CORPORATION OF THE TOWNSHIP OF ESQUIMALT

Municipal Hall, 1229 Esquimalt Road, Esquimalt, B.C. V9A 3P1
Telephone (250) 414-7100 Fax (250) 414-7111

Council Meeting: January 20, 2014
Staff Report No. DEV-14-008

REQUEST FOR DECISION

SUBJECT: Rescind Second Reading and give a new second reading to Bylaw No. 2805

RECOMMENDATION:

As per Report No. DEV-14-008:

That Council consider rescinding second reading of Bylaw No. 2805 and give second reading to Bylaw No. 2805 as amended (Appendix "B");

That Council authorize the Corporate Officer to schedule a public hearing for Bylaw No. 2805, including consideration of the proposed "Host Community Impact 5-Year Agreement" and "Community Impact Mitigation & Operating Agreement".

RELEVANT POLICY:
Official Community Plan
Regional Growth Strategy

STRATEGIC RELEVANCE:

The proposed Core Area Liquid Waste Management Plant has strategic relevance in that it provides a number of amenities and community benefits in return for hosting the facility.

Submitted by: Writer Bill Brown

Reviewed by: CAO [signature] Date: Jan 17/14

STAFF REPORT

DATE: January 16, 2014 Report No. DEV-14-008

TO: Laurie Hurst, Chief Administrative Officer

FROM: Bill Brown, Director of Development Services

SUBJECT: Rescind second reading and give second reading to Bylaw No. 2805 as amended.

RECOMMENDATION:

As per Report No. DEV-14-008:

That Council consider rescinding second reading of Bylaw No. 2805 and give second reading to Bylaw No. 2805 as amended (Appendix "B");

That Council authorize the Corporate Officer to schedule a public hearing for Bylaw No. 2805 including consideration of the proposed "Host Community Impact 5-Year Agreement" and "Community Impact Mitigation & Operating Agreement".

REFERENCES:

Applicant: Capital Regional District

Owner: Capital Regional District

Legal Description:

- PID 000-336-491 Lot A, Section 11, Esquimalt District, Plan 35322
- PID 000-336-505 Lot B, Section 11, Esquimalt District, Plan 35322
- PID 000-336-513 Lot C, Section 11, Esquimalt District, Plan 35322
- PID 000-336-521 Lot D, Section 11, Esquimalt District, Plan 35322
- PID 000-336-530 Lot E, Section 11, Esquimalt District, Plan 35322

Street Address: 337 Victoria View Road

Property Size: 1.4 ha

Existing Land Use: Vacant

Surrounding Land Uses:

North: Department of National Defense, Residential
South: Strait of Juan de Fuca
West: Department of National Defense, Residential
East: Outer harbour of Victoria Harbour

Existing Zoning: McLoughlin Point Special Use [I-3]

Proposed Zoning: No Change to Zone Name; Regulations altered per Schedule "B"

Existing OCP Designation: Sewage or Waste Treatment

Schedules:

Schedule "A"	December 20, 2013 rezoning application from the CRD
Schedule "B"	Bylaw 2805 as amended
Appendix "C"	Proposed "Host Community Impact 5-Year Agreement"
Appendix "D"	Proposed "Community Impact Mitigation & Operating Agreement"
Appendix "E"	AECOM Tsunami Modelling Study 15 April 2013
Appendix "F"	Comparison of Amenities
Appendix "G"	Comparison of Other Zoning Regulations

BACKGROUND

On January 30, 2013 the Capital Regional District (CRD) submitted an application to amend both the Official Community Plan and the Zoning Bylaw in order to allow for the development of a sewage treatment plant at McLoughlin Point. Staff prepared amending bylaws for both the Official Community Plan and the Zoning Bylaw based on the application submitted to the Township. Bylaw 2804 would amend the Official Community Plan and Bylaw 2805 would amend the Zoning Bylaw. In addition, staff prepared Zoning Bylaw amending Bylaw 2806 which was based on information staff had gathered during the bylaw referral process to various advisory committees and its own understanding of what may be acceptable to the Township's citizens. Both rezoning bylaws included the amenity zoning provision provided for pursuant to Section 904 of the *Local Government Act*. The three bylaws are summarized below:

- Official Community Plan Bylaw, 2006, No. 2646, Amendment Bylaw [No. 14], 2013, No. 2804 (aka **Bylaw 2804**) amended the Official Community Plan by:
  - Designating the subject lands as an area for a sewage treatment plant,
  - Adding text to the plan explaining the history of the site and the development context associated with locating a sewage treatment plant on the site,
  - Designating the site as a variety of development permit areas, and
  - Incorporating design guidelines for the site into the plan.

- Zoning Bylaw, 1992, No. 2050, Amendment Bylaw [No. 208], 2013, No. 2805 (aka **Bylaw 2805**) was based on the Capital Regional District's rezoning application and included a variety of amenities proposed by the Capital Regional District.

- Zoning Bylaw, 1992, No. 2050, Amendment Bylaw [No. 209], 2013, No. 2806 (aka **Bylaw 2806**) was prepared by Township staff and reflected what they believed the citizens of the Township could accept based on an extensive consultation process prior to the public hearing. This bylaw differed from the Capital Regional District's Bylaw 2805 in that it:
  - Included more amenities reflective of what has been identified by the public,
  - Was more reflective of the costs such a facility would impose on the nearby community, and sought to mitigate those in a more equitable manner,
  - Identified multiple density bonus levels, including flexibility for the CRD to reconsider a fairer allocation of sewage treatment plants across the region,
  - Sought to mitigate the construction impacts through barging of materials, and
  - Better facilitated and promoted public access to this oceanfront site, including as offered by the CRD.

All three bylaws were given first and second reading on June 24, 2013 at which time Council also authorized the Corporate Officer to schedule a public hearing. At the public hearing held on July 8 and 9, 2013, there was significant public support for Bylaws 2804 and 2806, however, Bylaw 2805 received very little public support.

Council, having weighed the evidence before it and considered the alternatives available to them, determined that it was in the best public interest to give third reading and adoption to Bylaws 2804 and 2806 on July 15, 2013. These bylaws allowed for the use of McLoughlin Point as a sewage treatment plant, thereby eliminating conflict with the *Environmental Management Act* and the Provincially-approved Core Area Liquid Waste Management Plan. At the same time, Council also considered Zoning Bylaw 2805 but ultimately determined that the amenities, setbacks, height restrictions, and permitted uses in Bylaw 2806 more closely reflected the values of the Township and its residents. Council did, however, leave Bylaw 2805 at second reading in the event that the Capital Regional District wished to amend their application to more closely align it with the values of the Township and its residents.

On July 16, 2013, the Chair of the Capital Regional Board, Alastair Bryson, was quoted in a Capital Regional District Media Release as saying, "I will be asking for a meeting with the BC Minister of Environment and her officials to discuss where we go from here." The Township of Esquimalt was subsequently summoned by provincial staff to a meeting with both the Honourable Mary Polak, Minster of the Environment and the Honourable Coralee Oakes, Minister of Community, Sport, and Cultural Development. The meeting occurred at the Legislature building on the afternoon of July 22, 2013. In addition to the two ministers, senior ministerial staff were also in attendance. The Township was represented by Mayor Barbara Desjardins, Chief Administrative Officer, Laurie Hurst, and Director of Development Services, Bill Brown. The Ministers and their staff had met with the Capital Regional District earlier in the day. The Ministers conveyed their desire to see the Township of Esquimalt and the Capital Regional District get together to discuss outstanding issues and develop a mutually acceptable solution. The Ministers indicated that they did not wish to interfere with municipal decision-making processes and would prefer to have the two sides work things out without Provincial intervention. They did, however, offer to provide senior staff to work with both sides to help come to a mutually acceptable solution.

Negotiations between the CRD and the Township commenced on July 25, 2013. After a series of eight meetings, negotiations concluded on October 11, 2013 with an agreed upon series of amendments to Bylaw 2805 and two agreements:

1. "Host Community Impact 5 – Year Agreement", and
2. "Community Impact Mitigation & Operating Agreement".

Following the conclusion of negotiations both parties agreed to present the negotiated package to their respective elected authorities. Highly cognizant of the tight timelines faced by the CRD, the Township undertook to take the package to their Council at a Special Meeting scheduled for November 12, 2013. In addition, the Township staff booked a facility for December 4th and 5th for the public hearing. However, at their November 13, 2013 meeting, the CRD's Core Area Liquid Waste Management Committee did not endorse the negotiated package but rather instructed their staff to go back to the negotiating table and have barging removed from the agreement and negotiate for reduced setbacks and height restrictions[1].

CRD and Township staff, along with Provincial representatives, reconvened on November 19, 2013 at which time the issue of barging was discussed. The discussion included the following:

[1] Township staff were unable to find the minutes of this meeting on the CRD's website.

- Removing barging as a condition,
- A better traffic management plan,
- An illustration of potential upgrades to Lyall Street,
- A regional park between the highwater mark and the sewage treatment plant, and
- An enhanced system of crossing guards along Lyall Street.

Township staff stated that the no barging option was unlikely to be successful and encouraged the CRD's negotiating team to reconsider taking barging off the table.

On December 3, 2013 the parties met with the primary discussions revolving around setbacks and heights with CRD staff stating that they needed to reduce the setbacks for a certain portion of the site to 1.0m from the highwater mark, and other setback and height considerations in light of each of the various Proponents (explained further in their application background material attached as Appendix "A"). Township staff responded that they had no mandate to negotiate further reduced setbacks and CRD should consider a variance process specific to the future successful Proponent's actual requirements. However, in the interest of a transparent and accountable planning process, staff agreed to present the CRD's proposed bylaw with the reduced setbacks to the Township's Council with a recommendation that they move the proposed amended Bylaw 2805 forward to a public hearing in order to allow the citizens of Esquimalt and other affected citizens of the region to comment on the proposed Bylaw 2805 as amended and the two agreements.

At their December 11, 2013 meeting, the CRD Board endorsed the recommendation of the Core Area Liquid Waste Management Committee to submit a revision to their original rezoning application.

On December 20, 2013, staff received a revised rezoning application from the CRD (Appendix "A").

At their January 6, 2014 regular meeting, Council instructed staff to take the proposed bylaw amendments to both the Advisory Planning Commission and the Design Review Committee for review and to provide recommendations back to Council.

At their January 8, 2014 meeting, the Design Review Committee passed the following resolution:

> *That the Esquimalt Design Review Committee recommends that Esquimalt Council adhere to the 7.5 metres zoning regulations as existing in Bylaw No. 2806 for the rezoning application for 337 Victoria View Road.*

The Committee also declined an opportunity to have CRD staff come to their next meeting to make a further presentation.

The Advisory Planning Commission received a presentation from the CRD's staff at their January 14, 2014 meeting. Following the presentation, the APC sought clarification on a number of points and then passed the following resolution:

> *That the Esquimalt Advisory Planning Commission [APC] recommends that the CRD's proposed amendments to Bylaw 2805, be forwarded to Council with a recommendation for denial.*

ISSUES:

1) Zoning

Appendix "F" contains a comparison of the amenities and conditions of development in:

- the existing Zoning Bylaw
- the provisions of Bylaw 2805 as they stand at second reading,
- the staff negotiated changes to Bylaw 2805, and
- the CRD's latest proposal, being that submitted December 20, 2013, for amendments to Bylaw 2805.

Similarly, Appendix "G" contains a comparison of the other I-3 Zone regulations in:

- the existing Zoning Bylaw,
- the provisions of Bylaw 2805 as they stand at second reading,
- the staff negotiated changes to Bylaw 2805, and
- the CRD's latest proposal, being that submitted December 20, 2013, for amendments to Bylaw 2805.

Note in particular the potential uncertainty regarding the proposed pier as other approvals are required, and the lack of alternative if those approvals are not obtained. There are also environmental considerations given the OCP and Regional Context Statement and the potential impact of the proposed facility on the adjacent federal migratory bird sanctuary.

2) Official Community Plan

The Regional Context Statement in the Official Community Plan states in part:

> *The Township's outstanding natural amenity – its saltwater shoreline – is of regional significance and will be carefully protected through the municipality's land use and regulatory measures, while allowing for access and enjoyment by the region's residents and visitors.*

Because all decisions of Council regarding zoning amendments must be consistent with the Official Community Plan, Council should put its mind to the issue of consistency and ask if the proposed building heights and setbacks are consistent with the OCP including its Regional Context Statement. The CRD were advised similarly and chose not to request a further OCP amendment, as explained in Appendix "A" .

Furthermore, Section 6.1.1 (c) of the Official Community Plan contains the following objective:

> *To provide opportunities for public access to the saltwater shoreline, including that of the Gorge Waterway, by continuing to acquire land or easements.*

There are numerous other relevant provisions as well.

3) Rationale for Selected Option

In order to provide the applicant with a fair and transparent process, staff recommend that Council rescind second reading and give the bylaw a new second reading as amended and then authorize the Corporate Officer to schedule a public hearing. Following the public hearing, Council will be in a position to render a decision on the the CRD's latest proposal, being that submitted December 20, 2013, for amendments to Bylaw 2805.

4) Organizational Implications

The process of negotiating with the CRD and managing the planning process for this application has and will continue to consume an inordinate amount of staff time and resources.

5) Financial Implications

The proposed bylaw and accompanying agreements contain financial benefits that will accrue to the Corporation of the Township of Esquimalt. These include:

- A $55,000 annual contribution from the CRD to pay for costs incurred by the municipality related to the Core Area Liquid Waste Management Plant including but not limited to: increased fire protection, increased bylaw enforcement, and wear and tear on municipal infrastructure. Note that if the municipality accepts the heat loop it will no longer receive the $55,000, once the heat loop is operational.
- Township staff will hire a consultant to do a cost-benefit analysis to help inform Council about the likelihood of generating revenue from the heat loop. If Council accepts the heat loop, it appears there is a reasonable chance of realizing a profit once a critical mass of users are connected to it.
- If the Township accepts the heat loop, the CRD will pay up to $7.5 million to install the infrastructure. Having the infrastructure installed is likely to help the economics of the heat loop significantly.
- The Township will receive up to $950,000 value for Lyall Street upgrades.
- If the shoreline trail adjacent to the Core Area Liquid Waste Management Plant is designated a "Regional Park" or "Regional Trail", the CRD will incur all maintenance costs.
- $100,000 is required for public art.
- $75,000 is required for on-site public open space improvements.

6) Sustainability/Environmental Implications

The heat loop represents a significant step towards local resilience in that it provides heat from a local source that would otherwise be dissipated into the environment as low grade heat energy.

7) Communication

If Council authorizes a public hearing, there will be notices put in the local newspaper as well as on the Municipality's website.

ALTERNATIVES:

1) RECOMMENDATION: That Council consider rescinding second reading of Bylaw No. 2805 and give second reading to Bylaw No. 2805 as amended (Appendix "B");

   That Council authorize the Corporate Officer to schedule a public hearing for Bylaw No. 2805, including consideration of the proposed "Host Community Impact 5-Year Agreement" and "Community Impact Mitigation & Operating Agreement";

2) Council defeat Bylaw 2805.

3) Council leave Bylaw 2805 at second reading and direct further negotiations with the CRD.

Appendix "A"

CRD Rezoning Application Including:

"Zoning Bylaw, 1992, No. 2050, Amendment Bylaw [No. 208], 2013 No. 2805"

"Host Community Impact 5-Year Agreement"

"Community Impact Mitigation and Operating Agreement"

19 December, 2013

Bill Brown
Director of Development Services
Township of Esquimalt
1229 Esquimalt Rd
Esquimalt, BC, V9A 1P1

Re: McLoughlin Point Rezoning Revised Application - Transmittal Letter

Dear Bill Brown:

On behalf of the Capital Regional District and the Seaterra Program, we are pleased to submit revisions to the Zoning application for the McLoughlin Point Treatment Plant.

The attached submission proposes changes to the draft Zoning Bylaw 2805 terms, and explains proposed amenity contributions and impact mitigation measures as they differ from the original application. This submission responds to the concerns raised by the community, and which have been the subject of negotiations with representatives of the CRD and the Township over the past several months. The revisions, as submitted, have been approved by the Capital Regional District Board.

The Seaterra Program is on a very critical timeline and delays will have significant cost implications, affecting all core area residents. You have earlier provided to Mr. Bob Lapham a preliminary timeline to process the revisions to the application. Given the extent of understanding about the application and indeed, public information already provided regarding the proposed revisions, we would respectfully request consideration to expedite the preliminary schedule that would not see a public hearing until the third week in February 2014. We appreciate that the application must follow due process, but we would ask the Township to consider ways that could reduce the application process milestone dates.

Finally, would you kindly review the submitted material and let the writer know within two days of review if any further information is required or if clarification is needed, as we want to make sure you have all of the required information.

We look forward to working with you on this revised application.

Sincerely,

Deane Strongitharm,
CitySpaces Consulting Ltd.

cc Mr. Bob Lapham
Ms. Laurie Hurst
Mr. Albert Sweetnam

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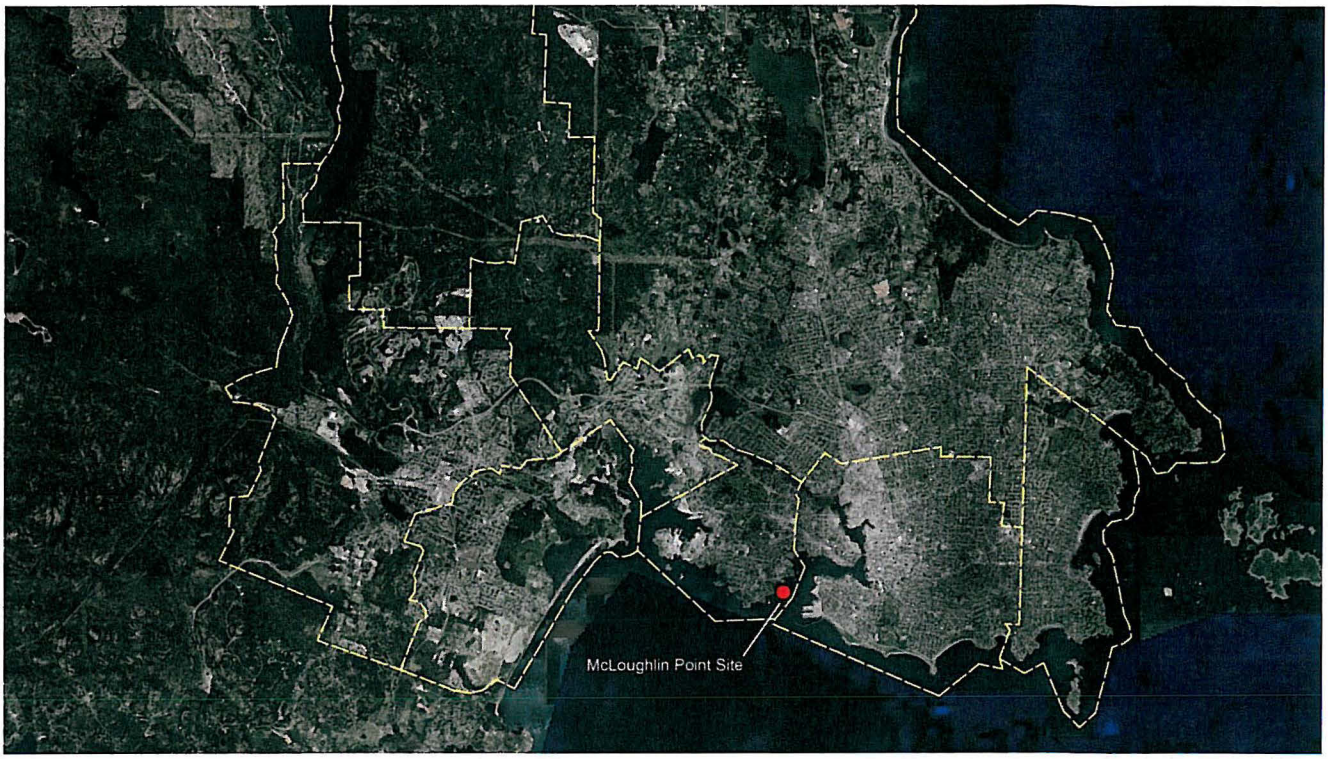
Victoria

Vancouver

Calgary

McLoughlin Point

Rezoning Application



Prepared for the

Corporation of the Township of Esquimalt

On behalf of the

CRD

Making a difference...together

Revisions December 2013 to the application
dated January 2013, revised June 2013

CITY SPACES

TABLE OF CONTENTS

INTRODUCTION & BACKGROUND

INTRODUCTION AND PURPOSE

This revised application is submitted, on behalf of the Capital Regional District (CRD), to the Township of Esquimalt to request a site specific zone that will permit construction of a Wastewater Treatment Plant and Marine Outfall at McLoughlin Point, as part of the Capital Regional District's Core Area Wastewater Treatment Program (CAWTP), now referred to as the "Seaterra Program".

Specifically, this request is to consider revisions to Bylaw 2805, that currently sits at second reading.

The Wastewater Treatment Plant and Marine Outfall is one of Seaterra's three main elements: McLoughlin Point Treatment Plant, Resource Recovery Centre, and Conveyance System Infrastructure. This revised application relates only to the treatment plant facility.

BACKGROUND

An application to rezone the former oil tank farm site at McLoughlin Point was submitted in January 2013, with revisions made in June 2013. The application included an Official Community Plan (OCP) amendment (Bylaw 2804) that was reviewed and adopted by Council at the same time as the Zoning Bylaw consideration. No further application to amend the OCP is contemplated.

The original amending Zoning Bylaw (2805) with terms requested by the Capital Regional District was forwarded to Council, along with an alternative Zoning Bylaw (2806), introduced by the Township. On July 15th, 2013 the Township adopted the Bylaw it initiated (2806) while holding the "CRD" Bylaw in abeyance, at the second reading stage. The terms of Bylaw 2806 were considered unworkable by the CRD to deliver the obligations required by Provincial and Federal mandates.

In late July 2013, CRD and Esquimalt staff were authorized to negotiate and make best efforts to reach an agreement on amending draft Bylaw 2805. That included consideration for the provision of host community amenities and mitigation measures, which the parties were prepared to recommend to their respective elected bodies.

Over the course of four months, from late July through November 2013, representatives for the Township of Esquimalt and the Capital Regional District met to seek solutions to the issues that had been raised with respect to the original submission that covered a variety of amenity and mitigation measures.The Province provided observers to the meetings held between the Township and CRD representatives. The outcome of those negotiations are reflected in the requested revisions to the application.

A copy of the requested amended Bylaw 2805 is attached as an Appendix to this revised application. In addition to the amendments to the Bylaw, there are two complementary agreements, the Host Community Impact 5-year Agreement and Community Impact Mitigation and Operating Agreement, that support the amendments to the revised Bylaw 2805 and provide additional descriptions of the bonus density amenity provisions and impact mitigation measures.

CRD ENDORSEMENT OF REVISED APPLICATION

The proposed revisions to draft Bylaw 2805, including the amenity provisions and mitigation measures outlined in the two additional agreements, were considered and adopted by the CRD Core Area Liquid Waste Management Committee at its December 11, 2013 meeting. The Board's endorsement of the proposed amendments to Bylaw 2805, along with the support agreements, provides the authorization to submit this revised application to be considered by the Township.

REVISED APPLICATION & RELATIONSHIP TO PREVIOUS MATERIAL SUBMITTED

The information provided in this revised application identifies and explains the changes to the application. Information previously provided that is not identified here-in should be considered as part of this revised submission. Such background information that has not changed includes, but is not limited to: (1) site context and description, (2) zoning rationale, (3) treatment plant and facilities operations, (4) risk assessment, (5) sustainability, (6) traffic, except as otherwise amended herein, (7) community impacts and mitigation report, except as other wise amended herein, (8) site survey, (9) design guidelines, (10) site services report, (11) archeological review, and (12) property value impacts opinion letter.

REVISED INFORMATION

New or revised information submitted consists of the following:

1. Revisions to Bylaw 2805:
    i. Building height, setback and site coverage provisions; and
    ii. Amenity provisions.
2. Design Review Process and Design Approvals.
3. Additional Mitigation Measures.

AMENDMENTS TO BYLAW 2805

Bylaw 2805 as currently drafted and now sitting ready for third reading can be briefly summarized as follows:

1. Permitted only wastewater treatment and associated waste water treatment uses.
2. Density provision restricted to 108 ML/day of sewage treatment capacity
3. No setback requirements from all boundaries and a maximum height of 15m.

4. Amenities of: (1) design guidelines, (2) fire hydrant and support equipment upgrades, (3) underground conduit for future hydro, (4) reinstatement of roads affected by works associated with the treatment plant installation, (5) Lyall Street pathway and bikeway system amounting to $950,000, (6) dedicated conference room, and (7) design for a future perimeter walkway.

The Bylaw as now submitted and amended (see appendix A) contains the following changes:

1. Permitted Uses: Allows for a mix of uses in addition to wastewater treatment and its ancillary uses, including: education and interpretive centre, commercial instruction and education, research, professional offices, high tech office, hotel, ancillary retail, entertainment, boat moorage, and park.
2. Density Provisions: The draft amended Bylaw contains a bonus density provision that permits the construction and operation of the required treatment facility.
3. Setbacks, Siting, and Height: The amendments provide for a complicated series of siting, setback and height restrictions that influence designs to step back from the water's edge, require a minimum of 20% natural landscape and open space, make reference to a "Low Height Area" within 20 m of the high water mark and allows for buildings to be no higher than 12 m except for up to 15% of the site area, outside of the "Low Height Area" that can go as high as 15 m, but only to accommodate mechanical equipment or one odour control tower associated with the treatment system (note: see next section).
4. Additional Design Guideline: In addition to the existing Design Guidelines adopted as part of the OCP amendment, the following additional guideline may be considered :"building design and finish and site design should establish a strong architectural and functional relationship between the building facade and the public pedestrian walkway through one or more of the architectural, creative, artistic or other similar elements intended to provide enhanced visual interest for users of the pedestrian walkway".
5. Walkway and Access: Design and construct a public waterfront walkway along the entire site and plan in a manner that can connect to a future walkway to West Bay, if access through DND lands is permitted.
6. Public Open Space: Plan and build a public observation point connected to the public walkway, including the provision of public benches.
7. Public Dock: Provide a dock to allow for emergency access and seasonal public access to the walkway.
8. Public Art: Provide public art, including heritage interpretive signage having a value of $100,000.
9. Macaulay Pump Upgrades: Make exterior aesthetic upgrades to Macaulay Point pump station, to a finish equivalent to the Craigflower, Carey Road, and Trent Pump Station facilities.

In addition to these new provisions, the amenities provided earlier are contained in the amended Bylaw. To reiterate, those amenities include:

A) Road Upgrades: Reinstates roads (and sidewalks or boulevards) impacted by the plant construction to an equal or better condition. The successful proponent will be required to work with the Township on existing road conditions before construction.

B) Lyall Street Enhancement: During construction there will be additional traffic along Lyall Street that is also used for access to Macaulay Elementary school. Lyall Street is a designated active transportation route in the Official Community Plan and Bikeways Plan. Draft Bylaw 2805 commits to provision of an upgraded pathway and bikeway trail, connecting to West Bay walkway to a value of $950,000.

C) Education and Interpretive Centre: Provide space within the treatment plant site for a meeting room of 75m2 that is made available for students and the public to learn about waste water treatment.

DESIGN CONSIDERATION

Draft Bylaw 2805 provides a complicated description of siting, heights and setback requirements.

1. All three proponent design solutions, as approved by the Township's Design Review Committee, meet draft Bylaw 2805 requirements relating to height, siting and setbacks.
2. Generally, the Bylaw allows for greater height the further buildings are located away from the water. For example, within 20 metres of the high water mark, the "amount" of building or structure that can be greater than 5 metres high is restricted to a maximum coverage of the site and any building permitted within 7.5 m must be compensated by providing an equivalent and extra amount of open space beyond the setback area.
3. Because height, siting and setback requirements in the draft Bylaw 2805 address the design solutions of three different approaches, the actual extent of site coverage, setbacks or height will inevitably be less than the flexibility needed in the Bylaw to capture the three design solutions.
4. The amended Bylaw requires a 4.5 m setback from the north property line and a minimum 20% natural or landscaped/open space requirement.

IMPLICATIONS – PROCUREMENT PROCESS AND DESIGN REVIEW

Construction procurement, as required by the Province, is design-build. At the end of June 2013, a shortlist of three proponents was selected from a Request for Qualification process and invited to submit a Request for Proposal (RFP). The submission date for the RFP is the end of February 2014. It is a competitive process that must adhere to very strict confidentiality protocol which includes the appointment of a fairness commissioner to ensure that the process is fair and equal to all three proponents.

Because of the mandatory procurement process, it is not possible to provide detailed design drawings including building siting, elevations or landscape plans at this time, until the proponents have submitted their final plans. The

siting, height and setback standards that are provided in the attached amendments to Bylaw 2805 are based on a protocol as described and followed below. The Bylaw lot coverage, setback and height requirements represent the maximum requirements to meet the building design work that has taken place to date so that all three proponent designs can meet the zoning Bylaw standards. The final, selected proponent will have a design solution with less encroachment, site coverage or height standards than the collective total of all three.

To address matters relative to design and the attendant complexities relating to requiring flexibility in the zoning Bylaw, the following six-step process has been established:

- Design Guidelines developed and refined through a design charrette process that included bringing in outside design experts, members of Victoria Design Panel and council member representatives on the CALWMC from Esquimalt, Victoria and Saanich shall be followed by all three proponents;
- The Design Guidelines are included in OCP amendment Bylaw 2804, adopted in July 2103 and now form part of the Township's design requirements;
- Proponents have carried out (confidentially) a peer review process with the Township's Design Review Committee (see design review outcome below);
- McLoughlin Point has been designated a Development Permit Area;
- Design criteria forms part of the proponent evaluation process in determining the successful contractor/builder of the treatment plant; and
- The successful proponent must submit and be issued a Development Permit from the Township.

DESIGN REVIEW COMMITTEE OUTCOME

All proponent design teams met independently with the Township's Design Review Committee on three separate occasions between September and November. Members of the City of Victoria's Design Panel were also invited and attended at least some of the meetings. At the conclusion of this process the Township's Design Review Committee concluded that all proponents provided supportable design solutions that met design criteria and were consistent with Design Guidelines.

IMPACT MITIGATION MEASURES

In addition to amenities, construction and operating mitigation measures have been developed and approved by the CRD Board, that are integral to the entire application "package" and comprise part of the overall resubmission.

Since the original submission, the CRD commissioned an Environmental Impact Study. The study, prepared by Tera Environmental Consultants (October 2013) was submitted to the Province to comply with requirements of the BC Municipal Wastewater Regulation. The EIS contents were accepted by the Ministry of Environment. A copy of the full report can be found on the CRD website.

The concluding comment in the report states that:

- "Environmental and community impacts resulting from construction and operation of treatment and ancillary facilities can be effectively mitigated. The nature of the impacts and recommended mitigation measures are described in the EIS. The impacts of building and operating wastewater treatment facilities need to be considered in the context of the substantial improvements in the quality of effluent released into the marine environment by the CRD's wastewater facilities."

MITIGATION MEASURES

Additional mitigation measures that are provided include:

A. Barging: The most significant community impact identified by the Township and the CRD was the issue of truck traffic to the site through residential neighbourhoods during construction. The Traffic Considerations report prepared by Bunt and Assoc. (previously submitted) indicated that the majority of truck traffic is associated with excavation of materials from the site. The CRD has agreed to the mitigation measure of requiring that removal of excavation material and the provision of concrete and aggregates during excavation and major concrete phases be by barge or other marine transport. The Bunt reports shows that the vast majority of the heavy truck traffic will be eliminated with the implementation of this mitigation measure. An addendum to the RFP has been issued to the proponents based on those conditions. Barging has

been agreed to on the assumption that approvals to construct a temporary moorage or dock can be obtained from regulatory authorities.

B. Other Traffic Management Mitigation Measures: In addition to the mitigation measure of requiring marine transport for the excavation and, major concrete phases, a Traffic Management Plan will be prepared and approved by the Township that will include but be not limited to: (1) specify the use of staging areas (2) specify use of supplementary crossing guards (3) require ongoing monitoring (4) provide a commitment to CRD enforcement of the Plan.

C. Odour: Commitment to incorporate odour-reducing technology that will result in odour levels that will not exceed five (5) odour units (not detectable to humans).

D. Sustainability:

   i. Commitment to LEED Gold standards: the CRD commits to the Operations and Maintenance Building being constructed to a LEED Gold standard including a green roof.

   ii. Resource Recovery: The CALWMP commits to resource recovery as part of its sustainability principles. In response to this principle, and in consideration of mitigation measures to the Township, the CRD commits to construction of a district energy system, delivered to the Township, at the CRD's expense, subject to the Township conducting its due diligence, confirming that it is a viable program that will benefit the Township. The agreement provides funding of up to $200,000 toward due diligence engineering reports and start-up costs.

E. Additional Traffic Integration Improvements: In cooperation with the Township, provide additional traffic calming, bicycle lanes, boulevard curbs etc and other improvements within the neigbourhoods of West Bay/ Lyall Street most affected by the construction.

F. Community Impact Mitigation Fee: The CRD agrees to, under a Community Impact Mitigation and Operating Agreement, to the payment of a fee of $55,000 to offset impacts resulting from being the host community for the treatment plant that are described in the agreement and include, but are not limited to: additional demand on municipal services, annual fire/safety/utility inspections, response to public enquiries, monitoring and enforcement, additional liaison with DND etc. The indexed fee is payable annually until the WWTP is replaced or decommissioned, but with the proviso that the fee will be forfeited should the Township accept and become owners of the heat loop/resource recovery system.

G. Liaison Committee: During the construction period, once the successful proponent is chosen, the CRD will establish a Liaison Committee to include representatives from the Township, West Bay and Lyall Street neighbourhoods, DND, the contractor and CRD to discuss issues relating to the construction and operation of the WWTP.

H. Biosolids Treatment Site: The CRD commits that it will not develop the biosolids treatment facility within the Township's municipal borders.

APPENDIX A:

AMENDED BYLAW 2805

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

BYLAW NO. 2805

A Bylaw to amend Bylaw No. 2050, cited as the "Zoning Bylaw, 1992, No. 2050"

THE MUNICIPAL COUNCIL OF THE TOWNSHIP OF ESQUIMALT, in open meeting assembled, enacts as follows:

1. This bylaw may be cited as the *"ZONING BYLAW, 1992, NO. 2050, AMENDMENT BYLAW [NO. 2__], 2013, NO. 2805"*.

McLoughlin Point Special Use [I -3] Zone

2. That Bylaw No. 2050, cited as the Zoning Bylaw, 1992, No. 2050 be amended as follows:

(1) By amending Section 30.1 to read as follows:

"(2) The prohibition in Section 30.1(1) shall not apply to those lands in the McLoughlin Point Special Use [I-3] Zone."

(2) By replacing the following words and figures "Bulk Petroleum Storage I - 3" in Section 31 – Zone Designations of PART 5 Zoning Districts with:

"McLoughlin Point Special Use [I – 3]"

(3) By amending Section 55 to read as follows:

"McLoughlin Point Special Use [I-3]

The intent of this zone is to accommodate the Core Area Liquid Wastewater Treatment Plant, including potential accessory or additional commercial, high tech industrial, recreational and educational uses, or any combination thereof to create a mixed use development".

(4) By amending the uses permitted under Section 55 (1) to the following:

(1) **Permitted Uses**

The following Uses are permitted:

(a) Wastewater Treatment Plant, including, without limitation, any or all of the following additional uses:
  (i) Educational and Interpretive Centre
  (ii) Commercial Instruction and Education

(iii) Research Establishment
(iv) Business and Professional Office
(v) Marine Outfall
(vi) Sewage Pumping Facility
(vii) Accessory Uses

(b) Business and Professional Office
(c) High technology uses
(d) Accessory Retail
(e) Entertainment and Theatre
(f) Hotel
(g) Assembly Use
(h) Boat Moorage Facility
(i) Park
(j) Accessory Uses

(5) By deleting existing Section 55 (2) Density – Wastewater Treatment Plant, and replacing it with the following Section 55 (2):

"(2) **Density – Wastewater Treatment Plant**

In accordance with the provisions of section 904 of the *Local Government Act,* density for the Wastewater Treatment Plant Use is established by way of base density, for which no conditions apply, and bonus density on the provision or satisfaction of the conditions identified below. For greater certainty, the regulations of this section do not apply to other uses in this zone and the calculation of Floor Area Ratio and Floor Area shall not include any wastewater tank.

(a) **Base Density:**

(i) The Floor Area Ratio shall not exceed 0.15;
(ii) The Floor Area shall not exceed 675m^2, excluding processing tanks and generators completely enclosed within a Building;
(iii) Site Coverage shall not exceed 15%;

(b) **Bonus Density:**

(i) The Floor Area Ratio shall not exceed 0.35;
(ii) The Floor Area shall not exceed 4,500m^2, excluding processing tanks and generators completely enclosed within a Building;
(iii) Site Coverage shall not exceed 75%;

all on the provision or satisfaction of all of the conditions set out in section 55(2)(c).

(c) **Bonus Density Conditions**

The following conditions are applicable to the bonus density under section 55(2)(b):

(i) **Design Guidelines:**
Development consistent with conditions identified in the document entitled "Design Guidelines – McLoughlin Point Wastewater Treatment Plant" prepared by CitySpaces Consulting Ltd. (Revised May 2013), (called the "Design Document") a copy of which is attached to Official Community Plan Bylaw 2006, Bylaw No. 2646 as Schedule H;

(ii) **Road Upgrades**:
Reinstatement of all roads (including but not limited to paved areas, sidewalks, boulevards) affected by establishment of a Wastewater Treatment Plant described in the Design Document to a condition equal to or better than that which existed before construction;

(iii) **Lyall Street Enhancement:**
An upgraded pathway and bikeway system along Lyall Street, having a value of up to $950,000, including upgrades and connection to the West Bay Walkway via the trailhead located at 537 Head Street;

(iv) **Education and Interpretive Centre:**
Provision of a meeting room and interpretive space on-site having a minimum floor area of 75 m^2, to be available for students and the public to learn about wastewater treatment and management, made available at no charge to and for use by schools, government bodies, non-profit organizations and individuals as requested during normal hours of operation;

(v) **Public Access and Public Walkway:**
Design of building and development of site to incorporate public pedestrian walkway secured through a statutory right of way of 2.25 metres average width and in any event not more than 3 metres nor less than 1.5 metres in width at any point along the waterfront in favour of Esquimalt for and on behalf of the public to the respective boundaries of the property to permit future public walkway connection to West Bay if access through abutting Department of National Defence lands is permitted;

(vi) **Boat Moorage:**

(A) Temporary boat moorage, or other similar facility of sufficient size to permit the removal of excavated material and the provision of concrete and aggregate during the excavation and major concrete phase of the Wastewater Treatment Plant by barge or other marine transport; and

(B) A dock or other similar watercraft landing structure to permit emergency and employee access to the site and at least seasonal public use secured by a statutory right of way in favour of Esquimalt for and on behalf of the public.

(vii) **Public Open Space:**
Public open space on the site to include a public observation point connected to the public pedestrian walkway;

(viii) **Public Art:**
Public art on the site having a value of $100,000.00 to include heritage interpretive signage;

(ix) **Public Open Space Improvements:**
At least 3 benches to be installed in public open space referred to in paragraph (vii); and

(x) **CRD Facilities Visual Upgrade**
Aesthetic improvements to the exterior of the Macaulay Point Pump Station to a standard of quality and finish at least equivalent to the Craigflower Pump Station, the Currie Road Pump Station and the Trent Road Pump Station, recognizing the prominent location of the Macaulay Pump Station in an important waterfront park."

(6) By deleting Section 55 (4) – **Lot Coverage**, and replacing it with the following:

"(4) **Site Coverage**

(a) For the purposes of this Section 55, "Site Coverage" means the figure obtained using the sum of the areas of Building footprints, including covered wastewater tanks not located within a Building, measured from the outside of exterior walls, expressed as a percentage of the total area of all parcels in the McLoughlin Point Special Use [I-3] Zone covered by a Building;

(b) For certainty, Site Coverage shall not include any surface parking area, seawall or pedestrian walkway or other paved public open space.

(7) By replacing Section 55 (5) – **Building and Structure Height**, with the following:

"(5) **Building and Structure Height**

(a) For the purposes of this I-3 Zone, Height shall be measured from the Grade at seven (7.0) metres above the High Water Mark as such is determined as of January 1, 2014 (or earlier). For clarity, the purpose of this unique interpretation provision is to allow for sufficient tsunami protection for the proposed development in this Zone.

(b) On the portion of the lands in the I-3 Zone within the area measured inland 20 metres from the High Water Mark (the "Low Height Area"):

(c) In the case of use of land as a Wastewater Treatment Plant and uses accessory to a Wastewater Treatment Plant,

(i) No Building or Structure shall exceed a Height of 12.0 metres, but only up to a maximum of 35% coverage within the Low Height Area and the length of such a Building or Structure in the Low Height Area shall not exceed 35% of the length of the shoreline measured at the High Water Mark;

(ii) No Building or Structure shall exceed a Height of 5.0 metres for the remaining 65% coverage of the Low Height Area.

(d) On the remaining portion of the lands in the I-3 Zone, no Building or Structure shall exceed a Height of 12.0 metres except that the maximum Height of a Building may be 15 metres provided that:

(i) Not more than 15% of the total area of the lands in the I-3 Zone is covered by a Building that exceeds 12.0 metres in Height; and

(ii) The sole purpose for exceeding 12.0 metres is to accommodate mechanical equipment or one odour control tower associated with the treatment of sewage.

(e) In the case of a use of land other than a Wastewater Treatment Plant:

(i) No Building or Structure shall exceed a Height of 10 metres;

(ii) The Height of a Principal Building may be increased by 5 metres (to 15 m maximum) for uses under section 55(1)(f) [*hotel*] when such hotel includes convention facilities and if combined in a mixed-use development with one or more other uses under subsections 55(1)(b) through (h)."

(8) By replacing Section 55 (6) – **Siting Requirements**, with the following:

"(6) **Siting Requirements**

No setbacks are required except as follows:

(a) In the case of use of land as a Wastewater Treatment Plant and uses accessory to a Wastewater Treatment Plant, Buildings shall be set back an average of 7.5 metres from the High Water Mark provided that an encroachment into this Setback is permissible to no more than 1.0 metre from the High Water Mark but only on satisfaction of all of the following conditions:

(i) Such encroachment shall be no greater than 15% of the site area contained within the area of the entire 7.5 metre Setback;

(ii) For every square metre that a building encroaches into the Setback area, an equal area of extra open space associated with that building is set back behind the 7.5 metre Setback;

(iii) That no part of the Building encroaching within the 7.5 metre Setback is taller than 10.5 metres in Height; and

(iv) Such encroachment does not prevent the establishment of a public pedestrian walkway, as identified in this zone.

(b) For certainty, paragraph (a) Setback does not apply to the seawall, public walkway or public open space, other landscaping or hard exterior surface areas such as parking or similar structures.

(c) In the case of a use of land other than a use referred to in paragraph (a), no Building shall be located within 7.5 metres of the High Water Mark.

(d) In all cases, no building shall be located within 4.5 m of the most northerly lot line, between the water and Victoria View Road."

(9) By replacing Section 55 (7) – **Screening and Landscaping**, with the following:

"(7) **Screening and Landscaping**

Screening and landscaping shall be provided generally in accordance with the locations and standards shown in the Design Guidelines, provided that at least 20% of the total area used to calculate Site Coverage is left in its natural state, hard or soft landscaping (including pedestrian walkway and other public open space) or covered with a green roof."

(10) By replacing Section 55 (8) – **Off-Street Parking**, with the following:

"(8) **Off-Street Parking**

Notwithstanding the Township's Parking Bylaws, as amended from time to time, the total number of off-street parking stalls required in this zone is 34."

(11) By inserting a new section 55(9) – **Development Permit Guidelines**, as follows:

"(9) **Development Permit Guidelines**

In the case of a development permit issued for a Building for a Wastewater Treatment Plant use that encroaches to a point less than 5 metres from the High Water Mark the following additional guideline may be considered in addition to the guidelines referred to in section 9.5.6 of the Official Community Plan:

(a) building design and finish and site design should establish a strong architectural and functional relationship between the Building façade and the public pedestrian walkway through one or more of architectural, creative, artistic or other similar elements intended to provide enhanced visual interest for users of the pedestrian walkway,

(12) By renumbering Section 55 (9) – **Severability and Satisfaction**, and replacing it with the following as Section 55(10) – **Severability**:

"(10) **Severability**

In addition to Section 5 of this Bylaw, and for greater certainty for this Zone, should any measure of density, associated condition or amenity by held to be invalid by a decision of a Court of competent jurisdiction, that measure of density, condition or amenity may be severed without affecting the validity of the density-bonusing scheme and other measures of density, conditions or amenities."

(13) By adding a new section 55 (11) – **Satisfaction**, as follows:

"(11) **Satisfaction**

(a) For certainty, in the case of a condition under Section 55 (2), land may be developed and used for a Wastewater Treatment Plant even where all conditions have not been fulfilled or completed provided the property owner is proceeding with a reasonable plan to design, construct and install the amenities in accordance with the construction and proposed use of the Wastewater Treatment Plant, and such has been secured by agreement with the Township.

(b) The Public Access and Public Walkway and Public Open Space referred to in Section 55 (2) shall be subject to the outcome of any environmental assessment process to be undertaken separately from the environmental assessment required in connection with the Wastewater Treatment Plant which may require the public walkway to be modified or relocated, but not eliminated entirely, to avoid impact on the inter-tidal zone."

READ a first time by the Municipal Council on the 24th day of June, 2013.

READ a second time by the Municipal Council on the 24th day of June, 2013.

A Public Hearing was held pursuant to Sections 890 and 892 of the *Local Government Act* on the 8th and 9th day of July, 2013.

READ a second time as amended on the day of , 2013.

A Public Hearing was held pursuant to Sections 890 and 892 of the *Local Government Act* on the day of , 2013.

READ a third time by the Municipal Council on the day of , 2013.

ADOPTED by the Municipal Council on the day of , 2013.

"DRAFT"

BARBARA DESJARDINS
MAYOR

"DRAFT"

ANJA NURVO
CORPORATE OFFICER

APPENDIX B:

I) HOST COMMUNITY IMPACT 5-YEAR AGREEMENT

II) COMMUNITY IMPACT MITIGATION AND OPERATING AGREEMENT

DRAFT

HOST COMMUNITY IMPACT 5-YEAR AGREEMENT

THIS AGREEMENT made this day of , 2013.

BETWEEN:

CAPITAL REGIONAL DISTRICT

625 Fisgard Street
Victoria, B.C.
V8W 1R7

(the "**CRD**")

OF THE FIRST PART

AND:

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT

1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

(the "**Township**")

OF THE SECOND PART

W H E R E A S:

A. The CRD is required under its liquid waste management plan to construct and operate a facility to provide sewage treatment for the residents of the Township and the municipalities of Victoria, Saanich, Oak Bay, Colwood, View Royal and Langford (collectively the "**Core Area**") and the CRD has identified the following lands at McLoughlin Point as the site for the Waste Water Treatment Plant (the "WWTP"):

P.I.D. 000-336-491 Lot A, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-505 Lot B, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-513 Lot C, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-521 Lot D, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-530 Lot E, Section 11, Esquimalt District, Plan 35322
P.I.D. 029-168-970 Lot 1 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823
P.I.D. 029-168-988 Lot 2 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823

(the "**Project Lands**")

B. The Township has raised concerns as host community of the WWTP regarding the direct impacts on the community of the presence of the WWTP within its boundaries. The Township has permitted the land use with both a base density and bonus density, the

latter associated with the provision of amenities in accordance with section 904 of the *Local Government Act*;

C. The CRD is mindful of those concerns and wishes to take reasonable measures to address such concerns;

D. In order to address the impacts and consequences that the Township may experience in hosting the WWTP, the parties have agreed to the terms and conditions of this host community impact agreement.

E. The CRD also acknowledges the significance of municipal zoning processes and has advised the proponents "to ensure that its design for the Plant complies with the applicable zoning and related Township of Esquimalt requirements".

F. The CRD is seeking an amendment to the Zoning Bylaw through the adoption of Zoning Bylaw, 1992, No. 2050, Amendment Bylaw [No. 208], 2013, No. 2805 (the "**Rezoning Bylaw**") which would incorporate a density bonusing framework under section 904 of the *Local Government Act* and the parties wish to address some additional issues relating to the amenities contemplated in the Zoning Bylaw in this Agreement .

NOW THEREFORE THIS AGREEMENT WITNESSES that in consideration of the premises and covenants contained in this Agreement and other good and valuable consideration, the CRD and the Township covenant and agree with each other as follows:

1.0 Term

This Agreement shall be for a period of five (5) years commencing on the calendar day following the date that the Rezoning Bylaw is adopted.

2.0 Construction Method and Standards

2.1 Recognizing that the construction phase of the WWTP will generate construction traffic, emissions associated with construction and noise in the Township, especially on adjacent residential neighbourhoods, the CRD agrees to do the following at its cost:

(i) Use of Barges for Bringing Materials to the Site

The CRD shall amend the Request for Proposals dated the 12th day of July, 2013 entitled Capital Regional District – McLoughlin Point Wastewater Treatment Plant Project for the construction of the WWTP to require the successful proponent (the "WWTP Contractor") to construct temporary boat moorage, or other similar facility of sufficient size to permit the removal of excavated material and the provision of concrete and aggregate during the excavation and major concrete phase of the WWTP by barge or other marine transport, with the text of the addendum to the RFP to be substantially as set out in Schedule A attached to this Agreement (the "**Barging Requirements**").

(ii) Traffic Management Plan

Despite the significant reduction in heavy vehicle traffic expected to be achieved by the Barging Requirements, the CRD shall cause the WWTP Contractor to work with the Township, and the Township shall work with the WWTP Contractor in good faith on the preparation of a traffic management plan (the "Traffic Management Plan") to apply to the transport through the Township of those materials and equipment that are not subject to the Barging Requirements taking into account issues of community concern regarding the frequency, times and type of heavy vehicle traffic. The Traffic Management Plan shall be subject to the approval of the Township, acting reasonably.

Without limiting the generality or scope of what the Traffic Management Plan may address, the Traffic Management Plan may:

(A) specify the use of a staging area in proximity to the WWTP site to reduce truck parking on roadways waiting to make deliveries of materials;

(B) retain implement supplementary crossing guards where appropriate; and

(C) include other measures acceptable to the Township, as the CRD and the WWTP Contractor develop to address the trucking of materials through the Township that are not subject to the Barging Requirements and other traffic associated with the WWTP Project.

(iii) Monitoring and Reporting of Traffic

The CRD shall monitor and report monthly, or cause the WWTP Contractor, to monitor and report monthly to the Township and in particular shall identify:

(a) the number and frequency of trips to the Project Lands by truck; and
(b) the purpose of truck trips and identification of materials and equipment.

(iv) CRD Contact

The CRD shall provide to Esquimalt the name and contact details of a contact person for complaints regarding non-compliance with the Barging Requirements.

(v) Exception

In exceptional circumstances explained with the advance provision of notice from the CRD to the Township, the Township may agree to permit additional truck traffic.

(vi) Enforcement

The CRD has committed to vigilant enforcement of the Barging Requirements, including the full array of contractual penalties to the WWTP Contractor, which

may be supplemented with bylaw enforcement either by the CRD or the Township. The parties however acknowledge that enforcement decisions remain at the discretion of the CRD Board and the Township Council. To evidence its commitment and in recognition that breaches of the Barging Requirements increase the negative effects on and costs to the Township (e.g. for enforcement, inspections, administration of complaints, additional wear and tear on roads, etc.), the CRD agrees to give due consideration to breaches of the Barging Requirements by the WWTP Contractor.

2.2 **LEED® Standard for Operations and Maintenance Building**

The CRD shall cause the operations and maintenance building of the WWTP to be constructed to the level of LEED® Gold standard.

2.3 **Odour-Reducing Improvement**

(i) The CRD shall cause the WWTP to be designed and constructed to incorporate odour-reducing technology intended to result in odour levels that will not exceed five (5) odour control units as measured at the boundary of the Project Lands.

(ii) The CRD will not accept the WWTP until the standard under paragraph 2.3(i) can be met.

(iii) If, following commissioning, the WWTP emits odour in excess of 5 odour control units as measured at the boundary of the Project Lands, the CRD shall, expeditiously and in good faith, use best efforts to investigate and remediate the source of the odour in order to reduce odour to the agreed level.

2.4 **Design Review Process**

(i) Recognizing the importance of the visual impact of the WWTP, and respecting the Development Permit requirements of the Township's Official Community Plan, the CRD agrees to involve the City of Victoria, along with the Township, in a collaborative design review process involving the three (3) shortlisted proponent teams relating to the exterior design and finish of the WWTP, with the intent that such discussions will result in concurrence among the CRD, the Township's staff and the City of Victoria. It is intended to hold the collaborative design review process during October and November 2013, in advance of the final submissions from the proponent teams.

(ii) As the design review process will take place during the competitive RFP process, participants including those from the Township shall sign a confidentiality agreement prior to participating in the design review process. The parties acknowledge that such agreement cannot be applicable to the exercise of the Township's statutory powers in relation to the required development permit(s).

(iii) The CRD recognizes that the Project Lands are designated a development permit area in accordance with the *Local Government Act* and therefore the final

decision on design and permit issuance rests with the Township's Council (subject however to appeals, judicial review and the authority of the Minister of Environment under the *Environmental Management Act*). The CRD will bring forward the final design as part of its development permit application for consideration by Township Council, but is free to seek input from Council in advance.

2.5 **Restoration of Road Surfaces**

(i) The CRD shall cause the road surfaces affected by the construction of the WWTP, as determined by the Township acting reasonably, to be reinstated (including but not limited to affected paved areas, sidewalks and boulevards) to a condition that reflects current conditions or better, including the installation of sidewalks and curbs.

(ii) The CRD, the Township and the WWTP Contractor shall, without cost to the Township, conduct pre-construction and post-construction assessments of the conditions of road surfaces referred to in section 2.5(a).

3.0 Resource Recovery System

3.1 **Heat Loop:** The CRD shall construct or cause to be constructed a district energy system as generally described in Resource Recovery and Use Plan Technical Memorandum by Kerr Wood Leidal dated September 20, 2013 to connect the WWTP to the intersection of Admirals Road and Esquimalt Road (collectively "**Heat Loop**").

3.2 **Licence:** The Township grants a licence to the CRD for the construction of the Heat Loop within the Township's streets, such licence to be formalized in writing in the Township's customary form prior to the commencement of construction of the Heat Loop.

3.3 **Infrastructure Costs:** The CRD shall be responsible for all infrastructure costs associated with the construction of the Heat Loop to/from the intersection of Admirals Road and Esquimalt Road.

3.4 **Transfer of Title:** Upon completion, inspection and commissioning of the Heat Loop, the CRD shall transfer title to the Heat Loop and related appurtenances to the Township for consideration of $10.00 and following such transfer the Township shall thereafter be responsible for the operation and maintenance of the Heat Loop and for the use and distribution of the heat.

3.5 **Condition Precedent:** Despite this Section, if the CRD has not received written notice from the Township that the Township has reviewed the operation and maintenance costs associated with the proposed Heat Loop and all other studies regarding the Heat Loop (collectively the "**Heat Loop Studies**") and has satisfied itself on or before a date that is nine (9) months from receipt of a revised analysis of the financial viability of the Heat Loop prepared by Kerr Wood Leidal that it wishes

the Heat Loop to be constructed and transferred to the Township, the parties shall be under no further obligation to each other in relation to the Heat Loop, it being acknowledged and agreed that the notice under this section is a condition precedent to the obligations under this Section 3.0. The Township agrees that it shall expeditiously cause the review of the proposed Heat Loop Studies, with a view to determining whether it wishes to assume operational and financial responsibility for the operation and administration of the Heat Loop as a municipal service, and it may decide whether to proceed with acceptance of the Heat Loop or not, in its sole and unfettered discretion.

3.6 **Warranties:** At the time of transfer, the CRD shall assign the benefit of any warranties relating to the construction of the Heat Loop to the Township.

3.7 **Operation by the Township:** Following transfer of the Heat Loop to the Township, all subsequent costs associated with the operation and maintenance of the Heat Loop and the connection of individual parcels to the Heat Loop as shown substantially on Schedule "B" shall be borne by the Township.

3.8 **Heat Commitments:** The CRD commits to provide a sufficient amount of heat, or material for heat, in accordance with the assumptions and the equipment identified in the Heat Loop Studies to achieve the projected Heating Sales Revenues without exceeding the Operating and Maintenance costs so identified. The CRD agrees that there shall be no additional costs or charges imposed on the Township from the CRD or the operator of the WWTP, or the Project Lands generally, with respect to the provision of heat for the Heat Loop or otherwise in relation to the Heat Loop

3.9 **Other Users:** The parties acknowledge and agree that the WWTP will generate energy from the heat of its operations for use on the Project Lands. Provided that the heat delivered to the Township is sufficient to permit the Township to achieve the quantity of heat sufficient to achieve the projected heating sales revenues identified in the Heat Loop Studies, and provided the Township shall have exclusive rights to licence or sell the use of heat to the Department of National Defence Lands "DND"), the CRD may licence the use of heat to customers not within the boundaries of Esquimalt or DND.

3.10 **Transfer Agreement:** If the Township elects to accept the Heat Loop, the parties shall in good faith negotiate a transfer agreement for the transfer of title to that part of the Heat Loop required to permit the Township to operate a district energy utility within its boundaries and for the delivery of heat from the WWTP to the Township (the "Transfer Agreement").

3.11 **Reimbursement of Township Heat Loop Utility Costs:**

(a) Notwithstanding section 3.5, if the Township elects to accept the Heat Loop the CRD shall, upon execution of the Transfer Agreement, allocate a budget of up to $200,000 based on actual costs submitted by the Township for reimbursement in the construction budget relating to the Heat Loop to reimburse the Township's actual costs relating to:

(i) its review of the Heat Loop Studies; and

(ii) the establishment of a municipal service or utility for the purpose of providing heat, including without limitation, actual costs of legal, accounting, engineering and information technology services associated with the establishment of a municipal service or utility for the operation of the Heat Loop;

whether such costs are incurred prior to or after execution of the Transfer Agreement.

(b) The CRD shall reimburse the costs incurred by the Township to a maximum of $200,000 within 30 days of receipt of an invoice from the Township for such amounts.

4.0 Water System Upgrades

Recognizing that the WWTP will require the water service to be upgraded, the CRD agrees, as part of the water service upgrade, to provide fire hydrants and appurtenances as requested by the Township, to coincide with upgrades to the City of Victoria's water system located within the boundaries of the Township, as necessary for the proper operation of the WWTP.

5.0 Conduits

The CRD agrees that in connection with the excavation of highways in connection with construction of the WWTP, and the Heat Loop if accepted by the Township, the CRD shall install or cause to be installed a subsurface conduit to the standards of BC Hydro. It is acknowledged and agreed, however, that nothing in this Agreement obliges the CRD to install such underground wiring at the time of construction of the WWTP, the Heat Loop or otherwise.

6.0 Additional Traffic Integration Improvements

The CRD will, in good faith and in cooperation with the Township, design and install additional traffic calming and bicycle lane improvements on any streets between Lampson Road and Esquimalt Road and the Project Lands, which may include, as reasonably appropriate, speed bumps, speed cushions, enhanced boulevard curbing and landscaping, all at the sole cost of the CRD, and at the direction of the Township acting reasonably.

7.0 Emergency and Public Seasonal Access

In addition to the boat moorage identified in section 55(2)(c) of the Zoning Bylaw, the CRD shall construct a dock or other similar watercraft landing structure to permit emergency access and may include CRD employee access, and shall make reasonable efforts to provide for at least seasonal public use to be made of the dock, subject to Transport Canada approval, Department of Fisheries and Oceans Canada approval, and provided that the installation of a dock or similar facility does not trigger a requirement for an environmental impact assessment, other than in connection with the emergency and CRD employee access.

8.0 Building Permit Fees

The CRD agrees that it will apply to the Township for a building permit for the WWTP and pay an amount equal to the building permit fees that would be payable to the Township calculated in accordance with the Township's Building Bylaw, subject to any applicable deductions or reductions that would apply to complex projects of the nature of the WWTP under the Township's Building Bylaw, or in circumstances to which section 290 of the *Local Government Act* applies.

9.0 Amenity Conditions

The CRD acknowledges that the construction of the WWTP to a standard that permits the proper operation of the WWTP to meet the standards determined in the approved CRD liquid waste management plan will necessitate the CRD providing amenities under the Rezoning Bylaw.

With respect to the provision of those amenities, the parties agree as follows:

1. Lyall Street Enhancement: The CRD will work with the Township for the provision of the pathway and bikeway referred to in section 55(2)(c) of Rezoning Bylaw, along Lyall Street and Head Street to link West Bay to Admirals Road and having a value of approximately $950,000 for the design and installation of the pathway and bikeway. The enhancement shall be of a design, materials and quality of construction and installation as directed by the Township acting reasonably, and shall be completed prior to the sooner of the commencement of WWTP operations or termination of this Agreement.

2. Public Access, Walkway and Open Space Improvements:

   (a) The CRD will design and install a walkway system the length of the harbour side of the WWTP site and comprising a design that is consistent with the CRD Design Guidelines. A public observation deck will be installed at the end of the walkway. It is acknowledged and agreed that the improvements referred to in this section shall be subject to the outcome of any environmental assessment process to be undertaken separately from the environmental assessment required in connection with the WWTP. The CRD agrees that the value of the Open Space and Improvements will be at least $75,000, and shall be completed prior to the sooner of the commencement of WWTP operations or termination of this Agreement.

   (b) The statutory right of way referred to in section 55(2)(c) of the Zoning Bylaw shall be in a form acceptable to the Township, acting reasonably, under which the public will not have a right of access nor will the Township assume maintenance liability or operational responsibility unless or until the walkway to be provided under this section is connected to a public walkway providing public access from one or more boundaries of the Project Lands, or the Township elects to assume responsibility under subsection 2(c). The CRD shall make all reasonable efforts to ensure that the public walkway is 3 metres in width, and will only reduce the walkway to 1.5 metres in width where necessary because of physical constraints.

(c) Notwithstanding section 9.2(b), upon the establishment of seasonal public use of the dock contemplated by section 7.0, the Township may, in its unfettered discretion, by written notice to the CRD elect to assume full responsibility for the dock, pedestrian walkway and observation area upon the opening of the dock to public use.

(d) If the Township does not elect to assume responsibility for the dock, pedestrian walkway and observation area under paragraph (c), the CRD shall establish a regional park or regional trail at McLoughlin Point to include the dock, pedestrian walkway and observation area.

3. Public Art and Interpretive Signage Improvements: In satisfaction of section 55(2)(c)(vii) of the Zoning Bylaw, the CRD will provide a cash allowance of $100,000 to provide for public art and historical interpretive signage that may be internally or externally displayed. The historical interpretive signage shall be of a design, materials and quality of construction and installation as directed by the Township acting reasonably, and shall be completed prior to the termination of this Agreement. The public art shall be determined following a process that includes approval of both the CRD and the Township.

4. Macaulay Point Pump Station and Related Facilities: The CRD will improve the aesthetics and operations, in particular to reduce odour, of the Macaulay Pump Station within Township boundaries to a standard of quality and finish at least equivalent to the Craigflower Road, Currie Road and Trent Road Pump Stations, recognizing the prominent location of Macaulay in an important waterfront park. The CRD shall also make aesthetic improvements to the appearance of the Lang Cove pump station in consideration of the visibility of its location.

5. The CRD will in good faith consider extending access to the meeting room and interpretive space on weekends and evenings when booked through the CRD for educational purposes.

10.0 Satisfaction of Host Community Conditions

The Township agrees that the satisfaction of the Host Community Conditions in Sections 2 to 9 inclusive of this Agreement and the payment of the amount under the Community Impact Mitigation & Operating Agreement will be full satisfaction of the Township's concerns relating to the WWTP.

11.0 Dispute Resolution

Where a matter in dispute arises under this Agreement, the Chief Administrative Officers shall meet promptly to attempt to resolve the dispute.

Where the Chief Administrative Officers are unable to resolve the dispute, then the matter may, with the concurrence of both the CRD and the Township, be submitted for mediation to a mediator appointed jointly by the parties.

If the matter cannot be resolved by mediation, or if the parties are unwilling to submit the matter to mediation, then the dispute shall be resolved by arbitration, by an arbitrator appointed jointly by the parties. The decision of the arbitrator shall be final and may include a requirement for specific performance by one or both parties.

The parties shall share the costs of the mediation or arbitration equally.

If the parties are unable to agree on the selection of an arbitrator within thirty (30) days of the later of the meeting of the Chief Administrative Officers, or the failure of the mediation, then either party may, upon giving written notice to the other party, apply to the Ministry of Community, Sport and Cultural Development (or the Ministry then having responsibility for local government affairs) for dispute resolution by way of binding arbitration contemplated by Division 3 of Part 9 of the *Community Charter.*

12.0 General Provisions

(a) No Fettering of Discretion

Nothing in this Agreement shall be considered to fetter any statutory discretion of the Board of the CRD or the Council of the Township nor to impair or waive any power, right or authority of the CRD or the Township under the *Community Charter,* the *Local Government Act* or any other enactment as defined in the *Interpretation Act.*

(b) Modification

No modification or amendment to this Agreement shall be binding unless executed in writing by both parties.

(c) Entire Agreement

This Agreement, along with the **Community Impact Mitigation & Operating Agreement**, constitutes the entire agreement between the parties and supersedes all previous discussions, negotiations, understandings, expectations, agreements of the parties, whether oral or written regarding the subject matter of these Agreements.

(d) No Assignment

This Agreement may not be assigned by either party, without the express written consent of the other party, which consent shall not be unreasonably withheld where the assignment is to another public authority.

(e) Applicable Law

This Agreement is to be construed in accordance with and governed by the laws applicable in the Province of British Columbia and in particular is subject to the jurisdiction of the Minister of Environment under the *Environmental Management Act.*

(f) Notice

It is hereby mutually agreed that any notice required to be given under this Agreement will be deemed to be sufficiently given:

(a) to be delivered at the time of delivery; and

(b) if mailed from any government post office in the Province of British Columbia by prepaid registered mail addressed as follows:

if to the CRD: 625 Fisgard Street
Victoria, B.C.
V8W 1R7

if to the Township: 1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

Unless otherwise specified herein, any notice required to be given under this Agreement by any party will be deemed to have been given if mailed by prepaid registered mail, or sent by facsimile transmission, or delivered to the address of the other party set forth on the first page of this Agreement or at such other address as the other party may from time to time direct in writing, and any such notice will be deemed to have been received if mailed or faxed, 72 hours after the time of mailing or faxing and, if delivered, upon the date of delivery. If normal mail service or facsimile service is interrupted by strike, slow down, force majeure or other cause, then a notice sent by the impaired means of communication will not be deemed to be received until actually received, and the party sending the notice must utilize any other such services which have not been so interrupted or must deliver such notice in order to ensure prompt receipt thereof.

(g) Waiver

The waiver by a party of any failure on the part of the other party to perform in accordance with any of the terms or conditions of this Agreement is not to be construed as a waiver of any future or continuing failure, whether similar or dissimilar.

(h) Severability

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.

(i) Interpretation

Wherever the singular or the masculine is used in this Agreement, this shall be deemed to include the plural, feminine or body politic or corporate as the context so requires.

(j) Counterparts

This Agreement may be executed in counterparts and when the counterparts have been executed by the parties, each originally executed counterpart, whether a facsimile, photocopy or original, will be effective as if one original copy had been executed by the parties to this Agreement.

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the day, month and year first above written.

CAPITAL REGIONAL DISTRICT by its authorized signatories)

_____)
Name:)

_____)
Name:)

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT by its authorized signatories)

_____)
Name:)

_____)
Name:)

Schedule "A"

Addendum to specify Barging in Schedule 5

Section 4.8(a) and 4.8 (b) Schedule 5 (Design and Construction Protocols)

Sections 4.8(a) and 4.8(b) of Schedule 5 (Design and Construction Protocols) are deleted and replaced with the following:

"4.8 **Barging, Access Roads; Laydown and Staging Areas**

(a) **Barging.** Project Co:

(1) will use marine barging for the supply and transportation of materials and waste associated with excavation, backfill and concrete works on the Plant Site (including work associated with the Harbour Crossing and Outfall);

(2) may use the access roads to the Plant Site in connection with the initial mobilization and demobilization of construction equipment associated with excavation, backfill and concrete works on the Plant Site;

(3) may install a temporary concrete batch plant at the Plant Site (or adjacent DND laydown area) provided all concrete materials, including aggregates and cement, are barged to the Plant Site;

(4) will obtain all permits and approvals required for barging and any construction and operation of a temporary concrete batch plant; and

(5) will not undertake any construction, operations or other activities which affect the intertidal zone adjacent to the Plant Site.

(b) **Access Roads.** Without limiting the barging obligations set out in section 4.8(a), Project Co will maintain the access roads to the Project Sites throughout Construction and restore such roads to their pre-existing condition or better following construction of the Facilities and as a condition of Acceptance. Project Co assumes the risk of the sufficiency of the access roads to provide access to the Project Sites for the performance of Construction, including the transportation and delivery of materials and equipment required for the performance of Construction."

Schedule "B"

HEAT LOOP

DRAFT

COMMUNITY IMPACT MITIGATION & OPERATING AGREEMENT

THIS AGREEMENT made this day of , 2013.

BETWEEN:

CAPITAL REGIONAL DISTRICT

625 Fisgard Street
Victoria, B.C.
V8W 1R7

(the "**CRD**")

OF THE FIRST PART

AND:

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT

1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

(the "**Township**")

OF THE SECOND PART

W H E R E A S:

A. The CRD is required under its liquid waste management plan to construct and operate a facility to provide sewage treatment for the residents of the Township and the municipalities of Victoria, Saanich, Oak Bay, Colwood, View Royal and Langford (collectively the "**Core Area**") and the CRD has identified the following lands at McLoughlin Point as the site for the Waste Water Treatment Plant (the "**WWTP**"):

P.I.D. 000-336-491 Lot A, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-505 Lot B, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-513 Lot C, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-521 Lot D, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-530 Lot E, Section 11, Esquimalt District, Plan 35322
P.I.D. 029-168-970 Lot 1 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823
P.I.D. 029-168-988 Lot 2 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823

(the "**Project Lands**")

B. The Township has raised concerns as host community of the WWTP regarding the impacts on the community of the presence of the WWTP within its boundaries, including, without limitation:

a. demand on municipal services,
b. annual fire and safety inspections,
c. utility inspections,
d. inspections and repairs of road surfaces,
e. response to public inquiries and complaints, including with DND and Victoria residents
f. monitoring of operations and enforcement,
g. additional street cleaning,
h. additional liaison, including with DND;
i. additional wear and tear on recreational facilities, parks and other Esquimalt services;
j. additional economic development, tourism promotion, business recruitment and marketing required to overcome perceived negative influence of regional wastewater facility; ...
k. additional security, policing and enforcement services;
l. for other social, environmental, and economic impacts generally,

(collectively the "**Impacts**")

all caused by or contributed to by activity associated with the WWTP construction or operation and/or construction and installation of a district energy heat recovery system (the "**Heat Loop**");

C. The CRD is mindful of those concerns and, in addition to undertaking certain actions under a host community impact agreement dated the __ day of ___, 2013, (the "**Host Community Impact 5-Year Agreement**") has agreed to the payment of an annual amount by way of a community impact mitigation fee and other measures of an operational nature under, and in accordance with, this Agreement;

NOW THEREFORE THIS AGREEMENT WITNESSES that in consideration of the premises and covenants contained in this Agreement and other good and valuable consideration, the CRD and the Township covenant and agree with each other as follows:

PART A – COMMUNITY IMPACT MITIGATION FEE

1.0 Community Impact Mitigation Fee

Subject to section 3 of this Agreement, the CRD shall pay the Township FIFTY-FIVE THOUSAND ($55,000.00) DOLLARS per year as adjusted annually under section 2.0 (the "**Community Impact Fee**") to compensate the Township for the Impacts.

2.0 Change in CPI

From 2015 and for the remainder of the Term, the amount of the fee payable under section 1 of this Agreement shall be changed to reflect the change in the Consumer Price Index for Victoria, British Columbia (all items) (the "CPI") for the previous year. If the change in the CPI is not known at the date of payment under section 4.2, the CRD may pay the amount paid the previous year and shall make any additional payment (or Esquimalt shall pay any refund where CPI has decreased) as required within 30 days of the change in CPI becoming known.

3.0 Exemption to Community Impact Fee

If Esquimalt elects to assume ownership of the Heat Loop referred to in Section 3.0 of the Host Community Impact 5-Year Agreement, the Community Impact Fee will not be payable and the obligations of the CRD to pay the Community Impact Fee under this Agreement shall thereafter be at an end following execution of the Transfer Agreement and upon the actual transfer of the constructed and operational Heat Loop infrastructure to the Township following execution of the Transfer Agreement referred to in section 3.10 of the Host Community Impact 5 Year Agreement. In the event of a transfer of the Heat Loop during a calendar year, the amount of the Community Impact Fee shall be pro-rated to represent that portion of the year prior to the transfer of the Heat Loop to Esquimalt.

4.0 Invoice and Payment of Community Impact Fee

4.1 The Township shall provide to the CRD as of the 31st day of December in each year an invoice for the sum of FIFTY-FIVE THOUSAND ($55,000.00) DOLLARS (as adjusted annually under section 2.0) in relation to the impact on the Township of the WWTP for the previous calendar year.

4.2 The CRD shall cause the amount of the invoice to be paid to the Township on or before January 31 of the following year.

4.3 For greater certainty, the Township is not required to itemize or calculate the Impacts in any given year other than further to Section 2 of this Agreement, and there is no set-off or reduction other than further to Section 3 of this Agreement.

PART B – TERM

5.0 Term of Agreement

5.1 The obligations of the CRD under this Agreement shall be from January 1, 2014 until such time as the WWTP is replaced or decommissioned.

5.2 For greater certainty, the first payment is due by January 30, 2014 in the full amount of FIFTY-FIVE THOUSAND ($55,000.00) DOLLARS.

5.3 If the WWTP is replaced on the Project Lands, the parties shall in good faith negotiate a replacement agreement, and notwithstanding section 5.1, this Agreement shall remain in effect until replaced.

PART C – LIAISON COMMITTEE & OTHER OPERATING MATTERS

6.0 Liaison Committee

6.1 To provide a forum for the discussion of issues relating to construction and operation of the WWTP and other related activities, the CRD shall establish and maintain a liaison committee (the "**Liaison Committee**") to include representatives from the Township, the West Bay Neighbourhood Association, the Lyall Street Neigbourhood Association, Department of

National Defence, CRD and, until acceptance of the WWTP by the CRD, the CRD's WWTP contractor.

6.2 The Liaison Committee will meet within thirty (30) days of the CRD's WWTP Contractor commencing work on site and thereafter at times established in the first meeting, and at least twice annually while the WWTP is in operation.

6.3 At the first meeting of the Liaison Committee, the members shall elect a chair and vice chair.

6.4 The CRD shall not be considered to be in breach of this section if any person invited to participate in the Liaison Committee or to send representatives to the Liaison Committee fails to do so.

7.0 Biosolids Treatment Plant

7.1 The CRD acknowledges and agrees that it will not make use of land situated within the Township for the purpose of a biosolids treatment facility or any other purpose associated with the treatment of biosolids or recovery of energy from biosolids.

7.2 The CRD further agrees to consult with the Township prior to establishing any use of property within the Township.

7.3 For clarity, the Township includes all lands owned by the federal crown including the Graving Dock and lands commonly referred to as the "DND lands" including but not limited to: Work Point, Macaulay Point, Buxton Green, Dockyards, Naden, and Naden North.

8.0 Odour

If the WWTP emits odour in excess of 5 odour control units as measured at the boundary of the Project Lands, the CRD shall expeditiously and in good faith, use best efforts to investigate and remediate the source of the odour in order to reduce the odour to the agreed level.

PART D – DISPUTE RESOLUTION

9.0 Dispute Resolution

9.1 Where a matter in dispute arises under this Agreement, the Chief Administrative Officers shall meet promptly to attempt to resolve the dispute.

9.2 Where the Chief Administrative Officers are unable to resolve the dispute, then the matter may, with the concurrence of both the CRD and the Township, be submitted for mediation to a mediator appointed jointly by the parties.

9.3 If the matter cannot be resolved by mediation, or if the parties are unwilling to submit the matter to mediation, then the dispute shall be resolved by arbitration, by an arbitrator appointed jointly by the parties. The decision of

the arbitrator shall be final and may include a requirement for specific performance of the provisions of this Agreement by one or both parties.

9.4 The parties shall share the costs of the mediation or arbitration equally.

9.5 If the parties are unable to agree on the selection of an arbitrator within thirty (30) days of the later of the meeting of the Chief Administrative Officers, or the failure of the mediation, then either party may, upon giving written notice to the other party, apply to the Ministry of Community, Sport and Cultural Development (or the Ministry then having responsibility for local government affairs) for dispute resolution by way of binding arbitration contemplated by Division 3 of Part 9 of the *Community Charter.*

PART E – GENERAL PROVISIONS

10.0 General Provisions

(a) No Fettering of Discretion

Nothing in this Agreement shall be considered to fetter any statutory discretion of the Board of the CRD or the Council of the Township nor to impair or waive any power, right or authority of the CRD or the Township under the *Community Charter,* the *Local Government Act* or any other enactment as defined in the *Interpretation Act.*

(b) Capital Liabilities

Nothing in this Agreement shall be interpreted as imposing any obligation or liability of a capital nature on the CRD.

(c) Modification

No modification or amendment to this Agreement shall be binding unless executed in writing by both parties.

(d) Entire Agreement

This Agreement, along with the Host Community Impact 5-Year Agreement, constitute the entire agreement between the parties and supersede all previous discussions, negotiations, understandings, expectations, agreements of the parties, whether oral or written regarding the subject matter of these Agreements.

(e) No Assignment

This Agreement may not be assigned by either party, without the express written consent of the other party, which consent shall not be unreasonably withheld where the assignment is to another public authority.

(f) Applicable Law

This Agreement is to be construed in accordance with and governed by the laws

applicable in the Province of British Columbia and in particular is subject to the jurisdiction of the Minister of Environment under the *Environmental Management Act*.

(g) Notice

It is hereby mutually agreed that any notice required to be given under this Agreement will be deemed to be sufficiently given:

(a) to be delivered at the time of delivery; and

(b) if mailed from any government post office in the Province of British Columbia by prepaid registered mail addressed as follows:

if to the CRD: 625 Fisgard Street
Victoria, B.C.
V8W 1R7

if to the Township: 1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

Unless otherwise specified herein, any notice required to be given under this Agreement by any party will be deemed to have been given if mailed by prepaid registered mail, or sent by facsimile transmission, or delivered to the address of the other party set forth on the first page of this Agreement or at such other address as the other party may from time to time direct in writing, and any such notice will be deemed to have been received if mailed or faxed, 72 hours after the time of mailing or faxing and, if delivered, upon the date of delivery. If normal mail service or facsimile service is interrupted by strike, slow down, force majeure or other cause, then a notice sent by the impaired means of communication will not be deemed to be received until actually received, and the party sending the notice must utilize any other such services which have not been so interrupted or must deliver such notice in order to ensure prompt receipt thereof.

(h) Waiver

The waiver by a party of any failure on the part of the other party to perform in accordance with any of the terms or conditions of this Agreement is not to be construed as a waiver of any future or continuing failure, whether similar or dissimilar.

(i) Severability

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.

(j) Interpretation

Wherever the singular or the masculine is used in this Agreement, this shall be deemed to include the plural, feminine or body politic or corporate as the context so requires.

(k) Counterparts

This Agreement may be executed in counterparts and when the counterparts have been executed by the parties, each originally executed counterpart, whether a facsimile,

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the day, month and year first above written.

CAPITAL REGIONAL DISTRICT by its authorized signatories

_____
Name:

_____
Name:

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT by its authorized signatories

_____
Name:

_____
Name:

Appendix "B"

Bylaw 2805 As Amended

CORPORATION OF THE TOWNSHIP OF ESQUIMALT

BYLAW NO. 2805

A Bylaw to amend Bylaw No. 2050, cited as the "Zoning Bylaw, 1992, No. 2050"

THE MUNICIPAL COUNCIL OF THE TOWNSHIP OF ESQUIMALT, in open meeting assembled, enacts as follows:

1. This bylaw may be cited as the *"ZONING BYLAW, 1992, NO. 2050, AMENDMENT BYLAW [NO. 2__], 2013, NO. 2805"*.

McLoughlin Point Special Use [I -3] Zone

2. That Bylaw No. 2050, cited as the Zoning Bylaw, 1992, No. 2050 be amended as follows:

(1) By amending Section 30.1 to read as follows:

"(2) The prohibition in Section 30.1(1) shall not apply to those lands in the McLoughlin Point Special Use [I-3] Zone."

(2) By replacing the following words and figures "Bulk Petroleum Storage I - 3" in Section 31 – Zone Designations of PART 5 Zoning Districts with:

"McLoughlin Point Special Use [I – 3]"

(3) By amending Section 55 to read as follows:

"McLoughlin Point Special Use [I-3]

The intent of this zone is to accommodate the Core Area Liquid Wastewater Treatment Plant, including potential accessory or additional commercial, high tech industrial, recreational and educational uses, or any combination thereof to create a mixed use development".

(4) By amending the uses permitted under Section 55 (1) to the following:

(1) **Permitted Uses**

The following Uses are permitted:

(a) Wastewater Treatment Plant, including, without limitation, any or all of the following additional uses:
  (i) Educational and Interpretive Centre
  (ii) Commercial Instruction and Education
  (iii) Research Establishment

(iv) Business and Professional Office
(v) Marine Outfall
(vi) Sewage Pumping Facility
(vii) Accessory Uses

(b) Business and Professional Office
(c) High technology uses
(d) Accessory Retail
(e) Entertainment and Theatre
(f) Hotel
(g) Assembly Use
(h) Boat Moorage Facility
(i) Park
(j) Accessory Uses

(5) By deleting existing Section 55 (2) Density – Wastewater Treatment Plant, and replacing it with the following Section 55 (2):

"(2) **Density – Wastewater Treatment Plant**

In accordance with the provisions of section 904 of the *Local Government Act,* density for the Wastewater Treatment Plant Use is established by way of base density, for which no conditions apply, and bonus density on the provision or satisfaction of the conditions identified below. For greater certainty, the regulations of this section do not apply to other uses in this zone and the calculation of Floor Area Ratio and Floor Area shall not include any wastewater tank.

(a) **Base Density:**

(i) the Floor Area Ratio shall not exceed 0.15;
(ii) the Floor Area shall not exceed 675m^2, excluding processing tanks and generators completely enclosed within a Building;
(iii) Site Coverage shall not exceed 15%;

(b) **Bonus Density:**

(i) the Floor Area Ratio shall not exceed 0.35;
(ii) the Floor Area shall not exceed 4,500m^2, excluding processing tanks and generators completely enclosed within a Building;
(iii) Site Coverage shall not exceed 75%;

all on the provision or satisfaction of all of the conditions set out in section 55(2)(c).

(c) **Bonus Density Conditions**

The following conditions are applicable to the bonus density under section 55(2)(b):

(i) **Design Guidelines:**
Development consistent with conditions identified in the document entitled "Design Guidelines – McLoughlin Point Wastewater Treatment Plant" prepared by CitySpaces Consulting Ltd. (Revised May 2013), (called the "Design Document") a copy of which is attached to Official Community Plan Bylaw 2006, Bylaw No. 2646 as Schedule H;

(ii) **Road Upgrades**:
Reinstatement of all roads (including but not limited to paved areas, sidewalks, boulevards) affected by establishment of a Wastewater Treatment Plant described in the Design Document to a condition equal to or better than that which existed before construction;

(iii) **Lyall Street Enhancement:**
An upgraded pathway and bikeway system along Lyall Street, having a value of up to $950,000, including upgrades and connection to the West Bay Walkway via the trailhead located at 537 Head Street;

(iv) **Education and Interpretive Centre:**
Provision of a meeting room and interpretive space on-site having a minimum floor area of 75 m^2, to be available for students and the public to learn about wastewater treatment and management, made available at no charge to and for use by schools, government bodies, non-profit organizations and individuals as requested during normal hours of operation;

(v) **Public Access and Public Walkway:**
Design of building and development of site to incorporate public pedestrian walkway secured through a statutory right of way of 2.25 metres average width and in any event not more than 3 metres nor less than 1.5 metres in width at any point along the waterfront in favour of Esquimalt for and on behalf of the public to the respective boundaries of the property to permit future public walkway connection to West Bay if access through abutting Department of National Defence lands is permitted;

(vi) **Boat Moorage:**

(A) Temporary boat moorage, or other similar facility of sufficient size to permit the removal of excavated material and the provision of concrete and aggregate during the excavation and major concrete phase of the Wastewater Treatment Plant by barge or other marine transport; and

(B) A dock or other similar watercraft landing structure to permit emergency and employee access to the site and at least seasonal public use secured by a statutory right of way in favour of Esquimalt for and on behalf of the public.

(vii) **Public Open Space:**
Public open space on the site to include a public observation point connected to the public pedestrian walkway;

(viii) **Public Art:**
Public art on the site having a value of $100,000.00 to include heritage interpretive signage;

(ix) **Public Open Space Improvements:**
At least 3 benches to be installed in public open space referred to in paragraph (vii); and

(x) **CRD Facilities Visual Upgrade**
Aesthetic improvements to the exterior of the Macaulay Point Pump Station to a standard of quality and finish at least equivalent to the Craigflower Pump Station, the Currie Road Pump Station and the Trent Road Pump Station, recognizing the prominent location of the Macaulay Pump Station in an important waterfront park."

(6) By deleting Section 55 (4) – **Lot Coverage**, and replacing it with the following:

"(4) **Site Coverage**

(a) For the purposes of this Section 55, "Site Coverage" means the figure obtained using the sum of the areas of Building footprints, including covered wastewater tanks not located within a Building, measured from the outside of exterior walls, expressed as a percentage of the total area of all parcels in the McLoughlin Point Special Use [I-3] Zone covered by a Building;

(b) For certainty, Site Coverage shall not include any surface parking area, seawall or pedestrian walkway or other paved public open space.

(7) By replacing Section 55 (5) – **Building and Structure Height**, with the following:

"(5) **Building and Structure Height**

(a) For the purposes of this I-3 Zone, Height shall be measured from the Grade at seven (7.0) metres above the High Water Mark as such is determined as of January 1, 2014 (or earlier). For clarity, the purpose of this unique interpretation provision is to allow for sufficient tsunami protection for the proposed development in this Zone.

(b) On the portion of the lands in the I-3 Zone within the area measured inland 20 metres from the High Water Mark (the "Low Height Area"):

(c) In the case of use of land as a Wastewater Treatment Plant and uses accessory to a Wastewater Treatment Plant,

(i) No Building or Structure shall exceed a Height of 12.0 metres, but only up to a maximum of 35% coverage within the Low Height Area and the length of such a Building or Structure in the Low Height Area shall not exceed 35% of the length of the shoreline measured at the High Water Mark;

(ii) No Building or Structure shall exceed a Height of 5.0 metres for the remaining 65% coverage of the Low Height Area.

(d) On the remaining portion of the lands in the I-3 Zone, no Building or Structure shall exceed a Height of 12.0 metres except that the maximum Height of a Building may be 15 metres provided that:

(i) not more than 15% of the total area of the lands in the I-3 Zone is covered by a Building that exceeds 12.0 metres in Height; and

(ii) the sole purpose for exceeding 12.0 metres is to accommodate mechanical equipment or one odour control tower associated with the treatment of sewage.

(e) In the case of a use of land other than a Wastewater Treatment Plant:

(i) no Building or Structure shall exceed a Height of 10 metres;

(ii) the Height of a Principal Building may be increased

by 5 metres (to 15 m maximum) for uses under section 55(1)(f) [*hotel*] when such hotel includes convention facilities and if combined in a mixed-use development with one or more other uses under subsections 55(1)(b) through (h)."

(8) By replacing Section 55 (6) – **Siting Requirements**, with the following:

"(6) **Siting Requirements**

No setbacks are required except as follows:

(a) In the case of use of land as a Wastewater Treatment Plant and uses accessory to a Wastewater Treatment Plant, Buildings shall be set back an average of 7.5 metres from the High Water Mark provided that an encroachment into this Setback is permissible to no more than ___1.0 metre from the High Water Mark but only on satisfaction of all of the following conditions:

(i) such encroachment shall be no greater than 15% of the site area contained within the area of the entire 7.5 metre Setback;

(ii) for every square metre that a building encroaches into the Setback area, an equal area of extra open space associated with that building is set back behind the 7.5 metre Setback;

(iii) that no part of the Building encroaching within the 7.5 metre Setback is taller than 10.5 metres in Height; and

(iv) such encroachment does not prevent the establishment of a public pedestrian walkway, as identified in this zone.

(b) For certainty, paragraph (a) Setback does not apply to the seawall, public walkway or public open space, other landscaping or hard exterior surface areas such as parking or similar structures.

(c) In the case of a use of land other than a use referred to in paragraph (a), no Building shall be located within 7.5 metres of the High Water Mark.

(d) In all cases, no building shall be located within 4.5 m of the most northerly lot line, between the water and Victoria View Road."

(9) By replacing Section 55 (7) – **Screening and Landscaping**, with the following:

"(7) **Screening and Landscaping**

Screening and landscaping shall be provided generally in accordance with the locations and standards shown in the Design Guidelines, provided that at least 20% of the total area used to calculate Site Coverage is left in its natural state, hard or soft landscaping (including pedestrian walkway and other public open space) or covered with a green roof."

(10) By replacing Section 55 (8) – **Off-Street Parking**, with the following:

"(8) **Off-Street Parking**

Notwithstanding the Township's Parking Bylaws, as amended from time to time, the total number of off-street parking stalls required in this zone is 34."

(11) By inserting a new section 55(9) – **Development Permit Guidelines**, as follows:

"(9) **Development Permit Guidelines**

In the case of a development permit issued for a Building for a Wastewater Treatment Plant use that encroaches to a point less than 5 metres from the High Water Mark the following additional guideline may be considered in addition to the guidelines referred to in section 9.5.6 of the Official Community Plan:

(a) building design and finish and site design should establish a strong architectural and functional relationship between the Building façade and the public pedestrian walkway through one or more of architectural, creative, artistic or other similar elements intended to provide enhanced visual interest for users of the pedestrian walkway,

(12) By renumbering Section 55 (9) – **Severability and Satisfaction**, and replacing it with the following as Section 55(10) – **Severability**:

"(10) **Severability**

In addition to Section 5 of this Bylaw, and for greater certainty for this Zone, should any measure of density, associated condition or amenity by held to be invalid by a decision of a Court of competent jurisdiction, that measure of density, condition or amenity may be severed without affecting the validity of the density-bonusing scheme and other measures of density, conditions or amenities."

(13) By adding a new section 55 (11) – **Satisfaction**, as follows:

"(11) **Satisfaction**

(a) For certainty, in the case of a condition under Section 55 (2), land may be developed and used for a Wastewater Treatment

Plant even where all conditions have not been fulfilled or completed provided the property owner is proceeding with a reasonable plan to design, construct and install the amenities in accordance with the construction and proposed use of the Wastewater Treatment Plant, and such has been secured by agreement with the Township.

(b) The Public Access and Public Walkway and Public Open Space referred to in Section 55 (2) shall be subject to the outcome of any environmental assessment process to be undertaken separately from the environmental assessment required in connection with the Wastewater Treatment Plant which may require the public walkway to be modified or relocated, but not eliminated entirely, to avoid impact on the inter-tidal zone."

READ a first time by the Municipal Council on the 24th day of June, 2013.

READ a second time by the Municipal Council on the 24th day of June, 2013.

A Public Hearing was held pursuant to Sections 890 and 892 of the *Local Government Act* on the 8th and 9th day of July, 2013.

READ a second time as amended on the day of , 2013.

A Public Hearing was held pursuant to Sections 890 and 892 of the *Local Government Act* on the day of , 2013.

READ a third time by the Municipal Council on the day of , 2013.

ADOPTED by the Municipal Council on the day of , 2013.

"DRAFT" **"DRAFT"**

BARBARA DESJARDINS
MAYOR

ANJA NURVO
CORPORATE OFFICER

Appendix "C"

Host Community Impact 5-Year Agreement

HOST COMMUNITY IMPACT 5-YEAR AGREEMENT

THIS AGREEMENT made this day of , 2013.

BETWEEN:

CAPITAL REGIONAL DISTRICT

625 Fisgard Street
Victoria, B.C.
V8W 1R7

(the "**CRD**")

OF THE FIRST PART

AND:

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT

1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

(the "**Township**")

OF THE SECOND PART

W H E R E A S:

A. The CRD is required under its liquid waste management plan to construct and operate a facility to provide sewage treatment for the residents of the Township and the municipalities of Victoria, Saanich, Oak Bay, Colwood, View Royal and Langford (collectively the "**Core Area**") and the CRD has identified the following lands at McLoughlin Point as the site for the Waste Water Treatment Plant (the "WWTP"):

P.I.D. 000-336-491 Lot A, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-505 Lot B, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-513 Lot C, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-521 Lot D, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-530 Lot E, Section 11, Esquimalt District, Plan 35322
P.I.D. 029-168-970 Lot 1 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823
P.I.D. 029-168-988 Lot 2 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823

(the "**Project Lands**")

B. The Township has raised concerns as host community of the WWTP regarding the direct impacts on the community of the presence of the WWTP within its boundaries. The Township has permitted the land use with both a base density and bonus density, the

latter associated with the provision of amenities in accordance with section 904 of the *Local Government Act*;

C. The CRD is mindful of those concerns and wishes to take reasonable measures to address such concerns;

D. In order to address the impacts and consequences that the Township may experience in hosting the WWTP, the parties have agreed to the terms and conditions of this host community impact agreement.

E. The CRD also acknowledges the significance of municipal zoning processes and has advised the proponents "to ensure that its design for the Plant complies with the applicable zoning and related Township of Esquimalt requirements".

F. The CRD is seeking an amendment to the Zoning Bylaw through the adoption of Zoning Bylaw, 1992, No. 2050, Amendment Bylaw [No. 208], 2013, No. 2805 (the "**Rezoning Bylaw**") which would incorporate a density bonusing framework under section 904 of the *Local Government Act* and the parties wish to address some additional issues relating to the amenities contemplated in the Zoning Bylaw in this Agreement .

NOW THEREFORE THIS AGREEMENT WITNESSES that in consideration of the premises and covenants contained in this Agreement and other good and valuable consideration, the CRD and the Township covenant and agree with each other as follows:

1.0 Term

This Agreement shall be for a period of five (5) years commencing on the calendar day following the date that the Rezoning Bylaw is adopted.

2.0 Construction Method and Standards

2.1 Recognizing that the construction phase of the WWTP will generate construction traffic, emissions associated with construction and noise in the Township, especially on adjacent residential neighbourhoods, the CRD agrees to do the following at its cost:

(i) Use of Barges for Bringing Materials to the Site

The CRD shall amend the Request for Proposals dated the 12th day of July, 2013 entitled Capital Regional District – McLoughlin Point Wastewater Treatment Plant Project for the construction of the WWTP to require the successful proponent (the "WWTP Contractor") to construct temporary boat moorage, or other similar facility of sufficient size to permit the removal of excavated material and the provision of concrete and aggregate during the excavation and major concrete phase of the WWTP by barge or other marine transport, with the text of the addendum to the RFP to be substantially as set out in Schedule A attached to this Agreement (the "**Barging Requirements**").

(ii) Traffic Management Plan

Despite the significant reduction in heavy vehicle traffic expected to be achieved by the Barging Requirements, the CRD shall cause the WWTP Contractor to work with the Township, and the Township shall work with the WWTP Contractor in good faith on the preparation of a traffic management plan (the "Traffic Management Plan") to apply to the transport through the Township of those materials and equipment that are not subject to the Barging Requirements taking into account issues of community concern regarding the frequency, times and type of heavy vehicle traffic. The Traffic Management Plan shall be subject to the approval of the Township, acting reasonably.

Without limiting the generality or scope of what the Traffic Management Plan may address, the Traffic Management Plan may:

(A) specify the use of a staging area in proximity to the WWTP site to reduce truck parking on roadways waiting to make deliveries of materials;

(B) retain implement supplementary crossing guards where appropriate; and

(C) include other measures acceptable to the Township, as the CRD and the WWTP Contractor develop to address the trucking of materials through the Township that are not subject to the Barging Requirements and other traffic associated with the WWTP Project.

(iii) Monitoring and Reporting of Traffic

The CRD shall monitor and report monthly, or cause the WWTP Contractor, to monitor and report monthly to the Township and in particular shall identify:

(a) the number and frequency of trips to the Project Lands by truck; and
(b) the purpose of truck trips and identification of materials and equipment.

(iv) CRD Contact

The CRD shall provide to Esquimalt the name and contact details of a contact person for complaints regarding non-compliance with the Barging Requirements.

(v) Exception

In exceptional circumstances explained with the advance provision of notice from the CRD to the Township, the Township may agree to permit additional truck traffic.

(vi) Enforcement

The CRD has committed to vigilant enforcement of the Barging Requirements, including the full array of contractual penalties to the WWTP Contractor, which may be supplemented with bylaw enforcement either by the CRD or the Township. The parties however acknowledge that enforcement decisions remain at the discretion of the CRD Board and the Township Council. To evidence its commitment and in recognition that breaches of the Barging Requirements increase the negative effects on and costs to the Township (e.g. for enforcement, inspections, administration of complaints, additional wear and tear on roads, etc.), the CRD agrees to give due consideration to breaches of the Barging Requirements by the WWTP Contractor.

2.2 **LEED® Standard for Operations and Maintenance Building**

The CRD shall cause the operations and maintenance building of the WWTP to be constructed to the level of LEED® Gold standard.

2.3 **Odour-Reducing Improvement**

(i) The CRD shall cause the WWTP to be designed and constructed to incorporate odour-reducing technology intended to result in odour levels that will not exceed five (5) odour control units as measured at the boundary of the Project Lands.

(ii) The CRD will not accept the WWTP until the standard under paragraph 2.3(i) can be met.

(iii) If, following commissioning, the WWTP emits odour in excess of 5 odour control units as measured at the boundary of the Project Lands, the CRD shall, expeditiously and in good faith, use best efforts to investigate and remediate the source of the odour in order to reduce odour to the agreed level.

2.4 **Design Review Process**

(i) Recognizing the importance of the visual impact of the WWTP, and respecting the Development Permit requirements of the Township's Official Community Plan, the CRD agrees to involve the City of Victoria, along with the Township, in a collaborative design review process involving the three (3) shortlisted proponent teams relating to the exterior design and finish of the WWTP, with the intent that such discussions will result in concurrence among the CRD, the Township's staff and the City of Victoria. It is intended to hold the collaborative design review process during October and November 2013, in advance of the final submissions from the proponent teams.

(ii) As the design review process will take place during the competitive RFP process, participants including those from the Township shall sign a confidentiality agreement prior to participating in the design review process. The parties acknowledge that such agreement cannot be applicable to the exercise of the Township's statutory powers in relation to the required development permit(s).

(iii) The CRD recognizes that the Project Lands are designated a development permit area in accordance with the *Local Government Act* and therefore the final decision on design and permit issuance rests with the Township's Council (subject however to appeals, judicial review and the authority of the Minister of Environment under the *Environmental Management Act*). The CRD will bring forward the final design as part of its development permit application for consideration by Township Council, but is free to seek input from Council in advance.

2.5 **Restoration of Road Surfaces**

(i) The CRD shall cause the road surfaces affected by the construction of the WWTP, as determined by the Township acting reasonably, to be reinstated (including but not limited to affected paved areas, sidewalks and boulevards) to a condition that reflects current conditions or better, including the installation of sidewalks and curbs.

(ii) The CRD, the Township and the WWTP Contractor shall, without cost to the Township, conduct pre-construction and post-construction assessments of the conditions of road surfaces referred to in section 2.5(a).

3.0 Resource Recovery System

3.1 **Heat Loop:** The CRD shall construct or cause to be constructed a district energy system as generally described in Resource Recovery and Use Plan Technical Memorandum by Kerr Wood Leidal dated September 20, 2013 to connect the WWTP to the intersection of Admirals Road and Esquimalt Road (collectively "**Heat Loop**").

3.2 **Licence:** The Township grants a licence to the CRD for the construction of the Heat Loop within the Township's streets, such licence to be formalized in writing in the Township's customary form prior to the commencement of construction of the Heat Loop.

3.3 **Infrastructure Costs:** The CRD shall be responsible for all infrastructure costs associated with the construction of the Heat Loop to/from the intersection of Admirals Road and Esquimalt Road.

3.4 **Transfer of Title:** Upon completion, inspection and commissioning of the Heat Loop, the CRD shall transfer title to the Heat Loop and related appurtenances to the Township for consideration of $10.00 and following such transfer the Township shall thereafter be responsible for the operation and maintenance of the Heat Loop and for the use and distribution of the heat.

3.5 **Condition Precedent:** Despite this Section, if the CRD has not received written notice from the Township that the Township has reviewed the operation and maintenance costs associated with the proposed Heat Loop and all other studies regarding the Heat Loop (collectively the "**Heat Loop Studies**") and has satisfied

itself on or before a date that is nine (9) months from receipt of a revised analysis of the financial viability of the Heat Loop prepared by Kerr Wood Leidal that it wishes the Heat Loop to be constructed and transferred to the Township, the parties shall be under no further obligation to each other in relation to the Heat Loop, it being acknowledged and agreed that the notice under this section is a condition precedent to the obligations under this Section 3.0. The Township agrees that it shall expeditiously cause the review of the proposed Heat Loop Studies, with a view to determining whether it wishes to assume operational and financial responsibility for the operation and administration of the Heat Loop as a municipal service, and it may decide whether to proceed with acceptance of the Heat Loop or not, in its sole and unfettered discretion.

3.6 **Warranties:** At the time of transfer, the CRD shall assign the benefit of any warranties relating to the construction of the Heat Loop to the Township.

3.7 **Operation by the Township:** Following transfer of the Heat Loop to the Township, all subsequent costs associated with the operation and maintenance of the Heat Loop and the connection of individual parcels to the Heat Loop as shown substantially on Schedule "B" shall be borne by the Township.

3.8 **Heat Commitments:** The CRD commits to provide a sufficient amount of heat, or material for heat, in accordance with the assumptions and the equipment identified in the Heat Loop Studies to achieve the projected Heating Sales Revenues without exceeding the Operating and Maintenance costs so identified. The CRD agrees that there shall be no additional costs or charges imposed on the Township from the CRD or the operator of the WWTP, or the Project Lands generally, with respect to the provision of heat for the Heat Loop or otherwise in relation to the Heat Loop

3.9 **Other Users:** The parties acknowledge and agree that the WWTP will generate energy from the heat of its operations for use on the Project Lands. Provided that the heat delivered to the Township is sufficient to permit the Township to achieve the quantity of heat sufficient to achieve the projected heating sales revenues identified in the Heat Loop Studies, and provided the Township shall have exclusive rights to licence or sell the use of heat to the Department of National Defence Lands "DND"), the CRD may licence the use of heat to customers not within the boundaries of Esquimalt or DND.

3.10 **Transfer Agreement:** If the Township elects to accept the Heat Loop, the parties shall in good faith negotiate a transfer agreement for the transfer of title to that part of the Heat Loop required to permit the Township to operate a district energy utility within its boundaries and for the delivery of heat from the WWTP to the Township (the "Transfer Agreement").

3.11 **Reimbursement of Township Heat Loop Utility Costs:**

(a) Notwithstanding section 3.5, if the Township elects to accept the Heat Loop the CRD shall, upon execution of the Transfer Agreement, allocate a budget of up to $200,000 based on actual costs submitted by the Township for

reimbursement in the construction budget relating to the Heat Loop to reimburse the Township's actual costs relating to:

(i) its review of the Heat Loop Studies; and

(ii) the establishment of a municipal service or utility for the purpose of providing heat, including without limitation, actual costs of legal, accounting, engineering and information technology services associated with the establishment of a municipal service or utility for the operation of the Heat Loop;

whether such costs are incurred prior to or after execution of the Transfer Agreement.

(b) The CRD shall reimburse the costs incurred by the Township to a maximum of $200,000 within 30 days of receipt of an invoice from the Township for such amounts.

4.0 Water System Upgrades

Recognizing that the WWTP will require the water service to be upgraded, the CRD agrees, as part of the water service upgrade, to provide fire hydrants and appurtenances as requested by the Township, to coincide with upgrades to the City of Victoria's water system located within the boundaries of the Township, as necessary for the proper operation of the WWTP.

5.0 Conduits

The CRD agrees that in connection with the excavation of highways in connection with construction of the WWTP, and the Heat Loop if accepted by the Township, the CRD shall install or cause to be installed a subsurface conduit to the standards of BC Hydro. It is acknowledged and agreed, however, that nothing in this Agreement obliges the CRD to install such underground wiring at the time of construction of the WWTP, the Heat Loop or otherwise.

6.0 Additional Traffic Integration Improvements

The CRD will, in good faith and in cooperation with the Township, design and install additional traffic calming and bicycle lane improvements on any streets between Lampson Road and Esquimalt Road and the Project Lands, which may include, as reasonably appropriate, speed bumps, speed cushions, enhanced boulevard curbing and landscaping, all at the sole cost of the CRD, and at the direction of the Township acting reasonably.

7.0 Emergency and Public Seasonal Access

In addition to the boat moorage identified in section 55(2)(c) of the Zoning Bylaw, the CRD shall construct a dock or other similar watercraft landing structure to permit emergency access and may include CRD employee access, and shall make reasonable efforts to provide for at least seasonal public use to be made of the dock, subject to Transport Canada approval, Department of Fisheries and Oceans Canada approval, and provided that the installation of a dock or similar

facility does not trigger a requirement for an environmental impact assessment, other than in connection with the emergency and CRD employee access.

8.0 Building Permit Fees

The CRD agrees that it will apply to the Township for a building permit for the WWTP and pay an amount equal to the building permit fees that would be payable to the Township calculated in accordance with the Township's Building Bylaw, subject to any applicable deductions or reductions that would apply to complex projects of the nature of the WWTP under the Township's Building Bylaw, or in circumstances to which section 290 of the *Local Government Act* applies.

9.0 Amenity Conditions

The CRD acknowledges that the construction of the WWTP to a standard that permits the proper operation of the WWTP to meet the standards determined in the approved CRD liquid waste management plan will necessitate the CRD providing amenities under the Rezoning Bylaw.

With respect to the provision of those amenities, the parties agree as follows:

1. Lyall Street Enhancement: The CRD will work with the Township for the provision of the pathway and bikeway referred to in section 55(2)(c) of Rezoning Bylaw, along Lyall Street and Head Street to link West Bay to Admirals Road and having a value of approximately $950,000 for the design and installation of the pathway and bikeway. The enhancement shall be of a design, materials and quality of construction and installation as directed by the Township acting reasonably, and shall be completed prior to the sooner of the commencement of WWTP operations or termination of this Agreement.

2. Public Access, Walkway and Open Space Improvements:

   (a) The CRD will design and install a walkway system the length of the harbour side of the WWTP site and comprising a design that is consistent with the CRD Design Guidelines. A public observation deck will be installed at the end of the walkway. It is acknowledged and agreed that the improvements referred to in this section shall be subject to the outcome of any environmental assessment process to be undertaken separately from the environmental assessment required in connection with the WWTP. The CRD agrees that the value of the Open Space and Improvements will be at least $75,000, and shall be completed prior to the sooner of the commencement of WWTP operations or termination of this Agreement.

   (b) The statutory right of way referred to in section 55(2)(c) of the Zoning Bylaw shall be in a form acceptable to the Township, acting reasonably, under which the public will not have a right of access nor will the Township assume maintenance liability or operational responsibility unless or until the walkway to be provided under this section is connected to a public walkway providing public access from one or more boundaries of the Project Lands, or the Township elects to assume responsibility under subsection 2(c). The CRD shall make all reasonable efforts to ensure that

the public walkway is 3 metres in width, and will only reduce the walkway to 1.5 metres in width where necessary because of physical constraints.

(c) Notwithstanding section 9.2(b), upon the establishment of seasonal public use of the dock contemplated by section 7.0, the Township may, in its unfettered discretion, by written notice to the CRD elect to assume full responsibility for the dock, pedestrian walkway and observation area upon the opening of the dock to public use.

(d) If the Township does not elect to assume responsibility for the dock, pedestrian walkway and observation area under paragraph (c), the CRD shall establish a regional park or regional trail at McLoughlin Point to include the dock, pedestrian walkway and observation area.

3. Public Art and Interpretive Signage Improvements: In satisfaction of section 55(2)(c)(vii) of the Zoning Bylaw, the CRD will provide a cash allowance of $100,000 to provide for public art and historical interpretive signage that may be internally or externally displayed. The historical interpretive signage shall be of a design, materials and quality of construction and installation as directed by the Township acting reasonably, and shall be completed prior to the termination of this Agreement. The public art shall be determined following a process that includes approval of both the CRD and the Township.

4. Macaulay Point Pump Station and Related Facilities: The CRD will improve the aesthetics and operations, in particular to reduce odour, of the Macaulay Pump Station within Township boundaries to a standard of quality and finish at least equivalent to the Craigflower Road, Currie Road and Trent Road Pump Stations, recognizing the prominent location of Macaulay in an important waterfront park. The CRD shall also make aesthetic improvements to the appearance of the Lang Cove pump station in consideration of the visibility of its location.

5. The CRD will in good faith consider extending access to the meeting room and interpretive space on weekends and evenings when booked through the CRD for educational purposes.

10.0 Satisfaction of Host Community Conditions

The Township agrees that the satisfaction of the Host Community Conditions in Sections 2 to 9 inclusive of this Agreement and the payment of the amount under the Community Impact Mitigation & Operating Agreement will be full satisfaction of the Township's concerns relating to the WWTP.

11.0 Dispute Resolution

Where a matter in dispute arises under this Agreement, the Chief Administrative Officers shall meet promptly to attempt to resolve the dispute.

Where the Chief Administrative Officers are unable to resolve the dispute, then the matter may, with the concurrence of both the CRD and the Township, be submitted for mediation to a

mediator appointed jointly by the parties.

If the matter cannot be resolved by mediation, or if the parties are unwilling to submit the matter to mediation, then the dispute shall be resolved by arbitration, by an arbitrator appointed jointly by the parties. The decision of the arbitrator shall be final and may include a requirement for specific performance by one or both parties.

The parties shall share the costs of the mediation or arbitration equally.

If the parties are unable to agree on the selection of an arbitrator within thirty (30) days of the later of the meeting of the Chief Administrative Officers, or the failure of the mediation, then either party may, upon giving written notice to the other party, apply to the Ministry of Community, Sport and Cultural Development (or the Ministry then having responsibility for local government affairs) for dispute resolution by way of binding arbitration contemplated by Division 3 of Part 9 of the *Community Charter.*

12.0 General Provisions

(a) No Fettering of Discretion

Nothing in this Agreement shall be considered to fetter any statutory discretion of the Board of the CRD or the Council of the Township nor to impair or waive any power, right or authority of the CRD or the Township under the *Community Charter,* the *Local Government Act* or any other enactment as defined in the *Interpretation Act.*

(b) Modification

No modification or amendment to this Agreement shall be binding unless executed in writing by both parties.

(c) Entire Agreement

This Agreement, along with the **Community Impact Mitigation & Operating Agreement**, constitutes the entire agreement between the parties and supersedes all previous discussions, negotiations, understandings, expectations, agreements of the parties, whether oral or written regarding the subject matter of these Agreements.

(d) No Assignment

This Agreement may not be assigned by either party, without the express written consent of the other party, which consent shall not be unreasonably withheld where the assignment is to another public authority.

(e) Applicable Law

This Agreement is to be construed in accordance with and governed by the laws applicable in the Province of British Columbia and in particular is subject to the jurisdiction of the Minister of Environment under the *Environmental Management Act.*

(f) Notice

It is hereby mutually agreed that any notice required to be given under this Agreement will be deemed to be sufficiently given:

(a) to be delivered at the time of delivery; and

(b) if mailed from any government post office in the Province of British Columbia by prepaid registered mail addressed as follows:

if to the CRD: 625 Fisgard Street
Victoria, B.C.
V8W 1R7

if to the Township: 1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

Unless otherwise specified herein, any notice required to be given under this Agreement by any party will be deemed to have been given if mailed by prepaid registered mail, or sent by facsimile transmission, or delivered to the address of the other party set forth on the first page of this Agreement or at such other address as the other party may from time to time direct in writing, and any such notice will be deemed to have been received if mailed or faxed, 72 hours after the time of mailing or faxing and, if delivered, upon the date of delivery. If normal mail service or facsimile service is interrupted by strike, slow down, force majeure or other cause, then a notice sent by the impaired means of communication will not be deemed to be received until actually received, and the party sending the notice must utilize any other such services which have not been so interrupted or must deliver such notice in order to ensure prompt receipt thereof.

(g) Waiver

The waiver by a party of any failure on the part of the other party to perform in accordance with any of the terms or conditions of this Agreement is not to be construed as a waiver of any future or continuing failure, whether similar or dissimilar.

(h) Severability

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.

(i) Interpretation

Wherever the singular or the masculine is used in this Agreement, this shall be deemed to include the plural, feminine or body politic or corporate as the context so requires.

(j) Counterparts

This Agreement may be executed in counterparts and when the counterparts have been executed by the parties, each originally executed counterpart, whether a facsimile, photocopy or original, will be effective as if one original copy had been executed by the parties to this Agreement.

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the day, month and year first above written.

CAPITAL REGIONAL DISTRICT by its authorized signatories)

_____)
Name:)

_____)
Name:)

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT by its authorized signatories)

_____)
Name:)

_____)
Name:)

Schedule "A"

Addendum to specify Barging in Schedule 5

Section 4.8(a) and 4.8 (b) Schedule 5 (Design and Construction Protocols)

Sections 4.8(a) and 4.8(b) of Schedule 5 (Design and Construction Protocols) are deleted and replaced with the following:

"4.8 **Barging, Access Roads; Laydown and Staging Areas**

(a) **Barging.** Project Co:

(1) will use marine barging for the supply and transportation of materials and waste associated with excavation, backfill and concrete works on the Plant Site (including work associated with the Harbour Crossing and Outfall);

(2) may use the access roads to the Plant Site in connection with the initial mobilization and demobilization of construction equipment associated with excavation, backfill and concrete works on the Plant Site;

(3) may install a temporary concrete batch plant at the Plant Site (or adjacent DND laydown area) provided all concrete materials, including aggregates and cement, are barged to the Plant Site;

(4) will obtain all permits and approvals required for barging and any construction and operation of a temporary concrete batch plant; and

(5) will not undertake any construction, operations or other activities which affect the intertidal zone adjacent to the Plant Site.

(b) **Access Roads.** Without limiting the barging obligations set out in section 4.8(a), Project Co will maintain the access roads to the Project Sites throughout Construction and restore such roads to their pre-existing condition or better following construction of the Facilities and as a condition of Acceptance. Project Co assumes the risk of the sufficiency of the access roads to provide access to the Project Sites for the performance of Construction, including the transportation and delivery of materials and equipment required for the performance of Construction."

Schedule "B"

HEAT LOOP

Appendix "D"

Community Impact Mitigation and Operating Agreement

DRAFT –
For discussion purposes only
Nov 8'13 CS

COMMUNITY IMPACT MITIGATION & OPERATING AGREEMENT

THIS AGREEMENT made this day of , 2013.

BETWEEN:

CAPITAL REGIONAL DISTRICT

625 Fisgard Street
Victoria, B.C.
V8W 1R7

(the "**CRD**")

OF THE FIRST PART

AND:

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT

1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

(the "**Township**")

OF THE SECOND PART

W H E R E A S:

A. The CRD is required under its liquid waste management plan to construct and operate a facility to provide sewage treatment for the residents of the Township and the municipalities of Victoria, Saanich, Oak Bay, Colwood, View Royal and Langford (collectively the "**Core Area**") and the CRD has identified the following lands at McLoughlin Point as the site for the Waste Water Treatment Plant (the "**WWTP**"):

P.I.D. 000-336-491 Lot A, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-505 Lot B, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-513 Lot C, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-521 Lot D, Section 11, Esquimalt District, Plan 35322
P.I.D. 000-336-530 Lot E, Section 11, Esquimalt District, Plan 35322
P.I.D. 029-168-970 Lot 1 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823
P.I.D. 029-168-988 Lot 2 of the Bed of Victoria Harbour, Esquimalt District, Plan VIP87823

(the "**Project Lands**")

B. The Township has raised concerns as host community of the WWTP regarding the impacts on the community of the presence of the WWTP within its boundaries, including, without limitation:

a. demand on municipal services,
b. annual fire and safety inspections,
c. utility inspections,
d. inspections and repairs of road surfaces,
e. response to public inquiries and complaints, including with DND and Victoria residents
f. monitoring of operations and enforcement,
g. additional street cleaning,
h. additional liaison, including with DND;
i. additional wear and tear on recreational facilities, parks and other Esquimalt services;
j. additional economic development, tourism promotion, business recruitment and marketing required to overcome perceived negative influence of regional wastewater facility; ...
k. additional security, policing and enforcement services;
l. for other social, environmental, and economic impacts generally, (collectively the "**Impacts**")

all caused by or contributed to by activity associated with the WWTP construction or operation and/or construction and installation of a district energy heat recovery system (the "**Heat Loop**");

C. The CRD is mindful of those concerns and, in addition to undertaking certain actions under a host community impact agreement dated the __ day of ___, 2013, (the "**Host Community Impact 5-Year Agreement**") has agreed to the payment of an annual amount by way of a community impact mitigation fee and other measures of an operational nature under, and in accordance with, this Agreement;

NOW THEREFORE THIS AGREEMENT WITNESSES that in consideration of the premises and covenants contained in this Agreement and other good and valuable consideration, the CRD and the Township covenant and agree with each other as follows:

PART A – COMMUNITY IMPACT MITIGATION FEE

1.0 Community Impact Mitigation Fee

Subject to section 3 of this Agreement, the CRD shall pay the Township FIFTY-FIVE THOUSAND ($55,000.00) DOLLARS per year as adjusted annually under section 2.0 (the "**Community Impact Fee**") to compensate the Township for the Impacts.

2.0 Change in CPI

From 2015 and for the remainder of the Term, the amount of the fee payable under section 1 of this Agreement shall be changed to reflect the change in the Consumer Price Index for Victoria, British Columbia (all items) (the "CPI") for the previous year. If the change in the CPI is not known at the date of payment under section 4.2, the CRD may pay the amount paid the previous year and shall make any additional payment (or Esquimalt shall pay any refund where CPI has decreased) as required within 30 days of the change in CPI becoming known.

3.0 Exemption to Community Impact Fee

If Esquimalt elects to assume ownership of the Heat Loop referred to in Section 3.0 of the Host Community Impact 5-Year Agreement, the Community Impact Fee will not be payable and the obligations of the CRD to pay the Community Impact Fee under this Agreement shall thereafter be at an end following execution of the Transfer Agreement and upon the actual transfer of the constructed and operational Heat Loop infrastructure to the Township following execution of the Transfer Agreement referred to in section 3.10 of the Host Community Impact 5 Year Agreement. In the event of a transfer of the Heat Loop during a calendar year, the amount of the Community Impact Fee shall be pro-rated to represent that portion of the year prior to the transfer of the Heat Loop to Esquimalt.

4.0 Invoice and Payment of Community Impact Fee

4.1 The Township shall provide to the CRD as of the 31st day of December in each year an invoice for the sum of FIFTY-FIVE THOUSAND ($55,000.00) DOLLARS (as adjusted annually under section 2.0) in relation to the impact on the Township of the WWTP for the previous calendar year.

4.2 The CRD shall cause the amount of the invoice to be paid to the Township on or before January 31 of the following year.

4.3 For greater certainty, the Township is not required to itemize or calculate the Impacts in any given year other than further to Section 2 of this Agreement, and there is no set-off or reduction other than further to Section 3 of this Agreement.

PART B – TERM

5.0 Term of Agreement

5.1 The obligations of the CRD under this Agreement shall be from January 1, 2014 until such time as the WWTP is replaced or decommissioned.

5.2 For greater certainty, the first payment is due by January 30, 2014 in the full amount of FIFTY-FIVE THOUSAND ($55,000.00) DOLLARS.

5.3 If the WWTP is replaced on the Project Lands, the parties shall in good faith negotiate a replacement agreement, and notwithstanding section 5.1, this Agreement shall remain in effect until replaced.

PART C – LIAISON COMMITTEE & OTHER OPERATING MATTERS

6.0 Liaison Committee

6.1 To provide a forum for the discussion of issues relating to construction and operation of the WWTP and other related activities, the CRD shall establish and maintain a liaison committee (the "**Liaison Committee**") to include representatives from the Township, the West Bay Neighbourhood Association, the Lyall Street Neigbourhood Association, Department of

National Defence, CRD and, until acceptance of the WWTP by the CRD, the CRD's WWTP contractor.

6.2 The Liaison Committee will meet within thirty (30) days of the CRD's WWTP Contractor commencing work on site and thereafter at times established in the first meeting, and at least twice annually while the WWTP is in operation.

6.3 At the first meeting of the Liaison Committee, the members shall elect a chair and vice chair.

6.4 The CRD shall not be considered to be in breach of this section if any person invited to participate in the Liaison Committee or to send representatives to the Liaison Committee fails to do so.

7.0 Biosolids Treatment Plant

7.1 The CRD acknowledges and agrees that it will not make use of land situated within the Township for the purpose of a biosolids treatment facility or any other purpose associated with the treatment of biosolids or recovery of energy from biosolids.

7.2 The CRD further agrees to consult with the Township prior to establishing any use of property within the Township.

7.3 For clarity, the Township includes all lands owned by the federal crown including the Graving Dock and lands commonly referred to as the "DND lands" including but not limited to: Work Point, Macaulay Point, Buxton Green, Dockyards, Naden, and Naden North.

8.0 Odour

If the WWTP emits odour in excess of 5 odour control units as measured at the boundary of the Project Lands, the CRD shall expeditiously and in good faith, use best efforts to investigate and remediate the source of the odour in order to reduce the odour to the agreed level.

PART D – DISPUTE RESOLUTION

9.0 Dispute Resolution

9.1 Where a matter in dispute arises under this Agreement, the Chief Administrative Officers shall meet promptly to attempt to resolve the dispute.

9.2 Where the Chief Administrative Officers are unable to resolve the dispute, then the matter may, with the concurrence of both the CRD and the Township, be submitted for mediation to a mediator appointed jointly by the parties.

9.3 If the matter cannot be resolved by mediation, or if the parties are unwilling to submit the matter to mediation, then the dispute shall be resolved by arbitration, by an arbitrator appointed jointly by the parties. The decision of

the arbitrator shall be final and may include a requirement for specific performance of the provisions of this Agreement by one or both parties.

9.4 The parties shall share the costs of the mediation or arbitration equally.

9.5 If the parties are unable to agree on the selection of an arbitrator within thirty (30) days of the later of the meeting of the Chief Administrative Officers, or the failure of the mediation, then either party may, upon giving written notice to the other party, apply to the Ministry of Community, Sport and Cultural Development (or the Ministry then having responsibility for local government affairs) for dispute resolution by way of binding arbitration contemplated by Division 3 of Part 9 of the *Community Charter.*

PART E – GENERAL PROVISIONS

10.0 General Provisions

(a) No Fettering of Discretion

Nothing in this Agreement shall be considered to fetter any statutory discretion of the Board of the CRD or the Council of the Township nor to impair or waive any power, right or authority of the CRD or the Township under the *Community Charter,* the *Local Government Act* or any other enactment as defined in the *Interpretation Act.*

(b) Capital Liabilities

Nothing in this Agreement shall be interpreted as imposing any obligation or liability of a capital nature on the CRD.

(c) Modification

No modification or amendment to this Agreement shall be binding unless executed in writing by both parties.

(d) Entire Agreement

This Agreement, along with the Host Community Impact 5-Year Agreement, constitute the entire agreement between the parties and supersede all previous discussions, negotiations, understandings, expectations, agreements of the parties, whether oral or written regarding the subject matter of these Agreements.

(e) No Assignment

This Agreement may not be assigned by either party, without the express written consent of the other party, which consent shall not be unreasonably withheld where the assignment is to another public authority.

(f) Applicable Law

This Agreement is to be construed in accordance with and governed by the laws

applicable in the Province of British Columbia and in particular is subject to the jurisdiction of the Minister of Environment under the *Environmental Management Act*.

(g) Notice

It is hereby mutually agreed that any notice required to be given under this Agreement will be deemed to be sufficiently given:

(a) to be delivered at the time of delivery; and

(b) if mailed from any government post office in the Province of British Columbia by prepaid registered mail addressed as follows:

if to the CRD: 625 Fisgard Street
Victoria, B.C.
V8W 1R7

if to the Township: 1229 Esquimalt Road
Victoria, B.C.
V9A 3P1

Unless otherwise specified herein, any notice required to be given under this Agreement by any party will be deemed to have been given if mailed by prepaid registered mail, or sent by facsimile transmission, or delivered to the address of the other party set forth on the first page of this Agreement or at such other address as the other party may from time to time direct in writing, and any such notice will be deemed to have been received if mailed or faxed, 72 hours after the time of mailing or faxing and, if delivered, upon the date of delivery. If normal mail service or facsimile service is interrupted by strike, slow down, force majeure or other cause, then a notice sent by the impaired means of communication will not be deemed to be received until actually received, and the party sending the notice must utilize any other such services which have not been so interrupted or must deliver such notice in order to ensure prompt receipt thereof.

(h) Waiver

The waiver by a party of any failure on the part of the other party to perform in accordance with any of the terms or conditions of this Agreement is not to be construed as a waiver of any future or continuing failure, whether similar or dissimilar.

(i) Severability

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.

(j) Interpretation

Wherever the singular or the masculine is used in this Agreement, this shall be deemed to include the plural, feminine or body politic or corporate as the context so requires.

(k) Counterparts

This Agreement may be executed in counterparts and when the counterparts have been executed by the parties, each originally executed counterpart, whether a facsimile,

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the day, month and year first above written.

CAPITAL REGIONAL DISTRICT by its authorized signatories)

_____)
Name:)

_____)
Name:)

THE CORPORATION OF THE TOWNSHIP OF ESQUIMALT by its authorized signatories)

_____)
Name:)

_____)
Name:

Appendix "E:

AECOM Tsunami Modelling Study 15 April 2013

Water AECOM

Capital Regional District

Modelling of Potential Tsunami Inundation Limits and Run-Up

Prepared by:

AECOM
200 – 415 Gorge Road East 250 475 6355 tel
Victoria, BC, Canada V8T 2W1 250 475 6388 fax
www.aecom.com

Project Number: 60242933 Task ID #400.1

Date:
15 April, 2013

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("Consultant") for the benefit of the client ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to Consultant which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

Consultant shall be entitled to rely upon the accuracy and completeness of information that was provided to it and has no obligation to update such information. Consultant accepts no responsibility for any events or circumstances that may have occurred since the date on which the Report was prepared and, in the case of subsurface, environmental or geotechnical conditions, is not responsible for any variability in such conditions, geographically or over time.

Consultant agrees that the Report represents its professional judgement as described above and that the Information has been prepared for the specific purpose and use described in the Report and the Agreement, but Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof.

Without in any way limiting the generality of the foregoing, any estimates or opinions regarding probable construction costs or construction schedule provided by Consultant represent Consultant's professional judgement in light of its experience and the knowledge and information available to it at the time of preparation. Since Consultant has no control over market or economic conditions, prices for construction labour, equipment or materials or bidding procedures, Consultant, its directors, officers and employees are not able to, nor do they, make any representations, warranties or guarantees whatsoever, whether express or implied, with respect to such estimates or opinions, or their variance from actual construction costs or schedules, and accept no responsibility for any loss or damage arising therefrom or in any way related thereto. Persons relying on such estimates or opinions do so at their own risk.

Except (1) as agreed to in writing by Consultant and Client; (2) as required by-law; or (3) to the extent used by governmental reviewing agencies for the purpose of obtaining permits or approvals, the Report and the Information may be used and relied upon only by Client.

Consultant accepts no responsibility, and denies any liability whatsoever, to parties other than Client who may obtain access to the Report or the Information for any injury, loss or damage suffered by such parties arising from their use of, reliance upon, or decisions or actions based on the Report or any of the Information ("improper use of the Report"), except to the extent those parties have obtained the prior written consent of Consultant to use and rely upon the Report and the Information. Any injury, loss or damages arising from improper use of the Report shall be borne by the party making such use.

AECOM
200 – 415 Gorge Road East
Victoria, BC, Canada V8T 2W1
www.aecom.com

250 475 6355 tel
250 475 6388 fax

15 April, 2013

Project No: 60242933 Task ID #400.1

Travis Whiting
CRD Protective Services
Capital Regional District
625 Fisgard Street
Victoria, BC V8W 1R7

Dear Mr. Whiting:

Re: Modelling of Potential Tsunami Inundation Limits and Run-Up

AECOM Canada Ltd. (AECOM) is pleased to submit this FINAL report, "Modelling of Potential Tsunami Inundation Limits and Run-Up", summarizing the work performed, tsunami modelling results, and suggested next steps related to use of the information and emergency planning.

As you are aware, this project has been a collaboration between AECOM and Applied Research International (ARILLC), a sole proprietorship firm of Dr. K.F. Cheung, a professor of Ocean Engineering at University of Hawaii. ARILLC's involvement in this project has been a key to the tsunami modelling and the successful completion of the work.

This has been a very interesting, yet complex, project and we are confident that the CRD will find the project deliverables of significant value.

Sincerely,
AECOM Canada Ltd.

Mike Brady, P.Eng.
Manager, Victoria Office
mike.brady@aecom.com

MB/bl

Encl.

Distribution List

# of Hard Copies	PDF Required	Association / Company Name
	1	Travis Whiting, Capital Regional District, CRD Protective Services

Revision Log

Revision #	Revised By	Date	Issue / Revision Description

AECOM Signatures

Report Prepared By:

M. Brady, P.Eng. (BC)
Manager, Victoria Office

Report Reviewed By:

K. Coulton, P.E. (Ore)

Executive Summary

This report, "Modelling of Potential Tsunami Inundation Limits and Run-Up" summarizes the work performed and the results of modelling the tsunami impacts along the entire coastline within the Capital Regional District (CRD) that would result from a possible, predicted Cascadia Subduction Zone (CSZ) earthquake occurring off the west coast of Vancouver Island. Cascadia Subduction Zone earthquakes have occurred, on average, every 500 years and the most recent 1-in-500-year earthquake for this zone is thought to have occurred in the year 1700.

The US National Seismic Hazard Maps shows 12 possible combinations of earthquake magnitudes and rupture configuration scenarios that would each represent a 1-in-500-year earthquake. Amongst these, the combination having the highest joint probability, which comprises a magnitude Mw 9.0 and global analog (GA) rupture scenario, was selected as the event to be analyzed.

The model used to analyze the tsunami wave generation and their impacts when reaching land was NEOWAVE. It is a model developed by researchers at the University of Hawaii and University of Alaska led by Dr. Kwok Fai Cheung, who was the lead modeller for this project. In 2009, NEOWAVE competed and won against seven other tsunami numerical models and it has been validated against data obtained from a number of recent tsunami events, including the 2011 Tohoku tsunami in Japan. It is the official model for tsunami inundation mapping in Hawaii, American Samoa, the US Gulf of Mexico coastal states and Puerto Rico.

In order to perform the tsunami modelling, a complete and seamless digital elevation model (DEM) containing both topographic (land) and bathymetric (sea-floor) information was first required. To accurately model the propagation of the tsunami through the Strait of Juan de Fuca the area to be covered included shoreline areas of the entire CRD and, within the USA, the Olympic Peninsula, San Juan Islands and portions of Puget Sound. This whole process required the compilation of data from multiple original sources (sometimes overlapping), having varying accuracies and reliabilities that needed to be resolved. Some of the challenges encountered and overcome included differences in both coordinates and elevations used in Canada and USA; use of differing elevation datums within the various sources; overlapping data providing differing elevations; and shoreline discontinuities, all of which could have had a significant impact on the modelling results.

The NEOWAVE model was applied to the DEM in a series of nested grids, with increasing accuracy applied to smaller grid areas as follows:

- The complete CRD was modelled at a 90-m grid size
- Esquimalt Harbour, including the area from Albert Head to Clover Point was further modelled at an 18-m grid size; and
- Victoria Harbour including Inner Harbour, Upper Harbour and Selkirk Waterway was then further modelled at a 9-m grid size.

The models were run using the Higher High Water Mean Tide (HHWMT) at Victoria as the base water level, which is approximately 0.732 m above Mean Water Level (MWL). Modelling results are presented in a series of colour-scaled figures or maps showing:

- Maximum water level – this includes, and is not additive to, the HHWMT (i.e. this is not the wave height, which is smaller)
- Maximum Drawdown of Water - this value is relative to the base water level (HHWMT)
- Maximum water flow speed – similar to the water current
- Tsunami Arrival Time – time to first positive wave
- Time to Maximum Water Level – time that water reaches its maximum (impacted by resonating wave effects)

Table ES-1 provides a summary of these values for several selected locations within the CRD. The values in the tables have been inferred from Figures 5.1 through 5.5 – the reader is encouraged to refer to the figures for these and any other specific values.

Table ES1 – Summary of Tsunami Model Results at Selected Locations

Location	Maximum Water Level (m)	Maximum Drawdown of Water (m)	Maximum Water Flow Speed (m/s)	Tsunami Arrival Time (min)	Time to Maximum Water Level (min)
Port San Juan (entrance near Port Renfrew)	3.5	-1.0	0.7	35	50
Sooke Harbour (entrance)	2.5	-0.2	0.6	60	75
Esquimalt Harbour (entrance)	2.7	-1.2	2.0	77	96
Victoria Harbour (entrance)	2.5	-1.05	1.0	76	95
Cadboro Bay	2.0	-0.2	0.8	90	160
Sidney	2.0	-0.2	0.6	110	150

As can be seen from the figures in the report, for much of Greater Victoria, the maximum water level is predicted to be less than 3.5 m and the maximum flow speed is predicted to be in the order of 1 m/s, excluding areas with narrows or waterway constrictions. To provide a comparative reference, the 2011 Tohoku tsunami resulted in a maximum water level of 40 m (recorded at a cliff on the Iwate coast) and a maximum water flow speed of approximately 12 m/s (inferred from video images taken in Myagi).

Based upon the modelling results, a Tsunami Hazard Line has been prepared for all coastline areas within the CRD. The Tsunami Hazard Line has been developed based upon the model-predicted Maximum Water Level, with consideration for earthquake-induced land subsidence and a Factor for Public Safety, as follows:

- Maximum water level, plus
- Land subsidence (since lowering of the ground surface effectively adds to the water level), plus
- An allowance of 50% added to the total of maximum water level and subsidence.

The 50% allowance has been included as a Factor for Public Safety to account for a) uncertainty related to the magnitude of the earthquake event that occurs; b) possible variations in the initial tide condition; and c) variability of the available topographic information.

The resulting Tsunami Hazard Line has been created as a layer to be added to CRD's GIS mapping.

To further benefit from the model developed and its results, a series of potential next steps has been suggested. These include:

- Using the results and Tsunami Hazard Line for other emergency considerations, including:
  - Evacuation planning
  - Emergency response planning
  - Infrastructure design
  - Transportation planning

List of Acronyms

ARILLC	Applied Research International
BT	Base Transition
CD	Chart Datum
CGVD28	Canadian Geodetic Vertical Datum of 1928
CRD	Capital Regional District
CSZ	Cascadia Subduction Zone
CVN	US Nuclear Aircraft Carrier
DEM	Digital Elevation Model
ETOPO1	1 Arc-Minute Global Relief Model
GA	Global Analogs
GIS	Geographic Information System
HHWLT	Higher High Water Large Tide
HHWMT	Higher High Water Mean Tide (MMHW in USA)
ISEC	Inundation Science and Engineering Cooperative
LG EPAC	Local Government Emergency Program Advisory Commission
LiDAR	Light Detection And Ranging
LLWLT	Lower Low Water, Large Tide (MLLW in the USA)
LZ	Locked Zone
MHHW	Mean Highest High Water (HHWLT in Canada)
MLLW	Mean Lower Low Water (USA - LLWMT in Canada)
MSL	Mean Sea Level (USA - MWL in Canada)
MT	Midpoint Transition
MWL	Mean Water Level (MSL in the USA)
NAVD29	North American Vertical Datum 1929
NAVD88	North American Vertical Datum 1988
NAVFAC	Naval Facilities Engineering Command
NEOWAVE	Non-hydrostatic Evolution of Ocean WAVE
NOAA	National Oceanic and Atmospheric Administration
NRC	National Research Council
NTHMP	National Tsunami Hazard Mitigation Program
ODOT	Oregon Department of Transportation
TIN	Triangulated Irregular Network
UNESCO	United Nations Educational, Scientific and Cultural Organization
USGS	United States Geological Survey
UTM	Universal Transverse Mercator (Coordinate System)

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1. Background

The Capital Regional District (CRD) is located on the southern tip of Vancouver Island adjacent to the Cascadia Subduction Zone (CSZ) that runs from the coast of Northern California to Northern Vancouver Island and separates the Juan de Fuca and North America plates. This zone can produce very large earthquakes with magnitudes of 9.0 or greater which are known as Great Subduction Zone Earthquakes. This type of earthquake poses the largest tsunami threat to the area, and several studies and models have been completed in other areas adjacent to this zone using 9.0 magnitude CSZ earthquake scenarios. The importance of the 9.0 magnitude event was recognized at the project outset and identified as a requirement in the CRD's Request for Proposals.

Data from various studies shows a recurrence interval for great earthquakes of between 300 and 700 years with an average return period of 500 years. The last great rupture in 1700 generated a destructive tsunami reaching as far as Japan and reportedly produced extensive geological evidence on the west coast of North America. Despite the uncertainty associated with seismic activities, paleoseismic studies of tsunami deposits, tree rings, and coastal subsidence have established that at least seven great earthquakes might have occurred in the Cascadia Subduction Zone during the last 3500 years .

Many residents of the Capital Region live in coastal areas, and the region is also home to many parks and beaches that receive intensive recreational use from both residents and tourists. The combination of the high tsunami hazard, coastal habitation, and intensive recreational use creates the potential for very high tsunami hazard risk levels in the coastal regions in the Capital Region.

Previously the CRD had prepared simple mapping for a selected few areas within the region, including Greater Victoria, Saanich Peninsula and Port Renfrew/San Juan River estuary, which were considered to be at higher risk. However, these maps were based upon a single elevation for each area (4 m for Greater Victoria and Saanich Peninsula, and 20 m for Port Renfrew), and, in order to more properly help mitigate risk the CRD wanted tsunami mapping developed that would be based upon a more detailed, scientific approach and would specify potential tsunami inundation limits and run-up elevations. These could then be used for determining evacuation zones and for other emergency planning purposes.

Numerical modelling can provide an effective means to assess the impact of a great Cascadia tsunami for hazard mitigation and emergency planning. This report describes:

- selection of a 500-year earthquake scenario,
- numerical model used,
- development of digital elevation model (DEM) covering CRD,
- computed flow conditions along the CRD coasts,
- development of a continuous Tsunami Hazard Line, and
- other outputs and considerations for emergency planning and management.

2. Selection of 500-Year Earthquake Scenario

The Cascadia subduction zone extends 1100 km from Cape Mendocino in northern California to Vancouver Island in British Columbia. The US National Seismic Hazard Maps includes four rupture configurations at moment magnitude Mw 8.8, 9.0, and 9.2, each with a return period of 500 years.

Table 2.1 provides the joint probability distribution of the rupture configuration and magnitude in the event of a 500-year earthquake. Each configuration includes the entire locked zone (LZ), but may extend to the midpoint (MT) or the base (BT) of a plastic transition zone. In addition, global analogs (GA) of shallow-dipping subduction zones place the eastern boundary of the rupture at 123.8°W (near the Pacific coastline of Washington and Oregon states) around a depth of 30 km below the earth surface.

In all four configurations, the slip follows a uniform distribution in the locked zone and decreases linearly to zero across the respective transition zone (if present).

Table 2.1 – Relative Probability of Rupture Scenarios for a 500-Year Earthquake (from 2008 US National Seismic Hazard Maps)

Rupture	Moment Magnitude Mw			Total
	8.8	9.0	9.2	
LZ	0.02	0.06	0.02	0.10
MT	0.04	0.12	0.04	0.20
BT	0.04	0.12	0.04	0.20
GA	0.10	0.30	0.10	0.50
Total	0.20	0.60	0.20	1.00

The logic tree in the Pacific Northwest seismic source model assigns the highest occurrence probability of 0.5 to the GA rupture configurations and a total probability of 0.6 to the magnitude of Mw 9.0. In addition, the GA rupture at Mw 9.0 has the highest occurrence probability of 0.3 among the 12 scenarios for tsunami modelling, thus representing the most likely magnitude and rupture for a 500-year earthquake. This then represents the rupture scenario selected for tsunami modelling.

Figure 2.1 shows the slip distribution over the rupture area and the vertical displacement of the earth surface. The rupture is modelled by 550 planar faults and the slip distribution is computed from the seismic moment using 3×10^{11} dyne/cm^2 for the rigidity. The 15.4 m slip in the locked zone is equivalent to 428 years of strain at the current subduction rate of 36 mm/year and is representative of a great Cascadia earthquake that might occur within the next 100 years.

Superposition of the planar fault solution provides the earth surface deformation. The rupture produces 6.2 m of uplift along the trench and up to 1.5 m of subsidence (sinking of land level) on the western side of Vancouver Island. **Figure 2.2** provides a close-up view of the earth surface deformation around Vancouver Island. The subsidence decreases from approximately 1 m at Port Renfrew to 0.2 m at Victoria. When considering tsunami impacts on ocean water level, subsidence of the land effectively acts to raise the water level due to tsunamis; that is, subsided lands will be more at risk to tsunami inundation than prior to the earthquake and land subsidence.

Judging from the uplift and subsidence, the tsunami modelled from the selected earthquake should cover the lower 50th percentile (half) of the 12 rupture scenarios in terms of the potential tsunami impact. It also produces the best agreement with the extent of 3,500 years of paleotsunami deposits in Siletz Bay, Oregon (Cheung et al., 2011).

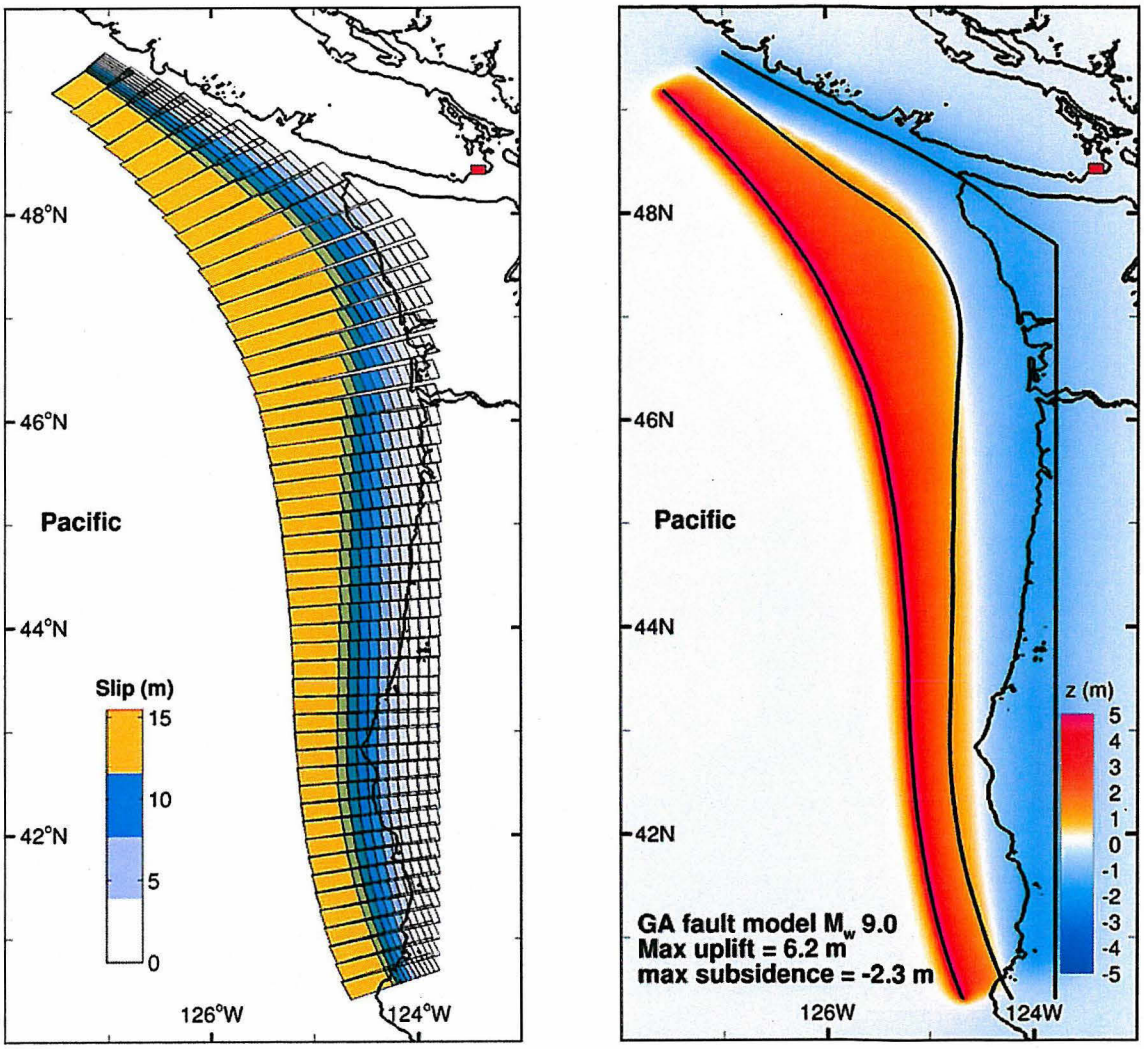

Figure 2.1 – Slip Distribution at the Rupture Plane and Vertical Displacement of the Earth Surface

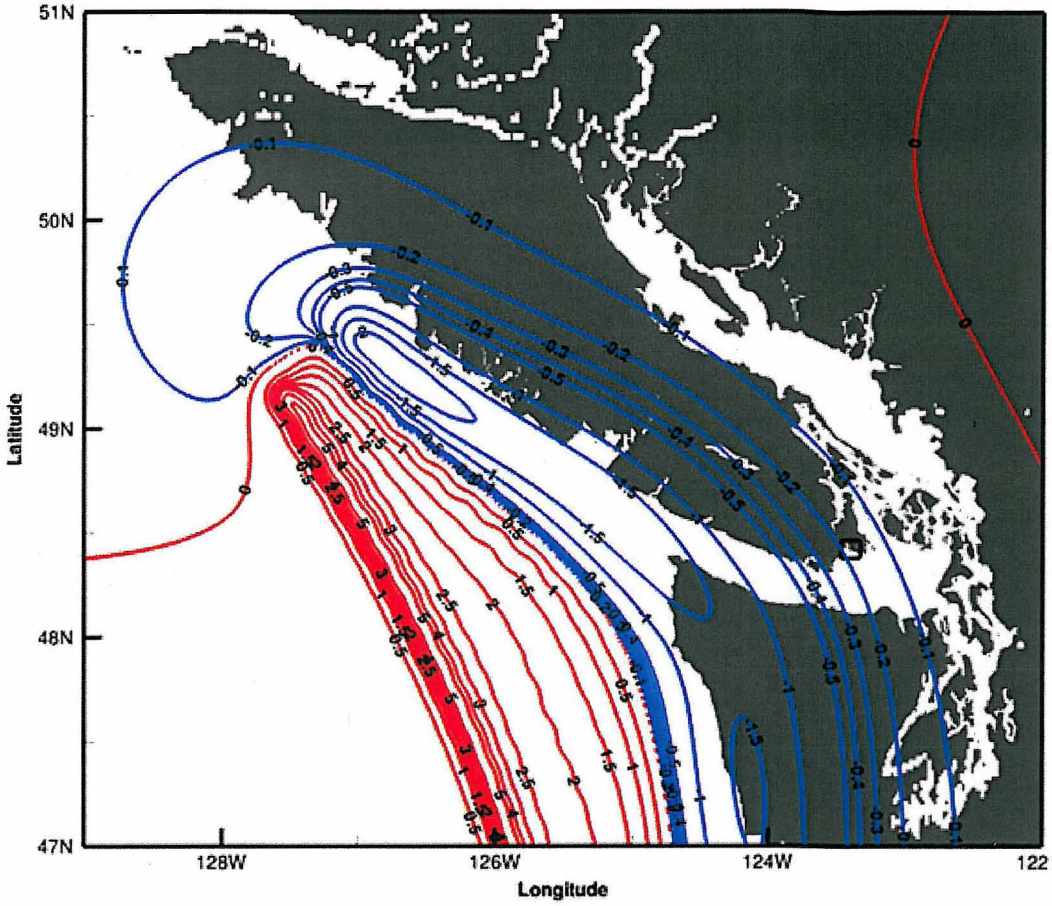

Figure 2.2 – Uplift and Subsidence in metres - near Vancouver Island

For comparison, it should be noted that Cherniawsky et al (2007) utilized a rupture scenario similar to BT to investigate impacts of tsunami waves and currents on southern Vancouver Island coasts. They considered 19 m of slip in the locked zone for a 520-year earthquake and admitted their value represents an overestimate for an event that might possibly occur in the immediate future.

3. Tsunami Model

The model selected and used for the tsunami inundation mapping of the Capital Region District is NEOWAVE (Non-hydrostatic Evolution of Ocean WAVE). This is a depth integrated model for wave propagation, transformation, breaking and run-up developed by researchers at University of Hawaii and University of Alaska led by Dr. Cheung, who was the lead modeller for this project.

NEOWAVE was entered in the 2009 Benchmark Challenge at the Inundation Science and Engineering Cooperative (ISEC) community workshop sponsored by National Science Foundation. This is the premier workshop in the tsunami inundation modelling community that was held only four times since 1990. NEOWAVE correctly reproduced the energetic breaking waves and hydraulic processes over a complex reef system in the Tsunami Wave Basin at Oregon State University and won the competition from the seven numerical models developed in the U.S. and Europe, including: GeoCLAW, Bouss2d, Delft3d, MOST, FUNWAVE, and SELFE.

NEOWAVE has been validated against the benchmarks put forth by the National Tsunami Hazard Mitigation Program (NTHMP) and is approved by NOAA for use in tsunami flood hazard mapping for evacuation and planning purposes. It also has been validated against water level and/or run-up data from recent tsunamis generated by the 2009 Samoa Earthquake, the 2010 Mentawai Earthquake, the 2010 Chile Tsunami, and the 2011 Tohoku Tsunami with a wide range of magnitudes from Mw 7.8 to 9.0.

Oregon Department of Transportation (ODOT) used NEOWAVE for modelling of 500-year tsunami for probabilistic design of coastal infrastructure in the Pacific Northwest. This study involved investigating tsunami design criteria for four bridges at Siletz Bay, Oregon by utilizing 12 scenarios of the 500 year Cascadia earthquake in the Pacific Northwest seismic source model of the National Seismic Hazard Maps. The model utilized four levels of two way grids with varying resolution to capture bathymetric features of a scale appropriate to the physical processes.

NEOWAVE has provided engineering design criteria for CVN (Aircraft Carrier) berthing facilities at Apra Harbor, Naval Facilities Engineering Command (NAVFAC) Guam. It is the official model for tsunami inundation mapping in Hawaii, American Samoa, the US Gulf coast states, and Puerto Rico. In addition, the UNESCO Inter-government Oceanographic Commission has distributed NEOWAVE to Chile, Peru, Eduardo, Colombia, and Nicaragua for development of tsunami warning guidance and inundation maps.

4. Development of Digital Elevation Model (DEM)

The NTHMP guidelines call for a grid size of 90 m or smaller for inundation mapping. The modelling for this project was performed using five levels of two-way nested grids as follows:

- Level 1 – northeastern Pacific Ocean using 1800 m grid size,
- Level 2 – Juan de Fuca Strait to the continental margin using 450 m grid size,
- Level 3 – entire CRD using 90 m grid size,
- Level 4 – Esquimalt Harbour, including Victoria Harbour, using 18 m grid size,
- Level 5 – Victoria Harbour, using 9 m grid size.

The decreasing grid size and area covered reflects an increasing level of detail to be applied to the analysis and results, which at the Level 3, 4, and 5 grids includes computation of inundation and wave run-up on initially dry land.

Modelling of tsunami propagation and inundation requires accurate bathymetry across the ocean and high-resolution topography near the coast. Due to there being several sources of information with varying degrees of accuracy, this was not completely the case for the CRD tsunami model.

AECOM used topographic and bathymetric data provided by the CRD and public sources to develop a seamless topographic-bathymetric (topo-bathy) Digital Elevation Model (DEM). The DEM forms a single surface that extends from open water up to a specified interior land surface elevation; an interior contour elevation of 10 m CGVD28 was used as the upland cutoff.

4.1 Approach

Six important steps in the development of the seamless topo-bathy DEM included:

1. Obtain and review data,
2. Establish a uniform horizontal and vertical reference frame (datum) for all of the various data sets by applying an appropriate datum conversion technique,
3. Prioritize and integrate (e.g., merge) the various data sets together into a single seamless surface,
4. Delineate a zero metre contour shoreline,
5. Build a TIN surface and sample the various model DEM grids from that surface,
6. Provide a bare-earth surface.

Each of these steps, along with challenges and hurdles, is described briefly in the following paragraphs.

4.2 Available Data

Data were obtained from many sources and adjustments were made to prepare the data for use. The following summarizes the data, sources, and adjustments, with the colour references indicating the spatial extent of the different datasets as shown in **Figure 4.1**.

1. CRD LiDAR (light green with outline) – AECOM received 483 text files containing LiDAR data (XYZ format); however, no metadata (e.g., data accuracy, projections, acquisition dates, 1 & 2 classifications) were available and without attribute field matching names on LiDAR files, a conversion had to be run to develop an index file.
2. CRD Mass Points and breaklines (red) – AECOM converted these data from a geodatabase format to a 3D shapefile; issues were discovered with some breaklines that were fixed.
3. Canadian NRC DEM (Canadian land area)(orange) – AECOM converted these data from 2D shapefiles to 3D shapefiles; a bounding polygon for these data was not provided and had to be created.
4. USGS DEM (US land area)(grey hillshade) – AECOM obtained these data from public sources; however, the data had to be reprojected from geographic to UTM coordinates and a bounding polygon had to be created for these data also.
5. CRD Victoria Bathymetric Data (light blue) –this information was obtained by CRD from the National Resources Canada, Canadian Hydrographic Service, Pacific Region; AECOM transferred into UTM coordinates and elevations were available as Chart Datum referenced to Victoria Harbour.
6. NOAA Coastal Relief Bathymetry Data (dark blue) – available as UTM coordinates but vertical datum did not match with Canadian sources and there is no direct transformation from US to Canadian elevations (see discussion that follows).

Several challenges were presented for the direct use of these data including:

- inconsistent vertical and horizontal datums,
- lack of bare-earth topography in LIDAR data,
- terrestrial and bathymetric data discontinuities, and,
- discontinuous zero metre shoreline delineation.

These challenges and resolutions are described in the following sections.

4.3 Establishing Vertical and Horizontal Datums

The methodologies selected for creating the seamless topo-bathy DEM required a uniform vertical and horizontal datum to integrate the various datasets into a single seamless surface. AECOM confirmed with the CRD that the vertical datum and units of the CRD data provided are in CGVD 28 (Canadian Geodetic Vertical Datum of 1928) and in metres, and that the horizontal datum and units of the CRD data provided are in UTM Zone 10N and that units are in metres.

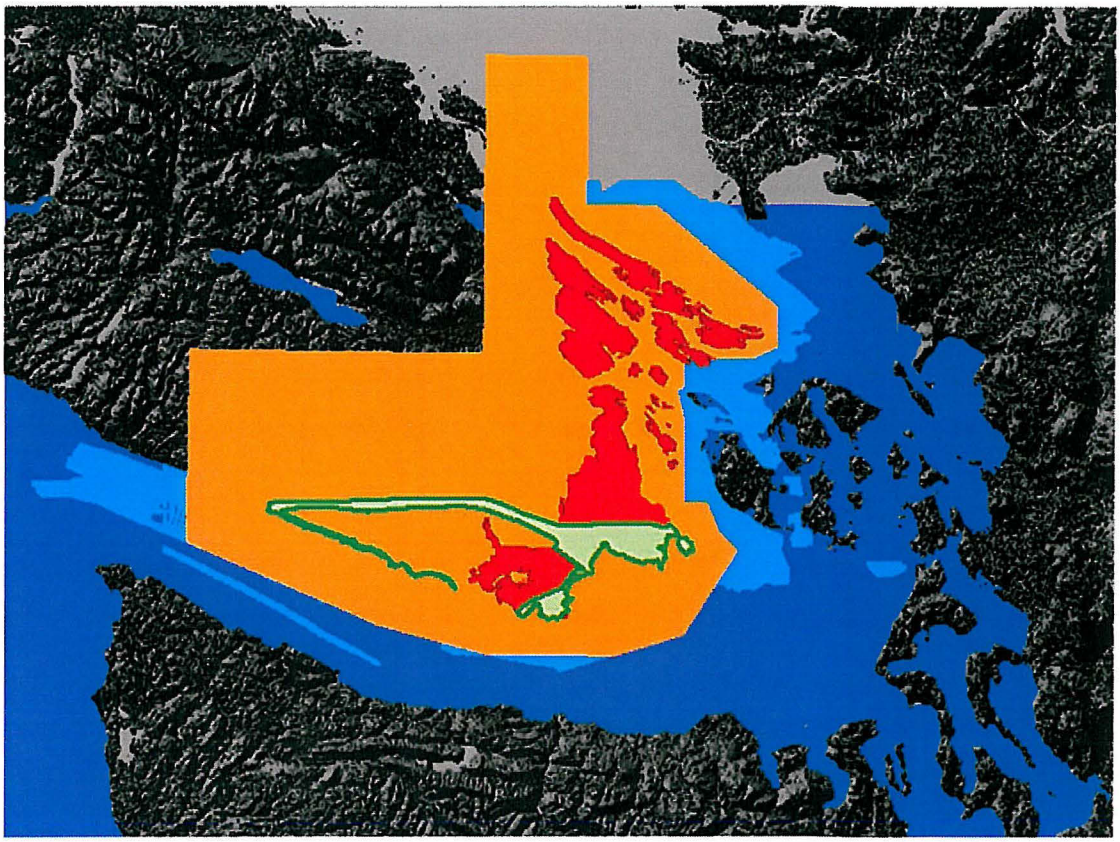

Figure 4.1 – Datasets Used in the Development of the DEM

4.3.1 U.S and Canadian Vertical Datums

Literature searches and discussions with U.S and Canadian government staff indicated merged U.S and Canadian topo-bathy datasets have been compiled only down to a 6 arcsecond level of resolution; however, this project required a 3 arcsecond (90 m) dataset. Therefore, finer resolution datasets were joined together, but vertical datum differences were observed between U.S and Canadian data. **Figure 4.2** shows a section across the Strait of Juan de Fuca and a sampling of U.S (blue) and Canadian (red) bathymetric data points within the red circle are shown in the bottom portion of the figure.

Inquiries with NOAA on 06/11/12 indicated, "there is no direct transformation from CGVD 28 to NAVD 88. In general CGVD 28 is considered about the same as NGVD 29...". Therefore AECOM used the NOAA VERTCON tool (National Geodetic Survey, 2013) to estimate that NAVD88 elevations are approximately 1.09 m higher than NGVD29, and by association CGVD28. We also observed that the U.S. data are not always consistently higher in elevation than the Canadian data. However, this difference in bathymetric elevations was deemed insignificant for offshore tsunami wave modelling in strait with 90 m grid and depths greater than 100 m, and the values were used as presented.

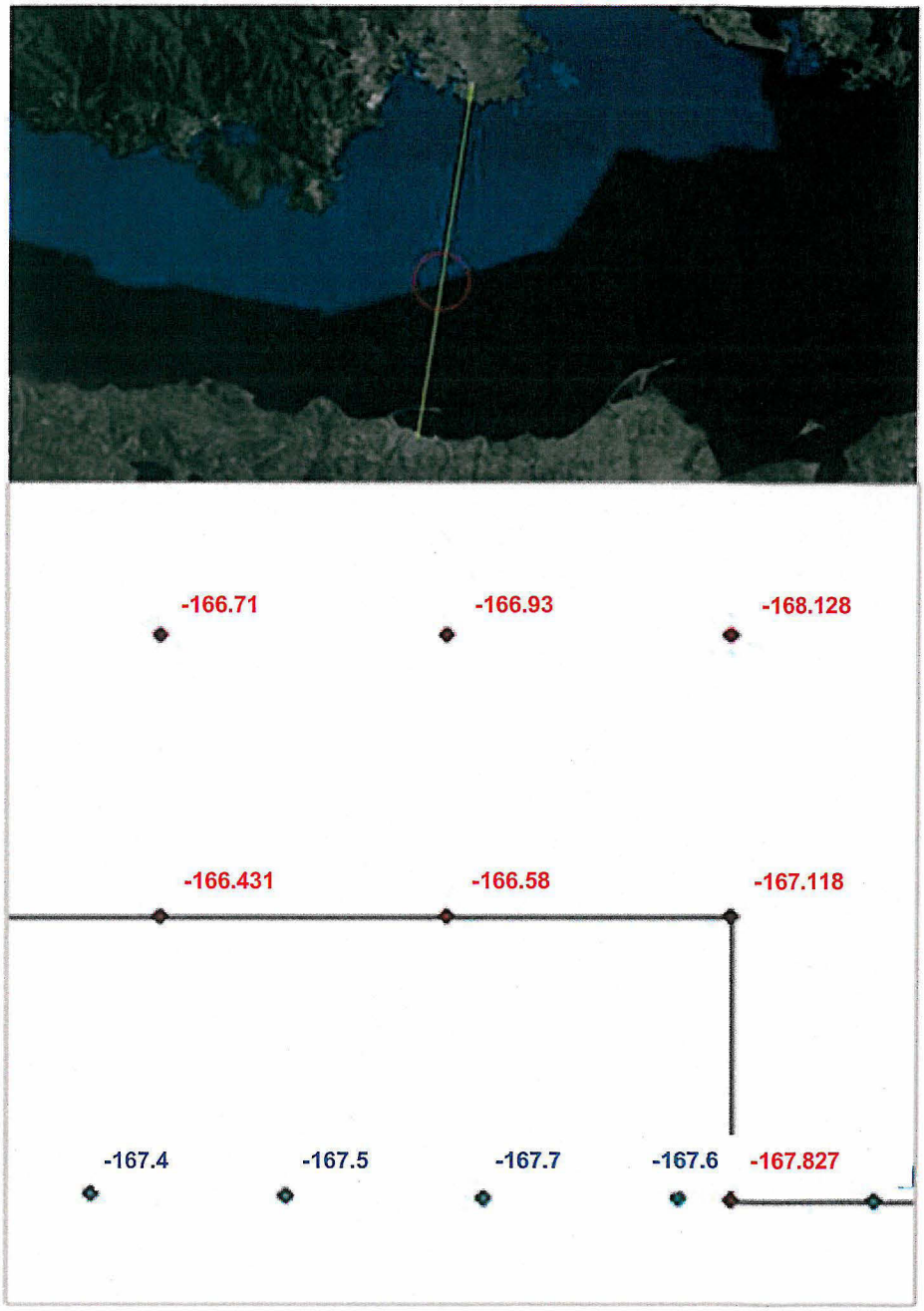

Figure 4.2 – US and Canadian Bathymetric Data

4.3.2 Local Tidal Datums

Modelling of tsunami propagation and inundation requires accurate bathymetry across the ocean and high-resolution topography near the coast. The source data includes the ETOPO1 Global Relief Model and Coastal Relief Model at 1 arcmin and 3 arcsec (~1800 and ~90 m) resolution obtained from the US National Geophysical Data Center. AECOM also prepared elevation datasets of the Juan de Fuca Strait, the Greater Victoria area, and Victoria Harbour at 50, 18, and 9 m resolution.

While the Global and Coastal Relief Models reference the mean sea level, the AECOM datasets use the chart datum (CD) in Canadian waters that were adjusted in the development of the digital elevation model. **Table 4.1** summarizes the benchmark elevation and water levels at Victoria Harbour from the Canadian Hydrographic Services. Contrary to U.S. practice, the water levels in Canada are derived from 19 years of predicted tides. The present sea levels are based on the 2010-2027 epoch.

The Canadian Chart Datum (CD) target is the Lower Low Water, Large Tide (LLWLT) as opposed to the Mean Lower Low Water (MLLW) used in the US. The AECOM datasets are adjusted uniformly to reference the Mean Water Level (MWL) at Victoria Harbour. This provides a reasonable approximation of the water level along the CRD coasts. However, due to variations in chart datums, the adjustment might not produce representative results for outlying areas such as the San Juan Islands and U.S. land areas in Puget Sound.

Table 4.1 - Benchmark Elevation and Water Levels at Victoria Harbour, British Columbia.

Reference	Elev (m) Referenced to Chart Datum	Elev (m) Referenced to Geodetic Datum
Benchmark 87C9766	7.282	5.401
HHWLT (average of annual highest tides)	3.124	1.243
HHWMT (MHHW in US)	2.613	0.732
CGVD28	1.966	0.085
MWL (MSL in US)	1.881	0.000
LLWMT (MLLW in US)	0.769	-1.112
CD	0.000	-1.881
LLWLT (average of annual lowest tides)	-0.083	-1.964

Bathymetry is usually referenced to the CD, while topography is referenced to the MWL or geodetic datum; however, the MWL and geodetic datum are practically the same at Victoria (difference is 0.085 m or 8.5 cm). Since the CRD LiDAR elevations are based on the CD, land elevations were reduced by 1.881 m to align with MWL in the vicinity of Victoria Harbour.

This resulted in a potential downward offset of 1.881 m in the land elevations in the Level 3, 90 m grid areas, depending upon the source of original data. This was considered reasonable for general hazard assessment since it was expected that this offset would not noticeably change tsunami wave heights and, ultimately, maximum water levels. The lack of a significant variation in predicted maximum water levels was confirmed by performing the tsunami modelling using both datums. It is the maximum water level that is later used to derive the Tsunami Hazard Line, which is entirely referenced to the geodetic datum.

4.3.3 Terrestrial and Bathymetric Data Discontinuities

As the datasets were converted to a common vertical and horizontal datum, it was observed that the CRD terrestrial LiDAR data overlapped with the Canadian NRC DEM bathymetric data. As a result, LiDAR data created an unnatural "shelf" **(Figure 4.3)** because the water surface at the time of flight was captured in the LIDAR data, showing a "flat" surface at approximately 2 m elevation for all ocean areas. Because the LiDAR was considered to be most accurate and therefore assigned a higher priority in terms of which data could be relied upon at which locations, the unnatural flat surface or shelf resulted in erroneous data that would significantly impact the shoreline effects of the tsunami model. To correct this a zero metre elevation shoreline was used to trim the LiDAR terrain data back and allow the merged bathymetric data to take priority in those areas, as approximated by the red dashed line in **Figure 4.3**.

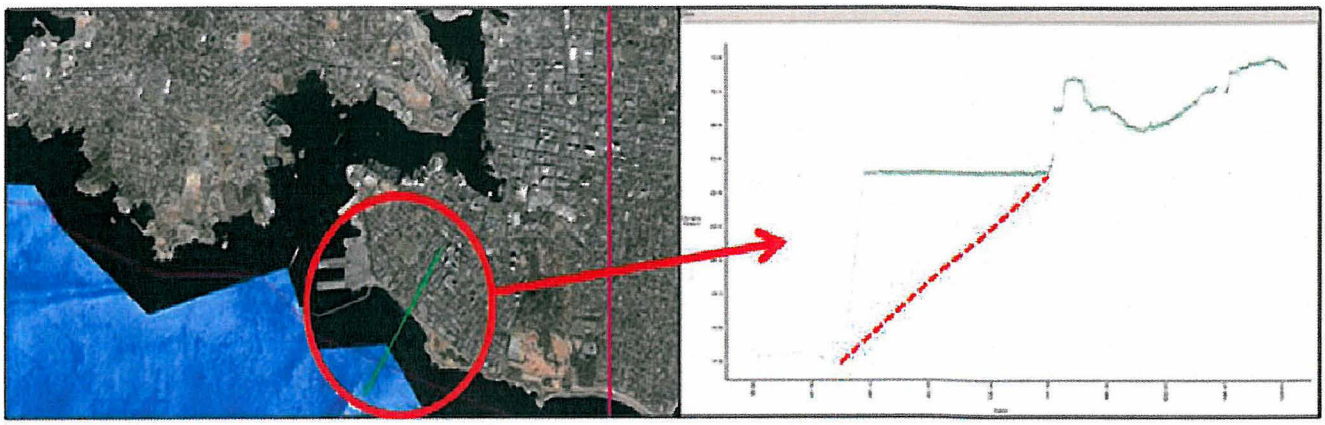

Figure 4.3 – Example of Topo-Bathy Data Overlap Challenges

4.4 Data Integration

Integrating all of the various survey data was a significant and major step in developing the seamless topo-bathy DEM. Data integration consisted of combining or merging data sets into a single, continuous surface. **Figure 4.1** shown earlier, shows how the various datasets were merged with the prioritized data on top of other data; the following data were used in prioritized order:

1. CRD LiDAR – Light Green with Outline
2. CRD Mass Points and breaklines – Red
3. Canadian NRC DEM (Canadian SIDE) – Orange
4. CRD Victoria Bathymetric Data –Light Blue
5. NOAA Coastal Relief Bathymetric Data – Dark Blue

4.5 Shoreline Delineation

As noted, the delineation of a shoreline, defined as the zero metre contour, was intended to be used to clip back the LiDAR data to prevent the erroneous points reflected back from the water surface from being used in the final DEM. However, on the zero metre contour made available to AECOM as a shapefile from the CRD, the shoreline was discontinuous along the coast **(Figure 4.4- left)** and some islands were not included in the zero metre contour **(Figure 4.4 - right)**.

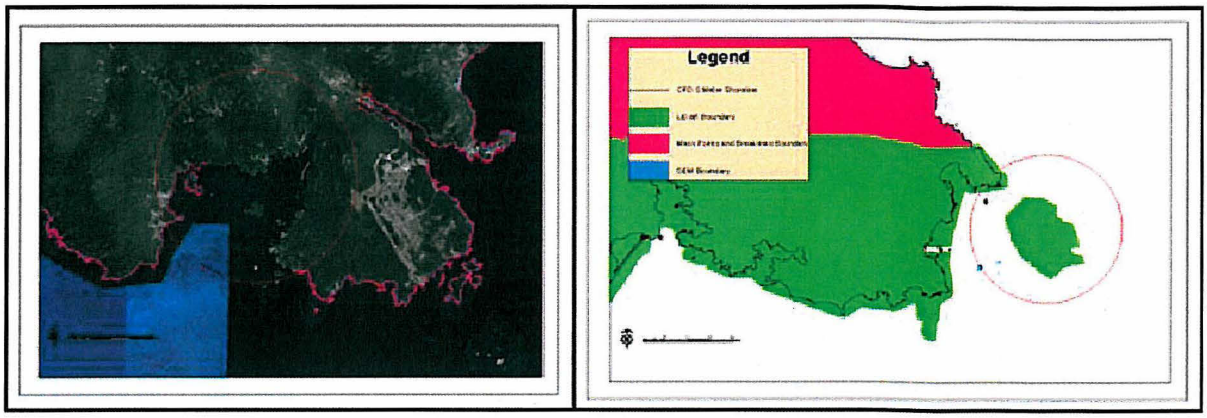

Figure 4.4 – Shoreline Challenges including Discontinuities (left) and Missing Islands (right)

At the request of the CRD, AECOM completed the process of establishing the zero metre contour in the areas with LiDAR, including:

- closing all gaps in the CRD coastline;
- adding the river at Port Renfrew; extending the Inner Harbour; and,
- adding large islands that were not previously included in the CRD DEM.

Figure 4.4 (right) shows an example of a large missing island (missing from the shoreline file) and this was digitized where LiDAR data exist; i.e., the green areas. Islands were included where they are larger than approximately 270 m (or three 90-m Level 3 DEM grid cells); e.g., as a rule of thumb, islands that are smaller than about 3 times the grid size can be omitted from the tsunami model grid.

Once the LiDAR topography was separated from the bathymetry using the zero metre contour in the areas with LiDAR, the continuous zero metre shoreline was used to separate bathymetry from topography in the areas with mass-points/breaklines. The shoreline for the mass-points and breaklines data is over 65,000 m in length.

4.6 Build TIN Surface

Then the CRD and USGS DEMs were clipped to the new shoreline and the more dense bathymetric data in the new 9 m and 18 m grids were added, prioritizing it into the CRD and NOAA bathymetric data, and removing all the bathymetric data that has topographic data on top. At this point the TIN surface was built using an automated computer process from which the various grid sizes of the DEM were sampled. Due to the large amount of data involved this process required the use of four very powerful micro-computers calculating continuously for approximately two weeks.

Figure 4.5 provides a screenshot of the resulting DEM including the 9 m grid (red border), 18 m grid (black border), within the 50 m grid and with the shoreline shown for reference.

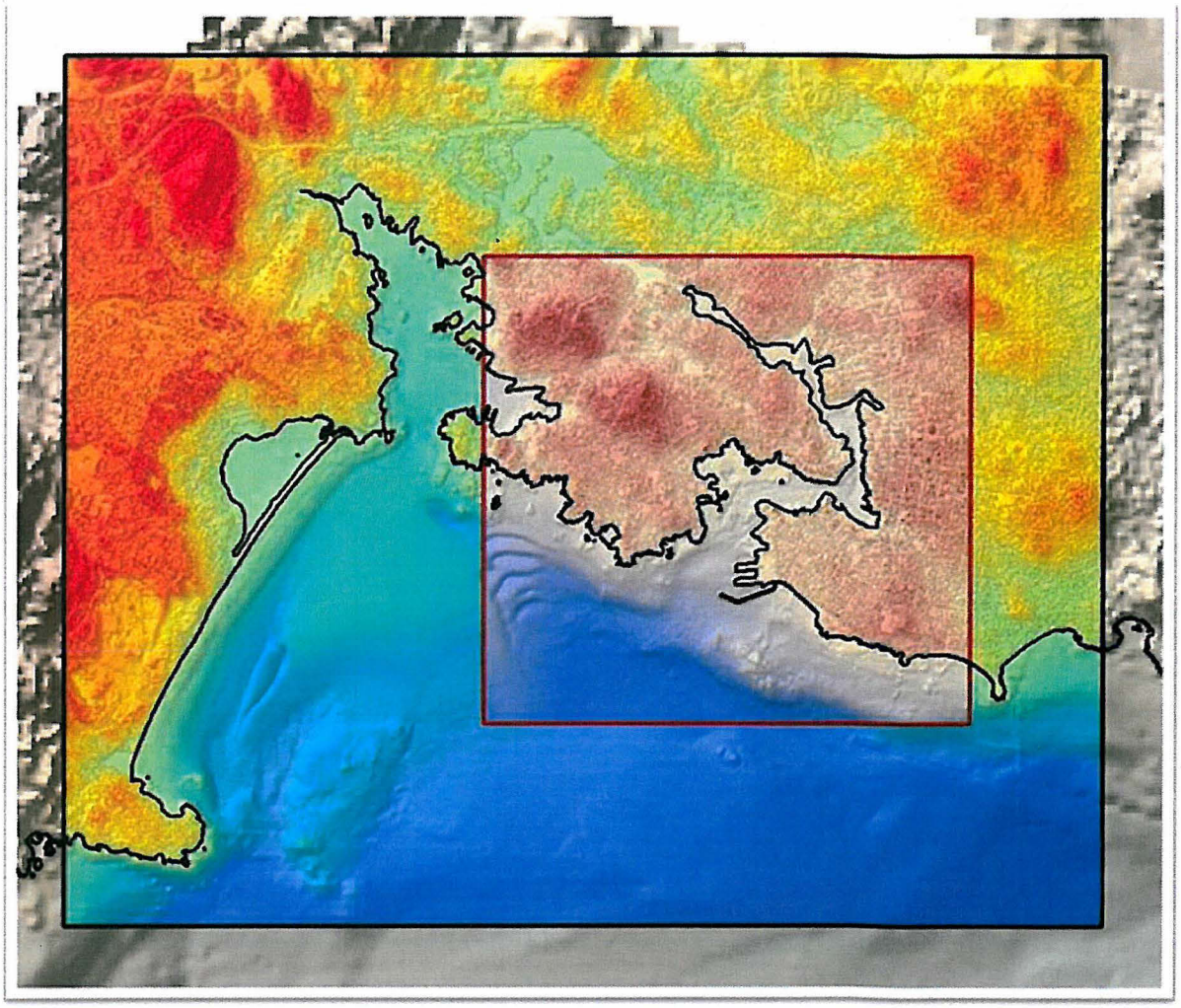

Figure 4.5 – Nested Model Grids with Final Shoreline

4.7 Bare-Earth Topography

The final step in the processing of land-side topographic data was to prepare the DEM for bare-earth topography. In the original data, buildings and vegetation from LiDAR surveys were visible in the LIDAR datasets. Since tsunami models treat buildings and vegetation as solid blocks, their inclusion would artificially reflect incoming waves and unduly restrict flows. With permission from CRD, buildings and vegetation were filtered out from the DEM. The algorithm systematically replaced building and canopy elevations by those of adjacent roadways and open areas. **Figure 4.6** shows the unfiltered (left panel) and filtered (right panel) land surface for inundation modelling in the Greater Victoria area. A comparison with the original data shows minimal effects of the filtering algorithm on the topography. The use of bare-earth topography is consistent with, and recommended by, the NTHMP Modeling and Mapping Guidelines.

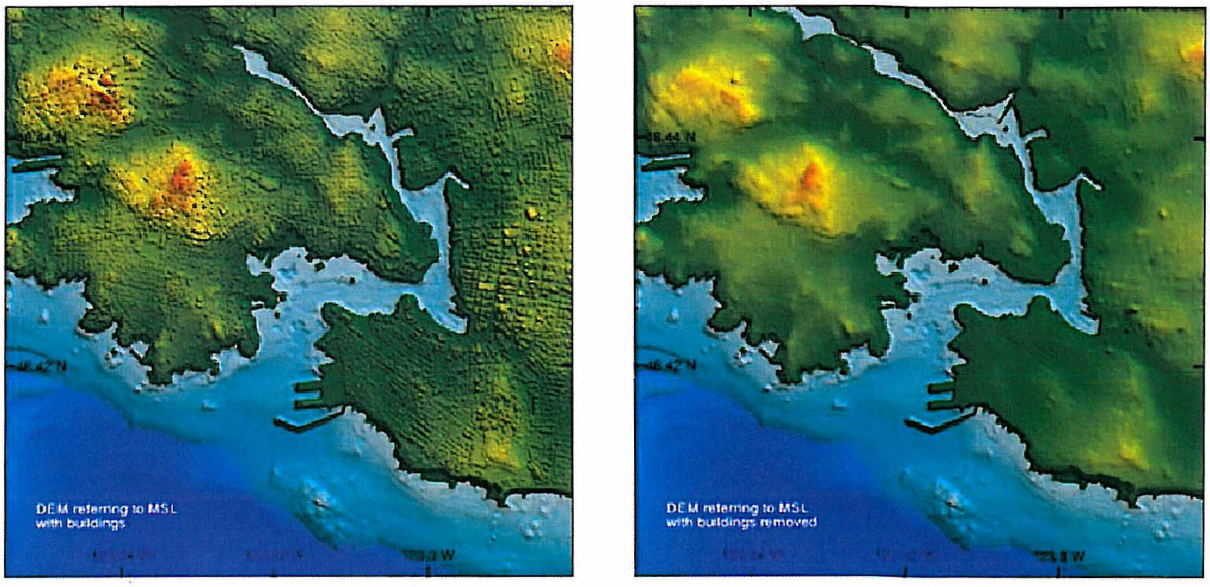

Figure 4.6 – Conversion to Bare-Earth Topography

4.8 Summary

The preceding pages summarize what proved to be an extensive and, at times, labour-intensive process. However, the effort required to provide a continuous coastline and seamless topographic-bathymetric DEM was essential for the tsunami modelling, to provide accurate and realistic results.

The process of assembling the DEM is never simple, and it is inevitable that inconsistencies will exist. Although establishing a uniform reference frame will reduce the error in the final DEM, it will not eliminate all data mismatches in the merged data set. Additional potential sources of errors stem from differences in the collection date, as the morphology and topology of the area is likely to change over time, particularly in dynamic coastal systems, and after extreme events such as floods.

Having stated that, it should also be noted that the assembled continuous, seamless dataset is much better information than the CRD possessed prior to this assignment and effort. Its existence now creates other opportunities for the CRD (and possibly, its member municipalities and stakeholders) to undertake other investigations and reviews or, simply, related to mapping purposes near the coasts. However, it should be noted that the DEM still relies on some old topography (NRC DEM) for a large portion of the region outside of the Level 4 (18 m) and level 5 (9 m) grid areas, and that the original source(s) of this information are often unknown.

5. Tsunami Modelling Results

5.1 Maximum Water Levels

The NEOWAVE model was run for 8 hours of event time to capture potential resonance over the continental margin and in the Strait of Juan de Fuca. The computation was performed using the base water level of Higher High Water Mean Tide (HHWMT). **Figure 5.1** shows the maximum surface elevation from the five levels of nested grids. The maximum surface elevation references the MWL and thus includes 0.732 m of tides corresponding to the HHWMT, i.e., maximum water level is not the wave height, which is smaller. While subsidence will also have an impact, it acts to lower the land elevation, making subsided land more at risk to tsunami impacts; however, it does not change the water level calculations, so that the water-level definitions, such as MWL and HHWMT, remain unchanged by the earth surface deformation.

5.1.1 Levels 1 and 2 Grids

The tsunami transforms over the continental shelf and maximum water levels reach 6 to 9 m elevation along the open coast of western Vancouver Island modelled at 15 arcsec (~450 m) resolution. After subtracting the tide level, the coastal wave amplitude is consistent with the 5 m of run-up inferred by Clague et al. (2000) from the spatial distribution of the deposits of the 1700 Cascadia tsunami. Although the run-up would be higher at heads of inlets and embayment, the agreement of the results along the open coasts of Vancouver Island renders additional support for the selection of the GA rupture scenario for the tsunami hazard assessment.

5.1.2 Level 3 Grid

The Level 3 results provide a reasonable depiction of the water level along open coasts, but might underestimate the run-up at inlets and waterways not resolvable at the 90 m grid. The model shows rapid attenuation of the energy as the tsunami enters the Strait of Juan de Fuca. The maximum water level reduces from 3.1 m at Port Renfrew to approximately 2.4 m at Victoria.

The maximum water level continues at 2.2 m along the relatively sheltered Saanich Peninsula coast because of local shoaling. Similarly, the water level builds up to over 3 m on either side of the Strait of Juan de Fuca with shallow water along the coast. An exception is at Race Rocks, where the shoals and outcrops accelerate the flow and lower the water surface locally. The model captures the build-up of the water level at Sooke Inlet and the formation of a weir at the entrance to Sooke Basin, where the water level is discontinuous.

As the tsunami exits the Strait of Juan de Fuca and enters the Strait of Georgia, its amplitude decreases to less than 1 m along the coasts. The lack of energetic wave activities provides an explanation for the absence of tsunami deposits in the region as reported by Clague et al. (2000).

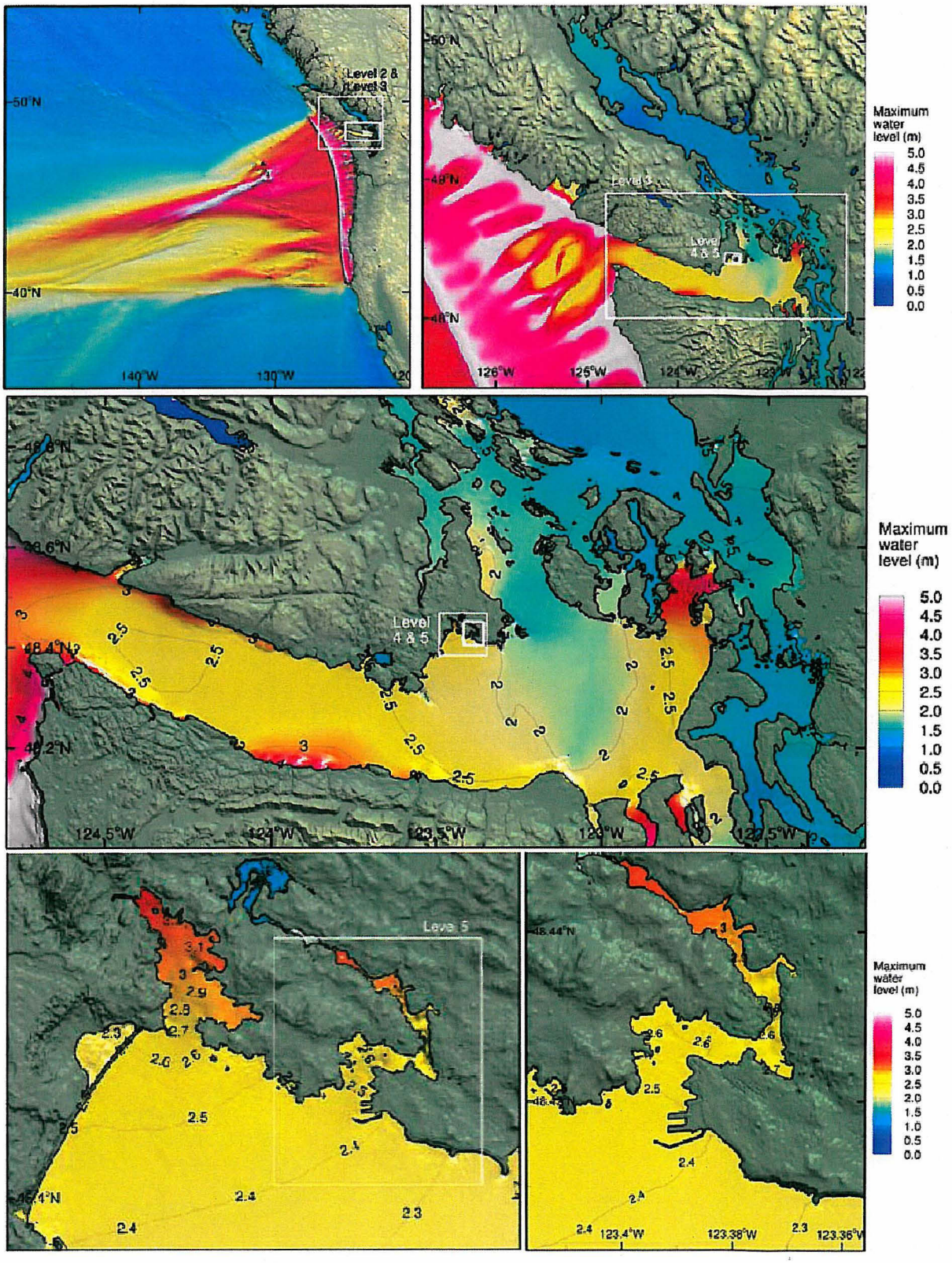

Figure 5.1 – Maximum Surface Elevation above MWL

5.1.3 Levels 4 and 5 Grids

The Level 4 to 5 grids provide detailed flow conditions in the Esquimalt Harbour and Victoria Harbour areas that cannot be resolved by the 90 m grid at Level 3. The computed maximum water levels, which are consistent with those from Cherniawsky et al. (2007), do not show widespread inundation in these areas. The tsunami overtops the barrier of Esquimalt Lagoon, where the water level increases to 2.3 m, and there are resonance effects in Esquimalt Harbour, so that the surge at the head of the embayment reaches 4.3 m above MWL. The water level increases from 2.5 m at Victoria Harbour to 3.1 m in Gorge Waterway with minor inundation at pockets of low-lying areas. Weirs are formed at a couple of locations along the waterway, where the flow is discontinuous. The tsunami does not overtop the cruise ship terminals and the harbour promenade areas, which have a pre-rupture elevation of about 3 m above the MWL.

For comparison, the maximum water level associated with the 2011 Tohoku tsunami was approximately 40 m measured at a cliff on the Iwate coast.

5.2 Water Level Drawdown

Along with potential flooding and inundation there are also effects due to water levels dropping during the complete tsunami cycle. The drawdown in harbours and waterways during a tsunami may ground vessels and damage berthing facilities.

Figure 5.2 shows the computed drawdown from the initial still water level in the level 3 to 5 grids. Although the computation was performed at HHWMT, the results provide an indication of navigational hazards should a tsunami occur at a lower tide level. The drawdown is much smaller than the wave amplitude along the Strait of Juan de Fuca, but increases dramatically over shallow shoals and embayments. Port Renfrew experiences up to 1.4 m of drawdown. The value increases from 1.2 m at the Esquimalt Harbour entrance to 2.0 m at the head of the embayment in association with the first mode of resonance oscillation. Victoria Harbour, which is less prone to resonance because of its irregular geometry, experiences relatively uniform drawdown of 1.1 m extending through most of the Inner Harbour, Upper Harbour, and Gorge Waterway.

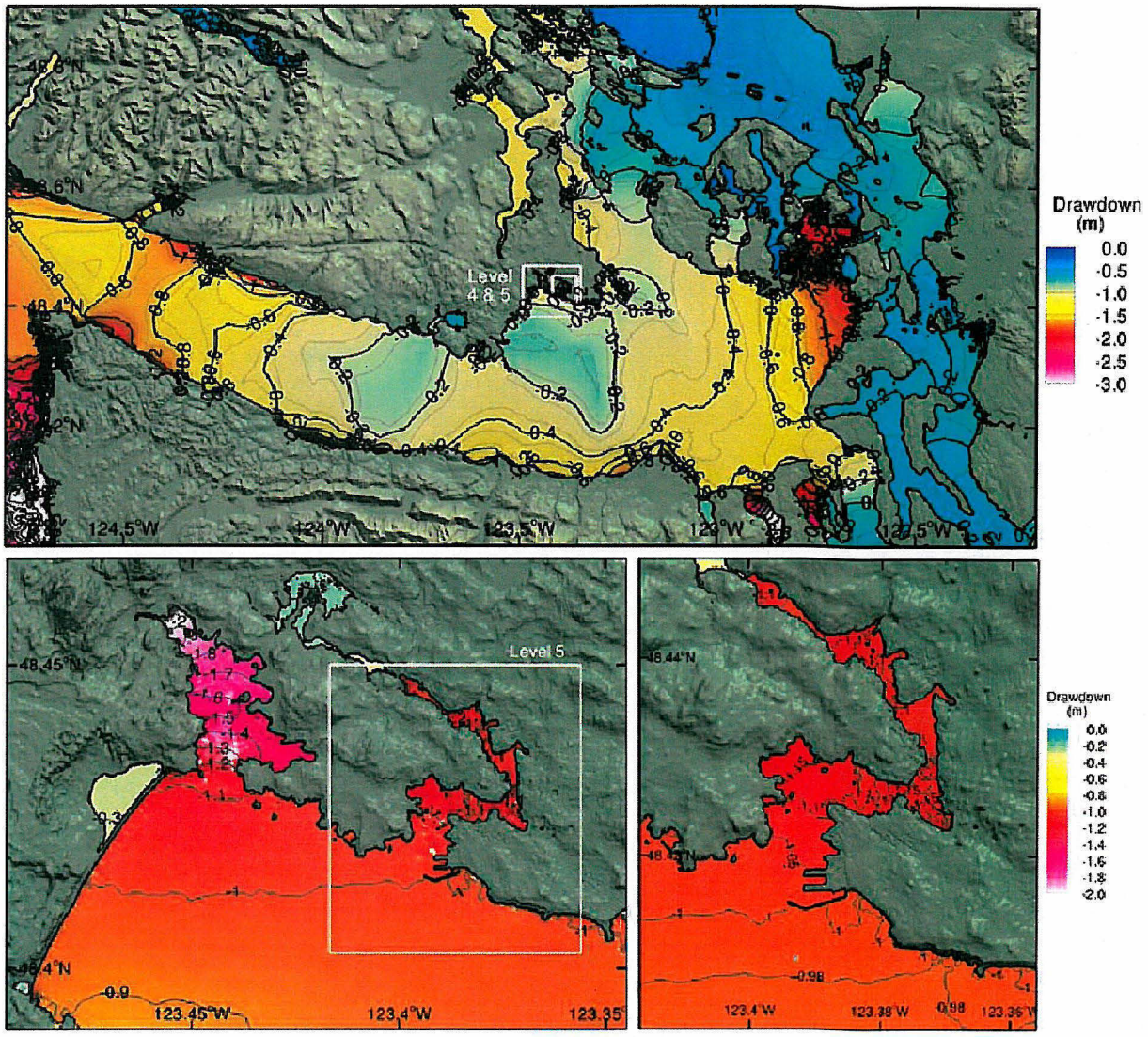

Figure 5.2 – Maximum Drawdown of Water Level

5.3 Tsunami Water Flow Velocities

Tsunamis can generate damaging flow velocity conditions (similar to water currents) in harbours and waterways even when there is only nominal inundation on land. NEOWAVE is the only NTHMP-approved model that has been validated with measurements of coastal currents generated by a tsunami (Yamazaki et al., 2012b).

Figure 5.3 plots the maximum water flow speed in the Level 3, 4, and 5 grids. The Level 3 grid at 90 m resolution provides a reasonable depiction of the currents over large coastal features. The current in the Strait of Juan de Fuca is typically less than 1 m/s, but increases to over 2 m/s in inlets and waterways. High flow speeds of 2.7 and 2.4 m/s develop at Port Renfrew and Sooke. The jet into Sooke Basin is reasonably determined and depicted.

Further east, the model captures the flow speed increase 3.1 m/s at Race Rocks, where the tidal currents are known to generate strong eddies. Tolkova (2012) indicated that a tsunami in a strong tidal river can be amplified when propagating into the ebb flow after a high tide. However, recent studies by Tolkova (personal communication) showed that the nonlinear tide-tsunami interaction is almost negligible in the Strait of Juan de Fuca

The Level 4 grid at 18-m resolution provides the water flow speed at more refined coastal features. The model depicts the inflow and outflow jets at Witty's Lagoon near Albert Head as well as high speed flows over the barrier and at the inlet of Esquimalt Lagoon. The flow speed increases to 3.2 m/s at the entrance to Esquimalt Harbour, where a node is developed from the standing wave. Local acceleration of the flow is evident in the upper reach of the basin, where small islands and outcrops produce constrictions of the flow.

The level 5 grid provides detailed water flow conditions at 9-m resolution in Victoria Harbour and Gorge Waterway. The inner and outer harbours show strong outflow jets reaching 3.4 and 3.1 m/s due to ponding of floodwater in the upper reach of Gorge Waterway and rapid withdrawal of the tsunami in Victoria Harbour after the initial wave.

The high-speed water flow from the tsunami could conceivably damage dock facilities and generate debris in the downstream region. The flow might also erode channels and inlets that in turn might modify the flood conditions computed from the current (fixed-bed) model. The impacts of these possible changes is unknown.

For comparison, the maximum water flow velocity associated with the 2011 Tohoku tsunami was approximately 12 m/s, as inferred from video images taken in Myagi.

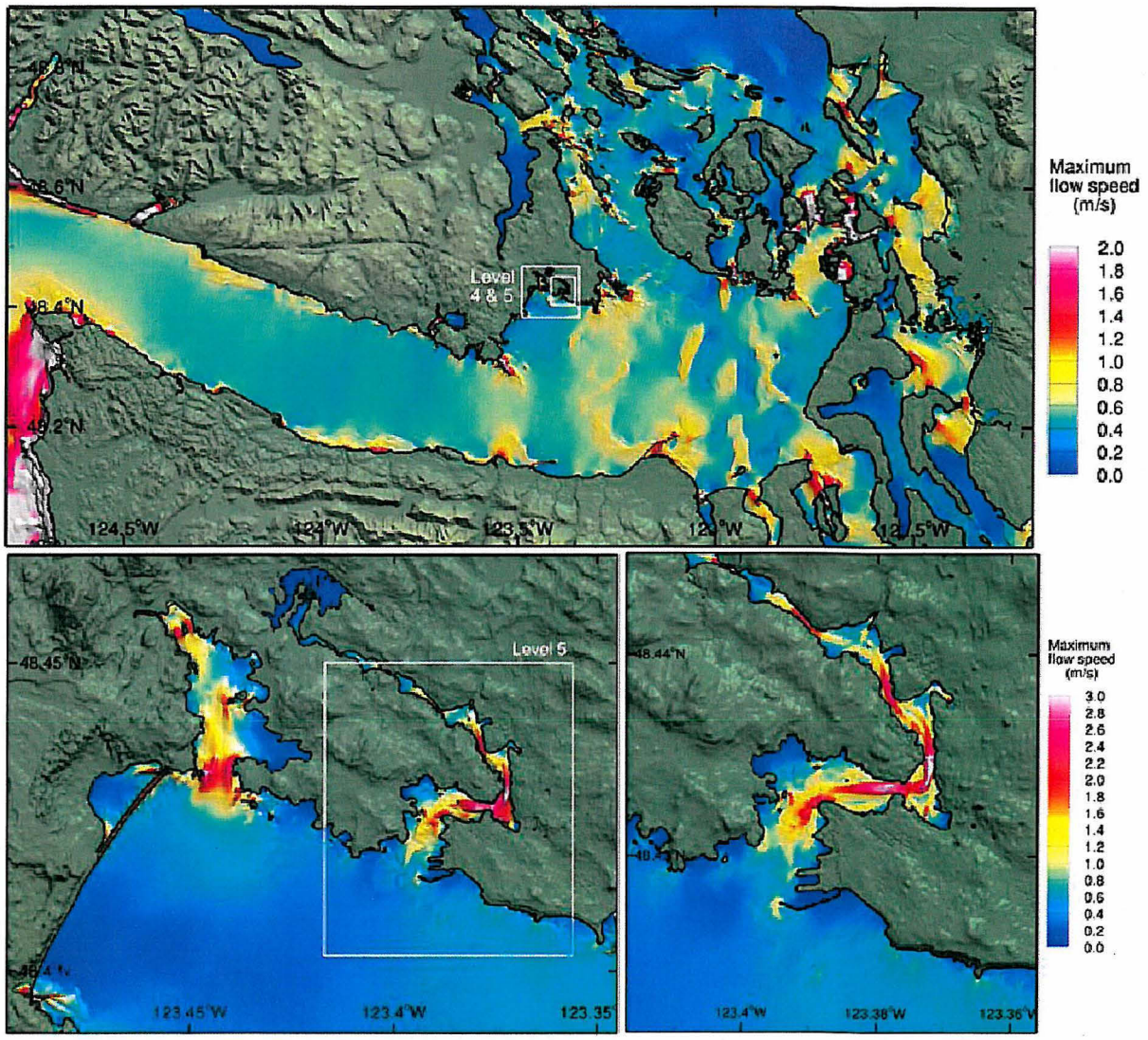

Figure 5.3 – Maximum Flow Speed in the Level 3, 4, and 5 grids

5.4 Tsunami Arrival Time

Tsunami arrival time is an important consideration in emergency planning and management.

Because of greater subsidence over the continental shelf, the water in the Strait of Juan de Fuca will retreat to the Pacific Ocean immediately after the rupture. Part of the initial wave generated by uplift of the continental slope will propagate toward the coastlines. Tsunamis are shallow-water waves, whose propagation speed given by $\sqrt{gd}$, where g = 9.81 m/s^2 is acceleration due to gravity and d is the local water depth.

Figure 5.4 shows the time when the water surface rises above the initially subsided water level. The tsunami arrives at Port Renfrew in 45 min after the earthquake. Sooke sees the arrival of the initial positive wave 60 min after the earthquake. The wave reaches the entrances of Esquimalt Harbour and Victoria Harbour 76 min after the earthquake, while the formation of weirs delays the arrival of the flood waves along Gorge Waterway even further. Because of the shallow coastal water, the wave does not reach Sidney on the Saanich Peninsula coast until 110 min after the earthquake.

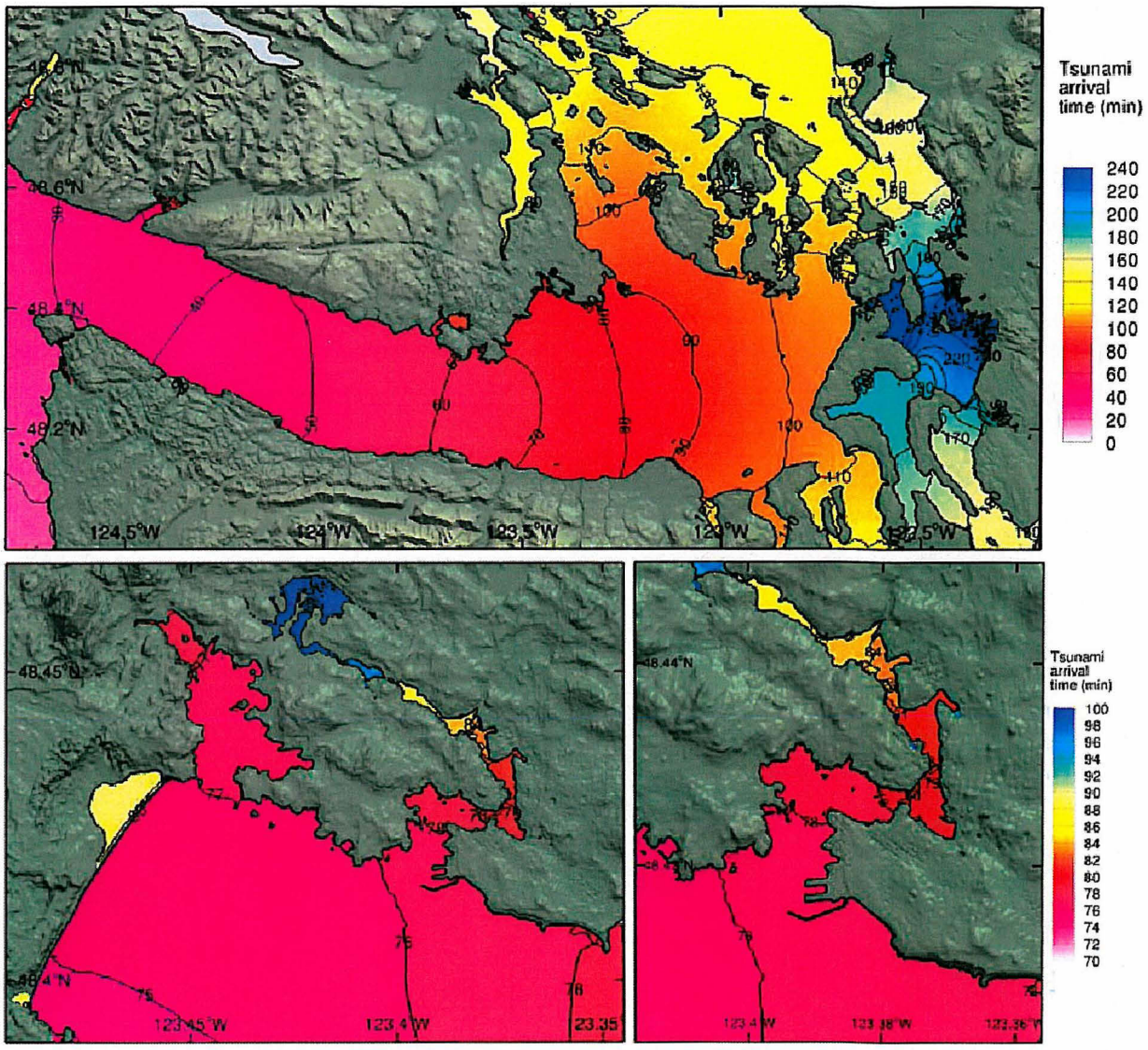

Figure 5.4 – Tsunami Arrival Time

5.5 Water Level Resonance and Time to Maximum Water Level

The continental shelves, straits, and embayments in southern Vancouver Island are prone to resonance caused by tsunamis. Constructive interferences from resonance modes have resulted in late arrivals of destructive waves in previous tsunami events.

Figure 5.5 plots the time to reach the peak water levels after the earthquake. The initial wave crest determines the peak water level at most locations along the Strait of Juan de Fuca. The water level at Port Renfrew reaches its peak in 60 min, however, the water at the head of the embayment takes another 60 min to reach the peak level. Similar, the peak flow reaches the Sooke channel in 80 min, but it takes another 60 min to fill the Sooke basin to the maximum level. This highlights the fact that a tsunami comprises a series of waves and subsequent arrivals might augment the amplitude of resonance oscillations.

The waters off Esquimalt and Victoria Harbours rise to the peak level in 95 min after the earthquake. The peak flow enters Victoria Harbour and the lower reach of Gorge Waterway almost instantaneously. In contrast, the resonance oscillation in Esquimalt Harbour reaches its peak 60 min later. Resonance and persistent wave activities occur around the Gulf Islands, so that the Saanich Peninsula coast does not see the peak flow until 166 min after the earthquake. The Strait of Georgia, which resonates with the longer period waves, does not exhibit the peak surface elevation for at least another 100 min.

Coastal resonance is a common occurrence during tsunami events. Standing edge waves formed along the continental margin have low dissipation rates and continue to send waves into the Strait of Juan de Fuca long after the rupture. Because of the semi-enclosed basin, the oscillations in the Strait of Juan de Fuca and Strait of Georgia might take many hours to subside.

From an emergency management perspective, it will be important to maintain the tsunami warning until the water level shows an obvious downward trend.

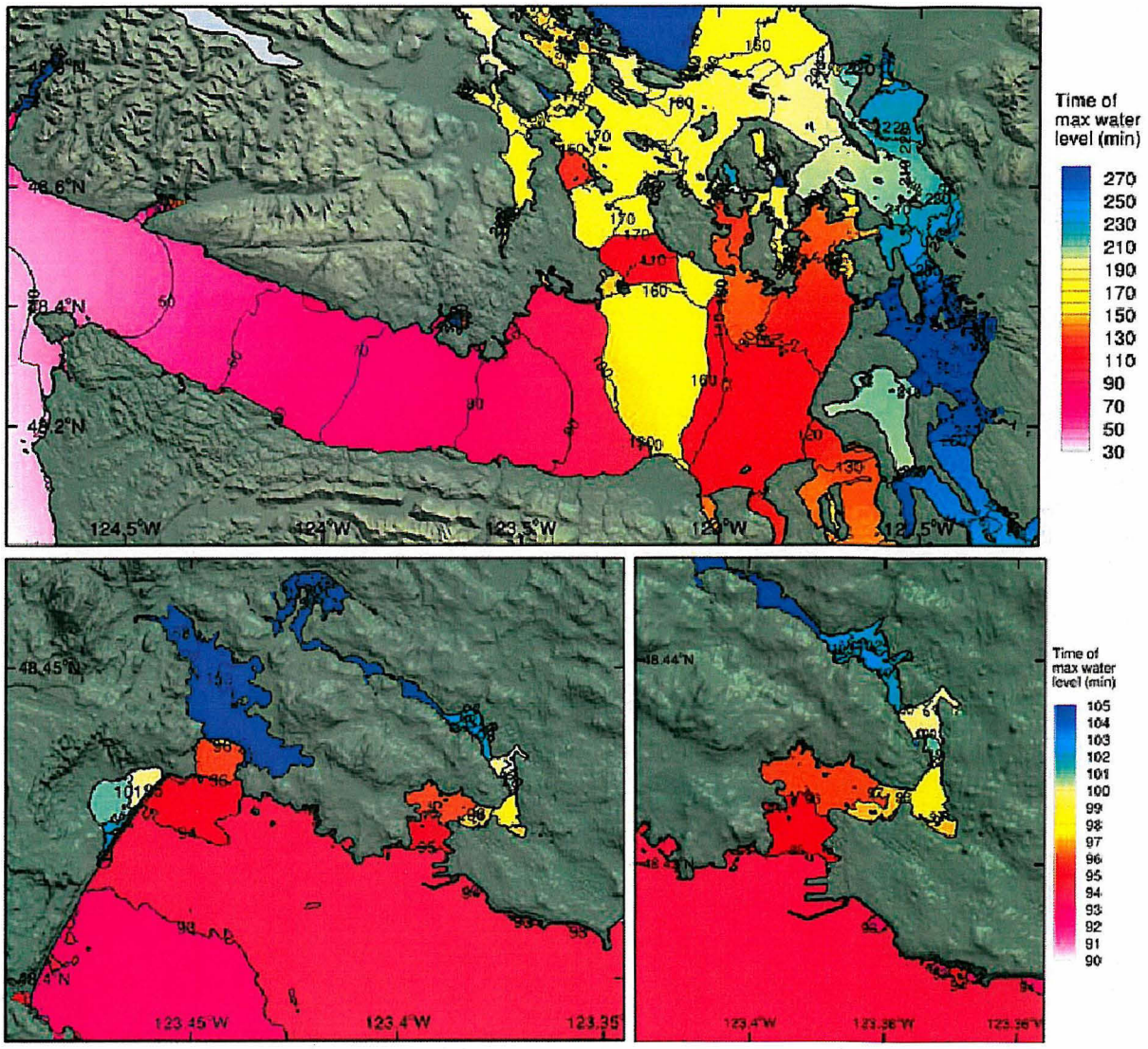

Figure 5.5 – Time to Peak Water Level After the Earthquake

6. Tsunami Hazard Line

6.1 Maximum Water in Conjunction with Subsidence

The tsunami model defines the time sequence of the event from the subsidence and uplift of the earth surface at the time of the magnitude 9.0 CSZ earthquake to propagation of the tsunami through the Straits of Juan de Fuca and Georgia. Maximum water levels and time to maximum water levels were identified in the previous section. Flood depths overland can demonstrate the risk of flooding for various CRD communities, industrial areas, waterfront facilities, critical facilities, and highway infrastructure.

Subsidence lowers the land elevation after the earthquake and exacerbates the subsequent flood hazards. Subsidence levels within the CRD were shown earlier in the discussion of the selection of the earthquake scenario, and vary from approximately 1.0 m near Port Renfrew to approximately 0.2 m near Greater Victoria.

Although the model already includes the earth surface deformation in the initial condition, presentation of the resulting water surface elevation relative to the subsided ground level provides a better indication of the tsunami flood hazard. **Figure 6.1** shows the maximum surface elevation augmented to include subsidence. Using this approach the determined flood level, which increases approximately by 1.0 m at Port Renfrew and 0.2 m at Greater Victoria, can be compared directly with the pre-event land surface elevation from the MWL for purposes of emergency planning and management.

6.2 Factor for Public Safety

As noted above, mapping has been prepared for all coastline locations within the CRD showing the combined impact of both water level rise due to tsunami and subsidence of the land mass. Both of these parameters vary across the region, so application of a single factor or total elevation is not appropriate.

To account for some of the variability of the input information AECOM also recommends that a Factor for Public Safety be included in the resulting calculations to determine the continuous Tsunami Hazard Line. Some of the variables that could impact the calculated results include:

- Uncertainty related to the magnitude event and the initial tsunami wave amplitude
    - While the earthquake event selected is the most likely event, other scenarios could result in higher initial tsunami wave amplitudes and higher maximum water levels within the CRD
- Tide variations
    - The base water level to which the tsunami wave amplitude has been added in this analysis is HHWMT (or MHHW in the US)
    - While this is supported and recommended by NTHMP, the tsunami could occur at another higher water condition
- Variablility of topographic information
    - While topographic information at the Level 4 and 5 grids is considered to have a high degree of accuracy, much of the topographic information for the CRD total coastline is of varying quality and the original source of the information is unknown.

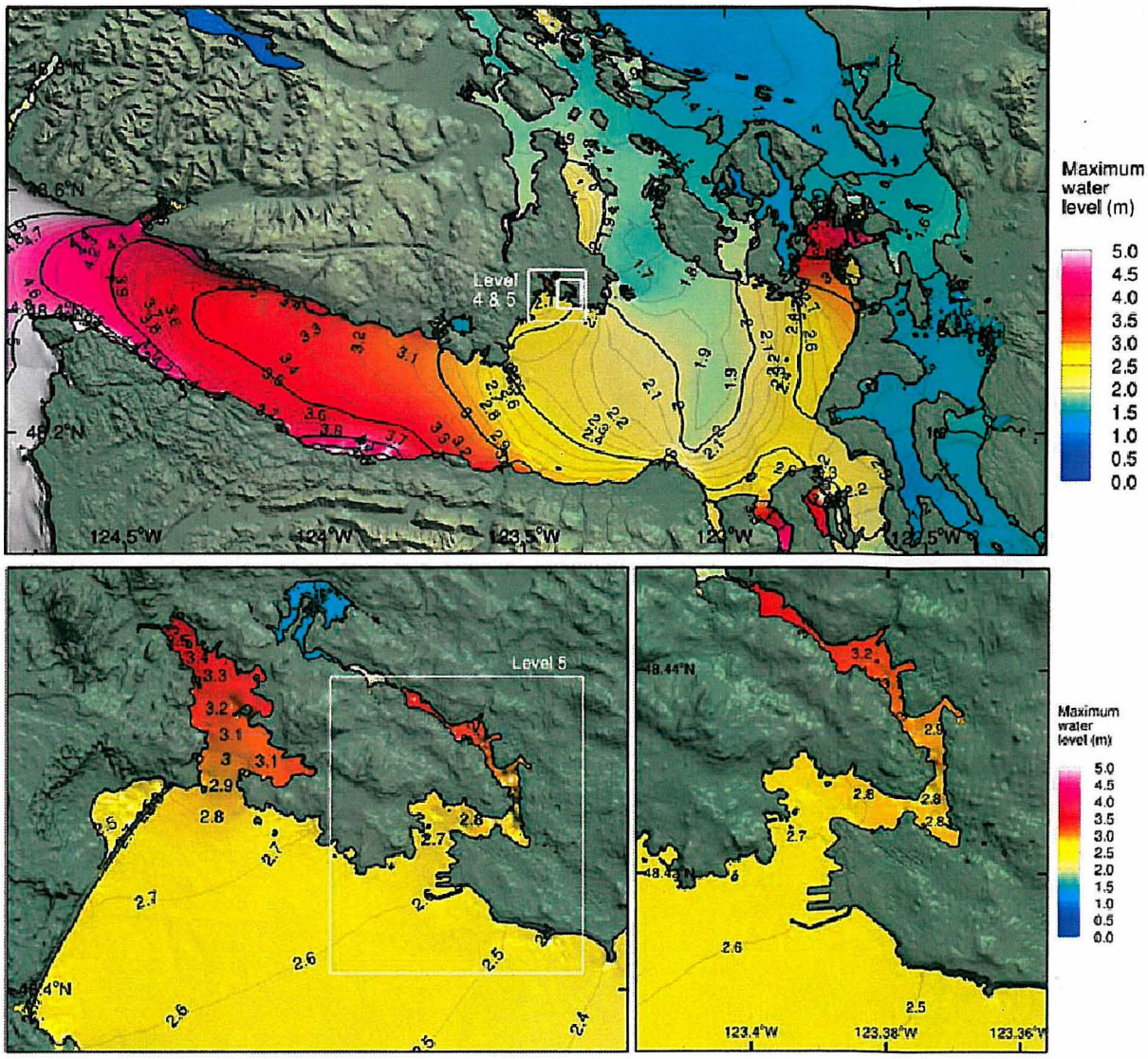

Figure 6.1 – Maximum Water Level from MWL Augmented to include Subsidence

For these reasons AECOM is recommending that a Factor for Public Safety of 50% be added to the calculated combination of maximum water level rise and land subsidence (fall), and that the resulting maximum elevation be applied as the Tsunami Hazard Line.

As examples of how this would be applied, the following sample locations are discussed:

- Using the Level 3 – 90 m grid:
  - Port Renfrew is predicted to see a Maximum Water Level of 3 m,
  - Subsidence is predicted to be approximately 1 m,
  - The calculated total water level relative to the original coastline at Mean Water Level (MWL) is then 4 m,
  - Apply a 50% factor for public safety, resulting in a Tsunami Hazard Line located at the 6 m current elevation based upon topographic information.
- Using the Level 5 – 9 m grid:
  - McLoughlin Point is predicted to see a Maximum Water Level of 2.5 m,
  - Subsidence is predicted to be approximately 0.15 m,
  - The calculated total water level relative to the original coastline at MWL is 2.65 m,
  - Apply a 50% factor for public safety, resulting in a Tsunami Hazard Line located at the 4.0 m current elevation.

6.3 Tsunami Hazard Line

Applying the above approach to all CRD coastline locations results in a completed Tsunami Hazard Line throughout the CRD and is a product of this study that has been provided to the CRD to be incorporated into its GIS mapping layers.

Figures 6.2 through 6.4 show several samples of the Tsunami Hazard Line superimposed on the land topography, showing:

- Victoria Harbour, including Inner Harbour, Upper Harbour and Gorge Waterway (using the Level 5 grid information)
- Esquimalt Harbour, showing the area from Albert Head past Victoria Harbour to Clover Point (using the Level 4 grid)
- Port Renfrew, including the San Juan River estuary (using the Level 3 grid)

Each of these examples can be compared with previous Tsunami Inundation mapping prepared for the CRD but which was based upon a single elevation for each of Greater Victoria (4 m), Saanich Peninsula (4 m) and Port Renfrew (20 m).

We would expect to see general concurrence between the mapping for Greater Victoria and Saanich Peninsula since the elevation previously chosen is similar to the calculated elevations used for the Tsunami Hazard Line in these areas. However there are differences expected as well due to the dynamic nature of this Tsunami modelling exercise and the higher precision now being applied to the data and final determined elevation.

The differences for Port Renfrew should appear significant since the NEOWAVE model has determined an overall lower total elevation (6 m) for the combination of maximum water level and subsidence, along with addition of a 50% factor for public safety, than that used for the previous mapping (20 m).

Figure 6.2 – Level 5 Grid – Tsunami Hazard Line

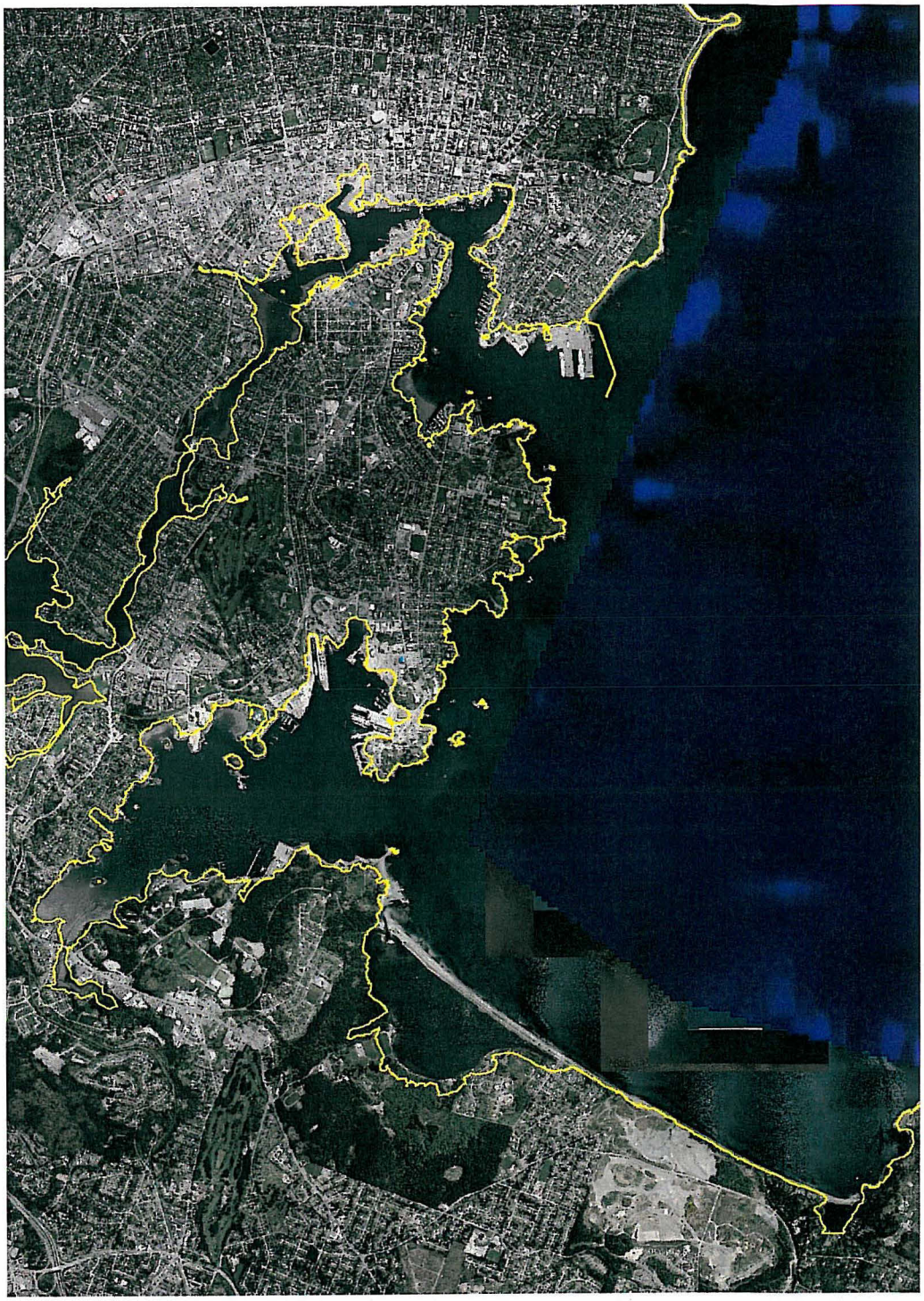

Figure 6.3 – Level 4 Grid – Tsunami Hazard Line

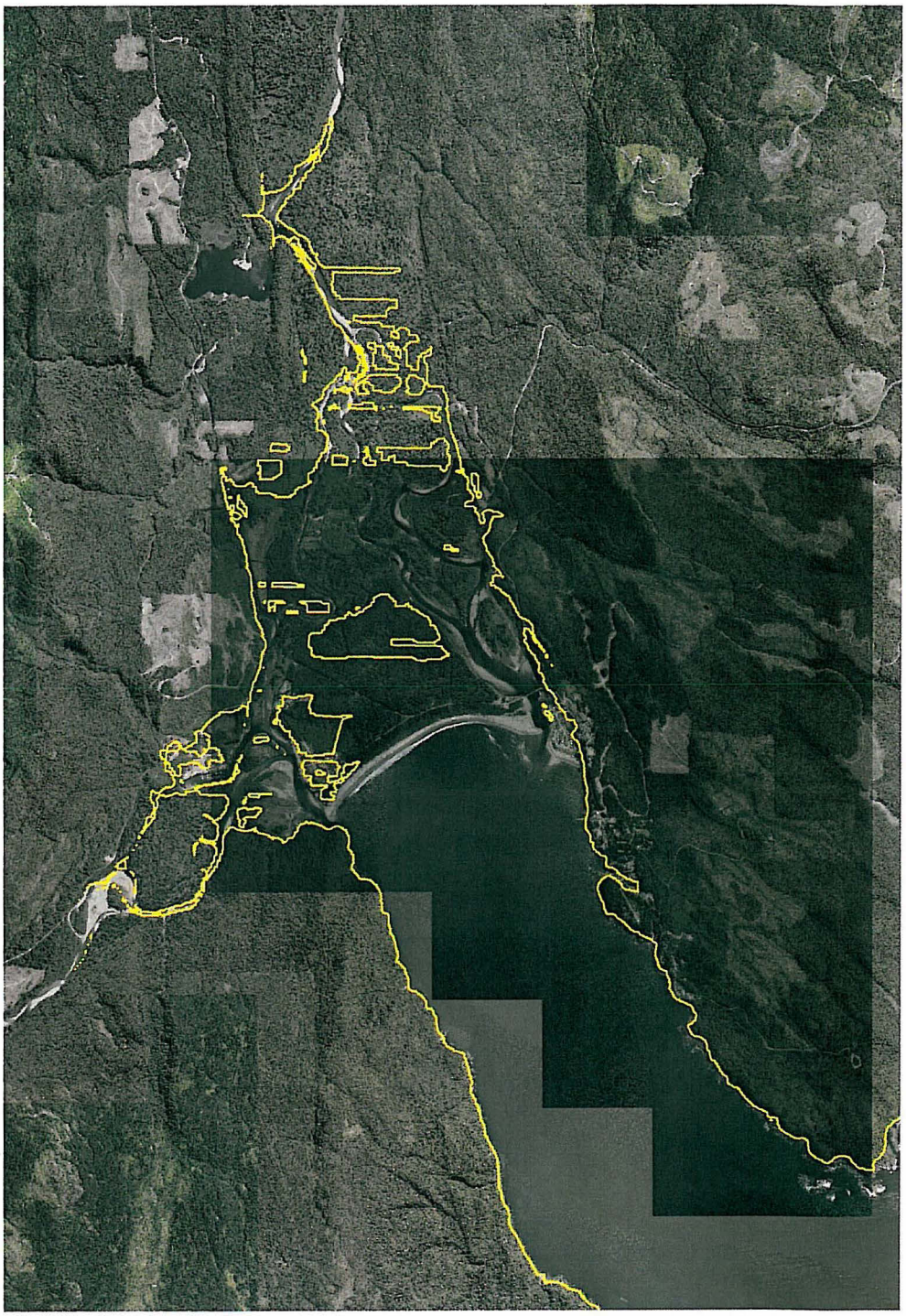

Figure 6.4 – Port Renfrew - Level 3 - Tsunami Hazard Line

7. Potential Next Steps

Within the original Request for Proposal issued for this project the CRD requested that one of the products be to "provide recommendations on potential next steps for use of data [developed as part of this project] for the purposes of risk modelling, evacuation plans, and anticipated impacts of the selected tsunami scenario."

7.1 Summary

The results from the tsunami modelling did not result in high values of maximum water levels, significant areas of inland inundation, or dramatic changes from previous mapping that had been based upon a single, set elevation (other than a significant reduction at Port Renfrew). There are a number of differences that are apparent, where the dynamic and time-variant analysis provided by the tsunami model provides greater insight into water levels, inundation and wave run-up – however, these are generally on a relatively localized geographic scale. In that sense, the modelling resulted in a confirmation that the Capital Region is not at significant risk from a tsunami generated from a 500-year Cascadia subduction zone earthquake.

And, while the results are not dramatic or dramatically different, the CRD can have greater confidence in these new results that are based upon far more-detailed, more rigorous analysis, using a multi-level nested grid analysis process that applies time- and spatially-variant results in combination with predicted subsidence values rather than a series of allowances or factors.

Importantly, due to the model's capabilities, there are other output parameters available from post-processing of the model results that provide useful information that can be used for tsunami hazard planning, or emergency planning, in general. These have been discussed previously and include:

- Spatial extent and magnitude of land subsidence
- Flow depths and flow velocities
- Tsunami arrive time
- Tsunami wave resonance and persistence
- Time to maximum water level

7.2 Potential Next Steps

The following paragraphs provide brief recommendations for how the CRD might utilize data from this project for public safety emergency planning and engineering efforts.

7.2.1 Additional Risk Modelling

Earthquake Scenario

The tsunami model was developed to simulate a 500-year Cascadia earthquake using a magnitude 9.0 rupture scenario for modelling of tsunami impacts along the CRD coasts. This rupture scenario was selected because it produces the best agreement with observed paleotsunami deposits along shorelines of the Pacific Northwest, including Vancouver Island.

It is also possible to assess the impacts and relative changes of impacts, in tsunami inundation, velocities, depths and timing due to a higher risk event, for example, the magnitude 9.2 scenario identified by the US National Seismic Hazard Maps (Refer to Table 2.1). These changes in impacts may be of interest to the CRD, however, it also has to be noted that this would be a less frequent, lower probability event.

Other Emergency Considerations

The construction of a seamless topographic-bathymetric terrain dataset as part of the tsunami modelling took considerable effort and represents a very significant achievement in combining multiple sources of data. It also provides an improvement over any existing digital mapping information related to the extensive Capital Region coastline, including southern Gulf Islands. This topographic-bathymetric dataset could also be considered for use in a number of possible coastal flood studies to assess flood risk along the open coast and sheltered water shorelines within the CRD – these could include tidal surge, wave run-up, and overtopping analyses associated with regional storm systems, as opposed to tsunami-generated.

7.2.2 Evacuation Planning

Even with the limited inland inundation estimated from this particular tsunami scenario, the uncertainty of the magnitude of an actual seismic event and resulting tsunami wave will necessitate evacuation of CRD residents within or adjacent to identified tsunami hazard areas.

The tsunami hazard line provides the predicted level of maximum water combined with subsidence, and including a factor for public safety, that is based upon a calculated elevation for all parts of the CRD coastline. However, on an urban geographic scale, the hazard line could be aligned through a City block or even a single building for example. An evacuation zone may be defined based on the inundation map and using identifiable landmarks such as major streets or highways, critical facilities such as hospitals and schools, designated refuge centres, and enforcement resources (i.e., the number of police officers available to enforce the evacuation and to maintain order). Establishment of an evacuation zone(s) can assist further planning effort; for example, by defining the spatial extent of areas at risk, reverse 911 call strategies can be better defined. In this way Evacuation Zone Mapping could build upon the Tsunami Hazard Line (possibly using GIS information) and would be expected to expand further beyond the Tsunami Hazard Line.

The tsunami model determines the arrival time of the initial wave, from the subsidence and uplift of the earth surface at the time of the earthquake to various locations along the coastlines within the CRD based on the propagation of the tsunami through the Straits of Juan de Fuca and Georgia. The model shows that some areas receive the first wave within approximately 60 minutes following the earthquake and that hazardous wave activities may last for hours. Given that there can be expected to be considerable uncertainty after the event and that communication systems may not be functional, it may be important to identify areas of "vertical evacuation" – where residents are instructed to evacuate to, say, third floors or higher in taller buildings of reinforced-concrete or structural steel frame buildings.

Given the high uncertainty of the magnitude of a seismic event and the inundation potential of the resulting tsunami wave, the ability to have an estimate of tsunami arrival times and time to maximum water level can be significant factors to guide determining priorities for evacuation of various areas within the CRD.

Another important aspect of emergency planning is public education. With potentially short arrival times and possible disruptions to communications, some consideration should be given to providing information to residents as to the steps to be taken immediately upon feeling a major tremor, similar to other jurisdictions. For areas at risk from tsunami impacts, waiting for instructions from government authorities is not a recommended course of action.

7.2.3 Emergency Response Planning

The tsunami model has the ability to estimate the spatial extent and duration of coastal resonance and persistent wave activities which may take hours to subside within the Straits of Juan de Fuca and Georgia. Emergency response planning should consider the temporal aspect of the hazard event and schedule the ingress of emergency responders to damaged areas with respect to the modelled duration of risk.

The tsunami model output of inundation, velocities, flow patterns, and resonance oscillations may help to infer tsunami debris source potential, movement, and post-event maintenance needs, when these model data are overlain with spatial land use and land cover information.

Previous devastating tsunamis showed that debris impact can be a major cause of damage to structures, and the most common form of debris is shipping containers. While this may not represent a major concern within Greater Victoria, the potential for debris to cause major damage within harbours and embayments should be considered.

7.2.4 Infrastructure Design

The results from the numerical modelling of the CSZ earthquake tsunami provide flow depths and flow velocities along coastal areas of the Capital Region District; these data will be very useful in designing infrastructure identified within the tsunami hazard areas of CRD. For example, flow depths and velocities can be used to estimate the tsunami impact forces on structures. Also, a significant amount of the damage that has been observed in previous tsunamis was due to high uplift pressures and forces acting on the underside of floor slabs, bridges and highways. The modelling can help in providing insight into better design standards for coastal infrastructure that might be exposed to this type of tsunami loading.

It is also possible to use flow velocities estimated from the modelling to investigate sediment scour characteristics along the coastline which could have an implication in terms of soil liquefaction that could cause failure of infrastructure such as shore protection structures, bridges, roads, buildings, and wharves, including those within Victoria Harbour, Inner Harbour, Upper Harbour and Gorge Waterway under various ownerships.

7.2.5 Transportation Planning

While the spatial extent of inland inundation from the modelled magnitude 9.0 rupture scenario is limited, model data related to velocities, flow patterns, and duration may assist with response plans for the evacuation or sheltering of waterway transportation vessels, such as moored ships and car ferries.

These model outputs may be used in conjunction with street network mapping, to guide the placement of tsunami evacuation signage, and a predictive transportation model to forecast roadway conditions under multiple evacuation/disaster scenarios.

If necessary, the analysis of forecast roadway conditions under evacuation scenarios may include the identification of methods to increase roadway capacity, e.g., signal optimization, reverse-laning, manual intersection control, availability and role of public transit, etc.

Yet another consideration here would be the possible evacuation of residents by foot along dedicated routes. In the event of a major earthquake and a need to evacuate a large number of residents, the possibility of major traffic jams occurring is very likely, and it will be advantageous to have alternative means for egress from the area.

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Appendix "F"
Comparison of Amenities

Table 1 Comparison of the amenity provisions between existing Zoning Bylaw, Bylaw 2805 as it stands at second reading, and the proposed amendments to Bylaw 2805

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
BARGING AND PIER: (b)(1) The provision of materials and supplies for construction and operation of the uses, buildings and structures on the property by boat or barge in part to reduce the impact on the development on the Immediate Community, including through reduced trucking; (b)(2) Pier, of sufficient size to fulfill previous condition.	N/A	**Bylaw:** (c)(vi) **Boat Moorage:** (A) Temporary boat moorage, or other similar facility of sufficient size to permit the removal of excavated material and the provision of concrete and aggregate during the excavation and major concrete phase of the Wastewater Treatment Plant by barge or other marine transport. **5- Year Agreement:** 2.1(i) *RFP to be amended to require WWTP Contractor* "to construct temporary boat moorage, or other similar facility of sufficient size to permit the removal of excavated material and the provision of concrete and aggregate during the excavation and major concrete phase of the WWTP by barge or other marine transport"	Same as previous column Plus the following provisions have been added to the "Host Community Impact 5-Year Agreement" *2.1(ii) Traffic Management Plan additional provisions indicate plan may:* (A) specify the use of a staging area in proximity to the WWTP site to reduce truck parking on roadways waiting to make deliveries of materials; (B) retain implement supplementary crossing guards where appropriate; and (C) include other measures acceptable to the Township, as the CRD and the WWTP Contractor develop to address the trucking of materials through the Township that are not subject to the Barging Requirements and other traffic associated with the WWTP Project.

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		2.1(ii) *Traffic Management Plan* 2.1(iii) *Monitoring and Reporting of Traffic* 2.1(vi) "The CRD has committed to vigilant enforcement"	
TRAFFIC, LYALL ST & OTHER ROADS (b)(3) Traffic integration amenities, in the form of traffic calming, speed bumps, speed cushions, speed readers with signage, enhanced boulevard curbing and landscaping and bike lanes on streets in the Immediate Community, as follows: a. Streets within Department of National Defence's Work Point, if and as permitted by Government of Canada, b. Township's streets adjacent to and within one block radius of all elementary schools, and c. Township's Lyall Street from Lampson Street to Head Street and Head Street from Lampson Street to Dunsmuir Street, items (3)(b) and (3)(c) collectively of a value no less than $950,000. ... (d)(5) Additional traffic	(b)(5) **Lyall Street Enhancement:** Given the proponent's recognition that Lyall Street and surrounding residents will receive a disproportionate share of the direct impacts during construction of the project, and the identification of Lyall Street as a "commuter, recreational, cycling route" in the Township's Official Community Plan, the proponent has agreed to make a significant financial contribution toward the planning and infrastructure of an upgraded pathway and bikeway system, approximate value of $950,000 including for upgrades and connection to the West Bay Walkway. * * * **(b)(4) Road Upgrades:** Reinstatement of all roads (including but not limited to pave	**Bylaw:** (c)(ii) **Road Upgrades:** Reinstatement of all roads (including but not limited to paved areas, sidewalks, boulevards) affected by establishment of a Wastewater Treatment Plant described in the Design Document to a condition equal to or better than that which existed before construction; (c)(iii) **Lyall Street Enhancement:** An upgraded pathway and bikeway system along Lyall Street, having a value of up to $950,000, including upgrades and connection to the West Bay Walkway via the trailhead at 537 Head Street; **5-Year Agreement:** 2.5 **Restoration of Road Surfaces** (i) The CRD shall	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
integration amenities, in the form of additional traffic calming and bike lanes on all remaining streets between Lampson Road and Esquimalt Road and subject property, to standards of design, materials and quality of construction comparable to Bonus Density – Level 1 Condition 3. ... (d)(13) Reinstatement of all roads (including but not limited to paved areas, sidewalks, boulevards) affected by establishment of wastewater treatment plant of this density of use, to a condition equal to or better than existed before to construction.	areas, sidewalks, boulevards) affected by establishment of wastewater treatment plant of this density of use, to a condition equal to or better than existed before construction.	cause the road surfaces affected by the construction of the WWTP, as determined by the Township acting reasonably, to be reinstated (including but not limited to affected paved areas, sidewalks and boulevards) to a condition that reflects current conditions or better, including the installation of sidewalks and curbs. (ii) The CRD, the Township and the WWTP Contractor shall, without cost to the Township, conduct pre-construction and post-construction assessments of the conditions of road surfaces referred to in section 2.5(a). ... 6.0 **Additional Traffic Integration Improvements** The CRD will, in good faith and in cooperation with the Township, design and install additional traffic calming and bicycle lane improvements on any streets between Lampson Road and Esquimalt Road and the Project Lands, which may include,	

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		as reasonably appropriate, speed bumps, speed cushions, enhanced boulevard curbing and landscaping, all at the sole cost of the CRD, and at the direction of the Township acting reasonably. ... 9.1. **Lyall Street Enhancement:** The CRD will work with the Township for the provision of the pathway and bikeway referred to in section 55(2)(c) of Rezoning Bylaw, along Lyall Street to link West Bay to Admirals Road and having a value of approximately $950,000 for the design and installation of the pathway and bikeway. The enhancement shall be of a design, materials and quality of construction and installation as directed by the Township acting reasonably, and shall be completed prior to the sooner of the commencement of WWTP operations or termination of this Agreement.	

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		Operating Agreement: 2.5 (i) The CRD shall cause the road surfaces affected by the construction of the WWTP, as determined by the Township acting reasonably, to be reinstated (including but not limited to affected paved areas, sidewalks and boulevards) to a condition that reflects current conditions or better, including the installation of sidewalks and curbs. (ii) The CRD, the Township and the WWTP Contractor shall, without cost to the Township, conduct pre-construction and post-construction assessments of the conditions of road surfaces referred to in section 2.5(a).	
EDUCATION & INTERPRETIVE CENTRE (b)(4) Education and Interpretive Centre: provision of a dedicated conference room on-site for students and the public to learn about wastewater treatment and management, made available at no	**(b)(6) Education and Interpretive Centre:** Provision of a dedicated conference room on-site for students and the public to learn about wastewater treatment and management, made available at no charge to and for use by schools,	**Bylaw:** (c)(iv) **Education and Interpretive Centre:** Provision of a meeting room and interpretive space on-site having a minimum floor area of 75 m2, to be available for students and the public to learn about	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
charge for use by schools, government bodies, non-profit organizations and individuals as requested during normal hours of operation: Minimum 25 m2 of floor area, either in main lobby or a separate room. ...(c)(4) ... additional 25 m2 of floor area... ...(d)(6) ... additional 25 m2 of floor area for total of 75 m2, including portion for a "Center of Excellence" to educate, promote and facilitate energy technology or other industries focussed on utilizing the wind and wave energy at the subject property.	government bodies, non-profit organizations and individuals as requested during normal hours of operation.	wastewater treatment and management, made available at no charge to and for use by schools, government bodies, non-profit organizations and individuals as requested during normal hours of operation; **5-Year Agreement:** 9.5 The CRD will in good faith consider extending access to the meeting room and interpretive space on weekends and evenings when booked through the CRD for educational purposes.	
AIR FILTERS FOR SCHOOLS (b)(5) High efficiency air filter systems to improve air quality and odour reduction for schools within the Immediate Community. ...(c)(5) *same for* Nearby Community ...(d)(7) *same for* Extended Community.	N/A	**DELETED**	Same as previous column - Deleted.
LEED GOLD ® (b)(6) Green Building and Design Features, as follows:	N/A	**Bylaw: DELETED** **5- Year Agreement:** 2.2 The CRD shall	Same as previous column – requirement for LEED ® remains in

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
a. LEED® Gold standard, certified within one year of construction completion, or such longer period as required to address deficiencies provided initial review and report is within first year. ...(c)(6) and (d)(8) Extension of Green Building and Design Features to additional portions of development.		cause the operations and maintenance building of the WWTP to be constructed to the level of LEED® Gold standard.	the 5-year agreement.
DESIGN GUIDELINES (b)(6) Green Building and Design Features, as follows: b. Development consistent with conditions identified in the document entitled "Design Guidelines – McLoughlin Point Wastewater Treatment Plant" prepared by CitySpaces Consulting Ltd. (Revised May 2013), a copy of which is attached to the Official Community Plan, in particular those that are not attainable through normal development permit authority. ... (c)(6) and (d)(8) Extension of Green Building and Design Features to additional	**(b)(1) Design Guidelines:** Development consistent with conditions identified in the document entitled "Design Guidelines – McLoughlin Point Wastewater Treatment Plant" prepared by CitySpaces Consulting Ltd. (Revised May 2013), a copy of which is attached to the Official Community Plan, in particular those that are not attainable through normal development permit authority.	**Bylaw:** (c)(i) **Design Guidelines:** Development consistent with conditions identified in the document entitled "Design Guidelines – McLoughlin Point Wastewater Treatment Plant" prepared by CitySpaces Consulting Ltd. (Revised May 2013), (called the "Design Document") a copy of which is attached to Official Community Plan Bylaw 2006, Bylaw No. 2646 as Schedule H; **5-Year Agreement:** 2.4 (i) and (ii) **Design Review Process** "during October and	Same as previous column Plus the following design guideline has been added to amended Bylaw 2805: "**(9) Development Permit Guidelines** In the case of a development permit issued for a Building for a Wastewater Treatment Plant use that encroaches to a point less than 5 metres from the High Water Mark the following additional guideline may be considered in addition to the guidelines referred to in section 9.5.6 of the Official Community Plan:

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
portions of development.		November 2013", *subject to* "a confidentiality agreement", *but* "The parties acknowledge that such agreement cannot be applicable to the exercise of the Township's statutory powers in relation to the required development permit(s)." (iii) The CRD recognizes that the Project Lands are designated a development permit area in accordance with the *Local Government Act* and therefore the final decision on design and permit issuance rests with the Township's Council (subject however to appeals, judicial review and the authority of the Minister of Environment under the Environmental Management Act). The CRD will bring forward the final design as part of its development permit application for consideration by Township Council, but is free to seek input from Council in advance."	(a) building design and finish and site design should establish a strong architectural and functional relationship between the Building façade and the public pedestrian walkway through one or more of architectural, creative, artistic or other similar elements intended to provide enhanced visual interest for users of the pedestrian walkway,

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
MACAULEY POINT PUMP STATION (b)(7) Macaulay Point Pump station upgrade to standards of design, materials and quality of construction consistent with recent Craigflower Pump Station project, with odour mitigation such that odour is not detectable by humans outside of building using industry best practices agreed to by the Township of Esquimalt, or odour detection level no greater than 5 odour units failing agreement on other best practices. ...(c)(7) *same for* all pump stations within the Nearby Community ...(d)(14) *same for* all pump stations within the Extended Community	N/A	**Bylaw:** (c)(x) **CRD Facilities Visual Upgrade** Aesthetic improvements to the exterior of the Macauley Point Pump Station to a standard of quality and finish at least equivalent to the Craigflower Pump Station, the Currie Road Pump Station and the Trent Road Pump Station, recognizing the prominent location of the Macauley Pump Station in an important waterfront park. **5- Year Agreement:** 9.4 **Macauley Point Pump Station and Related Facilities:** The CRD will improve the aesthetics and operations, in particular to reduce odour, of the Macauley Pump Station within Township boundaries to a standard of quality and finish at least equivalent to the Craigflower Road, Currie Road and Trent Road Pump Stations, recognizing the prominent location of Macauley in an	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		important waterfront park. The CRD shall also make aesthetic improvements to the appearance of the Lang Cove pump station in consideration of the visibility of its location.	
PUBLIC OPEN SPACE (c)(2) Public open space along waterfront (no less than 1,000 m2).	**(b)(7) Public Access and Public Walkway:** Design of building and development of site to incorporate public accessible trails. Trail connection to West Bay should access through abutting Department of National Defence lands.	**Bylaw:** (c)(vii) **Public Open Space:** Public open space on the site to include a public observation point connected to the public pedestrian walkway;	Same as previous column
PUBLIC ART (c)(3) Public Art on public open space of a value no less than $100,000, visible and oriented both to passing boats and floatplanes, respecting and exploiting the subject property's prominent position of entrance to the Victoria Harbour. ... (d)(10) Heritage Interpretative Signage, recognizing the historic uses on the subject property and process to transition to current uses (Minimum 5 signs for stations along a	N/A	**Bylaw:** (c)(viii) **Public Art:** Public art on the site having a value of $100,000.00 to include heritage interpretive signage; **5- Year Agreement:** 9.3 **Public Art and Interpretive Signage Improvements:** In satisfaction of section 55(2)(c)(vii) of the Zoning Bylaw, the CRD will provide a cash allowance of $100,000 to provide for public art and historical interpretive signage that may be internally or	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
walkway in public open space area).		externally displayed. The historical interpretive signage shall be of a design, materials and quality of construction and installation as directed by the Township acting reasonably, and shall be completed prior to the termination of this Agreement. The public art shall be determined following a process that includes approval of both the CRD and the Township.	
PUBLIC OPEN SPACE IMPROVEMENTS (d)(2) The provision of public open space improvements of a value no less than $75,000, including picnic benches and "tot" park playlot with appropriately themed play equipment and safety features given proximity to open water.	N/A	**Bylaw:** (c)(ix) **Public Open Space Improvements:** At least 3 benches to be installed in public open space referred to in paragraph (vii); **5- Year Agreement:** *See below under Public Walkway*	Same as previous column
PUBLIC PIER/ DOCK (d)(3) Pier or dock, of sufficient size to fulfill previous condition, including with provision of harbour tugboat pedestrian ferry	N/A	**Bylaw:** (c)(vi) **Boat Moorage:** …(B) A dock or other similar watercraft landing structure to permit emergency and employee	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
service, either by property owner or through contract with existing operator.		access to the site and at least seasonal public use secured by a statutory right of way in favour of Esquimalt for and on behalf of the public. **5- Year Agreement:** 7.0 **Emergency and Public Seasonal Access** In addition to the boat moorage identified in section 55(2)(c) of the Zoning Bylaw, the CRD shall construct a dock or other similar watercraft landing structure to permit emergency access and may include CRD employee access, and shall make reasonable efforts to provide for at least seasonal public use to be made of the dock, subject to Transport Canada approval, Department of Fisheries and Oceans Canada approval, and provided that the installation of a dock or similar facility does not trigger a requirement for an environmental impact assessment, other than in connection with the emergency and CRD employee access.	

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		See also below under Public Walkway	
PUBLIC WALKWAY (d)(4) Public Walkway: Design of building and development of site to incorporate public accessible trails, and off-site construction of trail connection to West Bay Neighbourhood.	**(b)(7) Public Access and Public Walkway:** Design of building and development of site to incorporate public accessible trails. Trail connection to West Bay should access through abutting Department of National Defence lands.	**Bylaw:** (c)(v) **Public Access and Public Walkway:** Design of building and development of site to incorporate public pedestrian walkway secured through a statutory right of way of 2.25 metres average width and in any event not more than 3 metres nor less than 1.5 metres in width at any point along the waterfront in favour of Esquimalt for and on behalf of the public to the respective boundaries of the property to permit future public walkway connection to West Bay if access through abutting Department of National Defence lands is permitted; **5- Year Agreement:** 9.2. **Public Access, Walkway and Open Space Improvements:** (a) The CRD will design and install a walkway system the length of the harbour side of the WWTP site and comprising a	Same as previous column Plus the following wording with respect to a regional park or walkway has been added to the Host Community Impact 5-Year Agreement: 9.2(d) If the Township does not elect to assume responsibility for the dock, pedestrian walkway and observation area under paragraph (c), the CRD shall establish a regional park or regional trail at McLoughlin Point to include the dock, pedestrian walkway and observation area.

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		design that is consistent with the CRD Design Guidelines. A public observation deck will be installed at the end of the walkway. It is acknowledged and agreed that the improvements referred to in this section shall be subject to the outcome of any environmental assessment process to be undertaken separately from the environmental assessment required in connection with the WWTP. The CRD agrees that the value of the Open Space and Improvements will be at least $75,000, and shall be completed prior to the sooner of the commencement of WWTP operations or termination of this Agreement. (b) The statutory right of way referred to in section 55(2)(c) of the Zoning Bylaw shall be in a form acceptable to the Township, acting reasonably, under which the public will not have a right of access nor will the Township assume	

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		maintenance liability or operational responsibility unless or until the walkway to be provided under this section is connected to a public walkway providing public access from one or more boundaries of the Project Lands, or the Township elects to assume responsibility under subsection 2(c). The CRD shall make all reasonable efforts to ensure that the public walkway is 3 metres in width, and will only reduce the walkway to 1.5 metres in width where necessary because of physical constraints. (c) Notwithstanding section 9.2(b), upon the establishment of seasonal public use of the dock contemplated by section 7.0, the Township may, in its unfettered discretion, by written notice to the CRD elect to assume full responsibility for the dock, pedestrian walkway and observation area upon the opening of the dock to public use.	

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
RECLAIMED WATER (d)(9) Integration of reclaimed water into the design of the buildings, including a rooftop wetland and landscaped feature.	**N/A**	**DELETED**	Same as previous column – Deleted.
FIRE HYDRANTS (d)(11) Consistently designed and themed upgrades to the fire hydrants and support equipment parts in the Immediate Community, to coincide with waterworks upgrades necessary for the treatment facility, such hydrants and other necessary above-ground components being distinct from the rest of the Township, unique to the proponent, including recognition of provision by the proponent further to this bylaw.	**(b)(2) Upgrades to Water/Firefighting Protection:** Consistently designed and themed upgrades to the fire hydrants and support equipment parts, to coincide with waterworks upgrades necessary for the treatment facility, such hydrants and other necessary above-ground components being distinct from the rest of the Township, unique to the proponent, including recognition of provision by the proponent further to this bylaw.	**Bylaw: DELETED** **5- Year Agreement:** **4.0 Water System Upgrades** Recognizing that the WWTP will require the water service to be upgraded, the CRD agrees, as part of the water service upgrade, to provide fire standard hydrants and appurtenances as requested by the Township, to coincide with upgrades to the City of Victoria's water system located within the boundaries of the Township necessary for the proper operation of the WWTP.	Same as previous column
UNDERGROUND CONDUIT (d)(12) Provision of underground conduit and other appurtenances to facilitate	**(b)(3) Hydro Power Grid System:** Provision of underground conduit and other appurtenances to facilitate	**Bylaw: DELETED** **5- Year Agreement:** **5.0 Conduits** The CRD agrees that in connection with the excavation of	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
undergrounding of all utilities, including electrical infrastructure upgrades, so as to minimize impacts on surrounding community.	undergrounding of all utilities, including electrical infrastructure upgrades, so as to minimize impacts on surrounding community.	highways in connection with construction of the WWTP, and the Heat Loop if accepted by the Township, the CRD shall install or cause to be installed a subsurface conduit to the standards of BC Hydro. It is acknowledged and agreed, however, that nothing in this Agreement obliges the CRD to install such underground wiring at the time of construction of the WWTP, the Heat Loop or otherwise.	
ODOUR & NOISE REDUCTION (d)(15) Odour-reducing and noise mitigation measures that are within the top 10 percentile of comparable facilities developed in previous five (5) years in major waterfront cities in North America and Europe, such that odour is not detectable by humans outside of building using industry best practices agreed to by the Township of Esquimalt, or odour detection level no greater than 5 odour units failing agreement on other best	N/A	**Bylaw: DELETED** **5- Year Agreement:** 2.3 **Odour-Reducing Improvement** (i) The CRD shall cause the WWTP to be designed and constructed to incorporate odour-reducing technology intended to result in odour levels that will not exceed five (5) odour control units as measured at the boundary of the Project Lands. (ii) The CRD will not accept the WWTP until the standard under paragraph 2.3(i) can be met.	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
practices.		(iii) If, following commissioning, the WWTP emits odour in excess of 5 odour control units as measured at the boundary of the Project Lands, the CRD shall, expeditiously and in good faith, use best efforts to investigate and remediate the source of the odour in order to reduce odour to the agreed level. **Operating Agreement:** 8.0 **Odour** If the WWTP emits odour in excess of 5 odour control units as measured at the boundary of the Project Lands, the CRD shall expeditiously and in good faith, use best efforts to investigate and remediate the source of the odour in order to reduce the odour to the agreed level.	
BIOSOLIDS BY PIPE OR MARINE ONLY (d)(16) Facility design to ensure that any products, byproducts, biosolids or other goods and commodities be	N/A	**DELETED**	Same as previous column – Deleted

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
transported off-site only by means of piping or marine access, thereby reducing negative transportation impacts on the Immediate Community.			
NO BIOSOLIDS PLANT (d) (17) That no odour-causing and/or methane-producing (of any level) facilities related to the use of the subject property be located off-site within the Extended Community, except for pipes, outfalls, pumping stations and accessory appurtenances.	N/A	**Bylaw: DELETED** **Operating Agreement:** 7.0 **Biosolids Treatment Plant** 7.1 The CRD acknowledges and agrees that it will not make use of land situated within the Township for the purpose of a biosolids treatment facility or any other purpose associated with the treatment of biosolids or recovery of energy from biosolids. 7.2 The CRD further agrees to consult with the Township prior to establishing any use of property within the Township. 7.3 For clarity, the Township includes all lands owned by the federal crown including the Graving Dock and lands commonly referred to as the "DND lands" including but not limited to: Work	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		Point, Macaulay Point, Buxton Green, Dockyards, Naden, and Naden North.	
ANNUAL MONETARY CONTRIBUTION (d)(18) Annual contribution of $55,000 to McLoughlin Point Amenity Reserve Fund.	N/A	**Bylaw: DELETED** **Operating Agreement:** *Sections 1-4: Community Impact Mitigation Fee of $55,000 per year, starting 2014, CPI indexed.* *Section 3: Guaranteed for first 5 years or when Heat Loop ready, then either it continues or Heat Loop revenue, at Esquimalt's choice.* *Further discussion of Heat Loop below* *Section 5: Fee payable until WWTP replaced or decommission, with replacement agreement required if replaced.*	Same as previous column
LIAISON COMMITTEE (d)(19) Ongoing liaison committee formed with representatives from Township, local schools, health authority, DND officials community groups and other interested parties (all as available and as	N/A	**Bylaw: DELETED** **Operating Agreement:** 6.0 **Liaison Committee** 6.1 To provide a forum for the discussion of issues relating to	Same as previous column

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
interested), along with operators on subject property, with meeting space provided on subject property at no cost at least once/monthly, including to review satisfaction of above conditions and ongoing operations.		construction and operation of the WWTP and other related activities, the CRD shall establish and maintain a liaison committee (the "Liaison Committee") to include representatives from the Township, the West Bay Neighbourhood Association, the Lyall Street Neigbourhood Association, Department of National Defence, CRD and, until acceptance of the WWTP by the CRD, the CRD's WWTP contractor. 6.2 The Liaison Committee will meet within thirty (30) days of the CRD's WWTP Contractor commencing work on site and thereafter at times established in the first meeting, and at least twice annually while the WWTP is in operation. 6.3 At the first meeting of the Liaison Committee, the members shall elect a chair and vice chair. 6.4 The CRD shall not be considered to be in breach of this	

Existing Zoning Bylaw (per adopted 2806) Section 55(2)	Bylaw 2805 at Second Reading Proposed Section 67.70(2)	"Negotiated" Amendments to Bylaw 2805 Proposed Section 55(2)	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		section if any person invited to participate in the Liaison Committee or to send representatives to the Liaison Committee fails to do so.	

ADDITIONAL AMENITIES NOT IN CURRENT ZONING BYLAW

Heat Loop (District Energy System) at the Township's Option, allowing for 9-month due diligence period and $200,000 reimbursement for investigation costs, and start up costs, if Heat Loop accepted.

5-Year Agreement:

3.0 **Resource Recovery System**
3.1 **Heat Loop:** The CRD shall construct or cause to be constructed a district energy system as generally described in Resource Recovery and Use Plan Technical Memorandum by Kerr Wood Leidal dated September 20, 2013 to connect the WWTP to the intersection of Admirals Road and Esquimalt Road (collectively "Heat Loop").
...
3.3 **Infrastructure Costs**: The CRD shall be responsible for all infrastructure costs associated with the construction of the Heat Loop to/from the intersection of Admirals Road and Esquimalt Road.
...
3.4 Transfer of Title: Upon completion, inspection and commissioning of the Heat Loop, the CRD shall transfer title to the Heat Loop and related appurtenances to the Township for consideration of $10.00 and following such transfer the Township shall thereafter be responsible for the operation and maintenance of the Heat Loop and for the use and distribution of the heat.
...
3.8 **Heat Commitments:** The CRD commits to provide a sufficient amount of heat, or material for heat, in accordance with the assumptions and the equipment identified in the Heat Loop Studies to achieve the projected Heating Sales Revenues without exceeding the Operating and Maintenance costs so identified. The CRD agrees that there shall be no additional costs or charges imposed on the Township from the CRD or the operator of the WWTP, or the Project Lands generally, with respect to the provision of heat for the Heat Loop or otherwise in relation to the Heat Loop.

3.9 **Other Users:** The parties acknowledge and agree that the WWTP will generate energy from the heat of its operations for use on the Project Lands. Provided that the heat delivered to the Township is sufficient to permit the Township to achieve the quantity of heat sufficient to achieve the projected heating sales revenues identified in the Heat Loop Studies, and provided the Township shall have exclusive rights to licence or sell the use of heat to the Department of National Defence Lands "DND"), the CRD may licence the use of heat to customers not within the boundaries of Esquimalt or DND.

Appendix "G"

Comparison of Bylaw Regulations Between Existing Zoning Bylaw 2806, Bylaw 2805 as it stands at second reading, Bylaw 2805 as negotiated between Township of Esquimalt staff and CRD staff, and Bylaw 2805 as proposed by the CRD on December 20, 2013

Table 2 Comparison of bylaw regulations between existing Zoning Bylaw 2806, Bylaw 2805 as it stands at second reading, and Bylaw 2805 with the proposed amendments for further consideration by Council following negotiations between Township and CRD staff, assisted by Provincial representatives.

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
I-3 INTENT STATEMENT: The intent of this Zone is to accommodate either the historic bulk petroleum storage facility and related uses, or the Core Area Liquid Wastewater Treatment Plant, including potential accessory or additional commercial, high-tech industrial, recreational and educational uses, or any combination thereof to create a mixed use development. In 2013, the types of commercial uses were altered so as to promote a mixed-use development serving a clientele of all ages. Non-industrial uses are contingent on satisfaction of environmental and contaminated site requirements.	CD-83 Zone N/A	The intent of this zone is to accommodate the Core Area Liquid Wastewater Treatment Plant, including potential accessory or additional commercial, high tech industrial, recreational and educational uses, or any combination thereof to create a mixed use development.	Same as previous column

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
55(1) PERMITTED USES: (a) Bulk storage tanks (b) Accessory office (c) Accessory Residential, subject to Section 26 (d) Wastewater Treatment Plant, which may include any or all of the following additional uses: (i) Commercial Instruction and Education (ii) Educational Interpretive Centre (iii) Research Establishment (iv) Business and Professional Office (v) Marine Outfall (vi) Accessory uses (e) Business and Professional Office (f) High technology uses (g) Accessory Retail (h) Hotel (i) Entertainment and Theatre (j) Boat Moorage Facility (k) Park	(a) Wastewater Treatment Plant (b) Accessory Uses	(a) Wastewater Treatment Plant, including, without limitation, any or all of the following additional uses: (i) Educational and Interpretive Centre (ii) Commercial Instruction and Education (iii) Research Establishment (iv) Business and Professional Office (v) Marine Outfall (vi) Sewage Pumping Facility (vii) Accessory Uses (b) Business and Professional Office (c) High technology uses (d) Accessory Retail (e) Entertainment and Theatre (f) Hotel (g) Assembly Use (h) Boat Moorage Facility (i) Park (j) Accessory	Same as previous column

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		Uses	
55(2) DENSITY: *Detailed provisions with 3 density bonus levels and detailed amenities. Includes rate of discharge and capacity figures as density measures.*	Only one density bonus level with amenities described above. Floor Area Ratio, Floor Area, Lot Coverage, Authorized rate of discharge for effluent, and maximum plant capacity as density figures.	*Only one density bonus level with amenities described above. Only floor area ratio, floor area and site coverage as density figures.*	Same as previous column
55(4) LOT COVERAGE This section does not apply to uses under 55(1)(d) through (k)	See above	"(4) Site Coverage (a) For the purposes of this Section 55, "Site Coverage" means the figure obtained using the sum of the areas of Building footprints, including covered wastewater tanks not located within a Building, measured from the outside of exterior walls, expressed as a percentage of the total area of all parcels in the McLoughlin Point Special Use [I-3] Zone covered by a Building;	

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		(b) For certainty, Site Coverage shall not include any surface parking area, seawall or pedestrian walkway or other paved public open space.	
55(5) BUILDING & STRUCTURE HEIGHT: (a) No Building or Structure shall exceed a Height of 10.0 metres (b) Height of Principal Building may be increased by 5 metres (to 15 m maximum) for uses under Section 55(1)(d) [wastewater treatment plant] if combined in a mixed–use development with uses under subsections 55(1)(e) through (j). (c) Height of Principal Building may be increased by 5 metres (to 15 m maximum) for uses under Section 55(1)(h) [hotel] when such hotel includes convention facilities	No Principal Building shall exceed a Height of 15 metres.	Building and Structure Height (a) For the purposes of this I-3 Zone, Height shall be measured from the Grade at seven (7.0) metres above the High Water Mark as such is determined as of January 1, 2014 (or earlier). For clarity, the purpose of this unique interpretation provision is to allow for sufficient tsunami protection for the proposed development in this Zone. (b) On the portion of the lands in the I-3 Zone within the area measured inland 20 metres	Building and Structure Height (a) Same as previous column Add: (c) In the case of use of land as a Wastewater Treatment Plant and uses accessory to a Wastewater Treatment Plant,

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
and if combined in a mixed–use development with other uses under subsections 55(1)(e) through (j). (d) Notwithstanding anything to the contrary in this section, the maximum height of a building or structure located within 20 m of the high water mark is 5.0 m		from the High Water Mark (the "Low Height Area"): (i) No Building or Structure shall exceed a Height of 12.0 metres, but only up to a maximum of 12% coverage within the Low Height Area and the length of such a Building or Structure in the Low Height Area shall not exceed 35% of the length of the shoreline measured at the High Water Mark; (ii) No Building or Structure shall exceed a Height of 5.0 metres for the remaining 88% coverage of the Low Height Area. (c) On the remaining portion of the lands in the I-3 Zone, no	Change "12%" to "35%". Change "88%" to "65%" Now (d) Add "and" after "Height" Add the following:

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		Building or Structure hall exceed a Height of 12.0 metres except that the maximum Height of a Building may be 15 metres provided that: (i) not more than 15% of the total area of the lands in the I-3 Zone is covered by a Building that exceeds 12.0 metres in Height; (ii) the sole purpose for exceeding 12.0 metres is to accommodate mechanical equipment or one odour control tower associated with the treatment of sewage."	(e) In the case of a use of land other than a Wastewater Treatment Plant: (i) no Building or Structure shall exceed a Height of 10 metres; (ii) the Height of a Principal Building may be increased by 5 metres (to 15 m maximum) for uses under section 55(1)(f) [hotel] when such hotel includes convention facilities and if combined in a mixed-use development with one or more other uses under subsections 55(1)(b) through (h)."
55(6) SITING REQUIREMENTS: (a) No Building shall be located within 7.5 metres of a Lot Line that is shared with a Parcel zoned for residential Use. (b) Front Setback:	No setbacks are required	No setbacks are required except as follows: (a) Buildings shall be set back an average of 7.5 metres from the High Water Mark	The following phrase is added in from of the word, "Buildings" *In the case of use of land as a Wastewater Treatment Plant and uses*

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
No Building shall be located within 7.5 metres of the front Lot Line (c) Exterior Side Setback: No Building shall be located within 4.5 metres of an Exterior Side Lot Line. (d) No Building shall be located within 7.5 metres of the High Water Mark. (e) For the purposes of this Zone, where there is no abutting highway, the private road from which the property gains access shall be considered the Front Lot Line.		provided that an encroachment into this Setback is permissible to no more than 3.5 metres from the High Water Mark but only on satisfaction of all of the following conditions: (i) such encroachment shall be no greater than 10% of the site area contained within the area of the entire 7.5 metre Setback; (ii) for every square metre that a building encroaches into the Setback area, an equal area of that building is set back behind the 7.5 metre Setback; (iii) that no part of the Building encroaching within the 7.5 metre Setback is taller than 5.0 metres in Height; and (iv) such encroachment does not prevent the establishment of, or overhang, a	*accessory to a Wastewater Treatment Plant*, 3.5 m changed to 1.0 m 10% changed to 15% 5.0 metres changed to 10.5 metres The word "overhang" is deleted. New section (c)

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
		public walkway, as identified in this zone. (b) For certainty, paragraph (a) Setback does not apply to the seawall, public walkway or public open space, other landscaping or hard exterior surface areas such as parking or similar structures. (c) No building shall be located within 4.5 m of the most northerly lot line, between the water and Victoria View Road.	added: "In the case of a use of land other than a use referred to in paragraph (a), no Building shall be located within 7.5 metres of the High Water Mark. The words, "In all cases" are added in front of, "no building" in former section (c).
55(7) SCREENING & LANDSCAPING (a) Screening and Landscaping shall be provided in accordance with Section 23. (b) Landscaping shall be provided along the entire Front Lot Line for a minimum width of 7.5 metres except for points of ingress and egress. In the case of a Corner Lot, the	No screening or landscaping is required.	Screening and landscaping shall be provided generally in accordance with the locations and standards shown in the Design Guidelines, provided that at least 20% of the total area used to calculate Site Coverage is left in its natural state, hard or soft	

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
exterior Side Yard Setback of 4.5 metres shall be landscaped except for points of ingress and egress. (c) For the wastewater treatment plant use: (i) A minimum 4.0 m wide landscaped buffer shall be located within the setback from the High Water Mark. The landscaping shall be of sufficient quality and quantity as to completely obliterate any view of a wastewater treatment plant building and tanks from the marine environment. (ii) Except for places of entrance and egress to the site, a minimum 2.5 m wide landscaped buffer shall be located in the front and all side setbacks.		landscaping (including pedestrian walkway and other public open space) or covered with a green roof.	
55(8)OFF-STREET PARKING	Notwithstanding the Township's Parking	Notwithstanding	Same as previous column

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
Off street parking shall be provided in accordance with the requirements as specified in Parking Bylaw, 1992, No. 2011 (as amended). In addition, the number of spaces required shall include: Liquid Waste Management Plant 1 space / 132 m2	Bylaws, as amended from time to time, the total number of off-street parking stalls required in this zone is 34.	the Township's Parking Bylaws, as amended from time to time, the total number of off-street parking stalls required in this zone is 34.	
Development Permit Guidelines See OCP			New Section added: (9) Development Permit Guidelines: In the case of a development permit issued for a Building for a Wastewater Treatment Plant use that encroaches to a point less than 5 metres from the High Water Mark the following additional guideline may be considered in addition to the guidelines referred to in section 9.5.6 of the Official Community Plan:

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
			(a) building design and finish and site design should establish a strong architectural and functional relationship between the Building façade and the public pedestrian walkway through one or more of architectural, creative, artistic or other similar elements intended to provide enhanced visual interest for users of the pedestrian walkway,
55(10) SEVERABILITY In addition to Section 5 of this Bylaw, and for greater certainty for this Zone, should any measure of density, associated condition or amenity be held to be invalid by the decision of any Court of competent jurisdiction, that measure of density, condition or amenity may be severed without affecting the validity of the density-bonusing	N/A	In addition to Section 5 of this Bylaw, and for greater certainty for this Zone, should any measure of density, associated condition or amenity by held to be invalid by a decision of a Court of competent jurisdiction, that measure of density, condition or amenity may be	

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
scheme and other measures of density, conditions or amenities.		severed without affecting the validity of the density-bonusing scheme and other measures of density, conditions or amenities	
55(11) SATISFACTION: (b) Where a condition requires the approval or permission of an authority beyond the control of the property owner, then the condition shall be interpreted as requiring the property owner's best efforts to secure such permission, including identification of this Bylaw requirement with the initial request, satisfaction of conditions imposed by the third party and appeal if the request/application is initially rejected (including by enlisting the support of the Township). For example: (i) Bonus Density Level 1 Condition 2, and Level 3 Condition 3 each require permission	N/A	(a) For certainty, in the case of a condition under Section 55 (2), land may be developed and used for a Wastewater Treatment Plant even where all conditions have not been fulfilled or completed provided the property owner is proceeding with a reasonable plan to design, construct and install the amenities in accordance with the construction and proposed use of the Wastewater Treatment Plant, and such has been secured by agreement with the Township. (b) The Public Access and Public Walkway and	

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
from the Government of Canada given jurisdiction over navigable waters; (ii) Bonus Density Level 1 Condition 3(a) and Level 3 Condition 4 each require permission of the Government of Canada, Department of National Defence, given the adjacent DND Lands; and (iii) Bonus Density Level 1 Condition 5, Level 2 Condition 5 and Level 3 Condition 7 each require permission of the affected school(s) and School District No. 61. (c) Where a condition is severed, or best efforts under this provision have not resulted in the necessary third-party approval, then the condition shall be deemed satisfied on the provision of all of the following: (i) Court Order of severance or written evidence of third-party rejection, including denial of appeal as applicable; (ii) independent		Public Open Space referred to in Section 55 (2) shall be subject to the outcome of any environmental assessment process to be undertaken separately from the environmental assessment required in connection with the Wastewater Treatment Plant which may require the public walkway to be modified or relocated, but not eliminated entirely, to avoid impact on the inter-tidal zone.	

Existing Zoning Bylaw (per adopted 2806)	Bylaw 2805 at Second Reading	The "Negotiated" Amendments to Bylaw 2805	CRD's Revised Proposal for Bylaw 2805 as of December 20, 2013
appraisal estimating the cost of the provision of the amenity or satisfaction of the condition, should the condition may have been satisfied; and (iii) a cash contribution equivalent to the cost of the provision of the amenity or satisfaction of the condition, from the property owner to the Township for the McLoughlin Point Amenity Reserve Fund, such monies to be used for replacement amenities or conditions that are consistent with governing authority, including further enhancements or additions to remaining amenities or conditions.			