	Parking	59

Affordable Housing Requirements for Certain Uses:

1.1 With respect to the development of "Single Family Waterfront Homes" and "Multiple Family Residential" uses on the Lands, the Developer covenants and agrees to provide a restrictive covenant, affordable housing agreement or other written assurances, at the discretion of and to the reasonable satisfaction of the District, concurrent with the subdivision of the relevant portion of the Lands and prior to the issuance of an occupancy permit for any building on the portions of the Lands so developed, such that Affordable Housing units will be developed at a rate of at least thirty (30%) percent of the total units developed (that is, one (1) Affordable Housing unit for every three (3) units, or part thereof), in accordance with the following requirements:

(a) The Affordable Housing units are to be constructed by the Developer, but managed and administered by a not-for-profit housing organization, including with respect to rentals and sales (in which case acceptable profits are to return to the Developer).

(b) Qualification criteria, parameters and guidelines shall be developed by a not-for-profit housing organization in consultation with the District and the Developer.

(c) The Affordable Housing unit mix shall include one-, two- and three-bedroom units. Where if possible 10% of units will be suitable for special needs occupants.

(d) (e)(f) With respect to rental units, rent caps shall be developed, maintained and enforced by the not-for-profit housing organization in consultation with the District and the Developer; with respect to strata ownership units, price caps and resale caps shall be developed, maintained and enforced by the not-for-profit housing organization in consultation with the District and the Developer; and a reasonable percentage from both rental units and strata fees shall be paid back to the not-for-profit housing organization for administrative purposes, as determined by the not-for-profit housing organization in consultation with the District and the Developer and any government grant funding body.

(g) With respect to the area identified as "Lot 5 – Market Apartments" in the Rezoning Bylaw, development of this area as multiple family residential use, may not be developed until a minimum of at least sixty (60) Attainable home ownership or Affordable Rental units, or combination thereof, have been developed on the Lands, allocated to Lot 1 and Lot 2, including issuance of occupancy permit(s).

The other requirements of section continue to apply to Lot 5 Market Apartments, and without limiting the generality of the foregoing, the total Affordable Housing requirements remains one (1) unit for every three (3) units developed.

(h) The commencement of construction of the Lot 1 Stage 2 Attainable Home Ownership and Lot 2 Stage 2 Affordable Rentals will be triggered by the complete sale or full rental take up of constructed units in Lot 1 Stage 1 Attainable Home Ownership and Lot 2 Stage 1 Affordable Rentals, concurrently with approval of the necessary government grant funds for subsidised construction of these units, and every reasonable effort will be made to expedite development of these lots at the developer's discretion.

(i) Where this Housing Agreement, or an agreement prepared as a result of a requirement of this Part, requires the Developer to limit its price on the sale of a residential housing unit to a certain percentage of market value, or the Attainable sale price as defined by the Sub-Committee of the Not-for-Profit Housing Association. If the Housing Association otherwise requires consideration of

market value to define 'Attainable' Home Ownership, these values will be subject to review and verification by a qualified Valuer mutually selected by the District and the Developer.

We are developing homes that seamlessly integrate with Ucluelet's stunning natural surroundings. This project is more than just housing—it's a master-planned community where sustainable, affordable homeownership meets modern design, benefiting local families and workers. This initiative will leave a lasting legacy, strengthening and enhancing the resilience of Ucluelet for generations to come.

Concept and Environmental Harmony:

The architecture is inspired by the coastal beauty of Ucluelet, using natural wood finishes, earthy tones, and expansive windows to bring the outdoors inside. Our homes are designed to blend into the landscape, preserving trees and green spaces, while reflecting the serene environment that surrounds them. This creates a peaceful living experience that aligns with nature.

Quality Building Technology and Materials:

Each residence is constructed with sustainable building materials and innovative techniques to ensure minimal environmental impact and high energy efficiency.

A Commitment to Sustainability and Community:

The apartments offer thoughtfully designed 1, 2, and 3-bedroom units with open-concept layouts to maximize space and light. Three-bedroom units include self-contained studios that can serve as rental units, helping to offset living costs.

Outdoor living spaces, including decks and patios, allow residents to enjoy the natural environment. The community plan incorporates green spaces, recreational areas, and bike paths that link to Ucluelet's wider trail network. Amenities like picnic areas, natural seating, and storage for kayaks and surfboards encourage an active, outdoor lifestyle.

Designed to foster both environmental stewardship and a sense of community. The integration of communal areas and paths ensures that residents not only live in harmony with nature but also with each other.



Stages	Build Form & Type	Title & Conditions
Stage A	<p>LOT 1: PART 1</p> <ul style="list-style-type: none"> Affordable Home Sales - Below-Market Homeownership 3 Multiplex Buildings 29 Keys 2 x 1-bedroom 10 x 2-bedroom 14 x 3-bedroom <p>Note: Services civil, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Sales Strata Titled 3x Eagle 1 & Three Eagle 2 Note: Studios not to be separated in count as will be strata titled and sold as 3-bedroom apartments. Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental.
Stage B Concurrent with Stage A	<p>LOT 3: Waterfront Homes</p> <ul style="list-style-type: none"> 10 x Waterfront Family Home <p>Note: Services civil, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Fee Simple Subdivision (Home Association) Designed with option for intergenerational living with self-contained studio available for long-term and/or short-term rentals. CONDITION: Stage A construction commences with Stage B.
Stage C	<p>LOT 4: Commercial Precinct</p> <ul style="list-style-type: none"> 800sq Ground Floor Retail - Cafe, Store, Etc. 800sq Upper Floor Offices 	<ul style="list-style-type: none"> Held in one line. NOTE: Phases D and E may be brought forward if government funding available and demand for rentals well over a fully taken up.
Stage D	<p>LOT 2 - PART 1:</p> <ul style="list-style-type: none"> Affordable Rentals - 30% of Keys Market Rentals 3 Multiplex Buildings 36 Keys 16 x 1-bedroom 2 x 2-bedroom <p>Note: Services civil, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Held in one line. CONDITION: Subject to government funding and approval through Three Eagle 1 & Two Eagle 2 Same floor plan but may be adaptably leased as 2-bedroom plus separate studio - not as 3-bedrooms.
Stage E	<p>LOT 1: PART 2</p> <ul style="list-style-type: none"> Affordable Home Sales - Below-Market Homeownership 11 Multiplex Buildings 48 Keys 4 x 1-bedroom 20 x 2-bedroom 22 x 3-bedroom Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental. <p>LOT 2 - PART 2:</p> <ul style="list-style-type: none"> Affordable Rentals - 30% of Keys Market Rentals 10 Multiplex Buildings 48 Keys 36 x 1-bedroom 2 x 2-bedroom <p>Note: Services civil, stormwater, landscaping/planting will be phased to align with construction phases</p>	<p>LOT 1: PART 2 - Sales Strata Titled</p> <ul style="list-style-type: none"> Nine Eagle 1 & Ten Eagle 2 Note: Studios not to be separated in count as will be strata titled and sold as 3-bedroom apartments. Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental. CONDITION: Subject to and commencing after Affordable Homes in Lot 1 Part 1. See addendum. <p>LOT 2 - PART 2</p> <ul style="list-style-type: none"> Held in one line. CONDITION: Subject to government funding and commencing when grant funding received and Lot 2 Part 1 fully leased. Same floor plan but may be adaptably leased as 2-bedroom plus separate studio - not as 3-bedroom
Stage F	<p>LOT 4: Market Apartments:</p> <ul style="list-style-type: none"> Market rentals and sales 10 mid-rise buildings 58 Keys 22 x 1-bedroom 20 x 2-bedroom 6 x 3-bedroom <p>Note: Services civil, stormwater, landscaping/planting will be phased to align with construction phases</p>	<ul style="list-style-type: none"> Strata Titled Apartments for long-term and short-term vacation rentals.

The building and all associated works, including but not limited to civil, stormwater, services, roadworks, retaining and planting will be only obligated to be delivered concurrently with the stage that is being constructed.

Phased Landscape

- 22 Plans may be approved for large-scale developments at the discretion of the Manager to enable the completion of the landscape plan in phases and the submission of the related security deposit at each phase. The Applicant is required to request a phased approach to the execution of the landscape plan at the time of Development Permit application, clearly identifying on the submitted landscape plan the proposed phases and related cost estimates for each phase.

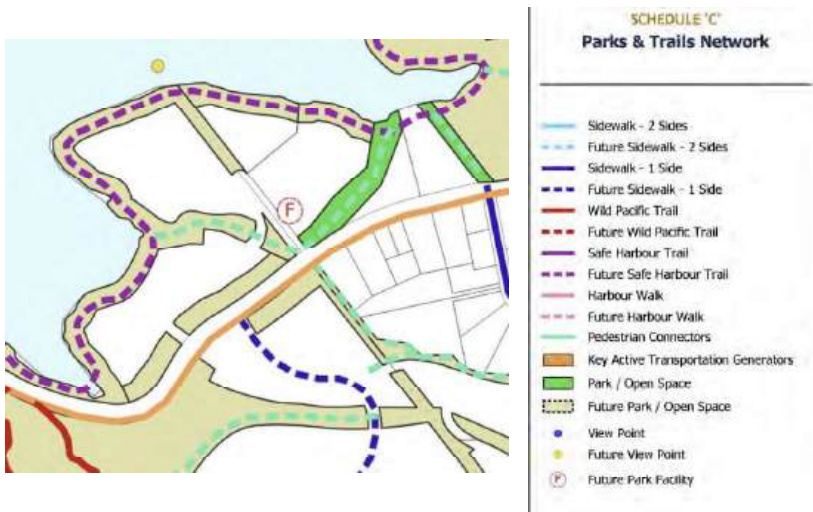
[Proposed PDA Agreement LINK](#)

The proposed rezoning and development permit results in some variations to the OCP and the following maps will need updating:



Schedule A – Long Range land Use Map

- Update the marked positions of SF (single family) to only waterfront lots.
- Update the Main North and South lots as Multi-Family Residential.
- Corner of Minato and Peninsula to show SC Service Commercial zone.
- Reposition white road to reflect access not yet permitted to Peninsula.
- Adjust Parkland Dedication to show terminates well before Minato Rd.



Municipality to review walking trails and viewpoints to determine if update.

Reduce setback to Peninsula Rd.

Appendix D - Report 24-129



Map 9 - Low(ish) Growth Scenario
Ucluelet OCP Bylaw No. 1236, 2020

	Single Family Dwelling
	Multi-Family Dwelling
	Tourist Accommodation
	Affordable Housing
	Future Potential Growth (see note)

Update Single Family as some Affordable Housing, and the rest of the lot as Single Family Waterfront homes and Multi Family.

#	Lodged Document	Document Link
	Supporting Consultant Reports	
1	Stormwater Management Servicing Plans by McGill and Associates (Sep 2023)	https://drive.google.com/file/d/1bt6VFIQqYp1XF0BglAoyhB48ANGGjRw/view?usp=sharing
2	Water and Sanitary Impact on Infrastructure by Koers & Associates (March 2024)	https://drive.google.com/file/d/1Z1mpeulaVHUag3XdMM6dAOGU8tANVwtG/view
3	Water Demands by Koers and Associates (2022)	https://drive.google.com/file/d/115wybfc4nGm9veHUEzWQ57puqWHwKdj/view?usp=sharing
4	Traffic Impact Report by Watt Consulting (Feb 2022)	https://drive.google.com/file/d/10ubxVQExbFjrrfyIOlzxmfarnL5B8BWY/view
5	Traffic Impact Assessment by Watt Consulting Group (Jan 2024)	https://drive.google.com/file/d/1_ji0jPq9Ms1n7kbtGKdpStCplM8fM1jS/view?usp=sharing
6	Geotechnical Report by Geopacific (Sept 2023)	https://drive.google.com/file/d/14FBF1vc0c8wmGX-l3-MajDA4Ak6WgQm/view?usp=sharing
7	Geotechnical Reports by Frontera Geotechnical (Dec 2021)	https://drive.google.com/file/d/11OEKOaylhvwxFoLkxzY1LgP3lWmUuZt7/view?usp=sharing
8	Ebbwater Consulting Flood Report for 221 Minato (2022)	https://drive.google.com/file/d/11-ZL9hM48AAsELWCvMCq8w80krhITHhB/view?usp=sharing

221 Minato Road - Statement of Intent

Purpose of the Application:

The purpose of this application is to obtain a Development Permit for the proposed 221 Minato Road project. This development aims to address critical housing needs within the Ucluelet community by providing a diverse range of housing options, including attainable homeownership, affordable rentals, market rentals, and waterfront homes. Additionally, the project will include a commercial precinct to enhance community access to essential services and foster economic growth.

Compliance with Development Permit:

The proposal complies with the Development Permit checklist. The proposal incorporates sustainable design principles, ensuring compatibility with the surrounding environment, and prioritizing community needs. The development plan includes high-quality construction, environmentally responsible practices, and thoughtful integration of residential and commercial spaces to create a vibrant, interconnected community. The design respects the natural landscape, preserving green spaces, and aligns with the community's long-term vision for growth and sustainability.

Divergence from Development Permit Guidelines and Justification:

The proposal and supporting documentation includes divergences of adjustments to zoning to permit a commercial interface with Peninsula Road adjusts setbacks, building heights and densities to accommodate a greater number of attainable and affordable housing units. We believe these adjustments should be supported as they serve the community goal of increasing housing accessibility and addressing the acute housing shortage in Ucluelet. The proposed variances have been carefully considered to balance community concerns with the need for sustainable growth.

Existing and Proposed Use of the Land, Buildings, and Structures:

The existing use of the land at 221 Minato Road is currently undeveloped and under-utilized, with a mix of natural landscapes and some previous cleared disturbances. The proposed development will transform the site into a mixed-use community featuring multi-family homes, waterfront homes and a commercial precinct. The land use will shift from vacant to a vibrant residential and commercial hub, promoting community integration and economic activity.

Existing and Proposed Works and Services:

The existing works on the site are limited, with minimal infrastructure currently in place. The proposed phased development includes significant upgrades to utilities and services, including road improvements, water and sewer systems, stormwater management, and sustainable energy solutions including solar panels and EV charging stations. These enhancements will not only support the new development but also provide long-term benefits to the surrounding area by improving overall infrastructure quality and resilience. Interim sewage services have been provisioned to bridge the upgrade should it be needed.

Community Consultations:

Minato Road Properties has actively engaged with the Ucluelet community and key stakeholders throughout the planning process. Consultations have included meetings with local residents, business owners, the Chamber of Commerce, the Mayor, Fire Chief, Councillors, and district staff and a community open house, to gather feedback and ensure the project aligns with community expectations and needs. Moving forward, we will continue to involve the community through consultation processes, feedback sessions, and ongoing communication to refine the development plan and address any concerns. This collaborative approach underscores our commitment to creating a project that truly reflects the aspirations and values of the Ucluelet community.

This statement of intent outlines the key elements of the 221 Minato Road development proposal and demonstrates our commitment to compliance with the Development Permit guidelines while addressing the critical housing and service needs of Ucluelet. We respectfully request consideration and support for this application to bring this transformative project to life.

Municipality Policies List and Links

Site and Zoning Restrictions by District of Ucluelet

221 Minato Rd, Ucluelet					
Type	Report	Consultant	Date	Results	Link
Covenant	Covenant Restrictions	District of Ucluelet	2022	Limitations on current title as restrictions passed 2022. Negotiations underway to substantially revise these Sept 2024.	https://drive.google.com/file/d/1itHg9RNp9qMWU_WjAc98OHc3oR07oJTrG/view?usp=sharing
By Law	District of Ucluelet	Rezoning By Law	2022	Detailed Rezoning By Law as passed 2022 for 221 Minato Rd for proponent Minato Bay Holdings.	https://drive.google.com/file/d/1EbZ1p8huJd19cepXMFMNvov8b8ZCK4uA/view?usp=sharing (link repaired 15 Aug)
Minutes	District of Ucluelet	Rezoning By Law	2022	Discussion noted in Minutes when Council passed the 221 Minato Rezoning By Law to give context to the approval.	https://drive.google.com/file/d/1ppqc6V8cAXSS2jgN2WZhZSvmEAdF3mOl/view?usp=drive_link
Policy	Fire Policy	District of Ucluelet	July 2024	Detailed Fire Chief directives on fire standards for developments.	https://drive.google.com/file/d/17jJkvkKBy3B_XoEddkUv90S4dj14ZQtJ/view?usp=sharing
Policy	Fire Policy	District of Ucluelet	May 2024	Detailed Interim policy for Tsunami management in Ucluelet.	https://drive.google.com/file/d/1qornZW-6VNSjN1PP-w_w9zAcuKwg2EQN/view?usp=sharing
By Laws	District of Ucluelet	Consolidated By Laws	2024	Consolidated By Laws for all of Ucluelet. Generic requirements such as s500 parking ratios.	https://ucluelet.ca/community/planning-forms-pubs?download=395:zoning-bylaw-1160-unofficial-consolidation
Title	Parkland Dedication Survey	Title Data	2024	Williamson Surveying supplied the formal Parkland Dedication areas as held on title at September 2024	

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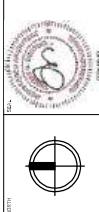
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ERIF Sustainable Solutions

Formosis Architecture
 280411 Columbus Street
 Worcester, MA 01605
 formosisa.com

Project Number: 2412
 DRAWN BY: [Name]
 CHECKED BY: [Name]

221 MINATO ROAD
 MINATO
 COVER SHEET



DATE: 2024-09-19
 SCALE: [Scale]

001
 24-129



PROJECT INFORMATION

LEGAL ADDRESS
LOT 16 DISTRICT LOT 286 & 471 & 472 & 473, CLAYCOODUIT DISTRICT, PLAN MP7916

CNIC ADDRESS
221 MINATO ROAD, UCLULET, BRITISH COLUMBIA, V1R

PP
024-487-764

ZONING
CD-6

OCCUPANCY
EXISTING:
N/A VACANT
PROPOSED:
C. MULTI-UNIT RESIDENTIAL
D. BUSINESS AND PERSONAL SERVICES
E. MERCANTILE

SITE AREA
10,036 HECTARES

LEGEND

- RESIDENTIAL PARKING
- VISITOR PARKING
- ACCESSIBLE PARKING
- EV CHARGER PARKING
- COMMERCIAL PARKING
- GARBAGE ENCLOSURE
- SURF SHED
- LARGE SURF SHED

UNIT TYPE LEGEND

Code	Unit Type	2x (2) BEDS / 2x (2) BEDS	2x (2) BEDS / 2x (2) BEDS	2x (2) BEDS / 2x (2) BEDS	2x (2) BEDS / 2x (2) BEDS	2x (2) BEDS / 2x (2) BEDS	2x (2) BEDS / 2x (2) BEDS
E1.1	EAGLE 1	13.2 m	13.2 m	13.2 m	13.2 m	13.2 m	13.2 m
E2.1	EAGLE 2	13.2 m	13.2 m	13.2 m	13.2 m	13.2 m	13.2 m
E3.1	EAGLE 3	13.2 m	13.2 m	13.2 m	13.2 m	13.2 m	13.2 m

TRACKS AND HEIGHTS

Track	Material	Height	Width	Grade	Location
1	Asphalt	0.15 m	3.0 m	0.0%	Driveway
2	Concrete	0.15 m	3.0 m	0.0%	Driveway
3	Gravel	0.15 m	3.0 m	0.0%	Driveway
4	Gravel	0.15 m	3.0 m	0.0%	Driveway

221 MINATO ROAD, UCLULET, BC - PROJECT DATA

Category	Item	Value
Lots	Lot 1	13,000 sqm
	Lot 2	13,000 sqm
	Lot 3	13,000 sqm
	Lot 4	13,000 sqm
Units	Units 1	13,000 sqm
	Units 2	13,000 sqm
	Units 3	13,000 sqm
	Units 4	13,000 sqm
Totals	Total Area	52,000 sqm
	Total Units	52

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Formosis Architecture

21801 Columbia Street
Vancouver, BC, V6A 3E5
formosis.ca

Project Number: 2412

DATE: 2024-09-19

SCALE: 1:750

MINATO ROAD

221 MINATO ROAD

MINATO ROAD

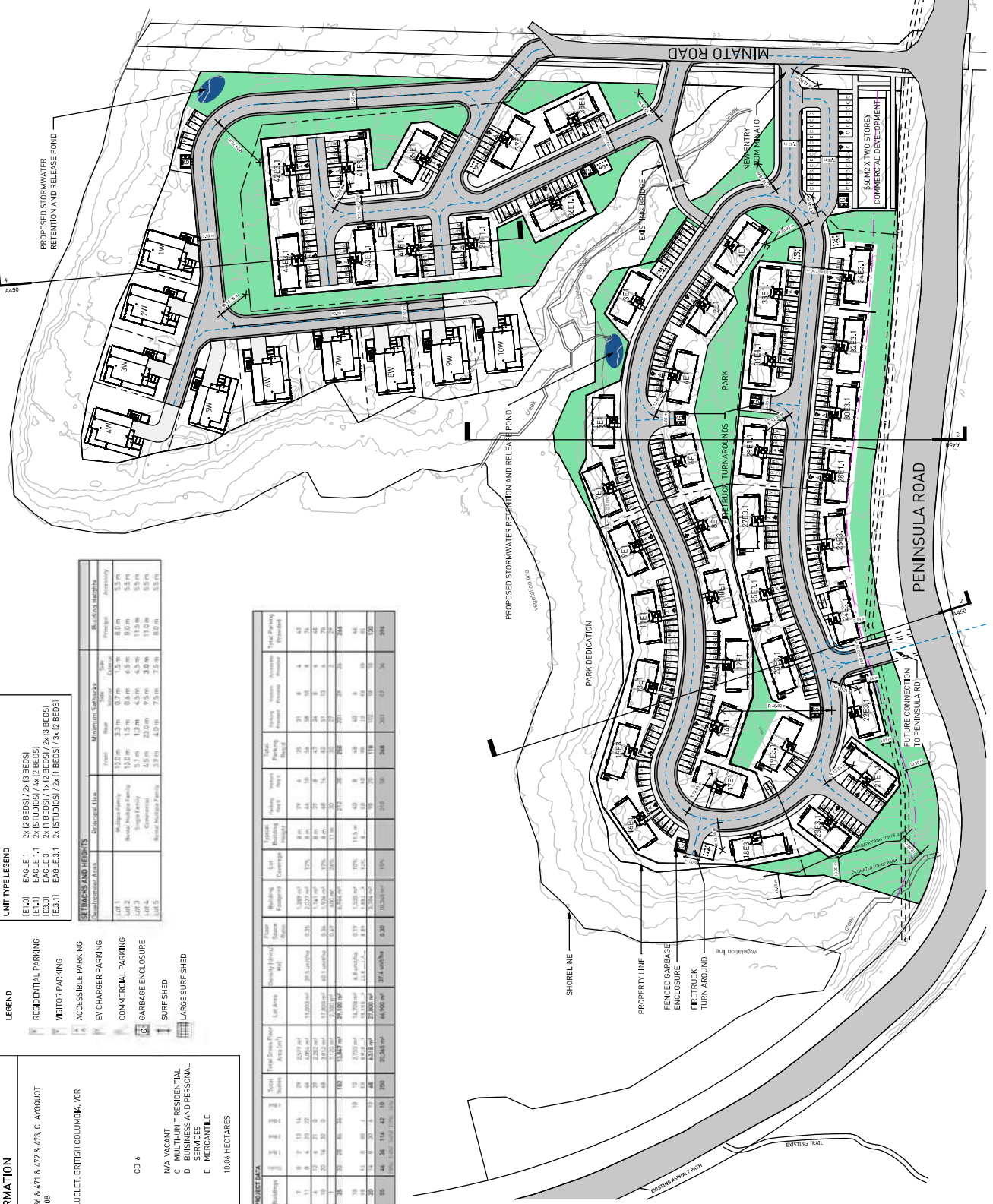
MINATO ROAD

SITE PLAN

UCLULET SP

DATE: 2024-09-19

SCALE: 1:750



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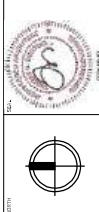
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PROJECT: MINATO
 ADDRESS: 221 MINATO ROAD
 DRAWING: SATELLITE PLAN OVERLAY

DATE: 2024-09-19
 SCALE: 1:750

202

Appendix D - Report 24-129



EXISTING APPLICANT PROPERTY	EXISTING TOWN
EXISTING APPLICANT PROPERTY	EXISTING TOWN

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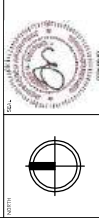
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DATE: 2024-09-19



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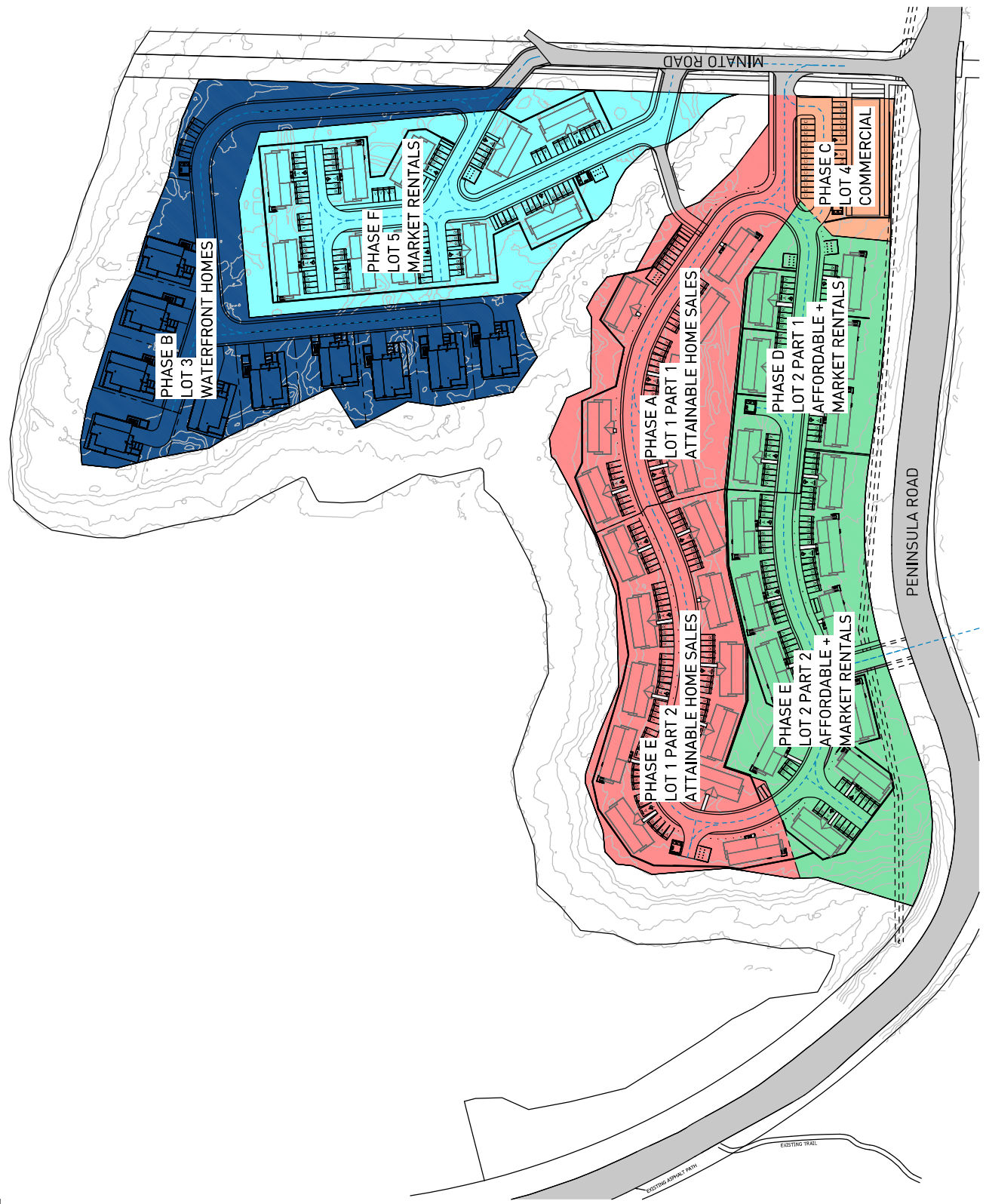
Project Number: 2412
 DRAWN BY: [Name]
 CHECKED BY: [Name]



MINATO ROAD
 221 MINATO ROAD
 STAGING PLAN
 SCALE: 1" = 750'
 DATE: 2024-09-19

203

Appendix D - Report 24-129



EXISTING APPAL PAVE

EXISTING WALL

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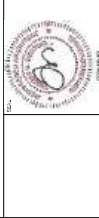
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CONTRACT



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Project Number: 2412
ISSUED FOR REFERENCE



MINATO
221 MINATO ROAD

GENERAL VIEW OF SITE LOOKING
TOWARDS UCLUELET

DATE	2024-09-19
SCALE	
PROJECT NO.	
DATE	
SCALE	
PROJECT NO.	

24-129



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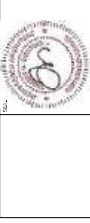
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CONSULTANT



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MINATO
 221 MINATO ROAD

AERIAL VIEW OF COMMON WEALTH
 PARK

DATE: 2024-09-19
 SCALE: [Scale]

PROJECT NO.: 2412

221 Minato Road

5 Lot - Proposed Subdivision & Multi-Family Development

Site Servicing Report

ERIF Sustainable Solutions
Ucluelet, BC



Prepared by:

Herold Engineering Limited
3701 Shenton Road
Nanaimo, BC
V9T 2H1

Herold Project No. 6437-001

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1.0 INTRODUCTION

Herold Engineering Limited was requested by ERIF Sustainable Solutions to provide civil engineering services including site servicing and roadworks for the proposed 5 lot subdivision and multi-family development at 221 Minato Road in Ucluelet, BC.

The intent of this report is to identify possible issues related to accessing and servicing this site and to suggest appropriate approaches for the design of this development. The project consists of the subdivision of the 221 Minato Road into four (4) new residential lots and one (1) new commercial lot. The site is currently within the District of Ucluelet (DoU) and is zoned Rural Residential (RU). The site is largely forested with some localized cleared areas from previous development activity.

The combined site is 6.68 ha and generally slopes from the south to north. A creek, which collects runoff from Peninsula Road and terminates at Minato Road, bisects the lot running east to west. Proposed Lots 1,2 & 4 will be located south of the creek and Lots 3 & 5 will be located north of the creek.

Proposed site servicing and underground utilities are shown on the attached drawing C01-C07 available in Appendix A.



Figure 1: Proposed 5 Lot Development (Formosis Architecture)

The development is expected to proceed in the following stages:

Table 1: Development Phasing (ERIF)

Stage	Area	Type, Number of Units	Population*
Stage A	Lot 1, Part 1	7 Multiplex buildings (29 units)	70
Stage B (Concurrent with Stage A)	Lot 3, Waterfront Homes	10 units	24
Stage C	Lot 4, Commercial Development	600m ² ground floor retail and 600m ² upper floor offices	22
Stage D	Lot 2, Part 1	6 Multiplex buildings (39 units)	94
Stage E	Lot 1, Part 2 Lot 2, Part 2	11 Multiplex buildings, (46 units) 10 Multiplex buildings (68 units)	110 163
Stage F	Lot 5, Market Apartments	11 Multiplex buildings (58 units)	139
Total		250 Units (residential only)	622

*Residential (2.4 people per unit (2021 Canada Census))

*Commercial (90 people per hectare (MMCD Design Guidelines))

2.0 ROADS AND ACCESS

The subject site is fronted by Peninsula Road to the south (see Figure 2) and Minato Road to the west (see Figure 3).



Figure 2: Peninsula Road - Looking East (Google Maps)



Figure 3: Minato Road – Looking North (Google Maps)

Site access for all lots within the development are proposed to be from Minato Road. Lots 1, 2 & 4 will be accessed from a single access point from Minato Road, south of the existing creek. Although Lot 2 does not have frontage on Minato Road, a common access agreement will be in place over Lot 1 to access Lot 2. Lots 3 & 5 will be accessed from Minato Road, north of the existing creek, with separate accesses.

Please see the January 2024 Transportation Engineering memo prepared by Watt Consulting for details around the intersection of Minato Road/Peninsula Road as well as the future potential for a secondary access directly from Peninsula Road. Report items include:

- Implement intersection improvements at Minato Road/Peninsula Road including a Type 1B westbound lane
- Recommend a pedestrian crossing across Peninsula Road at Minato Road for a connection to the Wild Pacific Trail
- In the future, this section of Peninsula Road is envisioned to have a speed limit of 50 km/h, at which time the sight lines for a secondary access could be achieved.

An additional access to Lot 2 from Peninsula Road is proposed but will be used for emergency vehicle and pedestrian access only.

Currently, Minato Road is an approximately 6.30m wide dead-end gravel road. As part of the proposed development, frontage upgrades to Minato Road are expected along with a new offset turn-around at the end of the existing road. The final arrangement of the turn-around and extent of frontage upgrades will be coordination with DoU staff during detailed design.

No frontage upgrades are expected on Peninsula Road, although consultation with the Ministry of Transportation & Infrastructure (MoTI) is ongoing.

3.0 WATERMAIN

3.1 Existing Water System

There is an existing 200Ø PVC watermain along the east side of Minato Road which ends at the road extents near the entrance to Lot 4. There is a 450Ø PE watermain along the south shoulder of Peninsula Road.

There is an existing fire hydrant at the corner of Peninsula Road and Minato Road and at the end of Minato Road.

3.2 Existing Water Modeling

Koers & Associates Engineering (KAE), on behalf of DoU, prepared a water modeling report for a different arrangement of the proposed development which included a full buildout of 300 residential units and 716 people. (Appendix C) The current proposed development is proposing 250 units at final buildout, to be phased as outlined in Table 1.

Based on potential water demands as noted in the MMCD Design Guidelines 2022, KAE indicated the approximate available fire flows available at the connection to the 200Ø PVC watermain on Minato Road to be **103 l/s** (assumed elevation of 8.0m geodetic) and from the 450Ø PE watermain on Peninsula Road to be **300 l/s**. (assumed elevation of 11.0m geodetic)

3.3 Proposed Water System

Each of the proposed development lots will have a separate water service to its property frontage complete with individual meters. All lots, except for Lot 2, will be serviced from the 200Ø PVC watermain on Minato Road. Lot 2 will be serviced from the 450Ø PE on Peninsula Road.

The domestic water demand calculations are based on the MMCD Design Guidelines (2022) Standards and Specifications - Water Distribution.

Unit water demand rates used for this analysis are shown in Table 3.3.1 below.

Table 3.3.1 - Unit Demand Rates (Metered Developments)

Scenario	Demand Rate
Average Day Demand (ADD)	300 L/capita/day
Maximum Day Demand (MDD)	600 L/capita/day
Peak Hour Demand (PHD)	900 L/capita/day

The demand calculations are presented in Tables 3.3.2 and Table 3.3.3 below.

Table 3.3.2 - Population Calculations

Type		Density	Population
Commercial		90 pph	22
Residential	250 units	2.4 cap/unit	600
		Total Equivalent	622

Table 3.3.3 - Residential Demand

Scenario	Demand
ADD	2.16 L/s
MDD	4.32 L/s
PHD	6.48 L/s

3.4 Fire Flow Requirements

Preliminary Fire Underwriter's Survey (FUS) calculations for each building of the proposed development indicate that a "worst-case" situation occurs within Lot 1 which results in a required fire flow of **85 L/s** for a duration of 1.75 hours. (See attached FUS Calculations in Appendix B)

Based on KAE's approximate available fire flows noted above, the proposed watermain and hydrants are expected to be capable of providing the required domestic and fire flows to each building.

As part of the DP review process, we understand that DoU may engage KAE to complete modelling to confirm the capacity of the existing water system.

The final size of the services and meters, as well as the arrangement of backflow prevention, to each lot will be determined through detailed design and coordination with the mechanical consultant.

4.0 SANITARY SEWER

4.1 Existing Sanitary System

There is an existing 250Ø gravity sanitary sewer on Peninsula Road that spans the west half of the Peninsula Road frontage and connects to the Peninsula Road pump station. There is also an existing 100Ø sanitary forcemain along Minato Road which services the property east of Minato Road (210 Minato Road) and connects to the gravity main on Peninsula Road upstream of the pump station.

The Peninsula Road pump station is part of a chain of downstream pump stations which include the Hemlock Street pump station, the Fraser Lane pump station, and the Helen Road pump station, prior to reaching the DoU sewage treatment plant.

4.2 Existing Sanitary System Capacity & Modelling

KAE, on behalf of DoU, prepared a sanitary sewer modeling report for a different arrangement of the proposed development which included a full buildout of 300 residential units and 716 people. The current proposed development is proposing 250 units and 622 people at final buildout, to be phased as outlined in Table 1.

(Appendix C – KAE Report 0361-242-01, Rev. 1).

Based on KAE's calculations, the report notes the existing Peninsula Road pump station does not have capacity to receive the expected flows of the full development build-out (300 units and 716 people based on the different arrangement). The anticipated flows under that arrangement are noted below on Table 2, and the pump station is noted to have approximately 4 L/s of additional capacity under current conditions.

Table 2 – Excerpt from KAE Servicing Memo

No. of Dwelling Units	Service Population ⁽¹⁾	Dry Weather Design Peak Flow		Infiltration & Inflow Allowance		Wet Weather Design Peak Flow (L/s)
		Per Capita ⁽²⁾ (L/s per capita)	Total (L/s)	Per Area ⁽³⁾ (L/s per ha)	Total ⁽⁴⁾ (L/s)	
100	250	0.022	5.5	0.13	0.3	5.8
165	412	0.022	9.0	0.13	0.4	9.4
300	716	0.022	15.8	0.13	0.7	16.5

The KAE report provides recommendations for infrastructure improvements which would be required to accommodate the flows from the development. These recommendations are based on the DoU Sanitary Sewer Master Plan (SSMP), also prepared by KAE, and prepared in June 2023.

Concurrently, DoU is planning for capital upgrades to the sanitary sewer system which includes improvements to gravity mains, forcemains, and lift stations throughout the District. Discussions with KAE to date have indicated that the highest priority for DoU is the replacement of the Hemlock Street pump station, as well as associated piping around the pump station. A memo prepared by KAE to supplement the SSMP is expected at the end of September 2024 which will make update the SSMP recommendations on what capital upgrades should take place based on the proposed development outlook within DoU.

4.3 Proposed Sanitary System

Considering the existing limitations of the DoU sanitary sewer system accommodating the flows from this development, we propose the following arrangements which are anticipated to correspond to the ongoing capital sewer upgrades and related available capacity. Please see the attached Sanitary Calculations in Appendix B.

Table 3 – Proposed Sanitary Flows

Stage	Revised PWWF
Stage A	0.88 L/s
Stage B (Concurrent with Stage A)	0.46 L/s
Stage C	0.27 L/s
Stage D	1.09 L/s
Stage E	3.13 L/s
Stage F	1.66 L/s

From Table 3, we note that Stages A-D could be completed within the existing capacity of the existing Peninsula Road pump station (4 L/s).

Ongoing discussions with DoU will refine the capital plan upgrades and timing, such that the development can proceed within the limitations of the existing sanitary system.

4.4 Alternate Solution - Sanitary Detention

As an alternative solution, the attached Creus Engineering Report (Appendix C) provides rationale for a private sewage detention system which collects sanitary flows from the site and pumps (via private pumps) them into the municipal system at staged outflows and times depending on the system capacity at the time, typically during off-peak hours during the night. The report estimates that a 20,000 US gallon tank may suffice for this development, and that the private pump station would be integrated with the DoU system through SCADA controls. This solution would be used for Stages E & F, or for any stage which results in the existing capacity being exceeded by the proposed development flows.

We understand that the Hemlock pump station is currently pumping approximately 18-19 hours per day, based on conversations with KAE, and that a significant amount of the inflow is related to groundwater particularly in the wet seasons. The anticipated upgrade to Hemlock Street pump station includes additional capacity and metering which can be incorporated into a SCADA system.

As shown on the attached drawings, the proposed buildings on each lot will be serviced by gravity to localized low points within the lots. Lots 3 & 5 will have individual pump stations which will connect to the gravity main on Peninsula Road via separate service. Lots 1, 2, & 4 will contain a centralized collection point for the gravity and low-pressure systems from each lot. This centralized holding tank will then connect to the gravity main on Peninsula Road via a single service.

Should the required capital sanitary system upgrades be completed in the future, which accommodate the sanitary flows from the entire development, the sanitary flows from could then be re-routed directly to the municipal system to bypass the detention system.

The final size of the services and mains to each lot, as well as pump station capacities and details around sanitary detention, will be determined through detailed design and coordination with the mechanical consultant.

5.0 STORMWATER MANAGEMENT

This preliminary Stormwater Management plan is intended to outline the existing and proposed stormwater management features of the site for Development Permit application. This report is based on the design requirements of DoU and the known existing conditions at the development site.

5.1 Existing Site Conditions

The existing site is 6.68 ha and generally slopes from the south to north. A creek, which collects runoff from Peninsula Road and terminates at Minato Road, bisects the lot running east to west.

The site has localized clearings throughout the lot including looped gravel access roads within the southern and northern portions of the lot. The remaining areas are forested with bedrock outcrops. The site currently drains overland to the central creek and/or to the ocean (Ucluelet Inlet).

5.2 Stormwater Management Summary

The proposed site will be divided into two separate catchment areas, south and north of the existing creek. Each catchment area will contain separate outfalls to existing drainage courses. Outfall locations have been discussed with and reviewed by the project environmental consultant, Aquaparian Environmental Consulting.

The following is an overview of the proposed stormwater management plan for the development. During detailed design a final stormwater management plan will be created based on DoJ and environmental requirements. Additionally, the "Stormwater Source Control Design Guidelines 2012" (SSCDG) will be consulted for stormwater management best practices during detailed design.

South Catchment Area (Lots 1, 2, & 4):

- Runoff from the access road, sidewalks, parking areas, and building drainage will be collected via catchbasins and directed to a new onsite storm sewer system.
 - There is a potential for some localized rain garden facilities to collect road runoff, prior to connecting to the storm system. These facilities, and other source control measures will be considered during detailed design.
- The new underground storm system will direct flows to an existing low point in the northeast corner of Lot 1.
 - Easements will be required to accept overland and piped flows from the adjacent Lots 2 & 4.
- A new, naturalized pond will be created to accept flows from the storm system. An overland pond outlet will direct runoff to an existing drainage path to the adjacent creek.
 - The pond location and pond outlet will be coordinated with the Environmental consultant during detailed design.

North Catchment Area (Lots 3 & 5):

- Runoff from the access road, sidewalks, and parking areas will be collected via roadside landscaped swales and directed to a new pond at an existing low point in the northeast corner of Lot 3.
 - Easements will be required to accept overland and piped flows from the adjacent Lots 2 & 4.
- The new pond will contain an overland outlet which will connect to an existing outlet for the ditch system on Minato Road. The outlet enters the existing park dedication area before reaching the ocean (Ucluelet Inlet).
 - The pond location and overland route through the Park dedication area will be coordinated with the Environmental consultant and DoU during detailed design.

6.0 EROSION AND SEDIMENT CONTROL


An Erosion and Sediment Control plan meeting current DoU and Environment requirements will be prepared and submitted with the application for Building Permit.

7.0 CONCLUSION

The design of the civil works associated with this project will be consistent with the District of Ucluelet's engineering standards and aligned with the overall project goals of sustainability, functionality & practicality.

HEROLD ENGINEERING LIMITED

Prepared by:



Patrick Ryan, P. Eng
Principal

Permit to Practice No. 1000201



Evan Pearce, ASCT
Associate

Appendix A

ISSUES	RESOLVED FOR
A	CONSTRUCTION
B	PERMITS
C	DEVELOPMENT PERMIT

NOT FOR CONSTRUCTION

ISSUED FOR DEVELOPMENT PERMIT

221 MINATO ROAD DEVELOPMENT
 CIVIL WORKS
 UCLUELET, BC
 ERF SUSTAINABLE SOLUTIONS

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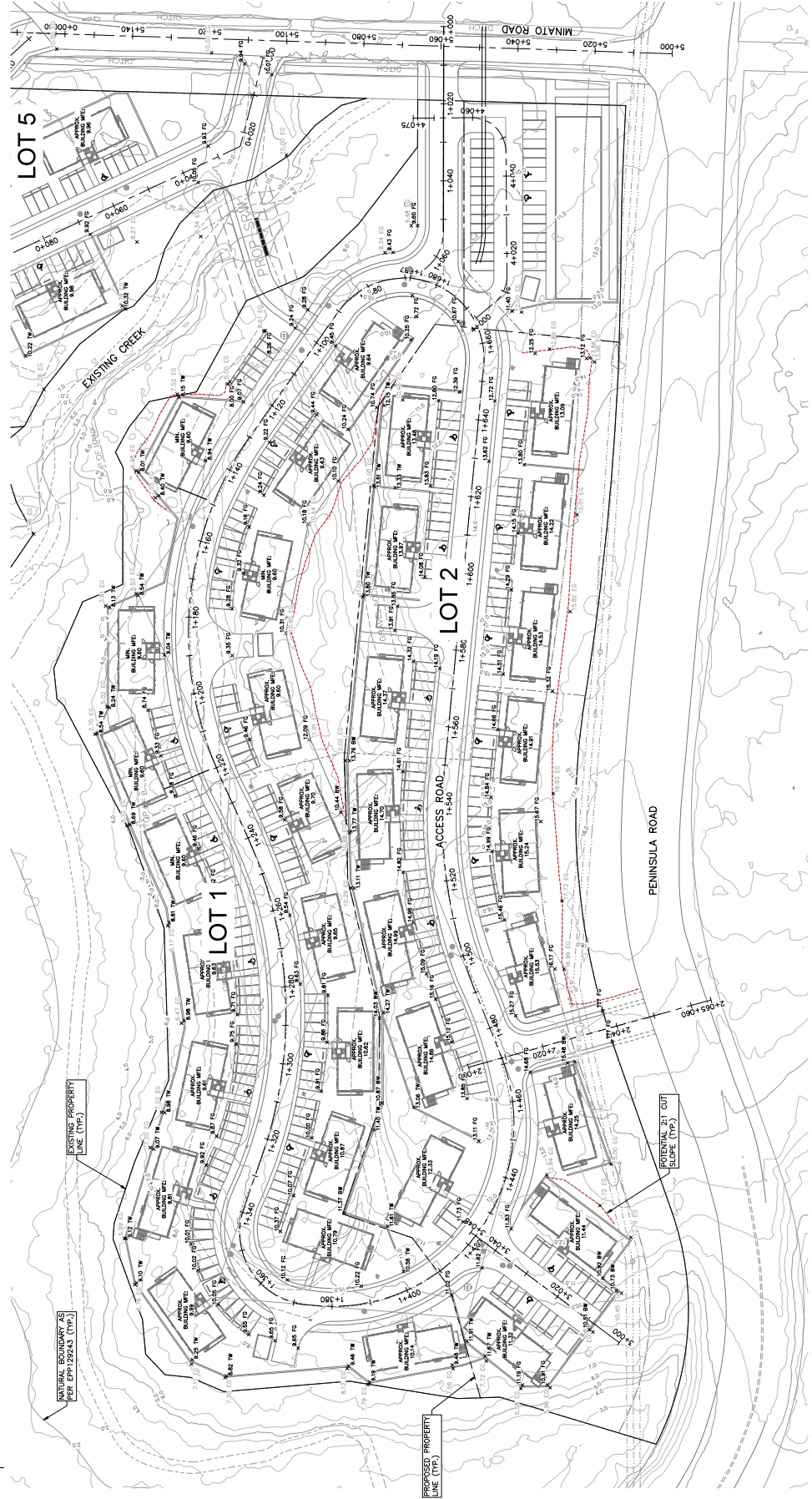
LOT 1, LOT 2, LOT 4-
 SITE GRADING
 PLAN

DESIGNED	DATE
CHECKED	DATE
PERMITS REVIEW	DATE
CONSTRUCTION REVIEW	DATE
PROJECT NO.	8473-001
CLIENT	ERF SUSTAINABLE SOLUTIONS
SCALE	1:500
DATE	2023
DRAWING NO.	C03
REVISION	C

Appendix D - Report 24-129

- NOTES:
- ALL ELEVATIONS ARE TO GEODETIC DATUM CGVD2013.
 - REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL SURFACE WORKS DETAILS.

SEE DRAWING NO. C07 FOR CONTINUATION



1:500

DESTROY ALL DRAWINGS SHOWING THIS SITE REVISION

Appendix D

LOT 1 & LOT 2
SOUTH LOOK ROAD
PLAN PROFILE
STA. 1+000 TO 1+360

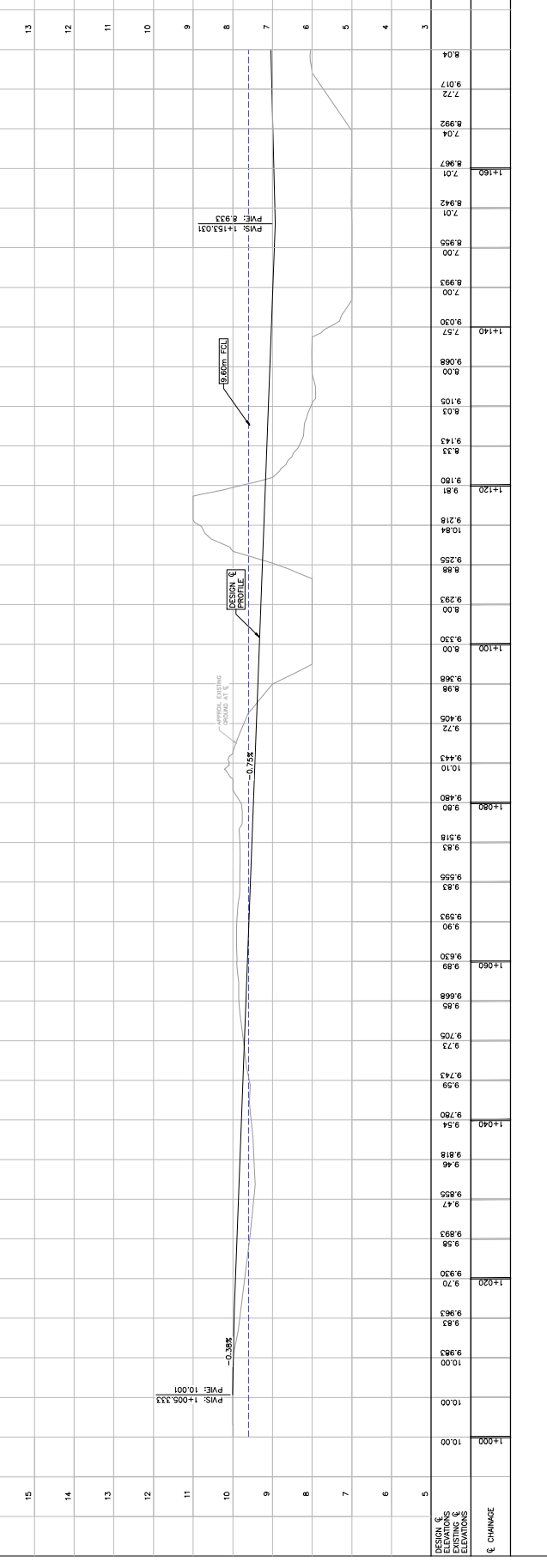
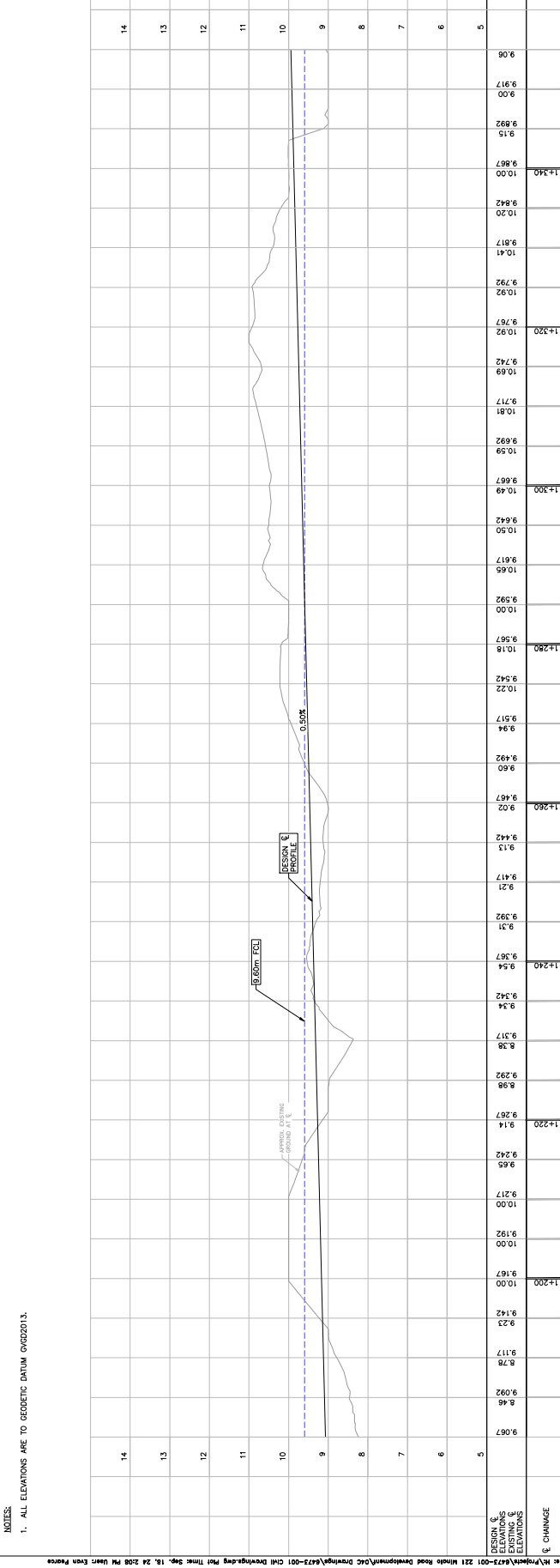
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CHECKED: [Signature]
DATE: 04/23/2024
SCALE: 1"=20'
PROJECT NO.: 24-129
DRAWING NO.: C04

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UCLUELET, BC
ERF SUSTAINABLE SOLUTIONS

221 MINATO ROAD DEVELOPMENT
CIVIL WORKS

STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION	STATION	ELEVATION
1+000	10.00	1+040	9.54	1+080	9.80	1+120	9.81
1+005	10.00	1+045	9.56	1+085	9.81	1+125	9.82
1+010	10.00	1+050	9.57	1+090	9.82	1+130	9.83
1+015	10.00	1+055	9.58	1+095	9.83	1+135	9.84
1+020	10.00	1+060	9.59	1+100	9.84	1+140	9.85
1+025	10.00	1+065	9.60	1+105	9.85	1+145	9.86
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1+035	10.00	1+075	9.62	1+115	9.87	1+155	9.88
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1+065	10.00	1+105	9.68	1+145	9.93	1+185	9.94
1+070	10.00	1+110	9.69	1+150	9.94	1+190	9.95
1+075	10.00	1+115	9.70	1+155	9.95	1+195	9.96
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1+090	10.00	1+130	9.73	1+170	9.98	1+210	9.99
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1+105	10.00	1+145	9.76	1+185	10.00	1+225	10.00
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1+145	10.00	1+185	9.84	1+225	10.00	1+265	10.00
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1+155	10.00	1+195	9.86	1+235	10.00	1+275	10.00
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1+170	10.00	1+210	9.89	1+250	10.00	1+290	10.00
1+175	10.00	1+215	9.90	1+255	10.00	1+295	10.00
1+180	10.00	1+220	9.91	1+260	10.00	1+300	10.00
1+185	10.00	1+225	9.92	1+265	10.00	1+305	10.00
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1+245	10.00	1+285	10.00	1+325	10.00		
1+250	10.00	1+290	10.00	1+330	10.00		
1+255	10.00	1+295	10.00	1+335	10.00		
1+260	10.00	1+300	10.00	1+340	10.00		
1+265	10.00	1+305	10.00	1+345	10.00		
1+270	10.00	1+310	10.00	1+350	10.00		
1+275	10.00	1+315	10.00	1+355	10.00		
1+280	10.00	1+320	10.00				
1+285	10.00	1+325	10.00				
1+290	10.00	1+330	10.00				
1+295	10.00	1+335	10.00				
1+300	10.00	1+340	10.00				
1+305	10.00	1+345	10.00				
1+310	10.00	1+350	10.00				
1+315	10.00						
1+320	10.00						
1+325	10.00						
1+330	10.00						
1+335	10.00						
1+340	10.00						
1+345	10.00						
1+350	10.00						
1+355	10.00						
1+360	10.00						



ISSUES

A	ISSUES FOR REVIEW
B	ISSUES FOR COMMENT
C	ISSUES FOR DEVELOPMENT PERMIT

NOT FOR CONSTRUCTION

ISSUED FOR DEVELOPMENT PERMIT

NOTES:
1. ALL ELEVATIONS ARE TO GEODETIC DATUM (VDG22013).

VERIFY ALL DIMENSIONS SHOWN FOR THIS SECTION



SEE DRAWING NO. C02 FOR CONTINUATION

DESIGNED	DATE	SCALE	PERMIT	REVISION
ECAP	07/15/2024	AS SHOWN	C07	C
DESIGNED BY	DATE	SCALE	PERMIT	REVISION
ECAP	07/15/2024	AS SHOWN	C07	C
DESIGNED BY	DATE	SCALE	PERMIT	REVISION
ECAP	07/15/2024	AS SHOWN	C07	C

HEROLD ENGINEERING
 3701 Sherman Rd., Woodville, NC 28781
 Tel: 252-791-6508 Fax: 252-791-6509
 www.herold-engineering.com

221 MINATO ROAD DEVELOPMENT
 CIVIL WORKS
 UCLUELET, BC
 ERF SUSTAINABLE SOLUTIONS

ISSUED FOR
 CONSTRUCTION
 DEVELOPMENT PERMIT

NOT FOR
 CONSTRUCTION

ISSUES	REVISIONS
A	1. ALL ELEVATIONS ARE TO GEODETIC DATUM OGD2013.
B	2. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL SURFACE FINISH DETAILS.
C	

- NOTES:
1. ALL ELEVATIONS ARE TO GEODETIC DATUM OGD2013.
 2. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL SURFACE FINISH DETAILS.



Appendix B



FIRE UNDERWRITER'S SURVEY

PROJECT NAME: 221 Minato Road - 5 Lot Subdivision **HEL PROJECT No.:** 6473-001
PROJECT LOCATION: 221 Minato Road, Ucluelet, BC **DATE:** 18/09/2024
DESIGNED BY: Evan Pearce, ASCT
REVIEWED BY: Patrick Ryan, P.Eng.

FIRE AREA CONSIDERED: Residential Building (Eagle3) Lot 1

TYPE OF CONSTRUCTION: TYPE V, WOOD FRAME CONSTRUCTION

FIRST FLOOR AREA: 200 m² CONSTRUCTION COEFFICIENT, C: 1
 SECOND FLOOR AREA: 200 m²

$$RFF = 220C\sqrt{A}$$

TOTAL FLOOR AREA, A: 400 m² FIRE FLOW FROM EQUATION 4000 L/min. a

GROUP Residential
 HAZARD NON-COMBUSTIBLE -25% x a -1000 L/min.
 SUBTOTAL 3000 L/min. b

AUTOMATIC SPRINKLER NO 0%
 WATER SUPPLY IS STANDARD FOR BOTH THE SYSTEM AND FIRE DEPARTMENT HOSE LINES NO 0%
 FULLY SUPERVISED SYSTEM NO 0%
 0% x b 0 L/min.
 SUBTOTAL 3000 L/min. c

EXPOSURES	DISTANCE					
FRONT	23	ADD	10%			
LEFT	8	ADD	20%			
RIGHT	8	ADD	20%			
BACK	5	ADD	20%			
		TOTAL	70%	x b	2100	L/min. d

NOTES:
 1. Front is the Access Road
 2. Floor area taken from Architectural Plans
 3. Based on Water Supply For Public Fire Protection - 2020

FIRE FLOW REQUIRED c + d **5100** L/min.
 or **85** L/Sec.

Permit to Practice No. 1000201



PROJECT NAME: 221 Minato Road - 5 Lot Subdivision
PROJECT LOCATION: 221 Minato Road, Ucluelet BC
DESIGNED BY: Evan Pearce, ASCt
REVIEWED BY: Patrick Ryan, P.Eng.

HEL PROJECT No.: 6473-001
DATE: 18/09/2024

Mannings "n" 0.013 PVC

Mannings Formula

$$V = \frac{R_n^{(2/3)} S^{(1/2)}}{n}$$

Harmon Peaking Factor

$$PF = 1 + 14/(4 + P^{0.5})$$

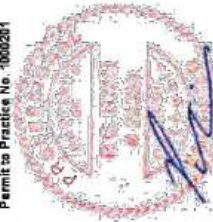
p = Population in 1000's

Area	Location	Area (Ha)	Units or Lots	Density ppu	Equivalent Population	Average Flow (L/day/pp)	Peaking Factor (PF)	Peak Flow (ML/day)	Infiltration & Inflow (ML/day)	Total Flow (ML/day)	Total Flow (l/s)	Pipe Diameter (mm)	Slope, s (%)	Velocity, V (m/s)	Capacity (l/s)
Stage A	Lot 1 (Part 1 of 2)	0.94	29	2.4	70	220	4.28	0.0656	0.0105	0.076	0.881	150	2.00	1.22	21.5
Stage B	Lot 3	1.45	10	2.4	24	220	4.37	0.0231	0.0162	0.039	0.455	150	2.00	1.22	21.5
Stage C	Lot 4 (Commercial)	0.24		90	22	220	4.38	0.0208	0.0027	0.023	0.272	150	2.00	1.22	21.5
Stage D	Lot 2 (Part 1 of 2)	0.62	39	2.4	94	220	4.25	0.0875	0.0069	0.094	1.094	150	2.00	1.22	21.5
Stage E	Lot 1 (Part 2 of 2) Lot 2 (Part 2 of 2)	2.1	114	2.4	274	220	4.10	0.2465	0.0235	0.270	3.125	150	2.00	1.22	21.5
Stage F	Lot 5	1.32	58	2.4	139	220	4.20	0.1287	0.0148	0.143	1.660	150	2.00	1.22	21.5

Note:

- Commercial population equivalent different that water demand (75pph vs. 90 pph) MMCD Design Criteria, used 90 pph to match population data.
- Infiltration allowance is 11,200 L/ha/day, entire site area used.
- Average flow based on DoU Specifications of 1.91m³/day for population of 500-1000.

Permit to Practice No. 1000281



2024-09-19

Appendix C



**KOERS
& ASSOCIATES
ENGINEERING LTD.**
Consulting Engineers

194 MEMORIAL AVENUE
PARKSVILLE, BC V9P 2G8
Phone: (250) 248-3151
Fax: (250) 248-5362
www.koers-eng.com

March 19, 2024
0361-242-01, Rev 1

District of Ucluelet
P.O. Box 999
200 Main St
Ucluelet, BC V0R 3A0

Attention: Mr. Bruce Grieg, Director of Planning

Re: 221 Minato Road, Ucluelet
Proposed 284 Residential Unit Development
Water & Sanitary Sewer Analysis, Impact on District Infrastructure

As requested, we have carried out analyses of the potential impact of the proposed residential development on the District of Ucluelet’s water distribution and sanitary sewer collection system.

1 PROPOSED DEVELOPMENT

1.1 Conceptual Plan

The proposed conceptual development (see **Figure 1**) consists of up to 300 residential dwelling units in three types of buildings:

- Apartments: 144
 - Single Unit Dwellings: 75
 - Non Profit Parcel Units: 65
 - To Be Determined: 16
- Total: 300

1.2 Conceptual Building Characteristics

The District Group has provided the following preliminary construction characteristics for the proposed apartment and single unit dwellings:

Table 1 – Conceptual Building Characteristics

Building	Material	Area per Floor ft ²	No. of Floors	Total Floor Area ft ²
Apartments	wood frame	10,000	4	40,000
Single Units				
- one bedroom	wood frame	650	1	650
- two bedroom	wood frame	900	1	900
Non Profit Units	n/a	n/a	n/a	n/a

Notes:

- 1 Information provided by District Group in their email dated Jan 29, 2024 to Koers & Associates Engineering Ltd.
- 2 n/a = not available; no information provided.

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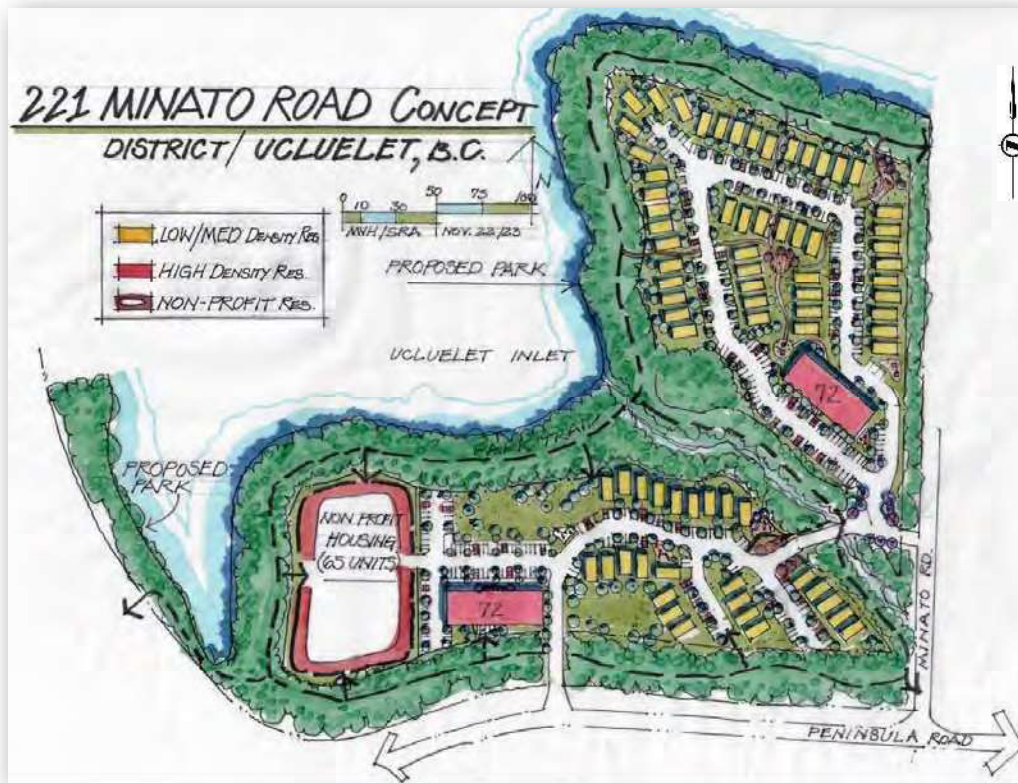


Figure 1 – Proposed Development Conceptual Site Plan
(provided by District Group)

1.3 Population

An estimate of the population for the proposed development was not provided at the time of this analysis. A total population of 716 was used based on the types of dwelling units and population density allowances as shown in [Table 2](#).

Table 2 – Development Estimated Service Population

Dwelling Type	No. of Units	Density (Persons/Unit)	Population (people)
Apartment	144	2.5	360
Single Units			
one bedroom	35	1.5	53
two bedroom	40	2.5	100
Non Profit	65	2.5	163
TBD	16	2.5	40
Total	300	2.39⁽¹⁾	716

Notes:

- (1) 2021 Canada Census reported a population density of 2.40 persons per dwelling unit based on a population count of 2,066 residing in 860 dwelling units.

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1.4 Development Phasing

The development is proposed to be built-out in phases, the exact number and timing of which were not provided. The initial phases could consist of approximately 100 to 165 units, depending on market demand.

2 WATER DISTRIBUTION SYSTEM ANALYSIS

2.1 System Performance Criteria Analysis

The adequacy of the distribution system for various demand conditions is judged by the residual pressures available throughout the system and by the maximum velocities in the watermains. The criteria applied to assess the ability of the District's distribution system to service the proposed development are listed in **Table 3**.

Table 3 – Distribution System Design Criteria ⁽¹⁾

Parameter	Value	
	(metric)	(imperial)
Peak Hour Demand Conditions		
minimum residual pressure at property line	300 kPa	44 psi
maximum velocity in watermains	2.0 m/s	6.6 ft/s
Fire Flow Demand Conditions (during Maximum Day Demands)		
minimum residual pressure at hydrant	150 kPa	22 psi
maximum velocity in watermains	3.5 m/s	11.5 ft/s
minimum residual pressure at property line	35 kPa	5 psi
Static Conditions		
maximum service pressure	860 kPa	125 psi

Notes:

(1) MMCD Design Guidelines 2022.

2.2 Water Demands

An estimate of the design water demands was not provided at the time of this analysis.

Design demands (average day, maximum day, and peak hour) were developed based on the **Table 2** population estimate and the per capita design water demands in the *MMCD Design Guidelines 2022*. As the District of Ucluelet presently does not meter residential demands (only Commercial/Industrial/Institutional properties are metered) the per capita design demands for unmetered water systems was applied.

The calculated design water demands are presented in **Table 4**. A design fire flow was not provided at the time of this analysis.

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Bruce Grieg

Table 4 – Modelled Water Demands

Description	Population	Per Capita Demand ⁽¹⁾		Total Demand	
		L/day per capita	L/s per capita	m ³ /day	L/s
Average Day	716	400	-	286	3.3
Maximum Day	716	900	-	644	7.5
Peak Hour	716	-	0.016	-	11.4

Notes:

(1) MMCD Design Guidelines 2022.

2.3 Modelling Results

Computer modelling analysis was carried out using the current District of Ucluelet WaterCAD model.

The proposed development is serviced by the District’s Highway Reservoir which has a top water level of 65 m geodetic and a storage volume of 1,400 m³.

2.3.1 STATIC PRESSURE

Based on an assumed elevation of 8 metres for the development, the resulting static pressure is 559 kPa (81 psi), based on the Highway Reservoir top water level of 65 m.

2.3.2 RESIDUAL PRESSURE DURING PEAK HOUR DEMAND

The calculated residual pressure at the proposed connection point along Minato Road during peak hour demand is shown in **Table 5** and greater than minimum design requirement of 300 kPa (44 psi).

Table 5 – Residual Pressure During Peak Hour Demand

Location	Elevation m	HGL m	Pressure kPa (psi)
Proposed Connection (off Minato Road)	8	63	533 (77)

2.3.3 MAXIMUM AVAILABLE FIRE FLOW

The calculated maximum available fire flow at the proposed connection point along Minato Road during maximum day demand is shown in **Table 6**. In addition, an alternate connection location to the existing 450 mm dia. watermain on Peninsula Road was evaluated, to provide an estimate of the available fire flow at the development.

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Table 6 – Maximum Available Fire Flow

Location	Elevation (m)	Available Fire Flow ⁽¹⁾		Residual Pressure	
		l/s	(igpm)	kPa	(psi)
Proposed Connection (off Minato Rd)	8	103	(1,460)	439	(64)
Alternate Connection (off Peninsula Rd)	11	300	(4,755)	428	(62)

Notes:

- (1) Based on a maximum velocity of 3.5 m/s in the distribution system as recommended by the *MMCD Design Guidelines 2022*.

3 SANITARY SEWER SYSTEM ANALYSIS

3.1 Sanitary Sewer Servicing

The site indicates sewage from the development would be pumped. The pumped sewage would discharge into the District's gravity sanitary sewer main on Peninsula Road which drains to the District's existing Peninsula Road pump station which is located ±100 m east of Minato Road as shown in the attached [Figure 2](#).

3.2 Design Flows

Design flows of the proposed development were not included in the rezoning application information provided to Koers. Design flows for computer modelling purposes have been developed in accordance with the District's Engineering Standard and Specifications for Sanitary Sewers (Bylaw 521, Schedule B). The calculated design flows for the potential initial phases of the development and at full buildout are summarized in [Table 7](#).

Table 7 – Development Design Flows

No. of Dwelling Units	Service Population ⁽¹⁾	Dry Weather Design Peak Flow		Infiltration & Inflow Allowance		Wet Weather Design Peak Flow (L/s)
		Per Capita ⁽²⁾ (L/s per capita)	Total (L/s)	Per Area ⁽³⁾ (L/s per ha)	Total ⁽⁴⁾ (L/s)	
100	250	0.022	5.5	0.13	0.3	5.8
165	412	0.022	9.0	0.13	0.4	9.4
300	716	0.022	15.8	0.13	0.7	16.5

Notes:

- (1) See [Table 2](#).
- (2) District of Ucluelet Engineering Design Standard and Specification, Schedule B, 1.1 Sewage Quantity (1.91 m³/day per capita for design population range of 500 – 1,000).
- (3) District of Ucluelet Engineering Design Standard and Specification, Schedule B, 1.1 Sewage Quantity (11.2 m³/day per ha).
- (4) Based on an estimated buildable site area of approximately 5.7 ha. And assumed area of 1.9 ha for 100 units and 3.1 ha for 165 units.

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4 EXISTING SEWER SYSTEM CAPACITY

4.1 Gravity Collection System, Minato Rd to Peninsula Rd Pump Station

The proposed development would discharge flows into the 250 mm dia. gravity main on Peninsula Road that drains into the Peninsula Road Pump Station as shown in the attached **Figure 2**. The capacity of the existing 250 mm dia. gravity main is adequate to handle the peak design flow of 16.5 L/s as shown in **Table 8**.

Table 8 – Peninsula Road Gravity System Capacity vs Peak Design Flows

Gravity Main					Design Peak Flow	
Label	SMH Upstream	Dia. (1) (mm)	Slope (1) (%)	Capacity (2) (L/s)	Existing (3) (L/s)	After Development (4) (L/s)
SP-501	SMH-501	250	0.50 %	37	0.5	17.0
SP-502	SMH-502	250	0.49 %	37	1	17.5
SP-503	SMH-503	250	0.57 %	40	5	21.5

Notes:

- (1) Based on record drawing information only. Actual diameter and slope may vary.
- (2) Based on pipe flowing 80% full ($d/D = 0.8$) and a Manning's $N = 0.013$ as per *MMCD Design Guidelines 2022* for collector sewers.
- (3) Existing Design Peak Flow are based on current zoning of the properties presently connected to the District's sanitary sewer system that contribute flows to these gravity mains. This therefore excludes Signature Circle properties. The design flow includes an allowance or Inflow and Infiltration based on a review of daily pump run-hour records for Year 2018 for the periods of Jan 27-29 vs the month of May.
- (4) Based on complete build-out of the 300 dwelling units proposed for this development (221 Minato Rd).

4.2 Peninsula Rd Pump Station & Downstream Sanitary Sewer System

4.2.1 PENINSULA RD PUMP STATION CAPACITY

The calculated peak design flow for the initial phases of the development (100 to 165 units) and at full buildout (300 units) are higher than the calculated pumping capacity of the Peninsula Road Pump Station as shown in **Table 9**.

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Table 9 – Peninsula Rd Pump Station Design Inflow & Pumping Capacity Outflow

Proposed Development No. of Dwelling Units ⁽¹⁾	Design Peak Inflow			Outflow ^(3, 5) (Pumping Capacity)	
	Existing Conditions ^(2, 3) (L/s)	Proposed Development ⁽⁴⁾ (L/s)	Combined Total (L/s)	One Pump (L/s)	Both Pumps (L/s)
-	5	-	5	9	12
100	5	5.8	10.8	9	12
165	5	9.4	14.4	9	12
300	5	16.5	21.5	9	12

Notes:

- (1) See **Table 7**.
- (2) Existing Design Peak Flow are based on current zoning of the properties presently connected to the District's sanitary sewer system that contribute flows to these gravity mains. This therefore excludes Signature Circle properties.
- (3) Actual flows are not available as flows are not metered at the pump station; only pump run-hours are recorded.
- (4) From **Table 7**.
- (5) The pumping rates are theoretical and based on the intersection of the pump curve with the calculated total dynamic head curve of the pump station's discharge forcemain (290 m of 100 mm dia.). The pump station is reported to contain two Flygt model 3127.180 HT pumps equipped with 7.4 hp motors. The pump design duty point is 9 L/s at 16.5 m Total Dynamic Head (TDH).

To service the proposed development, the **Table 9** data indicates the existing pumps will need to be replaced with larger pumps capable of pumping a higher flow rate against an increased TDH (for the forcemain routing options discussed in Section 5) to direct the flows to the Forbes Road pump station.

4.2.2 DOWNSTREAM SANITARY SEWER SYSTEM CAPACITY

Increasing the pumping capacity of Peninsula Road Pump Station will result in higher peak flows in the District's downstream sanitary sewer gravity mains and the pump stations they drain to, which are:

- Hemlock St Pump Station, which discharges to
- Fraser Lane Pump Station, which discharges to
- Helen Road Pump Station.

The location of these pump stations is shown in the attached **Figure 2**. The recently completed District of Ucluelet Sanitary Master Plan (June 30, 2023) noted the design flows for the Hemlock St pump station are already existing its design pumping capacity and that increased pumping capacity at the Fraser Lane and Helen Road pump stations will be required to accommodate the District's OCP growth projections.

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5 PENINSULA RD PUMP STATION, FORCEMAIN REDIRECTION

5.1 Redirection Routing Options

The District's Sanitary Master Plan (June 30, 2023) identified redirecting the Peninsula Road forcemain to discharge to the District's existing Forbes Road pump station as part of the works required to accommodate OCP build-out. The redirection was conceptually shown to be west along Peninsula Road and then south along a future road allowance of a future subdivision phase of the Weyerhaeuser lands. This conceptual route is shown below in **Figure 3** along with two other potential routing options (undeveloped road and Forbes Road).

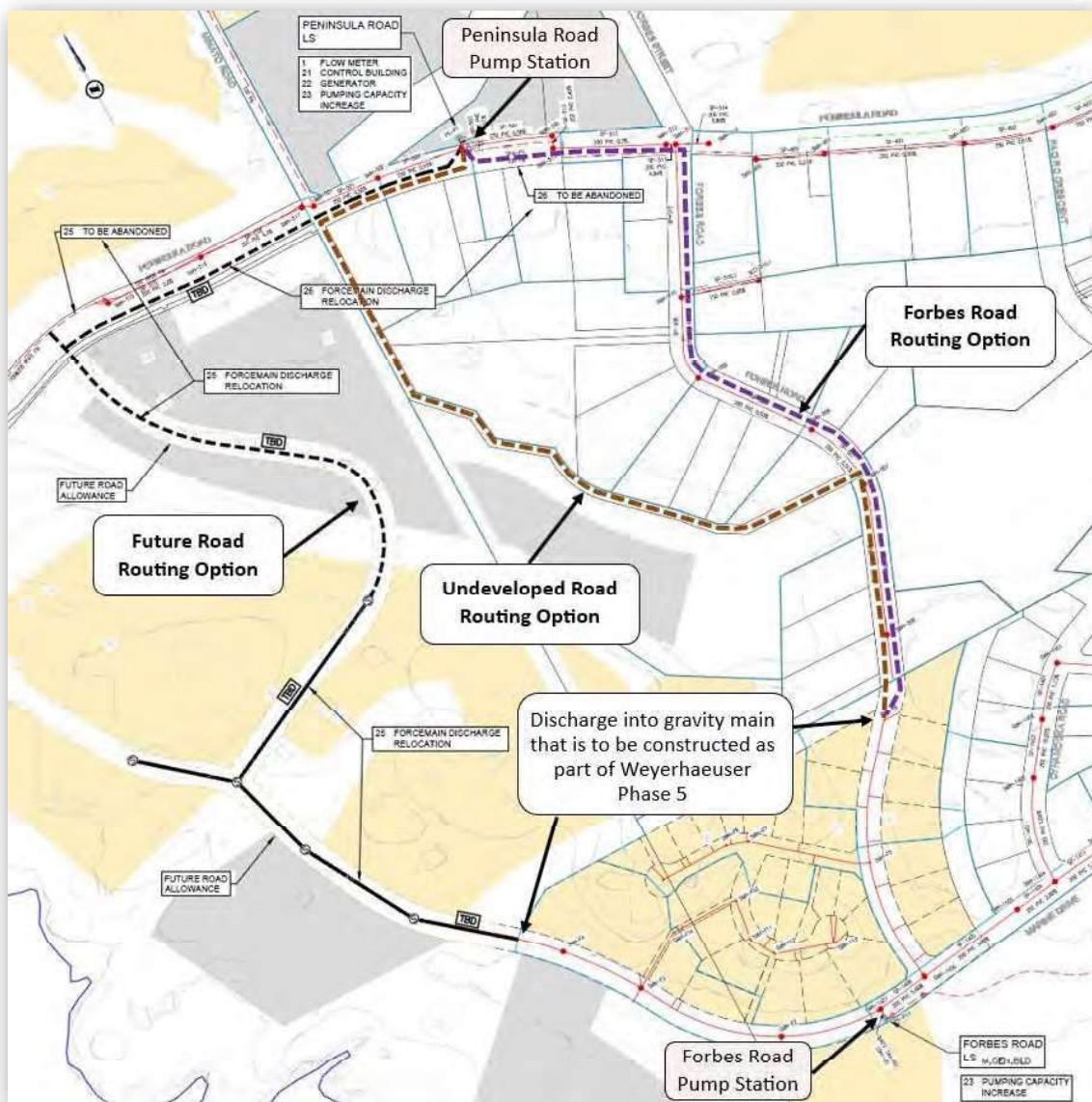


Figure 3 – Redirection of Peninsula Rd Pump Station Forcemain
(from Ucluelet Sanitary Master Plan, June 30, 2023, Dwg No. 1863-SAN-2, with additions)

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5.1.1 FUTURE ROAD ROUTING OPTION

This is the longest of the three options, consisting of ±700 m of forcemain and ±750 m of gravity main and requires the securing of future road allowances. A portion of the gravity main, ±250 m, is to be constructed as part of the Weyerhaeuser Phase 5 subdivision development. The highpoint along this route is shown on the District’s on-line UKEEMAP to be 26.4 m as noted in **Figure 4**.

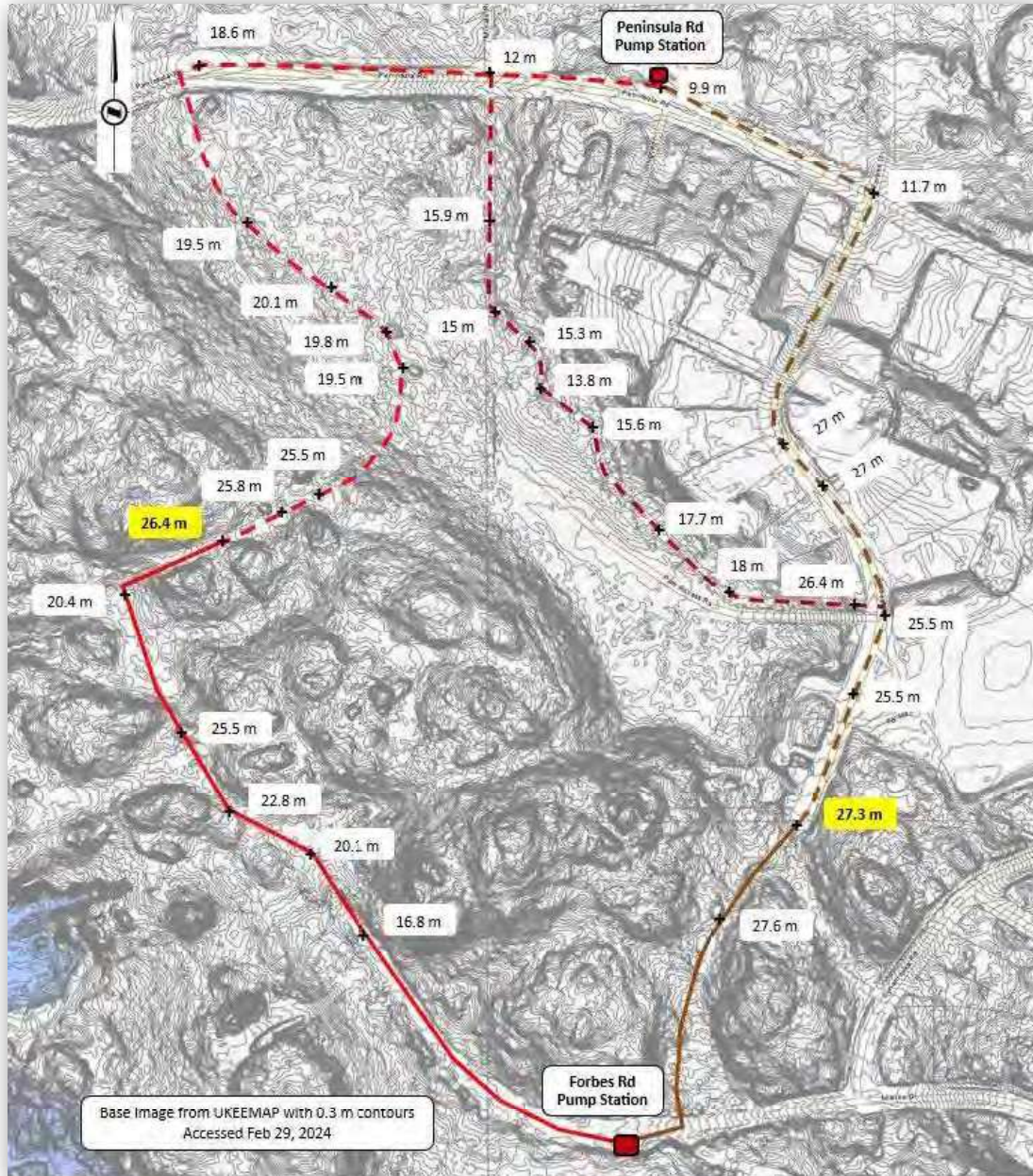


Figure 4 – Ground Elevation Contours along Forcemain Route Options

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5.1.2 UNDEVELOPED ROAD ROUTING OPTION

This consists of ± 850 m of forcemain of which ± 550 m would be constructed in the undeveloped (fully forested) 10 m wide road allowance. The forcemain would discharge into the top end of the ± 230 m of gravity main that is to be constructed as part of the Weyerhaeuser Phase 5 subdivision development. The highpoint along this route is shown on the District's on-line UKEEMAP to be at the current (south) end of Forbes Road at an elevation of 27.3 m as noted in [Figure 4](#).

5.1.3 FORBES ROAD ROUTING OPTION

The Forbes Road Routing Option consists of ± 680 m of forcemain that would be constructed along Peninsula Road and Forbes Road. The forcemain would discharge into the top end of the ± 230 m of gravity main that is to be constructed as part of the Weyerhaeuser Phase 5 subdivision development. The highpoint along this route is shown on the District's on-line UKEEMAP to be at the current (south) end of Forbes Road at an elevation of 27.3 m as noted in [Figure 4](#).

5.2 Impact on Downstream Forbes Rd and Big Beach Pump Stations

5.2.1 FORBES ROAD PUMP STATION

With the redirection of the Peninsula Road pump station forcemain to discharge into the Forbes Road pump station catchment, flows to the Forbes Road pump station will increase.

The current peak flow condition into the station was estimated to be 4 L/s compared to the theoretical pumping rate of 31 L/s as shown in Table 17 of the *District of Ucluelet Sanitary Master Plan, June 30, 2023*. In the near-term, it is anticipated that this station should be capable of accommodating the initial phases of this development, subject to a number of factors, including but not limited to:

- the pace and extent of development within: the Forbes Rd pump station catchment; the Peninsula Road pump station catchment; and the Olson Bay pump station catchment, and
- the pumping rate of the Peninsula Rd pump station (as it discharges into the Forbes Rd pump station).

The upgrading of the pumping capacity of the Forbes Road pump station is projected to be required before Year 2050 based on the OCP Map 9 Low(ish) Growth as shown in Table 17 of the *District of Ucluelet Sanitary Master Plan, June 30, 2023*.

The impact of the redirection of the Peninsula Road sewage lift station on the flows into the Forbes Road pump station for the initial phases of the development (100 to 165 units) and at full buildout (300 units) is shown in [Table 10](#).

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Table 10 – Forbes Rd Pump Station Design Inflow & Pumping Capacity Outflow

Proposed Development No. of Dwelling Units ⁽¹⁾	Design Peak Inflow			Outflow ⁽³⁾ (Pumping Capacity)	
	Existing Conditions ^(2, 3) (L/s)	From Peninsula Rd Pump Station ⁽⁴⁾ (L/s)	Combined Total (L/s)	One Pump (L/s)	Both Pumps (L/s)
-	4	-	4	31	40
100	4	10.8	14.8	31	40
165	4	14.4	18.4	31	40
300	4	21.5	25.5	31	40

Notes:

- (1) See [Table 7](#).
- (2) From Table 17 of the *District of Ucluelet Sanitary Master Plan, June 30, 2023*.
- (3) Actual flows are not available.
- (4) From [Table 9](#).

A capacity review of the Forbes Road pump station should be carried out with each phase of the proposed development.

The Forbes Road pump station discharges to the collection system that drains to the Big Beach pump station, which is discussed below.

5.2.2 BIG BEACH PUMP STATION

The Big Beach pump station, is a duplex pump station that receives flows from the Forbes Road pump station (as well as from the ±42 ha of developed land within its own catchment area). Prior to last year, this pump station used to discharge to a gravity main on Victoria Road. In the summer of 2023, the point of discharge was redirected to a gravity main on Peninsula Road by extending the forcemain up (northeast) along Matterson Drive.

The pump station's forcemain now consists of 237 m of 150 mm dia. (from the pump station to Victoria Rd) plus 430 m of 300 mm dia. (from Victoria Rd to Peninsula Rd). The calculated duty for the Victoria Road point of discharge was 34 L/s as noted in Table 17 of the *District of Ucluelet Sanitary Master Plan, June 30, 2023*. A review of the pump curve and updated system curve indicates the pump station's new operating point (pumping rate) is ±20 L/s for the Peninsula Road point of discharge. If both pumps were to operate simultaneously, the pumping rate is estimated to increase to ±28 L/s.

The impact of the redirection of the Peninsula Road sewage lift station forcemain on the flows into the Forbes Road pump station is shown in [Table 11](#).

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District of Ucluelet
Bruce Grieg

Table 11 – Big Beach Pump Station Design Inflow & Pumping Capacity Outflow

Proposed Development No. of Dwelling Units ⁽¹⁾	Design Peak Inflow			Outflow ⁽³⁾ (Pumping Capacity)	
	Existing Conditions ^(2, 3) (L/s)	From Peninsula Rd Pump Station ⁽⁴⁾ (L/s)	Combined Total (L/s)	One Pump (L/s)	Both Pumps (L/s)
-	26 ⁽⁵⁾	-	26	20	28
100	26 ⁽⁵⁾	10.8	36.8	20	28
165	26 ⁽⁵⁾	14.4	40.4	20	28
300	26 ⁽⁵⁾	21.5	47.5	20	28

Notes:

- (1) See [Table 7](#).
- (2) From Table 17 of the *District of Ucluelet Sanitary Master Plan, June 30, 2023*. This is the calculated peak flow for the entire service area of the Big Beach pump station, including the calculated design peak flow entering the Forbes Road pump station. The Forbes Road pump station has a higher calculated duty point pumping rate (31 L/s) which is significantly higher than its current estimated peak flow of 4 L/s into the pump station as shown in [Table 10](#).
- (3) Actual flows are not available as flows are not metered at the pump station; only pump run-hours are recorded.
- (4) From [Table 10](#).

The [Table 11](#) analysis indicates the existing conditions design flows into the Big Beach pump station are greater than the pumping capacity of a single pump and may require the operation of both pumps. The proposed development will add flows to Forbes Road pump station which will require the Forbes Road pumps to running longer and operate more frequently. This will in turn require the Big Beach pumps to run longer and operate more frequently.

The existing pumps in the Big Beach Pump Station will need to be replaced with larger (high flow rate) pumps to service the proposed development. However, there are capacity constraints on the gravity system that the Big Beach Pump Station discharges into that need to be considered as discussed in the following section.

.../13

March 19, 2024
0361-242-01, Rev 1

District of Ucluelet
Bruce Grieg

5.2.3 GRAVITY SYSTEM (BIG BEACH PUMP STATION TO HELEN RD PUMP STATION)

The Big Beach pump station now (as of the summer of 2023) discharges to a 1,300 m long gravity system of varying diameters and slopes that drains to the Helen Road Pump Station. This gravity system has limited capacity in several locations, with the nearest being a 60 m length of 200 mm dia. main at 0.72% slope on Pine Road (ending at Alder St). The theoretical capacity of this main is listed below along with two of sections of 300 mm dia. mains that convey flows from the Hemlock and Fraser Lane pump stations:

- Pine Rd: 60 m of 200 mm dia. at 0.72% : just full capacity = 28 L/s
- Eber Rd: 210 m of 300 mm dia. at 0.5% : just full capacity = 69 L/s
- Foreshore: 220 m of 300 mm dia. at 0.5% : just full capacity = 69 L/s

Their locations are shown in **Figure 2**. We are not aware of reported capacity issues with these mains. We note the Pine Road gravity main is deep (from 1.9 m to 5.1 m) and periodic surcharging could occur over a short period of time that may not negatively impact the properties connected to it or connected to the mains upstream of it.

The *District of Ucluelet Sanitary Master Plan, June 30, 2023* identified as an Immediate Term need the construction of a gravity main along Peninsula Road and upgrading of existing gravity mains along Marine Drive and Helen Road in order to accommodate future development and the increase pumping capacity at Big Beach Pump Station that it requires. (see **Table 19 – Proposed Works, Immediate Term**, projects 8, 9, and 10, the locations of which are shown on **Dwg No. 1863-SAN-3**). Upgrading the 150 mm dia. portion of the Big Beach Pump Station forcemain to 300 mm dia. is also required (see **Table 20 – Proposed Works, Longer Term** project 24 and **Dwg No. 1863-SAN-3**). These works are required in order to service future development, including the buildout of this proposed development.

5.2.4 HELEN ROAD PUMP STATION

The Helen Road pump station pumps all sewage from the District of Ucluelet to the sewage lagoon for treatment. It is anticipated that this duplex pump station, with a reported design pumping rate of 124 L/s (per Table 17 in the *District of Ucluelet Sanitary Master Plan, June 30, 2023*), can accommodate the initial phases of the proposed development.

The impact of the proposed development on the flows into the Helen Road pump station is shown in **Table 12**.

.../14

District of Ucluelet
Bruce Grieg

Table 12 – Helen Rd Pump Station Design Inflow & Pumping Capacity Outflow

Proposed Development No. of Dwelling Units ⁽¹⁾	Design Peak Inflow			Outflow ⁽³⁾ (Pumping Capacity)	
	Existing Conditions ^(2, 3) (L/s)	From Proposed Development ⁽⁴⁾ (L/s)	Combined Total (L/s)	One Pump (L/s)	Both Pumps (L/s)
-	89	-	89	124	144
100	89	5.8	94.8	124	144
165	89	9.4	98.4	124	144
300	89	16.5	105.5	124	144

Notes:

- (1) See **Table 7**.
- (2) From Table 17 of the *District of Ucluelet Sanitary Master Plan, June 30, 2023*.
- (3) Actual flows are not available as flows are not metered at the pump station; only pump run-hours are recorded.
- (4) From **Table 11**, Combined Total column.

A capacity review of the Helen Road pump station should be carried out with each phase of the proposed development.

We trust this is the information you require at this time. Please do not hesitate to contact us should you have any questions or if we can be of further assistance.

Yours truly,

KOERS & ASSOCIATES ENGINEERING LTD.

Mitchell Brook, P.Eng.
Project Manager

Chris Holmes, P.Eng.
Project Engineer

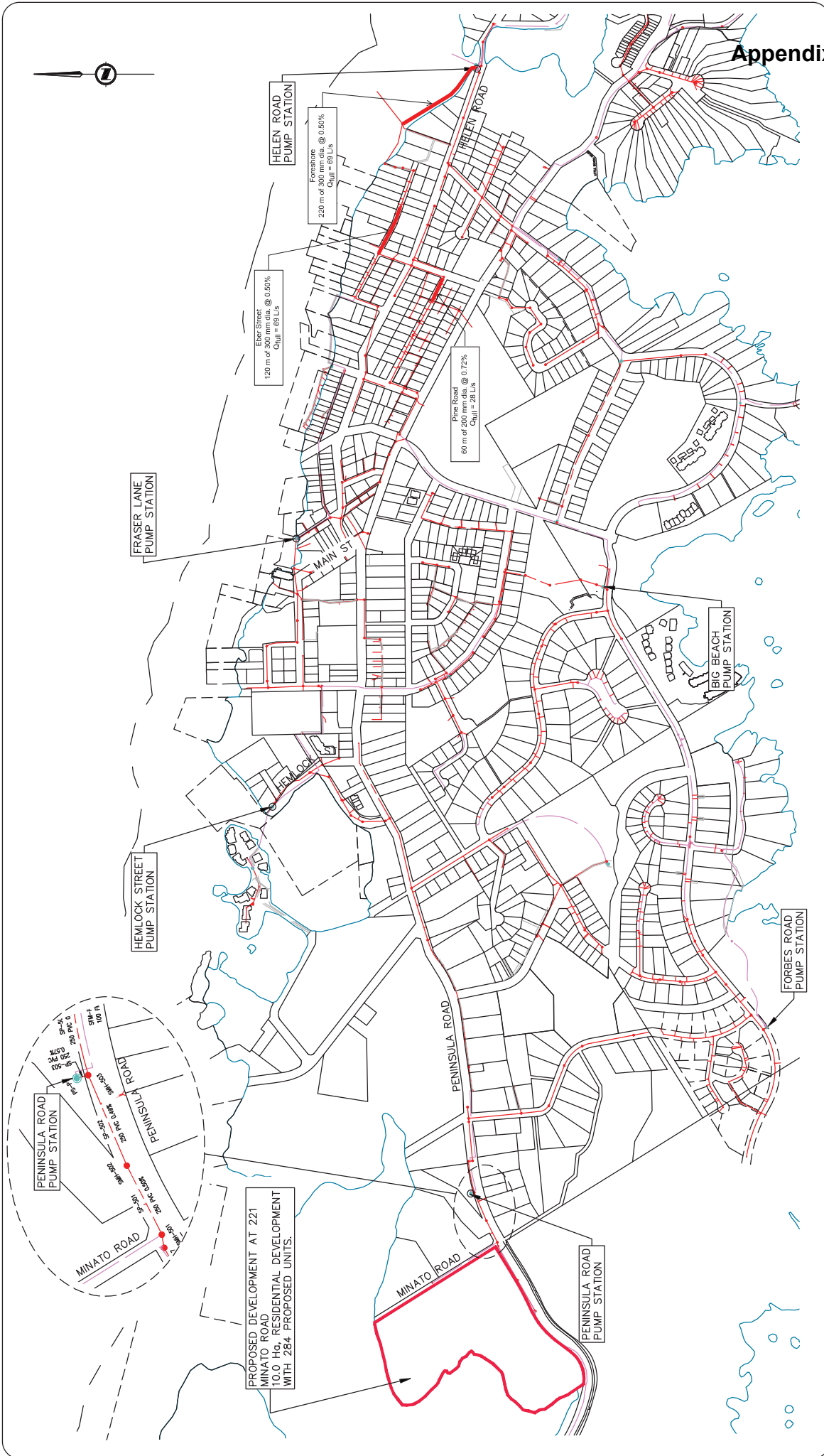
Chris Downey, P.Eng.
Senior Review Engineer

Permit to Practice No. 1001658.

Attachment

Figure 2 – District of Ucluelet Existing Sanitary Sewer Collection System

KOERS & ASSOCIATES ENGINEERING LTD.



TITLE		District of Ucluelet	
APPROVED		CH	
DATE		FEB 2024	
PROJECT No.		0361-241	
SCALE		1:8000	
DWG No.		Figure 2	

CLIENT	 DISTRICT OF UCLUELET	
	221 Minato Road, Proposed Development Sanitary Sewer Impact Analysis	
PROJECT		



KOERS & ASSOCIATES
ENGINEERING LTD.
Consulting Engineers

CREUS Engineering Ltd

610 – EAST TOWER, 221 ESPLANADE WEST, N. VANCOUVER, BC V7M 3J3
P: 604-987-9070 F: 604-987-9071 www.creus.ca

Civil Engineers & Project Managers

July 30, 2024

File No. 24600

ERIF
Campbell River, BC
V9W 5Y1

Attention: Juliette Green

221 Minato Rd Ucluelet - Sewage Management Proposal

Creus Engineering was approached several years ago to provide input on proposed development at Minato Road in Ucluelet. This involved conceptual overview input on feasibility from a Civil Engineering perspective. One area that was identified that required resolution was the capacity of the overall Ucluelet sanitary system.

We understand that Economic Restoration Infrastructure Fund (ERIF) is proposing a new development comprising of single family and multi-family homes at 221 Minato Road in Ucluelet. Creus has visited this site in 2022 with the past project manager, Mr Chris Bozman, but this memorandum has been prepared on desktop review only. ERIF has sought input from Creus to provide a conceptual solution for sewage disposal. In particular identifying a concept for management of peak flows where they exceed system capacity, especially as an interim solution, if required, while the District of Ucluelet (DOU) undertakes planned infrastructure upgrades to their sanitary system.

1. About Creus

CREUS is a partnership of Engineers, Project Managers and Technologists who strive to use the best technology, knowledge, experience and creativity to provide solutions to real world development issues. The core team has over 70 years of in-depth experience in the development industry holding senior positions in engineering, construction, general contracting, development, project management and positions in the regulatory industry. Our field of expertise is in designing systems for Stormwater Management, Sedimentation and Erosion Control as well as sewage solutions in challenging sites.

Kevin Healy has over 35 years of experience with senior positions in the construction, engineering, and the development industry. He has experienced land development from the perspective of a municipal employee, earthworks sub-contractor, general contractor, developer, and Consulting Engineer. As a Director of Creus, he leads the approvals and construction on projects with tough topography and tight environmental, political, and jurisdictional restrictions. An example project was in Cypress Mountain Resort where he managed the design, tendering, construction and commissioning of the water treatment, distribution and storage system and the sewage storage and pumping system jointly with Cypress and BC Parks. Some examples of Creus's past projects are in Appendix A.

2. Background

Several reports have been prepared for 221 Minato Rd from 2022 to 2024 giving an overview of the sanitary infrastructure and demand generated by the proposed development of this site. ERIF advises these reports include:

- Water and Sanitary demands – Impact on Infrastructure (Link: <https://drive.google.com/file/d/110EzXl36LSvRhn87atWr-p0DbFY2TB6m/view?usp=sharing>) completed by Koers & Assoc Engineering (Mitchell Brook, Chris Downey) in March 2024 (Koers 2024)

- Preliminary Servicing Review (Link: <https://drive.google.com/file/d/1bt6VFIQqYp1XF0BglAc-yhB48ANGGjRw/view?usp=sharing>) completed by McGill and Associates (Brodie Couch, Mike Lange) in September 2023 (McGill 2023)
- Sanitary Model – (Link: <https://drive.google.com/file/d/113d71XucgoGH6EIHPZkii3U0ItShZybB/view?usp=sharing>) completed by Koers & Assoc Engineering (Mitchell Brook) in March 2022 (Koers 2022)

The most recent report is an overview of demand for residential dwellings that was modelled for 221 Minato Rd by Koers and Associates in March 2024. The detailed modelling in this existing report has been reviewed by Creus to inform the proposed conceptual sewage concept.

ERIF’s proposed development is largely consistent with previous proposals for use of the site for residential dwellings, with the addition of a commercial precinct. Therefore, the modelling in Koer’s 2024 report has informed the development of the conceptual sewage response. Further modelling will need to be undertaken to refine the modelling for each stage for ERIFs Masterplan and as required in a later phase of detailed design. This will be required to define potential deficiencies in the system capacity and also identify periods where there is excess capacity on a diurnal and seasonal basis.

3. Koers & Associates 2024 Report

The most recent report on the existing sewage infrastructure was prepared by Koers & Assoc Engineering (Mitchell Brook, Chris Downey) entitled ‘Water and Sanitary Sewer Analysis – Impact on District Infrastructure’ (19 March 2024 – File Number 0361-242-01, Rev 1). The report was prepared for a previous District Group masterplan for the site, but the modelling of demand is equivalent for the purpose of evaluation conceptual solutions to that required for the updated Masterplan proposed by ERIF. A comparison of the two Masterplans is shown in Table 2 below. The Koer’s 2024 report was prepared to model water and sanitary demand for 300 residences and a population of 716 people. The ERIF Masterplan is based on 216 dwellings (made up of 205 apartments and 11 waterfront homes) and a commercial precinct.

Stage 1 demand modelling for the District Group plans allowed for 165 units and a population of 412 people. The ERIF proposed Masterplan is similar with Stage 1-4 including 160 units and 368 people. For the purposes of identifying concept solution this has been used as an equivalent base and Creus has used a preliminary review of this report to identify potential concept solutions.

Table 2 – Comparison of dwellings in Koer’s 2024 modelling for District Group and Current ERIF Masterplan

	District Group (Koers 2024 Model)	Current ERIF Master Plan
Initial Stage Dwellings	165 Units	160 Units
Initial Stage Population	412 people	363 people
Total Dwellings	300 Residences	216 Dwellings
Total Projected Population	716 people	Total population TBC

Koers 2024 Report projected sanitary sewer demand flow based on 300 units/ 716 population requiring 15.8L/s in dry weather peak flow ranging to 16.5L/s in wet weather peak flow. For the initial stage development of 165 units / 412 population sewage demand would require 9L/s in dry weather peak flow, ranging to 9.4L/s in wet weather peak flow. This is shown in the table below excerpted from Koer’s report.

Image 2 – Koer’s modelling of population and demand flows

Table 7 – Development Design Flows

No. of Dwelling Units	Service Population ⁽¹⁾	Dry Weather Design Peak Flow		Infiltration & Inflow Allowance		Wet Weather Design Peak Flow (L/s)
		Per Capita ⁽²⁾ (L/s per capita)	Total (L/s)	Per Area ⁽³⁾ (L/s per ha)	Total ⁽⁴⁾ (L/s)	
100	250	0.022	5.5	0.13	0.3	5.8
165	412	0.022	9.0	0.13	0.4	9.4
300	716	0.022	15.8	0.13	0.7	16.5

Notes:

- (1) See Table 2.
- (2) District of Ucluelet Engineering Design Standard and Specification, Schedule B, 1.1 Sewage Quantity (1.91 m³/day per capita for design population range of 500 – 1,000).
- (3) District of Ucluelet Engineering Design Standard and Specification, Schedule B, 1.1 Sewage Quantity (11.2 m³/day per ha).
- (4) Based on an estimated buildable site area of approximately 5.7 ha. And assumed area of 1.9 ha for 100 units and 3.1 ha for 165 units.

The Koer's 2024 Report sets out existing sewer system capacity, then assesses peak flows to four key downstream pump stations: Peninsula Rd Pump Station, Forbes Rd Pump Station, Big Beach Pump Station and Helen Rd Pump Station. The report confirms that upgrade of existing infrastructure is required to manage the projected peak flow from the proposed development of 221 Minato Rd. Koers 2024 reports concludes that a complete development of 300 units/ 716 people would require upgrade of pumps to higher flow rate units in some pump stations.

4. Proposed Infrastructure Upgrade by the District of Ucluelet

ERIF has advised that the District of Ucluelet has a budget and rollout plan for the upgrade of their existing sanitary infrastructure. Koer's 2024 Report also describes some of the proposed upgrades in the Ucluelet Sanitary Master Plan including Helen Rd Pump Station upgrades. ERIF advised their June 2024 discussions with DOU about the infrastructure capacity indicate that the planned upgrade works will enable the infrastructure to meet the demands required for the development.

Therefore, the intent of the concept in this memorandum is to recommend an interim solution that can ensure that sewage from the proposed development at 221 Minato Road does not exceed the System capacity. The concept is to retain release sewage flows based on system capacity and retain partial flows on site when the municipal system is at capacity and released at rates that the system can accommodate. This would result in partial releases throughout the day based on preliminary review of the Koers report with release of stored sewage in time periods of off-peak flow when the system has capacity. The Koers report does not identify diurnal deficiencies and capacity but comments on daily flows which is standard procedure. The daily flow regime is assumed based on general operating conditions of standard municipal systems. These windows of capacity in the system would enable the release of flow to be controlled to reduce the demand on these pump stations in peak demand periods. The proposed model could respond to the current capacity limitations of the DOU infrastructure and would enable the system to adapt to the updated capacity of each pump station as upgrades are rolled out by the municipality over time.

5. Proposed Sewage Concept

ERIF has advised that DOU has plans for the rollout of infrastructure upgrades and intend for the development to connect to this system. On initial review of the 2024 report, the upgrades would address the Minato developments requirements. ERIF's indicated an objective to address potential timing conflicts in the infrastructure upgrade schedule as it relates to development. The concept would need to be sized and coordinated based on contracted vs planned upgrades. The ERIF objectives were identified as:

- Provide an interim solution to ensure early-stage development can commence if there is any delay to DOU infrastructure upgrades.
- Ensure the system is responsive to the increase in capacity of the DOU infrastructure over time as the proposed upgrades are rolled out;

- To potentially be maintained as an on-site 'back up' system in event of works on the sewer line or extreme demand on local infrastructure capacity, such as high rainfall storm event during the height of tourist season.
- The proposed concept could also serve as a backup sewage management system in the event of peak demand on municipality infrastructure such as wet weather and peak tourist season.

The proposed conceptual sewage design is premised on the expectation that the sewage generated at 221 Minato Road will be feeding into the DOU infrastructure, but will typically be managed with variable release based on available system capacity. Retained sewage would be released based on feedback from the system. Initial overview of the capacity and flows indicated

1. **On Site Storage:** An on-site storage system with capacity to manage deficiencies in capacity for a projected peak days of sewage demand. Detailed flow data from the pump stations would be required to model the diurnal daily limitation and periods of capacity. The size of the collection system and type of users and infiltration and inflow characteristics of the system will determine the diurnal flow pattern. Given the system configuration it is expected that the system would run at full capacity for 2-4 hours two to three times a day. There would generally be significant capacity in pipes and pump station during the night time hours but also during periods during the day. As such storage would not represent a full day average system deficiency storage, but would likely be 20-40% of that amount. This can not be determined at this time without better understanding of the flow data, actual pump runs background flow data. It would also depend on the phase in process of development which is expected to be based on expected infrastructure upgrades. From very preliminary review a starting point might be a 20,000 gallon tank which would be designed to double in height if the development pace vs infrastructure upgrade schedule demands. The parameters for required storage would need to be resolved with the DOU engineering and operational staff, their consultants and the development team to resolve a reasonable level of redundancy that the variable release system would provide. This would need to be reassessed at each level of development. The tank would likely be an above grade glass fused to steel, though epoxy coated steel may be applicable if the service life is known to be short. The tank would be equipped with a variable speed pump, agitation system and odour control system. The system would be designed for low impact with minimal odour concerns due to being a small pump, minimal treatment on site and a short term hold of sewage for the period to off-peak release.
2. **Sewage release:** Release of sewage to the municipality sanitary infrastructure will be variable based on capacities in the system. The preliminary review of the Koers report appears to support in early periods of development that some flow would be allowed at most times. Where inflow exceeds the available outflow it would be detained. During windows of capacity in the system the variable pump would increase flow. In off-peak times significant outflow can be accommodated. There is generally significant capacity available during night periods. Capacity of each element of the system would have to be evaluated to determine the storage required however it is expected. The available release would be updated as downstream infrastructure is updated.
3. **Monitoring Capacity:** To ensure the system is responsive to the capacity of municipality infrastructure, information would have to be provided from the information control system in the existing sanitary system. Generally, this information is obtained using a SCADA system. Koer has indicated some deficiencies in the control and reporting system now form some of the system elements. That system information would be required to actually size and model the variable release concept. The SCADA would typically communicate includes sensors of levels in the wet well, pressure in system, which pumps are functioning and the current flow rates. Operator input can refine the 'comfort zone' for each pump station such as typical demand, flow rate based on their knowledge of the age of the system and other data.
4. **Operation Considerations:** The variable release is seeking to optimize the use of the downstream system. This results in more run hours on the pump, but less overdemand

situations. All systems require down periods for maintenance and repair. These are sometimes scheduled during the current off-peak periods. The storage capacity can be managed to actually assist in flow management to allow for those works.

The concept combines these components of on-site storage, off-peak flow and utilizing the collected data supplied by the municipality's monitoring of their sanitary infrastructure. This model enables the proposed system at 221 Minato Road to be responsive to ensure flow rate and timing is released according to the capacity of the DOU sanitary system, even as it changes over time with planned upgrades.

This concept proposal is based on a similar system used successfully in the Cypress Mountain Ski Resort in District of West Vancouver, which provided a reliable sewage solution for over ten years, while the municipality infrastructure was upgraded utilizing a similar variable release.

6. Conclusions

This memorandum recommends working together to detail a variable release concept with storage that can be increased over time to bridge any peak flow constraints of the system. This could start with upgrades to the existing controls systems and say a 20,000 gallons of storage where release would be tied to capacities in the system and reflect upgrades in the system as they are brought on line. The variable release would be part of the overall system upgrade process and would be reanalyzed at each stage of development. The demand flow has been used from initial review of Koer's 2024 Report, and consideration of the proposed dwellings in ERIF's 2021 Masterplan. The proposed population and residences in Stages 1-4 for ERIF's Masterplan are similar to the flow demand modelled by Koer's for the District Group Masterplan in March 2024 to provide a reasonable starting point to this discussion.

Additional modelling and flow measurement would need to be undertaken to confirm demands, diurnal capacity in the system and level of confidence in scheduling of upgrades. This concept is proposed in parallel to the rollout of infrastructure upgrade planned by the District of Ucluelet. Creus recommends further discussion with DOU and their consultant to formulate a plan to move forward with additional flow monitoring and modelling to determine the extents of the system that would be necessary to provide a reasonable level of redundancy to manage peak flow and over capacity periods in the system.

If you have further questions in this regard, please do not hesitate to contact me

Respectfully yours,

CREUS Engineering Ltd.

Kevin Healy, P.Eng.
Director
Permit to Practice 1001543

Appendix A – Creus Past Projects

Harbourside Waterfront, North Vancouver, BCClient: **Concert Properties and Knightsbridge Properties**

Description: Concert Properties and Knightsbridge Properties are proposing to redevelop the Harbourside waterfront lands in North Vancouver. The proposed development generally consists of 13 residential buildings, 1 rental housing building, 3 office buildings, 1 hotel building, and ground floor commercial components in 5 of the buildings. The project will involve a major redevelopment of the site including re-grading of the existing site roads. The total site area is approximately 4.9ha.



CREUS Member Roles: CREUS is responsible for all the site servicing, roadworks, erosion and sediment control design and monitoring, and Stormwater Management elements of the project.

Categories: Mixed-Use Development, Stormwater, Waterfront

Dollarton Highway, Dollarton Highway, North Vancouver, BCClient: **Noble Holdings**

Description: a 5-acre waterfront residential development on a hillside neighborhood. This project has involved the design, preliminary approvals and detailed design for the 7-lot development.

CREUS Member Roles: CREUS members were the original and continue to be the Engineer of record for all the detailed Civil, sediment and erosion control and Stormwater Management elements of the project and managed the tender and construction of the works and provided inspections on all civil works. CREUS was responsible for the seawall, the concrete pier and private marina, stormwater outfall, as well as foreshore protection. Creus worked with the environmental consultant to mitigate impacts on contaminated sites and avoid requirements for removals of contaminated sediments from historical marine industrial activities on the site.



Categories: Residential, Marine / Environmental

Furry Creek, SLRD, BC

Client: **Tanac Land Developments and Park Lane Homes**

Description: 1,000-acre mixed use waterfront developments on a mountainside with numerous creeks, highway, hydro, rail issues. This project has involved the design of civil services, roads, pump stations, reservoirs, golf course integration, golf course renovations and improvements, approvals and site preparation construction and inspection.

CREUS Member Roles: A CREUS member was the Development Manager during the early portions of the development, directly managing the design, approvals, tendering construction management, subdivision and operational agreements

for roads and services, highway interchange, hydro substation upgrade, fibre optic servicing, water system implementation, sewage treatment plant, sewage outfall, award winning creek and foreshore restoration works, marketing sales centre, show home, member of Advisory Design Panel, subdivision of more than half of the current subdivisions, completion of the golf course and renovations. CREUS members were also involved as Engineer of record for the detailed Civil design, sediment and erosion control and Stormwater Management elements of the last three phases of development

Categories: Project Management, Integrated Mixed Use Development Projects, Highway Works



Appendix A (9) “Development Permit Overview of Application”

Canva Slides Link:

https://www.canva.com/design/DAGO4rcs5fs/hZRtm0s7iluBjicN28-ICQ/view?utm_content=DAGO4rcs5fs&utm_campaign=designshare&utm_medium=link&utm_source=viewer



DWG INDEX - ARCHITECTURAL

SHEET #	TITLE	REV #	DESCRIPTION
101	SCHEDULES - SIP ASSEMBLIES	C	FINAL SCHEMATIC
102	SCHEDULES - MODULE ASSEMBLIES	C	FINAL SCHEMATIC
103	DOOR SCHEDULE + WINDOW SCHEDULE	C	FINAL SCHEMATIC
200	FOUNDATION PLAN	C	FINAL SCHEMATIC
201	COMPLEX - FLOOR PLAN - LEVEL 1	C	FINAL SCHEMATIC
202	COMPLEX - FLOOR PLAN - LEVEL 2	C	FINAL SCHEMATIC
300	ELEVATIONS	C	FINAL SCHEMATIC
301	ELEVATIONS	C	FINAL SCHEMATIC
400	SECTION	C	FINAL SCHEMATIC
401	SECTION	C	FINAL SCHEMATIC
402	SECTION	C	FINAL SCHEMATIC
500	MODULE A ENLARGED	C	FINAL SCHEMATIC
501	MODULE B ENLARGED	C	FINAL SCHEMATIC
600	INTERIOR MILLWORK ELEVATIONS	C	FINAL SCHEMATIC
601	INTERIOR MILLWORK ELEVATIONS	C	FINAL SCHEMATIC

TOTAL # SHEETS: 15



Appendix D - Report 24-219

 <p>STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>		Engineers Seal:	Revision Schedule <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-14</td> </tr> <tr> <td>B</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-20</td> </tr> <tr> <td>C</td> <td>FINAL SCHEMATIC</td> <td>2024-06-28</td> </tr> </tbody> </table> <p><small>NOTES: THIS DRAWING IS THE PROPERTY OF STEENHOF BUILDING SERVICES GROUP. NO PART OF THIS DRAWING IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF STEENHOF BUILDING SERVICES GROUP. THE USER OF THIS DRAWING IS ADVISED THAT THE DRAWING IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION OR AS A BASIS FOR ANY OTHER DESIGN OR CONSTRUCTION WORK. THE USER OF THIS DRAWING IS ADVISED THAT THE DRAWING IS FOR INFORMATIONAL PURPOSES ONLY AND IS NOT TO BE USED FOR CONSTRUCTION OR AS A BASIS FOR ANY OTHER DESIGN OR CONSTRUCTION WORK.</small></p>	No.	Description	Date	A	ISSUE FOR REVIEW	2024-06-14	B	ISSUE FOR REVIEW	2024-06-20	C	FINAL SCHEMATIC	2024-06-28
No.	Description	Date													
A	ISSUE FOR REVIEW	2024-06-14													
B	ISSUE FOR REVIEW	2024-06-20													
C	FINAL SCHEMATIC	2024-06-28													
client name: ERIF SUSTAINABLE SOLUTIONS project name: STANDARD DETAILS		drawing title: COVER SHEET - ARCHITECTURAL													
drawn by: MAE chkd by: RAS date: 2024-06-14 version: RAS rev: C		Drawing No.: 100													
drawing status: PRELIMINARY		all dimensions are in: IMPERIAL (METRIC) scale:													

WALL ASSEMBLY LEGEND - SIP PANELS			
TYPE MARK	WALL ASSEMBLY PLAN VIEW	DESCRIPTION	R-VALUE
S1 EXTERIOR WALL HORIZONTAL SIDING		-EXTERIOR FINISH - HORIZONTAL SIDING -7/16" OSB SHEATHING -5 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE X GWB (25 Min)	23.2
S1a EXTERIOR WALL PANEL SIDING		-EXTERIOR FINISH - PANEL SIDING -7/16" OSB SHEATHING -5 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE X GWB (25 Min)	23.2
S2 6 1/2" INTERIOR WALL - PANEL WALL - DRYWALL BOTH SIDES		-1/2" TYPE X GWB (25 Min) -7/16" OSB SHEATHING -5 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE X GWB (25 Min)	15.4
S2a 4 1/2" INTERIOR WALL - PANEL WALL - DRYWALL BOTH SIDES		-1/2" TYPE -7/16" OSB SHEATHING -3 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE	15.4

FLOOR ASSEMBLY LEGEND			
TYPE MARK	FLOOR ASSEMBLY SECTION VIEW	DESCRIPTION	R-VALUE
F2 FLOOR		-3/4" SHEATHING -2x10 JOISTS @ 16" O.C -5/8" TYPE X GWB	

CEILING ASSEMBLY LEGEND			
TYPE MARK	CEILING ASSEMBLY SECTION VIEW	DESCRIPTION	R-VALUE
C1 CEILING		-1/2" SHEATHING -2x8 JOISTS @ 16" O.C -1/2" DRYWALL, MUD & TAPE.	37.8

ROOF ASSEMBLY LEGEND - SIP PANELS			
TYPE MARK	ROOF ASSEMBLY SECTION VIEW	DESCRIPTION	R-VALUE
R1 ROOF		-7/16" OSB SHEATHING -9 3/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" DRYWALL, MUD & TAPE.	37.8

FLOOR ASSEMBLY LEGEND - SIP PANELS			
TYPE MARK	FLOOR ASSEMBLY - MODULE - SECTION VIEW	DESCRIPTION	R-VALUE
F1 FLOOR		-7/16" OSB SHEATHING -9 3/8" RIGID INSULATION -7/16" OSB SHEATHING	37.8

Appendix D - Report 24-129

STEENHOF Building Services Group
40 Peter Street S.
Orillia, ON L3V 5A9
Tel: 705-325-5400 Fax: 705-325-8400

ERIF Sustainable Solutions

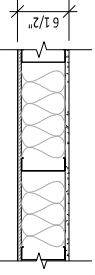
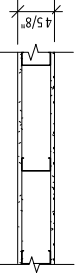
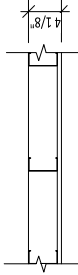
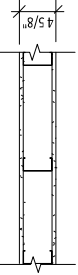
Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

Revision Schedule	
No.	Description
A	ISSUE FOR REVIEW
B	ISSUE FOR REVIEW
C	FINAL SCHEMATIC



client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	STANDARD DETAILS
description:	
project no.:	240185
drawing status:	PRELIMINARY

drawing title:	SCHEDULES - SIP ASSEMBLIES
all dimensions are in:	IMPERIAL (METRIC)
scale:	3/4" = 1'-0"

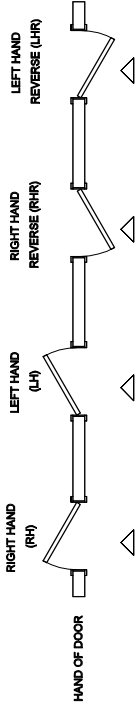
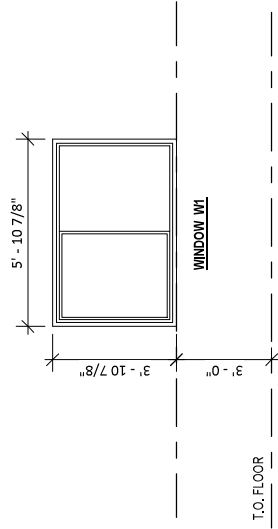
drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	101

WALL ASSEMBLY LEGEND - MODULE		
TYPE MARK	WALL ASSEMBLY PLAN VIEW	DESCRIPTION
M1 NEXUS MODULE - EXTERIOR WALL		-1/2" PLYWOOD SHEATHING -5 1/2" STEEL STUD -R22 BATT INSULATION -1/2" TYPE X GWB (25 Min)
M2 INTERIOR MODULE WALL - PERIMETER		-1/2" TYPE X GWB -3 5/8" STEEL STUD -1/2" TYPE X GWB
M2a INTERIOR MODULE WALL (DRYWALL ON ONE SIDE)		-3 5/8" STEEL STUD -1/2" TYPE X GWB
M3 INTERIOR MODULE WALL - INTERIOR		-1/2" TYPE X GWB -3 5/8" STEEL STUD -1/2" TYPE X GWB

Appendix D - Report 24-129

 <p>STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>		<p>Engineers Seal:</p>	<p>Revision Schedule</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-14</td> </tr> <tr> <td>B</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-20</td> </tr> <tr> <td>C</td> <td>FINAL SCHEMATIC</td> <td>2024-06-28</td> </tr> </tbody> </table>		No.	Description	Date	A	ISSUE FOR REVIEW	2024-06-14	B	ISSUE FOR REVIEW	2024-06-20	C	FINAL SCHEMATIC	2024-06-28	<p>client name: ERIF SUSTAINABLE SOLUTIONS</p> <p>project name: STANDARD DETAILS</p> <p>description:</p> <p>project no.: 240185</p> <p>drawing status: PRELIMINARY</p>	<p>drawing title: SCHEDULES - MODULE ASSEMBLIES</p> <p>drawn by: MAE</p> <p>chkd by: RAS</p> <p>date: 2024-06-14</p> <p>version: RAS</p> <p>rev: C</p> <p>Drawing No.:</p>
			No.	Description	Date													
A	ISSUE FOR REVIEW	2024-06-14																
B	ISSUE FOR REVIEW	2024-06-20																
C	FINAL SCHEMATIC	2024-06-28																
<p>all dimensions are in: IMPERIAL (METRIC)</p> <p>scale: 3/4" = 1'-0"</p>			<p>102</p>															

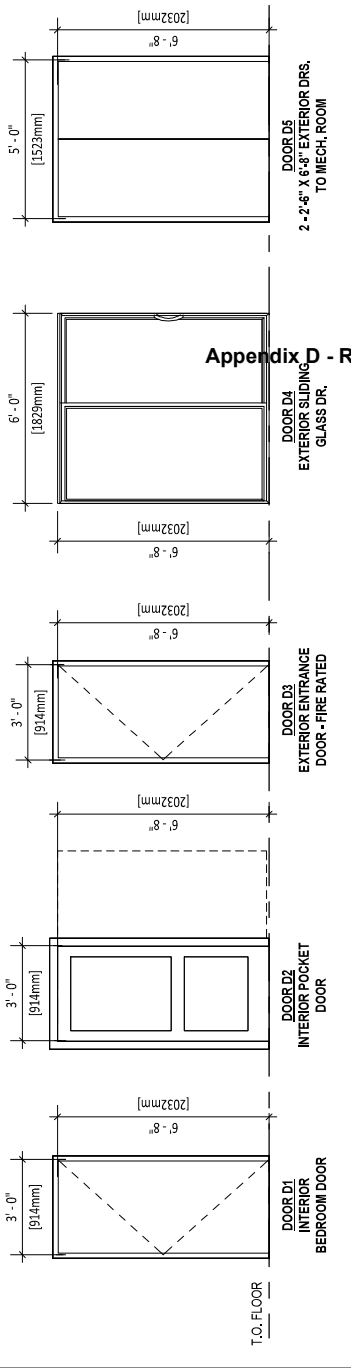
WINDOW TYPES:



WINDOW SCHEDULE			
Type Mark	COUNT	WINDOW SIZE	
		WIDTH	HEIGHT
W1	14	5' - 10.13/16"	3' - 10.13/16"
Grand total: 14			

DOOR NUMBER	COUNT	DOOR SIZE		Comments
		WIDTH	HEIGHT	
D1	8	3' - 0"	6' - 8"	BEDROOM DOOR
D2	12	3' - 0"	6' - 8"	POCKET DOOR
D3	6	3' - 0"	6' - 8"	ENTRANCE DR. - FIRE RATED
D4	4	6' - 0"	6' - 8"	SLIDING PATIO DOOR
D5	4	5' - 0"	6' - 8"	2-2'-6" X 6'-8" DOORS
Grand total: 34				

DOOR TYPES:



Appendix D - Report 24-0228

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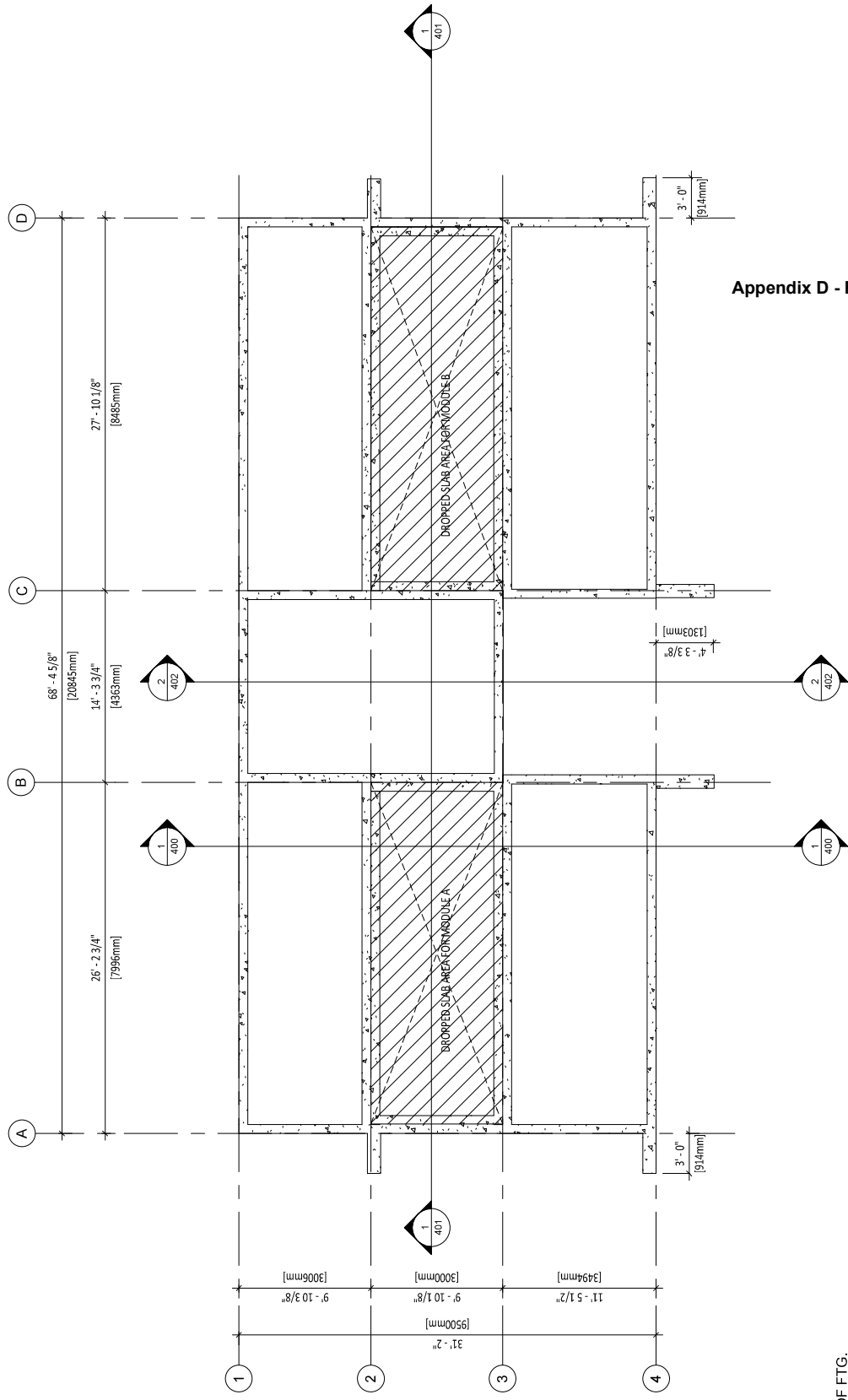
Engineers Seal:

Revision Schedule		
No.	Description	Date
A	ISSUE FOR REVIEW	2024-06-14
B	ISSUE FOR REVIEW	2024-06-20
C	FINAL SCHEMATIC	2024-06-28

client name: **ERIF SUSTAINABLE SOLUTIONS**
 project name: **STANDARD DETAILS**
 description:
 project no.: 240185
 drawing status: **PRELIMINARY**

drawing title: **DOOR SCHEDULE + WINDOW SCHEDULE**
 all dimensions are in: **IMPERIAL (METRIC)**
 scale: **As Indicated**

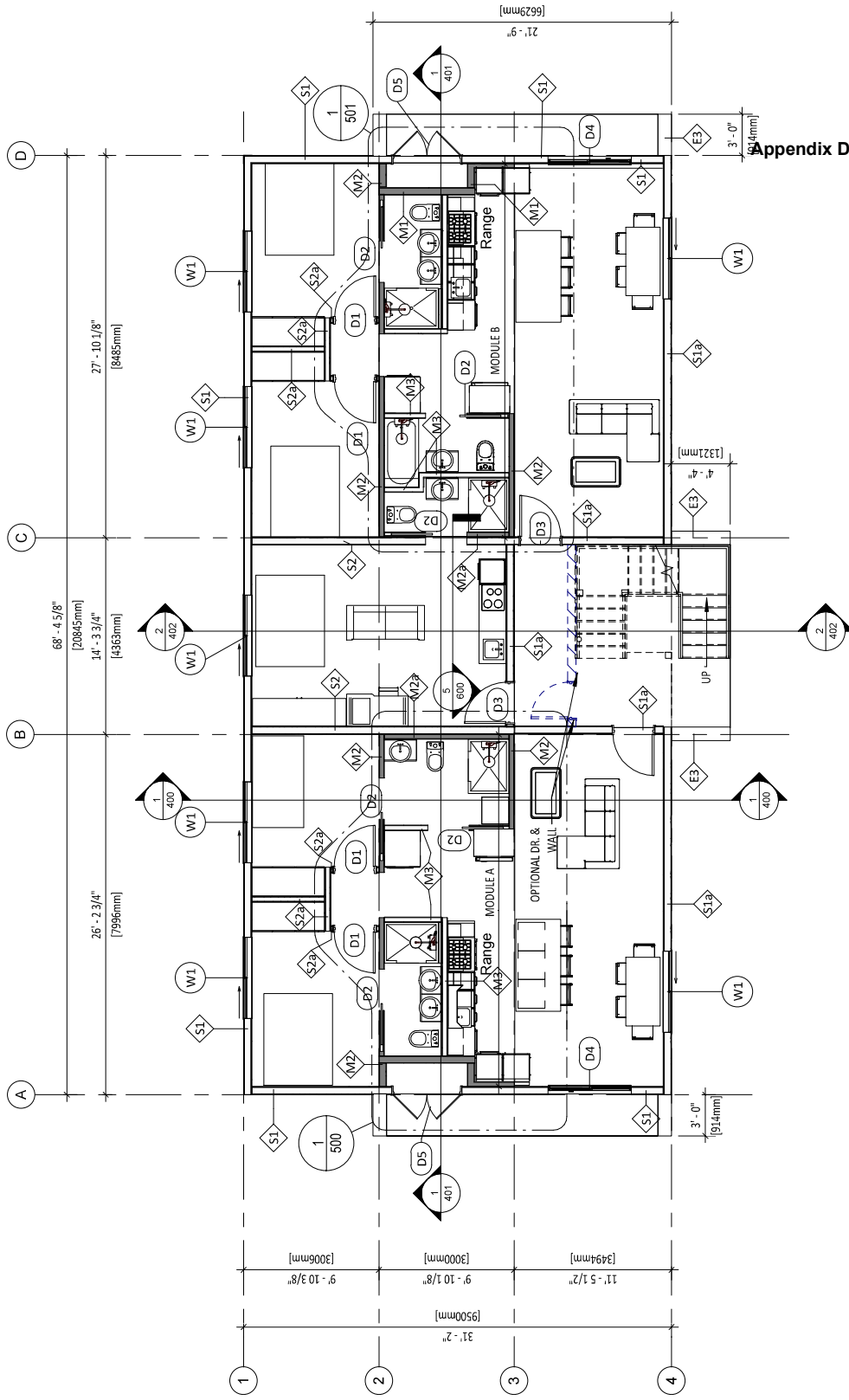
drawn by: MAE
 chkd by: RAS
 date: 2024-06-14
 version: RAS
 rev: C
 Drawing No.: **103**



Appendix D - Report 24-10

1 TOP OF FTG.
1/8" = 1'-0"

<p>STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>		<p>Engineers Seal:</p>		<p>client name: ERIF SUSTAINABLE SOLUTIONS project name: STANDARD DETAILS</p>		<p>drawing title: FOUNDATION PLAN</p>		<p>drawn by: MAE chkd by: RAS date: 2024-06-14</p>											
		<p>Revision Schedule</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-14</td> </tr> <tr> <td>B</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-20</td> </tr> <tr> <td>C</td> <td>FINAL SCHEMATIC</td> <td>2024-06-28</td> </tr> </tbody> </table>		No.	Description	Date	A	ISSUE FOR REVIEW	2024-06-14	B	ISSUE FOR REVIEW	2024-06-20	C	FINAL SCHEMATIC	2024-06-28	<p>description: 240185 project no.: 240185</p>		<p>version: RAS rev: C Drawing No.: 200</p>	
		No.	Description	Date															
A	ISSUE FOR REVIEW	2024-06-14																	
B	ISSUE FOR REVIEW	2024-06-20																	
C	FINAL SCHEMATIC	2024-06-28																	
<p>PRELIMINARY</p>				<p>all dimensions are in: IMPERIAL (METRIC) scale: 1/8" = 1'-0"</p>															



1 LEVEL 1 - T.O. FLOOR
1/8" = 1'-0"

Appendix D - Report 24-129

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	

client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	COMPLEX FLOOR PLAN - LEVEL 1
description:	STANDARD DETAILS
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in:	IMPERIAL (METRIC)
scale:	1/8" = 1'-0"

Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

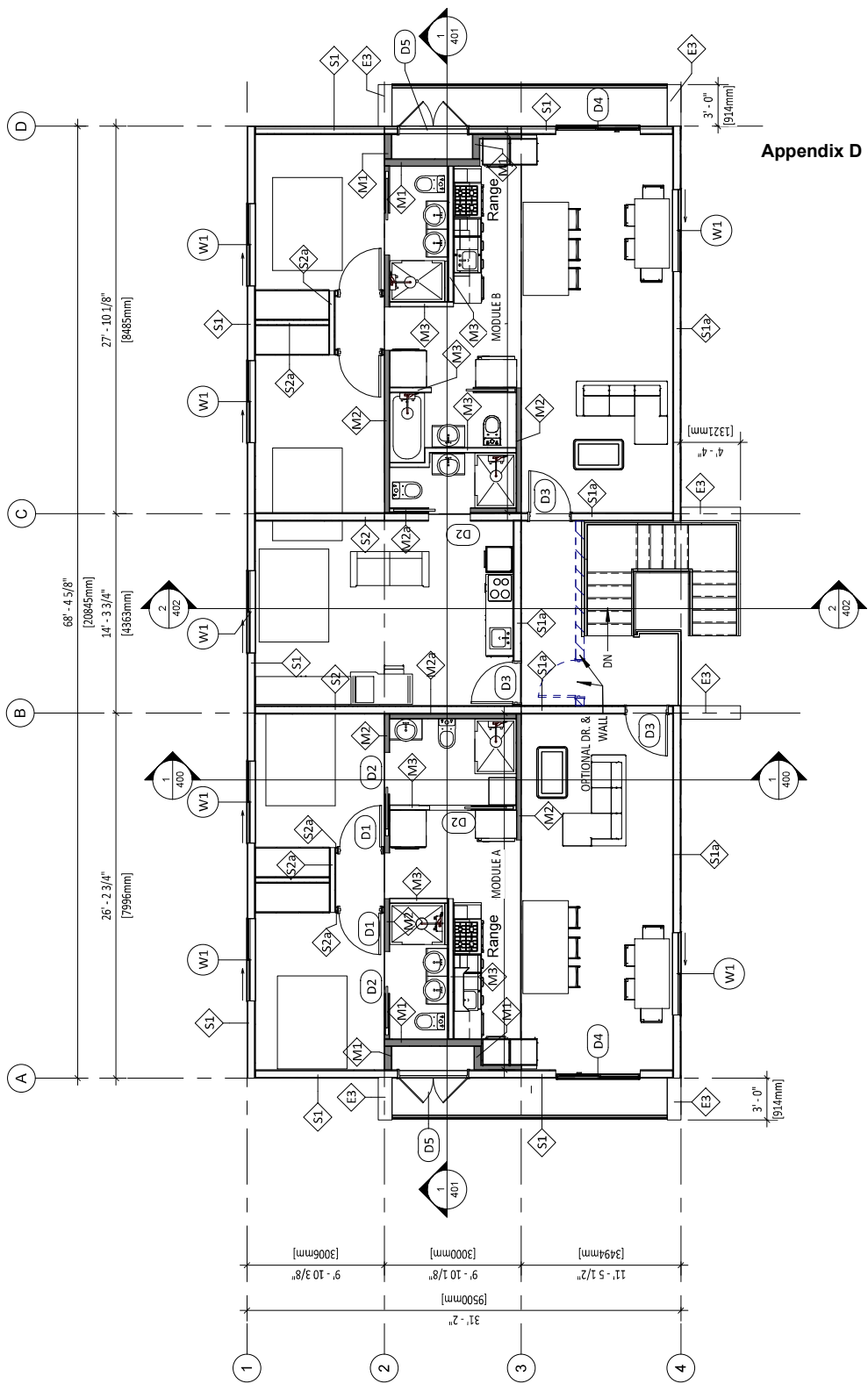
Revision Schedule	
No.	Description
A	ISSUE FOR REVIEW
B	ISSUE FOR REVIEW
C	FINAL SCHEMATIC

Engineers Seal:



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LEVEL 2 - T.O. FLOOR
1/8" = 1'-0"

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Engineers Seal:

Revision Schedule	
No.	Description
A	ISSUE FOR REVIEW
B	ISSUE FOR REVIEW
C	FINAL SCHEMATIC

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 project name: **STANDARD DETAILS**
 description:
 project no.: 240185
 drawing status: **PRELIMINARY**

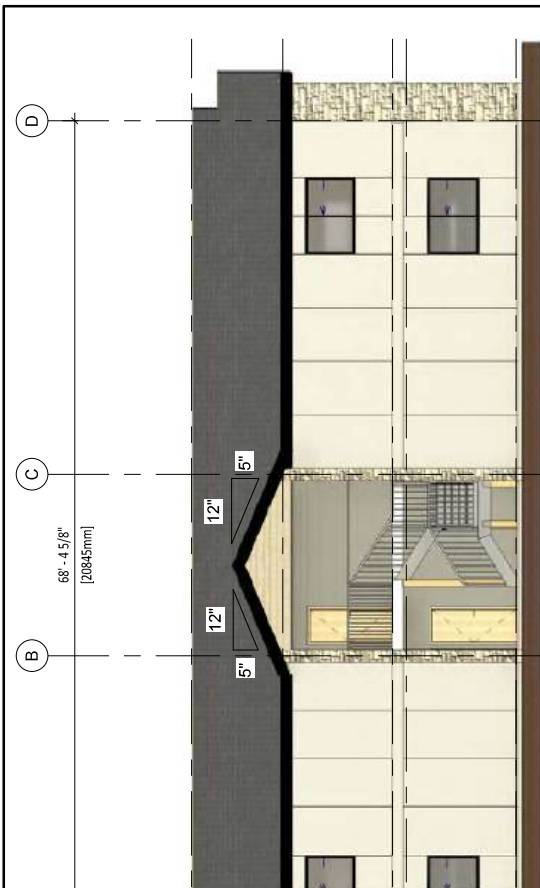
drawing title: **COMPLEX FLOOR PLAN - LEVEL 2**

drawn by: MAE
 chkd by: RAS
 date: 2024-06-14
 version: RAS
 rev: C
 Drawing No.: 202

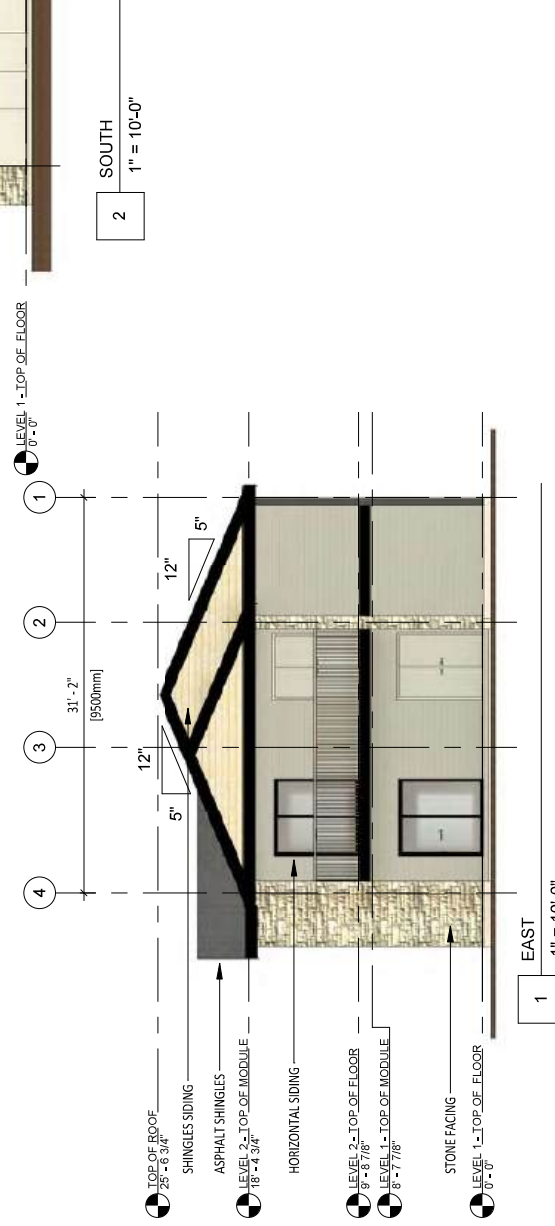
all dimensions are in: IMPERIAL (METRIC)
 scale: 1/8" = 1'-0"

Appendix D - Report 24-129

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2 SOUTH
1" = 10'-0"



1 EAST
1" = 10'-0"

Appendix D - Report 24-109

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	

client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	STANDARD DETAILS
description:	
project no.:	240185
drawing status:	PRELIMINARY

Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

PRELIMINARY

all dimensions are in: IMPERIAL (METRIC)
scale: 1" = 10'-0"

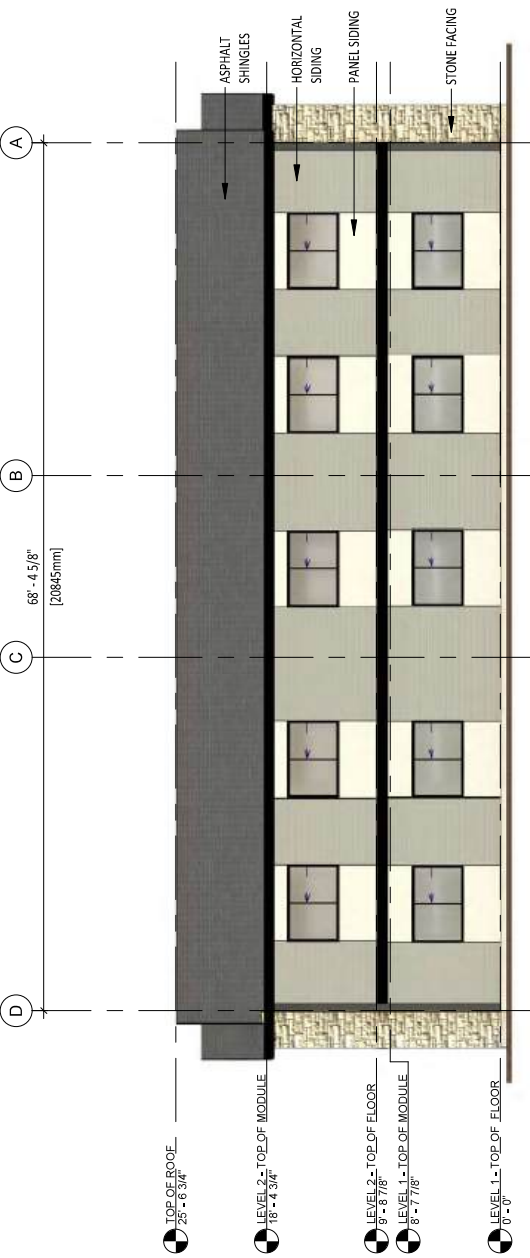
client name: ERIF SUSTAINABLE SOLUTIONS
drawing title: ELEVATIONS

ERIF Sustainable Solutions

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Engineers Seal:

300



Appendix D - Report 24-109

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	301

client name: **ERIF SUSTAINABLE SOLUTIONS**
 drawing title: **ELEVATIONS**
 project name: STANDARD DETAILS
 description:
 project no.: 240185
 drawing status: **PRELIMINARY**

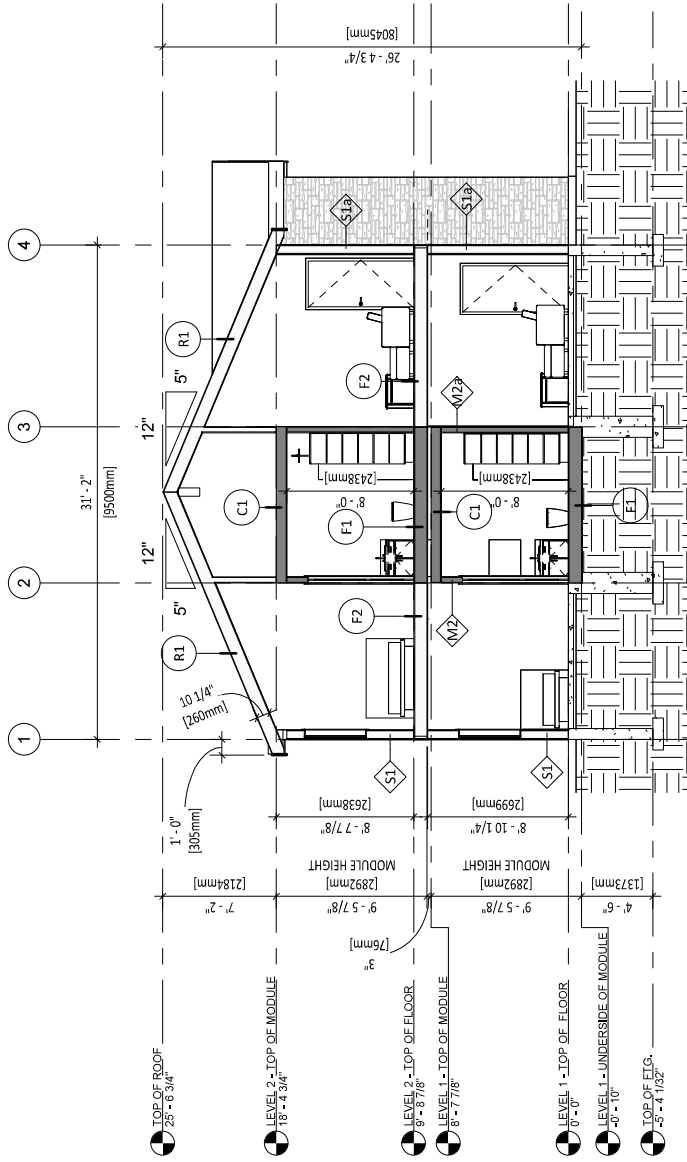
Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

description:
 project no.: 240185
 drawing status: **PRELIMINARY**

all dimensions are in: IMPERIAL (METRIC)
 scale: 1" = 10'-0"



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1 SECTION 1
1/8" = 1'-0"

Appendix D - Report 24-129

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	400

drawing title:
SECTION

client name:
ERIF SUSTAINABLE SOLUTIONS

project name: STANDARD DETAILS

description:

project no.: 240185

drawing status:
PRELIMINARY

all dimensions are in: IMPERIAL (METRIC)
scale: 1/8" = 1'-0"

Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

Engineers Seal:

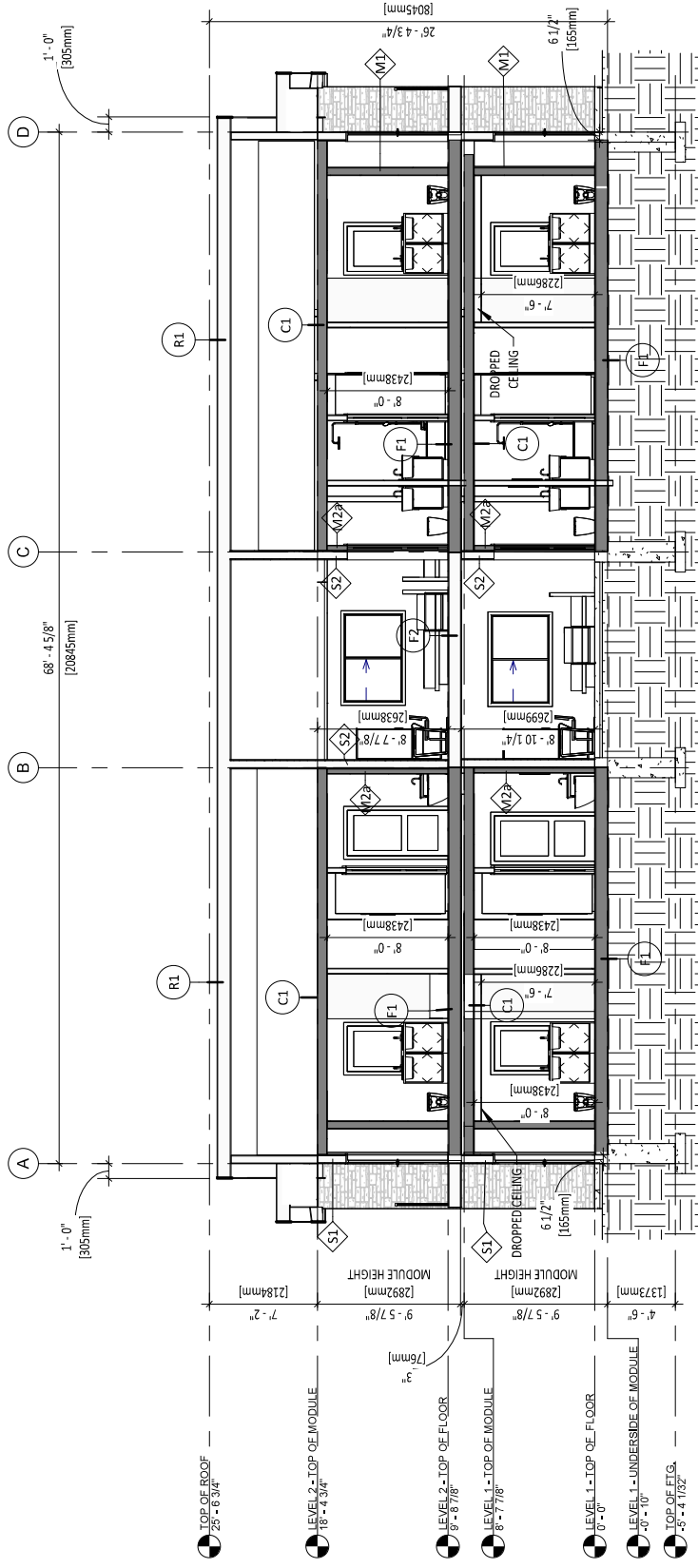
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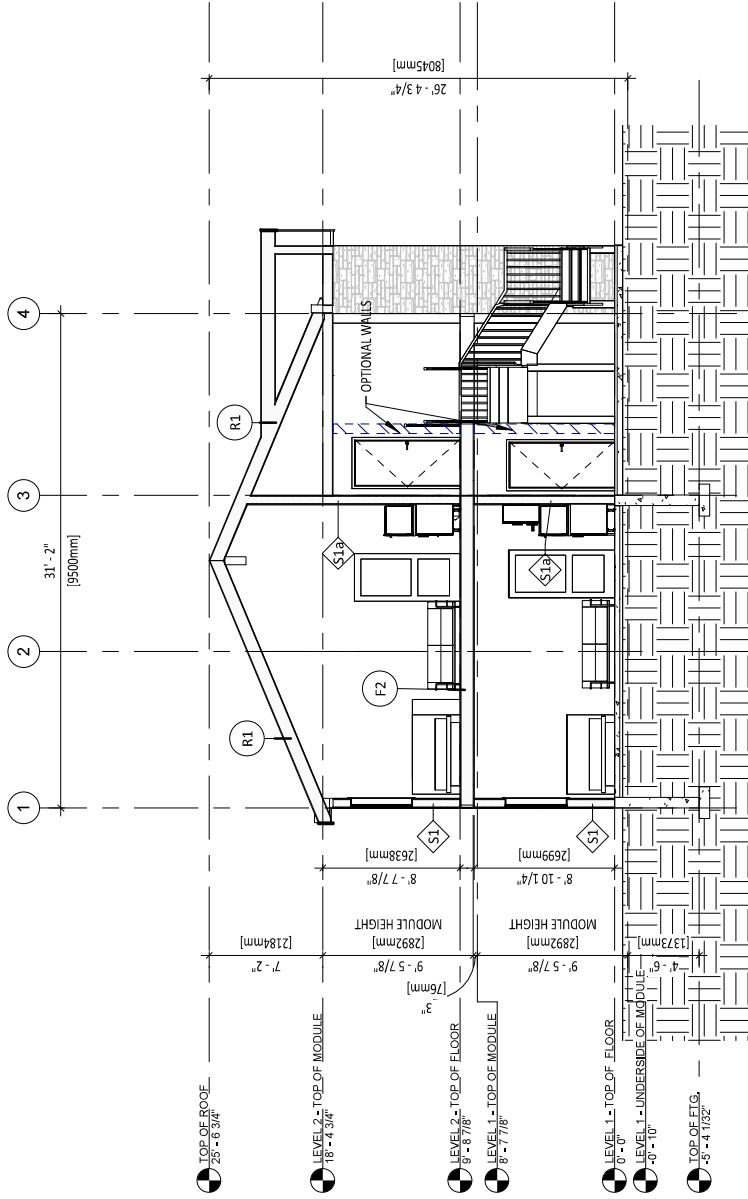
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SECTION 2
1/8" = 1'-0"

Appendix D - Report 24-129

 <p>STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>				<p>Engineers Seal:</p>		<table border="1"> <thead> <tr> <th colspan="2">Revision Schedule</th> </tr> <tr> <th>No.</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUE FOR REVIEW</td> </tr> <tr> <td>B</td> <td>ISSUE FOR REVIEW</td> </tr> <tr> <td>C</td> <td>FINAL SCHEMATIC</td> </tr> </tbody> </table>		Revision Schedule		No.	Description	A	ISSUE FOR REVIEW	B	ISSUE FOR REVIEW	C	FINAL SCHEMATIC	<p>client name: ERIF SUSTAINABLE SOLUTIONS project name: STANDARD DETAILS description: project no.: 240185</p>		<p>drawing title: SECTION</p>		<p>drawn by: MAE chkd by: RAS date: 2024-06-14 version: RAS rev: C Drawing No.: 401</p>	
Revision Schedule																							
No.	Description																						
A	ISSUE FOR REVIEW																						
B	ISSUE FOR REVIEW																						
C	FINAL SCHEMATIC																						
<p>all dimensions are in: IMPERIAL (METRIC) scale: 1/8" = 1'-0"</p>						<p>PRELIMINARY</p>		<p>drawing status: 240185</p>		<p>drawing No.: 401</p>													



SECTION 3
1/8" = 1'-0"

Appendix D - Report 24-129

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	

client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	STANDARD DETAILS
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in:	IMPERIAL [METRIC]
scale:	1/8" = 1'-0"

Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

No.	Description	Date
A	ISSUE FOR REVIEW	2024-06-14
B	ISSUE FOR REVIEW	2024-06-20
C	FINAL SCHEMATIC	2024-06-28

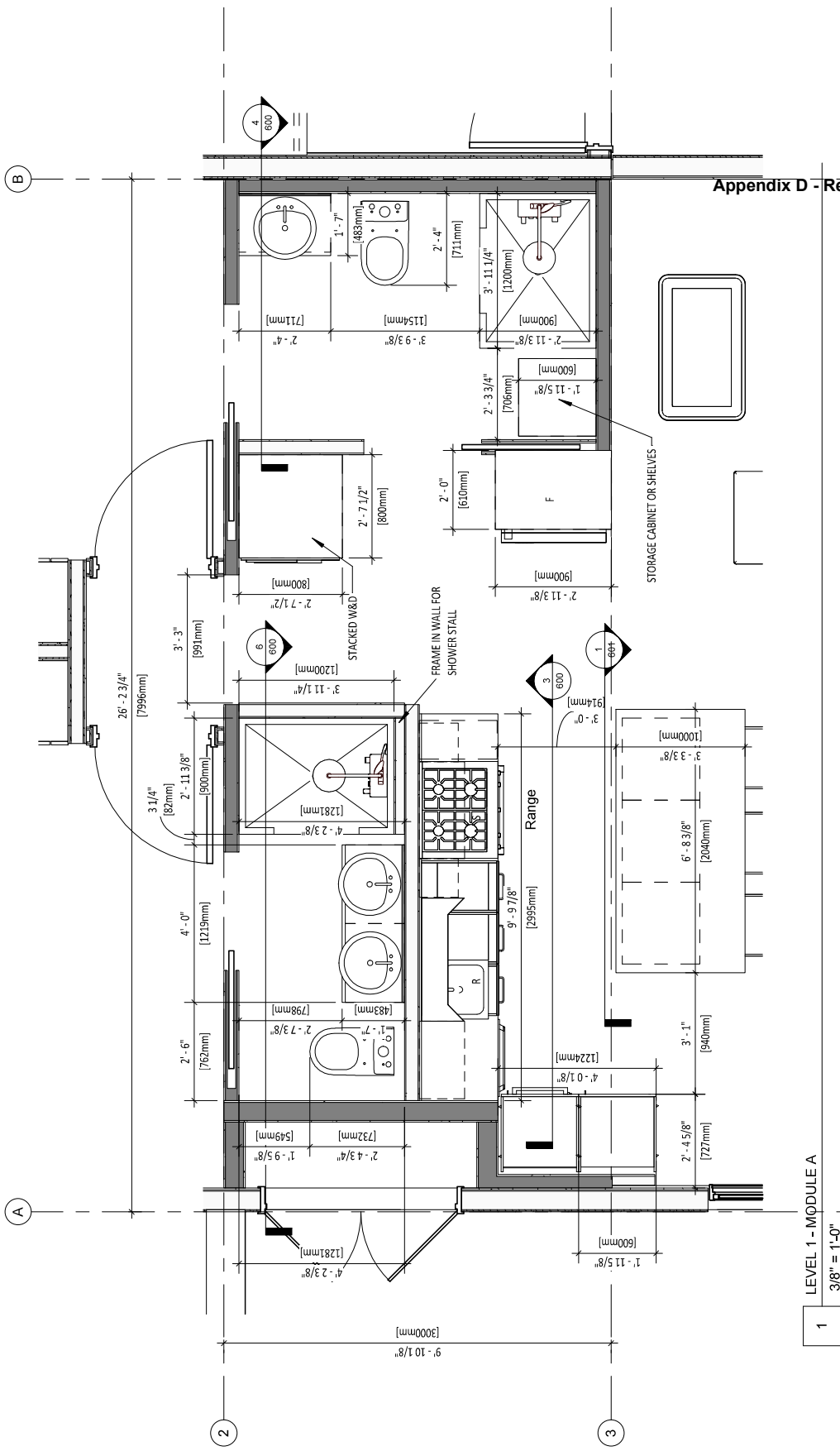
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1 LEVEL 1 - MODULE A
3/8" = 1'-0"

Appendix D - Report 24-183

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	500

client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	STANDARD DETAILS
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in: IMPERIAL (METRIC)	
scale: 3/8" = 1'-0"	

No.	Description	Date
A	ISSUE FOR REVIEW	2024-06-14
B	ISSUE FOR REVIEW	2024-06-20
C	FINAL SCHEMATIC	2024-06-28

Revision Schedule

Engineers Seal:

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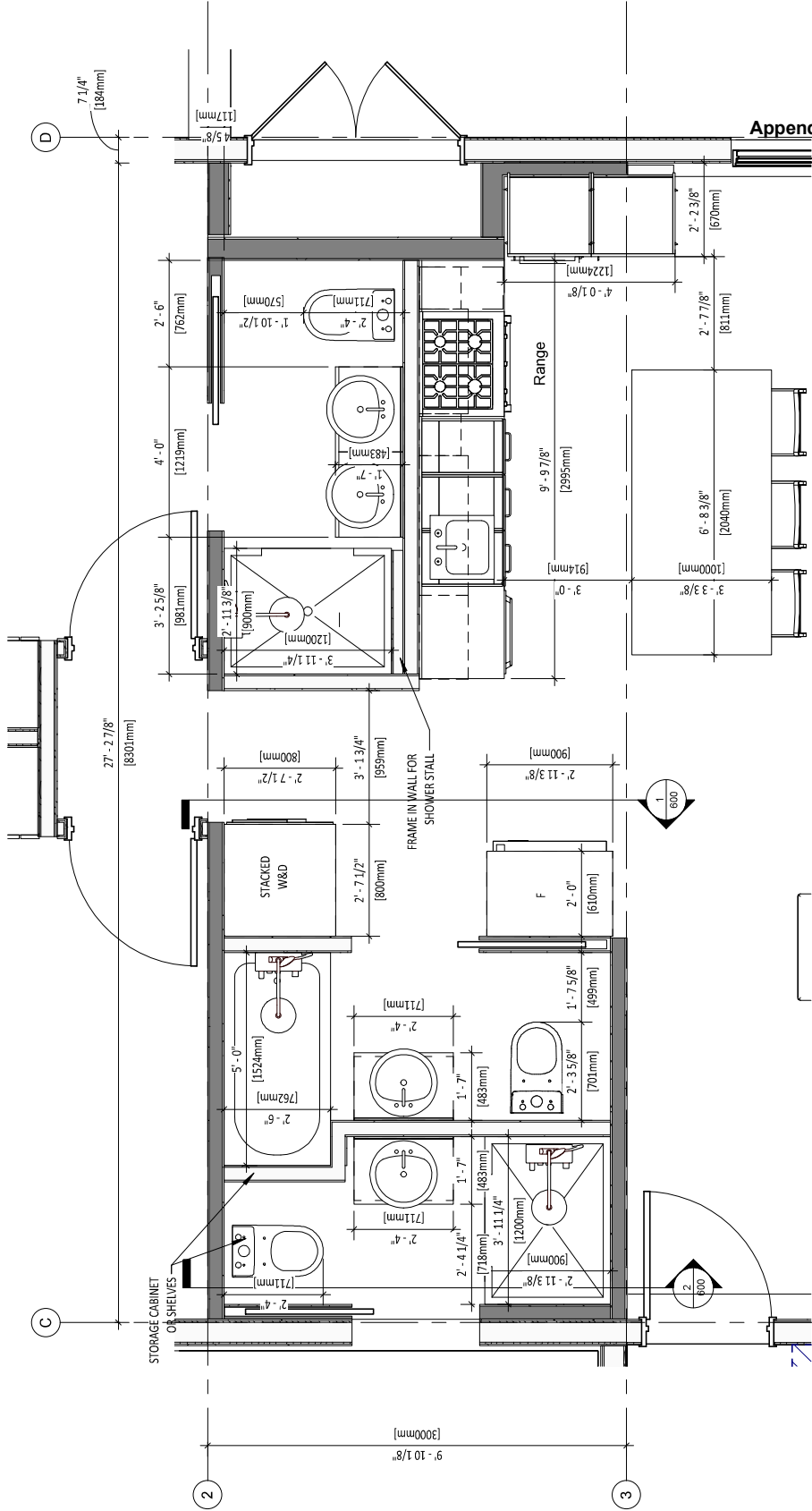
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1 LEVEL 1 - MODULE B

3/8" = 1'-0"

Appendix D - Report 24-18

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	C
Drawing No.:	501

drawing title:	MODULE B ENLARGED
client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	STANDARD DETAILS
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in:	IMPERIAL (METRIC)
scale:	3/8" = 1'-0"

Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

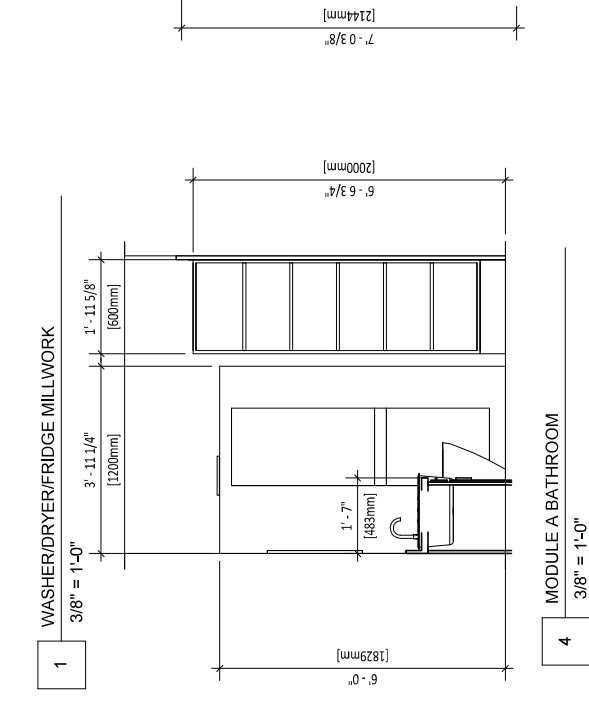
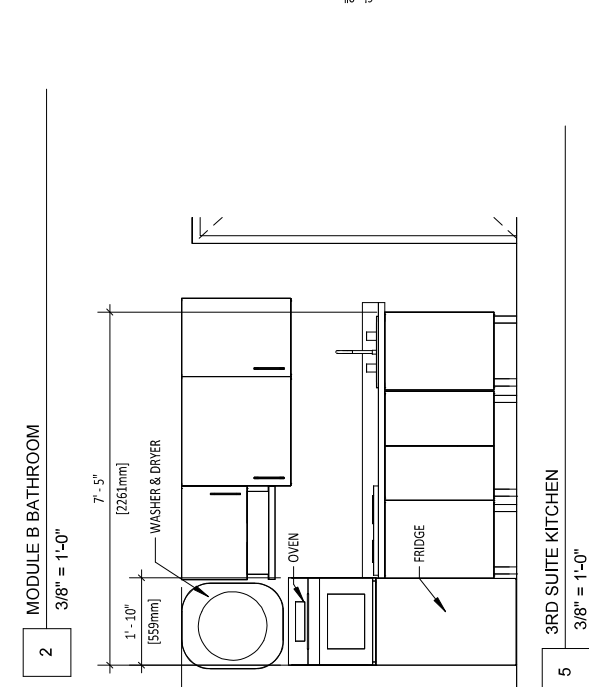
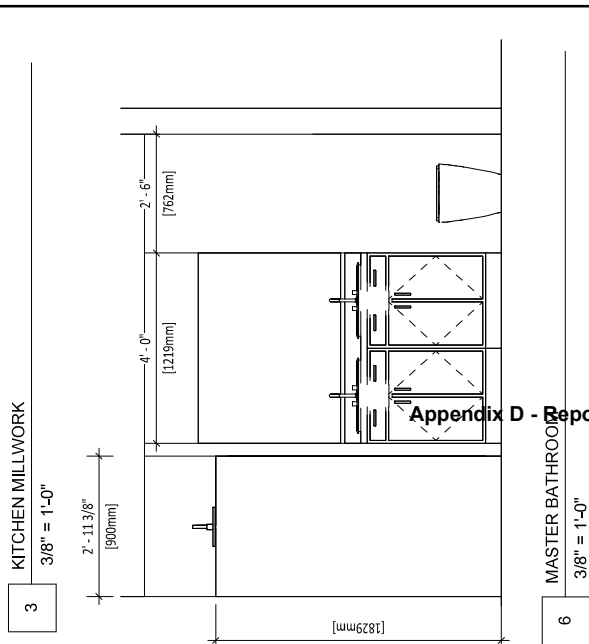
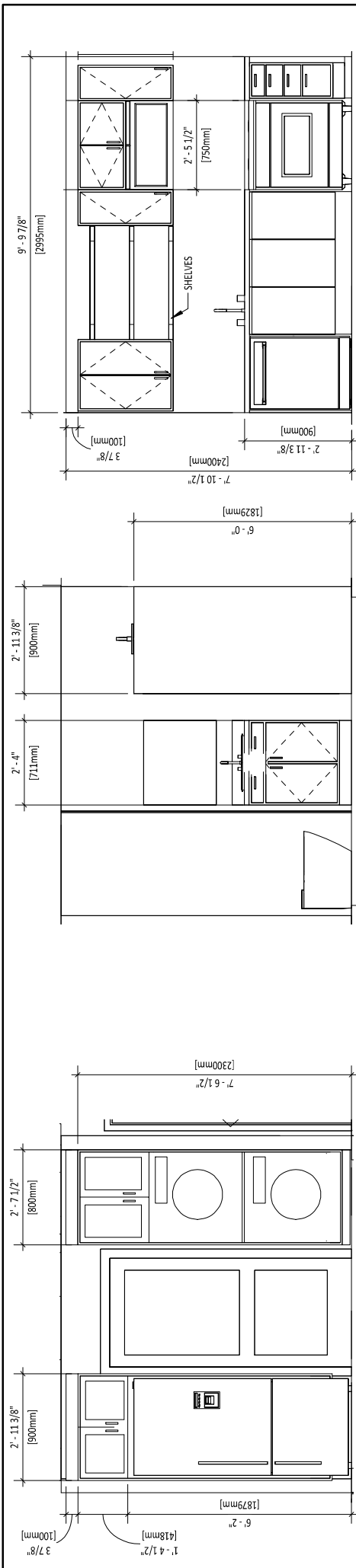
Revision Schedule	
Description	Date
ISSUE FOR REVIEW	2024-06-14
ISSUE FOR REVIEW	2024-06-20
FINAL SCHEMATIC	2024-06-28

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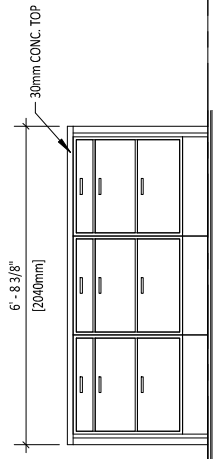


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Appendix D - Report 24-0129

<p>STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>				<p>client name: ERIF SUSTAINABLE SOLUTIONS</p> <p>project name: STANDARD DETAILS</p> <p>description: INTERIOR MILLWORK ELEVATIONS</p> <p>project no.: 240185</p> <p>drawing status: PRELIMINARY</p> <p>all dimensions are in: IMPERIAL (METRIC) scale: 3/8" = 1'-0"</p>		<p>drawn by: MAE</p> <p>chkd by: RAS</p> <p>date: 2024-06-14</p> <p>version: RAS</p> <p>rev: C</p> <p>Drawing No.: 600</p>													
<p>Engineers Seal:</p>		<p>Revision Schedule</p> <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-14</td> </tr> <tr> <td>B</td> <td>ISSUE FOR REVIEW</td> <td>2024-06-20</td> </tr> <tr> <td>C</td> <td>FINAL SCHEMATIC</td> <td>2024-06-28</td> </tr> </tbody> </table> <p><small>DISCLAIMER: THIS DRAWING IS THE PROPERTY OF STEENHOF BUILDING SERVICES GROUP. IT IS TO BE USED ONLY FOR THE PROJECT AND SITE SPECIFICALLY IDENTIFIED IN THE TITLE BLOCK. ANY REUSE OR MODIFICATION OF THIS DRAWING WITHOUT THE WRITTEN PERMISSION OF STEENHOF BUILDING SERVICES GROUP IS STRICTLY PROHIBITED.</small></p>		No.	Description	Date	A	ISSUE FOR REVIEW	2024-06-14	B	ISSUE FOR REVIEW	2024-06-20	C	FINAL SCHEMATIC	2024-06-28	<p>drawing title: MASTER BATHROOM</p> <p>scale: 3/8" = 1'-0"</p>		<p>drawing title: 3RD SUITE KITCHEN</p> <p>scale: 3/8" = 1'-0"</p>	
No.	Description	Date																	
A	ISSUE FOR REVIEW	2024-06-14																	
B	ISSUE FOR REVIEW	2024-06-20																	
C	FINAL SCHEMATIC	2024-06-28																	



LEVEL 1 - TOP OF FLOOR
0'-0"

ISLAND ELEVATION

3/8" = 1'-0"

1

Appendix D - Report 24-129

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Orillia, ON L3V 5A9
Tel: 705-325-5400 Fax: 705-325-8400

ERIF Sustainable Solutions

Engineers Seal:

Revision Schedule	
No.	Date
A	2024-06-14
B	2024-06-20
C	2024-06-28

ISSUES: NO DIMENSIONS OR MATERIALS SPECIFIED IN THE DRAWING SHALL BE ASSUMED TO BE THE SAME AS THE DIMENSIONS OR MATERIALS SPECIFIED IN THE PREVIOUS EDITION UNLESS OTHERWISE NOTED. THE CLIENT IS RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED IN THIS DRAWING. THE ENGINEER'S LIABILITY IS LIMITED TO THE PROFESSIONAL SERVICES PROVIDED HEREIN.

client name: **ERIF SUSTAINABLE SOLUTIONS**
 project name: STANDARD DETAILS
 description:
 project no.: 240185
 drawing status: **PRELIMINARY**

drawing title: **INTERIOR MILLWORK ELEVATIONS**
 all dimensions are in: IMPERIAL (METRIC)
 scale: 3/8" = 1'-0"

drawn by: MAE
 chkd by: RAS
 date: 2024-06-14
 version: RAS
 rev: C
 Drawing No.: **601**



DWG INDEX - ARCHITECTURAL

SHEET #	TITLE	REV #	DESCRIPTION
101	SCHEDULES - SIP ASSEMBLIES	A	ISSUE FOR REVIEW
102	SCHEDULES - MODULE ASSEMBLIES	A	ISSUE FOR REVIEW
103	DOOR SCHEDULE + WINDOW SCHEDULE	A	ISSUE FOR REVIEW
200	FOUNDATION PLAN	A	ISSUE FOR REVIEW
201	COMPLEX - FLOOR PLAN - LEVEL 1	A	ISSUE FOR REVIEW
202	COMPLEX - FLOOR PLAN - LEVEL 2	A	ISSUE FOR REVIEW
300	ELEVATIONS	A	ISSUE FOR REVIEW
301	ELEVATIONS	A	ISSUE FOR REVIEW
400	SECTION	A	ISSUE FOR REVIEW
401	SECTION	A	ISSUE FOR REVIEW
402	SECTION	A	ISSUE FOR REVIEW
500	MODULE A ENLARGED	A	ISSUE FOR REVIEW
501	MODULE B ENLARGED	A	ISSUE FOR REVIEW
502	MODULE C ENLARGED	A	ISSUE FOR REVIEW
600	INTERIOR MILLWORK ELEVATIONS	A	ISSUE FOR REVIEW

TOTAL # SHEETS: 15



Appendix D - Report 24-0229

 <p>STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>		Engineers Seal:	Revision Schedule <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUE FOR REVIEW</td> <td>2024-07-4</td> </tr> </tbody> </table>	No.	Description	Date	A	ISSUE FOR REVIEW	2024-07-4
No.	Description	Date							
A	ISSUE FOR REVIEW	2024-07-4							
client name: ERIF SUSTAINABLE SOLUTIONS project name: BALD EAGLE 3 description:		drawing title: COVER SHEET - ARCHITECTURAL							
drawing no.: 240185 drawing status: PRELIMINARY		all dimensions are in: IMPERIAL (METRIC) scale:							
drawn by: MAE chkd by: RAS date: 2024-06-14 version: RAS rev: A Drawing No.:		100							

WALL ASSEMBLY LEGEND - SIP PANELS		R-VALUE
<p>S1</p> <p>EXTERIOR WALL HORIZONTAL SIDING</p>	<p>WALL ASSEMBLY PLAN VIEW</p> <p>EXTERIOR FINISH - HORIZONTAL SIDING -7/16" OSB SHEATHING -5 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE X GWB (25 Min)</p>	23.2
<p>S1a</p> <p>EXTERIOR WALL PANEL SIDING</p>	<p>EXTERIOR FINISH - PANEL SIDING -7/16" OSB SHEATHING -5 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE X GWB (25 Min)</p>	23.2
<p>S2</p> <p>6 1/2" INTERIOR WALL - DRYWALL BOTH SIDES</p>	<p>-1/2" TYPE X GWB (25 Min) -7/16" OSB SHEATHING -5 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE X GWB (25 Min)</p>	
<p>S2a</p> <p>4 1/2" INTERIOR WALL - DRYWALL BOTH SIDES</p>	<p>-1/2" TYPE X GWB (25 Min) -7/16" OSB SHEATHING -3 5/8" RIGID INSULATION -7/16" OSB SHEATHING -1/2" TYPE X GWB (25 Min)</p>	15.4

CEILING ASSEMBLY LEGEND		
<p>C1</p> <p>CEILING</p>	<p>-1/2" SHEATHING -2x8 JOISTS @ 16" O.C. -1/2" DRYWALL, MUD & TAPE.</p>	37.8
ROOF ASSEMBLY LEGEND - SIP PANELS		
<p>R1</p> <p>ROOF</p>	<p>-7/16" SHEATHING -9 3/8" RIGID INSULATION -7/16" SHEATHING -1/2" DRYWALL, MUD & TAPE.</p>	37.8

FLOOR ASSEMBLY LEGEND		
<p>F1</p> <p>FLOOR</p>	<p>-7/16" OSB SHEATHING -9 3/8" RIGID INSULATION -7/16" SHEATHING</p>	37.8
<p>F2</p> <p>FLOOR</p>	<p>-3/4" SHEATHING -2x10 JOISTS @ 16" O.C. -5/8" TYPE X GWB</p>	R-VALUE

Appendix D - Report 24-129

STEENHOF Building Services Group
 40 Peter Street S.
 Orillia, ON L3V 5A9
 Tel: 705-325-5400 Fax: 705-325-8400

ERIF Sustainable Solutions

Engineers Seal:

No.	Description	Date
A	ISSUE FOR REVIEW	2024-07-4

Revision Schedule

No.	Description	Date
A	ISSUE FOR REVIEW	2024-07-4

client name: **ERIF SUSTAINABLE SOLUTIONS**
 project name: **BALD EAGLE 3**
 description:
 project no.: **240185**

drawing title: **SCHEDULES - SIP ASSEMBLIES**

drawn by: MAE
 chkd by: RAS
 date: 2024-06-14
 version: RAS
 rev: A
 Drawing No.:

all dimensions are in: **IMPERIAL (METRIC)**
 scale: **3/4" = 1'-0"**

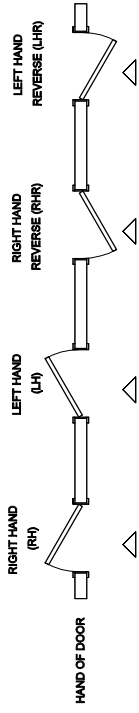
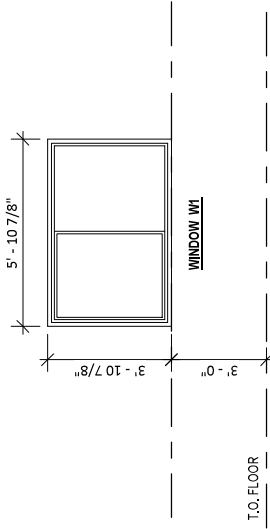
drawing status: **PRELIMINARY**

WALL ASSEMBLY LEGEND - MODULE		
TYPE MARK	WALL ASSEMBLY PLAN VIEW	DESCRIPTION
M1 NEXUS MODULE - EXTERIOR WALL		-1/2" PLYWOOD SHEATHING -5/1/2" STEEL STUD -R22 BAT INSULATION -1/2" TYPE X GWB (25 Min)
M2 INTERIOR MODULE WALL - PERIMETER		-1/2" TYPE X GWB -3/5/8" STEEL STUD -1/2" TYPE X GWB
M2a INTERIOR MODULE WALL (DRYWALL ON ONE SIDE)		-3/5/8" STEEL STUD -1/2" TYPE X GWB
M3 INTERIOR MODULE WALL - INTERIOR		-1/2" TYPE X GWB -3/5/8" STEEL STUD -1/2" TYPE X GWB
M4 SUITE PARTITION WALL		-1/2" TYPE X GWB -3/5/8" STEEL STUD STAGGERED -R22 BAT INSULATION -1/2" TYPE X GWB

Appendix D - Report 24-129

 STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400	 ERIF Sustainable Solutions	Engineers Seal:	Revision Schedule	
			No.	Date
		Description		2024-07-4
		A ISSUE FOR REVIEW		
		project no.: 240185		
		drawing status: PRELIMINARY		
		drawing title: SCHEDULE 5 - MODULE ASSEMBLIES		
		client name: ERIF SUSTAINABLE SOLUTIONS		
		project name: BALD EAGLE 3		
		description:		
		drawing title: SCHEDULE 5 - MODULE ASSEMBLIES		
		all dimensions are in: IMPERIAL (METRIC)		
		scale: 3/4" = 1'-0"		
		drawing No.:		102
		drawn by: MAE		
		chkd by: RAS		
		date: 2024-06-14		
		version: RAS		
		rev: A		

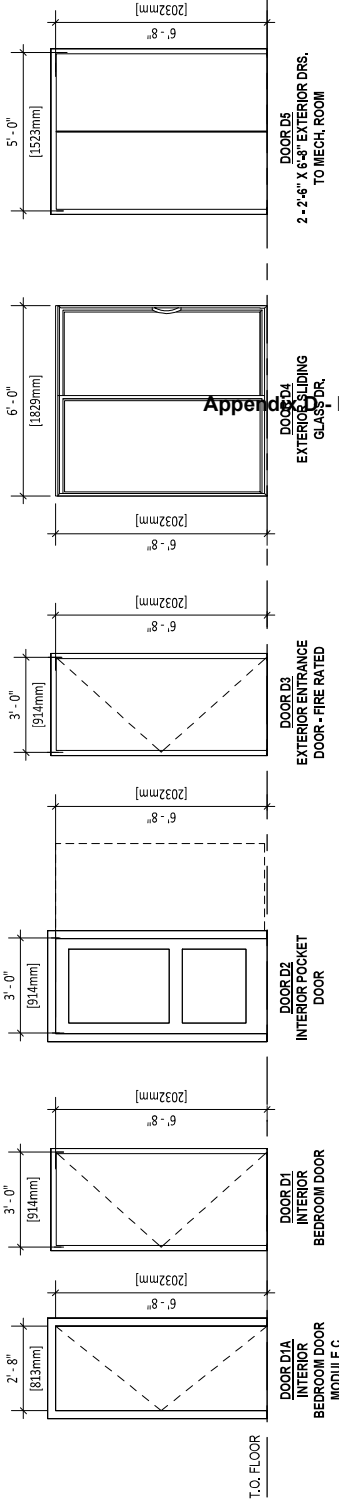
WINDOW TYPES:



WINDOW SCHEDULE			
Type Mark	COUNT	WINDOW SIZE	
		WIDTH	HEIGHT
W1	16	5' - 10 13/16"	3' - 10 13/16"
Grand total: 16			

DOOR SCHEDULE			
DOOR NUMBER	COUNT	DOOR SIZE	
		WIDTH	HEIGHT
D1	6	3' - 0"	6' - 8"
D1A	2	2' - 8"	6' - 8"
D2	11	3' - 0"	6' - 8"
D3	6	3' - 0"	6' - 8"
D4	3	6' - 0"	6' - 8"
D5	4	5' - 0"	6' - 8"
Grand total: 32			

DOOR TYPES:



Appendix C Report 24-0223

STEENHOF Building Services Group
 40 Peter Street S.
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Engineers Seal:

Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

client name: **ERIF SUSTAINABLE SOLUTIONS**
 project name: **BALD EAGLE 3**
 description:
 project no.: 240185

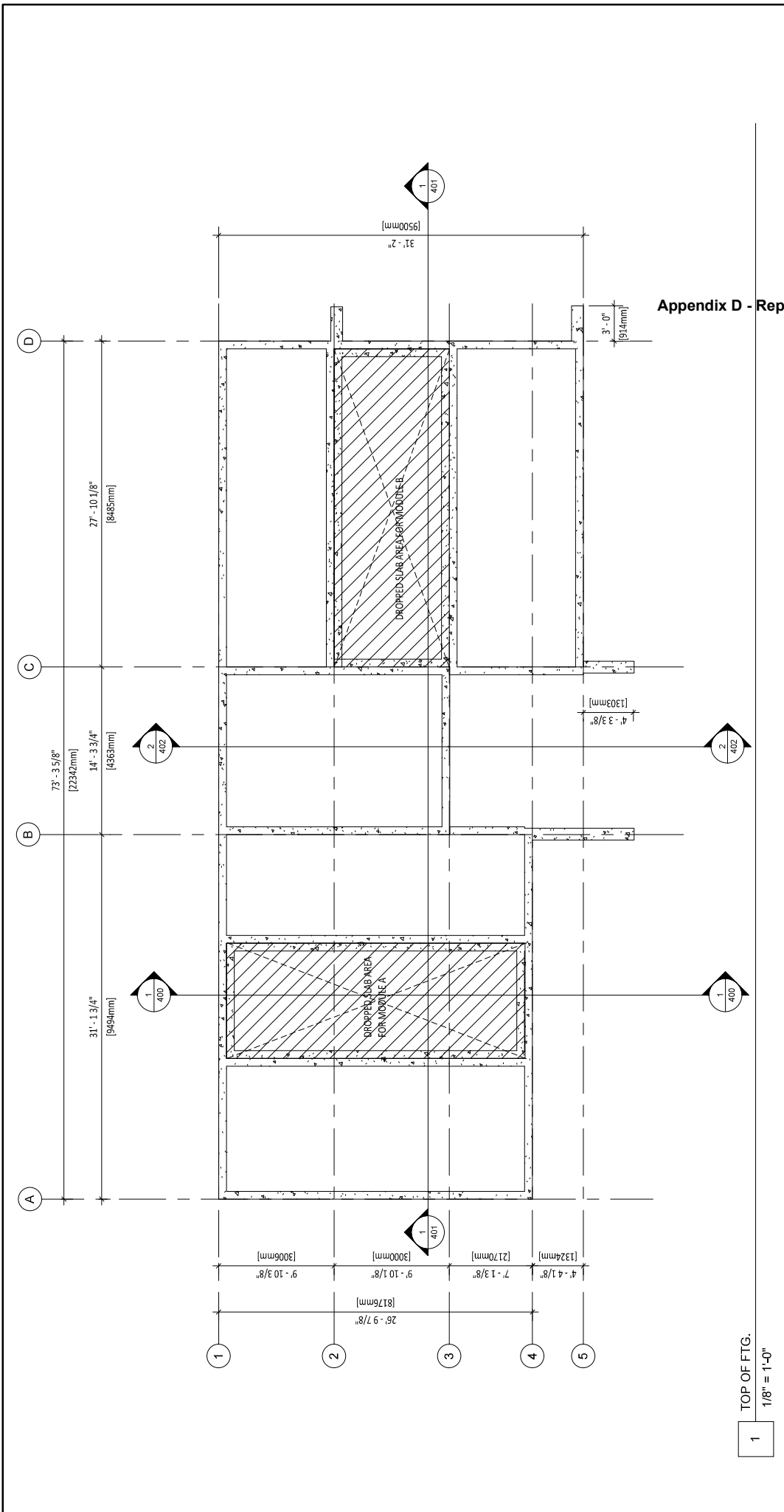
drawing title: **DOOR SCHEDULE + WINDOW SCHEDULE**

drawn by: MAE
 chkd by: RAS
 date: 2024-06-14
 version: RAS
 rev: A
 Drawing No.:

all dimensions are in: **IMPERIAL (METRIC)**
 scale: As indicated

PRELIMINARY
 drawing status:

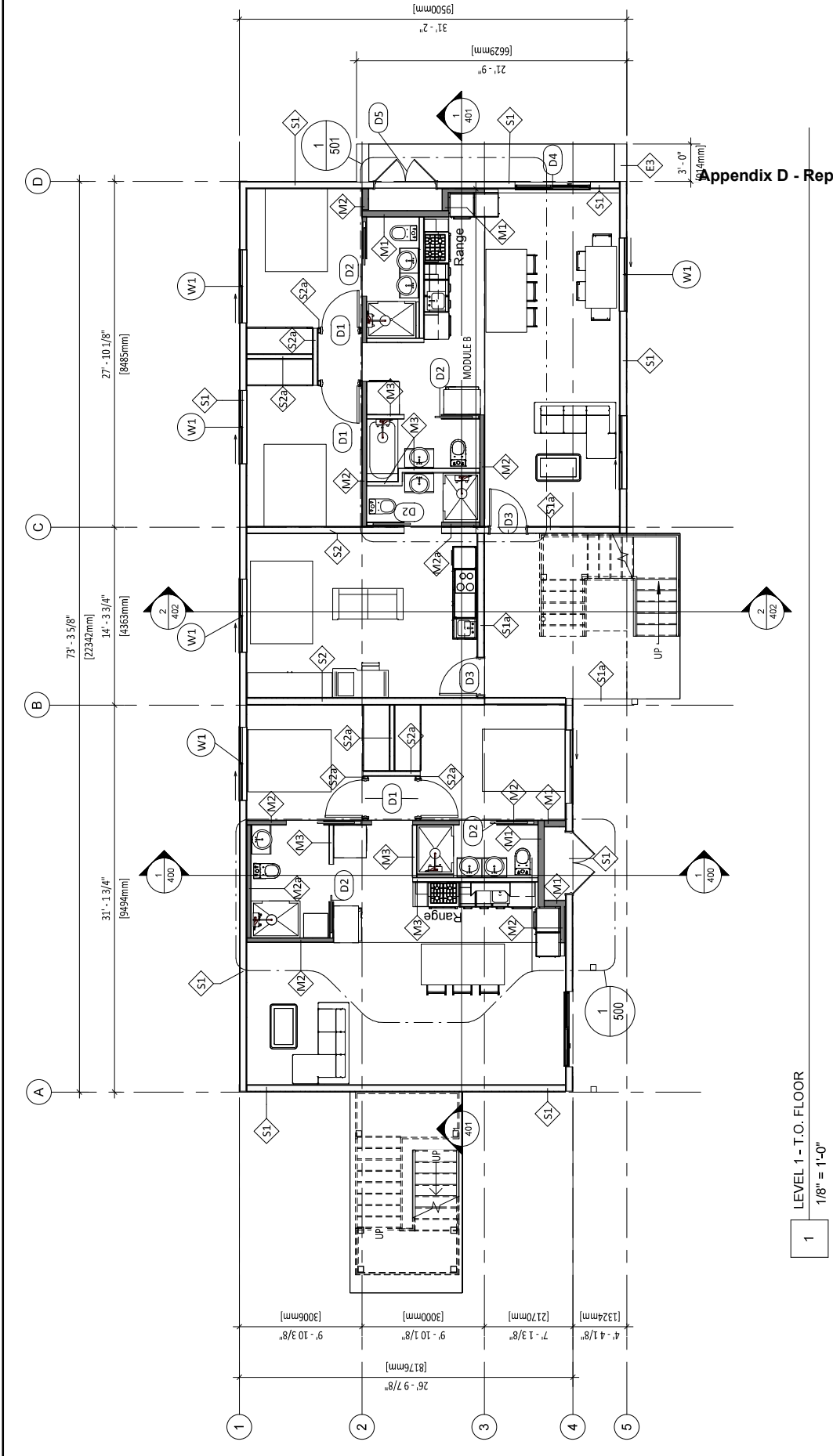
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Appendix D - Report 24-10

1 TOP OF FTG.
1/8" = 1'-0"

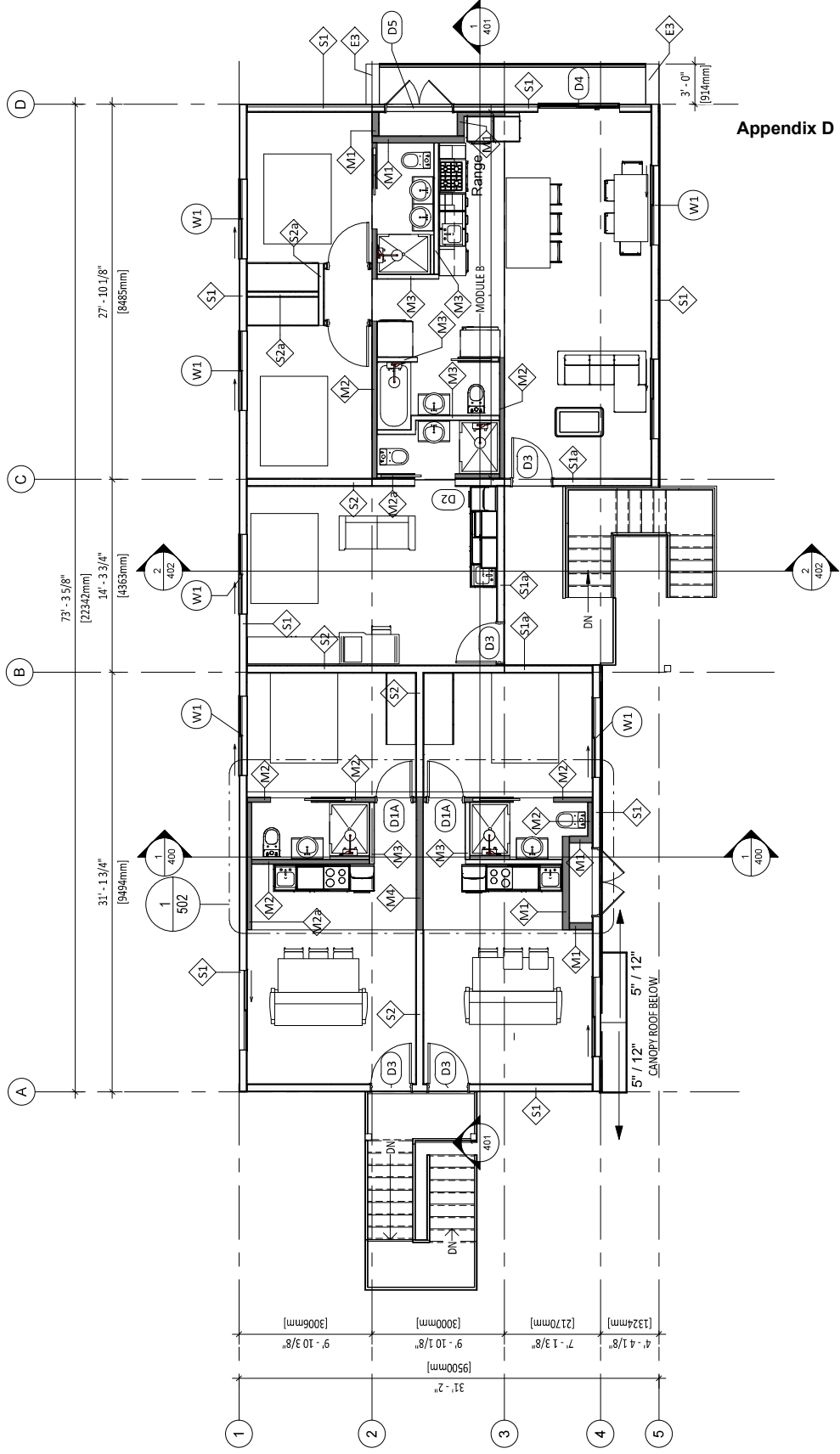
<p>STEENHOF Building Services Group 40 Peter Street S. Orillia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>		<p>client name: ERIF SUSTAINABLE SOLUTIONS project name: BALD EAGLE 3 description: 240185</p>		<p>drawing title: FOUNDATION PLAN</p>	<p>drawn by: MAE chkd by: RAS date: 2024-06-14 version: RAS rev: A</p>
		<p>drawing status: PRELIMINARY</p>			



1 LEVEL 1 - T.O. FLOOR
1/8" = 1'-0"

 STEENHOF Building Services Group 40 Peter Street S. Orlia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400				Engineers Seal:		Revision Schedule Description Date 2024-07-4		client name: ERIF SUSTAINABLE SOLUTIONS		drawing title: COMPLEX FLOOR PLAN		drawn by: MAE chkd by: RAS	
				No. A ISSUE FOR REVIEW		project name: BALD EAGLE 3 description: project no.: 240185		drawing status: PRELIMINARY		drawing title: COMPLEX FLOOR PLAN - LEVEL 1		date: 2024-06-14 version: RAS rev: A	
all dimensions are in: IMPERIAL (METRIC) scale: 1/8" = 1'-0"										Drawing No.:		201	

Appendix D - Report 24-129



Appendix D - Report 24-129

LEVEL 2 - T.O. FLOOR
1/8" = 1'-0"

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	A
Drawing No.:	

drawing title:	ERIF SUSTAINABLE SOLUTIONS COMPLEX - FLOOR PLAN - LEVEL 2
client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	BALD EAGLE 3
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in:	IMPERIAL (METRIC)
scale:	1/8" = 1'-0"

Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

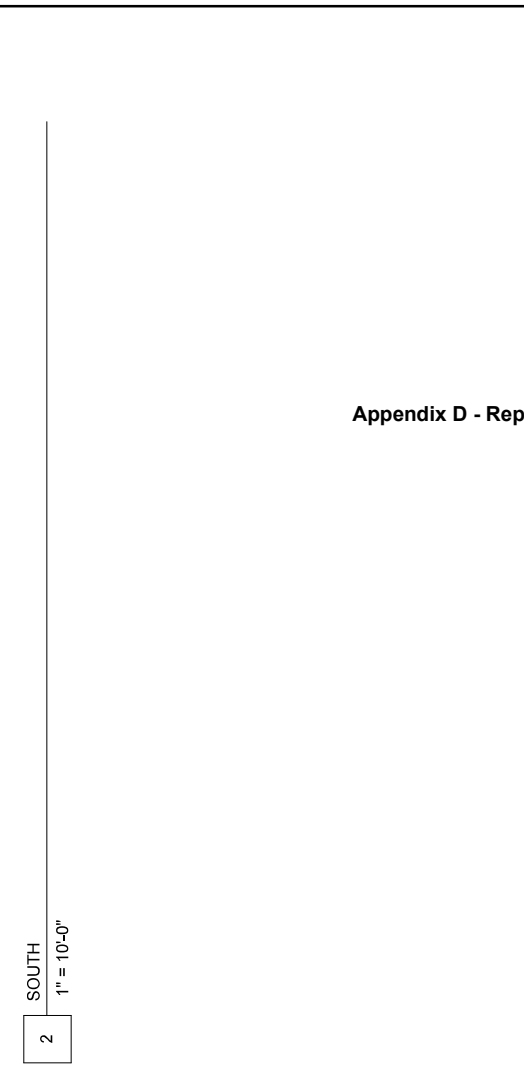
Engineers Seal:

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Appendix D - Report 24-109

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	A
Drawing No.: 300	

client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	BALD EAGLE 3
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in: IMPERIAL (METRIC)	
scale: 1" = 10'-0"	

Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

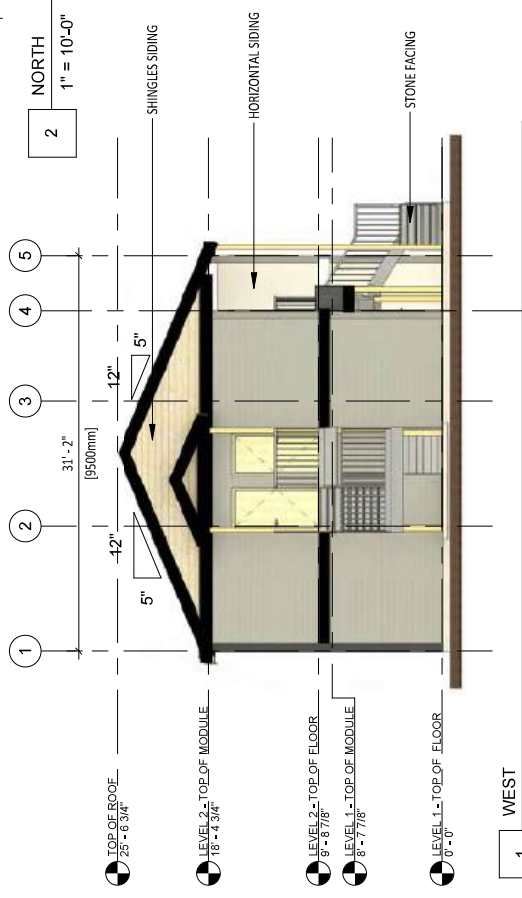
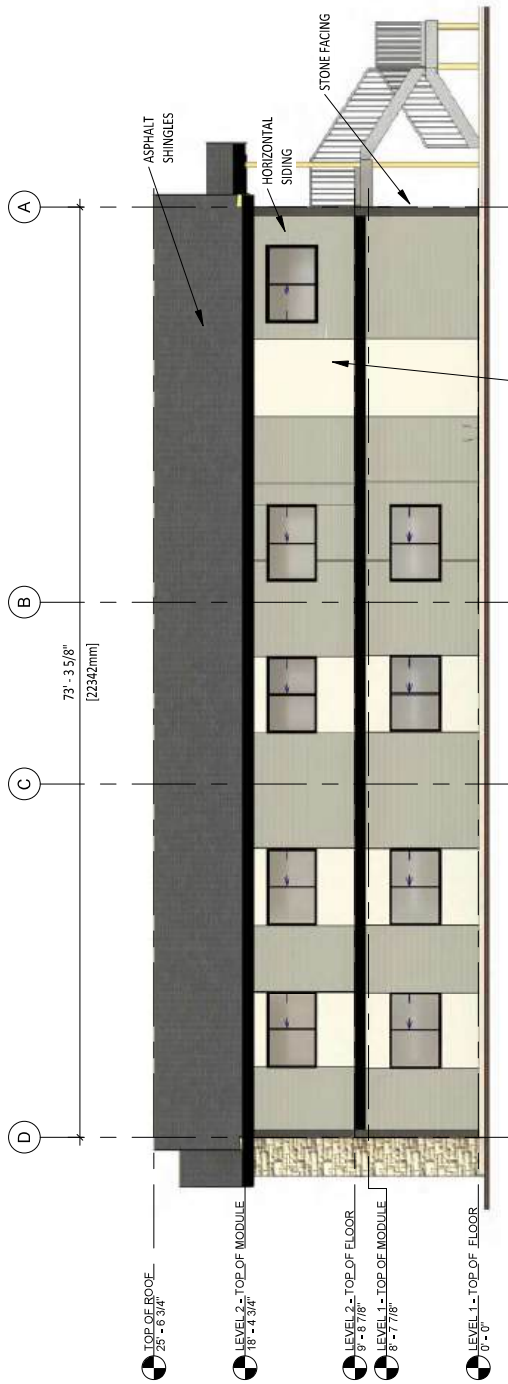
Engineers Seal:

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 Orillia, ON L3V 5A9
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Appendix D - Report 24-109

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	A
Drawing No.:	

client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	BALD EAGLE 3
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in: IMPERIAL (METRIC)	
scale: 1" = 10'-0"	

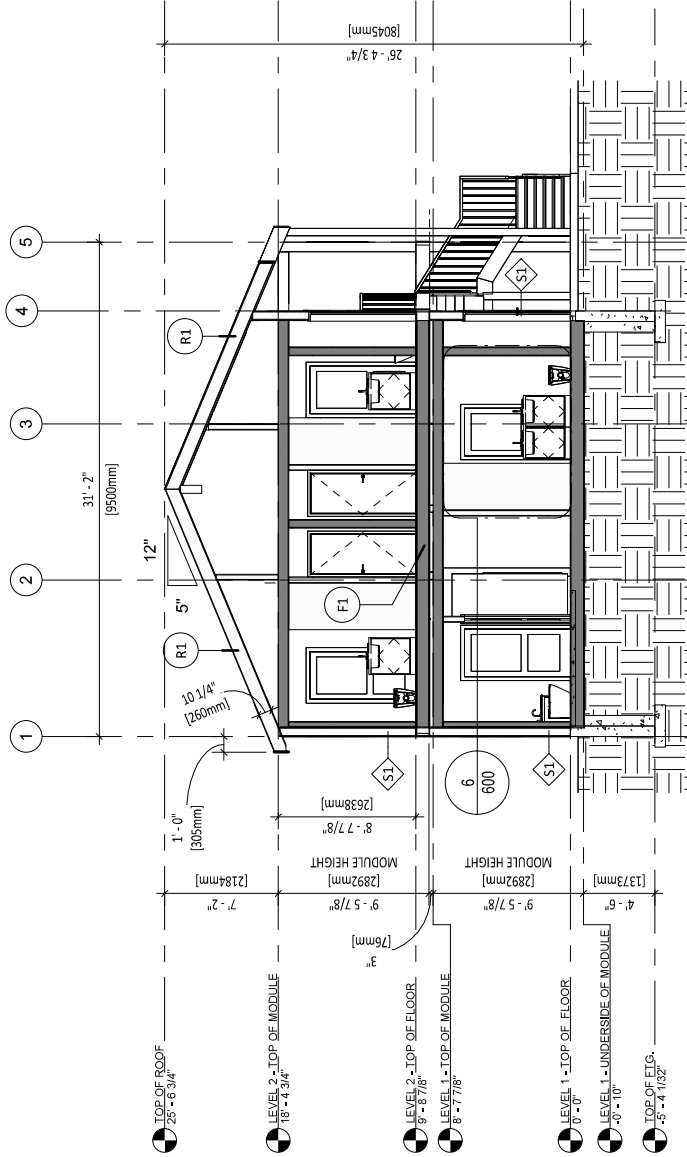
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project name:	BALD EAGLE 3
description:	
project no.:	240185
drawing status:	PRELIMINARY

Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

Engineers Seal:



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1 SECTION 1
1/8" = 1'-0"

Appendix D - Report 24-129

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	A
Drawing No.:	

drawing title:	SECTION
client name:	ERIF SUSTAINABLE SOLUTIONS
project name:	BALD EAGLE 3
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in:	IMPERIAL (METRIC)
scale:	1/8" = 1'-0"

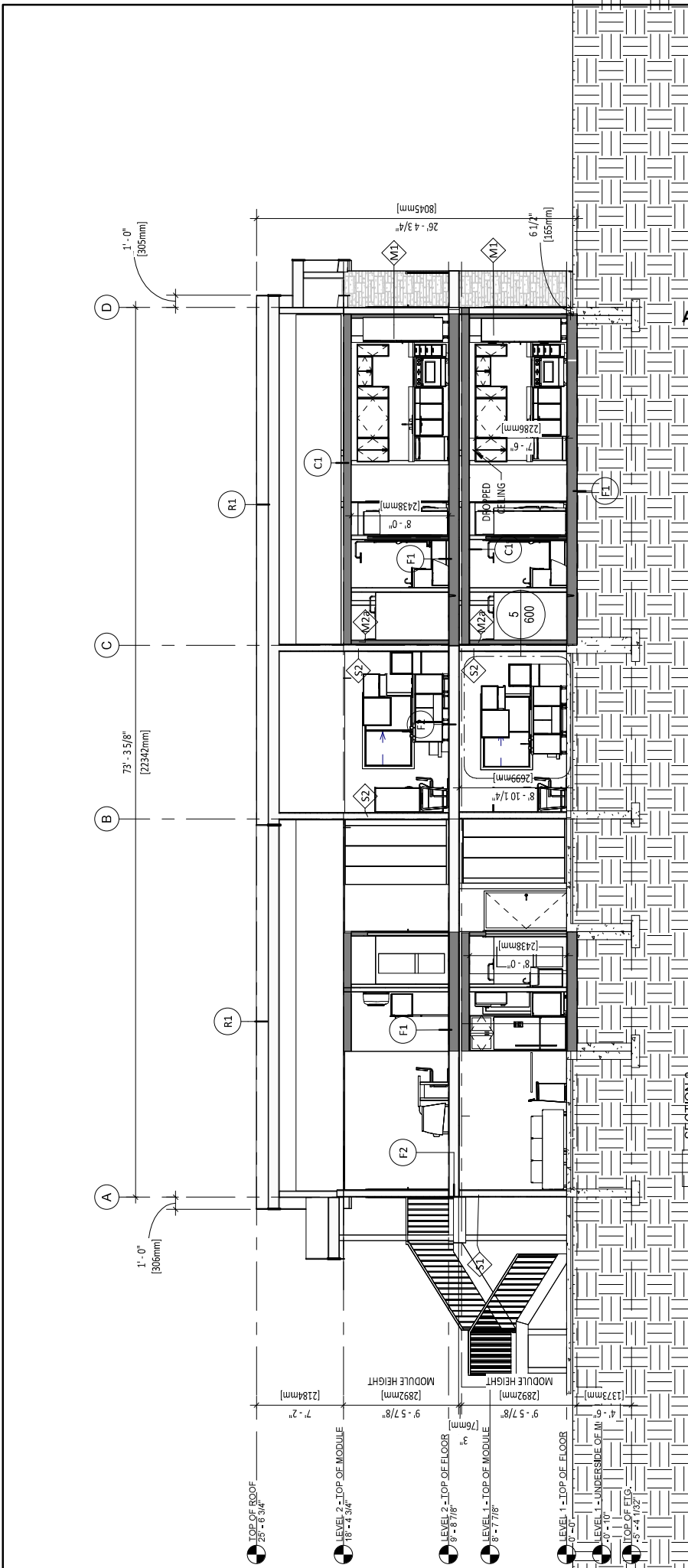
Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

Engineers Seal:	
<p>STEENHOF Building Services Group 40 Peter Street S. Orlia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>	



<p>ERIF Sustainable Solutions</p>	
--	--

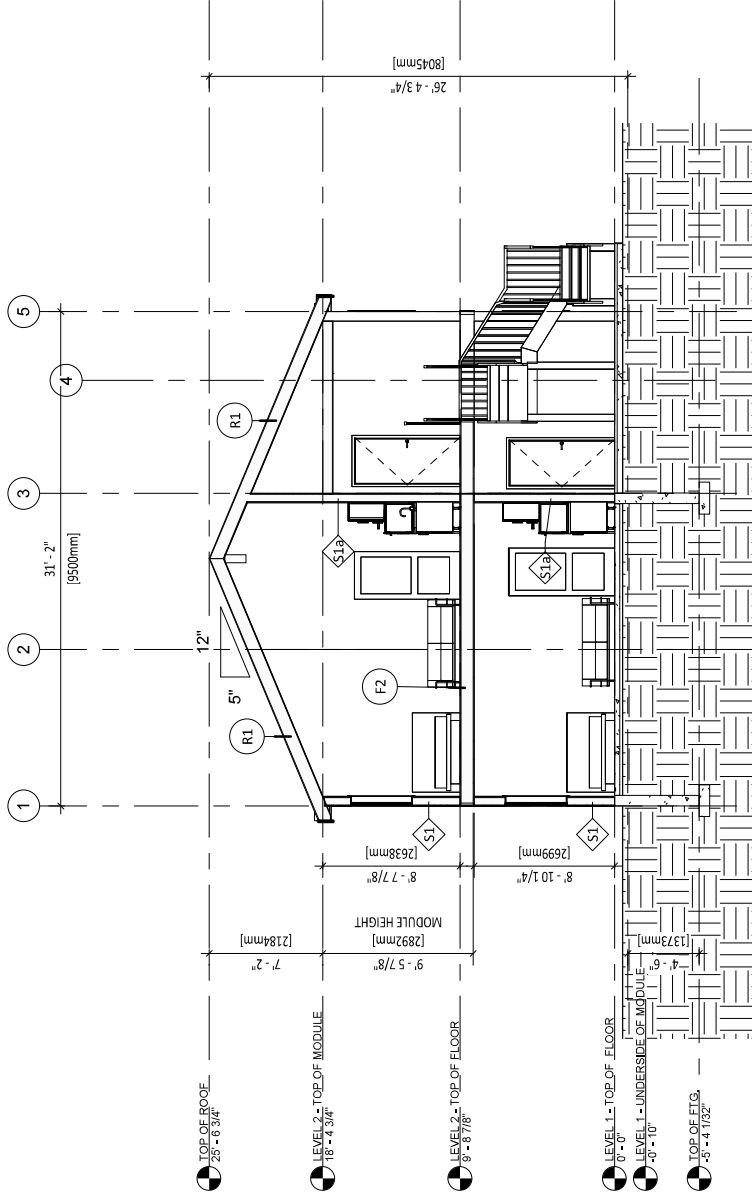
<p>STEENHOF Building Services Group 40 Peter Street S. Orlia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>	
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<p>STEENHOF Building Services Group 40 Peter Street S. Orlia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400</p>	
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Appendix D - Report 24-129

									
Revision Schedule <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>ISSUE FOR REVIEW</td> <td>2024-07-4</td> </tr> </tbody> </table>		No.	Description	Date	A	ISSUE FOR REVIEW	2024-07-4	client name: ERIF SUSTAINABLE SOLUTIONS project name: BALD EAGLE 3 description: project no.: 240185 drawing status: PRELIMINARY	
No.	Description	Date							
A	ISSUE FOR REVIEW	2024-07-4							
drawing title: SECTION		drawing No.: 401							
drawn by: MAE chkd by: RAS date: 2024-06-14 version: RAS rev: A		all dimensions are in: IMPERIAL [METRIC] scale: 1/8" = 1'-0"							
Engineers Seal:		drawing No.:							
<small> STEENHOF Building Services Group 40 Peter Street S. Orlia, ON L3V 5A9 Tel: 705-325-5400 Fax: 705-325-8400 </small>		<small> ERIF Sustainable Solutions 1000 Highway 7 East, Unit 100 Markham, ON L3R 9V7 Tel: 905-477-8888 </small>							



2 SECTION 3
1/8" = 1'-0"

Appendix D - Report 24-129

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	A
Drawing No.:	

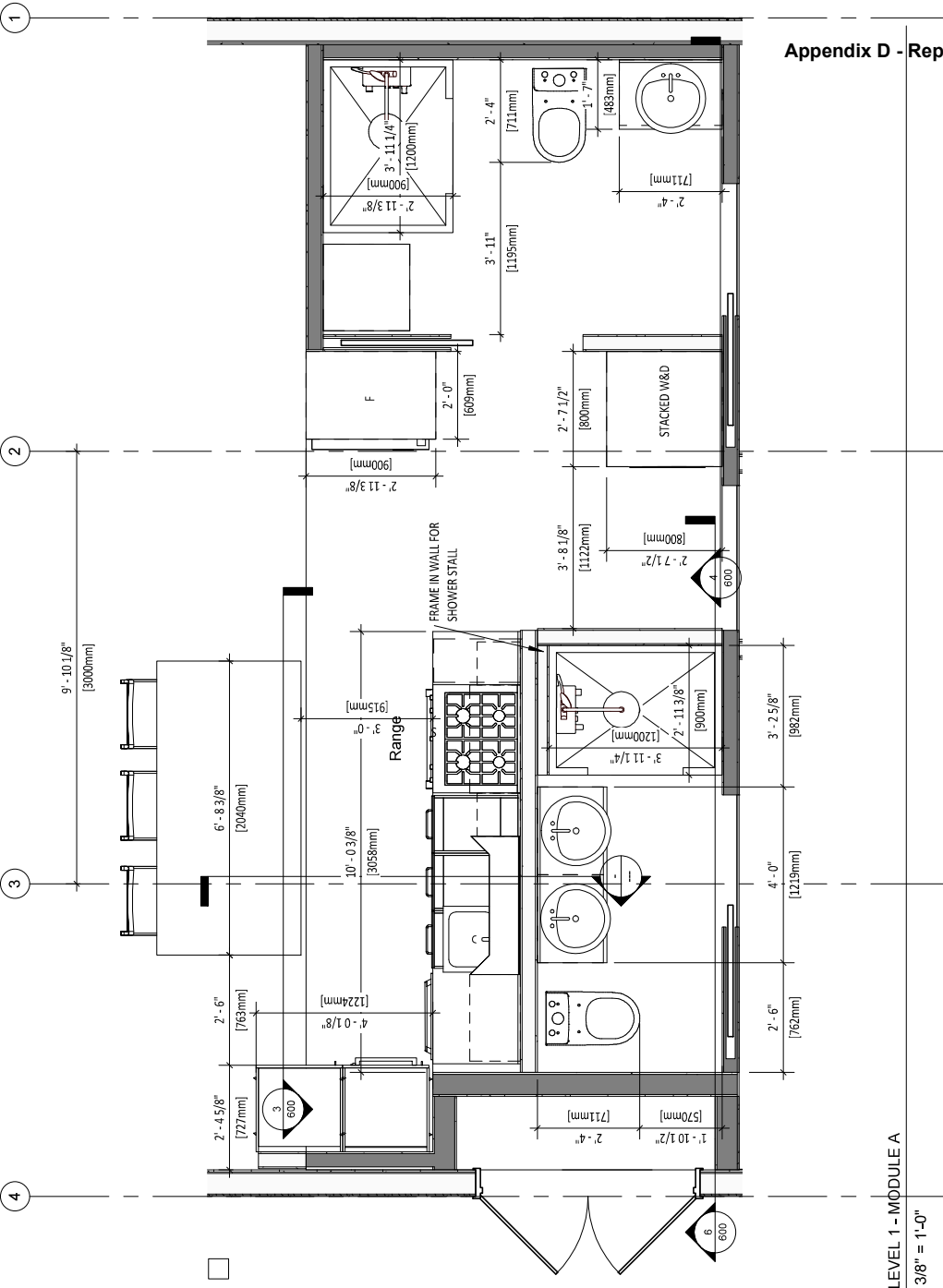
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project name:	BALD EAGLE 3
description:	
project no.:	240185
drawing status:	PRELIMINARY
all dimensions are in: IMPERIAL (METRIC)	
scale: 1/8" = 1'-0"	

Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

Engineers Seal:	
<small> I, the undersigned, being a duly Licensed Professional Engineer in the Province of Ontario, hereby certify that I am the author of the design and content of this drawing and that I am a duly Licensed Professional Engineer in the Province of Ontario. </small>	

drawing title:	
SECTION	

STEENHOF Building Services Group
40 Peter Street S.
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Tel: 705-325-5400 Fax: 705-325-8400



Appendix D - Report 24-18

1 LEVEL 1 - MODULE A
3/8" = 1'-0"

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	A
Drawing No.:	

drawing title:	MODULE A ENLARGED
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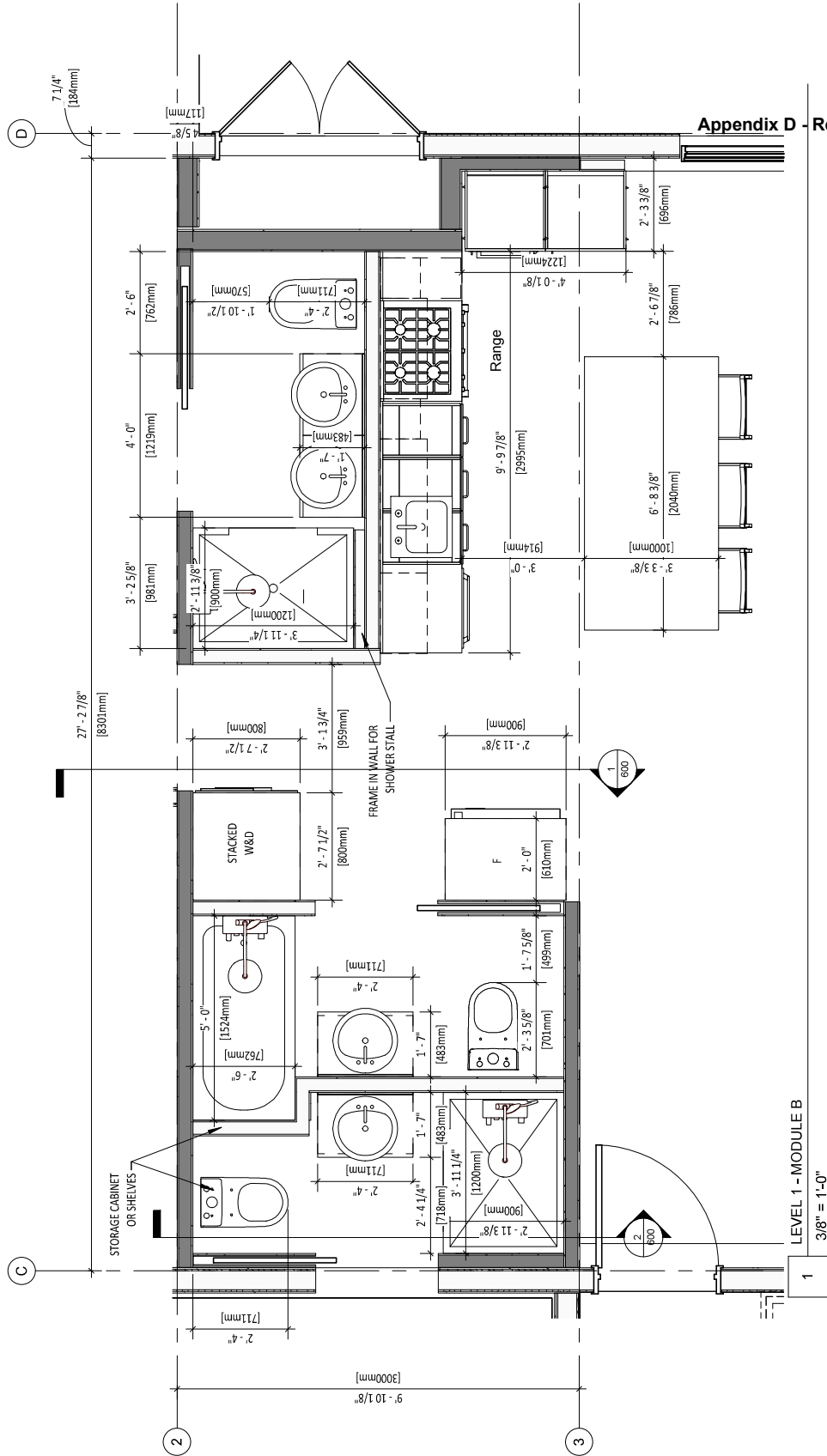
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project name:	BALD EAGLE 3
description:	
project no.:	240185
drawing status:	PRELIMINARY

Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

Engineers Seal:



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 Orlia, ON L3V 5A9
 Tel: 705-325-5400 Fax: 705-325-8400



LEVEL 1 - MODULE B
3/8" = 1'-0"

drawn by:	MAE
chkd by:	RAS
date:	2024-06-14
version:	RAS
rev:	A
Drawing No.:	

client name: **ERIF SUSTAINABLE SOLUTIONS**
 project name: **BALD EAGLE 3**
 description:
 project no.: 240185

No.	Description	Date
A	ISSUE FOR REVIEW	2024-07-4

Revision Schedule

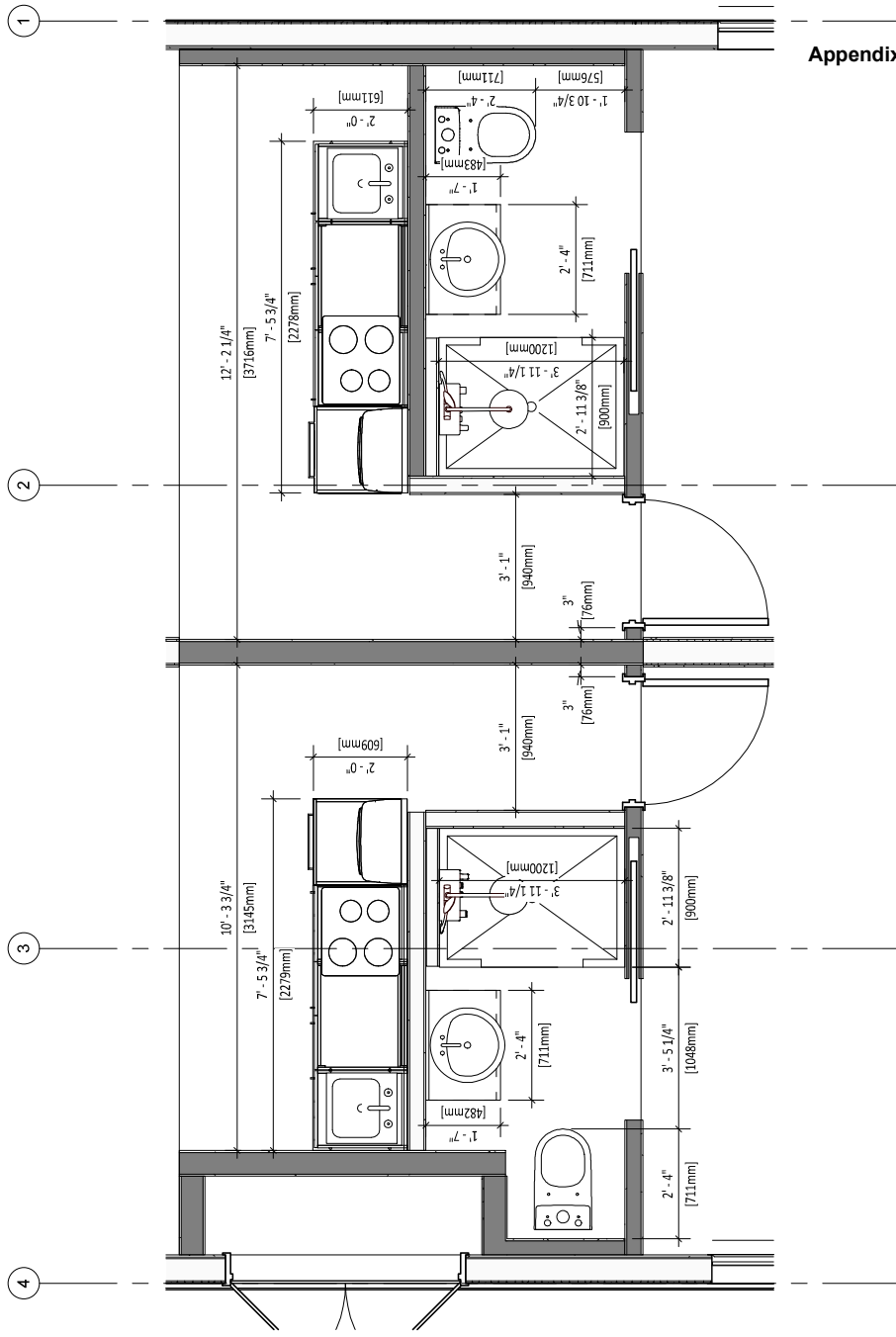
drawing title: **MODULE B ENLARGED**

all dimensions are in: **IMPERIAL (METRIC)**
 scale: **3/8" = 1'-0"**

Engineers Seal:



STEENHOF BUILDING SERVICES GROUP
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 Orlia, ON L3V 5A9
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Appendix D - Report 24-185

drawn by: MAE
 chkd by: RAS
 date: 2024-06-14
 version: RAS
 rev: A
 Drawing No.:

drawing title:
MODULE C ENLARGED

client name:
ERIF SUSTAINABLE SOLUTIONS
 project name: BALD EAGLE 3
 description:
 project no.: 240185
 drawing status:
PRELIMINARY

Revision Schedule	
No.	Date
A	2024-07-4
ISSUE FOR REVIEW	

Engineers Seal:



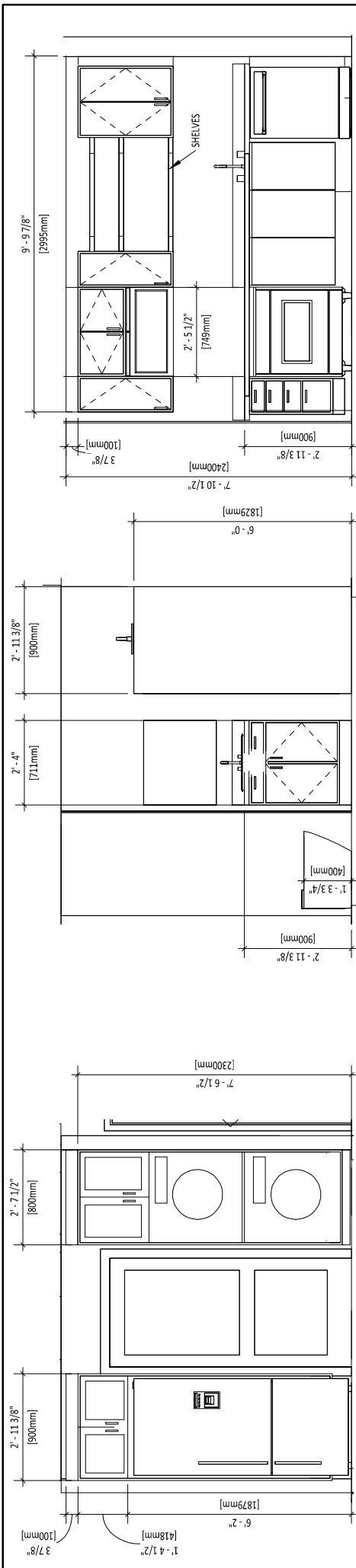
STEENHOF
 BUILDING SERVICES GROUP
 STEENHOF Building Services Group
 40 Peter Street S.
 Orlia, ON L3V 5A9
 Tel: 705-325-5400 Fax: 705-325-8400

all dimensions are in: IMPERIAL (METRIC)
 scale: 3/8" = 1'-0"

LEVEL Z - MODULE C

1

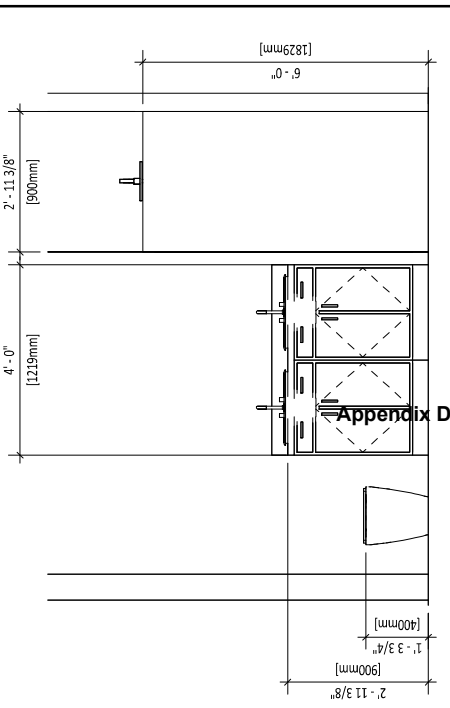
502



1 WASHER/DRYER/FRIDGE MILLWORK
3/8" = 1'-0"

2 MODULE B BATHROOM
3/8" = 1'-0"


3 KITCHEN MILLWORK
3/8" = 1'-0"




4 WASHER/DRYER/FRIDGE MILLWORK
3/8" = 1'-0"

5 3RD SUITE KITCHEN
3/8" = 1'-0"

6 MASTER BATHROOM
3/8" = 1'-0"



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Orillia, ON L3V 5A9
Tel: 705-325-5400 Fax: 705-325-8400



ERIF Sustainable Solutions

Revision Schedule		client name: ERIF SUSTAINABLE SOLUTIONS project name: BALD EAGLE 3 description: project no.: 240185 drawing status: PRELIMINARY	drawing title: INTERIOR MILLWORK ELEVATIONS all dimensions are in: IMPERIAL (METRIC) scale: 3/8" = 1'-0"
No.	Date		
A	ISSUE FOR REVIEW	2024-07-4	Drawing No.: 600

drawn by: MAE
 chkd by: RAS
 date: 2024-06-14
 version: RAS
 rev: A

Appendix D - Report 24-129



Appendix D - Report 24-129



Appendix D - Report 24-129



Appendix D - Report 24-129



01 PERSPECTIVES
A1

ENTRY FOYER AREA 30m²
GARAGE APACE 190m²



Appendix D - Report 24-129

02 GROUND FLOOR PLAN
A1 1:100

LIVING AREA 150m²
BALCONY 65m²



02 1st FLOOR PLAN

A1 1:100

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LIVING AREA 95m²
BALCONY 15m²



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03 2nd FLOOR PLAN

A1 1:100

August 26, 2024

ERIF | WATERFRONT HOME

A 04

TOTAL LIVING AREA 275m2
TOTAL BALCONY 80m2
GARAGE AREA 190m2

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04 ROOF PLAN

A1 1:100



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04 LEFT ELEVATION
A1 1:100

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04 FRONT ELEVATION
A1 1:100



Appendix D - Report 24-129

04 REAR ELEVATION
A1 1:100



Appendix D - Report 24-129

04 RIGHT ELEVATION
A1 1:100

Tree Management Plan

Prepared by: AMP Timber Rigging LTD

David Gemmell
ISA Certified # PN-8827A
TRAQ-Qualified
Certified Danger Tree Assessor Id# P2527

Prepared for: District of Ucluelet

Location: 221 Minato rd, Ucluelet, BC

Site Visit Date: September 12, 13, 2024

Scope of Assignment:

The objective of the assignment is to identify hazard trees

Methodology:

- Trees at the site were visually examined by a certified ISA arborist and a certified wildlife tree assessor.
- The documentation process for identifying danger trees is set out in the BC Dangerous Tree Assessor's Workbook (https://www2.gov.bc.ca/assets/gov/environment/plants-animals-and-ecosystems/wildlife-wildlife-habitat/wildlife-trees/wdtac_manual_wildfire_march2020_final.pdf) and has been followed in this assessment.

Summary of Site Assessment:

The site has 30m setback from the foreshore that has been dedicated as park for the extension of the Wild Pacific Trail. A 10m riparian setback from a stream in the centre of the property is dedicated as park. A 10m wide land dedication along the west side of Minato Road property boundary is for a trail connecting and positioned outside of any development. The remaining 16 acres is buildable area where the vegetation would be removed.

The Sitka Spruce Survey was performed at the site and trees with DBH of at least 60cm were documented. The Archaeological Survey identified culturally modified tree, 2 areas of potential, and one traditional use site. Culturally Modified Tree (CMT) will be protected with a wooden railing to prevent pedestrian and construction risk.

The trees at the site were visually inspected by ISA Certified Arborist, David Gemmell and Certified Danger Tree Assessor, Joe Corlazzoli. The site shows signs of significant clearing of trees in the past leaving very few trees of greater diameter and good health to be retained. There was a high number of danger trees at the site most likely due to damage during clearing. The Sitka Spruce Survey identified 4 trees with DBH exceeding 60 cm within the building area. However, on close assessment the physical health and safety of the trees has been compromised due to the substantial damage to the structural root system. Those trees are recommended for removal.

Based on the site assessment we propose the following plan:

- Remove the trees within the building zone as since no trees were healthy enough to be preserved
- Remove trees within the parkland dedication and setbacks only if they are identified as hazard trees that pose risk to workers in the area.
- Prepare management plan for remaining trees within the setbacks

Limitations and Disclosure:

This Assessment is based on the circumstances and observations as they existed at the time of the site inspection of the Client's Property. The opinions in this Assessment are given based on observations made and using generally accepted methods and professional judgment; however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out in this Assessment are valid only as at the date any such testing, observations and analysis took place and no guarantee, warranty, representation or opinion is offered or made by AMP Timber Rigging LTD as to the length of the validity of the results, observations, recommendations and analysis contained within this Assessment. As a result the Client shall not rely upon this Assessment, save and except for representing the circumstances and observations, analysis and recommendations that were made as at the date of such inspections. Clients may choose to accept or disregard the recommendations of the arborist, or seek additional advice.

Arborists cannot detect every condition that could possibly lead to the structural failure of a tree. Trees are living organisms that fail in ways we do not fully understand, conditions are often hidden within trees or below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments like any medicine, cannot be guaranteed. Treatment, pruning and removal of trees may involve considerations beyond the scope of the arborist's services, such as property boundaries, property ownership, site lines, disputes between neighbours, landlord-tenant matters, etc. Arborists cannot take such issues into account unless complete and accurate information is given to the arborist. The person hiring the arborist accepts full responsibility for authorizing the recommended treatment or remedial measures. Trees can be managed, they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk is to eliminate all trees

If there are any questions or concerns regarding this tree report please contact Dave Gemmell at 250-668-9711

CREUS Engineering Ltd

610 – EAST TOWER, 221 ESPLANADE WEST, N. VANCOUVER, BC V7M 3J3
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Civil Engineers & Project Managers

July 30, 2024

File No. 24600

ERIF
Campbell River, BC
V9W 5Y1

Attention: Juliette Green

221 Minato Rd Ucluelet - Sewage Management Proposal

Creus Engineering was approached several years ago to provide input on proposed development at Minato Road in Ucluelet. This involved conceptual overview input on feasibility from a Civil Engineering perspective. One area that was identified that required resolution was the capacity of the overall Ucluelet sanitary system.

We understand that Economic Restoration Infrastructure Fund (ERIF) is proposing a new development comprising of single family and multi-family homes at 221 Minato Road in Ucluelet. Creus has visited this site in 2022 with the past project manager, Mr Chris Bozman, but this memorandum has been prepared on desktop review only. ERIF has sought input from Creus to provide a conceptual solution for sewage disposal. In particular identifying a concept for management of peak flows where they exceed system capacity, especially as an interim solution, if required, while the District of Ucluelet (DOU) undertakes planned infrastructure upgrades to their sanitary system.

1. About Creus

CREUS is a partnership of Engineers, Project Managers and Technologists who strive to use the best technology, knowledge, experience and creativity to provide solutions to real world development issues. The core team has over 70 years of in-depth experience in the development industry holding senior positions in engineering, construction, general contracting, development, project management and positions in the regulatory industry. Our field of expertise is in designing systems for Stormwater Management, Sedimentation and Erosion Control as well as sewage solutions in challenging sites.

Kevin Healy has over 35 years of experience with senior positions in the construction, engineering, and the development industry. He has experienced land development from the perspective of a municipal employee, earthworks sub-contractor, general contractor, developer, and Consulting Engineer. As a Director of Creus, he leads the approvals and construction on projects with tough topography and tight environmental, political, and jurisdictional restrictions. An example project was in Cypress Mountain Resort where he managed the design, tendering, construction and commissioning of the water treatment, distribution and storage system and the sewage storage and pumping system jointly with Cypress and BC Parks. Some examples of Creus's past projects are in Appendix A.

2. Background

Several reports have been prepared for 221 Minato Rd from 2022 to 2024 giving an overview of the sanitary infrastructure and demand generated by the proposed development of this site. ERIF advises these reports include:

- Water and Sanitary demands – Impact on Infrastructure (Link: <https://drive.google.com/file/d/110EzXl36LSvRhn87atWr-p0DbFY2TB6m/view?usp=sharing>) completed by Koers & Assoc Engineering (Mitchell Brook, Chris Downey) in March 2024 (Koers 2024)

- Preliminary Servicing Review (Link: <https://drive.google.com/file/d/1bt6VFIQqYp1XF0BgIAc-yhB48ANGGjRw/view?usp=sharing>) completed by McGill and Associates (Brodie Couch, Mike Lange) in September 2023 (McGill 2023)
- Sanitary Model – (Link: <https://drive.google.com/file/d/113d71XucqoGH6EIHPZkii3U0ItShZybB/view?usp=sharing>) completed by Koers & Assoc Engineering (Mitchell Brook) in March 2022 (Koers 2022)

The most recent report is an overview of demand for residential dwellings that was modelled for 221 Minato Rd by Koers and Associates in March 2024. The detailed modelling in this existing report has been reviewed by Creus to inform the proposed conceptual sewage concept.

ERIF’s proposed development is largely consistent with previous proposals for use of the site for residential dwellings, with the addition of a commercial precinct. Therefore, the modelling in Koer’s 2024 report has informed the development of the conceptual sewage response. Further modelling will need to be undertaken to refine the modelling for each stage for ERIF’s Masterplan and as required in a later phase of detailed design. This will be required to define potential deficiencies in the system capacity and also identify periods where there is excess capacity on a diurnal and seasonal basis.

3. Koers & Associates 2024 Report

The most recent report on the existing sewage infrastructure was prepared by Koers & Assoc Engineering (Mitchell Brook, Chris Downey) entitled ‘Water and Sanitary Sewer Analysis – Impact on District Infrastructure’ (19 March 2024 – File Number 0361-242-01, Rev 1). The report was prepared for a previous District Group masterplan for the site, but the modelling of demand is equivalent for the purpose of evaluation conceptual solutions to that required for the updated Masterplan proposed by ERIF. A comparison of the two Masterplans is shown in Table 2 below. The Koer’s 2024 report was prepared to model water and sanitary demand for 300 residences and a population of 716 people. The ERIF Masterplan is based on 216 dwellings (made up of 205 apartments and 11 waterfront homes) and a commercial precinct.

Stage 1 demand modelling for the District Group plans allowed for 165 units and a population of 412 people. The ERIF proposed Masterplan is similar with Stage 1-4 including 160 units and 368 people. For the purposes of identifying concept solution this has been used as an equivalent base and Creus has used a preliminary review of this report to identify potential concept solutions.

Table 2 – Comparison of dwellings in Koer’s 2024 modelling for District Group and Current ERIF Masterplan

	District Group (Koers 2024 Model)	Current ERIF Master Plan
Initial Stage Dwellings	165 Units	160 Units
Initial Stage Population	412 people	363 people
Total Dwellings	300 Residences	216 Dwellings
Total Projected Population	716 people	Total population TBC

Koers 2024 Report projected sanitary sewer demand flow based on 300 units/ 716 population requiring 15.8L/s in dry weather peak flow ranging to 16.5L/s in wet weather peak flow. For the initial stage development of 165 units / 412 population sewage demand would require 9L/s in dry weather peak flow, ranging to 9.4L/s in wet weather peak flow. This is shown in the table below excerpted from Koer’s report.

Image 2 – Koer’s modelling of population and demand flows

Table 7 – Development Design Flows

No. of Dwelling Units	Service Population ⁽¹⁾	Dry Weather Design Peak Flow		Infiltration & Inflow Allowance		Wet Weather Design Peak Flow (L/s)
		Per Capita ⁽²⁾ (L/s per capita)	Total (L/s)	Per Area ⁽³⁾ (L/s per ha)	Total ⁽⁴⁾ (L/s)	
100	250	0.022	5.5	0.13	0.3	5.8
165	412	0.022	9.0	0.13	0.4	9.4
300	716	0.022	15.8	0.13	0.7	16.5

Notes:

- (1) See Table 2.
- (2) District of Ucluelet Engineering Design Standard and Specification, Schedule B, 1.1 Sewage Quantity (1.91 m³/day per capita for design population range of 500 – 1,000).
- (3) District of Ucluelet Engineering Design Standard and Specification, Schedule B, 1.1 Sewage Quantity (11.2 m³/day per ha).
- (4) Based on an estimated buildable site area of approximately 5.7 ha. And assumed area of 1.9 ha for 100 units and 3.1 ha for 165 units.

The Koer's 2024 Report sets out existing sewer system capacity, then assesses peak flows to four key downstream pump stations: Peninsula Rd Pump Station, Forbes Rd Pump Station, Big Beach Pump Station and Helen Rd Pump Station. The report confirms that upgrade of existing infrastructure is required to manage the projected peak flow from the proposed development of 221 Minato Rd. Koers 2024 reports concludes that a complete development of 300 units/ 716 people would require upgrade of pumps to higher flow rate units in some pump stations.

4. Proposed Infrastructure Upgrade by the District of Ucluelet

ERIF has advised that the District of Ucluelet has a budget and rollout plan for the upgrade of their existing sanitary infrastructure. Koer's 2024 Report also describes some of the proposed upgrades in the Ucluelet Sanitary Master Plan including Helen Rd Pump Station upgrades. ERIF advised their June 2024 discussions with DOU about the infrastructure capacity indicate that the planned upgrade works will enable the infrastructure to meet the demands required for the development.

Therefore, the intent of the concept in this memorandum is to recommend an interim solution that can ensure that sewage from the proposed development at 221 Minato Road does not exceed the System capacity. The concept is to retain release sewage flows based on system capacity and retain partial flows on site when the municipal system is at capacity and released at rates that the system can accommodate. This would result in partial releases throughout the day based on preliminary review of the Koers report with release of stored sewage in time periods of off-peak flow when the system has capacity. The Koers report does not identify diurnal deficiencies and capacity but comments on daily flows which is standard procedure. The daily flow regime is assumed based on general operating conditions of standard municipal systems. These windows of capacity in the system would enable the release of flow to be controlled to reduce the demand on these pump stations in peak demand periods. The proposed model could respond to the current capacity limitations of the DOU infrastructure and would enable the system to adapt to the updated capacity of each pump station as upgrades are rolled out by the municipality over time.

5. Proposed Sewage Concept

ERIF has advised that DOU has plans for the rollout of infrastructure upgrades and intend for the development to connect to this system. On initial review of the 2024 report, the upgrades would address the Minato developments requirements. ERIF's indicated an objective to address potential timing conflicts in the infrastructure upgrade schedule as it relates to development. The concept would need to be sized and coordinated based on contracted vs planned upgrades. The ERIF objectives were identified as:

- Provide an interim solution to ensure early-stage development can commence if there is any delay to DOU infrastructure upgrades.
- Ensure the system is responsive to the increase in capacity of the DOU infrastructure over time as the proposed upgrades are rolled out;

- To potentially be maintained as an on-site 'back up' system in event of works on the sewer line or extreme demand on local infrastructure capacity, such as high rainfall storm event during the height of tourist season.
- The proposed concept could also serve as a backup sewage management system in the event of peak demand on municipality infrastructure such as wet weather and peak tourist season.

The proposed conceptual sewage design is premised on the expectation that the sewage generated at 221 Minato Road will be feeding into the DOU infrastructure, but will typically be managed with variable release based on available system capacity. Retained sewage would be released based on feedback from the system. Initial overview of the capacity and flows indicated

1. **On Site Storage:** An on-site storage system with capacity to manage deficiencies in capacity for a projected peak days of sewage demand. Detailed flow data from the pump stations would be required to model the diurnal daily limitation and periods of capacity. The size of the collection system and type of users and infiltration and inflow characteristics of the system will determine the diurnal flow pattern. Given the system configuration it is expected that the system would run at full capacity for 2-4 hours two to three times a day. There would generally be significant capacity in pipes and pump station during the night time hours but also during periods during the day. As such storage would not represent a full day average system deficiency storage, but would likely be 20-40% of that amount. This can not be determined at this time without better understanding of the flow data, actual pump runs background flow data. It would also depend on the phase in process of development which is expected to be based on expected infrastructure upgrades. From very preliminary review a starting point might be a 20,000 gallon tank which would be designed to double in height if the development pace vs infrastructure upgrade schedule demands. The parameters for required storage would need to be resolved with the DOU engineering and operational staff, their consultants and the development team to resolve a reasonable level of redundancy that the variable release system would provide. This would need to be reassessed at each level of development. The tank would likely be an above grade glass fused to steel, though epoxy coated steel may be applicable if the service life is known to be short. The tank would be equipped with a variable speed pump, agitation system and odour control system. The system would be designed for low impact with minimal odour concerns due to being a small pump, minimal treatment on site and a short term hold of sewage for the period to off-peak release.
2. **Sewage release:** Release of sewage to the municipality sanitary infrastructure will be variable based on capacities in the system. The preliminary review of the Koers report appears to support in early periods of development that some flow would be allowed at most times. Where inflow exceeds the available outflow it would be detained. During windows of capacity in the system the variable pump would increase flow. In off-peak times significant outflow can be accommodated. There is generally significant capacity available during night periods. Capacity of each element of the system would have to be evaluated to determine the storage required however it is expected. The available release would be updated as downstream infrastructure is updated.
3. **Monitoring Capacity:** To ensure the system is responsive to the capacity of municipality infrastructure, information would have to be provided from the information control system in the existing sanitary system. Generally, this information is obtained using a SCADA system. Koers has indicated some deficiencies in the control and reporting system now form some of the system elements. That system information would be required to actually size and model the variable release concept. The SCADA would typically communicate includes sensors of levels in the wet well, pressure in system, which pumps are functioning and the current flow rates. Operator input can refine the 'comfort zone' for each pump station such as typical demand, flow rate based on their knowledge of the age of the system and other data.
4. **Operation Considerations:** The variable release is seeking to optimize the use of the downstream system. This results in more run hours on the pump, but less overdemand

situations. All systems require down periods for maintenance and repair. These are sometimes scheduled during the current off-peak periods. The storage capacity can be managed to actually assist in flow management to allow for those works.

The concept combines these components of on-site storage, off-peak flow and utilizing the collected data supplied by the municipality's monitoring of their sanitary infrastructure. This model enables the proposed system at 221 Minato Road to be responsive to ensure flow rate and timing is released according to the capacity of the DOU sanitary system, even as it changes over time with planned upgrades.

This concept proposal is based on a similar system used successfully in the Cypress Mountain Ski Resort in District of West Vancouver, which provided a reliable sewage solution for over ten years, while the municipality infrastructure was upgraded utilizing a similar variable release.

6. Conclusions

This memorandum recommends working together to detail a variable release concept with storage that can be increased over time to bridge any peak flow constraints of the system. This could start with upgrades to the existing controls systems and say a 20,000 gallons of storage where release would be tied to capacities in the system and reflect upgrades in the system as they are brought on line. The variable release would be part of the overall system upgrade process and would be reanalyzed at each stage of development. The demand flow has been used from initial review of Koer's 2024 Report, and consideration of the proposed dwellings in ERIF's 2021 Masterplan. The proposed population and residences in Stages 1-4 for ERIF's Masterplan are similar to the flow demand modelled by Koer's for the District Group Masterplan in March 2024 to provide a reasonable starting point to this discussion.

Additional modelling and flow measurement would need to be undertaken to confirm demands, diurnal capacity in the system and level of confidence in scheduling of upgrades. This concept is proposed in parallel to the rollout of infrastructure upgrade planned by the District of Ucluelet. Creus recommends further discussion with DOU and their consultant to formulate a plan to move forward with additional flow monitoring and modelling to determine the extents of the system that would be necessary to provide a reasonable level of redundancy to manage peak flow and over capacity periods in the system.

If you have further questions in this regard, please do not hesitate to contact me

Respectfully yours,

CREUS Engineering Ltd.

Kevin Healy, P.Eng.
Director
Permit to Practice 1001543

Appendix A – Creus Past Projects

Harbourside Waterfront, North Vancouver, BCClient: **Concert Properties and Knightsbridge Properties**

Description: Concert Properties and Knightsbridge Properties are proposing to redevelop the Harbourside waterfront lands in North Vancouver. The proposed development generally consists of 13 residential buildings, 1 rental housing building, 3 office buildings, 1 hotel building, and ground floor commercial components in 5 of the buildings. The project will involve a major redevelopment of the site including re-grading of the existing site roads. The total site area is approximately 4.9ha.



CREUS Member Roles: CREUS is responsible for all the site servicing, roadworks, erosion and sediment control design and monitoring, and Stormwater Management elements of the project.

Categories: Mixed-Use Development, Stormwater, Waterfront

Dollarton Highway, Dollarton Highway, North Vancouver, BCClient: **Noble Holdings**

Description: a 5-acre waterfront residential development on a hillside neighborhood. This project has involved the design, preliminary approvals and detailed design for the 7-lot development.

CREUS Member Roles: CREUS members were the original and continue to be the Engineer of record for all the detailed Civil, sediment and erosion control and Stormwater Management elements of the project and managed the tender and construction of the works and provided inspections on all civil works. CREUS was responsible for the seawall, the concrete pier and private marina, stormwater outfall, as well as foreshore protection. Creus worked with the environmental consultant to mitigate impacts on contaminated sites and avoid requirements for removals of contaminated sediments from historical marine industrial activities on the site.



Categories: Residential, Marine / Environmental

Furry Creek, SLRD, BC

Client: **Tanac Land Developments and Park Lane Homes**

Description: 1,000-acre mixed use waterfront developments on a mountainside with numerous creeks, highway, hydro, rail issues. This project has involved the design of civil services, roads, pump stations, reservoirs, golf course integration, golf course renovations and improvements, approvals and site preparation construction and inspection.



CREUS Member Roles: A CREUS member was the Development Manager during the early portions of the development, directly managing the design, approvals, tendering construction management, subdivision and operational agreements

for roads and services, highway interchange, hydro substation upgrade, fibre optic servicing, water system

implementation, sewage treatment plant, sewage outfall, award winning creek and foreshore restoration works, marketing sales centre, show home, member of Advisory Design Panel, subdivision of more than half of the current subdivisions, completion of the golf course and renovations. CREUS members were also involved as Engineer of record for the detailed Civil design, sediment and erosion control and Stormwater Management elements of the last three phases of development



Categories: Project Management, Integrated Mixed Use Development Projects, Highway Works



WATT VICTORIA
 302 - 740 Hillside Ave
 Victoria, BC V8T 1Z4
 250-388-9877

MEMORANDUM

Date: September 18, 2024
 To: Juliette Green, ERIF
 From: MJ Oh, Transportation Technologist and Andy Kading, P.Eng., WATT Consulting Group
 Our File No: 3839.B01
 Subject: 221 Minato Road TIA Update – Phase 1 Analysis

1.0 INTRODUCTION

WATT Consulting Group was retained by ERIF to conduct a traffic analysis for a newly changed development plan at 221 Minato Road in Ucluelet, BC. The ERIF's proposed development is 250 residential units plus commercial spaces (variety store / general office). This memo is focused on the Phase 1 of the development which includes 192 residential units and the commercial space. See **Figure 1** for the proposed concept site plan.

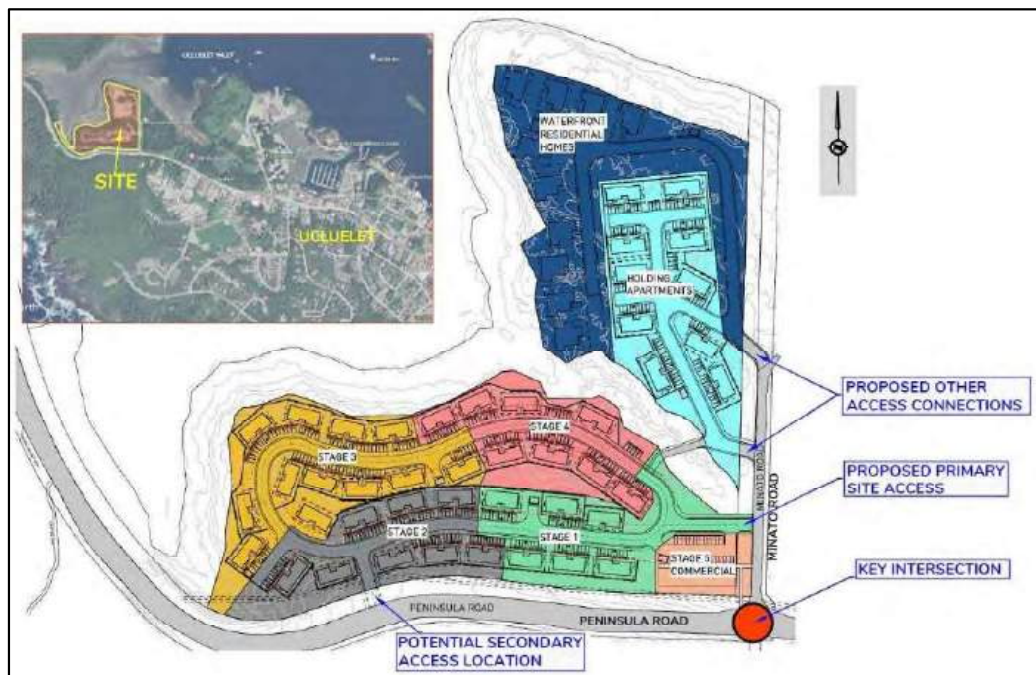


Figure 1: Concept Site Plan

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Date: 2024-09-18

To: Juliette Green, ERIF

Subject: 221 Minato Road TIA Update – Phase 1 Analysis

WATT CONSULTING GROUP

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This study reviews traffic conditions at the key intersection of Peninsula Road / Minato Road, assesses the need for any mitigation measures, and reviews the opening day and 10-year horizon traffic operations.

2.0 POST DEVELOPMENT ANALYSIS

2.1 Proposed Land Use

The proposed residential development (at full buildout) consists of 250 residential units plus 10,592 sq.ft of commercial space (variety store / general office). Phase 1 comprises development Stages A-E, which only excludes the 58 Market Apartments in Lot 4. **Table 1** summarizes the proposed land use breakdown for Phase 1.

Table 1: Proposed Land Use Breakdown for Phase 1 (Stage A-E)

Proposed Land Use Type	Density ^[1]
High Density Residential	75 Multi-family Units (Low-Rise)
Non-Profit Residential	107 Multi-family Units (Low-Rise)
Single-Family Residential	10 Waterfront Single-family Homes
Total	192 Dwelling Units
Retail - Variety Store	5,296 sq.ft (Ground Floor)
Office - General Office Building	5,296 sq.ft (Second Floor)

Notes:

1. Based on the proposed ERIF's Master Plan (September 2024)
2. Excludes 58 market rental apartments in final Phase 2

2.2 Site Access

For Phase 1, a primary site access and other access connections will be provided only from Minato Road. The proposed primary site access (see **Figure 1**) is located on Minato Road 60m north of Peninsula Road. For Phase 1, all site trips use only the Minato Road / Peninsula Road intersection as an access point. A potential secondary site access is

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To: Juliette Green, ERIF

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considered on Peninsula Road for the long term (Phase 2). This second access is not studied here but is discussed below.

2.3 Trip Generation

The proposed development (Phase 1) includes a total of 182 multi-family units (Low-Rise), 10 single-family homes, a variety store of maximum 5,296 sq.ft, and a general office building of maximum 5,296 sq.ft. Vehicular trip generation rates for the proposed development are based on the *ITE Trip Generation Manual (11th Edition)*. The trip generation forecast for the site is provided in **Table 2**. The proposed development is forecast to generate 145 two-way trips during the adjacent street's weekday PM peak hour.

Table 2: Peak Hour Trip Generation

ITE Land Use		Weekday PM			Generated Trips		
Code	Description	Rate	In	Out	Total	In	Out
220	Multi-Family Housing (Low-Rise) 182 Units	0.51	63%	37%	93	59	34
210	Single-Family Housing 10 Units	0.94	63%	37%	9	6	3
814	Variety Store 5,296 sq.ft	6.7/1000 sq.ft	51%	49%	35	18	17
710	General Office Building 5,296 sq.ft	1.44/1000 sq.ft	17%	83%	8	1	7
Total					145	84	61

2.4 Trip Assignment

The trips generated by the proposed development were distributed and assigned based on existing traffic patterns on Peninsula Road, and key destinations / origins for traffic in

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the area. Peninsula Road runs east-west at Minato Road. To the west is Tofino or Port Alberni.

The following is the site's trip distribution for the PM peak hour:

- 60% of site trips total are from / to Peninsula Road West
- 40% of site trips total are from / to Peninsula Road East (Ucluelet)

The resulting trip assignment for the PM peak hour is shown in **Figure 2**.

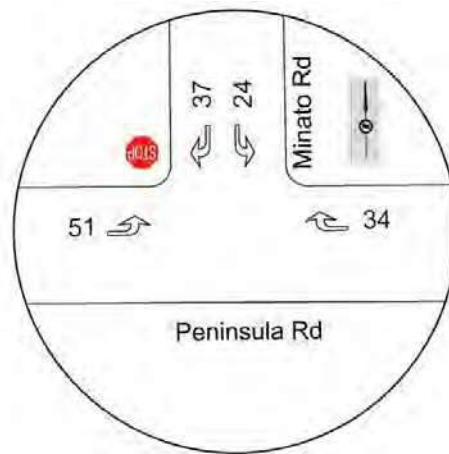


Figure 2: Trip Assignment (PM Peak Hour)

2.5 Opening Day Post Development Analysis Result

For the opening day analysis, background through volumes on Peninsula Road are based on traffic counts taken from the Ministry of Transportation and Infrastructure (MoTI) count station (P-13-8EW) located at the Highway 4 and Tofino-Ucluelet Highway intersection.

To test a high-use summer-traffic scenario, summer peak hour volumes (measured in July/August 2018/2019) before the pandemic period were used. The MoTI's count site (0.5 km south of Route 4) is located on Ucluelet Road 5.5 km north of Minato Road.

The opening day post development conditions were analyzed by adding the development trips to the background traffic volumes. See **Figure 3** for opening day post development volumes during the PM peak hour.

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No capacity issues were found based on the post-development (Phase 1) Synchro analysis results at the study intersection of Peninsula Road / Minato Road. All movements are expected to operate at LOS A/B for all movements during the Opening Day PM peak hour with the development (Phase 1). The eastbound left 95th percentile queue length was estimated at 11m on Peninsula Road at Minato Road. For potential safety improvements at the intersection, the need for turn lanes is discussed in **Section 3.0**.

See for **Table 3** for opening day post development conditions for the study intersection.

Table 3: Opening Day Intersection Operations with Phase 1

Movement	v/c Ratio	LOS	Delay (s)	95% Queue (m)
Peninsula Rd / Minato Rd				
EBLT	0.05	A	7.7	11.0
WBTR	-	A	0	-
SBLR	0.13	B	11.8	15.4

Notes: Estimated 95th percentile queue lengths based on SimTraffic results

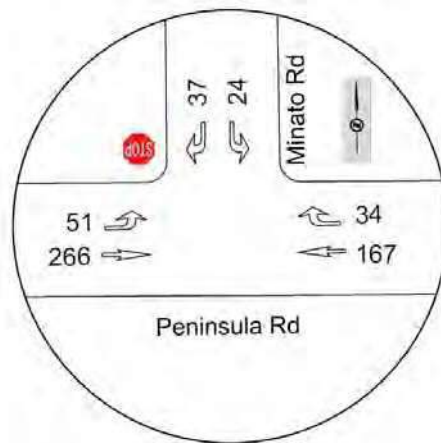


Figure 3: Post Development PM Peak Hour Volumes

2.6 10-Year Horizon Post Development Analysis Result

For the 10-Year Horizon analysis, a 3.5% annual growth rate was used to obtain future background through-volumes on Peninsula Road from the opening day background

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To: Juliette Green, ERIF

Subject: 221 Minato Road TIA Update – Phase 1 Analysis

scenario. A 3.5% annual average growth rate on Ucluelet Road was estimated based on AADT data between 2010 and 2019 from the MoTI’s count data. See for **Figure 4** for 10-year horizon post development volumes.

Analysis revealed no capacity issues at the study intersection in the long term. The intersection of Peninsula Road / Minato Road will continue to operate at LOS A/B for all movements during the 10-year horizon post development PM peak hour. No queuing issues are projected for the long term, with the addition of development traffic (Phase 1). See for **Table 4** for 10-year horizon post development conditions for the key intersection.

Table 4: 10-Year Horizon Post Development Intersection Operations with Phase 1

Movement	v/c Ratio	LOS	Delay (s)	95% Queue (m)
Peninsula Rd / Minato Rd				
EBLT	0.05	A	7.9	11.3
WBTR	-	A	0	-
SBLR	0.15	B	13.6	15.3

Notes: Estimated 95th percentile queue lengths based on SimTraffic results

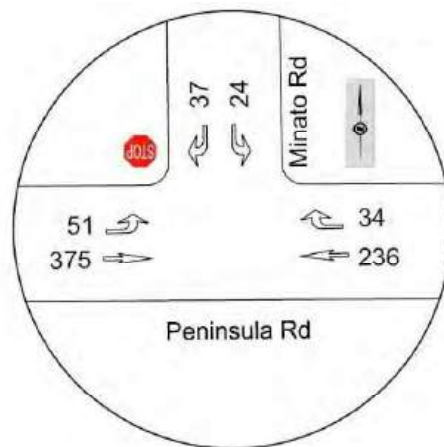


Figure 4: 10-Year Horizon Post Development PM Peak Hour Volumes

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3.0 TURN LANE WARRANT ANALYSIS

3.1 Left Turn Lane Warrant Review

While the traffic conditions are excellent along the Peninsula Road approaches, left-turning vehicles may introduce safety and delay concerns that merit the consideration of an eastbound left turn lane at Minato Road. Therefore, a left-turn lane warrant analysis was conducted for eastbound Peninsula Road traffic at the study intersection. The warrant procedure used is from the BC MoTI’s *Left Turn Lane Warrant Manual* and is based on PM peak hour volumes in the opening year and 10-year horizon post development.

3.1.1 Left Turn Lane Warrant Review for Opening Day

At Peninsula Road / Minato Road, an eastbound left turn lane is not warranted in the short term based on the opening day post development PM peak hour volumes (50 km/h, 20% left turn ratio). A westbound left turn lane is not required on Peninsula Road at Minato Road due to the T-intersection configuration. See **Figure 5** for the Left Turn Lane Warrant review for Opening Day with Phase 1.



Figure 5: Left Turn Lane Warrant Review - Opening Day with Phase 1

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3.1.2 Left Turn Lane Warrant Review for Long Term

A left turn lane warrant analysis was also conducted for the Peninsula Road / Minato Road intersection with 10-year horizon volumes. In the 10-year horizon post development year, an eastbound left turn lane is warranted on Peninsula Road at Minato Road (50 km/h, 15% left turn ratio). The need for the turn lane is based mainly on the increase in background traffic. See **Figure 6** for the left turn lane warrant review with 10-year horizon post development volumes.

As such a 15 m long left turn lane is recommended as part of the intersection design.



Figure 6: Left Turn Lane Warrant Review for 10-Horizon Post Development (Phase1)

The warrant analysis was also checked for a “trigger point” which requires a left turn lane as the development (Phase 1) progresses. In general, around 80% of the total trips (and be extension the number of units) is the trigger point for the left turn lane. That 80% mark can be reached any number of ways when considering the multi-family units / waterfront homes / commercial. Below several trigger point scenarios are explored:

Scenario 1 trigger: When multi-family reaches 162 units + all the commercial space but excluding 10 waterfront homes, the turn lane is triggered.

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Scenario 2 trigger: When multi-family reaches 142 units + 10 waterfront homes are built + all the commercial space, the turn lane is triggered.

Scenario 3 trigger When 100% of the residential units (182 multi-family units + 10 waterfront homes) and up to 33% of the proposed commercial space, the turn lane is triggered.

In summary, a trigger point for an eastbound left turn lane would be approximately 80% of the full build-out (Phase 1). However, when the intersection is upgraded with four legs in the future, dedicated left turn lanes will likely be implemented for both directions on Peninsula Road.

At full build out in the 10-year horizon the left turn lane is warranted.

3.2 Right Turn Lane

The MoTI's turn lane warrant manual does not provide volume warrant charts for a right turn lane. Estimated turning volumes at Peninsula Road / Minato Road exceed MoTI's private access definition (turning volumes total >100 vph and right turn volume >30 vph). Therefore, the intersection of Peninsula Road / Minato Road should be designed based on the drawings in MoTI's Supplement to TAC Geometric Design Guide (Figure 710.F Rural Local Intersection).

For a westbound right lane treatment, a direct taper should be used rather than a parallel right deceleration lane as the speed is low (50km/h), right turning volumes are relatively low (<40 vph), and no queueing issues were found. The intersection should be designed such that the westbound right lane has a direct taper of 55m, and that the raised islands seen in Figure 7.10F are excluded; the islands are not needed due to the low speed and low volume of traffic estimated at Minato Road, and their presence will increase the crossing distance and complexity for people accessing the multiuse trail.

3.3 Acceleration Lane

The right turn movement from Minato Road would not require the need for an acceleration lane along the westbound of Peninsula Road. Analysis results show LOS A/B for the right turn movement from Minato Road. It is expected that on Peninsula Road, estimated westbound through volumes are not significant, with 270 vph (projected 2034 volumes). The traffic conditions (moderate volumes and 50 km/h speed) will contain enough gap

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opportunities that right turning vehicles turning onto Peninsula Road will not need the acceleration lane.

3.4 The Peninsula Road / Minato Road Intersection

3.4.1 4-leg Future

The intersection of Minato Road and Peninsula Road is intended to become a four-approach intersection with future development south of the intersection. This affects the intersection's final form and the need/design of the left turn lane discussed above.

An ultimate intersection design likely includes left turn lanes for the westbound approach, which would make for a symmetrical intersection eastbound/westbound. Because of the space requirements of developing left turn lanes the east/west symmetry is both logical and recommended.

At the time of turn lane construction in the future all turn lane dimension noted here should be reevaluated.

3.4.2 Roundabout

A roundabout is also an option for the intersection, reasons for a roundabout at this location are as follows:

- From a traffic volume perspective, the intersection would be a good candidate.
- A roundabout at this location would act as a gateway for the town of Ucluelet and would help “set the tone” for traffic entering town.
- Safety outcomes of roundabouts.
- MoTI has a roundabout first policy.
- Opportunity for placemaking and area-defining public art.

One important aspect of roundabouts that should be noted involves their cost: A fully designed roundabout, with high quality landscaping, ornamental street lighting, full pedestrians crossing, etc. can cost upwards of \$4 million, which is likely cost prohibitive for a small municipality. However, roundabouts offer many design options including mini-roundabouts, lower-cost version, and temporary version. Some examples of lower cost options can be seen below. These examples show that the municipality could construct a lower cost roundabout as a long-term interim step, gaining the benefits of a roundabout, without incurring large costs right away. In the future the roundabout could be upgraded as desired.

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Lower Cost Roundabout Examples (Top: Friday Harbor, WA USA. Bottom: Victoria, BC at Cook Street and Southgate Street)

The final form of the intersection should be determined by the controlling entities with consultation of a professional transportation engineer. This should be discussed in the context of the left turn lane noted above, which is only required in the 10-years post-development scenario, giving ample time to consider the intersection's form.

4.0 SAFETY REVIEW

4.1 Sightline Review

Sightlines were reviewed at Minato Road (stop location) for safety concerns. See **Figure 7** for a sightline review for vehicles exiting from Minato Road.

The Transportation Association of Canada (TAC) specifies sightline distances for vehicles turning onto a road from a stop condition for both left and right turns. For left turns from a stop on a 50km/h roadway 105m of clear sightline is needed, and 95m is needed for a right turn.

The sightline review showed clear sightlines well beyond the 105m threshold, with no obstructions, significant roadway curvature, or other impediments; sightlines have been

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met for both left and right turns from a stop condition. Within the figure there are Google Street View images showing the sightlines from the view of vehicles approaching Minato Road from both the east and west. These images show the clear sightlines from both a horizontal and vertical perspective. There is a small hill to the west of Minato Road, but the crest of the hill (and any corresponding visual impediments due to it) is more than 120m from the mouth of Minato Road, well beyond the 105m of clear sightline.

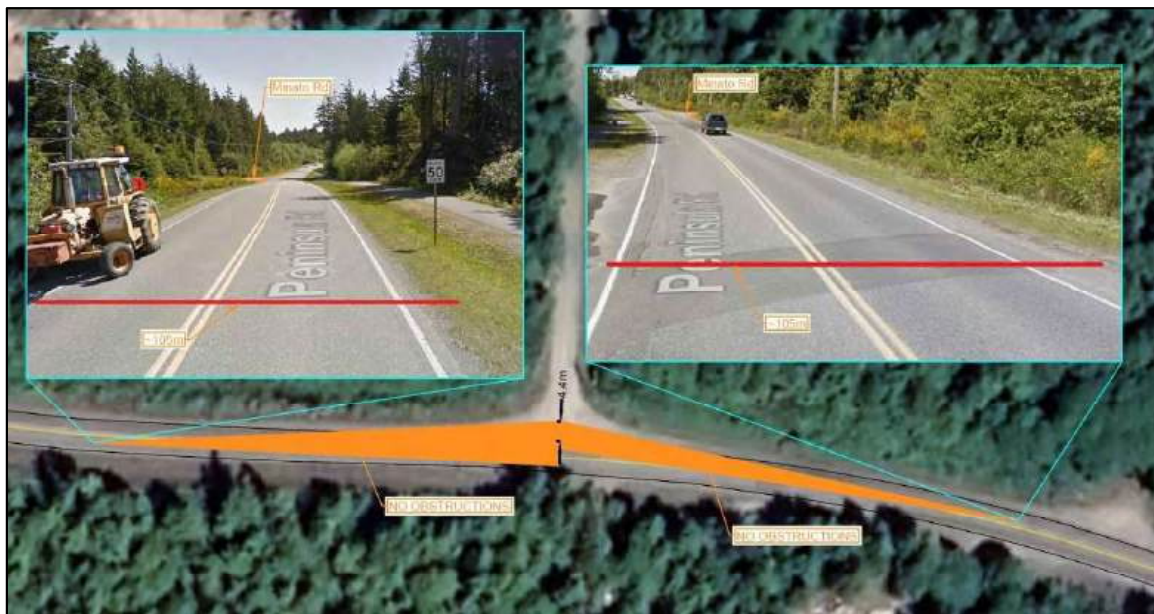


Figure 7: Sightline Review for Vehicles Exiting from Minato Road

4.2 Active Transportation Connections

Directly south of the development along Peninsula Road, the Wild Pacific Trail pathway runs east-west from Tofino into Ucluelet. This multi-use pathway is usable for both pedestrians and cyclists and provides safe and extensive connectivity to destinations within Ucluelet all the way to the neighbouring community of Tofino.

Currently, no official or close-by crossing opportunities from the development to the multi-use pathway exist. The intersection of Peninsula Road / Minato Road is currently 3-legged, but it may be upgraded to a 4-legged with a new side street to the south in the future developments. This location would be a good candidate for a pedestrian crossing point due to the active transportation demand anticipated in the future. Needs for pedestrian crossing facility were assessed based on two guidelines: (1) Pedestrian

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Crossing Control Manual for BC (1994) and (2) TAC's Pedestrian Crossing Control Guide (2017).

4.2.1 Crossing Control Manual for BC (1994)

On Peninsula Road at Minato Road, a pedestrian crossing facility is not warranted based on the *Pedestrian Crossing Control Manual for BC*. However, there is an arguable point of view in evaluating needs for a crossing device in the BC manual.

In the manual, the pedestrian crossing warrant chart is based on crossing opportunities; a pedestrian crossing device is not warranted regardless of crossing pedestrian counts if crossing opportunities are greater than 120 per hour, which is the case here.

It should be noted the design is 30 years old and much has changed in the realm of active transportation and pedestrian design in the last 30 years. The recommendations of the Guide are outdated to the point that other methodology should be examined.

4.2.2 TAC Pedestrian Crossing Control Guide (2017)

The TAC's *Pedestrian Crossing Control Guide (Third Edition, Draft Final, 2017)* suggests more reasonable criteria determining needs for pedestrian crossing facilities.

The TAC's Guide provides a demand assessment for appropriate treatments based on minimum daily volume (1,500 veh/day), speed limit, distance to the adjacent crossings, on a pedestrian desired line and characteristics of pedestrian.

The subject point is located on a pedestrian desire line with a strong connectivity for the future roadway network. On Peninsula Road, it is reported average daily traffic (ADT) exceeds 5,000 vehicles during the summer high season period.

Based on the TAC's pedestrian crossing guide (*Decision Support Tool – Preliminary Assessment & Treatment Selection Matrix*, page 35 & 37), a crosswalk with side-mounted signs and zebra markings is recommended on at Peninsula Road at Minato Road for access to the south side of Peninsula Road to aid residents in safely accessing the Wild Pacific Trail.

4.3 Considerations for Secondary Site Access from Peninsula Road

With the development (Phase 1), a secondary access from Peninsula Road would be not required from a capacity analysis perspective. However, the municipality was supportive of a newly proposed Peninsula Road access in emergency use or construction phase with directional restriction. Due to insufficient sight distances for 70 km/h, a secondary site

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access from Peninsula Road would be used for emergency vehicles or construction with a right in / right out control. If a temporary Peninsula Access is used with a full movement as part of construction process, the road speed limit should be lowered to 50 km/h with appropriate signage.

5.0 CONCLUSION

The proposed development (Phase 1) will generate 145 trips during the PM peak hour. The impact analysis was undertaken with summer peak hour volumes as a worst-case scenario. At the study intersection of Peninsula Road / Minato Road, no capacity issue were found with the development in the short and long terms. All movements will operate at LOS A/B during the PM peak hour in the long term. However, Minato Road should be upgraded to the a municipal road standard based on the design standards for local roads.

At the intersection, a typical highway intersection design treatment would be required based on the MoTI design standards. An eastbound left turn lane is not warranted based on the opening day post development (Phase 1) volumes. However, the left turn lane is warranted based on 2034 post development volumes. The trigger point for the left turn lane would be 80% of the full buildout. When the intersection is upgraded with four legs in the future, left turn lanes would be implemented for both directions on Peninsula Road. A westbound right lane should be installed with a 55m direct taper. No sightline issues were found at the Peninsula Road / Minato Road.

Around the site, new trail connections will be provided for pedestrians and cyclists. A paved multi-use trail passes along the south side of Peninsula Road. The intersection of Peninsula Road / Minato Road would be a good candidate location for pedestrian crossing due to the strong connectivity demand for active transportation in the future. A zebra marked crosswalk should be implemented with side-mounted signs on Peninsula Road at Minato Road for safety based on the TAC's Pedestrian Crossing Control Guide.

6.0 RECOMMENDATIONS

The following recommendations are made for the proposed development:

- At Peninsula Road / Minato Road, an eastbound left turn lane (15m storage) is required in the 10-year long term scenario with Phase 1 of the development. The

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- trigger point for the left turn lane is an 80% progress level of the proposed Phase 1 completion.
- At Peninsula Road / Minato Road, a westbound right lane is required with a 55m direct taper.
 - Minato Road upgrade as per municipal cross section standards for local roads.
 - A zebra marked pedestrian crosswalk with side-mounted signs across Peninsula Road at Minato Road.
 - A secondary site access from Peninsula Road is considered for emergency use or during the construction phase with a right in / right out only condition. If a full movement access from Peninsula Road is required as part of the construction process, the road speed limit should be lowered to 50 km/h with appropriate signage (Trucks Entering Roadway ahead signs, flaggers as needed, etc.) be added as per a well-designed Traffic Management Plan.
 - The final form of the Peninsula Road / Minato Road intersection should be carefully considered as either a roundabout or with dedicated left turn lanes implemented for both directions when the intersection is upgraded to four legs in the long term.

Sincerely,

WATT Consulting Group**Andy Kading, P.Eng.***Senior Transportation Engineer*

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Attn: Jodie Thompson
ERIF

September 9, 2024

This letter summarizes the initial results of the preliminary field reconnaissance (PFR) carried out by the Yuułuʔiłʔatḥ Government - Ucluelet First Nation (UFN) Department of Culture, Language & Heritage on August 29, 2024. This PFR took place at 221 Minato Road in response to a proposed residential development on private lands, as requested by ERIF.

The initial results of this PFR are as follows:

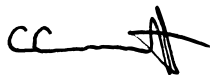
- One (1) previously unregistered archaeological culturally modified tree (CMT) was visited and recorded by the UFN field crew. This CMT consists of a standing western red cedar showing a plank removal notch and kindling collection scars with clear toolmarks. This CMT is protected by the Heritage Conservation Act (HCA).
- Two (2) areas of potential were visited and documented by the UFN field crew. These areas consist of low-lying flat landforms suitable for temporary occupation immediately within the tree line, above the shoreline and contain moderate potential for subsurface archaeological material such as shell midden.
- One (1) traditional use site consisting of seven (7) contemporary tapered bark stripped western red cedars was encountered during this survey. None of the seven (7) bark strip features pre-date 1846 and are therefore not protected by the HCA,
- One (1) Yuułuʔiłʔatḥ named place was identified immediately adjacent this study area.

Due to the high cultural significance of this area, any further development planning will require further consultation with the Yuułuʔiłʔatḥ Government – Ucluelet First Nation.

Further details concerning this survey will be included in the corresponding PFR report.

Sincerely,

Carey Cunneyworth
Director of Culture, Language & Heritage



John Rankin
Interim Director of Operations



221 Minato Road

Development Permit: Landscape Architecture

PREPARED FOR:

DISTRICT OF UCLUELET PLANNING, DEVELOPMENT AND BYLAW SERVICES

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1.0 INTRODUCTION

The following is intended to provide general guidelines for the implementation of the soft landscape components of the proposed multi-family residential and commercial project located at 221 Minato Road. These guidelines are based on the 5-Stage Architectural DP application submission prepared by ERIF Sustainable Solutions and Formosis Architecture.

The subject area is in the District of Ucluelet (Ucluelet) Development Permit Area (DPA) IV – Multi-Family, Commercial, and Mixed Use, DPA V – Terrestrial (Mature Forest) and DPA VI – Streams and Riparian Areas. This summary focuses on DPA IV and Bear-Human Conflict Management from a soft landscape planting perspective. MacDonald Gray Consultants Inc. (MacDonald Gray) will work directly with the project Environmental Consultant (QEP) during the detailed design process to meet the objectives outlined in DPA V and DPA VI .

1.1 DPA GENERAL GUIDELINES AND DPA IV – MULTI-FAMILY, COMMERCIAL, AND MIXED USE

DPA IV is intended to ensure new developments preserve and enhance the natural beauty and rich ecological qualities of Ucluelet. Soft landscape guidelines in the General Guidelines applying to all Form and Character DPA's, DPA IV – Multi-Family, Commercial, and Mixed Use that will be applied to the landscape plan for the 221 Minato Road project include:

1. Landscaping will soften the building appearance and present a human-scale presence at the pedestrian level;
2. Landscape areas including native species tree planting will be interspersed in parking areas;
3. Soften the visual impact of blank walls with planting;
4. Appropriate landscape to soften transition between land uses of different intensity or types;
5. Landscape planting schemes will provide definition and clarity within the public realm:
 - a. Define the edges of outdoor space;
 - b. Signify a particular spot such as entrances and gateways;
 - c. Highlight pedestrian corridors;
 - d. Delineate private and semi-private space from public space;
 - e. Beautify a streetscape.
6. Planting will be designed to maintain drivers' sight lines;
7. Native trees and plants will be used where appropriate;
8. All landscaping will be in accordance with the latest Canadian Nursery Landscape Association (CSLA)/ Canadian Society of Landscape Architects (CSLA) Canadian Landscape Standard (previously the BC Landscape Standard);

9. Integrated vegetated bioswales in parking areas;
10. Screen parking areas from the street and/ or neighbouring residential buildings with substantial landscaping;
11. Native landscaping in common areas;
12. Robust visual buffers of parking, loading and service areas by way of retained and enhanced native vegetation along all boundaries.

1.2 CANDIDATE PLANT LIST

The following list of plants is 'Table 5. Recommended Native Plant Species for Landscaping' compiled by Wanda McAvoy, taken directly from the *District of Ucluelet – Human-Bear Conflict Management Plan* prepared by Barbara Beasley, Ph.D.

Plant species and pot sizes for use in the landscape will be selected based on availability, exposure, location and appropriateness for the applications outlined in the DPA guidelines above.

Table 1. Candidate Plant List

Common Name	Botanical Name	Attractant Level	Comments
Evergreen Trees			
Western Red Cedar	<i>Thuja plicata</i>	Low	Moist to wet sites; low to mid elevations; BC provincial tree; coniferous
Western Hemlock	<i>Tsuga heterophylla</i>	Low	Dry to wet sites; low to mid elevations; coniferous
Douglas Fir	<i>Pseudotsuga menziesii</i>	Medium	Dry to moist sites; low elevations; coniferous
Amabilis Fir	<i>Abies amabilis</i>	Medium	"
Scrub/Shore Pine	<i>Pinus contorta</i>	Low	Highly adaptable to coastal BC; low to mid elevations; coniferous
Lodgepole Pine	<i>Pinus contorta latifolia</i>	Low	"
Western White Pine	<i>Pinus monticola</i>	Low	"
Pacific/Western Yew	<i>Taxus brevifolia</i>	Low	Similar to western red cedar
Sitka Spruce	<i>Picea sitchensis</i>	Low	Dry to moist sites; likes full sun; coniferous
Deciduous Trees			
Red Alder	<i>Alnus rubra</i>	Medium	Moist sites; mid to sub-alpine elevations
Sitka Alder	<i>Alnus sinuate/sitchensis</i>	Medium	"
Bigleaf/Broadleaf Maple	<i>Acer macrophyllum</i>	Low	Dry to moist sites
Vine Maple	<i>Acer circnatum</i>	Low	Moist sites with drainage; shade tolerant; low to mid elevations; bright fall colours in full sun
Shrubs Lacking Berries			
Labrador Tea	<i>Ledum groenlandicum</i>	Medium	Moist sites; low to mid elevations; small white flowers June-July; succeeded by dry, hairy fruits
Mock Orange	<i>Philadelphus lewisii</i>	Low	Moist & rocky sites; low elevations; likes shade; showy orange-white blossoms in June
Shrubby Cinquefoil	<i>Potentilla fruticosa</i>	Low	Moist to rocky sites; bright yellow blooms June-Sept.; widely planted as ornamentals
Water Birch	<i>Betula occidentalis</i>	Low	Moist sites along margins of lakes/streams
Falsebox	<i>Pachistima myrsinites</i>	Low	Low-growing evergreen in damp coniferous forests; reddish flowers bloom in small tight clusters along stem
Hardhack	<i>Spiraea douglasii</i>	Low	Damp, open areas at low to mid elevations; showy pink flowers bloom in dense, cylindrical clusters
False Azalea	<i>Menziesia ferruginea</i>	Low	Shady to open forests; acidic humus, moist slopes and streambanks.
Pacific Ninebark	<i>Physocarpus capitatus</i>	Low	Often found in dense thickets; white flowers grow in tight, round, terminal clusters Apr-June; red-brown seed husks in fall; wet, open places; coastal marshes, streambanks, lake margins or understory of moist woods

Common Name	Botanical Name	Attractant Level	Comments
Sweet Gale	<i>Myrica gale</i>	Low	Low, bushy; long narrow, leathery leaves; fragrant, yellow waxy glands release scent when lightly brushed; flowers are born in catkins, in many clustered terminal spikes; male & female flowers occur on separate plants Apr-June, before leaves; along coast in swamps, bogs, lakeshores & estuaries
Oceanspray	<i>Holodiscus discolor</i>	Low	Sun to Semi-Shade; foamy sprays of creamy flowers in mid-summer; lilac-like clusters; flowers turn brown & remain on plant over winter; grows in open dry woods, clearings, thickets, logged areas, ravine edges, coastal bluffs & roadsides
False Azalea	<i>Menziesia ferruginea</i>	Low	Erect to straggly, shady to open coniferous woods, acidic humus.
Evergreen Shrubs Lacking Berries			
Juniper, Common/Mountain/Creeping	<i>Juniperus communis</i> <i>Juniperus horizontalis</i>	Medium	Prickly; good for xeriscape; many cultivars available
Mahonia/Oregon Grape	<i>Mahonia aquifolium</i>	Low	Dry to moist sites; well-drained; low to mid elevations
Pacific Rhododendron	<i>Rhododendron macrophyllum</i>	Low	Spectacular floral display in late spring; moist to dry sites; sun/shade; grows well in coniferous/mixed forests
California Wax-Myrtle	<i>Myrica californica</i>	Low	Coastal forest edges.
Ferns			
Maidenhair Fern	<i>Adiantum pedatum</i>	Low	Humus rich soils close to streams or waterfalls; low to mid elevations; deciduous; damp shade; graceful & delicate
Lady Fern	<i>Athyrium filix-femina</i>	Low	Moist to wet; all elevations; forest to meadow; shade; deciduous; dense clumps; lacy, bright green fronds
Deer Fern	<i>Blechnum spicant</i>	Low	Moist to wet forests; all elevations; evergreen; dark green fronds; drought tolerant; part sun to deep shade
Sword Fern	<i>Polystichum munitum</i>	Low	Moist forest; low to mid elevations; magnificent ornamental evergreen with glossy, dark green, leathery fronds; dense clumps; sun to shade
Licorice Fern	<i>Polypodium glycyrrhiza</i>	Low	Sometimes summer deciduous & winter evergreen; shade/sun; wet, mossy ground; grows on stumps, rocks & trees-often on bigleaf maple
Spiny Wood Fern	<i>Dryopteris expansa</i>	Low	Semi-evergreen; vigorous; triangular-shaped fronds; moist soil in filtered shade

Common Name	Botanical Name	Attractant Level	Comments
Perennials/Wildflowers & Ground Covers			
Wild Lily-of-the-Valley	<i>Maianthemum dilatatum</i>	Low	Groundcover/wildflower with delicate clusters of white flowers
Wild Ginger	<i>Asarum caudatum</i>	Low	Mat-forming evergreen perennial; purple-brown flowers in Apr.; sweet scent; partial shade to sun; moist well-drained soil
Foxglove	<i>Digitalis purpurea</i>	Low	Wildflower; purple/pink/white;
Goat's Beard	<i>Aruncus dioicus</i>	Low	Wildflower; cream flower sprays; damp shade
Douglas Aster	<i>Aster douglasii</i>	Low	Purple wildflower, disturbed open areas
Western Bleeding Heart	<i>Dicentra formosa</i>	Low	Moist, shade
Western Trillium	<i>Trillium ovatum</i>	Low	Moist, shaded open areas
Nodding Onion	<i>Allium cernuum</i>	Low	Dry open woods and exposed grassy places, rocky crevices and sandy soils
Pearly Everlasting	<i>Anaphalis margaritacea</i>	Low	Wildflower, yellow centres and white petals, disturbed soil.
Indian Paintbrush	<i>Castilleja</i>	Low	Wildflower, perennial, scarlet bracts.
Bog Rosemary	<i>Andromeda polifolia</i> (Heath family)	Low	Low-spreading evergreen with small pink flowers, boggy, acidic soils
Yellow Monkey Flower	<i>Mimulus guttatus</i>	Low	Yellow figwort flower, wet ledges, crevices, weeping rock faces
Lupine	<i>Lupinus polyphyllus</i>	Low	Blue to violet pea-like flowers, perennial, moist to wet open habitats and disturbed sites.
Stream Violet	<i>Viola glabella</i>	Low	Yellow wildflower, heart-shaped leaves, moist forests and clearings, along streams
Foamflower	<i>Tiarella trifoliata</i>	Low	Delicate white flowers, moist shade, seepage areas.
Fawn Lily	<i>Erythronium</i>	Low	Pink fawn lilies require open to dense moist woodlands.
Gentian	<i>Gentianella</i>	Low	King Gentian has blue flowers, Swamp Gentian has white flowers, both grow in boggy areas or wet ditches.
Moss Campion	<i>Silene acaulis</i>	Low	Showy pink, lilac or purple flowers; moist rock crevices.
Yellow Marsh-Marigold	<i>Caltha palustris</i> var. <i>palustris</i>	Low	Wetland plant; deep yellow, buttercup like flower July-Aug.
Phlox	<i>Phlox</i> spp.	Low	Perennial, showy pink to lavender or white flowers. Herbaceous border; sun
Coltsfoot	<i>Petasites palmatus</i>	Medium	Tall ground cover; damp in full sun/partial shade; large deeply divided basal leaves; pale pink flower heads in spring; rhizomus
Buck-Bean	<i>Menyanthes trifoliata</i>	Medium	Semi-aquatic; shallow ditches/bog areas; tubular white flowers with glistening hairs on upper surface & feathery appearance in May-June

Common Name	Botanical Name	Attractant Level	Comments
Common Yarrow	<i>Achillea millefolium</i>	Low	Aromatic herb; unusual fern-like leaves; dense clusters of round, yellow-centered, daisy-like flowers June-Aug.
Red/Western Columbine	<i>Aquilegia Formosa</i>	Low	Wildflower; lowlands to timberline; nodding crimson/yellow flowers May-Aug.; soft, lime green ferny leaves
Twinflower	<i>Linnaea borealis</i>	Low	Forest; acid soils; low elevation to timberline; charming low evergreen ground cover about 1. high; tiny evergreen leaves with small trumpet-shaped pink flowers; partial-full shade

1.3 ESTIMATE OF PLANT QUANTITIES

The following table is a summary of approximate soft landscaped areas by lot, see Appendix 'A':

Table 2. Approximate Soft Landscaped Areas

Lot Number	Description	Area (sq.m)
1	Attainable	7,422
2	Housing	4,378
3	Waterfront Homes	7,860
4	Commercial	222
5	Market Rentals	6,542

The following table provides an estimated number of plants per lot based on an average spacing by plant category. This table assumes 70% of the estimated area will be planted with deciduous and evergreen woody shrubs, and 30% will be planted with groundcovers and perennials. Tree species will be selected suit available soil volumes, and located to avoid future conflicts with buildings, surface and underground utilities, drivers' sight lines and appropriateness for the applications outlined in the DPA guidelines above.

Table 3. Estimate of Plant Quantities and Average Spacing by Lot

Lot Number	Trees (avg. 9m on-centre)	Shrubs (avg. 1.2m O.C.)	Perennials/ Groundcover (avg. 0.9m O.C.)
1	105	3,530	2,650
2	65	2,085	1,560
3	115	3,740	2,805
4	5	105	80
5	95	3,115	2,335

2.0 CONCLUSION

This soft landscape summary will be used as a basis for preparing detailed landscape architecture plans for the project. The landscape architecture components of the project will be designed in such a way that supports the objectives outlined in Ucluelet's OCP Bylaw, DPA IV – Multi-Family, Commercial, and Mixed Use and Zoning Bylaw No. 1160, Division 600 – Landscaping and Screening.

The detailed landscape design will enhance the natural environment and maintain the coastal village character of Ucluelet. The Landscape Architecture plans will include trees, shrubs, groundcover, perennials, lawns, bark mulch, decorative boulders and gravel, decorative paving, planters, fences, non-load bearing exterior structures and walls not exceeding 1.2m in height. All landscape elements will fully and suitably be arranged to enhance the appearance of the development, or where required in Ucluelet policies and guidelines, to effectively screen a building, the lot, portion of the lot, storage or other use. The landscape design will also be integrated with the stormwater management plan as prepared by the project Civil Engineer.

MacDonald Gray understands that the natural beauty and rich ecological qualities of Ucluelet are of the utmost value to its residents, guests, and future generations. The coastal environment and wild character of the area will be the guiding inspiration behind the Landscape Architecture design.

3.0 APPENDIX 'A' - SOFT LANDSCAPE AREAS PLAN

ALL RIGHTS RESERVED. PROPERTY OF THE ARCHITECTS. USE OR REPRODUCTION PROHIBITED WITHOUT PRIOR WRITTEN PERMISSION.

THIS DRAWING IS INTENDED FOR INFORMATION ONLY. THE CONTRACTOR AND ANY PERSON USING THIS DRAWING SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND REGULATORY APPROVALS. THE ARCHITECTS, IN ANY CAPACITY, SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION, MEASUREMENTS, DIMENSIONS AND/OR DIMENSIONS TO THE DRAWING.

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DATE: 2024-09-19

SCALE: 1:750

PROJECT NO. 2024-09-19

PROJECT NAME: PLANTED LANDSCAPE AREAS

LOCATION: MINATO 221 MINATO ROAD

CLIENT: UCLULET

DESIGNER: KC

DATE: 2024-09-19

SCALE: 1:750

PROJECT NO. 2024-09-19

PROJECT NAME: PLANTED LANDSCAPE AREAS

LOCATION: MINATO 221 MINATO ROAD

CLIENT: UCLULET

DESIGNER: KC

DATE: 2024-09-19

SCALE: 1:750

PROJECT NO. 2024-09-19

PROJECT NAME: PLANTED LANDSCAPE AREAS

LOCATION: MINATO 221 MINATO ROAD

CLIENT: UCLULET

DESIGNER: KC

DATE: 2024-09-19

SCALE: 1:750

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DESIGNER: KC

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LOCATION: MINATO 221 MINATO ROAD

CLIENT: UCLULET

DESIGNER: KC

DATE: 2024-09-19

SCALE: 1:750



District Group
200 – 8809 Heather Street
Vancouver, BC
V6P 3T1

March 5, 2024
File: 23265
R0

Attention: Jessica Tempesta

**Re: Geotechnical Investigation Report – Proposed Multi Family Development
221 Minato Road, Ucluelet, British Columbia**

1.0 INTRODUCTION

We understand that a new development is proposed at the above-referenced site in Ucluelet, BC. Based on preliminary information provided to us, the approximately 25 acre site would be completed as a 2 phase subdivision. We anticipate 26 single-family detached residences and a 72-unit apartment complex would be included in Phase 1. Phase 2 is expected to include 49 single-family detached residences along with a 72-unit apartment complex. Loading for the development is expected to be light to moderate, with wood framed construction above grade and reinforced concrete construction for foundations and any below grade structures. We further expect that new on site utilities and roads would be included as part of this development. We are in receipt of a geotechnical investigation report for the site previously prepared by others.

This report presents our recommendations for the design and construction of the proposed development and temporary excavations based on our field investigation, review of geotechnical investigations completed by others, and our experience in the immediate area. This report has been prepared exclusively for District Group, for their use, the use of others on their design and construction team, and for the District of Ucluelet and the Alberni-Clayoquot Regional District for use in the development and permitting process.

2.0 SITE DESCRIPTION

The site is located on the northeast side of the Ucluelet Peninsula. The site is bounded by Ucluelet Inlet to the north and west, Minato Road and private forested property to the east, and Peninsula Road to the south. A creek separates proposed Phases 1 and 2 of the project.

The property is irregular in shape, approximated as a backwards “L” with the western segment encompassing Phase 1 and the northern segment encompassing Phase 2. The two phases are separated by a creek. Phase 1 has a centrally located peak along its southern boundary with an elevation of 17 m geodetic as measured by Ebbwater Consulting in a 2020 Flood Mapping Report. This peak slopes gently to the sea at the western and northern boundaries of Phase 1, and to the creek on its western boundary.

Phase 2 is generally flat with much of the area lying at approximately 8 m geodetic as measured by Ebbwater Consulting in a 2020 Flood Mapping Report. Phase 2 exhibits gentle slopes to the sea along its western and northern boundaries.

Large portions of the site have undergone extensive clearing of trees and vegetation; along with topsoil in some large portions of Phase 2. Localized areas remain forested and/or covered in topsoil. The site is currently improved with temporary roads. The site and surrounding improvements are shown on our Drawing No: 23265-02, following the text of this report.

3.0 FIELD INVESTIGATION

GeoPacific completed an investigation of the soil and groundwater conditions at the site on February 5th, 2024 using a tracked excavator supplied and operated by Crow Excavating & Trucking of Tofino, BC. The site investigation included 9 test pits.

The test pits were excavated to depths between 1.1 m and 3.0 m below current local grades. The pits were located, supervised, and logged by a member of our geotechnical staff. Soil samples were collected for routine laboratory testing.

Prior to our investigation, a BC one call was placed and Municon West Coast cleared the utilities at the test hole locations. All test holes were backfilled and sealed in accordance with provincial abandonment requirements following classification, sampling, and logging.

The locations of the test pits completed by GeoPacific Consultants Ltd. are shown on our Drawing 23265-02, following the text of this report. The test pit logs are presented in Appendix A.

4.0 SUBSURFACE CONDITIONS

4.1 Published Geological Information

According to the Geological Survey of Canada's Surficial Geology Map 2013-NVI-1-1, the region under investigation is situated in the Pacific Rim Complex. The Pacific Rim Complex is described as, "mudstone-rich melange; pillow lava, tuff and chert; green, aphanitic volcanic breccia and massive flows, small diorite intrusions, grey limestone lenses".

4.2 Soil Conditions

TOPSOIL

Topsoil was encountered just below the surface at all test pit locations excavated within Phase 1, along with TP24-05. It extended to depths ranging from 0.3 m to 0.9 m. It was composed of compact silty sand with some organic clays/peaty material and trace gravel. Rootlets and decaying plant matter were present. It was noted to be dark red-brown in color and was moist.

Sandy SILT (FILL)

Loose to dense fill composed of sandy silt with some gravel and trace clay, sourced on site, was encountered just below the surface at TP24-07 and TP24-08. It was extended to depths of 0.3 m and 0.8 m, respectively. The fill was noted to be moist and contain rootlets. It was grey in color at TP24-07. At TP24-08 it was noted to be dark-brown, peaty, and contain large wood chunks.

Silty SAND and GRAVEL

Very dense silty sand and gravel with trace cobbles was encountered just below the surface at TP24-06 extending to a depth of 1.2 m. The silty sand and gravel was partially cemented in conglomerate chunks and was difficult to excavate. It was grey-brown in color and contained trace moisture.

SILT

The surficial layer of topsoil, fill, or silty sand and gravel at all test pit locations was underlain by hard silt with some sand and some clay. At TP24-09 the silt was encountered from surface. This stratum extended to depths ranging from 0.9 m to 2.4 m below grade. The silt was grey in color with streaks of brown weathered material throughout; except at TP24-06 where the silt was noted to be clayey with trace sand and was blue-grey in color. This stratum contained some moisture.

Silty SAND and GRAVEL

Very dense silty sand and gravel with some cobbles was encountered beneath the silt layer extending to depths ranging from 1.8 m below grade to beyond the termination depths of some test pits; >3.0 m below grade. The cobbles increased in size to boulders with depth. The silty sand and gravel was grey in color and was moist to wet.

BEDROCK

The silty sand and gravel is underlain by bedrock. It is seen outcropping in some areas throughout the site and was encountered or inferred at all test pits except TP24-01. The depth of bedrock encountered is shown in Table 1.

Table 1: Depth to Bedrock

Test Pit	Depth (m bgs)
TP24-01	>3.0
TP24-02	2.1
TP24-03	3.0 (Inferred)
TP24-04	2.4
TP24-05	0.9
TP24-06	2.7 (Inferred)
TP24-07	1.8
TP24-08	2.3
TP24-09	2.9 (Inferred)

4.3 Groundwater Conditions

The static groundwater table was not encountered during our investigation. Perched groundwater was observed above the bedrock. We expect perched groundwater will form above the less permeable strata, particularly above the bedrock, but also above the hard silt, following periods of significant precipitation. Groundwater levels may vary seasonally with generally higher levels during the wetter months of the year.

5.0 DISCUSSION

Based on preliminary information provided to us, the approximately 25-acre site would be completed as a 2 phase subdivision. We anticipate 26 single-family detached residences and a 72-unit apartment complex would be included in Phase 1. Phase 2 is expected to include 49 single-family detached residences along with a 72-unit apartment complex. Loading for the development is expected to be light to moderate, with wood framed construction above grade and reinforced concrete construction for foundations and any below grade structures. We further expect that new on site utilities and roads would be included as part of this development.

We expect that the proposed buildings may be supported on conventional strip and pad footings bearing on native hard silt, very dense sand and gravel, or directly on bedrock.

The soils on site are not considered liquefiable or subject to cyclic strain softening during the 2018 British Columbia Building Code (BCBC) design earthquake.

We confirm from a geotechnical standpoint that the proposed development is feasible and safe for the intended use provided the following recommendations are implemented in the design and construction of the development.

6.0 RECOMMENDATIONS

6.1 Site Preparation

Prior to construction of foundations, grade supported slabs and pavement structures, all materials considered to compromise the design recommendations following this section are to be removed. These materials include but are not limited to vegetation, topsoil, fill, organic material, debris, refuse, and loose or otherwise disturbed soils. It should be noted that stripping depths will vary across the site due to the undulating nature of the bedrock and variability of site stripping already completed. Some rock chipping/minor blasting is anticipated to expose competent bedrock and to develop a suitably level building grade where bedrock is at or above founding grades.

The minimum stripping depths for foundations, floor slabs and pavement structures may be locally up to 1.0 m.

Any grade reinstatement beneath building foundations to be supported directly on competent bedrock should be done with lean-mix concrete with a minimum compressive strength of 5 MPa at 28 days. Grade reinstatement beneath floor slabs and non-structural walls can be done with engineered fill, or possibly blast rock sourced on-site. If blast rock is to be used it should be process to a maximum 300 mm minus and placed on the prepared subgrade in lifts no greater than 600 mm in thickness prior to compaction with a vibratory drum roller. The 300 mm minus grading fill should be capped with a minimum of 150 mm of engineered fill, as described below.

In the context of this report, “engineered fill” is generally described as clean sand to sand and gravel containing silt and clay less than 5% by weight, compacted in 300 mm loose lifts to a minimum of 95% of the Modified Proctor (ASTM D1557) maximum dry density at a moisture content that is within 2% of optimum for compaction. Density testing should be conducted on each compacted lift of engineered fill to confirm that its density meets the required standard. Density testing results should be forwarded to the geotechnical engineer for review.

Groundwater encountered during construction can be expected to vary seasonally. Any groundwater encountered should be controlled as part of the site preparation work. We expect that the groundwater encountered during construction could be controlled using usual techniques, such as trenching and pumps and sumps.

The geotechnical engineer shall be contacted for the review of stripping and engineered fill placement and compaction.

6.2 Conventional Foundations

As noted in Section 5.1, we expect that building foundations for at-grade construction can be supported on conventional pad and strip footings founded on native hard silt, very dense sand and gravel, or directly on bedrock.

Conventional pad and strip footings supported on competent bedrock can be designed using a Serviceability Limit State (SLS) bearing pressure of 1.0 MPa. Pad and strip footings bearing on the native silt or sand and gravel can be designed based on a Serviceability Limit State (SLS) bearing pressure of 250 kPa. Where pad and strip footings are placed directly on compacted blast rock fill or engineered fill, an SLS bearing pressure of 150 kPa may be utilized.

Factored Ultimate Limit State (ULS) bearing pressures, for transient loads such as those induced by wind and earthquakes, may be taken as 1.5 x the SLS bearing pressure provided above.

The silt at founding depths is considered sensitive to moisture. The exposed subgrade soils should be protected using lean mix concrete to preserve its bearing qualities and ensure that the subgrade remains free of ponded water prior to the pouring of concrete for footings. Any softened or disturbed subgrade should be removed and replaced with lean mix concrete.

Irrespective of bearing pressures, footings should not be less than 450 mm in width for strip footings and not less than 600 mm in width for square or rectangular pad footings. Footings should also be buried a minimum of 450 mm below the surface for frost protection.

Post construction settlement of foundations designed as recommended should be less than 25 mm total and 20 mm over a 10 m differential.

Adjacent footings constructed at differing elevation should be offset from each other by a minimum distance of twice the difference in elevation 2:1 (H:V). For example, two foundations separated by 1.0 m in elevation should be offset horizontally from each other by a minimum distance of 2.0 m as measured from the inside edges of those foundations. Foundations constructed within 2:1 (H:V) of each other may impose additional vertical and horizontal forces on lower foundation, columns, and/or foundation walls. GeoPacific Consultants Ltd. should review foundation layouts which do not achieve the minimum 2:1 (H:V) offset.

The geotechnical engineer shall be contacted for the review of all foundation subgrades prior to footing construction.

6.3 Slab-On-Grade Floors

In order to provide suitable support for slab-on-grade floors, we recommend that any fill placed under the slab should be “engineered fill” as described in Section 6.1 above.

The floor slabs should be directly underlain by a minimum of 150 mm of 19 mm clear crushed gravel fill to inhibit upward migration of moisture beneath the slab. The crushed gravel fill should be compacted to a minimum of 95% of the ASTM D1557 (Modified Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction. A moisture barrier should be installed directly beneath the slab directly above the free draining granular material.

The geotechnical engineer shall be contacted for the review of the slab subgrade and under slab materials and compaction.

6.4 Foundation Drainage

In the case of grade supported construction, a perimeter drainage system is not required from a geotechnical perspective provided that the slabs-on-grade are maintained at a minimum of 150 mm above exterior grades and exterior site grading slopes down and away from the building.

In the case of construction with below grade structures, a perimeter drainage system will be required for the below grade structures to prevent the development of water pressure on the foundation walls and floor slab.

All drains should be designed to prevent migration of fines and should be hydraulically connected to the under-slab fill to ensure that water pressures cannot develop beneath the slab. Large groundwater flows are not expected and we suggest that the perimeter drainage system be preliminarily designed for a groundwater inflow rate of 10-15 litres/minute, per 5000 square metres of footprint.

The mechanical designer should confirm the actual groundwater flow during construction at the end of the subgrade preparation.

6.5 Seismic Design of Foundations

The subgrade conditions underlying the site may be classified as “Site Class C” as defined in Table 4.1.8.4.A of the 2018 British Columbia Building Code (BCBC). Peak ground acceleration on firm ground for the approximate site location is 0.700 g (Natural Resources Canada, Site Coordinates: 48.949°, -125.569°)

We do not expect any of the soils used to support building foundations to be prone to liquefaction or strain softening during cyclic loading caused by the design earthquake defined in the 2018 BCBC.

6.6 Utility Installation

There are no civil design plans available at present, however we anticipate storm sewer, sanitary sewer, water and other private utilities will be installed to service the buildings. We expect conventional open trench construction for new utilities. Some shoring may be required locally for deeper installation.

Site utilities may be required beneath the slabs-on-grade. The design of these systems must consider the locations and elevations of the foundations. The service trenches and excavations required for the installation of the underground pipes, vaults and/or manholes must be located outside of a 1.5:1 (H:V) slope measured downward from the edge of adjacent foundations.

We recommend that all excavations and trenches be sloped or shored as per the latest Workers Compensation Board (WCB) regulations. Any excavation in excess of 1.2 m in depth requiring worker entry must be reviewed by a professional geotechnical engineer. We recommend that all service trenches be backfilled with clean granular material, which conforms to municipal standards, compacted to 95% Modified Proctor (ASTM D1557) maximum dry density, with a moisture content within 2% of optimum for compaction. If for any reasons the backfill becomes saturated prior to compaction, it must be removed and replaced with dry fill.

We would expect little seepage from excavations advanced through the native silt. However, some perched groundwater should be expected in any excavation advanced into the silty sand and gravel as well as at the contact between the fill placed during site preparation and the underlying silt, particularly during the wetter winter and spring months. All excavations and trenching must conform to the latest Occupational Health and Safety Regulations of Work Safe BC.

Excavations deeper than 1.2 m must be reviewed by a professional engineer prior to worker entry.

6.7 New On-Site Roads and Parking

The minimum asphalt pavement structure recommended for on-site roads and parking is presented in Table 2 below.

Table 2: Recommended Minimum Pavement Structure for On-Site Works

Material	Thickness (mm)	CBR
Asphaltic Concrete	65	N/A
19 mm Minus Crushed Aggregate Base Course	100	80
75 mm Minus Sand and Gravel Sub-Base Course	250	20

In areas where heavy loading is expected, such as drive aisles and access roads, we recommend that the asphalt thickness be increased to 100 mm.

All base and subbase course materials should be systematically compacted in thin lifts to a minimum density equivalent to 95% of their Modified Proctor maximum dry density, at water contents within 2% of their optimum moisture contents for compaction, determined in accordance with ASTM D1557. The base and subbase materials should meet municipal requirements for gradation and density. Density testing should be conducted on these materials and the results forwarded to the geotechnical engineer for review.

The geotechnical engineer shall be contacted for the review of road and parking structure fill materials and compaction.

6.8 Temporary Excavation and Backfill

We expect that temporary excavations would be sloped where possible since it is more economical to do so. Expected allowable slope cuts are shown in Table 3. We expect that vertical cuts in the native soils may be supported using lock blocks. Unsupported vertical cuts in the native soils may be possible but will need to be reviewed at the time of excavation.

Table 3: Recommended Minimum Pavement Structure for On-Site Works

Material	Allowable Slope Cut
Topsoil / Fill	1:1 (H:V)
Hard Silt	1:2 (H:V)
Very Dense Sand & Gravel	1:1 (H:V)

Temporary cut slopes in excess of 1.2 m in height must be covered in polyethylene sheeting and require review by a professional engineer in accordance with Work Safe BC guidelines, prior to worker entry.

Shoring may be required for excavations in close proximity to property lines or utilities. The extent of the shored sections of the excavation will depend on the existing topography as well as the final design layout and elevations for the proposed structure and existing adjacent structures.

GeoPacific will prepare an excavation/shoring design upon request.

Moderate seepage during the wetter months should be expected due to the formation of perched water tables. We expect that inflows may be handled with sumps and sump pumps.

6.9 Lateral Pressures on Foundation Walls

Earth pressures against the foundation walls are dependent on factors such as, available lateral restraint along the

wall, surcharge loads, backfill materials, compaction of the backfill and drainage conditions. For a sloped excavation with drained backfill conditions, assuming granular backfill with a friction angle of 35 degrees and unit weight of 18 kN/m^3 , we recommend that the foundation walls be designed to resist the following lateral earth pressures:

- Static: Triangular soil pressure distribution of $5H \text{ kPa}$, where H is equal to the total wall height in metres.
- Seismic: Inverted triangular soil pressure distribution of $4H \text{ kPa}$, where H is equal to the total wall height in metres.

The preceding loading recommendations assume that the synthetic drainage material provides a drained cavity around the perimeter of the foundation. We expect that the perimeter drainage system will be hydraulically connected to the synthetic drainage material and sufficiently lower the groundwater level such that hydrostatic pressures against the foundation walls are eliminated.

Any additional surcharge loads not specifically described herein should be added to the earth pressure given. All earth pressures are based upon unfactored soil parameters and are assumed to be unfactored loads.

The geotechnical engineer should be contacted for the review of all backfill materials and procedures.

6.10 Flood Considerations

Flooding can occur by overland transport of surface water from a stream or river (estuarine flooding) or from a coastal storm surge or tsunami. Estuarine flooding requires the presence of a channel or draw that can concentrate surface water. The site is in proximity to a creek and is therefore at risk of estuarine flooding.

Coastal inundation (flooding) due to a storm surge or tsunami is possible at the proposed site. Based on the “District of Ucluelet Coastal Flood Mapping” report prepared for the District of Ucluelet by Ebbwater Consulting (2020), the site is located in flood zone 15. In flood zone 15, the flood construction level (FCL) considering a 1 m sea level rise and 0.6 m freeboard is equal to 4.5 m for a 1 in 200 year flood event. We recommend that all building slab elevations are designed to be situated above this FCL.

Ebbwater Consulting (2020) references a Flood Planning Level (FPL) for flood risk due to tsunami. For the District of Ucluelet, the FPL for tsunami related flooding was determined to be 20.0 m, with no safety factor for uncertainty in the model. As a tsunami is considered a natural disaster with a low return period, it is not considered feasible to design buildings to be tsunami resilient, nor to be situated above the FPL. We expect the District of Ucluelet’s tsunami warning system and emergency management procedures would be implemented as part of the subdivision planning process.

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

The preceding sections make recommendations for the design and construction of the proposed residential development. These reviews are carried out to ensure that our intentions have been adequately communicated. It is also important that any contractor(s) working on the site review this document prior to commencing their work.

It is the responsibility of the contractor to contact GeoPacific a minimum of 48 hours in advance to notify us that a field review is required. In summary, field reviews are required for the following aspects of the work:

- | | |
|---------------|---|
| 1. Stripping | Review of stripping depths prior to preload placement |
| 2. Excavation | Review of excavation in excess of 1.2 m |

- | | |
|--------------------|---|
| 3. Engineered Fill | Review of fill materials, placement and compaction |
| 4. Foundation | Review of foundation subgrade |
| 5. Slab-on-Grade | Review of subgrade and fill material |
| 6. Excavations | Review of excavations over 1.2 m in height requiring worker entry |
| 7. Proof Rolling | Review of proof rolling |

8.0 CLOSURE

This report has been prepared exclusively for District Group for the purpose of providing geotechnical recommendations for the design and construction of the proposed residential development and related earthworks. The report remains the property of GeoPacific Consultants Ltd. And unauthorized use of, or duplication of, this report is prohibited.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or would like clarification of any of the above, please do not hesitate to call.

For:
GeoPacific Consultants Ltd.



Nathan Anderson, B.Sc., GIT
Geoscientist-in-Training

Reviewed By:



Daniel Kokan, M.Eng., P.Eng
Project Engineer



LEGEND:

⊕ TP24-XX - TEST PIT (TP) LOCATION

SITE PLAN

1:2500

*TEST LOCATIONS ARE APPROXIMATE

REVISIONS:

- A. XXX
- B. XXX
- C. XXX

FILE NO.:

23265

DWG. NO.:

23265-02



GEOPACIFIC
CONSULTANTS

DATE: 2024-02-20

DRAWN BY: NA	APPROVED BY: DK	REVIEWED BY: DK
-----------------	--------------------	--------------------

SCALE: AS SHOWN

MINATO ROAD - UCLUELET
MINATO ROAD, UCLUELET, BC
SITE PLAN

APPENDIX A – SOIL LOGS

Test Hole Log: TP24-01

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	4.0				
0		TOPSOIL Compact silty-clayey SAND. Trace gravel, trace cobbles. Dark red-brown in color. Moist. Rootlets and decaying forest debris present.	0.0				
1							
2							
3			3.1				
1		SILT Hard SILT, some clay, some sand. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	0.9				
4							
5			2.5				
2		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL. Some cobbles with size increasing to boulders at depth. Grey in color. Wet.	1.5				
6							
7							
8							
9							
10		End of Borehole	1.1				
3			2.9				Perched Water - 9.5'

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A1
Page: 1 of 1

Test Hole Log: TP24-02

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	2.5				
0		TOPSOIL Compact silty-clayey SAND. Trace gravel, trace cobbles. Dark red-brown in color. Moist. Rootlets and decaying forest debris present.	0.0				
1							
2		SILT Hard SILT, some sand, some clay. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	1.9				
3			0.6				
4							
5							
6		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL. Some cobbles. Grey in color. Wet.	0.7				Perched Water - 6'
6			1.8				
7		BEDROCK Bedrock.	0.4				Excavator Refusal - Bedrock
7			2.1				
8			0.2				
8			2.3				
9		End of Borehole					
10							

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A2
Page: 1 of 1

Test Hole Log: TP24-03

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	7.0				
0		TOPSOIL Compact silty-clayey SAND. Trace gravel, trace cobbles. Dark red-brown in color. Moist. Rootlets and decaying forest debris present.	0.0				
1		SILT Hard SILT, some clay, some sand. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	6.4				
2			0.6				
3		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL. Some cobbles with size increasing to boulders at depth. Grey in color. Wet.	4.9				
4			2.1				
5		End of Borehole	4.0				
6			3.0				
7							Perched Water - 10'
8							Excavator Refusal - Inferred Bedrock
9							
10							

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A3
Page: 1 of 1

Test Hole Log: TP24-04

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	11.0				
0		TOPSOIL Compact silty-clayey SAND. Trace gravel, trace cobbles. Dark red-brown in color. Moist. Rootlets and decaying forest debris present.	0.0				
1		SILT Hard SILT, some clay, some sand. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	10.7				
0.3			0.3				
6		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL. Some cobbles with size increasing to boulders at depth. Grey in color. Wet.	9.2				
1.8			1.8				
8		BEDROCK Bedrock.	8.7				
2.3			2.3				
8.6			8.6				
2.4			2.4				
		End of Borehole					
10							Excavator Refusal - Bedrock

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A4
Page: 1 of 1

Test Hole Log: TP24-05

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	9.0				
0		TOPSOIL Compact silty-clayey SAND. Trace gravel, trace cobbles. Dark red-brown in color. Moist. Rootlets and decaying forest debris present.	0.0				
1			8.5				
2		SILT Hard SILT, some clay, some sand. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	0.5				
3			8.1				
1			0.9				
3		BEDROCK Bedrock.	7.9				
4			1.1				
5		End of Borehole					
6							
2							
7							
8							
9							
3							
10							

Excavator Refusal - Bedrock

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A5
Page: 1 of 1

Test Hole Log: TP24-06

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	5.0				
0		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL, trace cobbles, trace clay. Grey-brown in color. Trace moisture. Partially cemented in conglomerate chunks.	0.0				
1							
2							
3							
4		Clayey SILT Hard clayey SILT. Trace sand. Blue-grey in color. Some moisture. Holds together in large chunks.	3.8				
5			1.2				
6							
7							
8		Gravelly-Clayey SILT Very dense gravelly-clayey SILT, some sand. Some large cobbles. Blue-grey in color. Wet	2.6				
9			2.4				
10			2.3				
			2.7				
		End of Borehole					
							Perched Water - 9'
							Excavator Refusal - Inferred Bedrock

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A6
Page: 1 of 1

Test Hole Log: TP24-07

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
 Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	3.0				
0		Sandy SILT (FILL) Loose to dense sandy SILT. Some gravel, trace clay. Grey in color. Moist. Rootlets / grass present.	0.0				
1		SILT Hard SILT, some clay, some sand. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	2.7				
0.3			0.3				
4		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL. Some cobbles with size increasing to boulders at depth. Grey in color. Wet.	1.8				
1.2			1.2				
6		BEDROCK Bedrock.	1.2				
1.8			1.8				
2			1.0				
2.0			2.0				
7		End of Borehole					
10							

Perched Water - 5.5'
 Excavator Refusal - Bedrock

Logged: NA
 Method: Mechanical Excavation
 Date: 2024-02-05

Datum: Existing Grade
 Figure Number: A7
 Page: 1 of 1

Test Hole Log: TP24-08

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	3.0				
0		Sandy SILT (FILL) Compact sandy SILT. Some gravel, trace clay. Dark brown in color. Peaty. Moist. Rootlets, grass, large wood chunks present.	0.0				
1							
2							
2.2		SILT Hard SILT, some clay, some sand. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	0.8				Perched Water - 2.5'
3							
4							
5							
6		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL. Some cobbles with size increasing to boulders at depth. Grey in color. Wet.	1.2				
6			1.8				
7							
7							
7.7		BEDROCK Bedrock.	0.7				Excavator Refusal - Bedrock
8			2.3				
8			0.6				
8			2.4				
9		End of Borehole					
10							

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A8
Page: 1 of 1

Test Hole Log: TP24-09

File: 23265

Project: Ucluelet - Minato

Client: District Developments Corp.

Site Location: 221 Minato Road, Ucluelet, BC



1779 West 75th Avenue, Vancouver, BC, V6P 6P2
Tel: 604-439-0922 Fax: 604-439-9189

INFERRED PROFILE				Moisture Content (%)	DCPT (blows per foot)	Groundwater / Well	Remarks
Depth	Symbol	SOIL DESCRIPTION	Depth (m)/Elev (m)				
0		Ground Surface	6.0				
0		SILT Hard SILT, some clay, some sand. Grey in color with streaks of weathered brown. Some moisture. Holds together in hard chunks.	0.0				
4.6		Silty SAND and GRAVEL Very dense silty SAND and GRAVEL. Some cobbles with size increasing to boulders at depth. Grey in color. Wet.	1.4				
3.1		End of Borehole	2.9				Perched Water - 9' Excavator Refusal - Inferred Bedrock

Logged: NA
Method: Mechanical Excavation
Date: 2024-02-05

Datum: Existing Grade
Figure Number: A9
Page: 1 of 1

District Group
200 – 8809 Heather Street
Vancouver, BC
V6P 3T1

September 5, 2023
File: 23265
R0

Attention: Jessica Tempesta

**Re: Geotechnical Investigation Report – Proposed Multi Family Development
221 Minato Road, Ucluelet, British Columbia**

1.0 INTRODUCTION

We understand that a new development is proposed at the above-referenced site in Ucluelet, BC. Based on conceptual site plans prepared by Formosis Architecture, the approximately 25 acre site would be completed as a 2 phase subdivision. We anticipate 98 units of rental housing, 27 single family homes, 40 stacked townhomes, 47 waterfront homes, and 2 amenity buildings would be contemplated for this development. Loading for the development is expected to be light to moderate, with wood framed construction above grade and reinforced concrete construction below grade. We further expect that new on site utilities and roads would be included as part of this development. We are in receipt of a geotechnical investigation report for the site previously prepared by others.

This report presents the results of an investigation of the soil and groundwater conditions at the proposed development site and makes geotechnical recommendations for the design and construction of the proposed development. This report has been prepared exclusively for District Group, for their use and the use of others in their design team for this project as described. We also expect the District of Ucluelet would rely on this report during their development and permitting process.

2.0 SITE DESCRIPTION

The site is located on the northeast side of the Ucluelet Peninsula. The site is bounded by Ucluelet Inlet to the north and west, Minato Road and private forested property to the east, and Peninsula Road to the south. A creek separates proposed Phases 1 and 2 of the project.

Phase 1 of the project, located west of the creek, features a centrally located peak with a geodetic elevation of approximately 14 m. The slopes adjacent to the peak have a gradual incline, leveling off at roughly 8 m towards the east and 3 m towards the west. Phase 2, northeast of the creek, is relatively flat with the terrain gently undulating between approximately 6 m and 9 m geodetic elevation with grades generally decreasing towards the shoreline of Ucluelet Inlet.

The site is currently improved with temporary roads throughout the property and is heavily forested. The site and surrounding improvements are shown on our Drawing No: 23265- 01, following the text of this report.

3.0 FIELD INVESTIGATION

The subsurface ground conditions at the site were previously investigated by others on December 3, 2021. At this time, a total of eleven test pits were completed at the site.

4.0 SUBSURFACE CONDITIONS

4.1 Published Geological Information

The general surficial geology of the region under investigation, according to the Geological Survey of Canada's Surficial Geology Map 2013-NVI-1-1, is situated in the Pacific Rim Complex and is described as, "mudstone-rich melange; pillow lava, tuff and chert; green, aphanitic volcanic breccia and massive flows, small diorite intrusions, grey limestone lenses".

4.2 Soil Conditions

TOPSOIL

The topsoil or peat soils were encountered from ground surface to a depth of 0.1 to 1.5 m below existing grades. Generally comprised of organic residuals and dark brown to black in color.

CLAYEY SILT (TILL)

The topsoil was noted to be underlain by stiff to hard clayey silt (till) with some gravel. some rounded gravel and cobble were observed within this stratum.

BEDROCK

The clayey silt is expected to be underlain by bedrock. Bedrock was not observed in any of the test pits; however, outcrops were identified in discrete locations along the cut bank within the Phase 1 boundary.

4.3 Groundwater Conditions

Based on our previous experience in the area and previous investigations by others, the static groundwater table is not expected to be encountered within the proposed development grades for the site. However, we expect some perched groundwater may form within the surficial soils above the relatively impermeable clayey silt (till). Perched groundwater levels may vary seasonally with generally higher levels in the wetter months and after periods of significant precipitation.

5.0 DISCUSSION

We understand that the proposed development will include 98 rental housing, 27 single family homes, 40 stacked townhomes, 47 waterfront homes, and 2 amenity buildings. All buildings are expected to be constructed at or slightly above existing grade using a mixture of reinforced concrete construction for the foundations and light wood frame construction above grade.

We expect that the proposed buildings may be supported on conventional strip and pad footings bearing on native stiff to hard clayey silt with some gravel noted at the test pit locations or directly on bedrock.

The soils on site are not considered liquefiable or subject to cyclic strain softening during the 2018 British Columbia Building Code (BCBC) design earthquake.

We confirm from a geotechnical standpoint that the proposed development is feasible and safe for the intended use provided the following recommendations are implemented in the design and construction of the development.

6.0 RECOMMENDATIONS

6.1 Site Preparation

Prior to construction of foundations, grade supported slabs and pavement structures, all materials considered to compromise the design recommendations following this section are to be removed. These materials include but are not limited to vegetation, topsoil, fill, organic material, debris, refuse, and loose or otherwise disturbed soils. Our minimum stripping depths for foundations, floor slabs and pavement structures are expected to be governed by the parkade elevations rather than the thickness of unsuitable soils.

Any grade reinstatement beneath the grade supported slabs should be done with “Engineered Fill”. In the context of this report, “Engineered Fill” is generally defined as *clean sand to sand and gravel containing silt and clay less than 5 % by weight*, compacted in 300 mm loose lifts to a minimum of 98% of the ASTM D698 (Standard Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction. Grade reinstatement beneath building foundations should consist of 5MPa lean mix concrete.

Groundwater encountered during construction can be expected to vary seasonally. Any groundwater encountered should be controlled as part of the site preparation work. We expect that the groundwater encountered during construction could be controlled using usual techniques, such as trenching and pumps and sumps.

6.2 Building Foundations

Based on the preliminary design information provided and the soil conditions encountered on site, we envisage that footings will be founded on stiff to hard clayey silt with some gravel or locally bedrock, as described in Section 4.2 above.

We recommend that foundations placed on a subgrade of clayey silt may be designed using a serviceability limit state (SLS) bearing pressure of 150 kPa, and a factored ultimate limit state (ULS) bearing pressure of 225 kPa for use under short term transient loading such as those induced by wind or earthquakes.

Foundations bearing on engineered fill can be designed using an SLS bearing pressure of 120 kPa and a factored ULS bearing pressure of 180 kPa.

Foundations bearing directly on bedrock can be designed for a serviceability limit state (SLS) bearing pressure of 1 MPa, and a factored ultimate limit state (ULS) bearing pressure of 1.5 MPa.

We expect that the settlement of footings designed as recommended should be within the normally acceptable limits of 25 mm total and 2 mm per m differential. Irrespective of bearing pressures, footings should not be less than 450 mm in width for strip foundations and not less than 600 mm in width for square or rectangular foundations. Foundations should also be buried a minimum of 460 mm below the surface for frost protection.

Adjacent foundations constructed at differing elevations should be offset from each other by a minimum distance of twice the difference in elevation 2:1 (H:V). For example, two foundations separated by 1.0 m in elevation should be offset horizontally from each other by a minimum distance of 2.0 m as measured from the inside edges of those foundations. Foundations constructed within 2:1 (H:V) of each other may impose additional vertical and horizontal forces on lower foundations, columns, and/or foundation walls. GeoPacific should review foundation layouts which do not achieve the minimum 2:1 (H:V) offset.

Foundation subgrades of all buildings must be reviewed by a geotechnical engineer prior to footing construction.

6.3 Building Slab-On-Grade Floors

In order to provide suitable support for slab-on-grade floors, we recommend that any fill placed under the slab should consist of *engineered fill* as described in Section 6.1 above.

The floor slab should be directly underlain by a minimum of 150 mm of 19 mm clear crushed gravel fill to inhibit upward migration of moisture beneath the slab. The crushed gravel fill should be compacted to a minimum of 98% of the ASTM D1557 (Modified Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction. A moisture barrier should be installed directly beneath the slab directly above the free draining granular material.

Compaction of the slab-on-grade fill must be reviewed by the geotechnical engineer.

6.4 Foundation Drainage

A perimeter drainage system will be required for the below grade structure to prevent the development of water pressure against the foundation walls and floor slabs.

All drains should be designed to prevent migration of fines and should be hydraulically connected to the under-slab fill to ensure that water pressures cannot develop beneath the slab. Groundwater inflows into the excavation area are expected to be negligible (less than 10 to 20 liters/minute) for the entire excavation. These flow rates should be confirmed at the time of construction.

6.5 Seismic Design of Foundations

The subgrade conditions underlying the site may be classified as “Site Class C” as defined in Table 4.1.8.4.A of the 2018 British Columbia Building Code (BCBC). Peak ground acceleration on firm ground for the approximate site location is 0.700 g (Natural Resources Canada, Site Coordinates: 48.948 degrees north, 125.568 degrees west).

We do not expect any of the soils used to support building foundations to be prone to liquefaction or strain softening during cyclic loading caused by the design earthquake defined in the 2018 BCBC.

6.6 Utility Installation

There are no civil design plans available at present, however we anticipate storm sewer, sanitary sewer, water and other private utilities may be installed to service the buildings. We expect conventional open trench construction for new utilities. Some shoring may be required locally for deeper installation. We recommend that any trenches be sloped or shored as per the latest Work Safe BC regulations. We recommend that all service trenches be backfilled with clean granular material, compacted to 95% of the ASTM D1557 (Modified Proctor) maximum dry density at a moisture content that is within 2% of optimum for compaction. Groundwater encountered in utility trenches can likely be controlled using gravity methods such as pumped sumps.

6.7 New On Site Roads and Parking

The minimum asphalt pavement structure recommended for on-site roads and parking is presented in Table 1 below.

Table 1: Recommended <u>Minimum</u> Pavement Structure for On Site Roads And Parking Areas	
MATERIAL	THICKNESS (mm)
Asphaltic Concrete	75
19 mm Minus Crushed Gravel Base Course	150
75 mm Minus Select Granular Subbase Course	300

In areas where heavy loading is expected, such as drive aisles and access roads, we recommend that the asphalt thickness be increased to 100 mm.

All base and subbase course materials should be systematically compacted in thin lifts to a minimum density equivalent to 95% of their Modified Proctor maximum dry density, at water contents within 2% of their optimum moisture contents for compaction, determined in accordance with ASTM D1557. The base and subbase materials should meet municipal requirements for gradation and density. Density testing should be conducted on these materials and the results forwarded to the geotechnical engineer for review.

The geotechnical engineer shall be contacted for the review of road and parking structure fill materials and compaction.

6.8 Temporary Excavation and Backfill

We expect that temporary excavations would be sloped where possible since it is more economical to do so. Slope cuts may be cut at a slope no steeper than 1:1 (H:V) in the surficial, topsoil and other fills, and 3:4 (H:V) in the underlying very stiff to hard clayey silt and glacial till. Temporary slope requirements may be subject to change due to the present groundwater conditions during excavation. Temporary cut slopes in excess of 1.2m in height require inspection by a professional engineer in accordance with WorkSafe BC guidelines, prior to entry.

The geotechnical engineer shall be contacted for the review of temporary excavations.

6.9 Lateral Pressures on Foundation Walls

Earth pressures against the foundation walls are dependent on factors such as, available lateral restraint along the wall, surcharge loads, backfill materials, compaction of the backfill and drainage conditions. For a sloped excavation with drained backfill conditions, assuming granular backfill with a friction angle of 35 degrees and unit weight of 18 kN/m³, we recommend that the foundation walls be designed to resist the following lateral earth pressures:

- Static: Triangular soil pressure distribution of 5H kPa, where H is equal to the total wall height in metres.
- Seismic: Inverted triangular soil pressure distribution of 4H kPa, where H is equal to the total wall height in metres.

The preceding loading recommendations assume that the synthetic drainage material provides a drained cavity

around the perimeter of the foundation. We expect that the perimeter drainage system will be hydraulically connected to the synthetic drainage material and sufficiently lower the groundwater level such that hydrostatic pressures against the foundation walls are eliminated.

Any additional surcharge loads not specifically described herein should be added to the earth pressure given. All earth pressures are based upon unfactored soil parameters and are assumed to be unfactored loads.

The geotechnical engineer should be contacted for the review of all backfill materials and procedures.

6.10 Tidal Flooding & Tsunamis

Flooding can occur by overland transport of surface water from a stream or river (estuarine flooding) or from a coastal storm surge or tsunami. Estuarine flooding requires the presence of a channel or draw that can concentrate surface water. The site is in proximity to a creek and is therefore at risk of estuarine flooding.

Coastal inundation (flooding) due to a storm surge or tsunami is possible at the proposed site. Based on the coastal flood mapping study prepared for the District of Ucluelet by others, the site is located in flood zone 15. In flood zone 15, the flood construction level (FCL) considering a 1m sea level rise and 0.6 m freeboard is equal to 4.5 m for a 1 in 200 year flood event. We recommend that all building slab elevations are designed to be situated above this FCL.

The above noted coastal flood mapping study references a Flood Planning Level (FPL) for flood risk due to tsunami. For the District of Ucluelet, the FPL for tsunami related flooding was determined to be 20.0 m, with no safety factor for uncertainty in the model. As a tsunami is considered a natural disaster with a low return period, it is not considered feasible to design buildings to be tsunami resilient, nor to be situated above the FPL. We expect the District of Ucluelet's tsunami warning system and emergency management procedures would be implemented as part of the subdivision planning process.

7.0 DESIGN REVIEWS AND CONSTRUCTION INSPECTIONS

The preceding sections make recommendations for the design and construction of the proposed residential development. These reviews are carried out to ensure that our intentions have been adequately communicated. It is also important that any contractor(s) working on the site review this document prior to commencing their work.

It is the responsibility of the contractor to contact GeoPacific a minimum of 48 hours in advance to notify us that a field review is required. In summary, field reviews are required for the following aspects of the work:

- | | |
|------------------|---|
| 1. Stripping | -Review of stripping depth to suitable subgrade materials |
| 2. Fill | -Review of materials, placement and compaction of engineered fill |
| 3. Subgrade | -Review of foundation subgrades |
| 4. Slab-on-grade | -Review of slab-on-grade fill compaction |
| 5. Excavation | -Review of temporary slopes and soil conditions |

8.0 CLOSURE

This report has been prepared exclusively for District Group for the purpose of providing geotechnical recommendations for the design and construction of the proposed residential development and related earthworks. The report remains the property of GeoPacific Consultants Ltd. And unauthorized use of, or duplication of, this report is prohibited.

We are pleased to be of assistance to you on this project and we trust that our comments and recommendations are both helpful and sufficient for your current purposes. If you would like further details or would like clarification of any of the above, please do not hesitate to call.

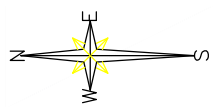
For:
GeoPacific Consultants Ltd.

Pourya Asadi Farsani, B.Sc., M.Sc., EIT.
Geotechnical Engineer-in-Training

Reviewed By:



Daniel Kokan, M.Eng., P.Eng
Project Engineer



REFERENCE:	GOOGLE EARTH	
FILE NO.:	23265	
DWG. NO.:	23265-01	
REVISIONS:	A.	
	B.	
	C.	

SITE PLAN
1:4500

PROPOSED MULTI FAMILY DEVELOPMENT
221 MINATO ROAD, UCLUELET, BRITISH COLUMBIA
SITE PLAN

DATE:	SEPTEMBER 5, 2023	
DRAWN BY:	APPROVED BY:	REVIEWED BY:
P.A.F.	D.K.	D.K.
SCALE:	AS SHOWN	



Ucluelet District Lot 286 – Flood Construction and Tsunami Inundation
Levels for Proposed Development
Final Draft Report



28 January 2022

ebbwater
CONSULTING

Ebbwater Consulting Inc.
510 – 119 West Pender St.
Vancouver, BC V6B 1S5
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EGBC Permit Number: 1000929

Project Number: P217

Disclaimer

This document has been prepared by Ebbwater Consulting Inc. for the exclusive use and benefit of Minato Developments. It has been developed in accordance with generally accepted engineering practices and with full understanding of applicable natural hazard guidelines in the Province of British Columbia.

The contents may be used and relied upon by the officers and employees of Minato Developments. However, Ebbwater Consulting Inc. denies any liability to other parties who access and use this report.

Acknowledgements

This report was written by Jessica Cochran, M.Sc., E.I.T. (Texas) and reviewed by Tamsin Lyle, M.Eng., MRM, P. Eng. (Principal) of Ebbwater Consulting Inc.

We would like to acknowledge that this report was written at the Ebbwater office and home offices, which are located on unceded and Traditional Territory of the Coast Salish people.

Certification

Name, Qualifications, and Project Role	Organization	Signature
Tamsin Lyle, M.Eng., MRM, P.Eng. Senior Reviewer	Ebbwater	<i>(Signature and Stamp to be provided at project conclusion)</i>
Jessica Cochran, M.Sc., E.I.T. (Texas) Contributor	Ebbwater	<i>(Signature provided to be provided at project conclusion)</i>

Revision History

Revision No.	Date	Description	Remarks
1	17 Jan 2022	Draft Report	Shared with client
2	28 Jan 2022	Final Draft Report	Incorporates comments provided by the client and provides additional policy context.

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1 Introduction

Minato Developments (Minato) is proposing the rezoning and development of a 25-acre (10-hectare) site at Ucluelet District Lot 286, shown at 221 Minato Road in Figure 1-1. The 2021 Draft Site Concept details a mix of single- and multi-family homes, rentals, and vacation homes (Formosis Architecture, 2021). During the preliminary planning stage, Minato Developments documented the tsunami hazard at the site as an issue to be studied further and discussed.

The District of Ucluelet (District, DOU) regulations relating to flood hazards are in flux due to new information and a changing climate. The District suggested that Minato engage Ebbwater Consulting Inc. (Ebbwater) to consider flood construction and tsunami inundation levels at the site and ensure that the development would align with forthcoming regulations.

This document outlines the assessment for flood construction and tsunami inundation levels for the development site shown in Figure 1-1, based on the publicly available 2020 District of Ucluelet (DOU) Report (Ebbwater Consulting Inc. and Cascadia Coast Research Ltd., 2020).



Figure 1-1 Development site location

1.1 Development Site Location

The DOU spans the Ucluth Peninsula on the west coast of Vancouver Island. While the western and southern sides of the peninsula are exposed to the open ocean, the eastern side along the Ucluelet Inlet is more sheltered. The 25-acre development site is located along this more sheltered stretch (Figure 1-1).

The proposed development includes 84 rental housing units, 50 family homes, 67 vacation homes or suites, and 2 amenity buildings according to the Draft Site Concept. The proposed units are distributed outside of the local setbacks (i.e., the 30.0 m coastal setback and 10.0 m environmental or creek setback as well as the roadway setbacks).

The development site is bound by the inlet to the north and Peninsula Road to the south. The site is bisected by a creek as shown in Figure 2-1. West of the creek varies in elevation from a higher section at approximately 14.0 metre (m) geodetic elevation toward Peninsula Road (Frontera Geotechnical, 2021) to the lower shoreline. Northeast of the creek gradually slopes from a lower 9.0 m geodetic elevation near Minato Road down to the shoreline and creek.

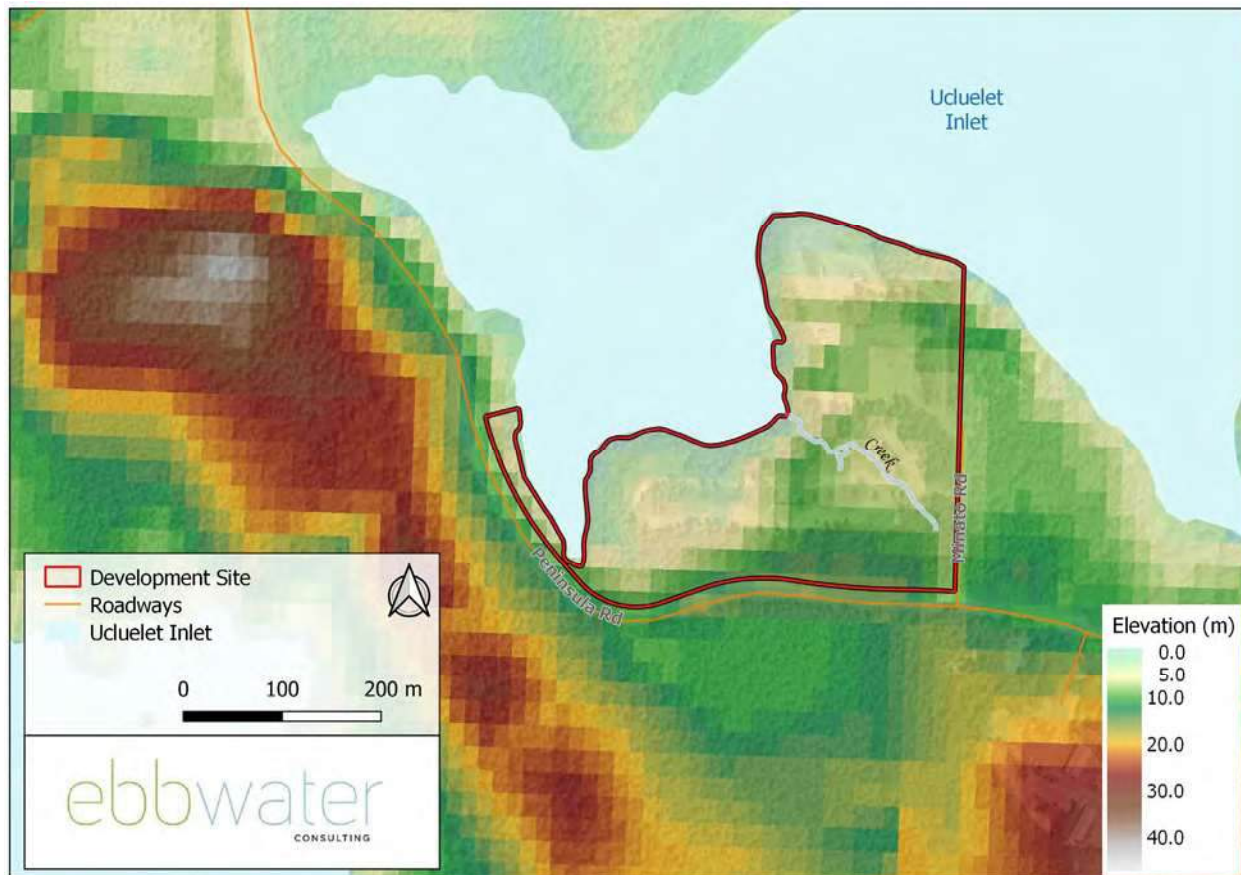


Figure 1-2 Development site elevation in m CGVD28 (2017 10-m CDEM). Update with 2015 LiDAR provided by DOU.

2 Policy Context

As noted in the introduction, natural hazards policy for coastal areas is in flux within the District. This is also true for the Province of BC. The following provides some brief context on existing and changing regulations and guidance.

2.1 British Columbia Policy Context

The Province of BC grants local governments authority to manage hazards under the *Local Government Act*, which authorizes a local government to designate land as a flood plain, to specify the flood construction level for that floodplain and specify setbacks or landfill and structural supports within the floodplain.

In support of the above legislation, the Province has also prepared the *Flood Hazard Area Land Use Management Guideline*, which provides additional information on how to define and designate a floodplain, as well as information on acceptable building practices (i.e. how to apply an FCL in practice). This document was originally released in 2004 around the same time as the *Local Government Act* was promulgated. It was revised in 2018 in recognition of climate change and sea level rise. Changes were made to help local governments better define future flood plain areas. Changes to reflect best practice policy for the use of flood hazard areas (e.g., spatial variation in policy, use of property-level flood protection and/or flood-resilient design) have not been made to date. Specific guidance relevant to the project site follows below.

Further, we note that natural hazards policy in BC is in flux. In the wake of recent damaging flood and wildfire events, BC is proposing to update the Emergency Program Act (EPA), to better reflect the direction of the Sendai Framework (the international blueprint for disaster risk reduction), to which BC is a signatory. The EPA modernisation timeline has been derailed by the COVID19 disaster, and no new dates for engagement and ultimately promulgation have been defined. However, it is the authors' understanding that BC wishes to continue moving towards a risk-based approach to hazard management. That is, an approach that considers likelihood and potential consequences of a hazard event as opposed to defining a hazard severity standard (e.g., the 0.5% AEP flood event).

2.1.1 Coastal Flood

In 2011, the Government of BC commissioned a number of reports that provide guidance for land use planning and mapping in consideration of coastal flood hazards and SLR (Ausenco Sandwell 2011a, 2011b, 2011c; Kerr Wood Leidal 2011). Collectively, these documents are referred to as the *Provincial Guidelines*. The guidance in these documents was further refined in the Association of Engineers and Geoscientists British Columbia (APEGBC, now EGBC) Professional Practice Guidelines for Flood Mapping in BC, released in 2017 and referred to in this report as the *Professional Practice Guidelines* (APEGBC, 2017).

The *Provincial Guidelines* define a number of key water levels to be used in flood planning and mapping (see also Section 4.1).

Designated Flood Level (DFL). The DFL is the still water level resulting from a chosen flood hazard event or designated storm.

DFL =

Future SLR Allowance

+ High Tide (HHWLT)

**+ Total Storm Surge (deep water storm surge + estimated wind set-up
+ inter-annual climate variation)**

Flood Construction Reference Plane (FCRP). The FCRP is the maximum level that flood water is predicted to reach, based on analysis.

FCRP =

Designated Flood Level (DFL)

+ Estimated Wave Effect

Flood Construction Level (FCL). The FCL is an elevation relative to the Canadian Geodetic Vertical Datum (CGVD), and it is used in planning to establish the elevation of the underside of a wooden floor system (or top of concrete slab) for habitable buildings. It includes a freeboard (for safety) to account for uncertainties in the analysis.

FCL =

Flood Construction Reference Plane (FCRP)

+ Freeboard

The FCL is extended from the shoreline horizontally landward, until the land surface elevation reaches the FCL. All land with an elevation below the FCL landward of the shoreline is considered within the FCL extent.

2.1.2 Tsunami

Ucluelet is in Zone C of the Tsunami Notification Zones for BC (GeoBC, 2015) and therefore subject to significant tsunami hazard. Guidelines for areas subject to significant tsunami hazard are in Flood Hazard Area Land Use Management Guidelines (Amended 2018), Section 3.5.6. The following is stated in direct regard to tsunami hazards:

- Tsunami setbacks and elevations should be required for new lots created through the subdivision approval process. Tsunami hazard requirements and regulations for existing lots may be determined by local governments on a site specific or regional basis.
- The “standard” setbacks and elevations in sections 3.5.5.1 to 3.5.5.4 [of the guidelines] above apply to all coastal areas outside of the Strait of Georgia, except for new subdivisions subject to significant tsunami hazards, in which case the tsunami setbacks and elevations shall apply. Where the tsunami hazard is low, the greater FCLs and setbacks shall apply.
- A subdivision application in a tsunami prone area must include a report by a suitably qualified Professional Engineer, experienced in coastal engineering who must formulate safe building conditions for each proposed lot based on a review of recent Tsunami hazard literature including the report, “Modelling of Potential Tsunami Inundation Limits and Run-Up”, by AECOM for the Capital Regional District, dated June 14, 2013, plus the historical report, “Evaluation of Tsunami Levels Along the British Columbia Coast”, by Seaconsult Marine Research Ltd., dated March 1988.

At a minimum, building conditions should protect improvements from damage from a tsunami of equal magnitude to the 28 March 1964 tsunami that resulted from the Prince William Sound, Alaska earthquake and a possible Cascadia Subduction Zone earthquake.

- Setback requirements should be established on a site-specific basis and consider tsunami hazards. The setback must be sufficient to protect buildings and must be at least 30.0 m from the Year 2100 estimated natural boundary.
- FCL requirements should be established on a site-specific basis and consider tsunami hazards. Reductions to these requirements should only be considered where the building can be built to the Tsunami FCL on bedrock.

2.2 Nearby Guidelines

The nearby District of Tofino (Tofino) completed modern coastal flood mapping in 2019, a year before the DOU. These maps were and integrated some findings in the nearby District of Tofino Official Community Plan to support planning and emergency management (in compliance with Part 14 of the *Local Government Act*). Tofino also recently passed a [Floodplain Bylaw](#) to support risk reduction from coastal floods. Both Ucluelet and Tofino are peninsulas on the west coast of Vancouver Island and therefore at risk to similar hazards such as coastal floods, tsunami, and sea level rise.

- Current [tsunami] protocol is to move to high ground if shaking is felt and not to wait for an official warning. A safe planning level has been designated to be above 20 m, however, preliminary tsunami modelling and mapping is required to confirm this, identify high ground (safe areas), and help in determining the most effective evacuation routes.
- Community resiliency is improved by locating future development in areas that are less susceptible to the impacts of sea level rise, coastal flooding, and tsunami inundation and reducing pressure on emergency evacuation routes. (p. 43)
- Prioritize evacuation planning and the development of evacuation options to mitigate the impacts of tsunami hazard. (p. 45)

3 District of Ucluelet Policy

As for all Local Governments the DOU sets out policy related to development generally, and development within hazardous areas within its Official Community Plan, and related bylaws and regulations. The current OCP, from 2011, is currently being updated. A draft version of the OCP from 2020 is available.

3.1 Land Use Policy

The long-range land use plan, in the draft OCP, at the development site currently shows three categories (Figure 2-2). The area is split evenly between parks and open space and residential. The parks and open space landuse follows the three types of setbacks mentioned. The residential plan is for single and multi-family landuse.

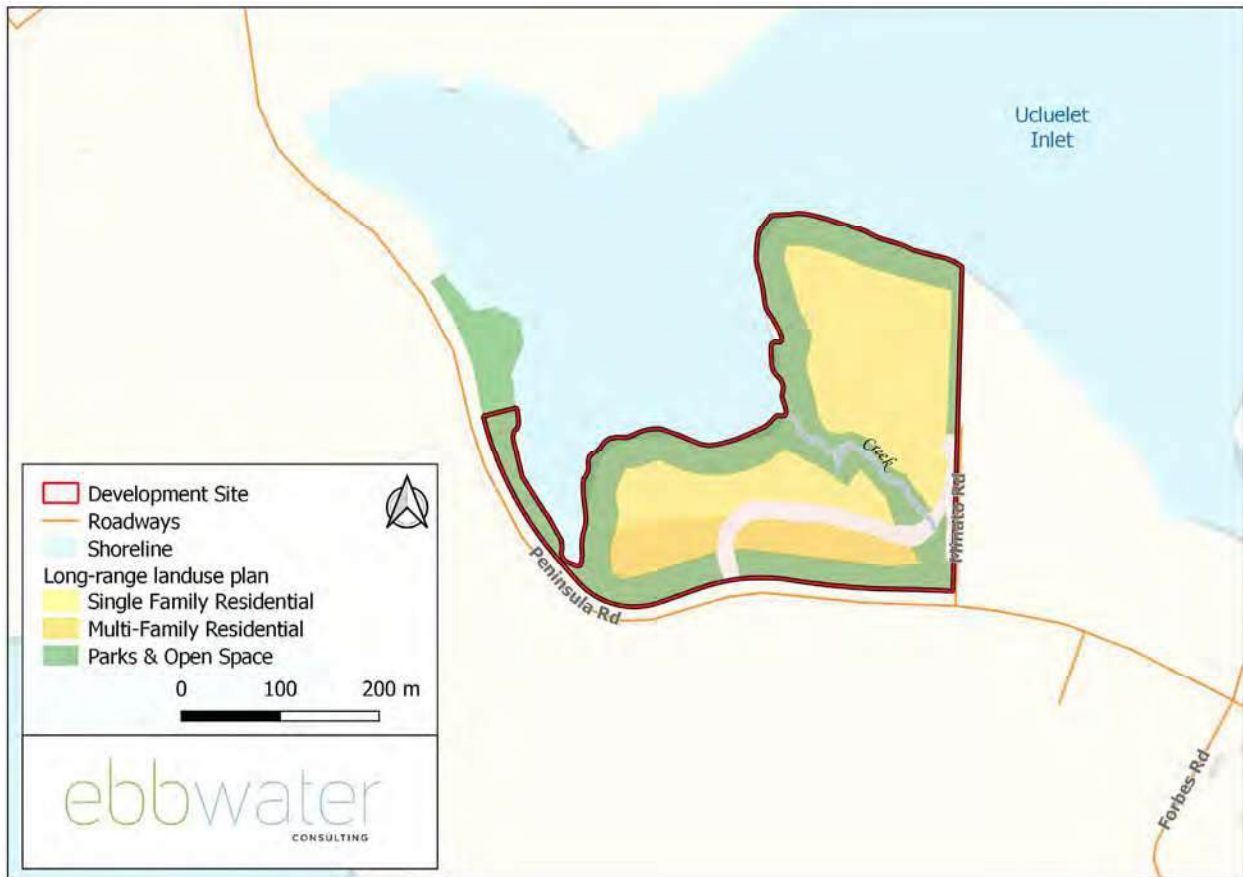


Figure 3-1 Long-range land use plan at the development site based on the DOU Draft Official Community Plan.

3.2 Natural Hazards Policy

As it currently reads, the draft OCP outlines general concerns for flood hazards, explaining that the sea level on the west coast of Vancouver Island will rise approximately one metre by 2100. Therefore, development along the coastline must minimize negative impacts that rising sea levels may have on the built environment and the safety of residents.

Relevant policies related to coastal flood and tsunami include:

- “establish and undertake the work, as necessary, to refine Flood Construction Levels (FCLs) to ensure new development and infrastructure avoids the impacts of rising sea levels” (Policy 2.34).
- “conduct flood risk mapping for sea level rise and use results to communicate and manage risks” (Policy 2.50)
- The development of Development Permit Areas (DPA) for hazardous areas, including flood. (DPA VIII). Several guidelines related to the DPA are also included, which describe the need for a qualified professional to provide a report, and also certify the land safe for the use intended.

The draft OCP also notes the following:

- Pg 48, the DOU notes that parks and open space designated areas often have high habitat value and/or flood potential.
- Pg. 91, the DOU will consider a floodplain bylaw to clarify expectations for flood construction levels.
- Pg. 121 (within the DPA explanatory notes) “It is the District policy that it is in the public interest for new subdivisions and developments to be planned to avoid area of potential flood risk.”

4 Coastal Hazards at the Project Site

The DOU supports the policy process with research and projects. Therefore, to account for climate change and future sea level rise, the 2020 DOU Flood Mapping Project was completed to develop updated flood hazard information. Ucluelet is currently working to apply the 2020 DOU Report flood mapping results into regulations and bylaws with the goal of reducing community risk to flooding. A brief background on the calculations, limitation and results from the report follow.

The flood hazard modelling and mapping conducted under the DOU project looked at multiple coastal storm events as well as tsunamis. For the coastal storms, historic and projected future wind and wave conditions were established, and these were then used to force computer models of the region. The more localised effects of coastal storms which vary depending on the aspect and shape of the local shoreline, were then calculated.

The flood hazard modelling and mapping relied on characterizing the Ucluelet shoreline, which was done by cutting transects at intervals along the shore to represent contiguous reaches, where the conditions that affect how water moves onshore (slope and aspect) are relatively similar.

This slope along the shore was characterized by 48 cross-shore transects at 500-m intervals around the inlet and peninsula for the flood mapping project calculations. Among the transects, one intersected the development site, rather than only characterizing the nearby or adjacent lots, representing the surface elevation for the development site and reach. Still, variability in shore slope conditions, such as that due to erosion or changes in sea level rise, will result in variability in the storm hazard calculations, rendering the results less reliable.

Variability in shore slope conditions within the development site will result in variability in the storm hazard calculations that has not been captured (Ebbwater Consulting Inc. and Cascadia Coast Research Ltd., 2020). The slopes across both sides of the site are low to moderately sloped. Figure 2-2 shows the location and elevation of the transect used for calculations in the DOU Report, Transect No. 24. The slope of the transect is approximately 5.2% (from 115 m to 270 m distance). Of that, the slope down to the shoreline is slightly steeper at 9.3% (from 230 to 270 m distance). The shore slope around the development site tends to be slightly steeper, estimated from the last 5-30 m at the shoreline, closer to a 30% slope, as the land descends toward the inlet. If the site were less steep than the representative transect, then the calculations may not be appropriate for the site. However, since the development site shore slopes are generally steeper, calculations should be appropriately conservative.

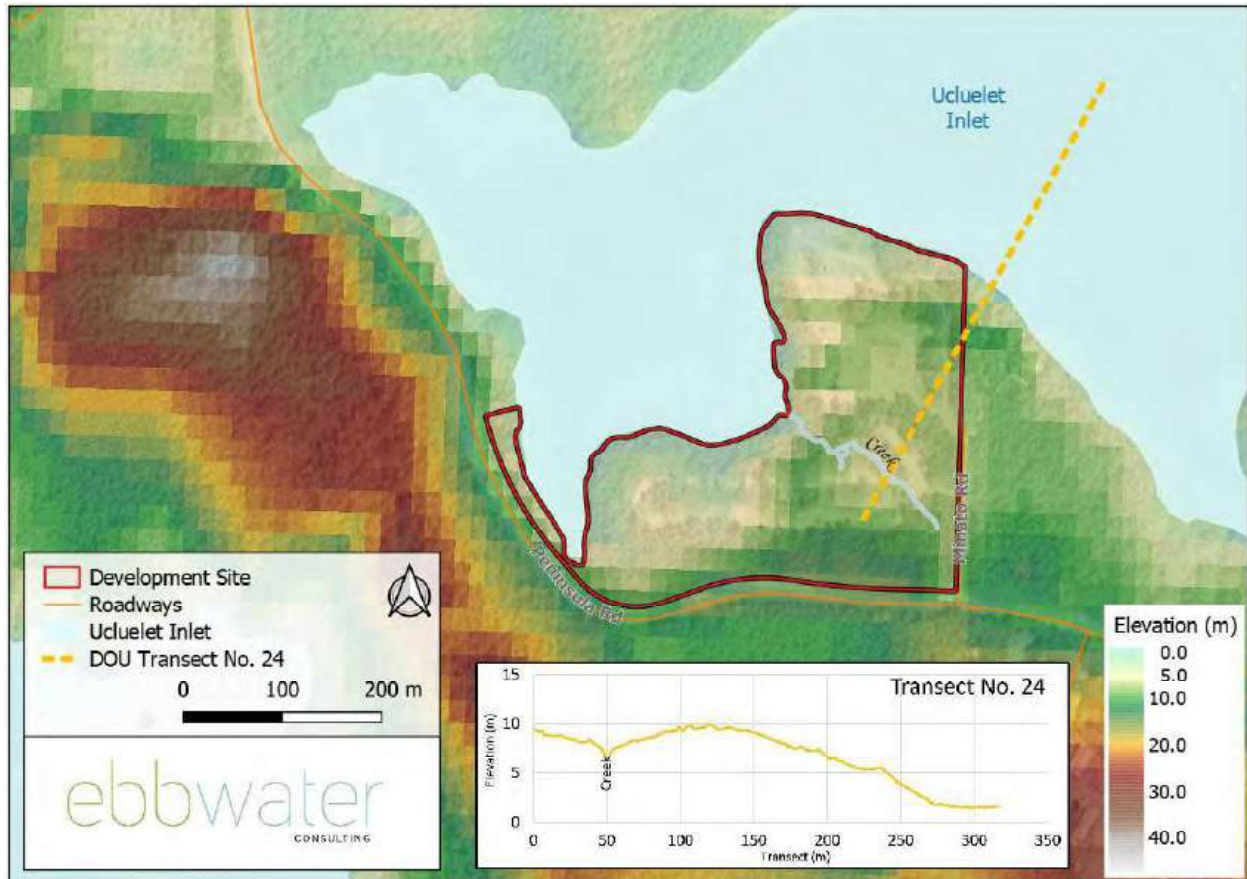


Figure 4-1 Development site elevation (m CGVD28) with transect slopes.

For the complete methodology, results, and limitations of all reporting and mapping products, refer to the 2020 DOU Report (Ebbwater Consulting Inc. and Cascadia Coast Research Ltd., 2020).

4.1 Flood Construction Level for Coastal Storms

One of the measures used in policy to reduce risk is Flood Construction Levels, which describe the height of water for a flood scenario. FCL maps are based on hazard maps and a safety factor (i.e., the flood construction reference plane plus freeboard allowance). These FCL components, illustrated in Figure 4-1, were used to produce the maps in the 2020 DOU Report - Coastal Flood Hazard Map Atlas.

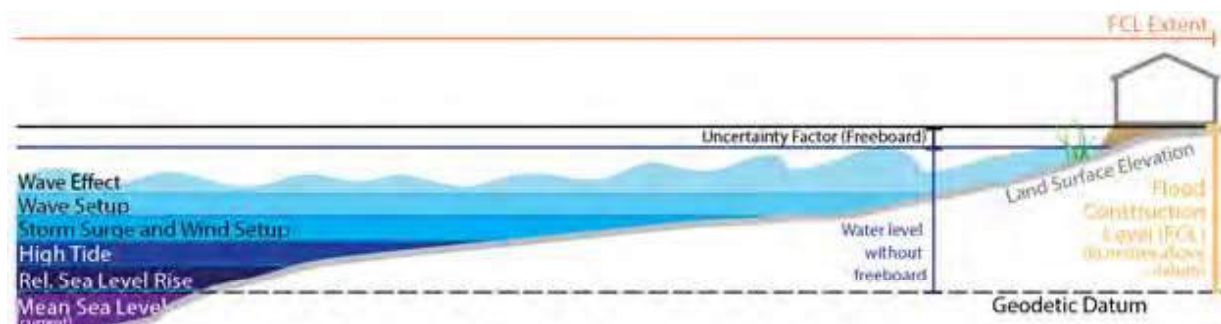


Figure 4-2 Components of total water level (MFLNRORD, 2018).

The atlas is thorough and provides different map types, such as the FCL and Sea Level Rise Planning Area maps, for a range of timeframes. To support short-term and long-term strategic planning and permitting, the mandated FCL maps were developed for both the near future and future scenarios (0.5 m and 1.0 m RSLR). We reviewed the more conservative future (1.0 m RSLR) scenario for the development site, to weigh the longer-term design life of the new development.

There is a wide range of FCLs throughout the DOU (4.0 to 12.0+ m) due to the complex shoreline variation around the peninsula. Therefore, the FCLs are grouped in zones to represent areas of similar hydraulic conditions and planning considerations. Figure 4-2 shows the future FCL coastal storm hazard by FCL zone and a flood hazard boundary line.

The development area, located on the more protected shoreline of the Ucluelet Inlet, is subject to Zone 15 with an elevation of 4.5 m for the future scenario, which is shown by the lowest FCL (tan, 4.5 m CGVD 2013) for Ucluelet. By contrast, the open-ocean shore of the peninsula is subject to elevated FCLs, as shown in the lower left corner of the figure. The difference in shoreline characteristics are considered in zoning. The flood hazard boundary shows the edge of the FCL. For the development site, the flood hazard boundary is contained within the proposed 30.0 m coastal setback. Therefore, the FCL is not an issue for the development site (see also Figure 4).

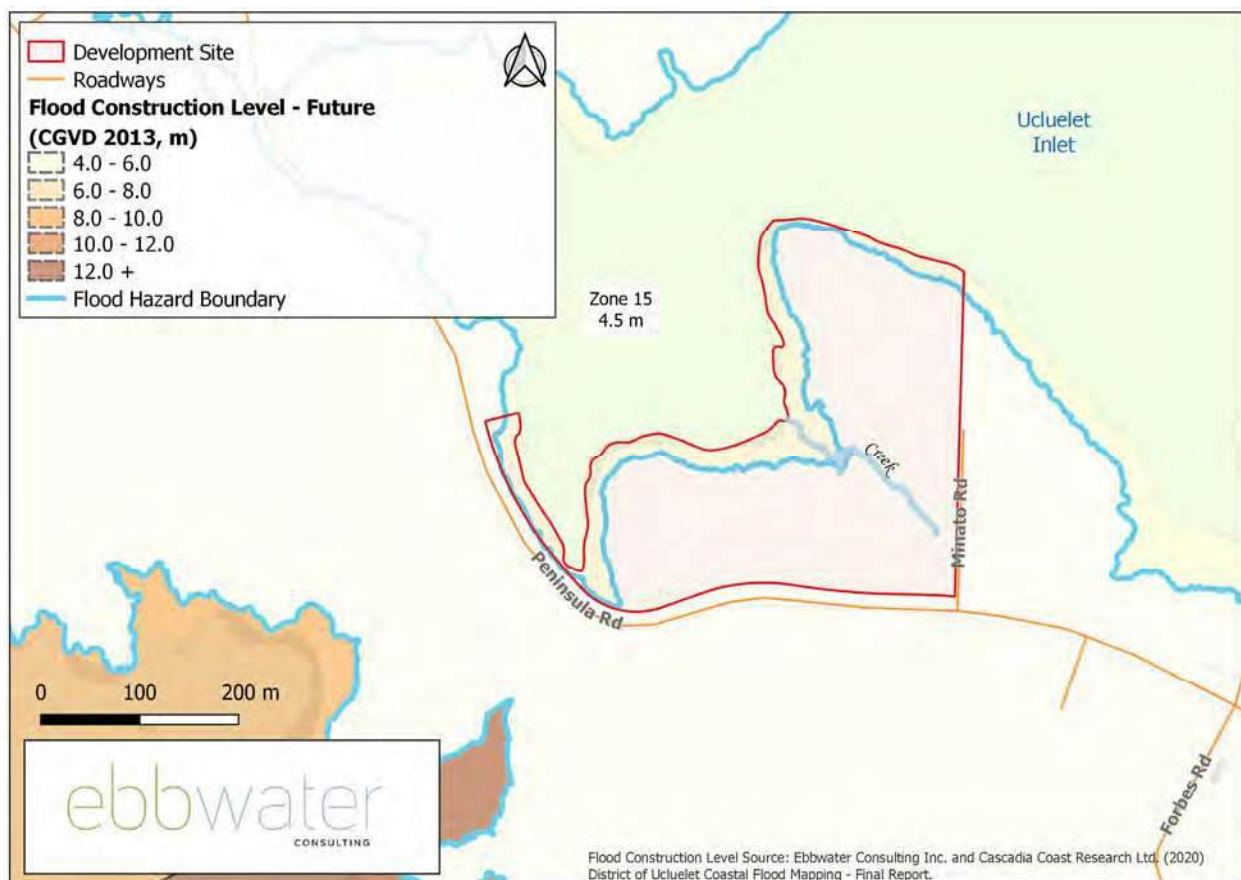


Figure 4-3 Coastal Storm Flood Planning Support Map for Flood Construction Level – zones for rare event (future - 0.5% Annual Exceedance Probability (AEP) + 1.0 m RSLR + 0.6 m freeboard).

The estimated FCRP and FCL for rare event coastal storm hazards is presented in Table 4-1. The FCLs based on three RSLR scenarios (0.0 m, 1.0 m, and 2.0 m) are shown for context. However, the future scenario of 1.0 m RSLR is the most applied scenario in BC, as it is referenced in the 2018 Flood Hazard Area Land Use Management Guidelines (MFLNRORD, 2018). The 1.0 m RSLR scenario is a reasonable and conservative basis for evaluating the coastal storm hazard.

Within Ucluelet Inlet, tides are often the largest contributor to high water levels and storm surge is the second. Waves rarely exceed 0.5 m in the sheltered areas on the inlet.

Table 4-1 Estimated coastal storm hazard FCRP and FCL for a rare event (0.5% AEP) and 0.0 m to 2.0 m RSLR.

Event	RSLR scenario (m)	FCRP (m CGVD28)	FCL (m CGVD28)
Near Future	0.5 m	2.7-3.0	4.2
Future	1.0 m	3.7-3.9	4.5
Far Future	2.0 m	4.7-4.9	5.5
<i>FCRP = Tide + RSLR + Storm Surge + Wind Setup + Wave Runup</i> <i>FCRP read from 2020 DOU Report - transects 24-25</i> <i>FCL = FCRP + Freeboard (0.6 m)</i>			

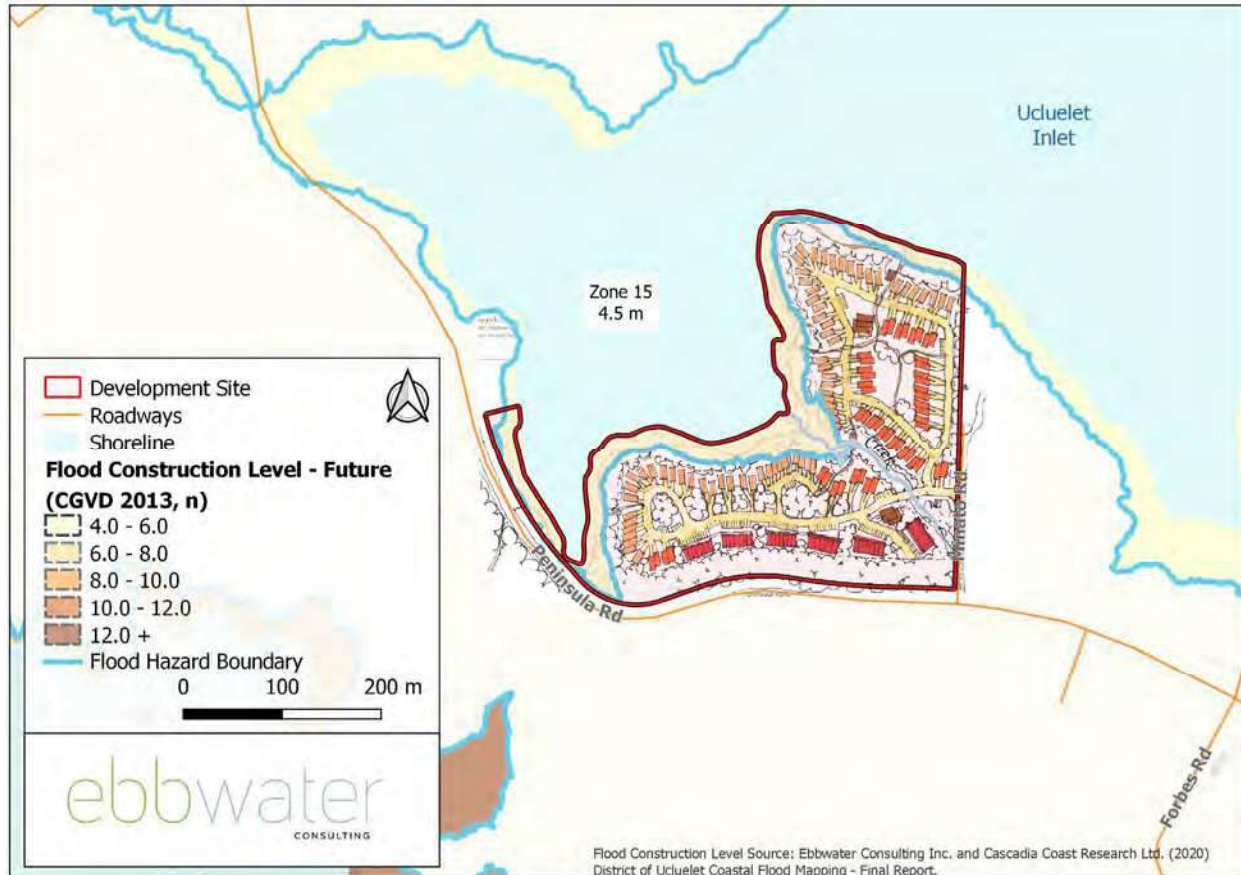


Figure 4-4: Coastal Storm Flood Planning Support Map for Flood Construction Level – zones for rare event (future - 0.5% Annual Exceedance Probability (AEP) + 1.0 m RSLR + 0.6 m freeboard) overlaid on the Draft Site Concept. Note that the Draft Site Concept georefer

4.2 Tsunami Hazard

The complete tsunami flood hazard map series is also publicly available as part of the 2020 DOU Report - Coastal Flood Hazard Map Atlas. The report found that the tsunami flood construction reference plane was defined mostly by the “G2018-S-A splay rupture” scenario, which produced the largest tsunami wave.

The destructive nature of tsunamis as well as their relative infrequency means that they do not naturally fit within the definition of FCL provided in the Provincial Guidelines. For planning support purposes, the 2020 DOU Report proposed a tsunami flood planning level based on 1.0 m RSLR, and a 50% safety factor to the maximum tsunami amplitude.

All tsunami flood planning support maps were completed for the future (1.0 m RSLR) scenario. This tsunami hazard scenario (1.0 m RSLR) is shown in Figure 4-4 and summarized in Table 4-2. The tsunami hazard for the development site indicates risk to approximately 60% of the proposed structures, as shown in Table 4-3 and Figure 4-6. While the majority of rental houses are outside of the tsunami hazard area, all other types have over 50% of proposed structures within the tsunami hazard area for 2.0 to 4.0 m.

Only the higher elevation along Peninsula Road is outside of the specified tsunami hazard zone. The extents of the tsunami planning level is 18.0 m CGVD2013 without a safety factor and 26.0 m with a safety factor. For even the less conservative approach, the development site lot is under the 18.0 m elevation.

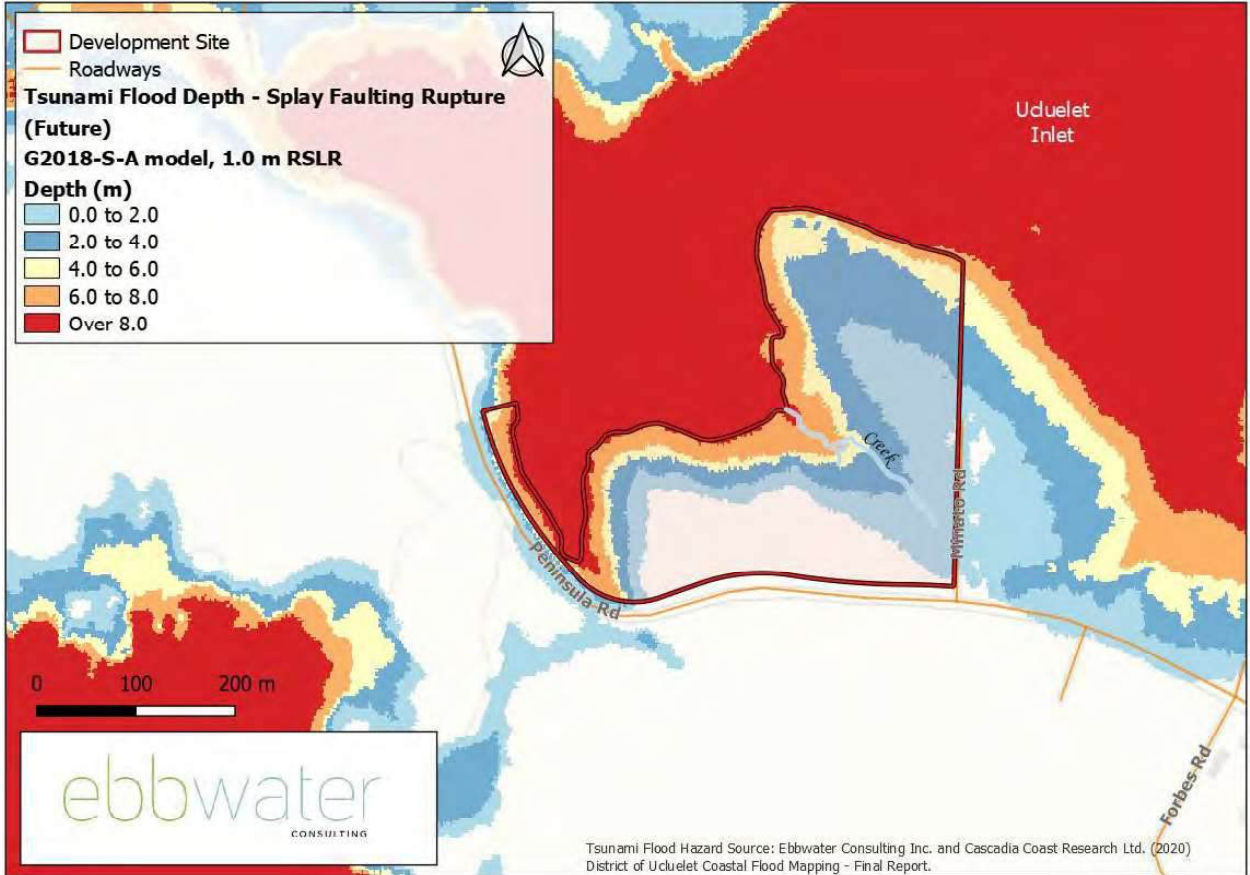


Figure 4-5: Estimated planning level extents for tsunami hazard.

Table 4-2 Estimated tsunami hazard levels for 0.0 m, 1.0 and 2.0 m RSLR based on maximum tsunami amplitude within the development site (transect 24) for splay faulting rupture G2018-S-A model.

RSLR scenario (m)	Tsunami amplitude (m)	FCRP (m CGVD28)	Planning level (m CGVD28)
0.0 m	4.2	8.4	Not assessed
1.0 m	4.5	9.6	11.9
2.0 m	4.7	10.8	Not assessed

FCRP = Tide - Vertical Land Movement + RSLR + Tsunami Amplitude
FCRP read from 2020 DOU Report – Appendix A transect 24
Planning Level = FCRP + 50% of Tsunami Amplitude
Tide = 2.0 m CGVD28, Vertical land movement = - 2.1 m

Table 4-3 Estimated number of proposed structures within the tsunami hazard scenario (1.0 m RSLR, splay faulting rupture G2018-S-A) by depth.

Proposed Structures	Count, total	Count, ground-level	Not affected	0-2 m	2-4 m	4-6 m	6-8 m
Rental houses, stacked	84	42	35	7			
Family homes	50	50	4	18	28		
Vacation homes	67	67		2	39	19	7
Amenity buildings	2	2		1	1		
<i>sum</i>	203	161	39	28	68	19	7
<i>percent</i>			24%	17%	42%	12%	4%

Rental Houses are stacked, so only 50% are on the ground level.
Bold values show that greater than 50% of the given building type is within the given flood category.
Percent calculation uses count of ground-level structures (161).

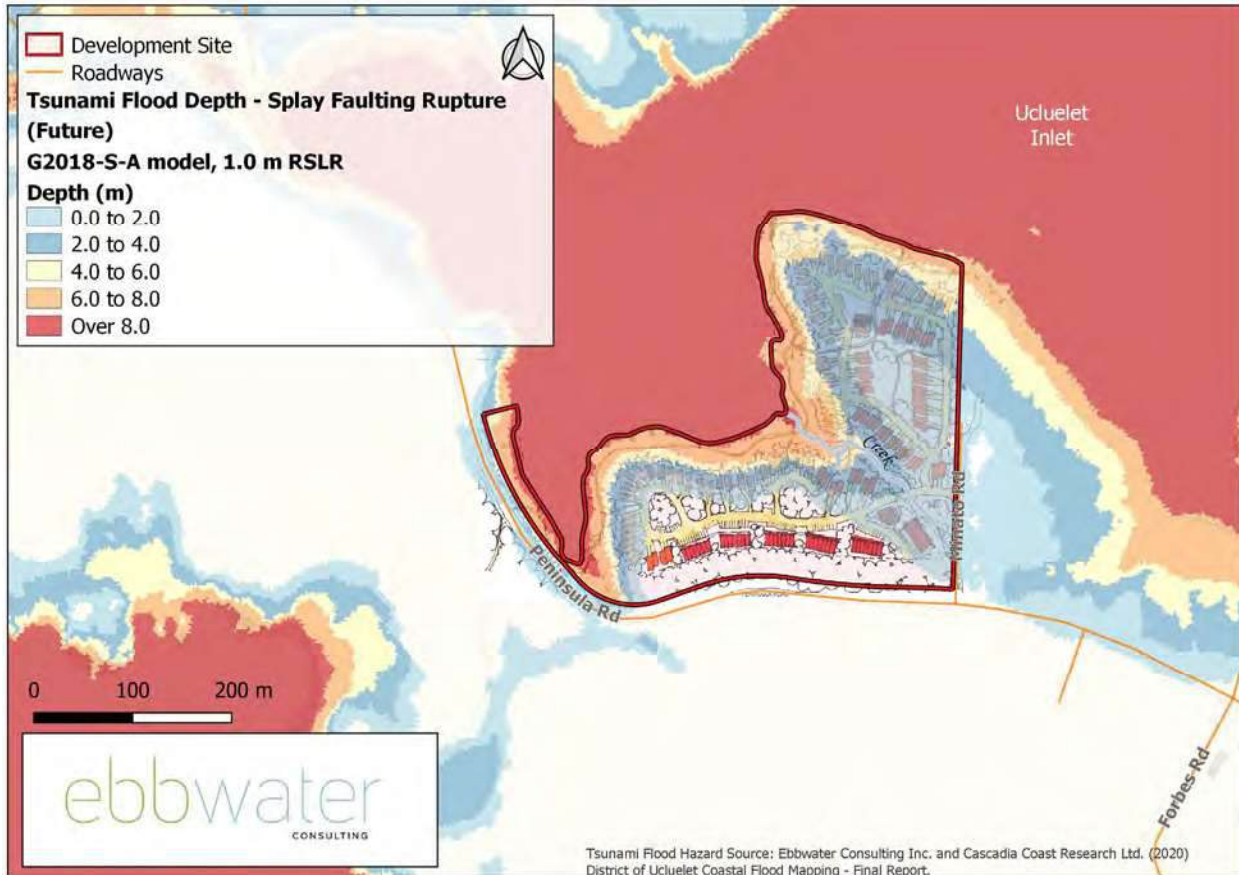


Figure 4-6: Estimated planning level extents for tsunami hazard overlaid on the Draft Site Concept. Note that the Draft Site Concept georeferencing was estimated.

5 Discussion

This report documents the current known flood hazard at the project site. This work shows that, given the current draft concept layout, all properties are outside the coastal flood hazard area. However, the significant tsunami hazard at the site, affects 76% of the proposed development structures.

The destructive nature of tsunamis as well as their relative infrequency means that they do not naturally fit within the definition of FCL provided in the Provincial Guidelines. For planning support purposes, the Ucluelet project proposed a tsunami flood planning level based on 1 m RSLR, and a 50% safety factor to the maximum tsunami amplitude.

Tsunamis and coastal storm events have different hazard profiles and mitigative measures to reduce the risk from these events should be designed to reflect the specific hazard and risk profiles. For example, tsunamis, although more damaging and consequential than coastal storms, are less likely to occur. Further, there are mitigative actions that can be taken to reduce risk-to-life (e.g., warning and evacuation systems, safe havens, etc.). Careful consideration of the best use of land and the risk tolerance of land users using the principle of “as low as reasonably practicable” (ALARP) should apply (EGBC, 2018).

6 Next Steps

Given that a strict application of the draft OCP policies will effectively sterilize a majority of the development site and dramatically reduce the number of housing units, we suggest that the client work collaboratively with the DOU to work towards an ALARP approach for the site, and potentially for the broader DOU policy. Specifically, this might include discussions related to:

- Reducing risk to life and safety through appropriate warning mechanisms ([Early Earthquake Warning](#), Tsunami Sirens, Up-to-date and well publicised evacuation plans, etc.).
- Reducing damage potential for high-value and/or critical structures through the application of forthcoming international guidelines on design standards for tsunami loading.
- Legal and financial mechanisms to enable and support the above in perpetuity.

7 Technical Limitations

Uncertainties exist, the flood mapping project provided a simplified representation of a complex reality. This section summarizes limitations to consider when using the 2020 DOU Report flood mapping results, as well as some additional limitations related to the preparation of this report.

7.1 Coastal Storm Modelling (2020)

- The accuracy of the coastal storm flood estimates relies on the accuracy of the hind-cast. The use of the hind-cast to estimate probability of future coastal storm flooding assumed that the future climate at the DOU will be like the historic climate (assumption of climate stationarity). Also, extrapolation from the 40-year hind-cast introduced uncertainties for the frequency-response curves, especially for the very large events that required the greatest degree of extrapolation.
- There is inherent uncertainty in RSLR values, which have a degree of variation in currently predicted levels. The RSLR values are based on established guidance that is liable to change in the future as predictions are adjusted and the effects of climate change increase.
- The simplified combined method was used to evaluate the storm hazard. This approach is the more conservative method to evaluated standard FCLs (MFLNRORD, 2018) as it does not capture the probabilistic nature of coastal flooding and does not represent a particular Annual Exceedance Probability.

7.2 Tsunami Modelling (2020)

- The accuracy of the tsunami flood estimates relies on the accuracy of the tsunami modelling, including the deformation model of the fault rupture, bathymetry data, and assumptions about the tidal level at the time of the fault rupture. Efforts were made to produce conservative, worst-case scenario results. The levels could potentially be even worse with, for instance, additional storm surge, or mitigated by a lower tide level.
- The tsunami hazard results are extracted from one of six rupture models from the Ucluelet project. The project site is approximately 2.5 km east of the Ucluelet project boundary and has similar coastline exposure. The model was created and optimized for the Ucluelet project and not the project site.
- The tsunami hazard assessment did not include resonance analysis to consider whether the inlet has the potential to amplify tsunami response and increase the hazard, as was observed further

down the inlet in the 1964 tsunami at Port Alberni. A resonance study was conducted for the District of Ucluelet project, and it was not deemed a concern.

- A HHWLT of 2.0 m was assumed to coincide with the tsunami event. This likely represents a worst-case tidal condition, but it could potentially be even worse with, for instance, additional storm surge. The tsunami hazard could also be less severe if it coincides with a lower tide level.

7.3 Flood Mapping (2020)

- When producing the flood hazard maps, uncertainties are introduced DEM creation. Although the vertical accuracy of the LiDAR was generally high, estimated better than 15 cm vertically and 1 m horizontally, small inaccuracies may be introduced. The LiDAR data was collected in 2015, and changes to observed elevations may have occurred since from erosion, sediment accumulation, construction, etc.
- In addition to the general uncertainty from the coastal modelling and hind-casting, there is a limitation caused by the interpolation of results between representative transects across the shoreline. Although the shoreline is sub-divided into 48 characteristic reaches, variation in shoreline type, slope, and orientation still exists within each reach.
- There is a difference in the datum used to produce the water elevations at transects (CGVD28) and that used to map flood elevations (CGVD2013). This is due to not being able to source hind-cast data in the newer datum reference. The differences between the two datums differs across the study area, in the range of 15 and 17 cm, which is relatively small when compared to uncertainties due to modelling and is within the tolerance for error.

7.4 Limitations of this FCL assessment

All assessments, whether preliminary or detailed will have underlying assumptions and limitations. The limitations of this assessment include:

- No site visit was conducted to look at the project site. The consultant team relied on previous reporting (and site visits) conducted in support of the 2020 DOU project.
- Only one transect was used to evaluate the storm hazard wave runup. It should be noted that variability in shore slope conditions within the project area will result in variability in wave runup that has not been captured.

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Memo

To: Joshua Hunt, CEO, Economic Restoration Infrastructure Fund

From: Stantec Consulting Ltd.
Burnaby, BC.

Project/File:
111700812

Date: July 30, 2024

Title: Summary Memo for Structural Mitigation Feasibility Study at the Minato Developments located in the District of Ucluelet

Introduction

Economic Restoration Infrastructure Fund (ERIF) is proposing a new development comprising of single family and multi-family homes at 221 Minato Road in Ucluelet. Stantec Consulting Ltd. (Stantec) was retained by ERIF to conduct a background review to determine whether a structural mitigation would be feasible to address the identified tsunami risk at the proposed new development. This desktop review is based on professional practice guidelines and current flood hazard legislation. If structural mitigation is found to be feasible, a scope to develop associated design concepts will be prepared (the Review).

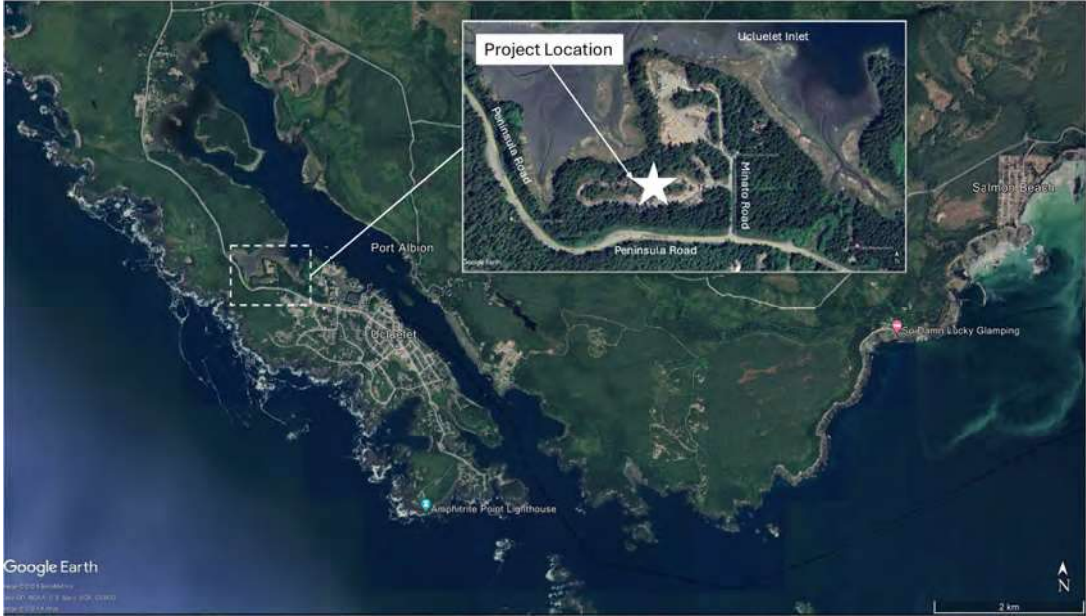


Figure 1: Project Location (Source of Background Image: Google Earth Aerial Image – May 2023)

1.1 Background

ERIF is proposing a new development comprising of single family and multi-family homes at 221 Minato Road in Ucluelet. The development includes 13 four-plexes, 15 six-plexes, 16 seven-plexes, 1 helicopter hanger, 11 waterfront homes, and a commercial precinct. All the proposed properties are outside of the coastal flood hazard area¹; however, parts of the proposed development are located within the tsunami flood hazard area identified by Appendix C of the District of Ucluelet (DoU) Coastal Flood Mapping Final Report². The DoU Tsunami Risk Tolerance – Interim Policy (2024) requires new residential and commercial buildings on new lots to be located at a minimum elevation equivalent to the lot specific tsunami flood reference plane and requires a report prepared by a qualified professional engineer experienced in coastal engineering to determine the tsunami flood reference plane for the site and formulate safe building conditions for each lot.

In 2022, a report completed by Ebbwater Consulting Inc. determined the flood construction and tsunami inundation levels for the proposed development site located at 221 Minato Road in Ucluelet³. This assessment found that the site is impacted by potential tsunami hazard, and recommended that the developer work collaboratively with the DoU to explore non-structural and structural mitigations to reduce the tsunami risk, and allow the development to be deemed “Safe for the intended use” as defined by EGBC using the principle of “as low as reasonably practicable”.

1.2 Information Sources

The Review was completed based on the following list of technical documents, guidelines and assessments reports provided by ERIF and publicly available.

Information provided by ERIF:

- Geotechnical Investigation Report – Proposed Multi Family Development 221 Minato Road, Ucluelet, British Columbia (File Number: 23265) completed by GeoPacific Consultants in 2024 (GeoPacific 2024).
- Geotechnical Investigation Report – Proposed Multi Family Development 221 Minato Road, Ucluelet, British Columbia (File Number: 23265) completed by GeoPacific Consultants in 2023 (GeoPacific 2023).
- Preliminary Geotechnical Report, Proposed Comprehensive Development, 221 Minato Road, Ucluelet, BC (File Number: 1748) completed by Frontera Geotechnical Inc. in 2021 (Frontera 2021).

¹ Ebbwater Consulting Inc. and Cascadia Coast Research Ltd. (2020) District of Ucluelet Coastal Flood Mapping - Final Report. Prepared for the District of Ucluelet

² District of Ucluelet Coastal Flood Mapping Appendix C: Map Series 4/4: Tsunami Flood Planning Support, prepared by Ebbwater Consulting Inc.

³ Ebbwater Consulting Inc. (2022). Ucluelet District Lot 286 – Flood Construction and Tsunami Inundation Levels for Proposed Development Final Report.

- Ucluelet District Lot 286 – Flood Construction and Tsunami Inundation Levels for Proposed Development Final Draft Report completed by Ebbwater Consulting Inc. in 2022 (Ebbwater 2022).
- Ebbwater Consulting Inc. and Cascadia Coast Research Ltd. (2020) District of Ucluelet Coastal Flood Mapping - Final Report. Prepared for the District of Ucluelet. Available online: <https://ucluelet.ca/community/sustainability-climate-action/flood-mapping/technical-flood-mapping-reports>
- District of Ucluelet Coastal Flood Mapping Appendix C: Coastal Flood Hazard Map Atlas – Map Series 4/4: Tsunami Flood Planning Support completed by Ebbwater Consulting Inc. in 2020 (Ebbwater 2020).
- ERIF. (2024). 221 Minato Road Eagles Nest Proposed Site Plan, Updated Master Plan.
- ERIF. (2024). “Overview of Contour Levels - 221 Minato.pptx” PowerPoint Slides.

Publicly available information reviewed included:

- Tsunami Risk Tolerance – Interim Policy published by The Corporation of the District of Ucluelet in 2024 (Ucluelet 2024).
- BC Ministry of Forests, Lands, Natural Resource Operations and Rural Development (BC MFLNRORD). (2018). Amended flood hazard area land use management guidelines. Available online: https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/integrated-flood-hazard-mgmt/flood_hazard_area_land_use_guidelines_2017.pdf
- EGBC. (2018). Professional Practice Guidelines – Legislated Flood Assessments in a Changing Climate in BC. Version 2.1. Engineers & Geoscientists British Columbia. <https://doi.org/10.1002/ejic.201200009>
- District of Tofino. (2021). District of Tofino Official Community Plan Bylaw No. 1290, 2021. Available online: <https://tofino.civicweb.net/filepro/documents/4210?preview=113587>
- GeoBC. (2015). Tsunami Notification Zones for BC map. Produced for Emergency Management BC. Available online: https://www2.gov.bc.ca/assets/gov/public-safety-and-emergency-services/emergency-preparedness-response-recovery/embc/preparedbc/tsunami_zone_province_final.pdf
- Natural Hazards (2022). “A Comprehensive Review of Structural Tsunami Countermeasures” article published online on 16 May 2022. Available online: <https://link.springer.com/content/pdf/10.1007/s11069-022-05367-y.pdf>
- Natural Hazard Science (2020). “Tsunami Preparedness and Mitigation Strategies” report by James D. Goltz and Katsuya Yamori published in 28 February 2020. Available online: <https://doi.org/10.1093/acrefore/9780199389407.013.324>

- United States Environmental Protection Agency (1990). "The Feasibility Study: Detailed Analysis of Remedial Action Alternatives" article published in March 1990. Available online: [87701.pdf \(epa.gov\)](#)

1.3 Scope of Work

The overall scope of work included the following:

- Background review to assess whether a structural mitigation method option is feasible to mitigate the tsunami hazard posed to the proposed development and adheres to current flood hazard legislation and professional practice guidelines.
- High-level feasibility assessment.

This report summarized the key findings from the background review and assessment on whether a structural mitigation is feasible for reducing the tsunami risk posed to the proposed development.

2 Summary of Background Review

The list of technical documents, previous assessment reports, professional practice guidelines and flood hazard legislation listed in Section 1.2 were reviewed and key findings are presented in this section.

2.1 Geotechnical Assessment

Three geotechnical assessment reports were provided to Stantec by ERIF. Information relating to the existing soil conditions was gathered from the latest version of the geotechnical assessment completed by GeoPacific Consultants (GeoPacific 2024). As stated in Section 4.0 - Subsurface Conditions of the Geotechnical report (GeoPacific 2024), the existing soil conditions within the project site were described as follow:

- Surficial layer is consisted of one of the following three materials:
 - 1) Topsoil - composed of compact silty sand with some organic clays/peaty material and trace gravel. Rootlets and decaying plant matter were present. It was noted be dark red brown in color and was moist.
 - 2) Sandy Silt (Fill) – loose to dense fill composed of sandy silt with some gravel and trace clay, sourced on site. The fill was noted to be moist and contain rootlets.
 - 3) Silty Sand and Gravel – Very dense silty sand and gravel with trace cobbles. The silty sand and gravel were partially cemented in conglomerate chunks and was difficult to excavate. It was grey-brown in color and contained trace moisture.
- Silt - The surficial layer was underlain by hard silt with some sand and some clay. The silt was grey in color with streaks of brown weathered material throughout; except at the test pit TP24-

06 where the silt was noted to be clayey with trace sand and was blue grey in color. This stratum contained some moisture.

- Silty Sand and Gravel - Beneath the silt layer, very dense silty sand and gravel with some cobbles was encountered. The cobbles increased in size to boulders with depth. The silty sand and gravel were grey in color and was moist to wet.
- Bedrock – The silty sand and gravel is underlain by bedrock. It was seen outcropping in some areas throughout the site and was encountered or inferred at all test pits except TP24-01. The depth of bedrock ranges from 0.9 m to >3.0 m based on the 9 test pits excavated.

Furthermore, static ground water table was not encountered in any of the 9 test pits. Perched groundwater was observed above the bedrock. It is expected that perched groundwater will form above the less permeable strata, particularly above the bedrock, but also above the hard silt, following periods of significant precipitation. Groundwater levels may vary seasonally with generally higher levels during the wetter months of the year (GeoPacific 2024).

The soils within the Project site are also not expected to be liquefiable or subject to cyclic strain softening caused by the design earthquake defined in the 2018 British Columbia Building Code (BCBC 2018) (GeoPacific 2024).

2.2 Coastal and Tsunami Hazards Assessment

As stated within the “Flood Construction and Tsunami Inundation Levels for Proposed Development” final draft report completed by Ebbwater Consulting (Ebbwater 2022), all properties are outside the coastal flood hazard area, i.e. the proposed development structures are above the coastal Flood Construction Level (FCL) and setback 30 m or more from the existing natural boundary (see Figure 2).

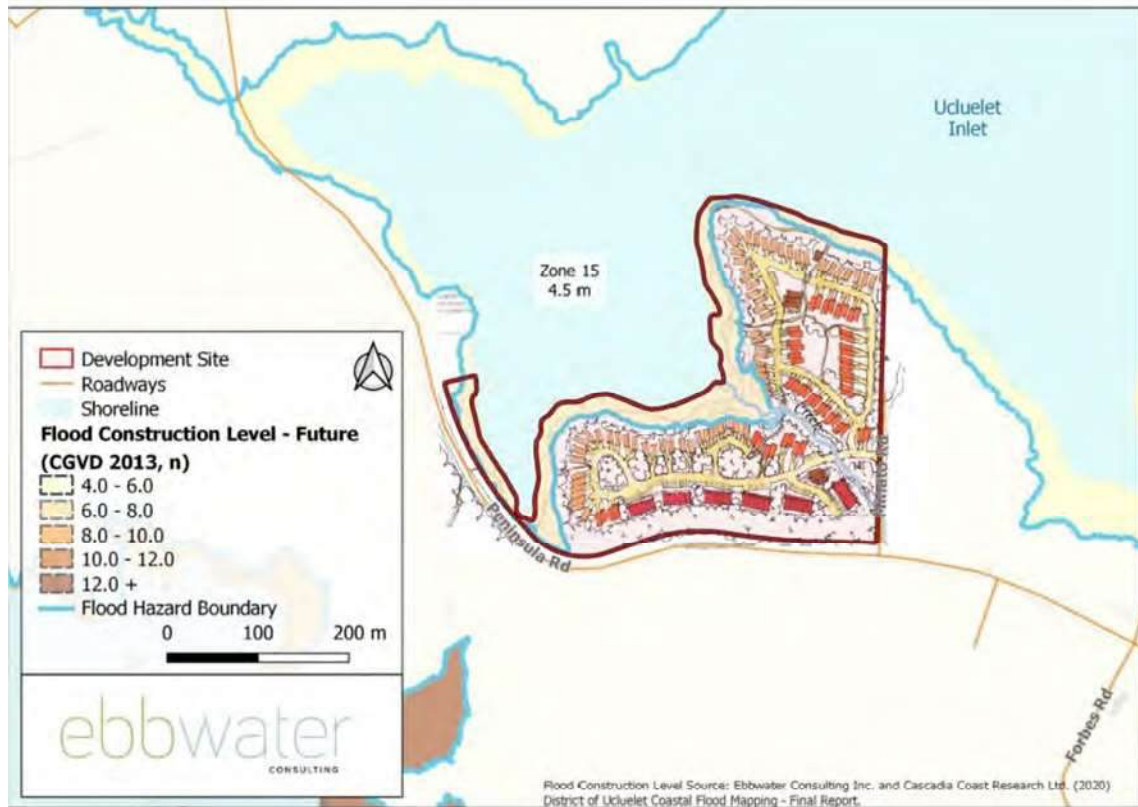


Figure 2: Coastal Storm Flood Planning Support Map for Flood Construction Level⁴

The following list of the key findings were presented relating to tsunami hazards:

- Ucluelet is in Zone C of the Tsunami Notification Zones for BC (GeoBC, 2015) and therefore subject to significant tsunami hazard.
- The tsunami Flood Construction Reference Plane was defined mostly by the “G2018-S-A splay rupture” scenario which produced the largest tsunami wave as concluded in the 2020 DoJ report – Coastal Flood Hazard Map Atlas (Ebbwater 2020).
- The tsunami Flood Construction Reference Plane (FCRP) is defined as:

$$\text{FCRP} = \text{Tide} - \text{Vertical Land Movement} + \text{RSLR} + \text{Tsunami Amplitude}$$
- For planning support purposes, Ebbwater (2020) indicates that a Planning Level should be used which increases the FCRP by a safety factor equivalent to 50% of the maximum tsunami amplitude. Table 1 presents the FCRP and Planning Level elevations with 1.0 m of relative sea

⁴ Based on Figure 4-4 from the “Flood Construction and Tsunami Inundation Levels for Proposed Development” Final Draft Report Completed by Ebbwater Consulting Inc. (Ebbwater 2022)

level rise (RSLR), and maximum tsunami amplitude within the development site for the G2018-S-A splay faulting rupture model.

Table 1: Estimated Tsunami Hazard Levels for the 1.0 m RSLR scenario – Based on Table 4-2 from the “Flood Construction and Tsunami Inundation Levels for Proposed Development” Final Draft Report Completed by Ebbwater Consulting Inc. (Ebbwater 2022)

RSLR scenario	Tsunami Amplitude (m)	FCRP (m CGVD28)	Planning Level (m CGVD28)
1.0 m	4.5	9.6	11.9

Note:

FCRP = Tide – Vertical Land Movement + RSLR + Tsunami Amplitude

FCRP read from 2020 Dou Report (Ebbwater 2020) – Appendix A transect 24

Planning Level = FCRP + 50% of Tsunami Amplitude

Tide = 2.0 m CGVD28, Vertical land movement = -2.1 m

Based on the email communication (forwarded to Stantec on July 23rd, 2024) between Joshua Hunt, CEO of ERIF, and Bruce Greig, Director of Community Planning for the District of Ucluelet), the FCRP of 9.6 m as identified within the Ebbwater report (Ebbwater 2022) is acceptable for use as the Tsunami Flood Reference Plane (TFRP), which complies with the minimum acceptable elevation for new residential and commercial buildings on new lots as stated within the DoU interim tsunami risk tolerance policy (Ucluelet 2024). Therefore, the feasibility study conducted for identifying structural mitigation options (Section 3) will be based on a TFRP of 9.6 m.

3 Feasibility of Structural Mitigation Options

Through Stantec’s internal discussion with personnel having expertise in designing coastal hazard mitigation structures, and based on the geotechnical and tsunami hazard assessment information detailed in Section 2, the following structural mitigation options could be feasible at the project site to mitigate tsunami hazards while complying to the current interim policy on tsunami risk tolerance (DoU 2024):

- Option 1 - Raised foundation pad with mechanically stabilized Earth (MSE) wall and foreshore erosion protection.
- Option 2 - Raised foundation pad with retaining wall (i.e. concrete or sheet piles).
- Option 3 - Adapt building style to accommodate tsunami forces.

Note that the first two design options require the existing ground within the structure footprints or the portion of the development within the tsunami inundation zone be raised to an elevation that allows all habitable space and mechanical and electrical equipment to be at or above the TFRP of 9.6 m and supplemented with a retaining wall around the raised fill. In contrast, the third design option involves adapting the building style to accommodate the impact forces imposed by the tsunami while ensuring the building’s habitable space is above the TFRP.

Options 1 & 2

Typical sections that present the Option 1 and 2 concepts are depicted in Figure 3 and Figure 4, respectively. These concept diagrams are for purposes of discussion only and are not detailed engineering plans. Design of the retaining structure would be developed in future stages of the project based on design codes and site-specific conditions. The footprint of the structures would need to be raised with suitable fill material to an elevation that allows all habitable space and mechanical and electrical equipment to be located at or above the TFRP of 9.6 m. This raised fill would then be retained by a wall designed based on site specific geotechnical and tsunami wave forces. Alternatively, the entire footprint of the development located within the tsunami inundation zone could be raised and protected with a retaining wall. The depth of fill will vary depending on the location of the structure and existing ground elevation with respect to the TFRP. Foreshore riprap protection may be required for all retaining wall structures to prevent undermining of the wall foundation.

The current contour mapping shows elevations range across the areas of the site proposed for development between 7.8 m to up to and exceeding 9.6 m⁵. In the proposed waterfront homes, a lower level being non-habitable spaces that incorporates an adaptive building style to accommodate tsunami forces (i.e. a garage with break away walls) with all habitable spaces set above 9.6 m may be sufficient to meet the DoU requirements on tsunami risk tolerance. The level of the retaining wall structure and fill are designed to elevate the lowest lying sites to ensure habitable spaces are above 9.6 m. For example, for structures requiring level access placed at a 7.8 m site level, the retaining wall structure and fill method can raise the habitable spaces by 1.8 m to reach the required TFRP of 9.6 m.

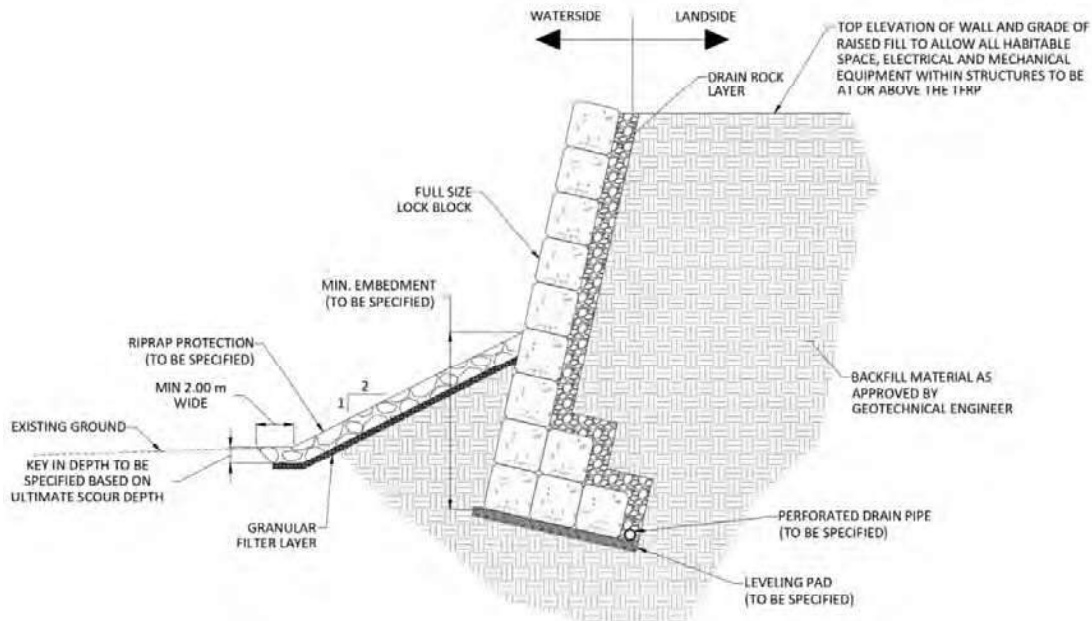


Figure 3: Conceptual Typical Section for Option 1 with MSE Wall

⁵ Based on "Overview of Contour Levels - 221 Minato.pptx" PowerPoint Slides provided by ERIF (2024).

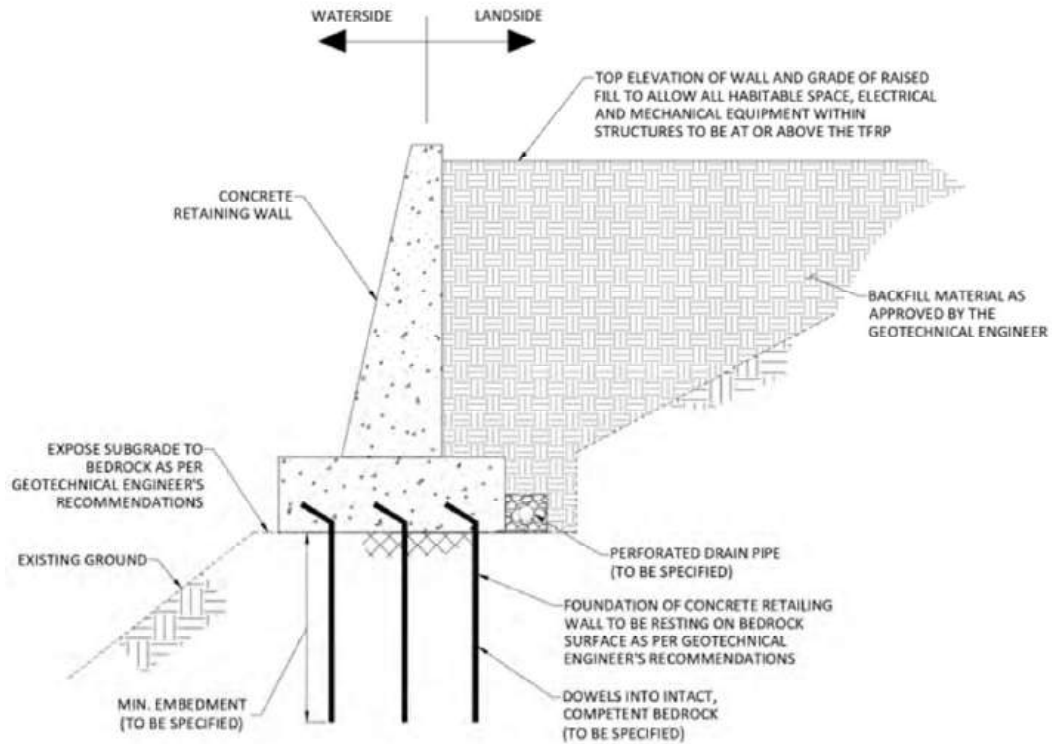


Figure 4: Conceptual Typical Section for Option 2 with Concrete Retaining Wall

Option 3

An alternative approach to mitigating the tsunami risk by changing the development grades and providing foreshore revetments would be adapting the structure designs to accommodate impacts from the tsunami wave while locating habitat space and mechanical and electrical equipment at or above the TFRP and having the structure comply with the BC Building Codes (BCBC). Such approaches have been successfully implemented on Camano Island within the state of Washington, United States. The homes were designed with the following unique features⁶:

- The home’s main two floors were about nine feet above the ground, a unique setup made possible through a series of sturdy support columns strategically located within the building superstructure.
- A steel frame further reinforces the pillar system.
- Gaps between the columns are filled in with clear glass doors that, like garage doors, slide shut from overhead, disguising the lower level as an ordinary room.

⁶ Referenced from the “This House is Built to Withstand the Force of a Tsunami” article published by Smithsonian Magazine on January 22nd, 2014. Available online: [This House is Built to Withstand the Force of a Tsunami | Smithsonian \(smithsonianmag.com\)](https://www.smithsonianmag.com/science-nature/this-house-is-built-to-withstand-the-force-of-a-tsunami-180.html)

- The glass doors are fashioned so that, in the event of a tsunami-like catastrophe, the force of the flooding should cause them to breakaway with ease. Allowing the rush of water to flow through the bottom chamber and out the opposite side disperses the brunt force and reduces pressure on the columns.

Future Evaluation of Concepts

The options presented in this Review are general concepts that could be used for developing a structural mitigation required to adhere to DoU interim tsunami risk tolerance policy based on the defined TFRP. The ultimate structural mitigation developed during a future phase of design could incorporate elements from any of the options or the required structural mitigation may vary for each structure based on location and inundation level within the development. The feasibility of any option would be based on site specific conditions (wave forces, geotechnical conditions) and considerations (material availability, cost) that could be explored and defined during a future design phase. Following the development of more detailed designs, a multiple criteria analysis could be developed to compare and evaluate the options to one another based on ERIF’s specific requirements. Stantec has developed a list of criteria that could be referenced during a future phase of design to evaluate the feasibility of the structural mitigation options discussed herein (see Table 2). They were developed based on the following technical documents:

- Natural Hazards (2022). “A Comprehensive Review of Structural Tsunami Countermeasures” article published online on 16 May 2022. Available online: <https://link.springer.com/content/pdf/10.1007/s11069-022-05367-y.pdf>
- Natural Hazard Science (2020). “Tsunami Preparedness and Mitigation Strategies” report by James D. Goltz and Katsuya Yamori published in 28 February 2020. Available online: <https://doi.org/10.1093/acrefore/9780199389407.013.324>
- United States Environmental Protection Agency (1990). “The Feasibility Study: Detailed Analysis of Remedial Action Alternatives” article published in March 1990. Available online: [87701.pdf \(epa.gov\)](87701.pdf)

Table 2: Potential Evaluation Criteria for Assessing Feasibility of Design Options

Evaluation Criteria	Description
Effectiveness	Assess the ability of the proposed mitigation structure to withstand against forces imposed by a tsunami. (i.e. ensuring adequate elevation to stay above tsunami inundation level, structures can withstand tsunami forces, habitable space and mechanical and electrical equipment located above the TFRP)
Cost	Analyze the cost of implementing structural and non-structural tsunami mitigation methods. The cost would include but not limited to the following aspects: construction, designing, long-term maintenance and repairs to any damage incurred during its life cycle. A cost-benefit analysis should also be conducted.
Environmental Impact	Evaluate the potential environmental consequences of the mitigation measure. This includes the impact on nearby coastal habitat, riparian area and affected vegetations.

Regulatory Compliance	Assess whether proposed mitigation measure follows applicable local, provincial and federal regulations and design standards.
Resilience and Adaptability	Assess the resilience and adaptability of the structural mitigation system to uncertainties caused by climate change. These uncertainties include but not limited to sea level rise, increased frequency of more extreme coastal storm events.
Emergency Preparedness	Assess how well the mitigation measure integrate with other non-structural mitigation measures such as: evacuation plan, early warning system and public awareness program.

4 Conclusion and Recommendations

The tsunami hazard currently identified at the development site located at 221 Minato Road in Ucluelet (Ebbwater 2022) could potentially be mitigated by utilizing any or a combination of the structural mitigation options presented in Section 3 while complying to the following policy and guidelines:

- Minimum elevation requirement (i.e. TFRP of 9.6m) for new residential and commercial buildings on new lots as stated within the DoU interim policy relating to tsunami risk tolerance (Ucluelet 2024), and;
- Professional practice guideline (EGBC 2018).

The structural mitigation options presented in Section 3 were:

- Option 1 - Raised foundation pad with mechanically stabilized Earth (MSE) wall and foreshore erosion protection.
- Option 2 - Raised foundation pad with retaining wall (i.e. concrete or sheet piles).
- Option 3 - Adapt building style to accommodate tsunami forces.

It should be noted that the typical section details relating to design options 1 & 2, and features described for design option 3 are general concepts and are not yet refined for site specific conditions. Exact design specifications, dimensions and configurations could be defined during future design phases. The details shown herein may not reflect the final design and are for discussion and reference purposes only. Feasibility of these structural design options should be confirmed with detailed assessment during future phase of the project considering existing coastal, and geotechnical reports and structural design work for the proposed buildings.

In addition, conceptual wave modelling will be undertaken to support development of the final design while noting the surge force induced by a tsunami is significantly reduced by the development site being situated within the inlet and not the oceanfront. The final design will also be developed adhering to the

latest technical guidelines and standards, and as a minimum, meeting the ASCE/SEI 7-16⁷ standards as stated within the DoU interim policy relating to tsunami risk tolerance (Ucluelet 2024).

It is also extremely important to recognize the inherent uncertainties associated with tsunami hazards and while structural mitigations must be implemented to comply with the current DoU tsunami policy and address tsunami hazard risks, the following list of non-structural tsunami mitigation strategies should also be developed to supplement the structural mitigation measures. They include but not limited to the following⁸:

- Public awareness program.
- Installation of an early warning system.
- An evacuation plan for communities located within inundation areas affected by the tsunami hazard.
- Ongoing collaboration and communication with local stakeholders and affected communities to ensure they are adhering to the mitigation strategies developed.

Note that the following list of assumptions and limitations are associated with this memo:

- No site visit was conducted.
- The Review was based on available background information – no wave, hydraulic, or hydrological modelling was included.
- An assessment of coastal flood hazards was not included.
- Preparation of a Flood Assurance Statement was not included.
- Geotechnical, structural, environmental, and archeological assessments required to develop structural mitigation designs were not included.
- The structural design options presented within this memo are based on the flood hazard legislation and professional practice guidelines and technical assessments that were completed at the time this memo was written.

Based on the Review, the options presented in Section 3 of this report are feasible design concepts to provide the structural mitigation required to adhere to DoU's interim tsunami risk tolerance policy based on the defined TFRP of 9.6 m. The next phase of work would include further assessment and design, considering the existing reports on coastal and geotechnical conditions, reviewing the updated environmental assessment and structural design work. A multiple criteria analysis matrix and cost estimates for the proposed options would allow ERIF to evaluate and compare each option. This process will inform ERIF in selecting the most appropriate design option/s for the varying levels and areas of the development site to be incorporated into detailed designs for construction. It is understood

⁷ "Minimum Design loads and Associated Criteria for Buildings and Other Structures" Standards published by American Society of Civil Engineers

⁸ Referenced from Section 2 – Tsunami Mitigation Strategies of the "Tsunami Mitigation Measures" journal published by the Canadian Association for Earthquake Engineering during the 11th Canadian Conference on Earthquake Engineering (CAOEE)

that scope, including the geotechnical engineering assessment/design and structural engineering of the buildings would be provided by ERIF.

This memo was reviewed by a qualified professional engineer experienced in coastal engineering.

Best regards,

STANTEC CONSULTING LTD.



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THURBER ENGINEERING LTD.

Phase I Environmental Site Assessment

221 Minato Road, Ucluelet, BC

Client Name: District Developments Corp.

Date: August 25, 2023

File: 38416



EXECUTIVE SUMMARY

Thurber Engineering Ltd. (Thurber) was retained by District Developments Corp. (District) to conduct a Phase I Environmental Site Assessment (ESA) of the property at 221 Minato Road, in Ucluelet, British Columbia (hereafter referred to as the "Site").

The purpose of this assessment was to identify the potential for soil, groundwater and/or soil vapour contaminant concerns at the Site based on a review of the current and historical land use at the Site and surrounding area.

This report was prepared for the exclusive use of District. Any use which a third party makes of this report, or any reliance on decisions based on it are the responsibility of such third parties. Thurber accepts no responsibility for damage incurred by third parties as a result of decisions made or actions taken based on this report. It is a condition of this report that Thurber's performance of its professional services is subject to the attached Statement of Limitations and Conditions.

This report was carried out through a review of readily available information including a historical records review, interviews with persons familiar with the Site and a Site inspection. This document was completed in accordance with Canadian Standards Association (CSA) Z768-01, Phase I Environmental Site Assessment, dated 2001 and the general requirements of Section 58(1)(a) of the BC Contaminated Sites Regulation (CSR).

The Site consists of an undeveloped, partially cleared lot. Gravel roads had been constructed throughout the Site. The Site appeared to be used for residential purposes and storage.

The Site and surrounding properties slope down to the north. The regional topography slopes down to the north towards Ucluelet Inlet. Groundwater at the Site is inferred to flow down to the north based on regional topography.

The historical review indicated the Site had been forested since at least the 1930s. The northern portion of the Site was cleared and gravel roads were constructed across the Site in the late 2010s. Since the Site has been cleared, it has appeared to have been used for residential purposes and the storage of vehicles, boats, and equipment.

The surrounding area was historically forested, undeveloped land. Ucluelet Inlet is present to the north of the Site and the surrounding area to the east, south, and west has remained largely forested. A few residential properties have been developed to the east of the Site beginning in the 1950s.



A Site Registry listing related to the Village of Ucluelet Landfill was reported at 85 m west of the Site. Based on the listing information and review of aerial photographs, it is possible that the coordinates provided were incorrect, and this operation was actually located 300 m to the southwest of the Site. Based on the distance from the Site and the reported restoration work, this activity presents a low potential to impact the Site.

Our review of the Site history did not indicate any activities or operations at the Site as listed in Schedule 2 of the CSR and no Areas of Potential Environmental Concern were identified.

Based on the results of this Phase I ESA, Thurber concludes there is a low potential for soil, groundwater and/or soil vapour contamination at the Site.

Further investigation is not recommended at this time.



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APPENDIX F

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1. INTRODUCTION

Thurber Engineering Ltd. (Thurber) was retained by District Developments Corp. (District) to conduct a Phase I Environmental Site Assessment (ESA) of the property at 221 Minato Road, in Ucluelet, British Columbia (hereafter referred to as the “Site”).

The purpose of this assessment was to identify the potential for soil, groundwater and/or soil vapour contaminant concerns at the Site based on a review of the current and historical land use at the Site and surrounding area.

Our scope of services included the following:

- A review of the geological and hydrogeological setting of the Site;
- A review of historical information sources for the Site and surrounding lands including:
 - aerial photographs
 - street-level imagery
 - fire insurance plans
 - regional district land use maps
 - city directories
 - storage tanks records
- A search of the Site Registry;
- A review of previous environmental reports;
- Interviews with persons who are knowledgeable about the Site; and
- An inspection of the Site and surrounding lands to identify potential sources of contamination.

A search of the current land title was completed; however, a search of historical land titles was not undertaken as sufficient information on historical land use and activities was obtained from other sources.

This document was completed in accordance with Canadian Standards Association (CSA) Z768-01, Phase I Environmental Site Assessment, dated 2001 and reaffirmed in 2016, and the general requirements of Section 58(1)(a) of the BC Contaminated Sites Regulation (CSR). This report was prepared for due diligence purposes and is not intended to support an application to the Ministry of Environment and Climate Change Strategy (ENV) for a regulatory instrument.

This report was prepared for the exclusive use of District. Any use which a third party makes of this report, or any reliance on decisions based on it are the responsibility of such third parties.



Thurber accepts no responsibility for damage incurred by third parties as a result of decisions made or actions taken based on this report. It is a condition of this report that Thurber's performance of its professional services is subject to the attached Statement of Limitations and Conditions.

2. SITE DESCRIPTION

2.1 Location

The general location of the study area is shown on Figure 1 in Appendix A. The irregular-shaped property is located at the northwest corner of the intersection of Peninsula Road and Minato Road (see Figure 2 in Appendix A).

Table 1: Site Information

CATEGORY	SITE INFORMATION
Current Address	221 Minato Road, Ucluelet, BC
Legal Description	Lot B, District Lot 286, Clayoquot District, Plan VIP79908
Site PID	026-487-764
Coordinates	Latitude 48°56'52.8", Longitude 125°34'10.5"
Owner	Minato Development Corp., Inc. No. BC1281485 since November 2021 based on current land title (see Appendix C)
Current Tenants	Residential
Site Area	100, 600 m ²
Municipal Zoning	RU: Rural Residential
No. Buildings on Site	Three sheds
Approx. Age of Buildings	4 years (late 2010s)
Utilities	Hydro
Source of Potable Water	None
Emergency Generators	None
Percentage of Site Developed	There are three sheds that occupy less than 1% of the Site. The remainder of the Site is partially cleared land with gravel roads, boats, RVs, vehicles, equipment, and a pond.

We understand that a residential development has been proposed for the Site.



2.2 Geological Setting

The available Geoscience BC map indicates that the Site is underlain by shallow bedrock belonging to the Pacific Rim Complex, which comprises Triassic to Cretaceous-age mudstone-rich melange and volcanic rock including pillow lava, tuff, and chert.

The Site and surrounding properties slope down to the north. The regional topography slopes down to the north towards Ucluelet Inlet.

Soil stockpiles were observed during the Site visit. As discussed in Section 4.1, these piles likely relate to on-Site clearing and grading activities rather than imported fill.

2.3 Hydrogeological Setting

iMapBC was used to locate nearby water bodies, groundwater wells and underlying aquifers. No groundwater wells were identified within a 500 m radius of the Site (refer to Appendix B).

The Site is underlain by the Ucluelet Peninsula aquifer, classified as a moderately productive, moderate vulnerability aquifer.

No surface water intakes were identified in the area of the Site.

The nearest surface water body is a small pond on the northern portion of the Site and Ucluelet Inlet, located adjacent to the north. The groundwater flow direction in the vicinity is unknown, but it is inferred to flow to the north and west based on regional topography.

3. HISTORICAL REVIEW

The information sources described in the subsections below were reviewed to identify the historical activities that occurred at the Site and on surrounding lands.

A discussion of identified operations of concern and their potential to impact the Site is included in Section 6. A listing of references is included at the end of the text of this report.

3.1 City Directories

No city directories were available from the Vancouver Public Library (VPL) for Ucluelet.



3.2 Fire Insurance Plans

No fire insurance plans were available from Special Collections Branch at the VPL for the Site or surrounding area.

3.3 Air Photographs

Air photographs were obtained from the UBC Geographic Information Centre and Google Earth and reviewed by Thurber. It should be noted that accurate details could not be obtained from the 1938 air photographs due to the angle of the photo.

Table 2: Site Air Photographs

YEAR(S)	SITE
1938, 1950,	The Site appears to be undeveloped, forested land. A small area on the northeast portion of the Site adjacent to Minato Road had been cleared. No structures are present on the Site.
1954, 1967, 1970, 1975, 1981, 1986, 1989, 1993, 2005, 2010, 2012, 2016.	The Site appears to be undeveloped, forested land. No structures are present on the Site.
2019	The northern portion of the Site has been cleared and roads are visible through the central portion of the Site.
2021, 2023	Roads are visible throughout the northern and central portion of the Site. The remainder of the Site remains forested.

Table 3: Surrounding Land Air Photographs

YEAR(S)	NORTH	EAST	SOUTH	WEST
1938	Ucluelet Inlet	Forested land.	Peninsula Road, then forested land.	Peninsula Road, then a forested land.
1950,		Residential and forested land.		
1954, 1967, 1970, 1975, 1981, 1986, 1989		Forested land.		
1993		Minato Road, and forested land.		
2005		Residential and forested land.	Forested land. An industrial area is present 130 m to the southeast.	
2010, 2012, 2016, 2019, 2021, 2023				



3.4 Street Level Imagery

Web-based images of the Site and surrounding area were reviewed for the years 2009 to 2014.

Table 4: Street Level Imagery

YEAR(S)	SITE
2009, 2011, 2014	The Site appears to be undeveloped, forested land. No structures are visible on the Site.
YEAR(S)	NORTH
No web-based images were available for Ucluelet Inlet to the north.	
YEAR(S)	EAST
2009, 2011, 2014	The properties to the east of the Site appeared to be undeveloped, forested land.
YEAR(S)	SOUTH
2009, 2011, 2014	The properties to the south of the Site appeared to be undeveloped, forested land.
YEAR(S)	WEST
2009, 2011, 2014	The properties to the west of the Site appeared to be undeveloped, forested land. A trailhead was observed along Peninsula Road.

3.5 Storage Tank Records

The municipality does not keep records regarding underground storage tank (USTs) removals; therefore, no records could be retrieved.

A BC One Call e-ticket request was submitted to receive Fortis BC information on the natural gas connection on the Site. The information received indicates that there is no natural gas connection to the Site or surrounding area.

3.6 Site Registry

The Site Registry is a database maintained by the ENV that contains information on the contaminant status of listed properties. The Registry was searched using a 500 m radius from the Site.

The Site itself was not listed. There was one property listed on the Registry, Site ID: 3100. There is no civic address for the listing. The location is described as 1.5 miles north of Ucluelet Village on the highway and the coordinates provided are approximately 85 m to the west of the Site. The listing pertains to the Village of Ucluelet Landfill and was most recently updated in January 2002.



Records on inspections from 1971 and 1979 are shown on the Registry. Landfill restoration work was completed in April 1985 and a permit abandonment notice was received in May 1985.

No evidence of landfilling activities was identified in this area in the review of aerial photographs. However, indications of possible landfilling activities were observed further east along Peninsula Road, closer to Ucluelet from 1967 to 1981. It is possible that the coordinates for the registry listing are incorrect, and the landfilling activities occurred more than 300 m to the southeast the Site.

The search results are included in Appendix D.

3.7 Federal Contaminated Sites Inventory

The Federal Contaminated Sites Inventory is a database maintained by the Federal government that contains information on the on the contaminant status of Federal land across Canada. The inventory was searched using the Site co-ordinates on the Online Map Navigator to identify properties within a 500 m radius of the Site.

No properties were identified on the inventory within a 500 m radius of the Site. A copy of the search results is provided in Appendix E.

3.8 Previous Environmental Reports

No environmental reports were provided by District.

4. SITE VISIT AND INTERVIEWS

4.1 Site

A Site visit was conducted by Alex Harden, Environmental EIT, on August 22, 2023. We were unaccompanied during the visit. The visit included a walk-through of accessible areas of the Site and an inspection of publicly accessible areas of adjacent properties. Portions of the Site adjacent to Ucluelet Inlet were densely vegetated and on steep slopes and could not be accessed. Select photos taken during the visit are included in Appendix F.



The Site consists of an undeveloped, partially cleared lot. The Site appeared to be used for residential purposes and storage. Gravel roads have been constructed throughout the Site.

The central and northern portions of the Site have been cleared and are used for storage of boats, vehicles, RVs, and a sea can. One of the RVs appeared to be used as a residence. The remainder of vehicles and sheds appeared to be unoccupied and used for storage.

Two excavators, a greenhouse, multiple sheds, a treehouse, a portable sawmill, wood debris, and construction debris and were present across the Site. Piles of mulch and soil, likely from on-Site clearing and grading activities, were present in the centre of the Site.

A portable sawmill was present in the centre of the Site. The equipment did not appear to be for commercial use. Three small jerry cans were stored beside the sawmill. No evidence of leaks or spills were observed.

Several drainage ditches had been constructed around the Site and a bridge was present on the western edge of the Site. A small pond was present on the northern portion of the Site.

Two above ground concrete tanks, three propane tanks, and three small jerry cans were observed at the Site. Thurber did not observe or find any evidence of above or below ground storage tanks associated with heating oil.

No other items of potential environmental concern were noted within the Site.

4.2 Surrounding Properties

The Site is located in an undeveloped and residential area. A listing of adjacent properties occupants is summarized in the following table:

Table 5: Surrounding Land Use

	NORTH	EAST	SOUTH	WEST
Adjacent Operation	Ucluelet Inlet	Forested and residential area	Peninsula Road, then forested area. Industrial operations were observed further to the southeast.	Peninsula Road and forested area with walking trails.
Inferred Groundwater Gradient with respect to the Site	Down-gradient	Up-gradient	Up-gradient	Down-gradient



An industrial area with operations including a topsoil and gravel supplier, Ucluelet Rent-It Center, was present 75 m to the southeast of the Site. Based on the distance from the Site and nature of the operation, these properties present a low potential to impact the Site.

No items of concern were identified pertaining to current surrounding property uses.

5. HAZARDOUS MATERIALS

Given that there were no permanent buildings or structures at the Site prior to 2016, it is unlikely that polychlorinated biphenyls, asbestos containing materials, lead based paints are present on the Site.

6. DISCUSSION

6.1 Site

The historical review indicated the Site had been forested since at least the 1930s. The northern and central portions of the Site was cleared, and gravel roads were constructed across the Site in the late 2010s. Since the Site has been cleared, it has been used for residential purposes and the storage of vehicles, boats, sheds, and equipment.

No areas or operations of potential environmental concern were identified at the Site.

6.2 Surrounding Lands

The surrounding area was historically forested, undeveloped land. Ucluelet Inlet is present to the north of the Site and the surrounding area to the east, south, and west has remained largely forested. A few residential properties have been present to the east of the Site beginning in the 1950s.

A Site Registry listing related to the Village of Ucluelet Landfill was reported as 85 m west of the Site. Based on the listing information and review of aerial photographs, it is likely that this operation was located 300 m to the southwest of the Site. Based on the distance from the Site and the reported restoration work, this activity presents a low potential to impact the Site.



6.3 Schedule 2 Activities

Schedule 2 of the CSR is a list of commercial and industrial activities that the ENV considers a potential risk to the environment. Based on our historical review and our Site observations, no Schedule 2 Activities were identified at the Site.

Although no Schedule 2 activity was identified, the municipality may still request a Site Disclosure Statement (SDS) during permit application for its own records. If this is requested, it is recommended that Thurber be contracted to complete the form on behalf of the owner.

7. CONCLUSIONS

Based on the results of this Phase I ESA, Thurber did not identify any Areas of Potential Environmental Concern. As such, there is a low potential for soil, groundwater and/or soil vapour contamination at the Site.

Further investigation is not recommended at this time.



8. SIGNATURES/CLOSURE

We trust this information meets your present needs. If you have any questions, please contact the undersigned at your convenience.

A handwritten signature in black ink that reads 'Alex Harden'.

Alex Harden, EIT
Environmental Engineer

A handwritten signature in black ink that reads 'Travis Deeter'.

Travis Deeter, P.Ag., CSAP
Senior Environmental Scientist

Date: **August 25, 2023**

File: **38416**



9. REFERENCES

- BC Online Site Registry. <<https://www.bconline.gov.bc.ca/main.html>>.
- City Directories and Fire Insurance Plans accessed at the Special Collections Department at the Vancouver Public Library or the University of British Columbia, Vancouver, BC
- District of Ucluelet Community Map. UkeeMap GIS Map.
<http://cgis.com/cpal/Default.aspx?Map=Ucluelet>
- CSA Standard Z768-01 (November 2001), Phase I Environmental Site Assessment.
- Google Street View. www.google.ca/maps. Accessed on August 17, 2023
- iMapBC. <https://maps.gov.bc.ca/ess/hm/imap4m/>
- Ministry of Environment and Climate Change Strategy, Environmental Management Act, Contaminated Sites Regulation (BC Reg 375/96), including amendments up to 133/2022 dated March 1, 2023.
- Geology, Northern Vancouver Island Project, Geoscience BC Map 2013-NVI-1-1 Scale 1:500,000. 2013.
- University of British Columbia. Geographic Information Centre, Vancouver, BC

STATEMENT OF LIMITATIONS AND CONDITIONS

1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE REPORT.

3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

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5. INTERPRETATION OF THE REPORT

- a) **Nature and Exactness of Soil and Contaminant Description:** Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors are judgmental in nature. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other persons making use of such documents or records with our express written consent should be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) **Reliance on Provided Information:** The evaluation and conclusions contained in the Report have been prepared on the basis of conditions in evidence at the time of site inspections and on the basis of information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) **Design Services:** The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber should be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design detailed in the contract documents should be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) **Construction Services:** During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions in order to confirm and document that the site conditions do not materially differ from those interpreted conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

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Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

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APPENDIX A

Drawings



Plotted: August 23, 2023

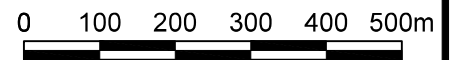


NOTES:

- 1. AERIAL IMAGE TAKEN FROM GOOGLE EARTH.

LEGEND:

 SITE BOUNDARY



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THURBER ENGINEERING LTD.

DISTRICT DEVELOPMENTS CORP.

GENERAL SITE LOCATION

121 MINATO ROAD

UCLUELET, BC

DESIGNED ASH	DRAWN JL	APPROVED TWD	DATE AUG 22, 2023	SCALE 1:10,000	PROJECT No. 38416	FIGURE NO. 1	REV. 0
-----------------	-------------	-----------------	----------------------	-------------------	----------------------	-----------------	-----------

Plotted: August 23, 2023

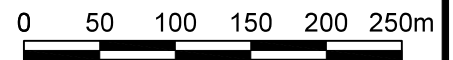


NOTES:

1. AERIAL IMAGE TAKEN FROM GOOGLE EARTH.
2. LOT LINES TAKEN FROM IMAPBC OPEN DATA CATALOGUE.

LEGEND:

SITE BOUNDARY



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THURBER ENGINEERING LTD.

DISTRICT DEVELOPMENTS CORP.

SITE AND SURROUNDING LAND USE

121 MINATO ROAD

UCLUELET, BC

DESIGNED ASH	DRAWN JL	APPROVED TWD	DATE AUG 22, 2023	SCALE 1:5000	PROJECT No. 38416	FIGURE NO. 2	REV. 0
-----------------	-------------	-----------------	----------------------	-----------------	----------------------	-----------------	-----------



APPENDIX B

Water Resources



iMapBC Mapping

Legend

- Groundwater Wells - All
- ARTESIAN_COND
- Reported Artesian Well
- Well
- Aquifers - All
- MATERIAL
- Unconsolidated
- Bedrock



1 : 18,056

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Datum: NAD83
 Projection: WGS_1984_Web_Mercator_Auxiliary_Sphere

Key Map of British Columbia





Aquifer Description (Mapping Report - 2018):

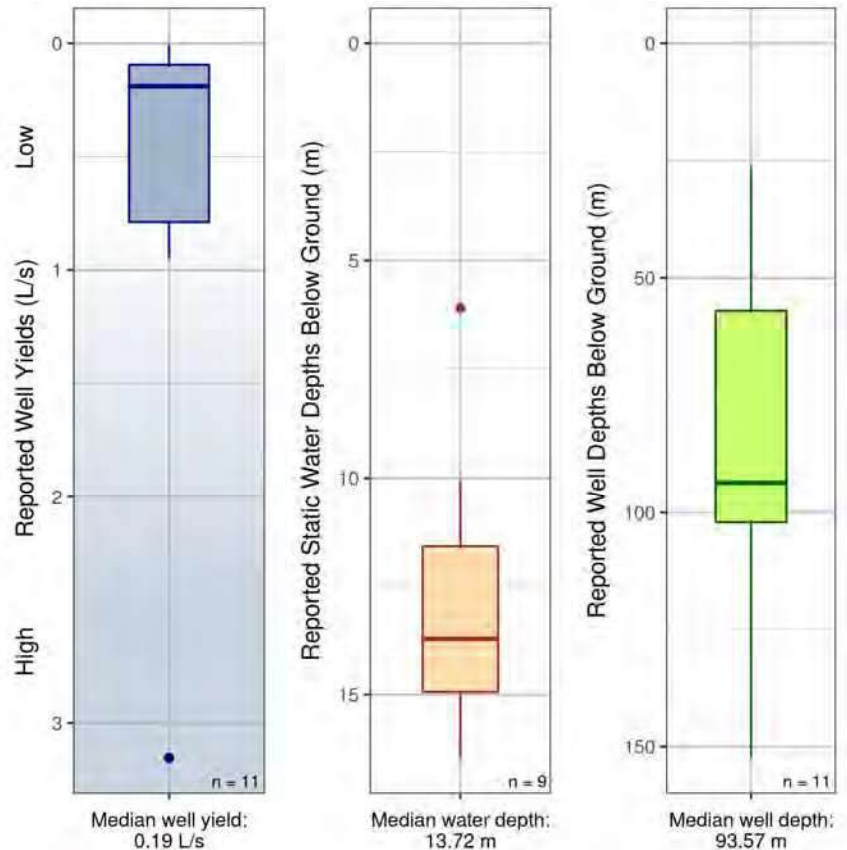
Fractured crystalline (igneous intrusive or meta-morphic, meta-sedimentary, meta-volcanic, volcanic) rock aquifer (subtype = 6b).

Aquifer Details

Region	West Coast
Water District	Alberni
Aquifer Area	10 km ²
No. Wells Correlated	11
Vulnerability to Contamination	Moderate
Productivity	Moderate
Aquifer Classification	IIB
Hydraulic Conductivity *	Unknown
Transmissivity *	Unknown
Storativity *	Unknown
No. Water Licences Issued to Wells	Unknown
Observation Wells (Active, Inactive)	None

* min - max

For Hydraulic Connection see [guidance document](#)



Disclaimer: Use of information from Aquifer factsheets (accessed by BC government website) is subject to limitation of liability provisions (further described on that website). That information is provided by the BC government as a public service on an "as is" basis, without warranty of any kind, whether express or implied, and its use is at your own risk. Under no circumstances will the BC government, or its staff, agents and contractors, be responsible or liable to any person or business entity, for any direct, indirect, special, incidental, consequential or any other loss or damages to any person or business entity based on this factsheet or any use of information from it.

Detailed methods for all figures are described in the companion document ([Aquifer Factsheet - Companion Document.pdf](#)).

Factsheet generated: 2022-07-27. Aquifers online: <https://apps.nrs.gov.bc.ca/gwells/aquifers>.



APPENDIX C

Current Land Title

TITLE SEARCH PRINT

File Reference: 38416

Requestor: Alex Harden

****CURRENT INFORMATION ONLY - NO CANCELLED INFORMATION SHOWN****

Land Title District

VICTORIA

Land Title Office

VICTORIA

Title Number

CA9507545

From Title Number

CA9333289

Application Received

2021-11-15

Application Entered

2021-11-24

Registered Owner in Fee Simple

Registered Owner/Mailing Address:

MINATO DEVELOPMENT CORP., INC.NO. BC1281485
2842 - 140 STREET
SURREY, BC
V4P 2H9

Taxation Authority

Ucluelet, District of

Description of Land

Parcel Identifier:

026-487-764

Legal Description:

LOT B DISTRICT LOT 286 CLAYOQUOT DISTRICT PLAN VIP79908

Legal Notations

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 14 OF THE LOCAL GOVERNMENT ACT, SEE CA8633160

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 14 OF THE LOCAL GOVERNMENT ACT, SEE CB536927 EXPIRES 2023-04-26

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 14 OF THE LOCAL GOVERNMENT ACT, SEE WX2153294

Charges, Liens and Interests

Nature:

COVENANT

Registration Number:

EV124432

Registration Date and Time:

2003-10-17 09:41

Registered Owner:

CORPORATION OF THE DISTRICT OF UCLUELET

Remarks:

INTER ALIA
PART

TITLE SEARCH PRINT

File Reference: 38416

Appendix D - Report 24 of 29

Requestor: Alex Harden

Nature: COVENANT
Registration Number: CA8532151
Registration Date and Time: 2020-10-29 14:12
Registered Owner: DISTRICT OF UCLUELET

Nature: MORTGAGE
Registration Number: CA9620859
Registration Date and Time: 2022-01-05 12:57
Registered Owner: JONATHAN MARA
LESLIE JOAN MARA
AS JOINT TENANTS

Nature: ASSIGNMENT OF RENTS
Registration Number: CA9620860
Registration Date and Time: 2022-01-05 12:57
Registered Owner: JONATHAN MARA
LESLIE JOAN MARA
AS JOINT TENANTS

Nature: MORTGAGE
Registration Number: CA9883770
Registration Date and Time: 2022-04-27 16:41
Registered Owner: GUARDIAN ANGEL CONSULTANTS LTD.
INCORPORATION NO. BC0806482

Nature: ASSIGNMENT OF RENTS
Registration Number: CA9883771
Registration Date and Time: 2022-04-27 16:41
Registered Owner: GUARDIAN ANGEL CONSULTANTS LTD.
INCORPORATION NO. BC0806482

Nature: COVENANT
Registration Number: CB365207
Registration Date and Time: 2022-11-30 15:14
Registered Owner: DISTRICT OF UCLUELET

Nature: PRIORITY AGREEMENT
Registration Number: CB365208
Registration Date and Time: 2022-11-30 15:14
Remarks: GRANTING CB365207 PRIORITY OVER CA9620859 AND
CA9620860

Nature: PRIORITY AGREEMENT
Registration Number: CB365209
Registration Date and Time: 2022-11-30 15:14
Remarks: GRANTING CB365207 PRIORITY OVER CA9883770 AND
CA9883771

TITLE SEARCH PRINT

File Reference: 38416

Requestor: Alex Harden

Duplicate Infeasible Title NONE OUTSTANDING

Transfers NONE

Pending Applications NONE



APPENDIX D

Site Registry Findings

Area Search Results

Coordinates & Area Size: 48deg 56min 52.8sec 125deg 34min 10.5sec Small Area

Report Type	Site ID	Updated Date	Address/City	Pending
Choose a Report Type ▼	3100	2002-01-17	UNKNOWN, UCLUELET	Download

Showing 1 to 1 of 1 entries

Appendix D - Report 24-129

[Back](#)

[Email Search Results](#)





APPENDIX E

Federal Contaminated Sites Inventory

Treasury Board of Canada Secretariat

[Home](#) > [OCG](#) > [Real Property Management](#) > [FCSI](#) > DFRP/FCSI - Map Navigator

DFRP/FCSI - Map Navigator

Area: Ucluelet, Alberni-Clayoquot C **Content:** 0 Federal Property, 0 Federal Building, 0 Federal Contaminated Site



Layers

- Federal Properties
- Federal Buildings
- Federal Contaminated Sites
- Economic Region
- Census Divisions
- Census Subdivisions
- Metropolitan Areas
- Federal Electoral Districts
- Treaty Areas

¹ This layer is visible only when the map scale is smaller than 1:3,000,000.

² Suspected Active Closed

³ Google base maps are only available when the map scale is smaller than 1:60,000.

IMPORTANT NOTE: The tables below are currently not synchronized with the map content.
Please click on the following button if you want to update the tables content: [UPDATE TABLES](#)

Federal Properties (0) / Parcels (0)

Federal Buildings (0)

Federal Contaminated Sites (0)

No record found.



APPENDIX F

Site Photographs

PHOTOS



Figure 1. View of the Site facing west. Photo credit: Alex Harden



Figure 2. View of the Site facing southeast. Photo credit: Alex Harden

PHOTOS



Figure 3. View of the Site facing north. Photo credit: Alex Harden



Figure 4. View of the Site facing south. Photo credit: Alex Harden

PHOTOS



Figure 5. View of the Site facing east. Photo credit: Alex Harden



Figure 6. View of the Site facing north. Photo credit: Alex Harden

PHOTOS



Figure 7. View of the Site facing north. Photo credit: Alex Harden



Figure 8. View of the Site facing west. Photo credit: Alex Harden



PHOTOS



Figure 9. View of the inlet to the north of the Site. Photo credit: Alex Harden



Figure 10. View of the properties to the east of the Site. Photo credit: Alex Harden



PHOTOS



Figure 11. View of the properties to the south of the Site. Photo credit: Alex Harden



Figure 12. View of the properties to the west of the Site. Photo credit: Alex Harden

DISTRICT OF UCLUELET

Zoning Bylaw Amendment Bylaw No. XXXX, 2024

A bylaw to amend the "District of Ucluelet Zoning Bylaw No. 1160, 2013 and 1312, 2022".

(Zoning amendments for the proposed development of 221 Minato Road - Lot B, Plan
VIP79908 Clayoquot District, District Lot 286).

WHEREAS Section 4 79 and other parts of the *local Government Act* authorize zoning
and other development regulations;

NOW THEREFORE the Council of the District of Ucluelet, in open meeting assembled, enacts as follows;

1. Text Amendment:

The District of Ucluelet Zoning Bylaw No. 1160, 2013, as amended, is hereby further amended as follows:

- A. By adding within Division 100 - Enactment and Interpretation. Section 103 definitions, such that new definitions are added in alphabetical order reading as follows:

"Height" means the shortest vertical distance from the average elevation of the existing grade, if homes are required to be sited above the Flood Construction Level due to sea level rise (FCL) or above the Tsunami Risk Level (TRL), then the height is to be taken from the higher of the existing grade or the FCL or TRL.

"Residential Rental Tenure" means the occupation of a *dwelling unit* for *residential* purposes under a tenancy agreement according to the *Residential Tenancy Act* for a period of at least 4 months and excludes occupation of a dwelling by the owner.

"Rental Multiple Family" means a *building*, or a group of *buildings* on the same *lot*, each containing three or more *dwelling units* for *residential* use only under a long-term *residential rental tenure*.

"Single Family Waterfront", means a detached *building* consisting of at least one dwelling on the same *lot* for both *residential* and *vacation* use for the primary dwelling and suite/s. While designed for single family occupation, the inclusion of at least one suite permits residential rental tenures and vacation use.

- B. By adding a new Comprehensive Development zone, to Schedule B – The Zones that directly follows CD-6 Zone - FORMER PROPOSED DEVELOPMENT OF 221 MINATO ROAD such that the new section reads as follows:

"CD-6 Zone - MINATO ROAD"

This Zone is intended for the development of a mix of multi-family and single-family residential development providing for a mix of sizes, types and tenures including affordable rental, market rental, attainable home ownership and market ownership homes along with a small commercial precinct and limited vacation rental use.



CD-6.1 Permitted Uses:

The following uses are permitted within the corresponding Development Areas shown in the CD-6 Zone Plan, but *secondary permitted* uses are only permitted in conjunction with a *principal permitted* use:

Development Area	Principal Use	Building Form	Secondary Uses
Lot 1	Multiple Family	Apartment	Home Occupation Secondary Suite
Lot 2	Rental Multiple Family	Apartment	Home Occupation
Lot 3	Single Family Waterfront	House	Home Occupation Secondary Suite Vacation Rental
Lot 4	Retail Trade & Services*	Commercial/Retail	CS-2.1 Uses
Lot 5	Multiple Family	Apartment	Home Occupation Secondary Suite Vacation Rental

*Includes all CS2.1 Uses such as Office, Retail including supermarket, Personal Services, Convenience Store, Community Use, Bistro/Café, Take Out Food Services.

CD-6.2 Lot Regulations:

CD-6.2.1 Minimum Lot Size:

Minimum Lot Frontage is 10.00m.

Development Area	Principal Use	Proposed Lot Area	Minimum Lot Size
Lot 1	Multiple Family	19,000 m ²	16,000m²
Lot 2	Rental Multiple Family	17,800 m ²	16,000m²
Lot 3	Single Family Waterfront	14,700 m ²	13,000m²
Lot 4	Retail Trade & Services	2,300 m ²	2000m²
Lot 5	Rental Multiple Family	13,100 m ²	12,000m²
TOTAL		66,900 m ²	

CD-6.3 Density

CD-6.3.1 Maximum Density:

Development Area	Principal Use	Density (max # of buildings)	Density (max. # dwelling units)	Density (per unit/ha)
Lot 1	Multiple Family	18	75	39.5 unit / ha
Lot 2	Rental Multiple Family	16	107	60.1 unit / ha
Lot 3	Single Family Waterfront	10	10	6.8 unit / ha
Lot 4	Retail Trade & Services	2	-	-
Lot 5	Rental Multiple Family	10	58	44.3 unit / ha
TOTAL		55	250	37.4 units / ha

CD-6.4 Maximum Size (Gross Floor Area):

Development Area	Principal Use	Building Footprint	Total Gross Floor Area (m ²)	Proposed Lot Coverage	Maximum Lot Coverage
Lot 1	Multiple Family – Part 1	1,289 m ²	6633	17 %	25%
	Multiple Family – Part 2	2,027 m ²			
Lot 2	Rental Multiple – Part 1	1,141 m ²	6094	18 %	25%
	Rental Multiple – Part 2	1,906 m ²			
Lot 3	Single Family Waterfront	1,500 m ²	2750	10 %	15%
Lot 4	Retail Trade & Services	600 m ²	1120	25 %	50%
Lot 5	Rental Multiple Family	1,884 m ²	3768	14%	25%
TOTAL		10,348 m ²	20365	15%	

CD-6.5 Maximum Size of Accessory Buildings

CD-6.5.1 on lots containing a *Single Family*: 30 m² (323 ft²) combined total.

CD-6.5.2 on lots containing a *Multiple Family or Rental Multiple Family*: 50 m² (538 ft²) combined total.

CD-6.5.3 on lots containing a *Commercial*: 100 m² (1077 ft²) combined total.

CD-6.6 Maximum Heights

Development Area	Principal Use	Principal	Accessory
Lot 1	Multiple Family	8.0 m	5.5 m
Lot 2	Rental Multiple Family	8.0 m	5.5 m
Lot 3	Single Family Waterfront	11.5 m	5.5 m
Lot 4	Retail Trade & Services	11.5 m	5.5 m
Lot 5	Rental Multiple Family	8.0 m	5.5 m

CD-6.7 Minimum Setbacks:

For ALL buildings there is a phase Strata lot line of 0.0m.

The following minimum setbacks apply, as measured from the *front lot line, rear lot line, and side lots line(s)* respectively:

Development Area	Principal Use	Front	Rear	Side Interior	Side Exterior	Phased Strata Lot Line
Proposed Setback						
Lot 1	Multiple Family	10.0 m	3.3 m	0.7 m	1.5 m	0.0 m
Lot 2	Rental Multiple Family	10.0 m	1.5 m	0.6 m	6.5 m	0.0 m
Lot 3	Single Family Waterfront	5.1 m	1.3 m	4.5 m	4.5 m	0.0 m
Lot 4	Retail Trade & Services	4.5 m	23.0 m	9.5 m	3.0 m	0.0 m
Lot 5	Rental Multiple Family	3.9 m	4.0 m	7.5 m	7.5 m	0.0 m
Minimum Setback						
Lots 1/2/5	Multiple Family	3.0 m	1.0 m	0.5 m	1.0 m	0.0 m
Lot 3	Single Family	4.0 m	1.0 m	3.0 m	3.0 m	0.0 m
Lot 4	Retail Trade & Services	4.0 m	3.0 m	1.5 m	2.0 m	0.0 m

CD- 6.8 Parking Requirements:

The following minimum car spaces apply:

For Multiple Family in Lots 1, 2 and 5: one space per dwelling and one visitor park per multi-family multiplex building.

For Lot 3 Single Family Waterfront: 3 spaces per lot.

For Lot 4 Commercial: 15 spaces per lot

2. Map Amendment:

Schedule A (Zoning Map) of District of Ucluelet Zoning Bylaw No.1312,2022 as amended, is hereby further amended by changing the zoning designation of areas of Lot B, District Lot 286, Clayoquot District Plan VIP79908 (222 Minato Road: PID: 026-487-7864), from “CD-6: Comprehensive Development 6 Zone- FORMER PROPOSED DEVELOPMENT OF 221 MINATO ROAD” to areas designated as “CD-6: Comprehensive Development 6 Zone – MINATO ROAD”

Amend and Replace Draft Covenant Restrictions

This report documents the proposed resolution of the 2023 Covenant Restrictions on 221 Minato with a proposal that these be agreed as satisfied, amended or waived by mutual agreement.

2022 Covenant Restrictions – Satisfied, Amended and Waived by Agreement

The original Covenant Restrictions are here:

https://drive.google.com/file/d/1itHg9RNp9qMW_WjAc98OHc3oR07oJTrG/view?usp=sharing

This table seeks to respond to each 2022 Covenant Restriction as satisfied, amended or waived, and any follow up actions.

#	Section	Type	Restriction	Satisfied	Action
1	2(b)(i)	Archaeological Assessment	(i) an archaeological assessment of the site and the proposed development with recommendations for any mitigation measures, design changes and/or permitting requirements to protect archaeological and cultural resources;	SATISFIED – September 2024 lodged Interim Archaeological Report by Yuulu?i?ath Government - Ucluelet First Nation (UFN) Department of Culture, Language & Heritage	ERIF to supply 'Final' Report when received before Build Permit approval.
2	2(b)(ii)	Environmental Assessment	an assessment by a Qualified Environmental Professional (QEP) of the ecological resources of the Lands and surrounding ecosystem, with recommendations for how the proposed development can avoid and/or mitigate impacts on terrestrial and marine ecosystems or enhance the existing ecological function of the site;	✓ SATISFIED – September 2024 lodged Interim Environmental Assessment by Aquaparian Environmental Consulting. ✓ EXTRA August 25 2023 Thurber Engineering Environmental Site Assessment found “no areas of potential environmental concern” (contamination).	SATISFIED
3	2(b)(iii)	Grading and Rainwater Plan	(iii) grading and rainwater management plans for the proposed development of the Lands (incorporating the recommendations of the QEP and landscape plans for the proposed development);	✓ SATISFIED – September 2024 supplied by Herold Engineering including incorporating Aquaparian input on benched natural drainage to middle Creek.	SATISFIED Compliance with standard sediment control plan
4	2(b)(iv)	Traffic	(iv) engineering analysis and design for safe vehicular and pedestrian access to the proposed residential development on the Lands in a location and configuration to the satisfaction of both the District and BC Ministry of Transportation and Infrastructure;	✓ SATISFIED September 2024 updated Traffic Report by Watt Consulting Engineers. ✓ EXTRA Jan 10 2024 Watt Consulting Traffic Assessment Update recommends extending the 50kph zone, second access off Peninsula, 20m taper	SATISFIED Negotiate Ministry of Transportation and Infrastructure approval

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				westbound right lane and pedestrian crossing Peninsula. ✓ Feb 28 2022 Watt Consulting Traffic Study and report.	
5	2(b)(v)	Engineering for Water, Sanitary, Roads and Pathways	(v) engineering analysis and design of off-site works and services required to ensure that District infrastructure will accommodate the impact of the proposed development on the Lands, including water, sanitary, roads and pathways;	<ul style="list-style-type: none"> ✓ SATISFIED September 2024 updated Servicing Plan by Herold Engineers. ✓ EXTRA Mar 19 2024 Koers Engineering modelling water and sanitary demands ✓ Sept 27 2023 McGill Engineering review of sanitary, stormwater, water, power. ✓ March 19 2022 Koers Water flow study. ✓ March 18 2022 Koers Sanitary Modelling ✓ April 28 2022 BC Hydro confirmation of capacity 	Awaiting DOU timelines for infrastructure upgrades so can determine full tie in or if required use Creus Interim Sanitary solution.
6	2(b)(vi)	Phasing and Servicing Plans	(vi) proposed phasing and servicing plans, identifying thresholds for when infrastructure upgrades (including road access, water, sewer, etc.) would be necessary before additional housing units are constructed;	<ul style="list-style-type: none"> ✓ SATISFIED September 2024 updated Servicing Plan by Herold Engineers ✓ EXTRAS Mar 19 2024 Koers Engineering modelling water and sanitary demands ✓ Sept 27 2023 McGill Engineering review of sanitary, stormwater, water, power. ✓ March 19 2022 Koers Water flow study. ✓ March 18 2022 Koers Sanitary Modelling ✓ April 28 2022 BC Hydro confirmation of capacity 	Approval of Phased Development Plan: -model infrastructure upgrades over time. -approval Interim Sanitary solution if delayed. -approval of Watt Consulting phased traffic works at 80% build out.
7	2(b)(vii)	Subdivision Layout and Titling (Strata)	(vii) proposed layout and approach to subdivision (including all proposed elements of fee-simple, bare land strata, or building stratas) identifying proposed property boundaries and the location and extent of public and private infrastructure, facilities, roads, pathways, parks, open space, etc.;	<ul style="list-style-type: none"> ✓ SATISFIED September 2024 provided Draft Subdivision Plan from Williamson Surveyors. 	Site plans will be enhanced by additional survey points.

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8	2(b)(viii)	Open recreation space design	(viii) more detailed plans for proposed road and open space design including plans for public / shared recreation and play infrastructure;	SATISFIED September 2024 provided plans, visual supports and Landscaping Plans.	Additional detailed Landscaping in Build Permit phase.
9	2(b)(ix)	Energy Measures	(ix) description of proposed green building measures including electrical vehicle charging at all units;	✓ SATISFIED September 2024 provided details of solar panels, EV charging to each lot, low waste methodology for build.	
10	2(b)(x)	Engineering for Tsunami	(x) engineering analysis of all aspects of the proposed development on the Lands located in areas identified as subject to tsunami flood hazard, according to District of Ucluelet Tsunami Risk Tolerance Interim Policy 8-5280-1.	✓ SATISFIED Late Sept 2024 will provide Kerr Webb Leidel Flood Assurance Statement confirming levels. ✓ July 2022 Stantec Tsunami resilient construction plan for retaining and lower levels. ✓ Jan 28 2022 Ebbwater Consulting Flood Planning Mapping Report	Structural and Geotech Engineer design of footings, retaining walls. Prepare Tsunami Risk Management Plan.
11	2(c)	Plan for Wild Pacific Trail	(c) The Grantor must provide to the District, and receive the Director’s approval of, a detailed plan for the construction of gravel-surfaced pedestrian trails, viewing platforms, and associated infrastructure, to the District’s Wild Pacific Trail standards, in the approximate alignment shown on the Development Plan (the “Trail Plan”).	PROPOSED WAIVED The Parkland Dedication is now owned and controlled by DOU who are best placed to undertake trail construction if desired.	
12	2(d)	Criteria for Trail Plan	(d) The Trail Plan must: (i) specify trail alignments that achieve the following objectives: A. minimize impact on the natural environment B. minimize pedestrian encroachment into the salt marsh and intertidal areas; C. minimize tree removal; D. maximize the experience by trail users; E. fit the character of the existing municipal trail network; (ii) include stairs, bridges, boardwalks, ramps, railings and other similar trail structures as reasonably necessary to achieve the above-noted objectives; (iii) include view platform designs that are of a scale and quantity to allow future residents and trail users to	PROPOSED WAIVED The Parkland Dedication is now owned and controlled by DOU who are best placed to undertake trail construction if desired.	

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			enjoy the views (minimum 800 sq ft in two separate platforms) (iv) including archaeological and environmental assessment and oversight as necessary during construction.		
13	2(e) (i)	Housing Agreement Covenant -10 affordable rental units	<p>(e) The Grantor must grant to the District and register on title to the Land, a housing agreement (or agreements) under s. 483 of the Local Government Act and a restrictive covenant (or covenants) under s. 219 of the Land Title Act, all to the satisfaction of the District’s Manager of Planning, to ensure the following:</p> <p>(i) At least ten rental housing units with rental rates restricted to ensure affordability for households earning a maximum of 80% of median income, with the following unit mix: four units with one bedroom, four units with two bedrooms, and two units with three bedrooms;</p>	✓ AMEND clause tied to superseded unfeasible site plan. Drafted Housing Agreement and replaced clause in Covenant Restriction. designs meet and exceed criteria	AMEND Covenant Restriction. Sign Housing Agreement managed by non-profit Housing Association
14	2(e) (ii)	Housing Agreement Covenant -42% total units affordable	(ii) At least 42% of the total units will be rental housing units with rental rates restricted to ensure affordability for households earning between 80% and 100% of median income, with the following unit mix: 40% of the units with one bedroom, 40% of the units with two bedrooms, and 20% of the units with three bedrooms;	✓ AMEND clause tied to superseded unfeasible site plan. Drafted Housing Agreement and replaced clause in Covenant Restriction. designs meet and exceed criteria	AMEND Covenant Restriction. Sign Housing Agreement managed by non-profit Housing Association
15	2(e) (iii)	Housing Agreement Covenant -32% of units affordable rental or sale	<p>(iii) At least 32% of the total units will be houses or townhouses with rental or sale prices restricted to be affordable for households earning up to 130% of median income, with a mix of unit sizes.</p> <p>and the District’s Manager of Planning may require the Grantor to include in the Housing Agreements additional terms and conditions respecting the timing and phasing of any development of the Lands, to ensure construction and occupancy of any Affordable Housing Units is reasonably proportionate to the</p>	✓ AMEND clause tied to superseded unfeasible site plan. Drafted Housing Agreement and replaced clause in Covenant Restriction. designs meet and exceed criteria	AMEND Covenant Restriction. Sign Housing Agreement managed by non-profit Housing Association

			subdivision of lots and/or issuance of building permits for other residential uses on the Lands and without limiting the Planner's discretion under this section, the Grantor agrees that Affordable Housing Units must comprise at least 65% of housing units construction in the first phase of development of the Lands.		
16	3	No a) occupation until T1 trail b) building zones BCD until T2 trail c) building EFG until T3 built.	<p>3. Despite any construction that may have been authorized after the Grantor has fulfilled its obligations under section 2 of this Agreement, the use or occupancy of any building on the Land is further restricted as follows:</p> <p>(a) No building on the Land shall be used or occupied until and unless the Grantor has completed the construction of the portion of trail in the area labeled T-1 in the Development Plan, in accordance with the Trail Plan;</p> <p>(b) No building on the areas of the Land labeled B, C and D on the Development Plan shall be used or occupied until and unless the Grantor has completed the construction of the portion of trail in the area labeled T-2 in the Development Plan, in accordance with the Trail Plan;</p> <p>(c) No building on the areas of the Land labeled E, F or G on the Development Plan shall be used or occupied until and unless the Grantor has completed the construction of the portion of trail in the area labeled T-3 on the Development Plan, in accordance with the Trail Plan.</p>	PROPOSED WAIVED The Parkland Dedication is now owned and controlled by DOU who are best placed to undertake trail construction if desired. Trail must not delay urgent development of Affordable homes.	

Proposed 2024 New Covenant Restrictions

Redraft of Covenant Restrictions here: [ADD LINK](#)

DRAFT - PHASED DEVELOPMENT AGREEMENT

Section 516 Local Government Act/Section 219 Covenant

This Agreement dated for reference the ___ day of _____ 2024.

BETWEEN:

DISTRICT OF UCLUELET

200 Main Street, Ucluelet, BC V0R 3A0

(the “**District**”)

AND:

ERIF ECONOMIC RESTORATION INFRASTRUCTURE FUND INC., BC1319635.

2200, 885 Georgia St West, Vancouver, British Columbia, CA V6C 3E8

(the “**Developer**”)

GIVEN THAT:

- A. The Developer is contracted to become the owner of the Lands.
- B. The Developer has applied to amend the District of Ucluelet’s Zoning Bylaw Amendment Bylaw No. 1312, 2022 (the “**Zoning Bylaw**”) to permit the development on the Lands generally depicted on the Master Plan and in the Development Permit for the Lands.
- C. The owner has voluntarily provided Parkland in conjunction with the development of the Lands and no further parkland dedication is required.
- D. The Developer wishes to ensure that the provisions of the Zoning Amendment Bylaw continue to apply to the Lands for the Term.
- E. The Developer proposes to develop the Lands in five phases (hereinafter individually referred to as “Phase A through F” respectively and jointly referred to as the “**Phases**”), of which Phases are shown on the Phasing Plan.
- F. The Parties have agreed that the Lands will be developed in Phases and that all Works shall be provided in conjunction with the development of each of the Phases and in the sequence provided for in this Agreement.
- G. The Council of the District has, by the Phased Development Agreement Bylaw, authorized the making of this Agreement.
- H. Section 516 of the Local Government Act permits the entering into this Agreement pursuant to the Phased Development Agreement Bylaw; and
- I. The parties have agreed to register this Agreement in the Land Title Office under Section 219 of the *Land Title Act*.

NOW THEREFORE in consideration of the mutual promises set out in this Agreement, the Developer and the District agree pursuant to Section 516 of the *Local Government Act* as follows:

PART I – INTRODUCTION

1. DEFINITIONS AND INTERPRETATION

1.1 In this Agreement:

“**Affiliate**” has the meaning set out in the *Business Corporations Act*.

“**Agreement**” means this Phased Development Agreement.

“**Approving Officer**” means the subdivision approval official appointed for that purpose under the provisions of the *Land Title Act*.

“**Development**” means the development of the Lands as generally depicted on the Master Plan.

“**Dwelling Unit**” shall have the meaning set out in the Zoning Bylaw.

“**Lands**” means the parcels of land legally described in Schedule A.

“**Master Plan**” means the plan for the Development of the Lands and attached to the Agreement as Schedule B.

“**Parkland**” means the parks and open space areas as shown on the plan attached as Schedule B depicting the lands currently owned by the Municipality.

“**Phase**” means a phase of the Development as depicted on the Phasing Plan, including all Works contemplated or required in connection with that Phase.

“**Phase A – F**” means that Phase of the Development numbered as Phase A – F, as applicable, on the Phasing Plan.

“**Phased Development Agreement Bylaw**” means the bylaw authorizing the entering into of this Agreement pursuant to Section 516(1) of the Local Government Act.

“**Phasing Plan**” means the plan attached as Schedule C.

“**Security**” means cash or an unconditional, irrevocable and automatically renewing letter of credit issued by a chartered bank, to the satisfaction of the District.

“**Subdivide**”, “**Subdivided**” or “**Subdivision**” means to divide, apportion, consolidate, or subdivide the Lands or portion thereof, or the ownership or

right to possession or occupation of the Lands into two or more lots, strata lots, parcels, parts, portions, or shares, whether by plan, descriptive words or otherwise, under the *Land Title Act*, the *Strata Property Act*, or otherwise, and includes the creation, conversion, organization, or development of “cooperative interests” or “shared interest in land” as defined in the *Real Estate Development Marketing Act*;

“**Term**” means the term of this Agreement set out in 5.1.

“**Works**” shall have the meaning set out in Article 7; and

“**Zoning Bylaw**” means the District’s Zoning Bylaw No. 1312, 2022, as amended, in place as of the date of adoption of the Phased Development Agreement Bylaw.

- 1.2 The headings and captions are for convenience only and do not form a part of this Agreement and shall not be used to interpret, define or limit the scope, extent or intent of this Agreement or any of its provisions.
- 1.3 The word “including” when following any general term or statement is not to be construed as limiting the general term or statement to the specific items or matters set forth or to similar terms or matters but rather as permitting it to refer to other items or matters that could reasonably fall within its scope.
- 1.4 A reference to currency means Canadian currency.
- 1.5 A reference to a statute includes every regulation made pursuant thereto, all amendments to the statute or to any such regulation in force from time to time, and any statute or regulation that supplements or supersedes such statute or any such regulation.
- 1.6 A reference to time or date is to the local time or date in Ucluelet, British Columbia.
- 1.7 A word importing the masculine gender includes the feminine or neuter, and a word importing the singular includes the plural and vice versa.
- 1.8 A reference to approval, authorization, consent, designation, waiver, or notice means written approval, authorization, consent, designation, waiver or notice.
- 1.9 A reference to a section means a section of this Agreement unless a specific reference is provided to a statute.
- 1.10 The following Schedules are attached to and form part of this Agreement:
 - Schedule A Titles
 - Schedule B Master Plan
 - Schedule C Phasing Plan

Schedule D Commitment to Attainable / Affordable Housing Minimums

PART II – GENERAL CONDITIONS

2. APPLICATION OF AGREEMENT

2.1 THE DEVELOPER COVENANTS AND AGREES with the District that the Lands shall not be Developed, Subdivided, built on, used or occupied for any purpose whatsoever, except in strict accordance with this Agreement.

3. CONDITION PRECEDENT

3.1 The obligations of the parties under this Agreement are subject to the Council of the District, in its sole and unfettered discretion, adopting the Amendment Bylaw, the Zoning Amendment Bylaw and the Phased Development Agreement Bylaw by on or before March 30, 2025, failing which this Agreement shall automatically terminate and be of no further force or effect. For certainty, the District confirms that it shall not register this Agreement on title to the Lands until the Amendment Bylaw, the Zoning Amendment Bylaw and the Phased Development Agreement Bylaw have been adopted.

4. SPECIFIED BYLAW PROVISIONS

4.1 For the Term, any amendment or repeal of the Specified Bylaw Provisions shall not apply to the Lands, unless:

(a) the changes fall within the limits established by Section 516(6) of the *Local Government Act*, being:

(i) changes to enable the District to comply with an enactment of British Columbia or of Canada.

(ii) changes to comply with the order of a Court or arbitrator or another direction in respect of which the District has a legal requirement to obey.

(iii) changes that, in the opinion of the District, are necessary to address a hazardous condition of which the District was unaware at the time it entered into this Agreement; and

(iv) other changes that may be made as a result of an amendment to Section 516(6) of the *Local Government Act*.

(b) this Agreement has been terminated pursuant to Article 6; or

(c) the Developer has agreed in writing that the changes to the Specific Bylaw Provisions apply.

5. TERM OF AGREEMENT

- 5.1 Subject to Article 6, the Term of this Agreement is ten (10) years from the reference date of this Agreement.

6. TERMINATION

- 6.1 The parties may terminate this Agreement at any time by mutual written agreement, and subsequently subject to the Council of the District adopting a bylaw to terminate this Agreement in accordance with the same procedures, terms and conditions required to adopt the Phased Development Agreement Bylaw.

- 6.2 If the Developer does not comply with any of the provisions of this Agreement other than as a result of or due to an act or omission of the District, the District may at its option terminate this Agreement before the expiry of the Term by providing notice in writing to the Developer, provided that:

- (a) in the case of a failure on the Developer's part to pay a sum, the District has, at least sixty (60) days prior to giving such notice, advised the Developer in writing of the alleged failure to pay or to provide the Security (the "**Default Notice**") and the Developer has not corrected the failure to the reasonable satisfaction of the District within that sixty (60) day period.
- (b) in the case of any other failure on the Developer's part to comply with this Agreement, the District has, at least sixty (60) days prior to giving such notice, provided the Developer with a Default Notice in respect of such failure, and the Developer has not corrected the failure or deficiency in performance to the reasonable satisfaction of the District within that sixty (60) day period; or
- (c) if a failure or deficiency requires longer than sixty (60) days to remedy, the Developer has failed to substantially commence remedying such failure or deficiency within sixty (60) days after receipt of the Default Notice to the reasonable satisfaction of the District and further has failed to diligently pursue remedying the failure or deficiency thereafter.

7. SERVICING AGREEMENT

- 7.1 With respect to works and services, including the roads, not already constructed (the "**Works**") the Developer covenants and agrees that it will enter into a Works and services agreement with the District in accordance with the requirements of the District's Bylaw in effect as of the date of this Agreement.

8. DEVELOPMENT AND DEVELOPMENT PHASING

- 8.1 Without limiting the generality of Section 2.1, the Developer covenants that it shall not develop the Lands, disturb the surface of the Lands, cut or damage

vegetation on the Lands or Subdivide the Lands except in strict accordance with the terms of this Agreement and in accordance with the Master Plan, provided that this Agreement shall not prohibit the Developer from taking such steps from time to time and at any time during the Term as may reasonably be required to clear vegetation from roads, replace culverts, repair road washouts and otherwise address like matters with respect to the Lands.

- 8.2 Except as expressly provided in this Agreement, nothing in this Agreement shall relieve the Developer from any obligation or requirement arising under any applicable statute, bylaw or regulation in respect of the Subdivision and Development of the Lands, and without limiting the generality of the forgoing, the Developer shall remain fully responsible to ensure that the Development of the Lands is in full compliance with all requirements of the bylaws of the District including those respecting land development, zoning, subdivision and servicing. For certainty, nothing in this Agreement shall (a) relieve the District of the authority to utilize any contractual, statutory or common law remedy it may have to enforce this Agreement; or (b) be deemed to make the Developer responsible for ensuring bylaw compliance for any building construction completed on Subdivided portion of the lands transferred by the Developer to arm's length third parties.
- 8.3 Without limiting the generality of Section 8.2, in connection with any application for approval of Subdivision or Development of the Lands, the Developer must obtain all development permits required under the District's Official Community Plan, as amended from time to time, and in respect of any Subdivision must obtain the approval of the Approving Officer and must comply with all applicable enactments and bylaws in connection with that Subdivision.
- 8.4 The parties acknowledge that the Approving Officer is an independent statutory officer, and that nothing in this Agreement shall be interpreted as prejudicing or affecting the duties and powers of the Approving Officer in respect of any application to Subdivide the Lands.
- 8.5 The Developer shall develop Phase A and Phase B concurrently and Phase C, Phase D, Phase E and Phase F, all as shown on the Phasing Plan, sequentially, provided that the Developer may elect to proceed with any two sequential Phases concurrently (as examples and for illustrative purposes only, the Developer may elect to proceed with Phase D and Phase E concurrently, or may elect to proceed with Phase C and Phase D and Phase E concurrently).

PART III – DEVELOPMENT OF THE PHASES

9. COMPLETION OF A PHASE

- 9.1 The Developer shall substantially complete each Phase of Development of the Lands, including any Works, and enter into all agreements necessary to secure such Works related to that Phase in accordance with the terms of this Agreement and as otherwise determined by the District, before proceeding to the next Phase of Development of the Lands.
- 9.2 A Phase shall be deemed to be substantially completed when:
- (a) the Developer has fulfilled all of the Developer's obligations under this Agreement related to such Phase; and
 - (b) all Works relating to such Phase have been completed to the satisfaction of the District and its Approving Officer.

10. TRAFFIC MANAGEMENT

- 10.1 The Developer covenants and agrees with the District to design and construct an eastbound left turn lane (15m storage) required in the 10-year long term scenario with Phases A-E of the development.

11. DEVELOPMENT PERMITS AND DEVELOPMENT COST CHARGES

- 11.1 The Developer further covenants and agrees with the District:
- (a) that in addition to any requirements specified in this Agreement, any Development of Multiple Family Dwelling Units, or any commercial development, shall be required to obtain a development permit in accordance with the applicable Development Permit Guidelines of the District's Official Community Plan, as amended or replaced from time to time; and
 - (b) at the time at which each application to Subdivide the Lands, or portion thereof, is made to the District's Approving Officer or a completed building permit application is made to the District, to pay to the District all applicable development cost charges at the rate set out in the District's Development Cost Charges Bylaws in effect at the date such application is made.

PART IV – GENERAL TERMS AND CONDITIONS

12. BINDING EFFECT

- 12.1 During the Term, this Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective heirs, administrators, executors, successors and permitted assignees.

13. COSTS

- 13.1 The Developer shall perform its obligations under this Agreement at its sole cost.
- 13.2 The Developer shall promptly on receipt of an invoice from the District reimburse the District for its legal fees incurred in relation to the Development of the Lands, including the drafting and negotiating of this Agreement and other necessary agreements.

14. DISTRICT'S RIGHTS AND POWERS

- 14.1 Whenever in this Agreement the District is required or entitled to exercise any discretion in the granting or consent or approval, or is entitled to make any determination, take any action or exercise any contractual right or remedy, the District may do so in accordance with the contractual provisions of this Agreement and no public law duty, whether arising from the principles of procedural fairness or the rules of natural justice or otherwise, shall have any application in the interpretation or implementation of this Agreement except to the extent that such duty arises as a matter of public law.
- 14.2 Except as expressly set out in this Agreement, nothing in this Agreement shall prejudice or affect the rights and powers of the District in the exercise of its functions under the Community Charter or the *Local Government Act*, or any of its bylaws, or those of the Approving Officer of the District under the *Land Title Act*, *Strata Property Act* or *Bare Land Strata Regulations*.

15. DISPUTE RESOLUTION

- 15.1 If a dispute arises between the parties in connection with this Agreement, the parties agree to use the following procedures as a condition precedent to any other party pursuing other available remedies:
 - (a) either party may notify the other by written notice("Notice of Dispute") of the existence of a dispute and a desire to resolve the dispute by mediation.
 - (b) a meeting will be held promptly between the parties, attended by the individuals with decision-making authority regarding the dispute, to attempt in good faith to negotiate a resolution of the dispute.
 - (c) if, within forty-eight (48) hours after such meeting or further such period as is agreeable to the parties (the "Negotiation Period"), the parties have not succeeded in negotiating a resolution of the dispute, they agree to submit the dispute to mediation and to bear equally the costs of mediation.

- (d) the parties will jointly appoint a mutually acceptable mediator (who must be an expert in the subject matter of the dispute), within forty-eight (48) hours of the conclusion of the Negotiation Period.
- (e) the parties agree to participate in good faith in the mediation and negotiations for a period of 30 days following appointment of the mediator or for such longer period as the parties may agree; and
- (f) if the parties are not successful in resolving the dispute through mediation, either party may pursue recourse through the Courts, or, if the parties are agreeable, the dispute will be settled by a single arbitrator in accordance with the *Arbitration Act, 2020, c.2*.

15.2 In no event shall Section 15.1 be construed as impeding or affecting the District's authority to enforce its Zoning Bylaw and other regulatory bylaws.

16. DISTRICT'S REPRESENTATIVE

16.1 Any opinion, decision, act or expression of satisfaction or acceptance provided for in this Agreement may be taken or made by the District's Approving Officer unless expressly provided to be taken or made by another official of the District.

17. GOVERNING LAW

17.1 This Agreement shall be governed by and construed in accordance with the laws of the Province of British Columbia, which shall be deemed to be the proper law hereof.

18. INSPECTION

18.1 The Developer agrees that the District may, by its officers, employees, contractors and agents, enter upon the Lands and within all buildings and structures thereon at all reasonable times for the purpose of ascertaining compliance with this Agreement.

19. WAIVER

19.1 No provision of this Agreement is to be considered to have been waived by the District unless the waiver is expressed in writing by the District. The waiver by the District of any breach by any of the other parties of any provision is not construed as or constitutes a waiver of any further or other breach.

20. SPECIFIC PERFORMANCE

20.1 The Developer acknowledges and covenants and agrees with the District that because of the public interest in ensuring that all of the matters described in this Agreement are complied with, the public interest strongly favours the award of a prohibitory or mandatory injunction, or an order for specific

performance or other specific relief, by the Supreme Court of British Columbia at the instance of the District, in the event of an actual or threatened breach of this Agreement.

21. DEVELOPER'S ACKNOWLEDGEMENTS

21.1 The Developer acknowledges and agrees that:

- (a) nothing contained or implied herein shall prejudice or affect the rights and powers of the District in the exercise of its functions under any public and private statutes, bylaws, orders and regulations, all of which, may be fully and effectively exercised in relation to the Lands as if this Agreement had not been executed and delivered by the Developer.
- (b) this Agreement does not:
 - (i) affect or limit any enactment applying to the Lands; or
 - (ii) relieve the Developer from complying with any enactment.
- (c) the covenants set forth herein shall charge the Lands pursuant to Section 219 of the *Land Title Act* and shall be covenants the burden of which shall run with the Lands.
- (d) the benefit of all covenants made by the Developer herein shall accrue solely to the District and that this Agreement may be modified by agreement of the District with the Developer, or discharged by the District, pursuant to the provisions of Section 219 of the *Land Title Act*; and
- (e) the covenants, promises and agreements herein contained have been made as contractual obligations as well as being made pursuant to Section 219 of the *Land Title Act* and as such this Agreement shall be binding upon the Developer and their respective heirs, executors, administrators, successors and assigns.
- (f) there is an agreed commitment by the District and the Developer to provide a minimum of 30% Affordable/ Attainable housing on the Lands as outlined in Schedule E.

22. INDEMNITY AND RELEASE

22.1 The Developer shall indemnify and keep indemnified the District from any and all claims, causes of action, suits, demands, fines, penalties, costs, deprivation, reasonable expenses or legal fees whatsoever, whether based in law or equity, whether known or unknown, which anyone has or may have against the District or which the District incurs as a result of any loss, damage

or injury, including economic loss or deprivation, arising out of or connected with any breach by the Developer of this Agreement.

- 22.2 The Developer hereby releases, saves harmless and forever discharges the District of and from any claims, causes of action, suits, demands, fines, penalties, costs, deprivation, reasonable expenses or legal fees whatsoever which the Developer can or may have against the District, whether based in law or equity, whether known or unknown, for any loss, damage or injury, including economic loss or deprivation, that the Developer may sustain or suffer arising out of or connected with this Agreement, including the restrictions and requirements of this Agreement, and the development of the Lands as contemplated under this Agreement, or any breach by the Developer of any covenant in this Agreement, save and except as a result of any breach by the District of this Agreement.
- 22.3 The indemnity and release provisions of Sections 22.1 and 22.2 shall survive the expiry of the Term or earlier termination of this Agreement.

23. ASSIGNMENT OF AGREEMENT

- 23.1 The Developer shall be permitted to assign its interest in this Agreement as it relates to the Lands or any portion thereof with the prior written consent of the District, such consent to be in the sole and absolute discretion of the District provided that the Developer shall be entitled to assign this Agreement without the consent of, but with notice to, the District to (a) an Affiliate of the Developer, or (b) a successor developer of the whole of the Lands then owned by the Developer (such party constituting a member of a class of persons identified in this Agreement, as contemplated in section 517(5)(b) of the *Local Government Act*); each being an "Assignee", and no further assignment shall be permitted by an Assignee except with the consent of the District as described above.

24. AMENDMENT OF AGREEMENT

- 24.1 Subject to Section 24.2, the parties may in writing agree to Minor Amendments to this Agreement. For the purposes of this Agreement, a "Minor Amendment" is an amendment to Schedules B to D, inclusive.
- 24.2 The District may authorize a Minor Amendment by resolution of the District's Council, and without having to adopt a bylaw or hold a public hearing. Despite the previous sentence, prior to authorizing a Minor Amendment, the District's Council may convene a public hearing or other proceeding for the purpose of determining the opinion of members of the public to the proposed Minor Amendment, notwithstanding that such a hearing or other proceeding is not required by the *Local Government Act*, and the Developer agrees to

participate in such hearing or other proceeding for the purpose of providing information to the public on the proposed Minor Amendment.

25. DISCHARGE OF AGREEMENT

25.1 Provided the District is satisfied the obligations to be performed as set out in this Agreement with respect to such portion of the Lands have been delivered and performed, as applicable, and further provided the District is satisfied it is appropriate for this Agreement to be discharged from such portion of the Lands having regard to the future development potential of such portion of the Lands, the District shall execute in registrable form and deliver to the Developer a discharge of this Agreement, provided by the Developer to the District from:

- (a) title to all legal parcels within a Phase that has been substantially completed in accordance with Section 9; and
- (b) title to any strata lot or conventional subdivision lot concurrently with the deposit at the Land Title Office of the strata plan or conventional subdivision plan creating title to such strata lot or conventional subdivision lot.

26. NOTICE

26.1 Any notice permitted or required by this Agreement to be given to either party must be in writing and delivered or mailed to that party at the address set out above (or to any other address provided in writing).

27. TIME

27.1 Time is to be the essence of this Agreement.

28. RELATIONSHIP OF PARTIES

28.1 No provision of this Agreement shall be construed to create a partnership or joint venture relationship, an employer-employee relationship, a landlord-tenant, or a principal-agent relationship as between the District and the Developer.

29. INTEGRATION

29.1 This Agreement, including the Schedules, contains the entire agreement and understanding of the parties with respect to the matters contemplated by this Agreement and supersedes all prior and contemporaneous agreements between them with respect to such matters.

30. SURVIVAL

30.1 All representations and warranties set forth in this Agreement and all provisions of this Agreement, the full performance of which is not required

prior to a termination of this Agreement, shall survive any such termination and be fully enforceable thereafter.

31. NOTICE OF VIOLATIONS

31.1 Each party shall promptly notify the other party of any matter which is likely to continue or give rise to a violation of its obligations under this Agreement.

32. SEVERABILITY

32.1 Each article of this Agreement shall be severable. If any provision of this Agreement is held to be illegal or invalid by a Court of competent jurisdiction, the provision may be severed, and the illegality or invalidity shall not affect the validity of the remainder of this Agreement.

33. COUNTERPARTS

33.1 This Agreement may be executed in counterparts with the same effect as if both parties had signed the same document. Each counterpart shall be deemed to be an original. All counterparts shall be construed together and shall constitute one and the same Agreement.

IN WITNESS WHEREOF the parties hereto have set their hands and seals as of the day and year first above written.

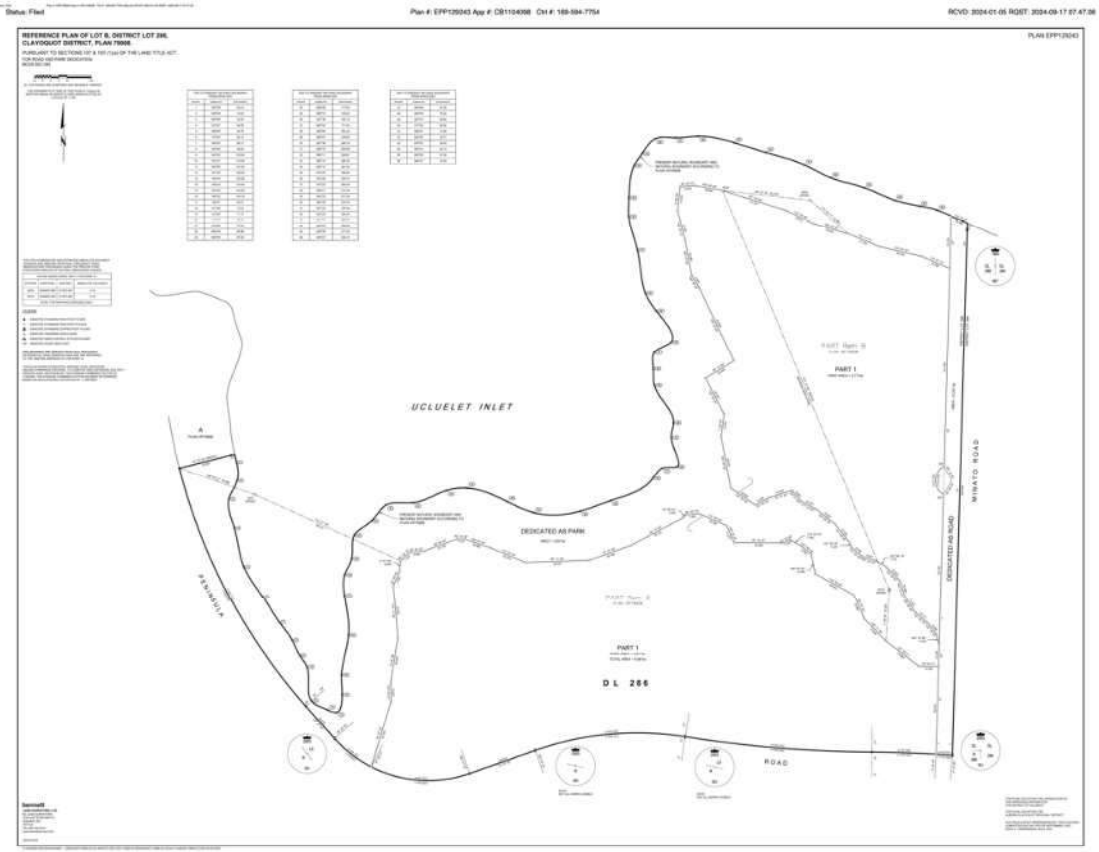
DISTRICT OF UCLUELET by its authorized)	ERIF ECONOMIC RESTORATION)
Signatories:)	INFRASTRUCTURE FUND INC)
_____)	by its authorized Signatory:)
Mayor))
_____)	_____)
Corporate Officer)	Director

SCHEDULE A

THE LANDS

Parcel Identifier: 032-135-084

Lot 1 District Lot 286 Clayoquot District Plan Epp129243.



LAND TITLE OFFICE
STATE OF TITLE CERTIFICATE
 Certificate Number: STSP4075480

Lukas Jones
 361 Portsmouth Drive
 Victoria BC V8C1S1
 Pick up by: Lukas Jones

A copy of this State of Title Certificate held by the land title office can be viewed for a period of one year at <https://www.lta.ca/cert> (access code 205892).

I certify this to be an accurate reproduction of file number **CB1104098** as of the 17th day of September, 2024.


 REGISTRAR OF LAND TITLES 

Title Issued Under	SECTION 88 LAND TITLE ACT
Land Title District Land Title Office	VICTORIA VICTORIA
Title Number From Title Number	CB1104098 CA007548
Application Received	2024-01-05
Application Entered	2024-01-15
Registered Owner in Fee Simple Registered Owner/Mailing Address	MINATO DEVELOPMENT CORP., INC. NO. 201281488 2842 - 140 STREET SURREY, BC V4P 2H5
Taxation Authority	Unincorporated District of

LAND TITLE OFFICE
STATE OF TITLE CERTIFICATE

Certificate Number: STSR4075460

Description of Land

Parcel Identifier: 032-135-084
Legal Description:
LOT 1 DISTRICT LOT 286 CLAYOQUOT DISTRICT PLAN EPP129243

Legal Notations

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 14 OF THE LOCAL GOVERNMENT ACT, SEE CA8633160

THIS TITLE MAY BE AFFECTED BY A PERMIT UNDER PART 14 OF THE LOCAL GOVERNMENT ACT, SEE WX2153294

Charges, Liens and Interests

Nature: COVENANT
Registration Number: EV124432
Registration Date and Time: 2003-10-17 09:41
Registered Owner: CORPORATION OF THE DISTRICT OF UCLUELET
Remarks: INTER ALIA
PART

Nature: COVENANT
Registration Number: CA8532151
Registration Date and Time: 2020-10-29 14:12
Registered Owner: DISTRICT OF UCLUELET

Nature: MORTGAGE
Registration Number: CA9620859
Registration Date and Time: 2022-01-05 12:57
Registered Owner: JONATHAN MARA
LESLIE JOAN MARA
AS JOINT TENANTS

Nature: ASSIGNMENT OF RENTS
Registration Number: CA9620860
Registration Date and Time: 2022-01-05 12:57
Registered Owner: JONATHAN MARA
LESLIE JOAN MARA
AS JOINT TENANTS

Nature: MORTGAGE
Registration Number: CA9883770
Registration Date and Time: 2022-04-27 16:41
Registered Owner: GUARDIAN ANGEL CONSULTANTS LTD.
INCORPORATION NO. BC0806482

LAND TITLE OFFICE
STATE OF TITLE CERTIFICATE

Certificate Number: STSR4075460

Nature:	ASSIGNMENT OF RENTS
Registration Number:	CA9883771
Registration Date and Time:	2022-04-27 16:41
Registered Owner:	GUARDIAN ANGEL CONSULTANTS LTD. INCORPORATION NO. BC0806482
Nature:	COVENANT
Registration Number:	CB365207
Registration Date and Time:	2022-11-30 15:14
Registered Owner:	DISTRICT OF UCLUELET
Nature:	PRIORITY AGREEMENT
Registration Number:	CB365208
Registration Date and Time:	2022-11-30 15:14
Remarks:	GRANTING CB365207 PRIORITY OVER CA9620859 AND CA9620860
Nature:	PRIORITY AGREEMENT
Registration Number:	CB365209
Registration Date and Time:	2022-11-30 15:14
Remarks:	GRANTING CB365207 PRIORITY OVER CA9883770 AND CA9883771
Duplicate Indefeasible Title	NONE OUTSTANDING
Transfers	NONE
Pending Applications	NONE

This certificate is to be read subject to the provisions of section 23(2) of the Land Title Act(R.S.B.C. 1996 Chapter 250) and may be affected by sections 50 and 55-58 of the Land Act (R.S.B.C. 1996 Chapter 245).

SCHEDULE B

MASTER PLAN.



SCHEDULE C

PHASING PLAN



Stages	Built Form & Type	Title & Conditions
Stage A	<p>LOT 1: PART 1</p> <ul style="list-style-type: none"> • Attainable Home Sales - Below-Market Homeownership • 7 Multiplex Buildings • 29 Keys • 2 x 1-bedroom 13 x 2-bedroom 14 x 3-bedroom <p>Note: Services civils, stormwater, landscaping/planting will be phased to aligned with construction phases</p>	<ul style="list-style-type: none"> • Sales Strata Titled • Six Eagle 1 & Three Eagle 3 • Note: Studios not to be separated in count as will be strata titled and sold in 3-bedroom apartments. • Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental.
Stage B Concurrent with Stage A	<p>LOT 3: Waterfront Homes</p> <ul style="list-style-type: none"> • 10 x Waterfront Family Home <p>Note: Services civils, stormwater, landscaping/planting will be phased to aligned with construction phases</p>	<ul style="list-style-type: none"> • Fee Simple Subdivision (Home Association) • Designed with option for intergenerational living with self-contained studio available for long-term and or short-term rentals. • CONDITION: Stage A construction concurrent with Stage B.
Stage C	<p>LOT 4: Commercial Precinct</p> <ul style="list-style-type: none"> • 600m2 Ground Floor Retail - Cafe, Store, Etc. • 600m2 Upper Floor Offices 	<ul style="list-style-type: none"> • Held in one line. • NOTE: Phase D and E may be brought forward if government funding available and demand for rentals and sales is fully taken up.
Stage D	<p>LOT 2 - PART 1:</p> <ul style="list-style-type: none"> • Affordable Rentals - 30% of Keys • Market Rentals • 8 Multiplex Buildings. • 39 Keys. • 18 x 1-bedroom 21 x 2-bedroom. <p>Note: Services civils, stormwater, landscaping/planting will be phased to aligned with construction phases</p>	<ul style="list-style-type: none"> • Held in one line. • CONDITION: Subject to government funding and approval timing. • Three Eagle 1 & Two Eagle 2 • (Same floor plan but may be adaptably leased as 2-bedroom plus separate studio - not as a 3-bedroom).
Stage E	<p>LOT 1: PART 2</p> <ul style="list-style-type: none"> • Attainable Home Sales - Below-Market Homeownership • 11 Multiplex Buildings • 45 Keys • 4 x 1-bedroom 20 x 2-bedroom 22 x 3-bedroom • Note: 3-bedroom apartments include a studio apartment. • Studio apartments available for long-term rental. <p>LOT 2 - PART 2:</p> <ul style="list-style-type: none"> • Affordable Rentals - 30% of Keys • Market Rentals • 10 Multiplex Buildings. • 68 Keys • 35 x 1-bedroom 32 x 2-bedroom <p>Note: Services civils, stormwater, landscaping/planting will be phased to aligned with construction phases</p>	<p>LOT 1: PART 2 - Sales Strata Titled</p> <ul style="list-style-type: none"> • Nine Eagle 1 & Two Eagle 3 • Note: Studios not to be separated in count as will be strata titled and sold in 3-bedroom apartments. • Note: 3-bedroom apartments include a studio apartment. Studio apartments available for long-term rental. • CONDITION: Subject to and commencing after Attainable Homes in Lot 1 Part 1 are sold out. <p>LOT 2 - PART 2</p> <ul style="list-style-type: none"> • Held in one line. • CONDITION: Subject to government funding and commencing when grant funding received and Lot 2: Part 1 fully leased. • (Same floor plan but may be adaptably leased as 2-bedroom plus separate studio - not as a 3-bedroom)
Stage F	<p>LOT 4: Market Apartments:</p> <ul style="list-style-type: none"> • Market rentals and sales. • 10 multiplex buildings. • 58 Keys. • 22 x 1-bedroom 30 x 2-bedroom 6 x 3-bedroom <p>Note: Services civils, stormwater, landscaping/planting will be phased to aligned with construction phases</p>	<ul style="list-style-type: none"> • Strata Titled • Apartments for long-term and short term vacation rentals.

SCHEDULE D

COMMITMENT TO AFFORDABLE / ATTAINABLE HOUSING

ERIF's Commitment to Community: A Heartfelt Mission

At ERIF Housing Association (our not-for-profit arm), we believe true social impact begins by empowering communities through housing that is both accessible and sustainable. Our mission is to build vibrant, inclusive neighborhoods that embody the values of equality and opportunity.

With price-regulated, locally prioritized apartments, we're doing more than addressing Ucluelet's housing shortage—we're investing in its long-term prosperity. Serenity Landing is the cornerstone of this vision, offering a blend of affordable and market rentals, attainable homeownership, and market sales, all within a beautifully integrated community.

The Serenity Landing Attainable Homeownership Initiative is proof of our commitment to community growth, stability, and resilience. Born out of the need to replace BC Housing's canceled affordable homeownership program, and in close partnership with Ucluelet's municipality, mayor, and council, we've crafted a clear path for local families and businesses to secure high-quality homes at attainable, below-market prices.

We understand that a community's economic strength is linked to its people and the businesses they support. High-quality housing and an attractive lifestyle are key to retaining a skilled workforce. By prioritizing both, ERIF is fostering an environment where people can grow their futures and where the community's social good is at the heart of everything we do.

Together, we're transforming Ucluelet into a place where everyone can thrive, ensuring the future is built on a foundation of opportunity, connection, and community spirit.

DISTRICT OF UCLUELET

Official Community Plan Amendment Bylaw No. 1366, 2024

A bylaw to amend the District of Ucluelet Official Community Plan
(221 Minato Road - Lot B District Lot 286 Clayoquot District Plan VIP79908
Comprehensive Development).

WHEREAS Section 471 of the Local Government Act identifies the purposes of an Official Community Plan as “a statement of objectives and policies to guide decisions on planning and land use management, within the area covered by the plan, respecting the purposes of local government”, and the District has adopted an Official Community Plan;

NOW THEREFORE the Council of the District of Ucluelet, in open meeting assembled, enacts as follows:

1. Text Amendments:

The “District of Ucluelet Official Community Plan Bylaw No. 1306, 2022”, as amended, is hereby further amended by inserting the following policy in alphanumerical order:

“Policy 3.171b - 221 Minato Road

In consideration of the community housing benefit provided by the proposed development of the property at 221 Minato Road, site clearing and construction is supported notwithstanding the following objectives and policies adopted in this plan:

- Policy 1.8
- Objective 2A
- Policy 2.1
- Policy 2.2
- Policy 3.163
- General environmental Development Permit Area guidelines E1, E4, E7 and guidelines within environmental Development Permit Areas V, VI and VII.”

2. Map Amendments:

The “District of Ucluelet Official Community Plan Bylaw No. 1306, 2022”, as amended, is hereby further amended as follows:

- A. Schedule ‘A’ Long Range Land Use Plan is hereby further amended by changing the designation of areas of Lot B District Lot 286 Clayoquot District Plan VIP79908 (PID 026-487-764), shown shaded on the map attached to this Bylaw as Appendix “A”, to Single Family Residential, Multi-Family Residential, Service Commercial, Tourist Commercial / Residential, and Parks & Open Space.

3. Citation:

This bylaw may be cited as “District of Ucluelet Official Community Plan Amendment Bylaw No. 1366, 2024”.

READ A FIRST TIME this th day of , **2024.**

Considered in conjunction with the District of Ucluelet Financial Plan and Waste Management Plan under Section 477 of the *Local Government Act* this day of , 2024.

READ A SECOND TIME this day of , **2024.**

PUBLIC HEARING held this day of , **2024.**

READ A THIRD TIME this day of , **2024.**

ADOPTED this day of , **2024.**

CERTIFIED CORRECT: “Official Community Plan Amendment Bylaw No. 1360, 2024”

Marilyn McEwen
Mayor

Duane Lawrence
Corporate Officer

THE CORPORATE SEAL of the
District of Ucluelet was hereto
affixed in the presence of:

Duane Lawrence
Corporate Officer

Appendix 'A'

Official Community Plan Amendment Bylaw No. 1366, 2024

OCP Schedule 'A' Long Range Land Use Plan

Amendments in the area of Lot B District Lot 286 Clayoquot District Plan VIP79908
- 221 Minato Road:

- SF = Single Family Residential
- MF = Multi-Family Residential
- SC = Service Commercial
- TC = Tourist Commercial / Residential
- P = Parks & Open Space



DISTRICT OF UCLUELET

Zoning Amendment Bylaw No. 1367, 2024

A bylaw to amend the "District of Ucluelet Zoning Bylaw No. 1160, 2013
(221 Minato Road – Comprehensive Development)

WHEREAS Section 479 and other parts of the *Local Government Act* authorize zoning and other development regulations;

NOW THEREFORE the Council of the District of Ucluelet, in open meeting assembled, enacts as follows;

1. Text Amendments:

Schedule “B” of the District of Ucluelet Zoning Bylaw No. 1160, 2013, as amended, is hereby further amended as follows:

- A. By deleting the existing section CD-6 Zone – MINATO ROAD.
- B. By adding a new Comprehensive Development zone, to Schedule B – The Zones that directly follows CD-5 Zone – FORMER WEYCO FOREST LANDS such that the new section reads as follows:

“CD-6 Zone – MINATO ROAD

This Zone is intended for the development of a mix of multi-family and single-family residential development including affordable rental, market rental, attainable ownership (under a housing agreement covenant) and market ownership homes, some with accessory vacation rental uses.

CD-6 Zone Plan (Development Areas):



CD-6.1 Definitions:

Despite definitions defined elsewhere in this bylaw, the following definitions shall apply to uses within the CD-6 zone:

“**Height**” means the shortest vertical distance from the average elevation of the finished grade, if homes are required to be sited above the Flood Construction Level (FCL) or above the Tsunami Risk Level (TRL), then the height is to be taken from the higher of the existing grade or the FCL or TRL.

“**Single Family Waterfront**”, means a detached *building* consisting of at least one dwelling that may be used for both *residential* and *vacation rental* use within a principal dwelling or secondary suite. While designed for single family occupation, the inclusion of at least one secondary suite permits *residential rental tenures* and *vacation rental* use.

“**Vacation Rental**”, means the use of an otherwise *residential* dwelling unit for *commercial tourist accommodation* within a building containing at least one occupied *residential* dwelling.

CD-6.2 Permitted Uses:

The following uses are permitted within the corresponding Development Areas shown in the CD-6 Zone Plan, but *secondary permitted* uses are only permitted in conjunction with a *principal permitted use*:

Development Area	Principal Use	Building Form	Secondary Uses
Lot 1	Multiple Family	Apartment	Home Occupation Secondary Suite
Lot 2	Rental Multiple Family	Apartment	Home Occupation
Lot 3	Single Family Waterfront	House	Home Occupation Secondary Suite Vacation Rental
Lot 4	Principal uses permitted within the CS-2 Zone – SERVICE COMMERCIAL	Commercial/Retail	CS-2 Zone – SERVICE COMMERCIAL permitted uses
Lot 5	Multiple Family	Apartment	Home Occupation Secondary Suite Vacation Rental

CD-6.3 Lot Regulations:

CD-6.3.1 Minimum Lot Frontage is 10.0m.

CD-6.3.2 Minimum Lot Size:

Development Area	Principal Use	Proposed Lot Area	Minimum Lot Size
Lot 1	Multiple Family	19,000 m2	16,000m2
Lot 2	Rental Multiple Family	17,800 m2	16,000m2
Lot 3	Single Family Waterfront	14,700 m2	13,000m2
Lot 4	Retail Trade & Services	2,300 m2	2000m2
Lot 5	Rental Multiple Family	13,100 m2	12,000m2
TOTAL		66,900 m2	

CD-6.4 Density

CD-6.4.1 Maximum Density:

Development Area	Principal Use	Density (max # of buildings)	Density (max. # dwelling units)	Density (per unit/ha)
Lot 1	Multiple Family	18	75	39.5 unit / ha
Lot 2	Rental Multiple Family	16	107	60.1 unit / ha
Lot 3	Single Family Waterfront	11	11	7.5 unit / ha
Lot 4	Retail Trade & Services	2	-	-
Lot 5	Rental Multiple Family	10	58	44.3 unit / ha
TOTAL		55	250	37.4 units / ha

CD-6.5 Maximum Size (Gross Floor Area):

Development Area	Principal Use	Building Footprint	Total Gross Floor Area (m2)	Proposed Lot Coverage	Maximum Lot Coverage
Lot 1	Multiple Family – Part 1	1,289 m2	6633	17 %	25%
	Multiple Family – Part 2	2,027 m2			
Lot 2	Rental Multiple – Part 1	1,141 m2	6094	18 %	25%
	Rental Multiple – Part 2	1,906 m2			
Lot 3	Single Family Waterfront	1,500 m2	2750	11 %	15%
Lot 4	Retail Trade & Services	600 m2	1120	25 %	50%
Lot 5	Rental Multiple Family	1,884 m2	3768	14%	25%
TOTAL		10,348 m2	20365	16%	

CD-6.6 Maximum Size of Accessory Buildings

CD-6.6.1 on lots containing a *Single Family*: 30 m2 (323 ft2) combined total.

CD-6.6.2 on lots containing a *Multiple Family or Rental Multiple Family*: 50 m2 (538 ft2) combined total.

CD-6.6.3 on lots containing a *Commercial*: 100 m2 (1077 ft2) combined total.

CD-6.7 Maximum Height

Development Area	Principal Use	Principal	Accessory
Lot 1	Multiple Family	8.0 m	5.5 m
Lot 2	Rental Multiple Family	8.0 m	5.5 m
Lot 3	Single Family Waterfront	12.6 m	5.5 m
Lot 4	Retail Trade & Services	11.5 m	5.5 m
Lot 5	Rental Multiple Family	8.0 m	5.5 m

CD-6.8 Minimum Setbacks:

For all buildings there is a lot line setback of 0.0m between strata phases.

The following minimum setbacks apply, as measured from the *front lot line*, *rear lot line*, and *side lots line(s)* respectively:

Development Area	Principal Use	Front	Rear	Side Interior	Side Exterior	Phased Strata Internal Lot Line
Proposed Setback						
Lot 1	Multiple Family	10.0 m	3.3 m	0.7 m	1.5 m	0.0 m
Lot 2	Rental Multiple Family	10.0 m	1.5 m	0.6 m	6.5 m	0.0 m
Lot 3	Single Family Waterfront	5.1 m	1.3 m	4.5 m	4.5 m	0.0 m
Lot 4	Retail Trade & Services	4.5 m	23.0 m	9.5 m	3.0 m	0.0 m
Lot 5	Rental Multiple Family	3.9 m	4.0 m	7.5 m	7.5 m	0.0 m
Minimum Setback						
Lots 1/2/5	Multiple Family	3.0 m	1.0 m	0.5 m	1.0 m	0.0 m
Lot 3	Single Family	2.0 m	0.8 m	3.0 m	3.0 m	0.0 m
Lot 4	Retail Trade & Services	4.0 m	3.0 m	1.5 m	2.0 m	0.0 m

CD-6.8 Parking Requirements:

Despite the regulations ins section 505.1 Minimum Parking Requirements, the following shall apply within the CD-6 zone:

For *Multiple Family* in Lots 1, 2 and 5: one space per *dwelling unit* plus one visitor space per multi-family *building*.

For Lot 3 Single Family Waterfront: 3 spaces per lot.

For Lot 4 Commercial: 15 spaces per lot.”

2. Citation:

This bylaw may be cited as the “*District of Ucluelet Zoning Amendment Bylaw No. 1367, 2024*”.

READ A FIRST TIME this ** day of ***, 20**.

READ A SECOND TIME this ** day of ***, 20**.

READ A THIRD TIME this ** day of ***, 20**.

ADOPTED this ** day of ***, 20**.

CERTIFIED CORRECT; "District of Ucluelet Zoning Amendment Bylaw No. 1367, 2024".

Marilyn McEwen
Mayor

Duane Lawrence
Corporate Officer

THE CORPORATE SEAL of the
District of Ucluelet was hereto
affixed in the presence of:

Duane Lawrence
Corporate Officer

Policies and objectives referenced in *Ucluelet OCP Amendment Bylaw No. 1366, 2024*:

- **Policy 1.8** Endeavour to understand and consider Indigenous perspectives when making decisions on land-use issues
- **Objective 2A** To develop carefully and use land wisely to ensure that the most sensitive and valuable environmental features are protected, and ecological functions are not irreparably disturbed.
- **Policy 2.1** Use the regulatory tools available to local governments to ensure new development responds to the community's goal of maintaining a healthy, diverse natural environment.
- **Policy 2.2** Maintain significant areas of natural green space and forest cover. Large scale clearing to accommodate development is not supported.
- **Policy 3.163** A 30-metre wide tree buffer with no development must be provided along both sides of the Pacific Rim Highway
- General environmental Development Permit Area guidelines E1, E4, E7 [Environmental DP areas]
- Guidelines within environmental Development Permit Areas **V** [Terrestrial Ecosystems (Mature Forest)] **VI** [Stream and Riparian Areas] and **VII** [Marine Shoreline]