



Attachment A

Victoria CRD Technical Memorandum

Victoria CRD Technical Memorandum



HRP's design is a facility that will treat 108 MLD Average Dry Weather Flow (ADWF), and compliant with the current 2806 zoning bylaw. Both the 124 MLD and 108 MLD options include a Peak Wet Weather Flow (PWWF) treatment capacity of 432 MLD. **Table 1** on the following page provides a summary comparison of the original proposal design to our current bylaw compliant facility scheme.

We have reviewed the changes to the plant against the conveyance lines to and from the plant and can confirm that sizing for the harbor crossing line and tunneled outfall line will not be impacted. The addition of tertiary treatment, if so desired, will affect the hydraulic profile and result in one of two solutions; 1) the entire facility will need to be lowered by up to 1m to accommodate the increased head loss and remain compliant with the height restriction or, 2) intermediate pumping will need to be added in advance of the disc filtration. The intermediate pumping will result in increased electrical costs however, eliminating the MBBR from the initial design will reduce electrical costs due to less air requirements so the net difference may be negligible. In order to maintain height compliance with 108MLD facility portions of the plant needed to be lower and will increase the risk of encountering contaminated soil on the partially reme.iated property. Initial assessment indicated a potential cost impact of up to \$700,000. A detailed cost evaluation, including both construction and long term operations, will need to be completed during preliminary design

to recognize the most economical solution. If required to lower the facility further for disc filtration this will increase the exposure and value again. Tertiary treatment is described further in Attachment F. With the bylaw compliant layout the maintenance and lifting equipment requirements will change. With structures now over the BAF tanks the monorail originally envisaged in this area will not be feasible and a means will be required to change out the media. Similar lifting arrangements for the electrical room, heat recovery room and generators will need to be worked out during design. General Arrangement drawings of the Option 4 design are included under Exhibit 2 – Option 4 Drawings.

Expansion to Average Dry Weather Flow of 124 MLD

In order to accommodate projected flows and loads in year 2065 the 108 MLD plant would need the following modifications:

- **Primary Treatment;** Add in-pipe coagulant rapid mix system to chemically enhanced primary treatment (CEPT) system and increase chemical doses rates as required.
- **Secondary Treatment;** Install BAF media and process equipment in BAF tank shells #13 and #14 together with ancillary equipment (blowers, backwash pumps, channels, piping and valves, electrical, instrumentation and controls); Install additional secondary effluent recycle pumps
- **Final Effluent Pumping;** Additional or increased final effluent pumping capacity may be required if Advanced Treatment (e.g. disc filters) are included in the plant configuration.
- **Chemical / Water / Sludge Storage;** there is no space available for increased storage volumes for chemicals, dirty wash-water, clean wash-water and sludge, therefore storage buffer capacities will be reduced proportionately.
- **Electrical & Instrumentation and Controls;** It is anticipated that there will be sufficient motor control center starter and control system I/O card slot spares available to facilitate the expansion, however increased incoming and standby power generation capacity may be required.

Table 1 Comparison of Key Elements of our Updated Proposal to Our Original Proposal

Element	Proposal Facility	Bylaw Compliant Facility
Treatment Capacity (Average Dry Weather Flow)	124 MLD	108 MLD
Treatment Capacity (Peak Wet Weather Flow)	432 MLD	Same as proposal design
Treatment Processes	Primary treatment using lamella plate settlers, peak wet weather flow treatment using Desadeg high rate clarifiers, moving bed biofilm reactors (MBBR) for pre-treatment, fine screening, biological aerated filters (BAF) for secondary treatment, Densadeg high rate clarifier for sludge thickening and odour control	Primary treatment using lamella plate settlers, peak wet weather flow treatment using Desadeg high rate clarifiers, fine screening, biological aerated filters (BAF) for secondary treatment with secondary effluent recycle for additional treatment, Densadeg high rate clarifier for sludge thickening and odour control
Primary Treatment	45 plate packs (15 in each tank – total of 3 tanks) x 4.7 MLD/unit for a total treatment capacity of 216 MLD	40 plate packs (20 in each tank – total of 2 tanks) x 4.7 MLD/unit for a total treatment capacity of 188 MLD
Peak Wet Weather Flow Treatment	2 - 38 foot DensaDeg high rate clarifiers x 122 MLD/unit 244 MLD	2 - 38 foot DensaDeg high rate clarifiers x 122 MLD/unit 244 MLD
Total Peak Wet Weather Flow Treatment	432 MLD	432 MLD
Secondary treatment	2 MBBR units 14 BAF units Maximum flow to secondary treatment 248 MLD	12 BAF units 1 secondary effluent pump station (65% to 85% of forward flow) Maximum flow to secondary treatment 216 MLD
Sludge Thickening	1 - 38 foot DensaDeg high rate clarifiers	1 - 38 foot DensaDeg high rate clarifiers
Site utilization	62 %	52 %

Table 1 Comparison of Key Elements of our Updated Proposal to Our Original Proposal

Element	Proposal Facility	Bylaw Compliant Facility
Architectural Features	2,197 m ² O&M building (includes 160 m ² mezzanine)	2,090 m ² O&M building (no mezzanine)
Green Roof	70% vegetation cover to the roof of the O&M building only	70% vegetation cover to the roof of the O&M building only
Staff capacity	32	15
Parking	34 spaces + 1 bus	28 spaces + 1 bus
Harbour Crossing	Approx. 900 m bored crossing, 1200mm steel horizontal directional drilled pipe	Same as proposal design
Ocean Outfall	100m tunneled outfall, 2000m bottom lay outfall, 2000 mm steel pipe.	Same as proposal design
Green Designation	Designed and built to LEED Gold certifiable standard.	Same as proposal design
Public features	Boat dock, picnic area and play lot	Same as proposal design
Green Roof	70% vegetation cover to the roof of the O&M building only	70% vegetation cover to the roof of the O&M building only
Dirty Backwash Water Storage Tank	1 – 2,263m ³	1 – Volume TBC based on final hydraulic calculations
Clean Washwater Tank	1 - 495 m ³	1 – Volume TBC based on final hydraulic calculations
Fine Screens	3 (2 duty/1 standby) 124MLD	3 (2 duty/1 standby) 108MLD
Chemical Storage	Facilities for unloading, storage, and handling for ferric chloride, sodium hypochlorite, and polymer. Space will be provided for the addition of hydrogen peroxide and liquid oxygen in the future	Facilities for unloading, storage, and handling for ferric chloride, sodium hypochlorite, and polymer
Heat Recovery	Water-to-water heat pump using the treated water storage tank for heating and cooling the administration building	Water-to-water heat pump using the treated water storage tank for heating and cooling the administration building
Incoming Power Supply	25KV service from BC Hydro	Power supply size TBC once advanced treatment (including any inter-stage of final effluent pumping) requirements are advised
Final Effluent Pumping	None	None for secondary treatment only; may be required if Advanced Treatment is added to scope
Operating Costs	Power, Chemical, Sludge and Labour per. HRP's submitted Evaluation Model (Package 2, Appendix B)	Power, Chemical, Sludge and Labour to be adjusted for the 108MLD design

Bylaw Compliance

HRP provided a design in November 2014 that was strictly compliant with the existing 2806 bylaw, including setbacks and requirements under Bonus Density 3 as detailed in the bylaw. Figure A.1 Each colour in the figure represents the setbacks and height restrictions under the bylaw. Note no part of the plant process or O&M building is visible outside these coloured blocks. Figure A.2 provides an updated Bylaw Compliance Checklist. However, there are some areas open for interpretation and discussion in the bylaw, specifically:

- The “Grotto” – on the south side of the site there is an inlet that encroaches into the site. In order to be able to provide for expansion and a full-loop-access road, HRP built a bridge over the grotto area. Under strict interpretation of the bylaw, we are not constructing a building within the 7.5 metre setback, rather just spanning the inlet. This reasonable allowance provides much needed flexibility for normal day-to-day operations and maintenance of the plant and visits to the facility by tour groups.
- The bylaw requires certain public amenities at the site, such as picnic benches, a “tot lot,” and a pedestrian walkway. The pedestrian walkway is a part of our bylaw compliant design, as is the allowance for the required public amenities. However, the space required for these amenities is also required for either of the advanced treatment modules thus posing a conflict. To address this conflict we have included picnic benches in the landscaping buffer on the west side of the site.
- There are conflicts between the requirements of the bylaw and the design guidelines. We are compliant to the guidelines except where the bylaw requires us to screen the views of the plant building with the planting in the 4m wide landscaping buffer and the design guidelines say trees must be situated more than 10 metres from the south facing wall as this will be a high wind velocity area. It is not possible to screen the views without planting trees within 10 metres.

The Development Permit Area No. 3 Guidelines vs Design Comparison form has also be reviewed and completed and is included as Attachment I.

Green Building and LEED

HRP’s original design included elements required under the zoning bylaw, including a green roof incorporating reclaimed stormwater, and water saving landscaping features. HRP’s design under the RFP included design to LEED Gold standards, but not going through the certification process. The requirements for LEED certification are undergoing a revision in 2017. Specifically, the energy efficiency requirements are more stringent in order to achieve a Gold rating. Our original proposal included incorporation

of LEED Gold features at the time of bid in 2014. While we believe that the Operations and Maintenance facility on site can be designed to meet these new requirements, we have not evaluated the financial impact of the new requirements on the capital cost.

Public Amenities

Both HRP’s original design and the bylaw compliant design include on-site public amenities as required under the bylaw. These amenities include:

- **Public Walkway** – The renderings previously shown indicate public walkways along the shoreline
- **Pier/Dock** – Both designs include a dock suitable of facilitating up to a pedestrian ferry in size
- **Public Open Space Improvements** – Our design includes up to \$75,000 in features for picnic benches and a tot playlot.
- **Education and Interpretive Centre** – We are committed to provide the flexibility of the O&M building space, to provide for both plant staff and the public to use the space for training, education and meetings.
- **Public Art** – There are many opportunities in the design of the plant to incorporate public art, and this element can create some exciting public participation in the outcomes. Our price includes a \$100,000 allowance for public art.

See the Bylaw Compliance section for discussion regarding space requirements for public amenities and plant process facilities.

We are firmly committed to a WWTP design that has maximizes community benefits.

Figure A.1

Our Bylaw Compliant Design has no Variances

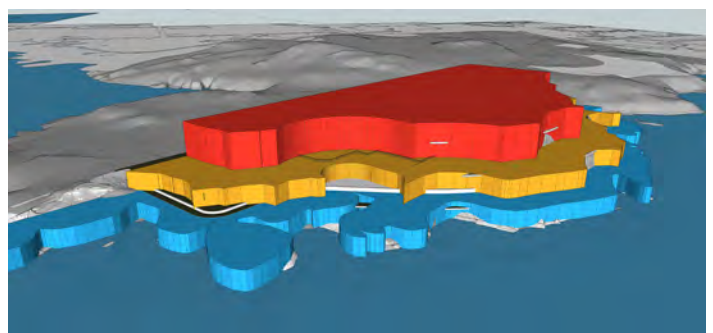


Figure A.2

Bylaw Compliance Checklist

Revision Date: 16-08-31

Bonus Density Target (Base, 1, 2, or 3) 3

Bylaw Conditions	Description*	Onsite/Offsite	Compliance	Action Required To Achieve Compliance	To Be Confirmed	Clarification	Notes
Base Level Regulations							
5.a.i	The Floor Area Ratio shall not exceed 0.05		NA				
5.a.ii	The Floor Area shall not exceed 675m ²		NA				
5.a.iii	Lot Coverage shall not exceed 15%		NA				
5.a.iv	rate of discharge for effluent ≤ 57,000 m ³ /d		NA				
5.a.v	plant capacity not to exceed 15ML/day ADWF		NA				
Base Level Conditions							
None			NA				
Bonus Density Level 1 Regulations							
5.b.i	The Floor Area Ratio shall not exceed 0.1		NA				
5.b.ii	The Floor Area shall not exceed 1,350m ²		NA				
5.b.iii	Lot Coverage shall not exceed 30%		NA				
5.b.iv	rate of discharge for effluent ≤ 115,000 m ³ /d		NA				
5.b.v	plant capacity not to exceed 30ML/day ADWF		NA				
Bonus Density Level 1 Conditions							
5.b.1	Building materials and supplies by barge / reduced trucking	onsite	YES				
5.b.2	Pier of sufficient size to satisfy 5.b.1	onsite	YES				
5.b.3	Traffic calming in <i>Immediate Community</i>	offsite	YES	YES	HRP/CRD		ADDITION SCOPE CAN BE
5.b.4	Education and interpretive Centre, min 25m ²	onsite	YES				
5.b.5	Air Filter Systems for schools within <i>Immediate Community</i>	offsite	YES	YES	CRD		
5.b.6.a	LEED Gold standard, certified within one year of construction	onsite	?	? TBC	HRP		NEW REQUIREMENT
5.b.6.b	Development consistent with "Design Guidelines" May 2013	onsite	YES				
5.b.7	Macaulay Point Pump station upgrade	offsite	YES	YES	CRD		
Bonus Density Level 2 Regulations							
5.c.i	The Floor Area Ratio shall not exceed 0.25		NA				
5.c.ii	The Floor Area shall not exceed 3,000m ²		NA				
5.c.iii	Lot Coverage shall not exceed 55%		NA				
Bonus Density Level 2 Conditions							
5.c.1	all 5.b conditions		YES		HRP/CRD		
5.c.2	Public open space along waterfront ≥1,000m ²	onsite	YES				
5.c.3	Public Art on public open space value ≥\$100,000	onsite	YES				
5.c.4	Education and Interpretive Centre ≥50m ²	onsite	YES				
5.c.5	Air Filter systems for schools within <i>Nearby Community</i>	offsite	YES	YES	CRD		
5.c.6	Extension of Green Building and Design Features (5.b.6.a and 5.b.6.b) onsite to additional portions of development	onsite	?	? TBC	HRP	YES	Coord. With School District To which portions of the development should GBDFs be
5.c.7	Upgrade all pumpstations within <i>Nearby Community</i>	offsite	YES		CRD		
Bonus Density Level 3 Regulations							
5.d.i	The Floor Area Ratio shall not exceed 0.35		YES				
5.d.ii	The Floor Area shall not exceed 4,500m ²		YES				
5.d.iii	Lot Coverage shall not exceed 75%		YES				
5.d.iv	rate of discharge for effluent ≤ 379,100 m ³ /d		YES		HRP		
5.d.v	plant capacity not to exceed 108ML/day ADWF		YES		HRP		
Bonus Density Level 3 Conditions							
5.d.1	all 5.b conditions and 5.c conditions		YES		HRP/CRD		
5.d.2	provision of public open space improvements (picnic benches, playlot) of a value ≥\$75,000	onsite	YES				
5.d.3	Pier or dock, including provision of harbor tugboat pedestrian ferry	onsite	YES				
5.d.4	Public Walkway - onsite and offsite connection to West Bay Neighbourhood	onsite/offsite	?	?TBC	CRD		Negotiate approval with DND
5.d.5	additional traffic amenities on all streets between Lampson Road and Esquimalt Road.	offsite	YES		CRD		
5.d.6	Education and Interpretive Centre ≥75m ² including a "Centre of Excellence"	onsite	YES				
5.d.7	Air Filter systems for schools within <i>Extended Community</i>	offsite	YES	YES	CRD	Yes	Coordinate w/ School District To which portions of the development should GBDFs be
5.d.8	Extension of Green Building and Design Features (5.b.6.a and 5.b.6.b) onsite to additional portions of development	onsite	?	?TBC	HRP		
5.d.9	Integration of reclaimed water into the design of buildings, including rooftop wetland and landscaped feature.	onsite	YES	Revise Ops Building design	HRP		
5.d.10	Heritage Interpretative Signage (min. 5 signs along public walkway)	onsite	YES	Revise landscape	HRP		
5.d.11	Upgrade fire hydrants and support equipment in <i>Immediate Community</i>	offsite	YES		CRD		
5.d.12	Provision of underground conduit and other appurtenances to facilitate undergrounding of all utilities.	?	YES		HRP/CRD	Yes	Please confirm extent of underground conduit to be confirm definition of 'all roads'
5.d.13	Reinstatement of all roads affected by project.	offsite	YES		CRD		
5.d.14	Upgrade all pump stations within the <i>Extended Community</i>	offsite	YES		CRD		

5.d.15	Odor-reducing and noise mitigation measures within top 10 percentile of comparable facilities in North America/Europe [max. 5 odor units].	onsite	YES	YES	revised design to meet requirement	HRP
5.d.16	All products, byproducts, biosolids, or other goods/commodities be transported offsite only by piping or marine access	onsite		YES		HRP/CRD
5.d.17	No odor-causing/methane producing facilities be located offsite	onsite	YES	YES		HRP
5.d.18	Annual contribution of \$55,000 to McLoughlin Point Amenity Reserve Fund	onsite		YES		CRD
5.d.19	Ongoing liaison committee	onsite		YES		CRD
General Regulations						
7.b	Height of Principal Building may be increased to 15m max if combined in a mixed use development with other uses		YES	Pier		HRP
7.d	Maximum height of a building within 20m of HWM is 5.0m		YES			
8.d	No Building shall be located within 7.5m of the HWM		YES			
9.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. <u>The landscaping shall be of sufficient quality and quantity to completely obliterate any view of a wastewater treatment plant building and tanks from the marine environment.</u>		YES, but achieving the extreme screening is very challenging			
9.c	(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.		YES			
10	In addition, the number of spaces required shall include: Liquid Waste Management Plant 1 space / 132 m2.		YES			
Bylaw 2050 section 55 Regulations						
55(5)	No Building or Structure shall exceed a height of 10.0 metres.		see 7.b			
55.6.b	No building shall be located within 7.5m of the front Lot Line		YES			
55.6.c	No building shall be located within 4.5m of an Exterior Side Lot Line		NA			

*** NOTE** Description indicative only. Please refer to text of Bylaw No. 2806 for specific wording.

Critical Definitions

Term Definition

"Immediate Community" means the upland area travelling from the subject property, west along the marine boundary to and including Macauley Point Park, north along Clifton Terrace and Lampson Street to Esquimalt Road, then East along Esquimalt Road to the Township's municipal boundary, south along the municipal boundary then along the marine boundary back to the subject property.

"Nearby Community" means the area, upland and marine, within a 1.5km radius for the subject property, including the *Immediate Community*.

"Extended Community" means the upland areas within a 2.5km radius of the subject property, and including the *Nearby Community*

"Boat Moorage Facility" means piers, wharves, floats and ramps located over or on the surface of the water

"Building" means any Structure used or intended for supporting or sheltering any use.

"Grade" means the average natural levels of the ground adjoining each exterior wall of a Building, provided that localized depressions such as vehicle or pedestrian entrances need not be considered in the determination of average levels of natural ground.

"Height" means the vertical distance of a structure measured from Grade to the highest point of the Structure if the Structure has no roof or a flat roof; to the deck line of a mansard roof; to the mean level between the eaves and ridge of a gable, hip, gambrel, or other sloping roof. The measurement of Height shall exclude the projection of chimneys, vents, stacks, heating, ventilation, and air conditioning equipment, stairwells, and elevator lifting devices that protrude above the roof line.

Source

Bylaw No. 2806

Bylaw No. 2806

Bylaw No. 2806

Bylaw No. 2050

Bylaw No. 2050

Bylaw No. 2050

Bylaw No. 2050

Other Considerations

Heat Recovery

The HRP facility has incorporated many sustainable features including an HVAC heat recovery system, maintenance friendly materials of construction and several energy savings measures. Most notably our approach to elevate the hydraulic grade line of the plant makes use of the natural elevation of the influent pipelines.

Permits

The permitting strategy is a key element of getting the project moving forward quickly. HRP team member AECOM's Victoria office has worked with all the relevant permitting agencies, and our proposal schedule reflects the usual and typical times required for submission review and approval. In accordance with the RFP, HRP supports CRD is preparing the Development Permit submittal.

A significant risk to the project is unreasonable delays by government entities for reasons unrelated to the quality of the submittal. We would expect CRD to participate in the permitting process to ensure these potential delays are mitigated.

Based on a financial close date of January 30th, 2017 our schedule requires that the Development Permit be in place by May 30, 2017 and the Building Permit to follow by July 31, 2017 in order to meet the construction completion date. Any extension to these dates may impact the overall completion date.

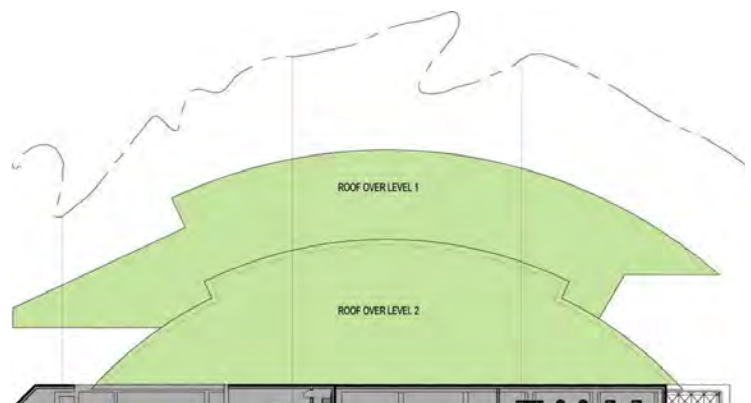
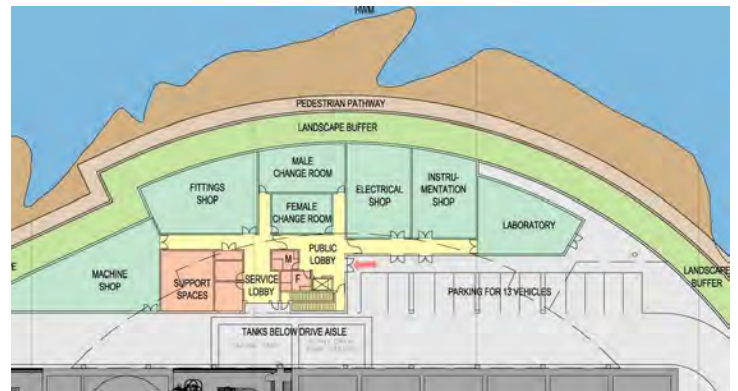
Facility Layout

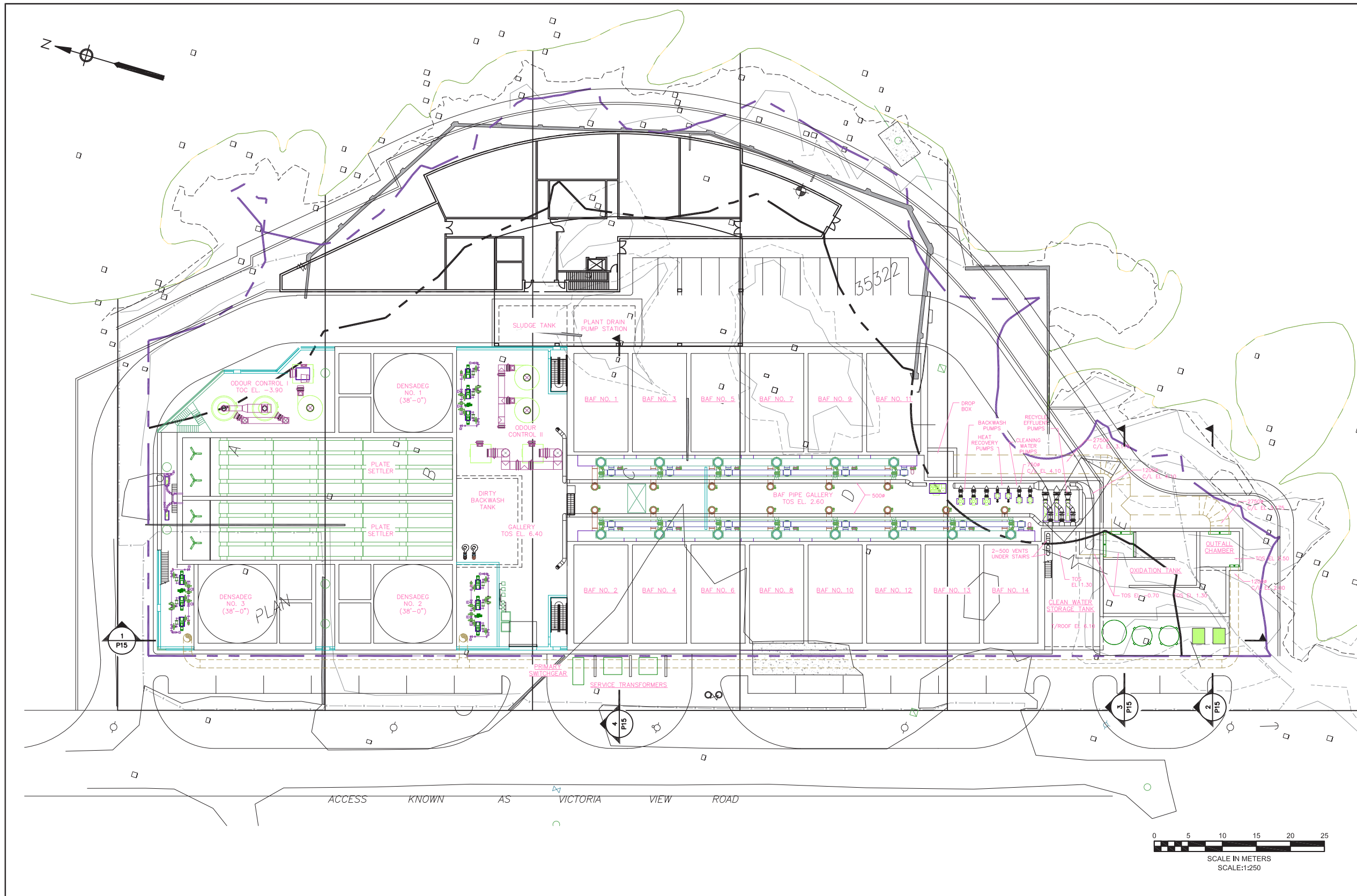
To the right we show layouts of the O&M building for the following:

Top right: O&M building lower level

Middle right: O&M building upper level

Bottom right: O&M building roof



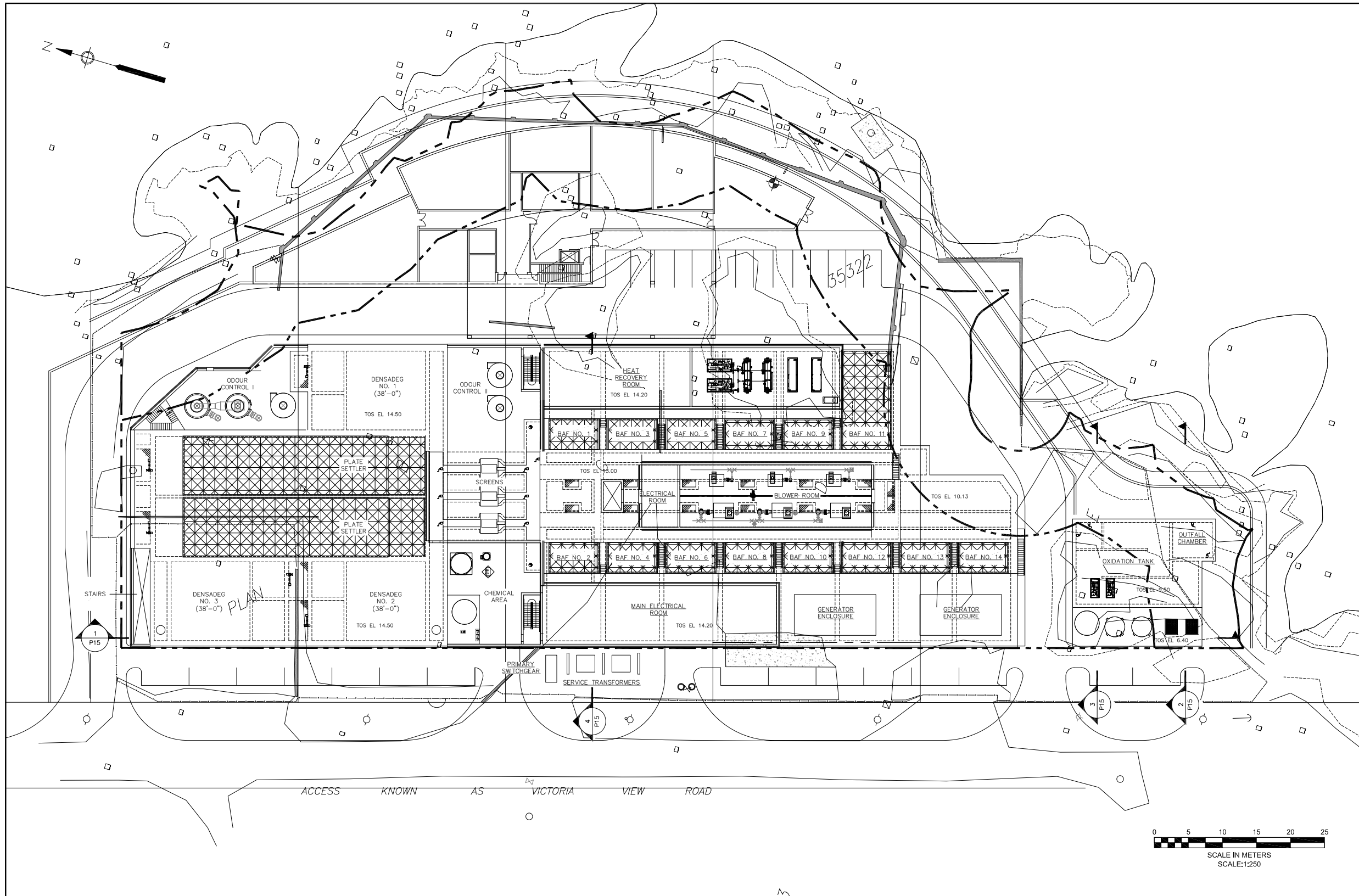


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FOR DISCUSSION						SEPTEMBER 2014				

Capital Regional District	SeaTerra Program	McLOUGHLIN POINT WWTW			
DESIGNED XXX	SURVEYED -	OPTION 4 - PLAN AT EL. 6.40			
DRAWN XXX	DATE SEP 2014				
SCALE HORIZONTAL XXX	CHECKED XXX	CONTRACT NUMBER MC-300	DRAWING NUMBER P-13	ISSUE 1	SHT. No. OF -
SCALE VERTICAL -	APPROVED XXX				

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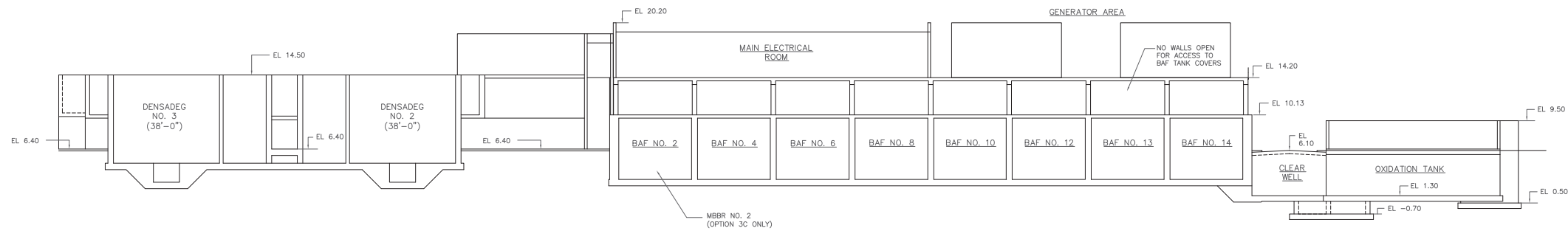
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	DATE	ISSUE	



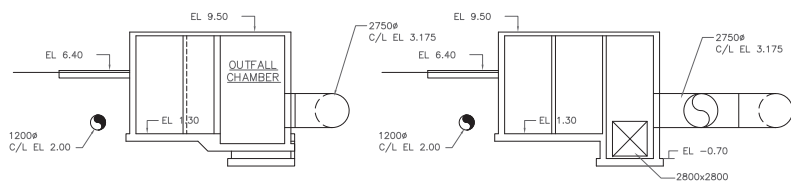
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SCALE VERTICAL	-	APPROVED	XXX

McLOUGHLIN POINT WWTP			
OPTION 4 - PLAN AT EL. 14.50			
CONTRACT NUMBER	MC-300	DRAWING NUMBER	P-14
ISSUE	1	SHT. No.	OF -

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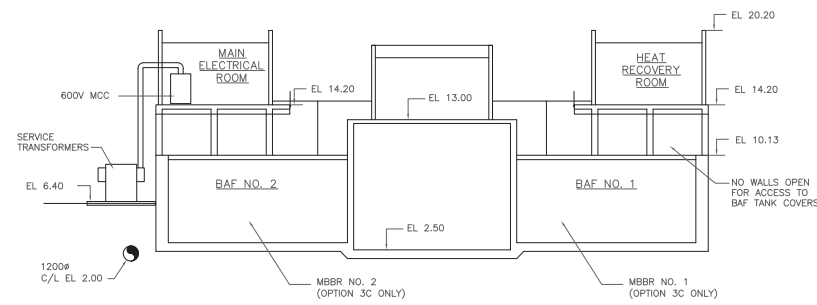


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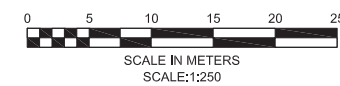


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SECTION 3
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SECTION 4
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SEAL		BY		DATE	No.	REVISION	ENG.	No.	DATE	ISSUE

FOR DISCUSSION

SEPTEMBER 2014



Capital Regional District	SeaTerra Program
DESIGNED XXX	SURVEYED -
DRAWN XXX	DATE SEP 2014
SCALE HORIZONTAL XXX	CHECKED XXX
SCALE VERTICAL -	APPROVED XXX

McLOUGHLIN POINT WWTP			
OPTIONS 3C AND 4 CONCRETE OUTLINE SECTIONS			
CONTRACT NUMBER	MC-300	DRAWING NUMBER	P-15
ISSUE	1	SHT. No.	-
		OF	-

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Attachment B

Updated Contract Price Form



Attachment C

Renderings of 124 MLD versus 108 MLD Facility

Project Renderings

Both the original 124 MLD RFP compliant design and the 108 MLD bylaw compliant design have very favorable aesthetics based on consultation and comments from the City of Esquimalt Design Review Board and the City of Victoria Design Review Board (DRB). During the RFP process, HRP met multiple times with the DRB on the original design, and received notice from these groups that our proposed design was “acceptable” under the “Design Guidelines – McLoughlin Point Wastewater Treatment Plant” prepared by CitySpaces Consulting Ltd. (Revised May 2013)”, which was an RFP requirement to pass in order to make final submission. We are confident that our revised bylaw compliant design will hold the same level of acceptability and pleasant aesthetics. Included below are a number of renderings from different perspectives showing the contrast between the RFP and Bylaw compliant designs:

Figure C.1 *Proposal Design - View from Ogden Point*



Figure C.2 *Bylaw Compliant Design - View from Ogden Point*



Figure C.3 Proposal Design - View from Public Access



Figure C.4 Bylaw Compliant Design - View from Public Access





Attachment D

Traffic Management Plan Summary

Traffic and Barging

Please see the following excerpts of our proposal for traffic mitigation on the project, including traffic routes and laydown areas. The bylaw requires barging offsite of all “materials and supplies for construction and operation.” We provided an optional price in our proposal should this provision be required. We believe that a comprehensive traffic management plan, effective signage and active public interaction would mitigate residential impact and provide the possibility for the funds required for barging to be put to other, more community focused, initiatives such as legacy improvements in the community.

During the RFP process detailed planning and stakeholder consultation was undertaken by HRP to ensure an approach to traffic management was proposed which met the needs of the project stakeholders. Accordingly HRP’s approach to traffic management remains the same as that laid out in pages 90, 91 and 92 of RFP package 3 (presented below). Figure C.1 (Taken from Figures 2.7-19 and 2.7-20 shown on pages 80 and 81 of RFP package 3) provide further detail on local arrangements close to the site.

Excerpt from Original Proposal:

b) Traffic management plan

The McLoughlin Point Waste Water Treatment Plant Project entails the construction of a structure at the south end of Victoria View Road. Prior to beginning any work the DBJV will obtain the necessary construction permits. The site office will be located off of Victoria View Road north of the construction site. At this location any visitors are required to check in as well as complete a site orientation. This orientation will be for all new drivers who will be covering the deliveries to the construction site laydown yard. It will cover instruction how to access/egress the site, hours of work, and safety regulations. The DBJV objective is to minimize the disruption to the surrounding neighbourhood and existing roads. Any damage to existing roads or pavement markings will be repaired after construction is complete.(g)Concrete materials and trucks will travel to site from Munro Street, onto Anson Street, East at Bewdley Ave, Patricia Way and onto Victoria View Road. There will be an access road around the site.

f) Construction staging areas and g) The strategy and access to services required during the construction

Temporary traffic control shall be in provided within the limit of contract. Any temporary traffic control required outside of these limits will be provided in the form of signage.



To reduce truck staging along the surrounding area, deliveries will be scheduled at staggering times. If an additional staging location is required the contractor will complete all applications required for special permitting in addition to any notification and/or lane closure.

To access the site we propose to have construction traffic exit off of Esquimalt Road onto Head Street, travel down onto Peters Street, East onto Patricia Way, and east onto Victoria View Road.

For material deliveries the vehicles will be directed to the storage yard. For access they will exit off of Esquimalt Road onto Head Street, travel down to Peters Street, east onto Bewdley Ave, south onto Anson Street and access the storage yard off of Vaughan Street. These routes are shown in the attached drawings. Material being transferred from the laydown yard to site will be directly controlled by HRP.

The construction of the utilities will result in lane closures along Patricia Way and Peters Street. One lane will be kept open for the residents to access their houses from Lyall Street to Gault Crescent. The intersection will be closed at Gault Crescent and Peters Street as well as Malvern Street and Peters Street. Option 1 for re-routing traffic is to travel West on Lyall Street and south onto Macaulay Street to Bewdley Ave. Option 2 is to travel West on Lyall Street and south Lampson Street to Bewdley Ave. The utilities will be approximately four months to complete the required work. Temporary signage will be provided along the traffic route advising the public.

Before the installation of the utilities, locates will be done on the existing lines to confirm the location for protection. All work will be coordinated with the relevant utility franchise.

Barging

As noted in the opening paragraph, barging was also considered in HRP's proposal as an optional item to be added at the CRD's discretion. **Figure D.1** on the next page details a location for the onsite barge ramp however a number of options were left open for loading facilities off site depending on the nature of the materials being barged. Whilst consideration was given to barging of waste material from site and concrete raw materials to site, a number of other materials would still have to be delivered by road following the proposed Traffic Management plan. As detailed on page 8 of RFP package 3, HRP confirms if the barging option is implemented, it will maintain the agreed schedule using overtime, supplemental, and supporting shifts to maintain the critical path. Regular traffic through Esquimalt will include project staff, construction workforce personnel, and material and equipment deliveries. Frequent travel within Esquimalt, between the temporary laydown area adjacent to McAuley Point and the project site, will include concrete redi-mix trucks and aggregate supply trucks. The work will be evaluated and sequenced as necessary to account for the delays caused by the slower, less reliable delivery and limited storage of raw materials on the site.

Figure D.1 Local Arrangements (Figures reproduced from original proposal)





Attachment E

Odour Control System Description

Odour Control System Description

Odour control for the facility and impact on the surrounding community was addressed extensively in our proposal. HRP's assessment shows that if the exhaust stacks are 2 metres above the Odour Control Room, the maximum impact to the land is approximately 3.9 Odour Units (OU) for a 10-min average which is better than the desired value of 5 OU. We have also assessed the impacts at a house located 78 metres to the West and a house located 52 metres to the Southwest of the plant as illustrated in Figure 2.7-11. The impacts at both locations are less than 1 OU. The exhaust stacks are recommended to be at least 2m above the roof of the odour control room in order to prevent foul air from re-entering the building through air intakes such as windows and louvers. The impact on the eastern property boundary is 9.4 OU. No dwelling is expected in this area and the odour impacts in this area should not be considered for compliance assessment. However, if the odour impacts at the water body are subject to the desirable value of 5 OU, the exhaust stacks need to be 14 m above the roof of the Odour Control Room. Please see **Figure E.1** for a graphical representation of Odour Unit readings in general proximity to the plant.

Excerpt from Original Proposal:

xi. odour control system including redundancy

Foul air is collected from high odour concentration areas and low odour concentration areas. The high concentration areas include: primary inclined plate settler tanks and channels, DensaDeg tanks and channels, MBBR and the sludge holding tank. Low concentration areas include: the fine screens room and BAF cells. High concentration foul air will be collected using FRP piping with volume dampers to control flow. Foul air will be collected under a slight vacuum and sent first through the biological trickling filters and then discharged to the carbon adsorbers. The two biological trickling filters include a recirculation system and nutrient addition system. Foul air from the low concentration areas is collected under a slight vacuum and discharged through the carbon adsorber.

A total of two biological trickling filters and three carbon adsorbers will be provided and configured in a manner to provide the maximum operator flexibility.

The biological trickling filter exhaust fans are 37,380 m³/hr and the carbon adsorber exhaust fan is 40,775 m³/hr.

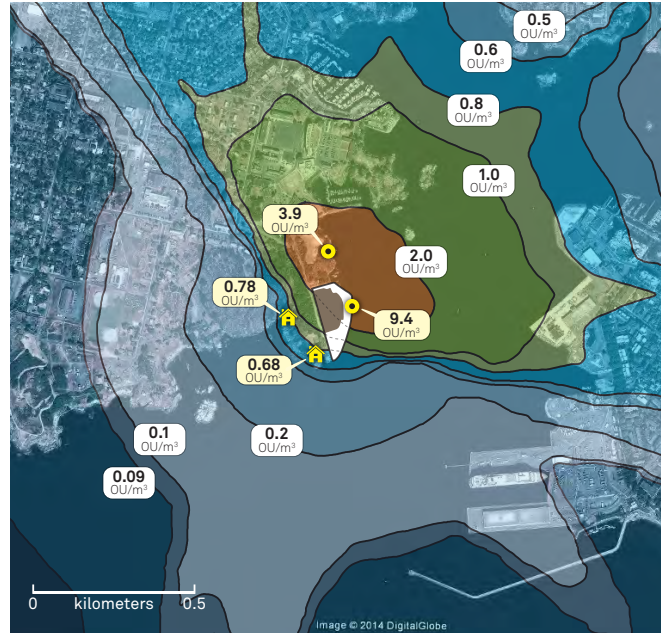


Figure E.1

Odour Unit Readings Near Plant



Attachment F

Memorandum on Advanced Treatment Options

Advanced Treatment Options

In response to the RFP, HRP did not include advanced treatment in our original Nominal Price. However, optional pricing was included in our Financial Evaluation Model for 1) Advanced Oxidation using UV and Hydrogen Peroxide, and 2) Advanced Oxidation using Ozonation. The 108 MLD bylaw compliant facility can accommodate tertiary treatment during initial construction or it can be incorporated into the facility at a later date. Because of the constricted nature of the site, early decisions will need to be made for the remaining space on the site. If disc filters and UV are preferred based on treatment requirements, these processes could be installed in the space initially designated for advanced oxidation with minor design modifications. The location of the tertiary treatment facility was originally thought to be the location of a play lot required under the 2806 bylaw. Initial design review indicates that we could house the tertiary treatment in the below-grade contact tank, which may allow for placement of the tot park above the tertiary treatment.

Adding tertiary treatment facilities will provide adjustments to operations and maintenance costs that have not been fully evaluated at this time. There are some efficiencies gained that may be offset cost increases in other areas and these opportunities will be taken into consideration during final design. Once the final design components are determined, the full process costs can be determined.

HRP has done an initial assessment of the requirements to integrate disc filtration into the 108 MLD facility. Based on the equipment budgets received from Stantec and our construction cost estimate the order of magnitude for the tertiary treatment process is in the range of \$6.1m to \$8.3M.



Attachment G

Tasks to Financial Close



Attachment H

Lenders Letter of Commitment



Attachment I

Development Permit Area No. 3 Guidelines vs Design Comparison form

ATTACHMENT I- DEVELOPMENT PERMIT AREA NO. 3

The McLoughlin Point properties are located in the Development Permit Area No. 3 – Industrial designated by Official Community Plan Bylaw, 2006, No. 2646 (the “**OCP**”).

PURPOSES

Development Permit Area No. 3 has been designated for the purpose of establishing objectives for the form and character of commercial, industrial or multi-family residential development. In addition, the area which encompasses the McLoughlin Point properties has also been designated for the following purposes:

- protection of the natural environment, its ecosystems and biological diversity;
- protection of development from hazardous conditions;
- revitalization of an area in which a commercial use is permitted;
- establishment of objectives to promote energy conservation;
- establishment of objectives to promote water conservation; and
- establishment of objectives to promote the reduction of greenhouse gas emissions.

GOALS

The goals of Development Permit Area No. 3 are:

- to encourage environmentally friendly light industry in the Devonshire/Viewfield industrial park; and
- to encourage revitalization and enhancement of the existing industrial areas.

GUIDELINES

Guideline	Does the current project design comply with this guideline?	If the design does not comply with this guideline, why not?	Other comments?
9.5.5 General Guidelines for Owners of Land within the Development Permit Area			
Buildings should be designed to minimize the intrusion into the privacy of existing surrounding homes.	YES		The only residential property nearby is the DND house on McLoughlin Point. The facility is designed so views are typically not in the direction of this house.
Buildings should be located to avoid casting shadows onto adjacent residential properties.	YES		No residential properties are within proximity of any shadows from the facility
Outdoor storage and parking areas will be screened by berms, fences, landscaping or solid noise-absorbing barriers or a combination of these methods. Landscaping should also be incorporated within the parking areas to “break up” large expanses of pavement.	YES		
The style and finish of new buildings should enhance the appearance of the industrial	YES		

area, which is surrounded by urban residential development.			
Buildings should be designed to avoid doors and openings that would tend to direct noise in the direction of immediately adjacent residentially-zoned lands.	YES		The workshops are located on the east of the site. The process functions are fully enclosed.
Retention and protection of trees and the natural habitat is encouraged wherever possible.	YES		The limited vegetation on the site will be retained where possible or replaced with appropriate native species where possible. The natural shoreline will remain unaltered as much as possible.
9.5.6 Specific Guidelines for McLoughlin Point Revitalization			
Consider the establishment of an 8.0 m buffer from the High Water Mark.		In keeping with the requirements of the I-3 Zone, no buildings are located within 7.5 metres of the HWM.	Other structures such as the public walkway, public amenity space, tsunami wall and retaining walls for the 4.0 wide landscaped buffer required by and permitted in the I-3 Zone are located within the 7.5 m zone from the HWM.
Consider the establishment of a 4.0 m heavily landscaped buffer within the 8.0 m buffer to hide the building(s) on the site.	YES		
Consider stepping buildings	YES		

back on the site with the lowest buildings (the tanks) located closest to the shore.			
Consider the establishment of a seawall using as its design precedent, the convention centre in Seattle.	YES		A tsunami wall (seawall) with its top at 6.5m geodetic elevation is to be constructed at the perimeter of the site. Aesthetics of this wall are given high consideration.
Consider the establishment of an historical interpretation program.	YES		This can be incorporated through interpretive signage on the public walkway.
Consider the establishment of public access to the 8.0 m buffer area via a public dock.	YES		
Consider the incorporation of water features as public art within the design of the building.	YES		\$100k cash allowance is included for public art. The nature of this art piece to be determined in consultation with the public.
Consider design and construction in a manner that mitigates environmental and human health impacts (in particular those related to odour and noise), and contributes to the visual quality and scenic beauty of the harbour entrance.	YES		

Any proposed buildings or structures must incorporate the findings of the Modelling of Potential Tsunami Inundation Limits and Run-Up	YES		
Design Guidelines – McLoughlin Point Wastewater Treatment Plant (Prepared by CitySpaces)			
Sustainability Standards			
Design the Operations and Controls building to a LEED® Gold standard.	Yes		See also s.55(2)(b)(6) of the Zoning Bylaw, which indicates that this must be certified within a specified timeline to obtain bonus density. - Application for certification has not been considered.
Where feasible, design for on-site heat recovery, and plan for future, long-term, neighbourhood, heat-resource opportunities.	Yes		Current design allows for beneficial use of heat recovery within the plant. Accommodations can be made in the future for potential neighbourhood opportunities.
Incorporate a green roof system into the Operations and Controls building and other buildings, where appropriate.	Yes		

While much of the site is impervious rocky shoreline, where possible, introduce methods to clean and reduce stormwater runoff, incorporate rain gardens, and consider practical ways to re-use water.	Yes		
Restrict impact on the shoreline, except for those areas where wastewater lines enter or exit the treatment plant.	Yes		
View Standards			
The impact on views from all sides need to be considered in the design process. Building and design view impacts will be evaluated from the following locations: Shoal Point and Ogden Point, Songhees Walkway to West Bay, and from above.	Yes		
Marine Shoreline Character Design Considerations			
Building forms should respect the site.	Yes		

Wall elements, relating to tsunami and associated catastrophic event protection, such as stepped walls that incorporate angled features, projections, wall terraces, and textures, should reflect the character of the rocky shoreline.			
Massing, Siting & Exterior Architectural Elements			
The design must demonstrate how the buildings and structures will fit into the site, responding to the shoreline in the forefront, and the evergreen treeline and rocky knoll backdrop.	Yes		Renderings provided.
Building heights should vary, but not exceed 15 metres, from the finished grade.	Yes		Stacks are excluded from height restrictions.
Design aesthetics should be optimized with the use of appropriate, high quality materials.	Yes		
Exterior building materials, including exterior details, must be selected to withstand	Yes		

intense weather and sea conditions, and must be of a high standard to ensure low maintenance.			
Doors, overhead doors, and other closures (including hatches, grilles, and louvres) should be durable, thermally resistant, and suitably finished for the marine environment.	Yes		
Windows should have high performance glazing, and be capable of providing natural ventilation, where appropriate.	Yes		
Roof areas must consider views from above.	Yes		
Clarifiers and aerated filters must be covered to meet noise and odour principles.	Yes		
Lighting			
Light fixtures should provide no more than the minimum lighting needed for their intended purposes, and not exceed levels recommended by the <i>Illuminating Engineering</i>	Yes		

<i>Society for North America Recommended Practice Manual: Lighting for Exterior Environments.</i>			
Light fixture shields should be specified to reduce impacts on other properties, and when seen from the designated viewpoints.	Yes		
All lighting should be directed downward, and not into the night sky.	Yes		
Energy efficient fixtures should be specified, with consistent colour for all lighting.	Yes		
Landscape Elements			
Landscape elements should include: Use of plant species that are designated hardy to harsh, and for salt spray environments; situate plants such that the force of the wind shapes their future forms.	Yes		A local landscape architect has been retained by the project team.
Landscape elements should	Yes		

<p>include:</p> <p>A retaining wall system designed to reflect the rugged and rough-textured surface of boulders and exposed-rock shorelines;</p>			
<p>Landscape elements should include:</p> <p>Outdoor storage and parking areas screened through the use of berms, fences, landscaping and/or solid noise-absorbing barriers;</p>	<p>Yes</p>		
<p>Guidelines for Seawall and Walls</p>			
<p>The retaining wall system should be designed to reflect the rugged and textured surface of the exposed-rock shorelines. To reduce view impacts for neighbouring communities and water/air traffic, the mass of the wall (combined height and width) will be broken up visually with features such as board form relief, wall projections, vertical elements, and wall protrusions.</p>	<p>Yes</p>		

It should feature both rounded, smooth, and angular surfaces to reflect the natural shoreline.			
Walls must not protrude beyond the High Water Mark (HWM 1.804m geodetic).	Yes		
The site must be protected by a continuous tsunami protection wall that has a top elevation of not less than 6.5 metres above the High Water Mark.	Yes		
The appearance of wall heights greater than 4.0 metres must be minimized by placing step walls in the tsunami protection wall.	Yes		
Planted stepped walls should be a minimum depth of 1.0 metre horizontally to allow for landscape elements to be introduced. Where this is not possible, shallower multiple steps may be used.	Yes		
All surfaces of the primary perimeter retaining walls must be finished with random board-formed recesses or other	Yes		

suitable architectural treatment. Vertical recesses should be spaced randomly. A smooth finish should be considered for secondary walls			
The design should plan for development of a pedestrian pathway along the waterfront side of the site.	Yes		
Guidelines for Planting – General			
Distribution of plants will be limited due to salt spray and wind exposure, particularly on the south side of the site	Yes		
Planting will exclude lawns.	Yes		
Mature plant heights must be at least 60 cm tall for all planted areas to shade undesirable weed species.	Yes		
Planting densities must ensure that vegetated areas will have 100% plant coverage after two full growing seasons.	Yes		
Planted areas will be irrigated with a high efficiency irrigation	Yes		

system.			
Plants should be drought tolerant and require minimal water after the two-year establishment period.	Yes		
Green roofs must be installed fully established to minimize wind erosion and maintenance.	Yes		
All planting will be to BCNLA/BCSLA Landscape Standards.	Yes		
Guidelines for Planting Along Seawalls			
Distribution of plants will be limited due to salt spray and wind exposure.	Yes		
Trees must be situated more than 10 metres from the south facing wall, as this will be a high wind velocity area.		Size and layout of the site does not permit the 10m offset.	
The following species are considered appropriate for use along the waterfront: Pinus contorta var. Contorta (Shore Pine), Arbutus menzesii (Pacific Madrone), Rosa nutkana (Nootka Rose),	Yes		

<p>Symphoricarpus albus (Snowberry), Arbutus unedo (Strawberry Tree), Myrica californica (Sweet Gale), Lonicera pileata, (Privet Honeysuckle) and Mahonia aquifolium (Oregon Grape).</p>			
<p>Guidelines For Planting Adjacent To Building Entrances</p>			
<p>Planting around the building entrances can be more design driven, and specific hard and soft landscaping should complement the building architecture.</p>	<p>Yes</p>		
<p>Guidelines For Screening On Victoria View Road</p>			
<p>To break up the mass of concrete walls, introduce screening (mostly of coniferous tree plantings) along the road frontage and adjacent property lines. The CRD should work with the Department of National Defence to allow for landscaping along the road frontage adjacent to the site. Cluster trees to provide clear 8-metre wide gaps to allow for</p>	<p>Yes</p>		

future maintenance access (from a crane).			
A continuous shrub border will be required at the base of the wall to screen the lower retaining wall, and reduce the risk of vandalism. Shrubs in this area are to be native species only, with the exception of those adjacent to the two entrances, where lower evergreen screening is desirable.	Yes		
In situations with larger retaining walls, vines can be considered, but must be supported by cable systems.	Yes		
The following species are considered appropriate for use in screening applications: Pseudotsuga menziesii (Douglas Fir), Rosa nutkana (Nootka Rose), Symphoricarpus albus (Snowberry), and Parthenocissus tricuspidata (Boston Ivy).	Yes		

Stormwater Management			
Stormwater from the internal roadways and parking areas will be treated to remove 80% of TSS from a 6-month rain event prior to discharge.	Yes		
Treatment of roadway and parking run-off can come in the form of: (1) a combination of rain gardens and bioswales adjacent to the parking and roadways, complete with raised overflow basins, and under drains connected to the storm drain system; (2) aqua-pave permeable paving, complete with an under drain system in discrete areas where direction of run-off to a bioswale is not feasible, or (3) a combination of (1) and (2).	Yes		
A conventional storm drain will be installed with an outfall to the ocean. All drainage from the site will eventually be discharged through this pipe.	Yes		
The buildings will connect directly to the piped storm drain system. Building drainage will	Yes		

bypass the treatment system. However, a rain garden, stormceptor, or similar end-of-pipe treatment device could be installed if treatment of roof drainage is required.			
Parking And Services			
Parking for visitors, plant and system operation staff, and CRD maintenance vehicles should be suitably screened through the use of berms, fences, landscaping, and/or solid noise-absorbing barriers to minimize visual impact.	Yes		
Signage			
Limit signage to directional and identification as required for wayfinding.	Yes		See also s.55(2)(d)(10) of the Zoning Bylaw, which indicates that Heritage Interpretative Signage must be provided to obtain bonus density.
Public Art and Education			
Public art shall be provided. The CRD and Township of	Yes		See also s.55(2)(c)(3) of the Zoning Bylaw, which indicates

Esquimalt will work together to confirm the process and requirements.			that public art must be provided to obtain bonus density.
Plans should include capacity for organized, educational site visits to learn about the functioning of the treatment system, the regional liquid waste management program, resource recovery, etc.	Yes		See also ss.55(2)(b)(4), 55(2)(c)(4), and 55(2)(d)(6) of the Zoning Bylaw, which indicate that an education and interpretive centre must be provided to obtain bonus density.