Core Area Wastewater Treatment Program Assessment of of Liquid Train Treatment Options Appendix H - Triple Bottom Line Considerations



OPTION SCREENING SUMMARY SHEET

Option Name: Rock Bay Tertiary Plant 108 MLD (MBR Tertiary Treatment)

Option Description: Single Regional Treatment Plant (108 MLD MBR)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 1,159 m
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	• The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million.	CRD Capital Cost Contribution:
EC-07 Schedule of Completion	 Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Commissioning Date Site conditions that may extend construction (i.e., piling, shoring) Construction Schedule 	 Estimated Service Commencement Evidence: Existing zoning is M3 Industry estimated time to complete is Environmental Impact Study Development Permit (DP) with Preliminary site geotechnication schement

Core Area Wastewater Treatment Program Options Analysis

Poor (1) Option fails to meet basic requirements of eets the criterion. Evidence nillion \$1,535 million \$657 million ent Date: Mar 31st, 2024

rial, which would trigger the need for a rezoning. The is 18 months.

(EIS) will need to be completed.

vill be required.

I report indicate that piling may be required which will add edule.

Criteria and Description	Considerations	
Environmental Criteria		Conclusion
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint Co Estimated carbon footprint Op MBR technology carbon oper secondary treatment. The need to pump from Clove during operations by 11 tonnes The need to pump from Maca 11 tonnes/year. The need to pump from Rock 340 tonnes/year.
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both intern scheme. Market studies conducted by existing Industrial/Commercia due to the high cost of conver systems. A district heating system coul The City of Victoria cond commercial and public use on These future residents of more easily incorporate Conclusion: Good
 EN-03 Water Reuse Potential The option's estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that requires tertiary treatment and disinfection. 	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce reclaimed water for reuse opportunities 	 Evidence: Market studies conducted by from existing Industrial/Comm water. Water reuse is typical i has an abundant water supply (4 months). The largest users There is potential for use in properties (~\$2500/dwelling) unfavourable. Option is located in an existin reuse water customers is favor. MBR treatment technology with the state of the state o

Evidence

- onstruction (One Time) 17,136 tonnes.
- perations (Annual) 3,612 tonnes/year.
- ations footprint is 513 tonnes/year higher than BAF
- er Point for treatment will increase the carbon footprint es/year.
- aulay Point for treatment will increase carbon footprint by
- Bay to outfall will increase carbon footprint by

the use of heat recovered from the plant's final effluent. nal to the treatment plant and external via a district energy

Stantec in 2009 concluded that there is limited interest from al/Institutional (ICI) customers to purchase reclaimed heat rsion of existing Heating Ventilation Air Conditioning (HVAC)

- Id be incorporated into the community plan.
- cept for development of the site includes mixed used uses.
- could be users of recovered heat. New development could recovered heat.

Stantec in 2009 concluded that there is limited demand nercial/Institutional (ICI) customers to purchase reclaimed in semi-arid regions where water supplies are limited. CRD y and the irrigation season in the Region is relatively short s of reclaimed water are agricultural and golf courses. ublic parks. The costs to retrofit existing residential make the economics of conversion of existing residences

ng industrial/commercial area so the potential for adding ourable.

ill yield tertiary effluent quality which is suitable for water

Criteria and Description	Considerations	
		reuse. Potential for future developm water. Potential for existing industry Conclusion: Good
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or disturbed site Requirement for blasting Extent of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) Extent of dewatering required Potential impacts due to climate change (sea level rise) 	 Evidence: Site was previously a BC H Geotechnical conditions an Due to the site's elevation, site will require filling. Based on a preliminary lever densification or piles to me Minimal vegetation exists of Vapour barrier and extraction Dewatering water may require
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g. future retrofits to accommodate different uses for waste products). 	 Evidence: Estimated biosolids production MBR technology will recover Effluent water could be reuse Internal heat recovery system Option is located in near exists for reuse water systems and 02 and EN-03). Conclusion: Good
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with n Primary Treatment (CEPT); o Conclusion: Good
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations? 	 Evidence: MBR technology results in ef MBR bioreactor can be modi Future modifications can be Future modifications can be

Evidence

nent at Rock Bay may result in customers for reclaimed

in Rock Bay area to use reclaimed water.

- lydro gasification facility that has been fully remediated. nd rock excavation requirement uncertain.
- an extensive tsunami wall will be required; in addition, the
- vel of site understanding, there may be a need for ground eet post-disaster foundation requirements. on site.
- tion may be required on underground pipe galleries. uire treatment.
- ion at 108 MLD is 10,877 Dry Tonnes (DT)/year.
- an additional 2,160 kg/day of biosolids (7.2% increase).
- ed for plant process water.
- m could be included in plant heating design.
- sting industrial and commercial properties and the potential reclaimed heat systems is more favourable (Reference EN-

nultiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.

- ffluent that exceeds current regulatory standards site.
- ified to meet more stringent discharge requirements.
- accommodated at reasonable costs.
- phased to minimize impacts on plant operations.

Criteria and Description	Considerations	
		Conclusion: Very Good
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: Rock Bay is a disturbed site w There is limited terrestrial veg There are trees located outsid impacts are expected to be m This Option assumes the reux There would be no disturband be required. Conclusion: Average
EN-09 Environmental Performance The extent to which the system exceeds current regulatory requirements.	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: MBR design will achieve 2/2 regulatory requirements. Conclusion: Very Good
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access Site is adjacent to existing a from normal daily traffic on commercial activities in this No biosolids related traffic of Anticipate delivery of bulk c Conclusion: Good
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g. 25 m) 	 Evidence: The adjacent property is com All mechanical equipment de All mechanical equipment con Plant can be designed to atter Site is within 100 meters of stabout mixed used zoning on timmediately adjacent to the p Design specifications will call Conclusion: Average

Evidence

which has been remediated.

getation on site.

ide the roadway along conveyance route. Construction ninimal.

use of existing outfalls at Clover Point and Macaulay Point. ice of the intertidal zone and no mitigation measures would

mg/L BOD/TSS effluent which far exceed the WSER

s estimated at 8 to 10 vehicle movements per day.

arterial roads which experience significant daily truck traffic Government and Bay streets due to other industrial / s area.

due to biosolids pumping to Hartland.

chemicals up to twice per month.

nmercial/industrial.

esigned to minimize vibration and noise.

ontained inside buildings.

enuate vibration and noise levels.

storefront commercial and office space. Victoria is thinking the balance of the BC Hydro site which could put residential plant.

for design to be compliant with municipal noise bylaw.

Criteria and Description	Considerations	
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive emission Degree of mission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	 Evidence: Site is adjacent to commerce All unit processes contained Process tankage covered to Plant designed to stringent low levels at site boundary. Emission modeling will be of boundaries. Due to the close proximity of potential for infrequent odor
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered of Architecture and site landso Tsunami wall can be design The design review process architectural finishes, lands View from the water will be nearby waterfront buildings
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) 	 Evidence: The following amenity provinegotiated with the City of V has not yet been submitted The provision of public Public Walkway: Des accessible trails. Incorporation of existition Integration of reclaim
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Impact to private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g. blasting or vibration) Inconvenience due to construction, i.e. traffic detours and delays. 	 Evidence: Construction of conveyance temporary disruption on rest temporary disruption on rest to 5 metres). Replacement Blasting may be required all Due to the close proximity of the close temporary disruption on rest temporary disruptis di

Evidence

- cial/industrial property.
- d in buildings.
- o contain odours.
- odour control requirements. Odours will be scrubbed to meet
- completed to confirm low odour numbers at property
- of treatment site and nearest residences, there is a higher ur complaints from fugitive emissions.
- ^r inside building.
- caping are designed to high standards.
- ned to blend with natural landscape.
- will ensure that the facility blends with the community through scaping and site amenities.
- a low rise industrial building which will blend well with other
- isions requested by the City of Victoria have not yet been Victoria Planning Department since a site rezoning application Potential amenities for consideration at this site included.
- lic open space improvements including waterfront access.
- ign of building and development of site to incorporate public
- ing historic buildings into plant design.
- ed water and heat into adjacent new development.
- e piping from both Clover Point and Macaulay Point will cause sidential and arterial streets for up to 2 years.
- arge diameter and will be installed below existing utilities (i.e.4 of a portion of existing infrastructure is expected.
- long portions of the conveyance route.
- of the conveyance pipe route to residences (< 20m), noise

Criteria and Description	Considerations	
		dust and vibration impacts mSome of the pipeline construct
		Conclusion: Poor
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation 	 Evidence: The Rock Bay site is located vibration, and noise impacts for Property within 100 m of the Property within 100 m of the The expected need for piling The expected need for shorin months. Traffic along arterial roads widdelivery of materials and equilibriary of materials and equilibriary of materials and equilibriary of materials and equilibriary of the site of the si
		Conclusion: Average
SO-08 Impacts to Existing Public Amenities Options' impact the community's ability to enjoy existing public amenities such as park land	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities. 	 Evidence: No impact to the community's treatment site is surrounded near the site. Conclusion: Very Good
SQ-09	Compatibility with existing Official Community Plan	Fvidence:
Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving Development Permit in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Rezoning from existing M3 H rezoning process is estimated Public opposition from proper time and complexity to the re OCP amendment would be re follows the rezoning process. Conceptual design will satisfy utility zoning. City of Victoria Development

Evidence

- nay be experienced by homeowners.
- iction will be adjacent to commercial properties.
- in an industrial site; therefore that there will be dust, to the residential neighbours will be minimal.
- site may experience dust, noise and vibration nuisance.
- may extend construction noise for several months.
- ng / sheet piling may extend construction noise for several
- ill be impacted for the duration of construction due to the ipment to the site. This impact could be mitigated through a der management by the contractor.
- e so impacts are expected to be minimal.
- operators adjacent to site will have to be coordinated and on and post construction.
- s enjoyment of existing public amenities because the by industrial zoning. There are no public spaces adjacent or
- leavy Industrial to public use will be required. City of Victoria ed to take 18 months to complete.
- erty owners adjacent to conveyance pipe routes could add ezoning application process.
- equired but would not impact schedule since this process
- y typical height and setback requirements for typical public
- Permit will be required.

Criteria and Description	Considerations	
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Effects on archaeological fea a brownfield site which was r Environmental Impact Stu Terrestrial Environment - Risk of discovering archaeolo unknown and would have to b
SO-11 Impact to local First Nations How the option impacts local First Nations?	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material difference. Local First Nations will finance. Conclusion: Good
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g. through upgrades to off-site services) 	 Evidence: Surrounding area has access condition. Upgrades are not Development of plant site ma Street.
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	How the option respects and incorporates existing cultural or heritage structures, site, or artifacts	 Evidence: The site contains two existing incorporated into the plant de The design of the administration honor history, culture, and here Conclusion: Very Good

Evidence

- atures are expected to be less than significant as Rock Bay is remediated by excavation of contaminated materials.
- udy of Core Area Wastewater Treatment Program Facilities -March 2014- p. 34 (Tera)
- ogical findings along the conveyance pipe routes are be assessed by a qualified archaeologist.
- ed First Nations extensively for all of the options under review rence in how the options meet this criterion.
- cially benefit from this option through the sale of land.
- ss to gas, hydro, water, and sewer lines; which are in good required.
- ay encourage additional development along Government
- ng structures with historical significance that could be esign.
- tion building exterior and site landscaping will reflect and eritage.

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OPTION SCREENING SUMMARY SHEET

Option Name: Rock Bay 108 MLD / Secondary Treatment Plant

Option Description: Single Regional Treatment Plant (108 MLD BAF)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 984 mil
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option
EC-03 CRD Capital Cost Contribution	• The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million.	CRD Capital Cost Contribution:
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Commissioning Date Site conditions that may extend construction(i.e. piling, shoring) Construction Schedule 	 Estimated Service Commencement Evidence: Existing zoning is M3 Indust estimated time to complete it Environmental Impact Study Development Permit (DP) w Preliminary site geotechnication school

Core Area Wastewater Treatment Program Options Analysis

Poor (1) Option fails to meet basic requirements of eets the criterion. Evidence llion 1: \$1,248 million \$482 million nent Date: Mar 31st, 2024 trial, which would trigger the need for a rezoning. The is 18 months. (EIS) will need to be completed. ill be required. al report indicate that piling may be required which will add edule.

PAGE 1 of 7

Criteria and Description	Considerations	
Environmental Criteria		
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint C Estimated carbon footprint O The need to pump from Cloveduring operations by 11 tonne The need to pump from Maca 11 tonnes/year. The need to pump from Rock 340 tonnes/year.
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both inter scheme. Market studies conducted by existing Industrial/Commercia due to the high cost of conver- systems. A district heating system cour on The City of Victoria con- commercial and public These future residents more easily incorporate
EN-03 Water Reuse Potential The option's estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that requires tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce reclaimed water for reuse opportunities 	 Evidence: Market studies conducted by from existing Industrial/Comm water. Water reuse is typical has an abundant water suppl (4 months). The largest user There is potential for use in p properties (~\$2500/dwelling) unfavourable. Option is located in an existin future reuse water customers BAF treatment technology wi water reuse.

Evidence

- construction (One Time) 14,021 tonnes.
- perations (Annual) 3,099 tonnes/year.
- ver Point for treatment will increase the carbon footprint les/year.
- aulay Point for treatment will increase carbon footprint by

k Bay to outfall will increase carbon footprint by

the use of heat recovered from the plant's final effluent. rnal to the treatment plant and external via a district energy

Stantec in 2009 concluded that there is limited interest from al/Institutional (ICI) customers to purchase reclaimed heat ersion of existing Heating Ventilation Air Conditioning (HVAC)

- Id be incorporated into the community plan.
- ncept for development of the site includes mixed used uses.
- could be users of recovered heat. New development could e recovered heat.

Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed in semi-arid regions where water supplies are limited. CRD ly and the irrigation season in the Region is relatively short rs of reclaimed water are agricultural and golf courses. public parks. The costs to retrofit existing residential make the economics of conversion of existing residences

- ng industrial/commercial area so the potential for adding rs is somewhat favourable.
- vill yield secondary effluent quality which is unsuitable for

Criteria and Description	Considerations	
		Conclusion: Poor
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or disturbed site Requirement for blasting Extent of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) Extent of dewatering required Potential impacts due to climate change (sea level rise) 	 Evidence: Site was previously a BC Hy Geotechnical conditions and Due to the site's elevation, a will require filling. Based on a preliminary level densification or piles to mee Minimal vegetation exists on Vapour barrier and extractio Dewatering water may requi
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g. future retrofits to accommodate different uses for waste products). 	 Evidence: Estimated biosolids producti Effluent water will be reused Internal heat recovery system Option is located in near exist for reuse water systems and EN-02 and EN-03). Conclusion: Average
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with r Primary Treatment (CEPT); BAF technology is robust for and can handle short terms Conclusion: Good
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations? 	 Evidence: Most of site will be utilized be added in the future. Future upgrade might include involve the construction of a current site for this type of mean 108 MLD BAF treatment plate. Tertiary disc filters can easily existing operations.

Evidence

- vdro gasification facility that has been remediated.
- rock excavation requirement uncertain.
- an extensive tsunami wall will be required; in addition, the site
- of site understanding, there may be a need for ground et post-disaster foundation requirements. site.
- on may be required on underground pipe galleries. ire treatment.
- ion at 108 MLD is 10,877 Dry Tonnes (DT)/year
- for plant process water
- m will be included in plant heating design
- isting industrial and commercial properties and the potential reclaimed heat systems is somewhat favourable (Reference
- multiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.
- r varying flow conditions. Capacity is sized for 2 X ADWF peaks in excess of 2 x ADWF.

by BAF Secondary plant, but tertiary disc filters could be

- de conversion of the plant to MBR technology. This would additional unit processes. Insufficient land available on the nodification.
- ant can be accommodated on existing site.
- ly be added to process in future with minimal impact on

Criteria and Description	Considerations	
		Conclusion: Average
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: Rock Bay is a disturbed site There is limited terrestrial ve There are trees located outs impacts are expected to be r This Option assumes the reu There would be no disturban be required.
EN-09 Environmental Performance The extent to which the system exceeds current regulatory requirements.	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: BAF design will achieve 25/2 requirements. Conclusion: Average
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access e Site is adjacent to existing an from normal daily traffic on G commercial activities in this a No biosolids related traffic du Anticipate delivery of bulk ch
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g. 25 m) 	Conclusion: Good Evidence: • The adjacent property is com • All mechanical equipment de • All mechanical equipment co • Plant can be designed to atte • Site is within 100 meters of s about mixed used zoning on immediately adjacent to the p • Design specifications will cal Conclusion: Average

Evidence

which has been remediated.

egetation on site.

ide the roadway along conveyance route. Construction minimal.

use of existing outfalls at Clover Point and Macaulay Point. nce of the intertidal zone and no mitigation measures would

25 mg/L BOD/TSS effluent which meet the WSER regulatory

estimated at 8 to 10 vehicle movements per day.

rterial roads which experience significant daily truck traffic Government and Bay streets due to other industrial / area.

lue to biosolids pumping to Hartland.

nemicals up to twice per month.

nmercial/industrial.

esigned to minimize vibration and noise.

ontained inside buildings.

enuate vibration and noise levels.

storefront commercial and office space. Victoria is thinking the balance of the BC Hydro site which could put residential plant.

Il for design to be compliant with municipal noise bylaw.

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Criteria and Description	Considerations	
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive emission Degree of mission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	 Evidence: Site is adjacent to commerci All unit processes contained Process tankage covered to Plant designed to stringent of low levels at site boundary. Emission modeling will be consolidated boundaries. Due to close proximity the trapotential for infrequent odou Conclusion: Average
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered or Architecture and site landsca Tsunami wall can be given a The design review process warchitectural finishes, landsca View from the water will be a nearby waterfront buildings.
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) 	Evidence: • The following amenity provision negotiated with the City of V has not yet been submitted. • The provision of public 0 • Public Walkway: Designation of existing • Incorporation of existing • Integration of reclaiments Conclusion: Good
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Impact to private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g. blasting or vibration) 	 Evidence: Construction of conveyance temporary disruption on reside The conveyance piping is lart to 5 metres). Replacement of the converse of the

Evidence

- ial/industrial property.
- in buildings.
- contain odours.
- odour control requirements. Odours will be scrubbed to meet

ompleted to confirm low odour numbers at property

reatment site and nearest residences, there is a higher ur complaints from fugitive emissions.

r inside building.

- aping are designed to high standards.
- architectural treatment to blend with natural landscape.
- will ensure that the facility blends with the community through caping and site amenities.
- a low rise industrial building which will blend well with other

sions requested by the City of Victoria have not yet been /ictoria Planning Department since a site rezoning application Potential amenities for consideration at this site included.

- c open space improvements including waterfront access.
- gn of building and development of site to incorporate public

ng historic buildings into plant design.

ed water and heat into adjacent new development.

piping from both Clover Point and Macaulay Point will cause idential and arterial streets for up to 2 years.

rge diameter and will be installed below existing utilities (i.e.4 of a portion of existing infrastructure is expected.

Criteria and Description	Considerations	
sensitive areas.	 Inconvenience due to construction, i.e. traffic detours and delays. 	 Blasting may be required alo Due to the close proximity of dust and vibration impacts m Some of the pipeline constru Conclusion: Poor
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation 	 Evidence: The Rock Bay site is located vibration, and noise impacts Property within 100 m of the The expected need for piling The expected need for shorin months. Traffic along arterial roads w delivery of materials and equ Traffic Management Plan und There is no vegetation on site Access to existing industrial maintained during construction
SO-08 Impacts to Existing Public Amenities Options' impact the community's ability to enjoy existing public amenities such as park land	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities. 	 Evidence: No impact to the community's treatment site is surrounded near the site. Conclusion: Very Good
SO-09 Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving Development Permit in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Evidence: Rezoning from existing M3 H rezoning process is estimate Public opposition from prope time and complexity to the re OCP amendment would be re follows the rezoning process Conceptual design will satisfied utility zoning. City of Victoria Development

Evidence

- ong portions of the conveyance route.
- the conveyance pipe route to residences (< 20m), noise ay be experienced by homeowners.
- iction will be adjacent to commercial properties.
- in an industrial site; therefore that there will be dust, to the residential neighbours will be minimal.
- site may experience dust, noise and vibration nuisance.
- may extend construction noise for several months.
- ng / sheet piling may extend construction noise for several
- ill be impacted for the duration of construction due to the ipment to the site. This impact could be mitigated through a der management by the contractor.
- te so impacts are expected to be minimal.
- operators adjacent to site will have to be coordinated and on and post construction.
- 's enjoyment of existing public amenities because the by industrial zoning. There are no public spaces adjacent or
- leavy Industrial to public use will be required. City of Victoria ed to take 18 months to complete.
- erty owners adjacent to conveyance pipe routes could add ezoning application process.
- equired but would not impact schedule since this process
- y typical height and setback requirements for typical public
- Permit will be required.

Criteria and Description	Considerations	
SO-10 Archaeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archaeological studies completed to date 	 Evidence: Effects on archaeological fe a brownfield site which was Environmental Impact Si Terrestrial Environment Risk of discovering archaeo unknown and would have to Conclusion: Good
SO-11 Impact to local First Nations How the option impacts local First Nations?	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacte and there is no material diffe Local First Nations will finan Conclusion: Good
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g. through upgrades to off-site services) 	 Evidence: Surrounding area has access condition. Upgrades are not Development of plant site m Street.
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	 How the option respects and incorporates existing cultural or heritage structures, site, or artifacts 	 Evidence: The site contains two existin incorporated into the plant d The design of the administration honor history, culture, and h Conclusion: Very Good

Evidence

eatures are expected to be less than significant as Rock Bay is remediated by excavation of contaminated materials.

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blogical findings along the conveyance pipe routes are be assessed by a qualified archaeologist.

ed First Nations extensively for all of the options under review erence in how the options meet this criterion.

ncially benefit from this option through the sale of land.

ss to gas, hydro, water, and sewer lines; which are in good t required.

nay encourage additional development along Government

ng structures with historical significance that could be lesign.

ation building exterior and site landscaping will reflect and neritage.

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OPTION SCREENING SUMMARY SHEET

Option Name: Rock Bay Tertiary Plant 108 MLD (Tertiary Treatment)

Option Description: Single Regional Treatment Plant (108 MLD BAF + Tertiary Disc Filters)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 1,004 m
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	 The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million. 	CRD Capital Cost Contribution: \$
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Preparation of procurement documents and tendering process Commissioning Date Site conditions that may extend construction(i.e. piling, shoring) Construction Schedule 	 Estimated Service Commenceme Evidence: Existing zoning is M3 Industriestimated time to complete is Environmental Impact Study Development Permit (DP) wil Preliminary site geotechnical time to the construction scheme

Core Area Wastewater Treatment Program Options Analysis

	Poor (1)
eets	Option fails to meet basic requirements of the criterion.
Evid	dence
million	
n: \$1,268 mil	lion
\$502 millior	1
nent Date: M	<u>ar 31st, 2024</u>
strial, which w	yould trigger the need for a rezoning. The s.
ly (EIS) will ne will be require	eed to be completed. ed.
al report indicated and the second seco	cate that piling may be required which will add

Criteria and Description	Considerations	
Environmental Criteria		
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint C Estimated carbon footprint C The need to pump from Clov during operations by 11 tonr The need to pump from Mac 11 tonnes/year. The need to pump from Roc 340 tonnes/year.
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both interscheme. Market studies conducted by existing Industrial/Commerce due to the high cost of conversion systems. A district heating system con o The City of Victoria con commercial and public o These future residents
EN-03 Water Reuse Potential The options' estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that require tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce reclaimed water for reuse opportunities 	 Evidence: Market studies conducted by from existing Industrial/Comwater. Water reuse is typical has an abundant water supp (4 months). The largest use There is potential for use in properties (~\$2500/dwelling) unfavourable. Option is located in an existing future reuse water customer BAF + tertiary disc filters tressuitable for water reuse. Conclusion: Good

Evidence

- Construction (One Time) 14,578 tonnes.
- Operations (Annual) 3,135 tonnes/year.
- ver Point for treatment will increase the carbon footprint nes/year.
- caulay Point for treatment will increase carbon footprint by

ck Bay to outfall will increase carbon footprint by

h the use of heat recovered from the plant's final effluent. ernal to the treatment plant and external via a district energy

y Stantec in 2009 concluded that there is limited interest from ial/Institutional (ICI) customers to purchase reclaimed heat ersion of existing Heating Ventilation Air Conditioning (HVAC)

- uld be incorporated into the community plan.
- ncept for development of the site includes mixed used uses.
- could be users of recovered heat.

y Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed in semi-arid regions where water supplies are limited. CRD ply and the irrigation season in the Region is relatively short ers of reclaimed water are agricultural and golf courses. public parks. The costs to retrofit existing residential) make the economics of conversion of existing residences

ing industrial/commercial area so the potential for adding rs is somewhat favourable.

atment technology will yield tertiary effluent quality which is

Criteria and Description	Considerations	
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or Disturbed site Requirement for blasting Extent of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) Extent of dewatering required Potential impacts due to climate change (sea level rise) 	 Evidence: Site was previously a BC Hy Geotechnical conditions and Due to the site's elevation, a will require filling. Based on a preliminary leve densification or piles to mee Minimal vegetation on the si Vapour barrier and extractio Dewatering water may required
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g. future retrofits to accommodate different uses for waste products). 	 Conclusion: Fair Evidence: Estimated biosolids production Tertiary Disc Filters will record Effluent water will be reused Internal heat recovery system Option is located in near exists for reuse water systems and EN-02 and EN-03). Conclusion: Good
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with r Primary Treatment (CEPT); BAF technology is robust for Conclusion: Good
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations? 	 Evidence: Most of site will be utilized b 108 MLD BAF + tertiary disc site. Expansion at site will be difficence
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: Rock Bay is a disturbed site There is limited terrestrial vertices

Evidence

- ydro gasification facility that has been fully remediated.
- d rock excavation requirement uncertain.
- an extensive tsunami wall will be required; in addition, the site
- el of site understanding, there may be a need for ground et post-disaster foundation requirements. ite exists.
- on may be required on underground pipe galleries.
- ire treatment
- ion at 108 MLD is 10,877 Dry Tonnes (DT)/year.
- over an additional 2,160 kg/day of biosolids.
- for plant process water.
- m will be included in plant heating design.
- isting industrial and commercial properties and the potential d reclaimed heat systems is somewhat favourable (Reference
- multiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.
- r varying flow conditions. Capacity is sized for 2 X ADWF.
- by BAF Secondary plant and tertiary disc filters.
- c filters treatment plant can be accommodated on existing
- ficult.
- which has been remediated. egetation on site.

Criteria and Description	Considerations	
required.		 There is vegetation on the stu- Clover Point and Rock Bay. T for this route. There is vegetation on the stu- Rock Bay and McLoughlin Po- completed for this route. This Option assumes the reu There would be no disturbance be required. Conclusion: Average
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements.	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: BAF + tertiary disc filters des the WSER regulatory require Conclusion: Good
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access e Site is adjacent to existing an No biosolids related traffic du Anticipate delivery of bulk che
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g. 25 m) 	 Evidence: The adjacent property is com All mechanical equipment de All mechanical equipment co Plant designed for limited vib Conclusion: Average
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive emission Degree of omission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	 Evidence: Site is adjacent to commercia All unit processes contained Plant designed to stringent or biofilter and activated carbon Emission modeling has ensu Due to the close proximity of probability of odour complain

Evidence

reets along the first conveyance route, which is between There has not been an impact assessment study completed

reets along the second conveyance route, which is between oint. There has not been an impact assessment study

use of existing outfalls at Clover Point and Macaulay Point. ce of the intertidal zone and no mitigation measures would

sign will achieve 5/5 mg/L BOD/TSS effluent which exceeds ements.

estimated at 8 to 10 vehicle movements per day.

rterial roads which experience significant daily truck traffic.

ue to biosolids pumping and conveyance piping plans.

emicals up to twice per month.

nmercial/industrial.

esigned to minimize vibration and noise.

ontained inside buildings.

pration and noise levels.

al/industrial property with 250 metre radius.

in buildings.

dour control requirements. Odour control system include n filter.

red low odour numbers at property boundaries.

the treatment site and nearest residences, there is a lower nts from fugitive emissions.

Criteria and Description	Considerations	
		Conclusion: Average
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls. 	 Evidence: All process units covered or Architecture and site landsca Treatment site is an improve The DP process will ensure architectural finishes, landsca View from the water will be a nearby waterfront buildings. Tsunami wall can be given a
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 CRD has capped amenities package at \$20 million which will be prorated based on capacity of the option The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) Opportunity for job creation, consider both construction and operations 	Evidence: • The following amenity provision negotiated with the City of V has not yet been submitted. • The provision of public • The provision of public • Public Walkway: Designation of existing • Incorporation of existing • Integration of reclaimed • Good opportunity for joint
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation 	 Evidence: Construction of conveyance major disruption on residention of conveyance piping is lated to 5 metres). Replacement of Blasting will be required alor (cracking) may be claimed. Due to the close proximity of dust and vibration impacts methods. Some of the pipeline construinterruption may be claimed. Construction planning will methods.

Evidence

- inside building.
- aping are designed to high standards.
- ement over the prior use, which was a gasification plant.
- that the facility blends with the community through
- caping and site amenities.
- a low rise industrial building which will blend well with other
- architectural treatment to blend with natural landscape.

sions requested by the City of Victoria have not yet been /ictoria Planning Department since a site rezoning application Potential amenities for consideration at this site included. c open space improvements including waterfront access.

- gn of building and development of site to incorporate public
- ng historic building into plant design.
- ed water and heat into adjacent new development.
- ob creation.

piping from both Clover Point and Macaulay Point will cause tial and arterial streets for up to 2 years.

- rge diameter and will be installed below existing utilities (i.e.4 of existing infrastructure is expected.
- ng portions of the conveyance route. Damage to property
- the conveyance pipe route to residences (< 20m), noise nay be experienced by homeowners.
- uction will be adjacent to commercial properties. Business

itigate disruption to neighbouring properties.

Criteria and Description	Considerations	
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property (consider causes, e.g., blasting or vibration) 	 Evidence: The Rock Bay site is located vibration, and noise impacts Property within 100 m of the The expected need for piling The expected need for shor months. Traffic along arterial roads v delivery of materials and eq Traffic Management Plan ur There is no vegetation on si Access to existing industrial maintained.
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities 	 Evidence: No impact to the community treatment site is surrounded near the site. Conclusion: Very Good
SO-09 Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Evidence: Rezoning from existing M3 I rezoning process is estimate Public opposition from propertime and complexity to the resonand complexity to the resonand process. OCP amendment would be follows the rezoning process. Conceptual design will satis utility zoning. City of Victoria Development
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Effects on archaeological fe facility sites Environmental Impact Se Terrestrial Environment

Evidence

- d in an industrial site; therefore that there will be dust, to the residential neighbours will be minimal.
- site may experience dust, noise and vibration nuisance.
- g may extend construction noise for several months.
- ing / sheet piling may extend construction noise for several
- will be impacted for the duration of construction due to the uipment to the site. This impact could be mitigated through a nder management by the contractor.
- ite so impacts are expected to be minimal.
- operators adjacent to site will have to be coordinated and

's enjoyment of existing public amenities because the by industrial zoning. There are no public spaces adjacent or

- Heavy Industrial to public use will be required. City of Victoria ed to take 18 months to complete.
- erty owners adjacent to conveyance pipe routes could add ezoning application process.
- required but would not impact schedule since this process s.
- fy typical height and setback requirements for typical public
- nt Permit will be required.

atures are expected to be less than significant at all CAWTP

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Criteria and Description	Considerations	
		Risk of discovering archeolog and would have to be assess Conclusion: Good
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted review and there is no mated Local First Nations will finant Conclusion: Good
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g. through upgrades to off-site services) 	 Evidence: Surrounding area has access condition. Upgrades are not CRD Staff have advised that catalyst for the development site as well as the existing inc Conclusion: Good
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	 How the option respects and incorporates existing cultural or heritage structures, site, or artifacts 	 Evidence: The site contains two existing incorporated into the plant de The design of the administrat honor history, culture, and he Conclusion: Very Good

Evi	dor	000
	uci	

gical findings along the conveyance pipe routes are unknown sed by a qualified archeologist

ed First Nations extensively for all of the options under erial difference in how the options meet the criterion. ncially benefit from this option through the sale of land.

s to gas, hydro, water, and sewer lines; which are in good required.

the City of Victoria staff believe that this option would be a of residual surplus land at the BC Hydro/Transport Canada dustrial/commercial land around the site.

g structures with historical significance that could be esign.

tion building exterior and site landscaping will reflect and eritage.

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OPTION SCREENING SUMMARY SHEET

Option Name: McLoughlin Secondary Plant 108 MLD (Secondary Treatment)

Option Description: Single Regional Treatment Plant (108 MLD BAF Secondary Treatment)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 822 mil
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	• The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million.	CRD Capital Cost Contribution: \$
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Preparation of procurement documents and tendering process Commissioning Date Site conditions that may extend construction(i.e. piling, shoring) 	 Evidence: Estimated Service Comment Zoning completed for 108 Min 1992 (Consolidated), Bylaw Use) (Bylaw 2806) EIS completed. Development Permit will be a o Development consister Guidelines – McLought

Core Area Wastewater Treatment Program Options Analysis

	Poor (1)
ets	Option fails to meet basic requirements of the criterion.
Evi	dence
lion	
: \$1,058 mil	lion
\$320 millior	1
cement Date LD Waste V No. 2050, A	e: December 31 st , 2020. Vater Plant at this site (Esquimalt Zoning Bylaw mendment No. 209 (McLoughlin Point – Special
required. nt with cond lin Point Wa	itions identified in the document entitled "Design stewater Treatment Plant" prepared by

Criteria and Description	Considerations	
	Construction Schedule	CitySpaces Consulting Official Community Pla Preferred Proponent identifie
Environmental Criteria		
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint C Estimated carbon footprint C This option has lowest carbo Conclusion: Good
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both interscheme Market studies conducted by existing Industrial/Commercidue to the high cost of conversive systems. A district heating system cou Esquimalt & Upper Harbour Plant site is remote from pote
EN-03 Water Reuse Potential The options' estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that require tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce water for reuse opportunities 	 Evidence: BAF treatment technology w water reuse. Potential users (if tertiary sid Conclusion: Poor
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or disturbed site Requirement for blasting Extent of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) 	 Evidence: Site was previously bulk petr Elevation of site mainly favor Site is a brownfield site which Site will require some blastin Piling is not anticipated, location Minimal vegetation on the site

Evidence
g Ltd. Revised May 2013, copy of which is attached to the an. ied.
Construction (One Time) – 13,562 tonnes Operations (Annual) – 2,736 tonnes/year on footprint and all options under consideration.
the use of heat recovered from the plant's final effluent. ernal to the treatment plant and external via a district energy by Stantec in 2009 concluded that there is limited interest from cial/Institutional (ICI) customers to purchase reclaimed heat version of existing Heating Ventilation Air Conditioning (HVAC)
ould be installed to service downtown redevelopment of customers / military base.
will yield secondary effluent quality which is unsuitable for destream added) are remote from plant site.
troleum storage facility that has been remediated. ourable to storm surge although a tsunami wall is required. ch has been remediated. ng. alized shoring may be required.

ite exists.

Criteria and Description	Considerations	
	Potential impacts due to climate change (sea level rise)	• Sea level of 1 m included in Conclusion: Average
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g. future retrofits to accommodate different uses for waste products). 	 Evidence: IRM and Resource Recovery under consideration. Estimated biosolids production Effluent water will be reused Internal heat recovery system
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with n Primary Treatment (CEPT); o BAF secondary treatment is ADWF and can handle short Conclusion: Good
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations 	 Evidence: Most of site will be utilized by tertiary disc filters. Future upgrade might include stringent treatment for Conta oxidation (ozone hydrogen p) Future modifications can be site size constraints. The adjacent site is vacant a in future for expansion but w BAF design is modular and other conclusion: Average
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: McLoughlin Point is a disturb Terrestrial vegetation limited Conveyance route vegetation Outfall route close to current Mitigation measures minimal
	1	I

Evidence

plant hydraulic gradient.

y not materially different for all of the treatment plant options

ion at 108 MLD is 10,877 Dry Tonnes (DT)/year.

for plant process water.

m will be included in plant heating design.

multiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.

robust for varying flow conditions. Capacity is sized for 2 X term peaks in excess of 2 x ADWF.

by BAF Secondary plant, but space can be provided for future

de tertiary filtration and disinfection for water reuse, plus more aminants of Emerging Concern (CEC) using advanced peroxide).

accommodated however must be planned now because of

and not used by Department of Defence. Land could be used vould have to be purchased from DND.

can be upgraded in phased approach.

bed site which has been remediated.

on site.

on limited (Dallas Road)

outfall.

I for inter-tidal zone tunnel outfall to below inter tidal zone.

Criteria and Description	Considerations	
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements	 Degree that the option's treatment technology exceeds current regulatory requirements. 	
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access Site is located approximatel Access road to the site is a plant site. Biosolids piping and transm Delivery of bulk chemicals of Relatively small impact con
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g. 25 m) 	 Evidence: Residences are isolated by Plant site is remote from resident of the second s
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive emission Degree of omission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	 Evidence: All unit processes contained Odour control system will in Emission modeling has ens Impact of fugitive emissions adjacent to residences. Conclusion: Very Good
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered of Architecture and site landso Tsunami wall can be given

Evidence

- estimated at 8 to 10 vehicle movements per day.
- ly 500 meters from nearest residential property.
- residential street with some commercial property near the
- nission minimizes biosolids related traffic.
- once or twice per month.
- nsidering access route and development along the route.
- military base and vacant bare land.
- sidences, noise impacts will be low.
- designed to minimize vibration and noise.
- contained inside buildings.
- specified in plant specs.
- ed in buildings.
- nclude odour scrubbing.
- sured low odour numbers at property boundaries.
- due to operations are low because plant is not located

^r inside building.

- caping are designed to high standards.
- architectural treatment to blend with natural landscape.

Criteria and Description	Considerations	
		 The Development Permit procommunity through architect View from the water will be a natural bare land setting. Conclusion: Average
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) 	 Evidence: The following amenity provision of the McLoughlin The provision of public including picnic bench equipment and safety Pier or dock, of sufficie harbour tugboat pedes Public Walkway: Desig accessible trails, and o Construction of trail co Additional traffic integribike lanes on all remained Streets between Lamp Education and Interpretional of 75 square metric promote and facilitate the wind and wave end High efficiency air filte schools within the Externation of Green Budevelopment. Integration of reclaime wetland and landscape CRD has capped ame
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g. blasting or vibration) 	 Evidence: Laydown area for conveyan 1 km of Dallas Road. Launch shaft for Harbour cro to 6 months. These will be a

Evidence

ocess which will ensure that the facility blends with the tural finishes, landscaping and site amenities.

a low rise institutional building which may distract from the

sions were included in the Township of Esquimalt 2013 Point site to Special Use (Wastewater Treatment)

c open space improvements of a value no less than \$75,000, es and "tot" park play lot with appropriately themed play features given proximity to open water.

ent size to fulfill previous condition, including with provision of strian ferry service.

gn of building and development of site to incorporate public off-site.

onnection to West Bay Neighbourhood.

ration amenities, in the form of additional traffic calming and ining.

oson Road and Esquimalt Road.

etive Centre – additional 25 square metres of floor area for res, including portion for a "Center of Excellence" to educate, energy technology or other industries focussed on utilizing ergy at the subject property.

ers systems to improve air quality and odour reduction for ended Community.

uilding and Design Features to additional portions of

ed water into the design of the buildings, including a rooftop ed feature.

Signage, recognizing the historic uses on the subject to transition to current uses.

enities package at \$20 million.

ce pipe for Harbour crossing HDD operation will impact up to

ossing horizontal drilling will impact Ogden Point area for up approximately 10 trucks/day hauling excavated material away

Criteria and Description	Considerations	
sensitive areas.		 from the shaft site. Impacts to roadways in Esquered to McLoughlin site.
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts of plant construction to the local community Impacts to environmentally sensitive areas Impacts to nearby properties (focusing on residential and commercial) Community impacts resulting from noise and dust Impacts to vegetation and property, including any costs of remediation Possible damage to property (consider causes, e.g., blasting or vibration) 	 Evidence: Impacts on nearby properties Isolation of plant minimizes p construction. The Contractor may be requ minimize construction traffic Admiral's residence is only h
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities. 	 Evidence: McLouglin Point site is landle not negatively impact enjoyn Conclusion: Very Good
SO-09 Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Evidence: Zoning in place for WWTP u OCP has been amended for Esquimalt constrains have b height and shoreline encroad Development Permit process delays.
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Previous EIS studies gatherer cultural use of marine resource McLoughlin was identified as CRD Core Area Waster Study – 18 Feb 2013- Effects on archaeological feat facility sites. Environmental Impact Facilities – Terrestrial Impact

Evidence

uimalt for forcemain construction from Macaulay pump station

es are minimal, good isolation to nearest residence (500 m). potential for fugitive dust, vibration and noise during

ired to barge material and equipment to / from site and through residential neighbourhoods.

home in close proximity to the plant.

locked and surrounded by the DND military base so this will ment of existing public amenities.

lse.

intended land use.

been satisfied by redesign of the Indicative Design to meet chment restrictions.

s with Township of Esquimalt may cause some schedule

ed information about and assessed the traditional and rces in this area, as well as the traditional transportation harvesting.

s a traditional gathering area.

ewater Treatment Program - Stage 2 Environmental Impact p. 34 (Worley Parsons).

atures are expected to be less than significant at all CAWTP

Study of Core Area Wastewater Treatment Program Environment - March 2014- p. 34 (Tera).

Criteria and Description	Considerations	
		Conclusion: Average
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material difference Conclusion: Average
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development) Opportunity to improve existing communities (e.g. through upgrades to off-site services) 	 Evidence: Surrounding area has access required. Potential for district heating in No developable land in close Conclusion: Average
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	 How the option impacts the physical and cultural heritage value How the option impacts any cultural or heritage structures, site, or artifacts 	 Evidence: The site does not contain any used in the design. The design of the building exculture, and heritage. Conclusion: Average

Evidence

ed First Nations extensively for all of the options under review erence in how the options meet the criterion.

ss to gas, hydro, water, and sewer mains. Upgrades are not

in Town Centre and DND base. e proximity to plant.

ny existing structures with historical significance that could be

xterior and site landscaping could reflect and honor history,

PAGE 7 of 7

OPTION SCREENING SUMMARY SHEET

Option Name: McLoughlin Tertiary Plant 108 MLD (Tertiary Treatment – Disc Filters)

Option Description: Single Regional Treatment Plant (108 MLD BAF + Tertiary Disc Filters)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$842 mill
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	• The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million.	CRD Capital Cost Contribution: \$
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Preparation of procurement documents and tendering process Commissioning Date Site conditions that may extend construction(i.e. piling, shoring) Construction Schedule 	 Evidence: Estimated Service Commence Zoning completed for 108 ML Zoning Bylaw 1992 (Consolid Point – Special Use) (Bylaw 2 EIS completed. Development Permit will be resonance Development consistent Guidelines – McLoughli CitySpaces Consulting Official Community Plan

Core Area Wastewater Treatment Program Options Analysis

	Poor (1)
eets	Option fails to meet basic requirements of the criterion.
Evic	dence
nillion	
n: \$1,078 mi	llion
\$340 millior	1
ncement Date MLD Waste W Ilidated), Byla v 2806)	e: December 31 st , 2020 Vater Plant at this site (Township of Esquimalt w No. 2050, Amendment No. 209 (McLoughlin
e required. ent with cond hlin Point Wa Ig Ltd. Revise lan	itions identified in the document entitled "Design stewater Treatment Plant" prepared by ed May 2013, copy of which is attached to the

Criteria and Description	Considerations	
Environmental Criteria		
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	Evidence: Estimated carbon footprint Co Estimated carbon footprint Op Conclusion: Good
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both intern scheme. Market studies conducted by existing Industrial/Commercia due to the high cost of conver systems. A district heating system coul Esquimalt & Upper Harbour c Plant site is remote from pote
EN-03 Water Reuse Potential The options' estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that requires tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce water for reuse opportunities 	 Evidence: Market studies conducted by from existing Industrial/Comm water. Water reuse is typical is has an abundant water supply (4 months). The largest users There is potential for use in properties (~\$2500/dwelling) is unfavourable. Cost of retrofitting plumbing s distribution piping is high. Site is remote from potential users the suitable for water reuse. Conclusion: Average

Evidence

construction (One Time) – 14,119 tonnes perations (Annual) – 2,772 tonnes/year

the use of heat recovered from the plant's final effluent. rnal to the treatment plant and external via a district energy

Stantec in 2009 concluded that there is limited interest from al/Institutional (ICI) customers to purchase reclaimed heat ersion of existing Heating Ventilation Air Conditioning (HVAC)

Id be installed to service downtown redevelopment of customers / military base.

ential users of recovered heat.

Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed in semi-arid regions where water supplies are limited. CRD ly and the irrigation season in the Region is relatively short rs of reclaimed water are agricultural and golf courses. public parks. The costs to retrofit existing residential make the economics of conversion of existing residences

systems and installing "purple pipe" reclaimed water

users of reclaimed water.

area and the cost of retrofitting existing systems is high. atment technology will yield tertiary effluent quality which is

Criteria and Description	Considerations	
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant,.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or Disturbed site Requirement for blasting Extent of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) Potential impacts from climate change (sea level rise) 	 Evidence: Site was previously bulk pe Elevation of site mainly favo Site is a brownfield site white Site will require some blasti Piling is not anticipated, loc Minimal vegetation on the site See level rise of 1 m include
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g. future retrofits to accommodate different uses for waste products). 	 Evidence: Estimated biosolids produte Tertiary Disc Filters will refilter the set of the set o
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with Primary Treatment (CEPT); BAF secondary treatment is ADWF and can handle shot Conclusion: Good
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations 	 Evidence: 108 MLD BAF + Tertiary dissite. The adjacent site is vacant utilized in the future for expansion. Advanced oxidation can be BAF design and filters are reference.

Evidence

- etroleum storage facility that has been remediated.
- ourable to storm surge although a tsunami wall is required.
- ich has been remediated.
- ing.
- calized shoring may be required.
- site exists.
- ded in plant hydraulic gradient.
- uction at 108 MLD is 10,877 Dry Tonnes (DT)/year.
- ecover an additional 2,160 kg/day of biosolids.
- sed for plant process water.
- stem will be included in plant heating design.
- note area and the cost of retrofitting existing systems is high.
- multiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.
- s robust for varying flow conditions. Capacity is sized for 2 X ort term peaks in excess of 2 x ADWF.

isc filters treatment plant can be accommodated on existing

- not used Department of Defence (DND). Land that could be bansion needs but would have to be purchased from DND. added.
- modular and can be upgraded in a phased approach.

Criteria and Description	Considerations	
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: McLoughlin Point is a disturble There is limited terrestrial ve There is limited vegetation a This option will have a new originate to intertidal vegetation Conclusion: Good
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: BAF with disc filters design v regulatory requirement. Conclusion: Good
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access e Site is located approximately Access road to the site is a r plant site. Biosolids piping and transmi Delivery of bulk chemicals o Relatively small impact cons
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g. 25 m) 	 Evidence: There is a buffer comprised treatment site and the reside Plant site is remote from res All mechanical equipment de All mechanical equipment co Plant designed for limited vite
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive emission Degree of omission containment Degree of odour control equipment 	 Evidence: All unit processes contained Plant designed to stringent of odour scrubbing. Emission modeling has ensured

Evidence

- bed site which has been remediated.
- egetation on site.
- along the conveyance route, which would follow Dallas Road. outfall which will be installed using tunnelling methods. No on is expected.

will meet 5/5 mg/L BOD/TSS which exceeds the WSER

- estimated at 8 to 10 vehicle movements per day.
- y 500 meters from nearest residential property.
- residential street with some commercial property near the
- ission minimizes biosolids related traffic.
- once or twice per month.
- sidering access route and development along the route.
- of the military base and vacant bare land between the ents.
- sidences, noise impacts will be low.
- esigned to minimize vibration and noise.
- ontained inside buildings.
- bration and noise levels.

in buildings.

odour control requirements. Odour control system to include

ured low odour numbers at property boundaries.

Criteria and Description	Considerations	
It is assumed all plants would have odour control facilities for normal operations.	 Dispersion specs and impact on nearest residences 	 Due to the distance betweer probability of complaints rela Conclusion: Very Good
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered or Architecture and site landsca Tsunami wall can be given a The Development Permit procommunity through architect View from the water will be a natural bare land setting.
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) 	 Evidence: The following amenity provision of the McLoughlin I The provision of public including picnic benche equipment and safety in Pier or dock, of sufficient harbour tugboat pedes Public Valkway: Design accessible trails, and on Construction of trail co Additional traffic integristic bike lanes on all remaii Streets between Lamp Education and Interpretional of 75 square metric promote and facilitate in the wind and wave energy of the wind and wave energy of the schools within the Externation of Green Bud development. Integration of reclaime wetland and landscape Heritage Interpretative

Evidence

the treatment site and nearby residences, there is a low ating to fugitive odour emissions.

- inside building.
- aping are designed to high standards.
- architectural treatment to blend with natural landscape.
- ocess which will ensure that the facility blends with the tural finishes, landscaping and site amenities.
- low rise institutional building which may distract from the

sions were included in the Township of Esquimalt 2013 Point site to Special Use (Wastewater Treatment).

- open space improvements of a value no less than \$75,000, es and "tot" park play lot with appropriately themed play features given proximity to open water.
- ent size to fulfill previous condition, including with provision of strian ferry service.
- gn of building and development of site to incorporate public off-site.
- onnection to West Bay Neighbourhood.
- ration amenities, in the form of additional traffic calming and ining.
- bson Road and Esquimalt Road.
- etive Centre additional 25 square metres of floor area for res, including portion for a "Center of Excellence" to educate, energy technology or other industries focussed on utilizing ergy at the subject property.
- rs systems to improve air quality and odour reduction for ended Community.
- uilding and Design Features to additional portions of

ed water into the design of the buildings, including a rooftop ed feature.

Signage, recognizing the historic uses on the subject

Criteria and Description	Considerations	
		property and process to Annual contribution of § CRD has capped amen Conclusion: Good
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g. blasting or vibration) 	 Evidence: Laydown area in James Bay crossing HDD operation, will Launch shaft for Harbour cro to 6 months. There will be an from the launch shaft site. Installation of the conveyance Crossing will be along Dallas will impact traffic along that reference is only in Admiral's residence is only in Conclusion: Average
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property (consider causes, e.g., blasting or vibration) 	 Evidence: Due to the remoteness of the properties are minimal. Due to the remoteness of the significant dust, vibration, and The contractor may be requir minimize construction traffic to Admiral's residence is the on
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities. 	Evidence: No impact to the community's treatment site is surrounded Conclusion: Very Good
SO-09 Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property 	 Evidence: Zoning in place for 108 MLD Bylaw 1992 (Consolidated), B Special Use) (Bylaw 2806) OCP has been amended. Revised Indicative Design for

Evidence

o transition to current uses.

- \$55,000 to McLoughlin Point Amenity Reserve Fund.
- nity package at \$20 million.
- needed for the conveyance pipe, required for Harbour impact up to 1 km of Dallas Road for laydown.
- ssing horizontal drilling will impact Ogden Point area for up pproximately 10 trucks/day hauling excavated material away
- e piping from Clover Point Pump Station to Harbour Road but in the boulevard south of travelled roadway, which oute for 4 months.
- tigate disruption to neighbouring properties.
- close proximity to the plant.

treatment site (e.g. 500-600 m), the impacts on nearby

- e treatment site (e.g. 500-600 m), there is a low risk of d noise impacts to the neighbours.
- red to barge material and equipment to/from site and through residential neighbourhoods.
- ly home in close proximity to the plant.

s enjoyment of existing public amenities because the by the DND vacant lands.

Wastewater Treatment Plant (Township of Esquimalt Zoning Bylaw No. 2050, Amendment No. 209 (McLoughlin Point –

r treatment site meets approved height and shoreline

Criteria and Description	Considerations	
	owners	 encroachment zoning require Development Permit process delays.
		Conclusion: Very Good
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Previous EIS studies gathere cultural use of marine resource routes and marine resource resource resource routes and marine resource resourc
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material differ Conclusion: Average
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development) Opportunities to improve existing communities (e.g. through upgrades to off-site services) 	 Evidence: Surrounding area has access required. Potential for district heating in No developable land in close Conclusion: Average
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	How the option respects and incorporates existing cultural or heritage structures, site, or artifacts	 Evidence: The site does not contain any used in the design. The design of the building excluture, and heritage. Conclusion: Average

Evidence

ements.

with Township of Esquimalt may cause some schedule

ed information about and assessed the traditional and rces in this area, as well as the traditional transportation harvesting.

a traditional gathering area.

water Treatment Program - Stage 2 Environmental Impact o. 34 (Worley Parsons)

atures are expected to be less than significant at all CAWTP

Study of Core Area Wastewater Treatment Program Environment - March 2014- p. 34 (Tera)

gical findings along the Dallas Road conveyance pipe route to be assessed by a qualified archaeologist.

First Nations extensively for all of the options under review rence in how the options meet the criterion.

to gas, hydro, water, and sewer mains. Upgrades are not

n Town Centre and DND base. proximity to plant.

y existing structures with historical significance that could be

terior and site landscaping could reflect and honour history,

PAGE 7 of 7
OPTION SCREENING SUMMARY SHEET

Option Name: Two Plants: McLoughlin 60 MLD, Clover Point 48 MLD Tertiary Plant (Tertiary Treatment)

Option Description: Two Plants: McLoughlin 60 MLD MBR / Clover Point 48 MLD MBR (Tertiary Treatment)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		Conclusion
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 1,078 m
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	 The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million. 	CRD Capital Cost Contribution:
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Preparation of procurement documents and tendering process Commissioning Date Site conditions that may extend construction(i.e. piling, shoring) 	Estimated Service Commenceme Evidence: <u>McLoughlin Point</u> • Zoning completed for 108 M Zoning Bylaw 1992 (Consoli Point – Special Use) (Bylaw • Environmental Impact Study • Development Permit ("DP") v

Core Area Wastewater Treatment Program Options Analysis



Criteria and Description	Considerations	
	Construction Schedule	 Development cons "Design Guidelines by CitySpaces Cor the Official Communication Existing zoning is R1-B Zone required. The estimated time Based on feedback from the anticipated to be high. EIS will need to be complete DP will be required. Procurement process would Underground plant construct
Environmental Criteria		
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint C Estimated carbon footprint C Operations when utilizing ME footprint, approximately 500 The underground treatment presentilation etc. approximately Conclusion: Fair
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both intersischeme. Market studies conducted by from existing Industrial/Comment heat due to the high cost of or (HVAC) systems. McLoughlin Point A small district heating system Esquimalt & Upper Harbour of Clover Point Adjacent land is park and exter economical district heating systems would be high.

Evidence

istent with conditions identified in the document entitled - McLoughlin Point Wastewater Treatment Plant" prepared nsulting Ltd. Revised May 2013, copy of which is attached to unity Plan.

e, Single Family Dwelling District. Rezoning would be to complete is 18 months.

Public consultation process, public opposition to rezoning is

ed.

I have to be redone. Cost and schedule impacts. tion is required which results in a longer construction period.

- Construction (One Time) 24,306 tonnes.
- perations (Annual) 3,407 tonnes/year.
- BR technology generates a higher carbon operations tonnes/year, than BAF secondary treatment.
- plant will also have higher carbon footprint in odour control, y – 340 tonnes/year.

h the use of heat recovered from the plant's final effluent. rnal to the treatment plant and external via a district energy

Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed conversion of existing Heating Ventilation Air Conditioning

em could be installed to service downtown redevelopment of customers / military base.

isting residential. Low probability of developing an system at this location. Cost of retrofit to existing heating

Option 10 McLoughlin 60 MLD Tertiary Plant Clover Point 48 MLD Tertiary Plant

Criteria and Description	Considerations	
EN-03 Water Reuse Potential The options' estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that require tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce water for reuse opportunities 	 Evidence: Market studies conducted by from existing Industrial/Comwater. Water reuse is typical has an abundant water supple (4 months). The largest use There is potential for use in properties (~\$2500/dwelling unfavourable. MBR treatment technology or reuse. MBR treatment technology or reuse. Option is located in a remote high. Purple pipe reclaimed water Clover Point Possibility of using reuse was Park).
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or Disturbed site Requirement for blasting Extent of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) 	 Evidence: <u>McLoughlin Point</u> Site was previously a bulk p Elevation of site mainly favo Minimal vegetation on the site is currently parkland. Site previously excavated for the site is currently parkland. Due to depth of excavation is currently parkland. Site elevation is above sea between the site is currently parkland. Conclusion: Average

Core Area Wastewater Treatment Program Options Analysis

Evidence

y Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed al in semi-arid regions where water supplies are limited. CRD ply and the irrigation season in the Region is relatively short ers of reclaimed water are agricultural and golf courses. public parks. The costs to retrofit existing residential) make the economics of conversion of existing residences

will yield tertiary effluent quality which is suitable for water

te area and the cost of retrofitting existing plumbing systems is

r distribution system cost is high.

ater for park irrigation (Clover Point, Holland Park, Beacon Hill

betroleum storage facility that has been fully remediated. burable to storm surge although a tsunami wall is required. ite exists.

ite exists.

or construction of Clover Point Pump Station.

tion will require extensive shoring via sheet piling around

(10-12 m), there is a high probability that rock blasting will be sturbance at Clover due to deep excavation. level rise and tsunami walls not required.

Option 10 McLoughlin 60 MLD Tertiary Plant Clover Point 48 MLD Tertiary Plant

Criteria and Description	Considerations	
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g. future retrofits to accommodate different uses for waste products). 	 Evidence: Estimated biosolids product MBR technology will recover Effluent water will be reuse Internal heat recovery system McLoughlin Point Option is located in a remore reclaimed heat systems is Clover Point Option is located in near expresses water systems is more (Reference EN-02 and EN-02) Conclusion: Good
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with Primary Treatment (CEPT) MBR is slightly less robust Conclusion: Good
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations 	 Evidence: MBR effluent will exceed control McLoughlin Point 60 MLD MBR treatment plat there is available area on the future expansion could be Clover Point 48 MLD MBR treatment plat No space for expansion as Conclusion: Very Good
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	Evidence: <u>McLoughlin Point</u> • McLoughlin Point is a distu • There is limited terrestrial v • There is limited vegetation

Core Area Wastewater Treatment Program Options Analysis

Evidence

- ction at 108 MLD is 10,877 Dry Tonnes (DT)/year.
- ver an additional 2,160 kg/day of biosolids.
- ed for plant process water.
- tem will be included in plant buildings heating design.

ote area and the potential for reuse water systems and low (Reference EN-02 and EN-03).

xisting parkland and residential properties and the potential for ore favourable. Potential for reclaimed heat systems is low -03).

multiple units and ability to turn on & off Chemically Enhanced); excellent for range of flow up to 4 x ADWF. for varying flow conditions. Capacity is sized for 2 X ADWF.

urrent regulatory standards.

ant can be accommodated on existing site, which means that the site for expansion, if needed in the future. undertaken with minimal impact on plant operations.

ant can be accommodated on existing site. site is limited.

urbed site which has been remediated.

vegetation on site.

along the conveyance route, which would follow Dallas Road.

Criteria and Description	Considerations	
		 The marine outfall would be a disturbance of the intertidal z <u>Clover Point</u> Clover Point is a disturbed si There is limited terrestrial very This Option assumes the read disturbance of the intertidal z Conclusion: Good
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements.	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: MBR design will achieve 2/2 requirements. Dispersion modelling of efflue coliforms /100 ml at the perin regulatory requirement for marceled to the second second
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access e No biosolids related traffic du Anticipate delivery of bulk che McLoughlin Point Site is located approximately Access road to the site is a replant site. Route to and from the site ne Clover Point Site is within 20 metres of rest
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of nearest neighbour to source of noise and vibration (e.g. 25 m) 	 Evidence: All mechanical equipment de All mechanical equipment co Plant designed for limited vib Performance specifications for

Evidence

the existing Macaulay Point outfall. There would be no zone and no mitigation measures would be required.

ite.

- getation on site other than grass and plantings.
- use of existing outfall at Clover Point. There would be no zone and no mitigation measures would be required.

mg/L BOD/TSS effluent which exceed the WSER regulatory

uent plume has shown that bacterial levels will be less than 5 neter of the Initial Dilution Zone which far exceeds the arine discharges.

estimated at 8 to 10 vehicle movements per day/each site. ue to biosolids pumping and conveyance piping plans. emicals up to twice per month.

500 meters from nearest residential property. esidential street with some commercial property near the

eeds to go through a residential area.

sidential properties and is located in an active park.

- esigned to minimize vibration and noise.
- ontained inside buildings.
- pration and noise levels.
- or design require low noise and vibration levels.

Criteria and Description	Considerations	
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive nuisance emission during maintenance Degree of emission containment Degree of odour control equipment Dispersion specs and impact on nearest residences 	 McLoughlin Point There is a buffer comprised of treatment site and the resider Nearest residential property is Clover Point The adjacent property is reside Nearest residential property is The adjacent property is reside Nearest residential property is Conclusion: Average Evidence: All unit processes contained it All process tankage covered. Redundancy required on odo Plant designed to stringent od Emission modeling will confir Due to the distance between probability of odour complain Clover Point Site is adjacent to residential There may be some concern residences; however, it is explorecause the plant is undergratechnology.
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered or i Architecture and site landsca McLoughlin Point The Development Permit prothrough architectural finishes View from the water will be a natural bare land setting. Plant design can be given a happealing facility. Tsunami wall can be given and setting.

Evidence

of the military base and vacant bare land between the nts.

is 500 metres away.

dential. is 20 metres away.

in buildings.

our control system.

dour control requirements with scrubbing of odourus air.

rm low odour numbers at property boundaries.

the treatment site and nearby residences, there is a low t from fugitive nuisance odour emissions.

I properties within 50 metres.

regarding odour due to the close proximity of nearby pected that there will be little odour at the property line ound and will be equipped with best available odour control

inside building.

aping are designed to high standards.

ocess will ensure that the facility blends with the community , landscaping and site amenities.

low rise industrial building which may distract from the

high degree of architectural treatment to provide a visual

rchitectural treatment to blend with natural landscape.

Criteria and Description	Considerations	
SO-05	 CRD has capped amenities package at \$20 million which will be prorated based 	 <u>Clover Point</u> Treatment plant will be under View from residential neight There will be a 1 storey wind waterside, which may distrated with the Development Permit present through architectural finished Conclusion: Average Evidence:
Amenities Potential How the option can impact consideration of community integration opportunities.	 on capacity of the option The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) Opportunity for job creation, consider both construction and operations 	 Two plants Option will proviou operations. Since the amenity package of improvements at each site McLoughlin Point The Township of Esquimalt 2013. This list of amenities With a two plant option the 3 which mean there may not b zoning bylaw. The following is a list of item The following jis a list of item The provision of public including picnic bench equipment and safety Pier or dock, of sufficin harbour tugboat pedes Public Walkway: Design accessible trails, and on Construction of trail construction of 75 square met promote and facilitate the wind and wave entry Education and Interpretent of the wind and wave entry The section will provide the wind and wave entry Section and wave entry Section and wave entry The section will be wind and wave entry The section wave entry

Evidence

- erground with park restored on top.
- bours and roadway will be similar to existing view.
- ndow wall (approximately 75 m in length) viewed from the act from the natural bare land setting.
- rocess will ensure that the facility blends with the community es, landscaping and site amenities.

ide more local job opportunities both during construction and

- (\$20 million) will be distributed between two sites, the extent te will have to be determined.
- added the need for amenities during the site rezoning in is extensive.
- \$20 million amenity package will be prorated between sites, be sufficient funds for all of the required amenities from the
- ms that were requested as part of the zoning by law.
- ic open space improvements of a value no less than \$75,000, es and "tot" park play lot with appropriately themed play features given proximity to open water.
- ient size to fulfill previous condition, including with provision of estrian ferry service.
- ign of building and development of site to incorporate public off-site.
- connection to West Bay Neighbourhood.
- ration amenities, in the form of additional traffic calming and son Road and Esquimalt Road.
- retive Centre additional 25 square metres of floor area for tres, including portion for a "Center of Excellence" to educate, energy technology or other industries focussed on utilizing nergy at the subject property.

Criteria and Description	Considerations	
		 High efficiency air filter schools within the External
		 Extension of Green Bu development.
		 Integration of reclaimed wetland and landscape
		 Heritage Interpretative property and process to
		 Annual contribution of a
		 <u>Clover Point</u> Since a rezoning application Point are unknown.
		Conclusion: Average
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g. blasting or vibration) 	 Evidence: Construction planning will mit <u>McLoughlin Point</u> Installation of the conveyance Point Treatment Plant will care This disruption will last approximate the conveyance piping will be interested. Proposed Treatment Plant sin conveyance piping will be interested.
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property (consider causes, e.g., blasting or vibration) 	 Evidence: <u>McLoughlin Point</u> Due to the remoteness of the is a low risk of significant dus The contractor may be required minimize construction traffic <u>Clover Point</u> Due to the location of the tre residential properties), the im In addition, due to the location and noise impacts to the residential

Evidence

rs systems to improve air quality and odour reduction for ended Community.

ilding and Design Features to additional portions of

d water into the design of the buildings, including a rooftop ed feature.

Signage, recognizing the historic uses on the subject to transition to current uses.

\$55,000 to McLoughlin Point Amenity Reserve Fund.

has not been submitted, the amenity provisions for Clover

itigate disruption to neighbouring properties.

ce piping from Macaulay Point Pump Station to McLoughlin ause disruption along existing residential streets. oximately 4 months.

site is adjacent to existing Clover Point Pump Station and tegrated with the underground construction of the plant.

e treatment site (e.g. 500-600 m) from the residences, there st, vibration, and noise impacts to the neighbours.

red to barge material and equipment to/from site and through residential neighbourhoods during construction.

atment site (i.e. in an active park and within 20 m of existing npacts on the local community will be significant.

on of the site, there is a high risk of significant dust, vibration, idential neighbours.

Criteria and Description	Considerations	
		 The expected duration of the Sheet piling or alternative sh which will create additional n Traffic along Dallas Road wil delivery of materials and equ This option will generate a si significant truck traffic along Conclusion: Fair
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities. 	 Evidence: <u>McLoughlin Point</u> No impact to the community' treatment site is surrounded <u>Clover Point</u> Clover Point is an active part the park will be restricted due Conclusion: Fair
SO-09 Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Evidence: <u>McLoughlin Point</u> Zoning in place for 108 MLD Bylaw 1992 (Consolidated), Special Use) (Bylaw 2806) OCP has been amended for Existing design for treatment restrictions. Development Permit process delays due to single treatment Guidelines – McLoughlin Consulting Ltd. Revised Community Plan
		 This option is incompatible w to the OCP. Rezoning from existing zonir utility zoning will be required

Evidence

e disruption is 42 months.

noring will be required at the site due to the deep excavation noise for approximately 4 months.

ill be impacted for the duration of construction due to the upment to the site.

ignificant volume of excavated material that will likely result in Dallas Road.

's enjoyment of existing public amenities because the by the DND vacant lands.

rk and tourist attraction. It is expected that access and use of ring construction.

Wastewater Treatment Plant (Township of Esquimalt Zoning Bylaw No. 2050, Amendment No. 209 (McLoughlin Point -

Special Use – Waste Water Treatment.

site meets current height and shoreline encroachment

s with Township of Esquimalt may cause some schedule nt plant option.

with conditions identified in the document entitled "Design Point Wastewater Treatment Plant" prepared by CitySpaces May 2013, copy of which is attached to the Official

vith the OCP and, if advanced, could trigger an amendment

ng (R1-B Zone, Single Family Dwelling District) to a public This process is estimated to take 18 months to complete.

Criteria and Description	Considerations	
		 There may have a Restrictive the land to park. CRD would federal government. Stakeholder engagement ha from adjacent property ownerezoning and DP processes. Conclusion: Poor
SO-10	Greenfield (undisturbed) vs. Brownfield (disturbed)	Evidence:
Archeological Findings Risk of discovering archaeological items during construction.	Consider archeological studies completed to date	 Previous EIS studies gathere cultural use of marine resource McLoughlin Point was identifi CRD Core Area Wastewa Study - 18 Feb 2013- p. Effects on archaeological fea facility sites Environmental Impact St Terrestrial Environment - Risk of discovering archeolo and would have to be assess Both sites have been previou probability of an archeological
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material different difference is no material difference is no materis no material difference is no materis no material difference i
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g. through upgrades to off-site services) 	 Evidence: Surrounding area for both sin are in good condition. Upgra Conclusion: Average

Evidence

ve Covenant on a portion of the site which restricts the use of d have to negotiate a revision to this Agreement with the

as demonstrated that there is significant public opposition ers and park users to this option. This could impact the

red information about and assessed the traditional and rces in this area, as well as the traditional transportation harvesting.

- ified as a traditional gathering area.
- vater Treatment Program Stage 2 Environmental Impact 34 (Worley Parsons)
- atures are expected to be less than significant at all CAWTP
- tudy of Core Area Wastewater Treatment Program Facilities -March 2014- p. 34 (Tera)
- pgical findings along the conveyance pipe routes are unknown sed by a qualified archaeologist.
- ously excavated and disturbed so there is a very low cal discovery.

ed First Nations extensively for all of the options under review erence in how the options meet the criterion.

penefit financially or otherwise from this option.

penefit financially or otherwise from this option.

tes have access to gas, hydro, water, and sewer lines; which ades are not required.

PAGE 10 of 11

Option 10 McLoughlin 60 MLD Tertiary Plant Clover Point 48 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	How the option respects and incorporates existing cultural or heritage structures, site, or artifacts	 Evidence: <u>McLoughlin Point</u> The site does not contain any used in the design. The design of the building excluture, and heritage. <u>Clover Point</u> The site does not contain any used in the design. The design of site landscapin Conclusion: Average

Core Area Wastewater Treatment Program Options Analysis

Evidence

y existing structures with historical significance that could be xterior and site landscaping will reflect and honor history,

y existing structures with historical significance that could be ng will reflect and honor history, culture, and heritage.

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OPTION SCREENING SUMMARY SHEET

Option Name: Two Plants: McLoughlin 92 MLD (Secondary Treatment), East Saanich 16 MLD (Tertiary Treatment)

Option Description: Two Plants: McLoughlin 92 MLD BAF (Secondary Treatment), East Saanich 16 MLD MBR (Tertiary Treatment)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		Conclusion
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 995 mil
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	• The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million.	CRD Capital Cost Contribution:

Core Area Wastewater Treatment Program Options Analysis



PAGE 1 of 14

Criteria and Description	Considerations	
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g., development permit) Environmental permitting requirements Commissioning Schedule Site conditions that may extend construction(i.e., piling, shoring) Construction Schedule 	 Evidence: Estimated Service Comment McLoughlin Point Zoning completed for 108 M Zoning Bylaw 1992 (Consol Point – Special Use) (Bylaw EIS completed Development Permit will be Development consistent Guidelines – McLoughlin Consulting Ltd. Revised Community Plan Preferred Proponent identifient East Saanich Zoning is P-2WL – Utility Weilen Rezoning would be required EIS will need to be completed Development Permit will be Permit required for outfall experiment
Environmental Criteria		
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint C Estimated carbon footprint C Conclusion: Average

Evidence

ncement Date: December 31, 2022

/ILD Waste Water Plant at this site (Township of Esquimalt lidated), Bylaw No. 2050, Amendment No. 209 (McLoughlin v 2806)

required

with conditions identified in the document entitled "Design n Point Wastewater Treatment Plant" prepared by CitySpaces May 2013, copy of which is attached to the Official

ed

oodland Zone.

d. Estimated time to complete is 18 months.

ed.

required.

xtension.

Construction (One Time) – 21,523 tonnes Operations (Annual) – 2,940 tonnes/year

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Option 13 McLoughlin 92 MLD Secondary Plant East Saanich 16 MLD Tertiary Plant

Criteria and Description	Considerations	
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained throug Energy use can be both interscheme. Market studies conducted b from existing Industrial/Com heat due to the high cost of (HVAC) systems. McLoughlin Point A small district heating system Esquimalt & Upper Harbour University of Victoria is relation for a district heating system
EN 00		Conclusion: Average
Water Reuse Potential The options' estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that requires tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to produce water for reuse opportunities 	 Market studies conducted b existing Industrial/Commerce Water reuse is typical in ser abundant water supply and months). The largest users potential for use in public pa (~\$2500/dwelling) make the unfavourable. BAF treatment technology a unsuitable for water reuse. MBR treatment technology a suitable for water reuse. MDL oughlin Point Secondary effluent is not su East Saanich Option is located in close pr adding reuse water custome

Core Area Wastewater Treatment Program Options Analysis

Evidence

gh the use of heat recovered from the plant's final effluent. ernal to the treatment plant and external via a district energy

by Stantec in 2009 concluded that there is limited demand nmercial/Institutional (ICI) customers to purchase reclaimed conversion of existing Heating Ventilation Air Conditioning

tem could be installed to service downtown redevelopment of customers / military base.

tively close to the East Saanich site. There is good potential with this large institutional user.

by Stantec in 2009 concluded that there is limited interest from cial/Institutional (ICI) customers to purchase reclaimed water. mi-arid regions where water supplies are limited. CRD has an I the irrigation season in the Region is relatively short (4 of reclaimed water are agricultural and golf courses. There is arks. The costs to retrofit existing residential properties economics of conversion of existing residences

at McLoughlin will yield secondary effluent quality which is

at East Saanich will yield tertiary effluent quality which is

itable for water reuse.

roximity to UVic and several golf courses so the potential for ers is more favourable.

PAGE 3 of 14

Criteria and Description	Considerations	
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or Disturbed site Requirement for blasting Extend of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g., need to build tsunami walls) 	 Evidence: <u>McLoughlin Point</u> Site was previously a bulk p Elevation of site mainly favo Minimal vegetation exist on a <u>East Saanich</u> Site is a woodlot with public Elevation is sufficiently high Extensive vegetation exists a
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g., future retrofits to accommodate different uses for waste products). 	 Evidence: Estimated biosolids production MBR treatment at East Saar (~1.3%). Effluent water will be reused Internal heat recovery system McLoughlin Point Option is located in a remote reclaimed heat systems is loc East Saanich Option is located in near existence of reuse water systems and for reuse water systems and conclusion: Average
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements.	 Evidence: Primary plant capacity with r Primary Treatment (CEPT); BAF secondary treatment is ADWF. Conclusion: Good

Evidence

petroleum storage facility that has been fully remediated. burable to storm surge although a tsunami wall is required the site.

trails. that a tsunami wall is not required. on the site.

ion at 108 MLD total flow is 10,877 Dry Tonnes (DT)/year. nich site will recover an additional 368 kg/day of biosolids

for plant process water.

m will be included in plant heating design.

e isolated area and the potential for reuse water systems and ow.

isting institutional and recreational properties and the potential reclaimed heat systems is more favourable.

multiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.

robust for varying flow conditions. Capacity is sized for 2 X

PAGE 4 of 14

Criteria and Description	Considerations	
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations? 	 Evidence: <u>McLoughlin Point</u> Site is suitable for a 92 MLD Tertiary disc filters could be a The adjacent site is vacant D the future for significant expanded <u>East Saanich</u> MBR will exceed current regulation 16 MLD MBR treatment plant
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: <u>McLoughlin Point</u> McLoughlin Point is a disturb There is limited terrestrial veg There is limited vegetation al The new marine outfall for thizone. There would be no dist would be required. <u>East Saanich</u> East Saanich is an undisturbe There is extensive terrestrial This Option assumes the extrintertidal zone. Mitigation me

Evidence

BAF treatment plant.

added to BAF in the future on existing site.

Department of Defence (DND) land that could be utilized in ansion needs. Site would have to be purchased.

ulatory standards for the foreseeable future.

nt can be accommodated on existing site.

bed site which has been remediated.

getation on site.

long the conveyance route, which would follow Dallas Road.

is option would be installed by tunneling under the intertidal sturbance of the intertidal zone and no mitigation measures

ed site.

vegetation on site.

tension of an outfall. There would be disturbance of the easures would be determined by the EIS.

PAGE 5 of 14

Criteria and Description	Considerations	
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements.	Degree that the option's treatment technology exceeds current regulatory requirements.	 Evidence: <u>McLoughlin Point</u> BAF design will achieve 25/2 requirements. Dispersion modelling of efflu coliform /100 ml at the perim requirement for marine disch <u>East Saanich</u> MBR design will achieve 2/2 regulatory requirements. Dispersion modelling of efflu coliforms /100 ml at the perin regulatory requirement for m
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g., residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access e No biosolids related traffic du Anticipate delivery of bulk ch McLoughlin Point Site is located approximately Access road to the site is a replant site. East Saanich Site is located approximately Access to the site is a reside

Evidence

25 mg/L BOD/TSS effluent which meet the WSER regulatory

uent plume has shown that bacterial levels will be less than 14 neter of the Initial Dilution Zone which meets the regulatory narges.

mg/L BOD/TSS effluent which far exceed the WSER

uent plume has shown that bacterial levels will be less than 2 meter of the Initial Dilution Zone (IDZ) which far exceeds the narine discharges.

estimated at 8 to 10 vehicle movements per day/each site. ue to biosolids pumping and conveyance piping plans. nemicals up to twice per month.

500 meters from nearest residential property. residential street with some commercial property near the

100 meters from nearest residential property. ential street.

PAGE 6 of 14

Option 13 McLoughlin 92 MLD Secondary Plant East Saanich 16 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g., residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g., 25 m) 	 Evidence: All mechanical equipment de All mechanical equipment co Plant designed for limited vib McLoughlin Point There is a buffer comprised of treatment site and the reside Nearest residential property is East Saanich The adjacent property is reside Nearest residential property is
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g., 25 m) and classification of local community (e.g., commercial, industrial, residential) Potential odour due to fugitive emission Degree of omission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	Conclusion: Good Evidence: All processes tankage covered Plant designed to stringent o Emission modeling will confir <u>McLoughlin Point</u> Due to the distance between odour complaints due to fugit <u>East Saanich</u> Site is adjacent to residential Due to the odour control syst fugitive nuisance emissions. Conclusion: Good

Core Area Wastewater Treatment Program Options Analysis

Evidence

esigned to minimize vibration and noise.

ontained inside buildings.

pration and noise levels.

of the military base and vacant bare land between the ents. is 500 metres.

idential. is ~100 metres.

ed.

odour control requirements. Odour scrubbers will be installed. rm low odour numbers at property boundaries.

the treatment site and nearby residences, the probability of tive nuisance emissions expected to be low.

I property within 100 meters.

tems, there is a low probability of odour complaints from

PAGE 7 of 14

Option 13 McLoughlin 92 MLD Secondary Plant East Saanich 16 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required 	 Evidence: All process units covered or in Architecture and site landscape McLoughlin Point The Development Permit process on the order of the

Core Area Wastewater Treatment Program Options Analysis

Evidence

nside building.

ping can be designed to high standards.

cess which will ensure that the facility blends with the ural finishes, landscaping and site amenities.

low rise industrial building which may distract from the

achieve a high degree of architectural treatment. chitectural treatment to blend with natural landscape.

letely buried with park restored on top deck.

ours and roadway will be open parkland vs. woodlot.

cess which will ensure that the facility blends with the Iral finishes, landscaping and site amenities.

PAGE 8 of 14

Criteria and Description	Considerations	
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 CRD has capped amenities package at \$20 million which will be prorated based on capacity of the option The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g., educational facilities, research from UVic, learning centres for public on wastewater treatment) Opportunity for job creation, consider both construction and operations 	 Evidence: Two plant options will provide Since the amenity package (Sof improvements at each site McLoughlin Point The following amenity provisi rezoning of the McLoughlin P the 108 MLD single treatmen amenity package will be proven has requested the following at The provision of public op including picnic benches at equipment and safety feat Pier or dock, of sufficient so harbour tugboat pedestriat Public Walkway: Design of accessible trails, and off-soft Occupation of trail connection Additional traffic integration lanes on all remaining. Streets between Lampsor Education and Interpretives of 75 square metres, inclu- promote and facilitate ener- wind and wave energy at the extension of Green Building development. High efficiency air filters so schools within the Extended Extension of Green Building development. Integration of reclaimed wave wetland and landscaped for Heritage Interpretative Sign and process to transition to Annual contribution of \$55 East Saanich Since a rezoning application Saanich are unknown.

Evidence

more job opportunities.

\$20 million) will be distributed between two sites, the extent will be less favourable.

ions were included in the Township of Esquimalt 2013 Point site to Special Use (Wastewater Treatment) based on t plant option. With a two plant option the \$20 million ated between sites proportional to flow. The zoning bylaw amenities.

pen space improvements of a value no less than \$75,000, and "tot" park play lot with appropriately themed play tures given proximity to open water.

size to fulfill previous condition, including with provision of an ferry service.

of building and development of site to incorporate public site.

ection to West Bay Neighbourhood.

on amenities, in the form of additional traffic calming and bike

Road and Esquimalt Road.

e Centre – additional 25 square metres of floor area for total uding portion for a "Center of Excellence" to educate, ergy technology or other industries focussed on utilizing the the subject property.

systems to improve air quality and odour reduction for led Community.

ing and Design Features to additional portions of

vater into the design of the buildings, including a rooftop feature.

gnage, recognizing the historic uses on the subject property to current uses.

5,000 to McLoughlin Point Amenity Reserve Fund.

has not been submitted, the amenity provisions for East

PAGE 9 of 14

Option 13 McLoughlin 92 MLD Secondary Plant East Saanich 16 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g., blasting or vibration) 	 Evidence: Construction planning will so <u>McLoughlin Point</u> Laydown area in James Bay crossing boring operation, w Launch shaft for Harbour crossing boring operation. Launch shaft for Harbour crossing will be along be the excavated material. Installation of the conveyance Crossing will be along Dallas will impact traffic along that the <u>East Saanich</u> Construction of conveyance on residential streets for up to the close proximity or dust and vibration impacts n
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property (consider causes, e.g., blasting or vibration) 	 Evidence: <u>McLoughlin Point</u> Due to the remoteness of the on nearby properties are mine Due to the remoteness of the vibration, and noise impacts The contractor may be required minimize construction traffice <u>East Saanich</u> The East Saanich site is location of contract of the expected duration of the expected duration of contract of the expected duration of the expected

Core Area Wastewater Treatment Program Options Analysis

Evidence

omewhat mitigate disruption to neighbouring properties.

needed for the conveyance pipe, required for Harbour vill impact up to 1 km of Dallas Road for 6 months. ossing horizontal drilling will impact Ogden Point area for up 0-15 trucks per day access the shaft area to haul away

ce piping from Clover Point Pump Station to Harbour s Road but in the boulevard south of travelled roadway, which route for 3 months.

piping from treatment plant to outfall may cause disruption to 6 months.

of the conveyance pipe route to residences (< 20m), noise, nay be experienced by homeowners.

he treatment site (e.g., 500 m from residences), the impacts nimal.

he treatment site, there is a low risk of significant dust, to the neighbours.

ired to barge that material and equipment to/from site and through residential neighbourhoods during construction.

ated in woodlot.

onstruction is 24 months.

cant dust, vibration, and noise impacts to the residential

be delivered to the site on residential street with adjacent ct will be managed through a Traffic Management Plan which act.

Criteria and Description	Considerations	
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g., parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities 	 Evidence: <u>McLoughlin Point</u> No impact to the community's treatment site is surrounded by <u>East Saanich</u> Significant impact to the communities the site is used extension treatment site is used extension

Evidence

's enjoyment of existing public amenities because the by the DND vacant lands

nmunity's enjoyment of existing public amenities because the sively for dog walking and trail hiking.

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Option 13 McLoughlin 92 MLD Secondary Plant East Saanich 16 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-09 Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Evidence: <u>McLoughlin Point</u> Zoning in place for 108 MLD Bylaw 1992 (Consolidated), I Special Use) (Bylaw 2806). OCP has been amended for Existing design for treatment restrictions. Development Permit process delays due to single treatment on Development consistent of Guidelines – McLoughlin Consulting Ltd. Revised M Community Plan East Saanich Existing zoning is P-2WL – U O Uses Permitted a. Underground Holding b. Underground Pump C. Accessory Parking Rezoning would be required. Estimated time to complete The zoning for this site has opposition to rezoning for outcome is low. EIS will need to be complete Development Permit will be re follows the rezoning process

Core Area Wastewater Treatment Program Options Analysis

Evidence

Wastewater Treatment Plant (Township of Esquimalt Zoning Bylaw No. 2050, Amendment No. 209 (McLoughlin Point -

Special Use - Waste Water Treatment.

t site meets current height and shoreline encroachment

with Township of Esquimalt may cause some schedule nt plant option.

with conditions identified in the document entitled "Design Point Wastewater Treatment Plant" prepared by CitySpaces May 2013, copy of which is attached to the Official

Jtility Woodland Zone.

ng Tank Station

ete is 18 months.

as been previously considered. There is strong public a wastewater treatment plant. Probability of a successful

ed.

required.

required but would not impact schedule since this process

PAGE 12 of 14

Criteria and Description	Considerations	
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Previous EIS studies gathered cultural use of marine resource in routes and marine resource in McLoughlin was identified as or CRD Core Area Wastewa Study – 18 Feb 2013- p. Effects on archaeological feat facility sites. Environmental Impact Structures Terrestrial Environment - Risk of discovering archaeological have to Conclusion: Good
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material diffe McLoughlin Point Local First Nations will not be East Saanich Local First Nations will not be Local First Nations will not be Conclusion: Average
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g., project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g., through upgrades to off-site services) 	 Evidence: Surrounding area for both sit which are in good condition. Conclusion: Average

Evidence

ed information about and assessed the traditional and rces in this area, as well as the traditional transportation harvesting.

a traditional gathering area.

ater Treatment Program - Stage 2 Environmental Impact 34 (Worley Parsons)

atures are expected to be less than significant at all CAWTP

udy of Core Area Wastewater Treatment Program Facilities -March 2014- p. 34 (Tera).

logical findings along the conveyance pipe routes are be assessed by a qualified archaeologist.

ed First Nations extensively for all of the options under review erence in how the options meet the criterion.

enefit financially or otherwise from this option.

penefit financially or otherwise from this option.

ites have access to gas, hydro, water, and sewer mains; Upgrades are not required.

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Option 13 McLoughlin 92 MLD Secondary Plant East Saanich 16 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	How the option respects and incorporates existing cultural or heritage structures, site, or artifacts	 Evidence: <u>McLoughlin Point</u> The site does not contain any used in the design. The design of the building exculture, and heritage. <u>East Saanich</u> The site does not contain any used in the design. Site landscaping will reflect a Conclusion: Average

Core Area Wastewater Treatment Program Options Analysis

Evidence

ny existing structures with historical significance that could be xterior and site landscaping will reflect and honor history,

ny existing structures with historical significance that could be and honor history, culture, and heritage.

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OPTION SCREENING SUMMARY SHEET

Option Name: Two Plants: McLoughlin 60 MLD, Rock Bay 48 MLD Tertiary Plant (Tertiary Treatment)

Option Description: Two Plants: McLoughlin 60 MLD MBR / Rock Bay 48 MLD MBR (Tertiary Treatment)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 1,030 m
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	 The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million. 	CRD Capital Cost Contribution: \$

Core Area Wastewater Treatment Program Options Analysis



PAGE 1 of 13

Criteria and Description	Considerations	
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g., development permit) Environmental permitting requirements Commissioning Schedule Site conditions that may extend construction(i.e., piling, shoring) Construction Schedule 	 Evidence: Estimated Service Commence McLoughlin Point Zoning completed for 108 ML Zoning Bylaw 1992 (Consolid Point – Special Use) (Bylaw 2 Environmental Impact Study 6 Development Permit ("DP") w Development Permit ("DP") w Development consistent Guidelines – McLoughlin CitySpaces Consulting L Official Community Plan Existing zoning is M3 Industri estimated time to complete is EIS will need to be completed DP will be required. Preliminary site geotechnical lengthen the construction sch
Environmental Criteria		Conclusion
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint Co Estimated carbon footprint Op MBR technology has a h treatment. The need to pump from Rock tonnes/year.

Evidence

cement Date: March 31, 2023

LD Waste Water Plant at this site (Township of Esquimalt dated), Bylaw No. 2050, Amendment No. 209 (McLoughlin 2806)

("EIS") completed

will be required

t with conditions identified in the document entitled "Design n Point Wastewater Treatment Plant" prepared by Ltd. Revised May 2013, copy of which is attached to the

rial, which would trigger the need for a rezoning. The 18 months.

d.

I report indicate that piling may be required which may hedule.

construction (One Time) – 22,419 tonnes.

perations (Annual) – 3,763 tonnes/year.

higher carbon footprint when compared to secondary

Bay to Clover to outfall will increase carbon footprint by 178

PAGE 2 of 13

Considerations	
 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both internscheme. Market studies conducted by from existing Industrial/Commheat due to the high cost of conditional (HVAC) systems. McLoughlin Point A small district heating system Esquimalt & Upper Harbour conditional (Commercial and public useffectively.
 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce water for reuse opportunities 	 Conclusion: Average Evidence: Market studies conducted by existing Industrial/Commercia Water reuse is typical in semi abundant water supply and the months). The largest users of potential for use in public part (~\$2,500/dwelling) make the ounfavourable. MBR treatment technology wireuse. MBR treatment technology wireuse. Option is located in a remote Rock Bay Option is located in an existin redevelopment. The potential this site because it is more content.
	Proximity of plant to potential existing customers Proximity of plant to potential future customers Proximity of option to potential existing customers Proximity of option to potential existing customers Proximity of option to potential existing customers Proximity of option to potential future customers Proximity of option to potential future customers Proximity of option to potential future customers

Core Area Wastewater Treatment Program Options Analysis

Evidence

the use of heat recovered from the plant's final effluent. rnal to the treatment plant and external via a district energy

Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed conversion of existing Heating Ventilation Air Conditioning

m could be installed to service downtown redevelopment of customers / military base.

Id be incorporated into the community plan. cept for development of the site includes mixed used uses. The new facilities could be served more cost

Stantec in 2009 concluded that there is limited interest from al/Institutional (ICI) customers to purchase reclaimed water. ni-arid regions where water supplies are limited. CRD has an he irrigation season in the Region is relatively short (4 reclaimed water are agricultural and golf courses. There is rks. The costs to retrofit existing residential properties economics of conversion of existing residences

vill yield tertiary effluent quality which is suitable for water

area and the cost of retrofitting existing systems is high.

ng industrial/commercial area that is planned for I for adding reuse water customers is more favourable for ost effective in new construction.

Criteria and Description	Considerations	
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or Disturbed site Requirement for blasting Extend of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g., need to build tsunami walls) 	 Evidence: <u>McLoughlin Point</u> Site was previously a bulk p Elevation of site mainly favo Minimal vegetation on the si <u>Rock Bay</u> Site was previously a BC Hy Geotechnical conditions and Due to the site's elevation, a will require filling. Based on preliminary geoted densification or piles to mee Minimal vegetation on the si
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g., future retrofits to accommodate different uses for waste products). 	 Conclusion: Average Evidence: Estimated biosolids producti MBR technology will recover Effluent water will be reused Internal heat recovery system McLoughlin Point Option is located in a remote reclaimed heat systems is loc Rock Bay Option is located in near exist for reuse water systems and EN-02 and EN-03).

Core Area Wastewater Treatment Program Options Analysis

Evidence

betroleum storage facility that has been fully remediated. burable to storm surge although a tsunami wall is required. ite exists.

ydro gasification facility that has been fully remediated. rock excavation requirements preliminary at this time. an extensive tsunami wall will be required; in addition, the site

chnical information, there may be a need for ground et post-disaster foundation requirements. ite exists.

ion at 108 MLD is 10,877 Dry Tonnes (DT)/year. r an additional 2,160 kg/day of biosolids.

for plant process water

m will be included in plant heating design.

e isolated area and the potential for reuse water systems and ow (Reference EN-02 and EN-03).

isting industrial and commercial properties and the potential I reclaimed heat systems is more favourable low (Reference

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Core Area Wastewater Treatment Program Options Analysis

Criteria and Description	Considerations	
EN-06 Wet Weather Treatment Resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with me Primary Treatment (CEPT); ex MBR is slightly less robust for Conclusion: Good
EN-07 Flexibility for More Stringent Treatment Regulations in Future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations? 	 Evidence: MBR is the best available tech for the foreseeable future. The anticipated layout of the pupgrade to technology is need <u>McLoughlin Point</u> 60 MLD MBR treatment plant there is space on the site for e Future expansion could be un <u>Rock Bay</u> 48 MLD MBR treatment plant there is space on the site for e Future expansion could be un

Evidence

nultiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.

or varying flow conditions. Capacity is sized for 2 X ADWF.

chnology and effluent will exceed future regulatory standards

plants can readily accommodate a future retrofit if an eded.

t can be accommodated on existing site, which means that expansion, if needed in the future.

ndertaken with minimal impact on plant operations.

t can be accommodated on existing site, which means that expansion, if needed in the future.

ndertaken with minimal impact on plant operations

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Criteria and Description	Considerations	
EN-08 Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: <u>McLoughlin Point</u> McLoughlin Point is a disturble There is limited terrestrial ve There is limited vegetation a <u>Rock Bay</u> Rock Bay is a disturbed site There is limited terrestrial ve There is limited terrestrial ve There is vegetation on the stan Clover Point and Rock Bay. for this route. There is vegetation on the stan Rock Bay and McLoughlin P completed for this route. This Option assumes the readisturbance of the intertidal zero.
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements.	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: MBR design will achieve 2/2 regulatory requirements. Conclusion: Very Good

Core Area Wastewater Treatment Program Options Analysis

Evidence

- bed site which has been remediated.
- egetation on site.
- long the conveyance route, which would follow Dallas Road.
- which has been remediated.
- egetation on site.
- treets along the first conveyance route, which is between There has not been an impact assessment study completed
- treets along the second conveyance route, which is between Point. There has not been an impact assessment study
- use of existing outfall at Clover Point. There would be no zone and no mitigation measures would be required.

mg/L BOD/TSS effluent which far exceed the WSER

PAGE 6 of 13

Criteria and Description	Considerations	
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g., residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access e No biosolids related traffic de Anticipate delivery of bulk che McLoughlin Point Site is located approximately Access road to the site is a replant site. Route to and from the site ne McK Bay Site is adjacent to existing an commercial/industrial activitie industrial use.
SO-02 Operations Impacts on Local Community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g., residential or industrial) Distance of nearest neighbour to source of noise and vibration (e.g., 25 m) 	Conclusion: Average Evidence: • All mechanical equipment de • All mechanical equipment de • Plant designed for limited vit <u>McLoughlin Point</u> • There is a buffer comprised of treatment site and the reside • Nearest residential property <u>Rock Bay</u> • The adjacent property is con • Nearest residential property

Core Area Wastewater Treatment Program Options Analysis

Evidence

estimated at 8 to 10 vehicle movements per day/each site. lue to solids pumping to Hartland plans. nemicals up to twice per month.

v 500 meters from nearest residential property. residential street with some commercial property near the

eeds to go through a residential.

arterial roads which experience daily truck traffic from other ies in the area. These roads have been designed for

esigned to minimize vibration and noise. ontained inside buildings.

bration and noise levels.

of the military base and vacant bare land between the ents. is 500 metres.

mmercial/industrial. is >250 metres.

PAGE 7 of 13

Criteria and Description	Considerations	
SO-03 Odour Impacts on Local Community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g., 25 m) and classification of local community (e.g., commercial, industrial, residential) Potential odour due to fugitive emission Degree of omission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	 Evidence: All unit processes contained Plant designed to stringent of scrubbers. Emission modeling has ensured McLoughlin Point Due to the distance between probability of odour complain Rock Bay Site is adjacent to commercia Due to the distance between minimal fugitive emissions explanations explanat
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered or it Architecture and site landscat McLoughlin Point The Development Permit procommunity through architecter View from the water will be a natural bare land setting. Buildings and tsunami wall cat Rock Bay Treatment site is an improved The DP process which will erarchitectural finishes, landscat View from the water will be a nearby waterfront buildings. Buildings and tsunami wall cat

Core Area Wastewater Treatment Program Options Analysis

Evidence

in buildings. odour control requirements. Odour control will include

ured low odour numbers at property boundaries.

the treatment site and nearby residences, there is a low nts from fugitive odour emissions.

al/industrial property with 250 metre radius. the treatment site and nearest residences, there are xpected.

inside building.

aping are designed to high standards.

ocess which will ensure that the facility blends with the ural finishes, landscaping and site amenities.

low rise industrial building which may distract from the

an be designed to be aesthetically pleasing.

ment over the prior use, which was a gasification plant.

nsure that the facility blends with the community through aping and site amenities.

a low rise industrial building which will blend well with existing

an be designed to be aesthetically pleasing.

PAGE 8 of 13

Criteria and Description	Considerations	
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 CRD has capped amenities package at \$20 million which will be prorated based on capacity of the option The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g., educational facilities, research from UVic, learning centres for public on wastewater treatment) Opportunity for job creation, consider both construction and operations 	 Evidence: Two plants Option will provide operations. Since the amenity package of improvements at each site <u>McLoughlin Point</u> With a two plant option the \$ which means there may not zoning bylaw. The following The provision of public including picnic benche equipment and safety for the provision of public including picnic benche equipment and safety for Pier or dock, of sufficient harbour tugboat pedest Public Walkway: Design accessible trails, and of Construction of trail corronous Additional traffic integration bike lanes on all remain Streets between Lamps Education and Interpret total of 75 square metres promote and facilitate ewind and wave energy High efficiency air filters schools within the Externois of Green Buil development. Integration of reclaimed wetland and landscape Heritage Interpretative a property and process to Annual contribution of \$ Rock Bay Conclusion: Average
		Conclusion: Average

Core Area Wastewater Treatment Program Options Analysis

Evidence

le more local job opportunities both during construction and

(\$20 million) will be distributed between two sites, the extent e will be less favourable.

\$20 million amenity package will be prorated between sites, be sufficient funds for all of the requested amenities from the amenities have been requested in the zoning bylaw.

open space improvements of a value no less than \$75,000, es and "tot" park play lot with appropriately themed play eatures given proximity to open water.

nt size to fulfill previous condition, including with provision of trian ferry service.

n of building and development of site to incorporate public ff-site.

nnection to West Bay Neighbourhood.

ation amenities, in the form of additional traffic calming and ning.

son Road and Esquimalt Road.

tive Centre – additional 25 square metres of floor area for es, including portion for a "Center of Excellence" to educate, energy technology or other industries focussed on utilizing the at the subject property.

s systems to improve air quality and odour reduction for nded Community.

ilding and Design Features to additional portions of

water into the design of the buildings, including a rooftop ed feature.

Signage, recognizing the historic uses on the subject transition to current uses.

\$55,000 to McLoughlin Point Amenity Reserve Fund.

has not been submitted, the amenity provisions for Rock

PAGE 9 of 13

Criteria and Description	Considerations	
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g., blasting or vibration) 	 Evidence: Construction planning will mit McLoughlin Point Laydown area in James Bay crossing boring operation, with Launch shaft for Harbour crost to 6 months. There will be 10 excavated material. Installation of the conveyance Crossing will be along Dallass will impact traffic along that refressing will be along Dallass will impact traffic along that refressing disruption on residentia. The conveyance piping is lart to 5 metres). Replacement of Blasting may be required alo Due to the close proximity of dust and vibration impacts is Some of the pipeline construction
		Conclusion: Poor

Core Area Wastewater Treatment Program Options Analysis

Evidence

itigate disruption to neighbouring properties.

- needed for the conveyance pipe, required for Harbour ill impact up to 1 km of Dallas Road for 6 months. ossing horizontal drilling will impact Ogden Point area for up)-15 trucks per day which access the shaft area to haul away
- e piping from Clover Point Pump Station to Harbour Road but in the boulevard south of travelled roadway, which route for 3 months.
- piping from both Clover Point and Macaulay Point will cause and arterial streets for up to 2 years.
- rge diameter and will be installed below existing utilities (i.e.4 f existing infrastructure is expected.
- ong portions of the conveyance route.
- the conveyance pipe route to residences (< 20m), noise expected to be experienced by homeowners.
- iction will be adjacent to commercial properties.

Criteria and Description	Considerations	
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Impacts to vegetation and property, including any costs of remediation Impacts damage to property (consider causes, e.g., blasting or vibration) 	 Evidence: <u>McLoughlin Point</u> Due to the remoteness of the on nearby properties are mine. Due to the remoteness of the vibration, and noise impacts. The contractor may be required minimize construction traffice. <u>Rock Bay</u> The Rock Bay site is located there will be dust, vibration, It is expected that commerce vibration. The expected need for pilling. Traffic along arterial roads we delivery of materials and eq Traffic Management Plan ut Conclusion: Average
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g., parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities. 	 Evidence: <u>McLoughlin Point</u> No impact to the community treatment site is surrounded <u>Rock Bay</u> No impact to the community treatment site is surrounded near the site. Conclusion: Very Good

Core Area Wastewater Treatment Program Options Analysis

Evidence

- he treatment site (e.g., 500 m from residences), the impacts inimal.
- he treatment site, there is a low risk of significant dust, s to the neighbours.
- uired to barge that material and equipment to/from site and through residential neighbourhoods during construction.
- ed in an industrial site, therefore there is a low expectation that and noise impacts to the residential neighbours.
- cial neighbours will be impacted by the dust, noise and
- ng may extend construction noise for approximately 2 months.
- will be impacted for the duration of construction due to the quipment to the site. This impact could be mitigated through a nder management by the contractor.

y's enjoyment of existing public amenities because the d by the DND vacant lands.

y's enjoyment of existing public amenities because the d by industrial zoning. There are no public spaces adjacent or

PAGE 11 of 13
Option 17 McLoughlin 60 MLD Tertiary Plant Rock Bay 48 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-09 Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Evidence: <u>McLoughlin Point</u> Zoning in place for 108 MLE Bylaw 1992 (Consolidated), Special Use) (Bylaw 2806). OCP has been amended for Existing design for treatment restrictions.
		 Rezoning from existing M3 I take 18 months to complete Public opposition from propertime and complexity to the r OCP amendment would be follows the rezoning process Conceptual design will satis Development Permit process
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Previous EIS studies gather cultural use of marine resource McLoughlin was identified a CRD Core Area Waste Study – 18 Feb 2013- p Effects on archaeological fer facility sites. Environmental Impact S – Terrestrial Environmental Risk of discovering archeological have to be assess Conclusion: Good

Core Area Wastewater Treatment Program Options Analysis

Evidence

D Wastewater Treatment Plant (Township of Esquimalt Zoning Bylaw No. 2050, Amendment No. 209 (McLoughlin Point -

r Special Use – Waste Water Treatment. nt site meets current height and shoreline encroachment

Industrial to Public Utility will be required, which is expected to

erty owners adjacent to conveyance pipe routes could add ezoning application process.

required but would not impact schedule since this process s.

sfy typical height and setback requirements for utility zoning. ss with City of Victoria will be required.

red information about and assessed the traditional and rces in this area, as well as the traditional transportation harvesting.

is a traditional gathering area.

water Treatment Program - Stage 2 Environmental Impact p. 34 (Worley Parsons)

atures are expected to be less than significant at all CAWTP

Study of Core Area Wastewater Treatment Program Facilities ent - March 2014- p. 34 (Tera)

ogical findings along the conveyance pipe routes are unknown ssed by a qualified archaeologist.

Option 17 McLoughlin 60 MLD Tertiary Plant Rock Bay 48 MLD Tertiary Plant

Criteria and Description	Considerations	
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material difference of the second second
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g., project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g., through upgrades to off-site services) 	 Evidence: Surrounding area for both site are in good condition. CRD staff has advised that th Rock Bay (BCHydro/Transpore conomic development of the wastewater treatment as well Conclusion: Good
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	 How the option respects and incorporates existing cultural or heritage structures, site, or artifacts 	 Evidence: <u>McLoughlin Point</u> The site does not contain any used in the design. The design of the building exculture, and heritage. <u>Rock Bay</u> The site contains two existing incorporated into the plant definition of the administration honor history, culture, and heritage. Conclusion: Good

Core Area Wastewater Treatment Program Options Analysis

Evidence

First Nations extensively for all of the options under review rence in how the options meet the criterion.

enefit financially or otherwise from this option.

cially benefit from this option through the sale of land.

tes have access to gas, hydro, water, and sewer lines; which

he City of Victoria staff consider the redevelopment of the ort Canada) lands for wastewater treatment as a catalyst for e BCHydro/Transport Canada residual land not required for l as other surrounding properties.

y existing structures with historical significance that could be

terior and site landscaping will reflect and honor history,

g structures with historical significance that could be esign.

tion building exterior and site landscaping will reflect and eritage.

PAGE 13 of 13

OPTION SCREENING SUMMARY SHEET

Option Name: Two Plants: McLoughlin 60 MLD, Rock Bay 48 MLD Secondary Plant (Secondary Treatment)

Option Description: Two Plants: McLoughlin 60 MLD BAF / Rock Bay 48 MLD BAF (Secondary Treatment)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 980 mil
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	 The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million. 	CRD Capital Cost Contribution:

Core Area Wastewater Treatment Program Options Analysis



PAGE 1 of 12

Criteria and Description	Considerations	
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Commissioning Schedule Site conditions that may extend construction(i.e. piling, shoring) Construction Schedule 	 Evidence: Estimated Service Commendation Zoning completed for 108 In Zoning Bylaw 1992 (Conserved Point – Special Use) (Bylaw EIS completed Development Permit will be on Development consister Guidelines – McLough CitySpaces Consulting Official Community Plants Existing zoning is M3 Indust estimated time to complete Environmental Impact Study Preliminary site geotechnic time to the construction scl
Environmental Criteria		Conclusion
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint Estimated carbon footprint Pumping of effluent from R carbon footprint by 178 ton

Evidence

encement Date: March 31st, 2023

MLD Waste Water Plant at this site (Township of Esquimalt olidated), Bylaw No. 2050, Amendment No. 209 (McLoughlin aw 2806)

e required

ent with conditions identified in the document entitled "Design hlin Point Wastewater Treatment Plant" prepared by ng Ltd. Revised May 2013, copy of which is attached to the lan

strial, which would trigger the need for a rezoning. The e is 18 months.

dy (EIS) will need to be completed.

will be required.

cal report indicate that piling may be required which will add hedule.

Construction (One Time) – 21,747 tonnes.

Operations (Annual) - 3,250 tonnes/year.

Rock Bay to Clover will increase the Operations (Annual) nnes/year.

PAGE 2 of 12

Criteria and Description	Considerations	
EN-02 Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Evidence: Energy offset gained through Energy use can be both interscheme. Market studies conducted by existing Industrial/Commercidue to the high cost of conversion of the high cost of conversions. McLoughlin Point A small district heating system Esquimalt & Upper Harbour Rock Bay A district heating system concommercial and public These future residents be more cost effective.
EN-03 Water Reuse Potential The options' estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that requires tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce water for reuse opportunities 	 Evidence: Market studies conducted by existing Industrial/Commercid Water reuse is typical in sema bundant water supply and the months). The largest users potential for use in public pathology of the second secon

Core Area Wastewater Treatment Program Options Analysis

Evidence

h the use of heat recovered from the plant's final effluent. ernal to the treatment plant and external via a district energy

y Stantec in 2009 concluded that there is limited interest from ial/Institutional (ICI) customers to purchase reclaimed heat ersion of existing Heating Ventilation Air Conditioning (HVAC)

em could be installed to service downtown redevelopment of customers / military base.

uld be incorporated into the community plan.

- ncept for development of the site includes mixed used uses.
- could be users of recovered heat as new construction would

y Stantec in 2009 concluded that there is limited interest from ial/Institutional (ICI) customers to purchase reclaimed water. ni-arid regions where water supplies are limited. CRD has an the irrigation season in the Region is relatively short (4 of reclaimed water are agricultural and golf courses. There is arks. The costs to retrofit existing residential properties economics of conversion of existing residences

vill yield secondary effluent quality which is unsuitable for

e area and the cost of retrofitting existing systems and tribution system is high.

ing industrial/commercial area so the potential for adding rs is more favourable if tertiary facilities are added. itable for reuse.

PAGE 3 of 12

Criteria and Description	Considerations	
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or Disturbed site Requirement for blasting Extend of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) 	 Evidence: <u>McLoughlin Point</u> Site was previously a bulk p Elevation of site mainly favo Minimal vegetation exists or <u>Rock Bay</u> Site was previously a BC Hy Geotechnical conditions and Extensive tsunami wall require Site is low and will require fi Likely a requirement for group requirements. Minimal vegetation exists or
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream treatment for IRM with biosolids, organic waste and solid waste streams.	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in the future (e.g. future retrofits to accommodate different uses for waste products). 	 Evidence: Estimated biosolids production Effluent water will be reused Internal heat recovery system McLoughlin Point Option is located in a remoted reclaimed heat systems is located in near exists for reclaimed heat systems is located heat systems in the near exists for reclaimed heat systems in the neat exists for reclaimed
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	 Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements. 	 Evidence: Primary plant capacity with Enhanced Primary Treatm BAF secondary treatment ADWF.

Core Area Wastewater Treatment Program Options Analysis

Evidence

betroleum storage facility that has been remediated. burable to storm surge although a tsunami wall is required. n the site.

ydro gasification facility that has been remediated.

d rock excavation requirement uncertain.

ired.

illing.

und densification or piles to meet post-disaster foundation

n the site.

ion at 108 MLD is 10,877 Dry Tonnes (DT)/year.

d for plant process water.

m will be included in plant heating design.

e isolated area and the potential for reuse water systems and ow.

isting industrial and commercial properties and the potential is somewhat favourable (Reference EN-02).

h multiple units and ability to turn on & off Chemically nent (CEPT); excellent for range of flow up to 4 x ADWF. is robust for varying flow conditions. Capacity is sized for 2 X

PAGE 4 of 12

Criteria and Description	Considerations	
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations? 	 Evidence: <u>McLoughlin Point</u> The site is suitable for a 60 f Tertiary disc filters could be The adjacent site is vacant r utilized in the future for signi <u>Rock Bay</u> 75% of site will be utilized by in the future.
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: <u>McLoughlin Point</u> McLoughlin Point is a disturble There is limited terrestrial verestrial verestrial verestrial verestrial verestrial verestrial verestrial verestrict on the structure of the interstrial verestrict. The marine outfall would be disturbance of the intertidal structure of the intertidal structure. Rock Bay Rock Bay is a disturbed site There is limited terrestrial verestrial verestriate. There is vegetation on the structure. There has not been a This Option assumes the readisturbance of the intertidal structure.
		Conclusion: Average

Core Area Wastewater Treatment Program Options Analysis

Evidence

MLD BAF Secondary plant.

added in the future.

not used Department of Defence (DND) land that could be ificant expansion needs.

y BAF Secondary plant, but tertiary disc filters could be added

bed site which has been remediated.

egetation on site.

streets along the (Macaulay Point to McLoughlin Point) as not been an impact assessment study completed for this

e the existing Macaulay Point outfall. There would be no zone and no mitigation measures would be required.

which has been remediated.

egetation on site.

streets along the (Clover Point to Rock Bay) conveyance an impact assessment study completed for this route.

use of existing outfall at Clover Point. There would be no zone and no mitigation measures would be required.

Criteria and Description	Considerations	
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements.	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: <u>McLoughlin Point and Rock E</u> BAF design will achieve 25 requirements. Dispersion modelling of efflicoliform /100 ml at the perirrequirement for marine disc Conclusion: Average
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access No biosolids related traffic of Anticipate delivery of bulk of McLoughlin Point Daily traffic for staff access Site is located approximated Access road to the site is a plant site. Route to and from site need Rock Bay Daily traffic for staff access Site is adjacent to existing a No biosolids related traffic of
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g. 25 m) 	 Evidence: All mechanical equipment of All mechanical equipment of Plant designed for limited v McLoughlin Point There is a buffer comprised treatment site and the resid Nearest residential property

Evidence

<u>Bay</u>

- mg/L BOD/TSS effluent which meets the WSER regulatory
- luent plume has shown that bacterial levels will be less than 14 meter of the Initial Dilution Zone which meets the regulatory charges.
- s estimated at 8 to 10 vehicle movements per day/each site. due to solids pumping to Hartland.
- chemicals up to twice per month.
- estimated at 8 to 10 vehicle movements per day.
- ely 500 meters from nearest residential property.
- residential street with some commercial property near the
- ds to go through residential.
- s estimated at 8 to 10 vehicle movements per day. arterial roads which experience significant daily truck traffic. due to solids pumping to Hartland.
- designed to minimize vibration and noise.
- contained inside buildings.
- vibration and noise levels.

of the military base and vacant bare land between the dents.

is 500 metres.

PAGE 6 of 12

Criteria and Description	Considerations	
		Rock Bay• The adjacent property is cor• Nearest residential propertyConclusion: Good
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive emission Degree of omission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	 Evidence: All unit processes contained Plant designed to stringent of scrubbing. Emission modeling has ensuted McLoughlin Point Due to the distance betweer probability of complaints related Rock Bay Site is adjacent to commerciate probability of odour complaint Due to the distance betweer probability of odour complaint
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered or Architecture and site landsce McLoughlin Point Treatment site is an improve facility. The Development Permit procommunity through architect View from the water will be a natural bare land setting. Buildings and tsunami wall of Rock Bay Treatment site is an improve The Development Permit procommunity through architect View from the water will be a natural bare land setting. Buildings and tsunami wall of Rock Bay Treatment site is an improve The Development Permit procommunity through architect View from the water will be a nearby waterfront buildings. Buildings and tsunami wall of Conclusion: Average

Evidence

mmercial/industrial. is >400 metres.

l in buildings.

odour control requirements. Odour control will include odour

ured low odour numbers at property boundaries.

n the treatment site and nearby residences, there is a low ating to fugitive odour emissions.

ial/industrial property.

n the treatment site and nearest residences, there is a low ints from fugitive emissions.

r inside building.

aping are designed to high standards.

ement over the prior use, which was a bulk petroleum storage

ocess which will ensure that the facility blends with the tural finishes, landscaping and site amenities.

a low rise industrial building which may distract from the

can be designed to be aesthetically pleasing.

ement over the prior use, which was a gasification plant.

ocess which will ensure that the facility blends with the tural finishes, landscaping and site amenities.

a low rise industrial building which will blend well with other

can be designed to be aesthetically pleasing.

PAGE 7 of 12

Criteria and Description	Considerations	
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 CRD has capped amenities package at \$20 million which will be prorated based on capacity of the option The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) Opportunity for job creation, consider both construction and operations 	 Evidence: Two plant Option will provide Since the amenity package of improvements at each site McLoughlin Point The following amenity provide reacting a menity package will be prediamenity package will be prediamenities have been requee The provision of public including picnic benche equipment and safety in the 108 MLD single treatment is have been requee The provision of public including picnic benche equipment and safety in the provision of public watched be provided by the provision of public including picnic benche equipment and safety in the provision of public watched by the provision of th

Evidence

de more job opportunities.

(\$20 million) will be distributed between two sites, the extent te will be less favourable.

isions were included in the Township of Esquimalt 2013 Point site to Special Use (Wastewater Treatment) based on ent plant option. With a two plant option the \$20 million brated between sites proportional to flow. The following ested in the zoning bylaw.

open space improvements of a value no less than \$75,000, es and "tot" park play lot with appropriately themed play features given proximity to open water.

ent size to fulfill previous condition, including with provision of strian ferry service.

gn of building and development of site to incorporate public off-site.

nnection to West Bay Neighbourhood.

ation amenities, in the form of additional traffic calming and ning.

son Road and Esquimalt Road.

etive Centre – additional 25 square metres of floor area for res, including portion for a "Center of Excellence" to educate, energy technology or other industries focussed on utilizing the at the subject property.

rs systems to improve air quality and odour reduction for ended Community.

uilding and Design Features to additional portions of

ed water into the design of the buildings, including a rooftop ed feature.

Signage, recognizing the historic uses on the subject to transition to current uses.

\$55,000 to McLoughlin Point Amenity Reserve Fund.

n has not been submitted, the amenity provisions for Rock

PAGE 8 of 12

Criteria and Description	Considerations	
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g. blasting or vibration) 	 Evidence: Construction planning will s <u>McLoughlin Point</u> Installation of the conveyar residential properties along <u>Rock Bay</u> Construction of conveyance disruption on residential and The conveyance piping is lated to 5 metres). Replacement Blasting may be required at Due to the close proximity dust and vibration impacts Some of the pipeline const Construction planning will report
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Impacts to vegetation and property, including any costs of remediation Impacts to property (consider causes, e.g., blasting or vibration) 	 Evidence: <u>McLoughlin Point</u> Due to the remoteness of t nearby properties are mining The expected duration of c Due to the remoteness of t vibration, and noise impact The contractor may be requirinimize construction traffic <u>Rock Bay</u> The Rock Bay site is located there will be dust, vibration The expected duration of c It is expected that comment vibration. The expected need for piline extend construction noise f The expected need for sho conditions. Nuisance noise Traffic along arterial roads delivery of materials and extended

Core Area Wastewater Treatment Program Options Analysis

Evidence

somewhat mitigate disruption to neighbouring properties.

nce piping from Macaulay Point to McLoughlin Point will impact route for approximately 4 months.

- e piping from both Clover Point to Rock Bay will cause nd arterial streets for up to 2 years.
- arge diameter and will be installed below existing utilities (i.e.4 t of existing infrastructure is expected.
- along portions of the conveyance route.
- of the conveyance pipe route to residences (< 20m), noise may be experienced by homeowners.
- ruction will be adjacent to commercial properties.
- mitigate disruption to neighbouring properties.

he treatment site (e.g. 500 m from residences), the impacts on mal.

- construction is 36 months.
- he treatment site, there is a low risk of significant dust, ts to the neighbours.
- uired to barge material and equipment to/from site and
- ic through residential neighbourhoods during construction.

ed in an industrial site; therefore there is a low probability that , and noise impacts to the residential neighbours.

- construction is 36 months.
- cial neighbours will be impacted by the dust, noise and
- ng will be required at the site which will create additional may for approximately 2 months.
- pring/sheet piling will be required due to high water table e may extent construction noise for approximately 2 months.
- will be impacted for the duration of construction due to the quipment to the site. This impact could be mitigated through a

PAGE 9 of 12

Criteria and Description	Considerations	
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities 	Traffic Management Plan ur Conclusion: Average Evidence: <u>McLoughlin Point</u> • No impact to the communi treatment site is surrounder <u>Rock Bay</u> • No impact to the communi treatment site is surrounder or near the site.
SO-09 Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Conclusion: very Good Evidence: Zoning in place for 108 MLD Bylaw 1992 (Consolidated), Special Use) (Bylaw 2806). OCP has been amended for Existing design for treatmen restrictions. Development Permit process delays due to single treatmen ° Development cons "Design Guideline: by CitySpaces Conthe Official Commit Rezoning from existing M3 H rezoning process is estimate Public opposition from propertime and complexity to the reconing process. Conceptual design will satis utility zoning. City of Victoria Development
		Conclusion: Average

Evidence

nder management by the contractor.

ity's enjoyment of existing public amenities because the ed by the DND vacant lands.

ity's enjoyment of existing public amenities because the ed by industrial zoning. There are no public spaces adjacent

D Wastewater Treatment Plant (Township of Esquimalt Zoning Bylaw No. 2050, Amendment No. 209 (McLoughlin Point -

Special Use – Waste Water Treatment.

nt site meets current height and shoreline encroachment

ss with Township of Esquimalt may cause some schedule ent plant option.

sistent with conditions identified in the document entitled s – McLoughlin Point Wastewater Treatment Plant" prepared nsulting Ltd. Revised May 2013, copy of which is attached to unity Plan.

Heavy Industrial to public use will be required. City of Victoria ed to take 18 months to complete.

erty owners adjacent to conveyance pipe routes could add ezoning application process.

required but would not impact schedule since this process s.

fy typical height and setback requirements for typical public

nt Permit will be required.

Criteria and Description	Considerations	
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Previous EIS studies gathered cultural use of marine resourd routes and marine resource for the McLoughlin was identified as CRD Core Area Wastewa Study – 18 Feb 2013- p. Effects on archaeological feat facility sites. Environmental Impact Stut Terrestrial Environment - Risk of discovering archeolog and would have to be assess
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material difference McLoughlin Point Local First Nations will not be Rock Bay Local First Nations will finance Conclusion: Good
SO-12 Leading Development Opportunity to be a catalyst for future development or improvements in existing development.	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g. through upgrades to off-site services) 	 Evidence: Surrounding area for both sit are in good condition. Upgra <u>Rock Bay</u> This option could be a cataly Hydro/Transport Canada site the site.

Core Area Wastewater Treatment Program Options Analysis

Evidence

- ed information about and assessed the traditional and ces in this area, as well as the traditional transportation harvesting.
- a traditional gathering area.
- ater Treatment Program Stage 2 Environmental Impact 34 (Worley Parsons).
- atures are expected to be less than significant at all CAWTP
- udy of Core Area Wastewater Treatment Program Facilities -March 2014- p. 34 (Tera).
- gical findings along the conveyance pipe routes are unknown sed by a qualified archaeologist.

ed First Nations extensively for all of the options under review rence in how the options meet the criterion.

enefit financially or otherwise from this option.

cially benefit from this option through the sale of land.

tes have access to gas, hydro, water, and sewer lines; which ades are not required.

vst for the development of residual surplus land at the BC e as well as the existing industrial/commercial land around

Criteria and Description	Considerations	
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	How the option respects and incorporates existing cultural or heritage structures, site, or artifacts	 Evidence: <u>McLoughlin Point</u> The site does not contain any used in the design. The design of the building exiculture, and heritage. <u>Rock Bay</u> The site contains two existing incorporated into the plant de The design of the administrat honor history, culture, and heritage.

Evidence

- y existing structures with historical significance that could be
- xterior and site landscaping will reflect and honor history,
- g structures with historical significance that could be esign.
- tion building exterior and site landscaping will reflect and eritage.

OPTION SCREENING SUMMARY SHEET

Option Name: Two Plants: McLoughlin 60 MLD, Rock Bay 48 MLD Tertiary Plants (Tertiary Treatment)

Option Description: Two Plants: McLoughlin 60 MLD BAF + Tertiary Disc Filters / Rock Bay 48 MLD BAF + Tertiary Disc Filters (Tertiary Treatment)

Rating System Proposed:

Very Good (5)	Good (4)	Average (3)	Fair (2)
The impact of the option is very favourable and far exceeds minimum expectations.	The impact of the option is favourable and clearly exceeds minimum expectations.	The impact of the option is acceptable and meets or somewhat exceeds minimum expectations.	The impact of the option barely me minimum expectations.

Criteria and Description	Considerations	
Economic Criteria		
EC-01 Capital Costs Construction costs including both direct and indirect costs in 2016 dollars.		Capital Cost of Option: \$ 1,000 m
EC-02 Whole Life Cycle Costs Operating and maintenance costs, expressed as a net present value cost using a 25 year life cycle cost and a 4% discount rate, added to capital costs.		Whole Life Cycle Cost of Option:
EC-03 CRD Capital Cost Contribution	 The current approved project capital budget is \$788 million. The draft Federal/Provincial funding agreements total \$502 million. The CRD share of the capital cost is calculated as the Option Capital Cost (EC-01) minus \$502 million. 	CRD Capital Cost Contribution: S
EC-04 Schedule of Completion	 Estimated Service Commencement Date Impacts included in the Schedule assumption: Timing needed for rezoning and permitting requirements (e.g. development permit) Environmental permitting requirements Commissioning Schedule Site conditions that may extend construction(i.e. piling, shoring) Construction Schedule 	 Evidence: Estimated Service Comment Zoning completed for 108 M Zoning Bylaw 1992 (Consoli Point – Special Use) (Bylaw EIS completed Development Permit will be o Development consisten

Core Area Wastewater Treatment Program Options Analysis



Criteria and Description	Considerations	
		Guidelines – McLoughlir CitySpaces Consulting L Official Community Plan Rock Bay • Existing zoning is M3 Industri estimated time to complete is • Environmental Impact Study • Development Permit (DP) wil • Preliminary site geotechnical time to the construction scher
Environmental Criteria		
EN-01 Carbon Footprint Net carbon dioxide equivalent (eCO ₂) during the construction and operation of the treatment plant (tonnes/year). Excludes consideration of the biosolids treatment	 Technology impacts to carbon footprint; Pumping and other conveyance impacts to carbon footprint 	 Evidence: Estimated carbon footprint Co Estimated carbon footprint O Pumping of effluent from Roc (Annual) carbon footprint by Complexitient Spin
ENI-02	Provimity of plant to potential existing sustamore	Evidence:
Heat Recovery Potential Heat recovered from the liquid stream treatment results in a low grade heat. This criterion is defined as the options' estimated opportunity to earn revenue, or save operating costs, from heat recovery.	 Proximity of plant to potential existing customers Proximity of plant to potential future customers 	 Energy offset gained through Energy use can be both inter scheme. Market studies conducted by from existing Industrial/Comm heat due to the high cost of c (HVAC) systems.
		 McLoughlin Point A small district heating system Esquimalt & Upper Harbour of
		 Rock Bay A district heating system coulor The City of Victoria cond commercial and public upper commercial
		 These future residents c served more cost effecti
		Conclusion: Average

Evidence

n Point Wastewater Treatment Plant" prepared by Ltd. Revised May 2013, copy of which is attached to the

- ial, which would trigger the need for a rezoning. The 18 months.
- (EIS) will need to be completed.
- Il be required.
- I report indicate that piling may be required which will add dule.
- construction (One Time) 22,862 tonnes.
- perations (Annual) 3,300 tonnes/year.
- ck Bay to Clover Point outfall will increase the Operations 178 tonnes/year.

the use of heat recovered from the plant's final effluent. rnal to the treatment plant and external via a district energy

Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed conversion of existing Heating Ventilation Air Conditioning

m could be installed to service downtown redevelopment of customers / military base.

Id be incorporated into the community plan.

- cept for development of the site includes mixed used uses.
- could be users of recovered heat as new construction can be ively.

Option 18a McLoughlin 60 MLD Tertiary Plant (Disc Filters) Rock Bay 48 MLD Tertiary Plant (Disc Filters)

Criteria and Description	Considerations	
EN-03 Water Reuse Potential The options' estimated opportunity to earn revenue, or save operating costs, from water reuse. Effluent reuse can be both internal to the treatment plant and external via an end product user. The use of treated water is based on provincial regulations that requires tertiary treatment and disinfection.	 Proximity of option to potential existing customers Proximity of option to potential future customers Potential of option to produce water for reuse opportunities 	 Evidence: Market studies conducted b from existing Industrial/Com water. Water reuse is typica has an abundant water supp (4 months). The largest use There is potential for use in properties (~\$2500/dwelling unfavourable. BAF treatment technology w water reuse. McLoughlin Point Option is located in a remote Rock Bay Option is located in an exist future reuse water customer
EN-04 Environmental Considerations for Site Impacts to the local environment during construction of the treatment plant.	 Degree of remediation required to prepare site for construction Disturbance of natural environment Natural or Disturbed site Requirement for blasting Extend of shoring and piling required Disturbance of natural habitat and vegetation Elevation of the proposed sites (e.g. need to build tsunami walls) 	 Conclusion: Average Evidence: McLoughlin Point Site was previously a bulk p Elevation of site mainly favo Minimal vegetation exists or Rock Bay Site was previously a BC Hy Geotechnical conditions and Extensive tsunami wall require Site is low and will require fi Likely a requirement for grow requirements. Minimal vegetation exists or Conclusion: Average
EN-05 Flexibility for Integrated Resource Management and Resource Recovery Suitability of the products produced from the liquid stream	 The potential for Integrated Resource Management resides principally with the Biosolids Management Strategy rather than the liquid treatment portion of the project The ability of the option to accommodate an IRM planning process either now or in 	 Evidence: Estimated biosolids product Tertiary Disc Filters will record

Core Area Wastewater Treatment Program Options Analysis

Evidence

y Stantec in 2009 concluded that there is limited demand mercial/Institutional (ICI) customers to purchase reclaimed al in semi-arid regions where water supplies are limited. CRD ply and the irrigation season in the Region is relatively short ers of reclaimed water are agricultural and golf courses. public parks. The costs to retrofit existing residential) make the economics of conversion of existing residences

vill yield secondary effluent quality which is unsuitable for

te area and the cost of retrofitting existing systems is high.

ing industrial/commercial area so the potential for adding rs is somewhat favourable.

betroleum storage facility that has been fully remediated. burable to storm surge although a tsunami wall is required n the site.

ydro gasification facility that has been fully remediated. d rock excavation requirement uncertain.

uired.

illing.

und densification or piles to meet post-disaster foundation

n the site.

tion at 108 MLD is 10,877 Dry Tonnes (DT)/year. over an additional 2,160 kg/day of biosolids.

Option 18a McLoughlin 60 MLD Tertiary Plant (Disc Filters) Rock Bay 48 MLD Tertiary Plant (Disc Filters)

Criteria and Description	Considerations	
treatment for IRM with biosolids, organic waste and solid waste streams.	the future (e.g. future retrofits to accommodate different uses for waste products).	 Effluent water will be reused Internal heat recovery system McLoughlin Point Option is located in a remote reclaimed heat systems is loc Rock Bay Option is located in near exis for reuse water systems and EN-02 and EN-03). Conclusion: Good
EN-06 Wet weather treatment resiliency Ability to modify the treatment plant's operating procedures to adjust to varying wet weather flow conditions.	Ability of technology to ramp up/down during wet weather flow events experienced in the CRD while maintaining effluent regulatory requirements.	 Evidence: Primary plant capacity with m Primary Treatment (CEPT); e Conclusion: Good
EN-07 Flexibility for more stringent treatment regulations in future The flexibility to expand or readily modify the treatment process to meet future permits requirements.	 Ability of treatment process to be modified or expanded to meet higher treatment standards. Cost impacts of future modifications Schedule impacts of future modifications How does the future retrofit impact plant operations? 	 Evidence: <u>McLoughlin Point</u> The site is suitable for a 60 M Advanced oxidation can be a The adjacent site is vacant n utilized in the future for signified in the future for signified in the site is suitable for a 48 M Advanced oxidation can be a Conclusion: Average
EN-08 Terrestrial vegetation and Inter-tidal impacts Impact that a given site would have on existing terrestrial and inter-tidal habitat, and the degree of mitigation that may be required.	 Impact on the vegetation and habitat for terrestrial areas of the site during construction Degree of mitigation required for terrestrial and marine environment 	 Evidence: <u>McLoughlin Point</u> McLoughlin Point is a disturb There is limited terrestrial ve There is vegetation on the st conveyance route. There has route. The marine outfall would be

Core Area Wastewater Treatment Program Options Analysis

Evidence

for plant process water.

m will be included in plant heating design.

isolated area and the potential for reuse water systems and w.

sting industrial and commercial properties and the potential reclaimed heat systems is somewhat favourable (Reference

nultiple units and ability to turn on & off Chemically Enhanced excellent for range of flow up to 4 x ADWF.

MLD BAF Secondary plant with disc filters.

added in future.

ot used Department of Defence (DND) land that could be ficant expansion needs.

MLD BAF + Tertiary Disc Filters plant. added in future.

bed site which has been remediated.

getation on site.

reets along the (Macaulay Point to McLoughlin Point) as not been an impact assessment study completed for this

the existing Macaulay Point outfall. There would be no

PAGE 4 of 11

Criteria and Description	Considerations	
		 disturbance of the intertidal z <u>Rock Bay</u> Rock Bay is a disturbed site There is limited terrestrial ve There is vegetation on the st route. There has not been at This Option assumes the reu disturbance of the intertidal z
EN-09 Environmental Performance Whether and extent to which regulatory requirements meet or exceed regulatory requirements.	 Degree that the option's treatment technology exceeds current regulatory requirements. 	 Evidence: <u>McLoughlin Point and Rock Ba</u> BAF design with disc filters v WSER regulatory requirement Conclusion: Good
Social Criteria (Including Health and Safety)		
SO-01 Operations Traffic Amount of traffic nuisance caused to neighbouring residents post-construction.	 Classification of local community, e.g. residential, industrial, or commercial properties Number, and types, of schools along the access route Types of roads; for example, residential, arterial 	 Evidence: Daily traffic for staff access e No biosolids related traffic du Anticipate delivery of bulk ch McLoughlin Point Daily traffic for staff access e Site is located approximately Access road to the site is a replant site. Rock Bay Daily traffic for staff access e Site is adjacent to existing an Conclusion: Average
SO-02 Operations Impacts on local community Potential for operational noise and vibration which can be heard and felt by the neighbouring residents during operation of the treatment facility.	 Impact of noise and vibration on local community Classification of local community (e.g. residential or industrial) Distance of neatest neighbour to source of noise and vibration (e.g. 25 m) 	 Evidence: All mechanical equipment de All mechanical equipment co Plant designed for limited vib

Evidence

zone and no mitigation measures would be required.

- which has been remediated.
- egetation on site.
- treets along the (Clover Point to Rock Bay) conveyance in impact assessment study completed for this route.
- use of existing outfall at Clover Point. There would be no zone and no mitigation measures would be required.

ay

will achieve 5/5 mg/L BOD/TSS effluent which exceeds the nts.

estimated at 8 to 10 vehicle movements per day/each site. ue to solids pumping to Hartland.

- nemicals up to twice per month.
- estimated at 8 to 10 vehicle movements per day.
- v 500 meters from nearest residential property.
- residential street with some commercial property near the

estimated at 8 to 10 vehicle movements per day. rterial roads which experience significant daily truck traffic.

- esigned to minimize vibration and noise.
- ontained inside buildings.
- pration and noise levels.

Criteria and Description	Considerations	
		 McLoughlin Point There is a buffer comprised of treatment site and the reside Nearest residential property Rock Bay The adjacent property is com Nearest residential property
SO-03 Odour Impacts on local community Impact of nuisance odours on residents or business in close proximity to the plant. This covers nuisance odour related to opening tank covers during maintenance. Locations closer to residents would have a higher probability of nuisance odours. It is assumed all plants would have odour control facilities for normal operations.	 Proximity to local community (e.g. 25m) and classification of local community (e.g. commercial, industrial, residential) Potential odour due to fugitive emission Degree of omission containment Degree of odour control equipment Dispersion specs and impact nearest residences 	 Evidence: All unit processes tankage is Plant designed to stringent of include odour scrubbers. Emission modeling will confined the method of the distance between probability of complaints related to the distance between probability of complaints related to the distance between probability of odour complaints Due to the distance between probability of odour complaints
SO-04 Visual Aesthetics Aesthetic visual impact for neighbouring residents and visual impact from adjacent roadways.	 Impact of views from both land side and water side Buffer zones of lawns and landscaping Care and attention to architecture of buildings required Care and attention to architectural treatment of tsunami walls 	 Evidence: All process units covered or Architecture and site landsca <u>McLoughlin Point</u> The Development Permit procommunity through architect View from the water will be a natural bare land setting. Buildings and tsunami wall c Tsunami wall can be given a <u>Rock Bay</u> Treatment site is an improve

Evidence

of the military base and vacant bare land between the ents.

is 500 metres.

nmercial/industrial. is >250 metres.

covered. odour control requirements. Odour control systems will

rm low odour numbers at property boundaries.

the treatment site and nearby residences, there is a low ating to fugitive odour emissions.

al/industrial property with 250 metre radius.

the treatment site and nearest residences, there is a higher nts from fugitive emissions.

inside building.

aping are designed to high standards.

ocess which will ensure that the facility blends with the tural finishes, landscaping and site amenities. low rise industrial building which may distract from the

can be designed to be aesthetically pleasing. irchitectural treatment to blend with natural landscape.

ment over the prior use, which was a gasification plant.

Criteria and Description	Considerations	
		 The Development Permit pro community through architectu View from the water will be a nearby waterfront buildings. Conclusion: Average
SO-05 Amenities Potential How the option can impact consideration of community integration opportunities.	 CRD has capped amenities package at \$20 million which will be prorated based on capacity of the option The opportunities for amenity enhancements such as public access, mixed use zoning, public art, waterfront access The ability to facilitate (encourage) additional public amenities Size of site to accommodate walking trails, etc. Space to accommodate complimentary opportunities (e.g. educational facilities, research from UVic, learning centres for public on wastewater treatment) Opportunity for job creation, consider both construction and operations 	 Evidence: Two plant Option will provide Since the amenity package (sof improvements at each site) McLoughlin Point The following amenity provisi rezoning of the McLoughlin P the 108 MLD single treatment in the zoning bylaw. The provision of public or including picnic benchess equipment and safety fe Pier or dock, of sufficient harbour tugboat pedestr Public Walkway: Design accessible trails, and off Construction of trail control Additional traffic integrate bike lanes on all remainint Streets between Lampson Education and Interpretition to f75 square metres promote and facilitate error wind and wave energy at the schools within the Extern Extension of Green Build development. Integration of reclaimed wetland and landscaped wetland and landscaped on Annual contribution of \$4

Evidence

ocess which will ensure that the facility blends with the ural finishes, landscaping and site amenities.

low rise industrial building which will blend well with other

e more job opportunities.

\$20 million) will be distributed between two sites, the extent will be less favourable.

ions were included in the Township of Esquimalt 2013 Point site to Special Use (Wastewater Treatment) based on t plant option. The following amenities have been requested

open space improvements of a value no less than \$75,000, s and "tot" park play lot with appropriately themed play eatures given proximity to open water.

nt size to fulfill previous condition, including with provision of rian ferry service.

of building and development of site to incorporate public f-site.

nection to West Bay Neighbourhood.

tion amenities, in the form of additional traffic calming and ing.

on Road and Esquimalt Road.

ive Centre – additional 25 square metres of floor area for es, including portion for a "Center of Excellence" to educate, nergy technology or other industries focussed on utilizing the at the subject property.

s systems to improve air quality and odour reduction for nded Community.

ding and Design Features to additional portions of

water into the design of the buildings, including a rooftop feature.

Signage, recognizing the historic uses on the subject transition to current uses.

55,000 to McLoughlin Point Amenity Reserve Fund.

Criteria and Description	Considerations	
		 <u>Rock Bay</u> Since a rezoning application Bay are unknown. Conclusion: Average
SO-06 Construction Impacts (Conveyance) Impacts to the local community of the plant and along the conveyance route alignments during construction, including the alignments that pass through more environmentally sensitive areas.	 Consider the impacts (noise, dust and vibration) of conveyance construction to the local community (focusing on residential and commercial) Interruption of "quiet enjoyment" of private property owners Impacts to vegetation and property, including any costs of remediation Possible damage to property(consider causes, e.g. blasting or vibration) 	 Evidence: Construction planning will so <u>McLoughlin Point</u> Installation of the conveyance residential properties along a <u>Rock Bay</u> Construction of conveyance disruption on residential and The conveyance piping is lat to 5 metres). Replacement of Blasting may be required alored but to the close proximity of dust and vibration impacts metrics. Some of the pipeline construction planning will metrics.
SO-07 Construction Impacts (Plant) Impacts to the local community of the plant during construction.	 Consider the impacts (noise, dust and vibration) of plant construction to the local community (focusing on residential and commercial) Impacts to environmentally sensitive areas Impacts to vegetation and property, including any costs of remediation Impacts to property (consider causes, e.g., blasting or vibration) 	 Evidence: <u>McLoughlin Point</u> Due to the remoteness of the properties are minimal. The expected duration of co Due to the remoteness of the significant dust, vibration, ar The contractor may be required minimize construction traffice <u>Rock Bay</u> The Rock Bay site is located there will be dust, vibration, The expected duration of co

Evidence

has not been submitted, the amenity provisions for Rock

omewhat mitigate disruption to neighbouring properties.

ce piping from Macaulay Point to McLoughlin Point will impact route for approximately 4 months.

- piping from both Clover Point to Rock Bay will cause arterial streets for up to 2 years.
- rge diameter and will be installed below existing utilities (i.e.4 of existing infrastructure is expected.
- ong portions of the conveyance route.
- of the conveyance pipe route to residences (< 20m), noise may be experienced by homeowners.
- uction will be adjacent to commercial properties.
- nitigate disruption to neighbouring properties.

he treatment site (e.g. 500-600 m), the impacts on nearby

onstruction is 36 months.

- ne treatment site (e.g. 500-600 m), there is a low risk of nd noise impacts to the neighbours.
- ired to barge that material and equipment to/from site and through residential neighbourhoods during construction.

d in an industrial site; therefore there is a low probability that and noise impacts to the residential neighbours. onstruction is 36 months.

Criteria and Description	Considerations	
SO-08 Impacts to existing public amenities Options' impact the community's ability to enjoy existing public amenities such as park land, either existing or future.	 Impacts on existing public amenities (e.g. parks, playgrounds, or access) during the construction and operations of the facility Impacts on municipality's revenue opportunities associated with the public amenities 	 It is expected that commercial vibration. The expected need for piling extend construction noise for The expected need for shorir conditions. Nuisance noise r Traffic along arterial roads widelivery of materials and equa Traffic Management Plan und Conclusion: Average Evidence: <u>McLoughlin Point</u> No impact to the community's treatment site is surrounded near the site.
SO-09 Compatibility with Official Community Plan Does the option fit within the approved Official Community Plan or existing zoning?	 Compatibility with existing Official Community Plan Requirement for rezoning or variance on zoning, including risk of receiving variance in a timely manner Development permitting process, including risk of achieving DP in a timely manner Anticipated opposition to rezoning by host municipality or impacted property owners 	 Evidence: <u>McLoughlin Point</u> Zoning in place for 108 MLD Bylaw 1992 (Consolidated), I Special Use) (Bylaw 2806). OCP has been amended for Existing design for treatment restrictions. Development Permit process delays due to single treatmen Development consistent Guidelines – McLoughlin CitySpaces Consulting I Official Community Plan Rezoning from existing M3 H rezoning process is estimate

Evidence

ial neighbours will be impacted by the dust, noise and

- will be required at the site which will create additional may r approximately 2 months.
- ng/sheet piling will be required due to high water table may extent construction noise for approximately 2 months.
- ill be impacted for the duration of construction due to the ipment to the site. This impact could be mitigated through a der management by the contractor.

's enjoyment of existing public amenities because the by the DND vacant lands.

's enjoyment of existing public amenities because the by industrial zoning. There are no public spaces adjacent or

Wastewater Treatment Plant (Township of Esquimalt Zoning Bylaw No. 2050, Amendment No. 209 (McLoughlin Point –

Special Use – Waste Water Treatment.

site meets current height and shoreline encroachment

s with Township of Esquimalt may cause some schedule nt plant option.

t with conditions identified in the document entitled "Design in Point Wastewater Treatment Plant" prepared by Ltd. Revised May 2013, copy of which is attached to the ۱.

leavy Industrial to public use will be required. City of Victoria ed to take 18 months to complete.

Criteria and Description	Considerations	
		 Public opposition from proper time and complexity to the rest OCP amendment would be rest follows the rezoning process Conceptual design will satisf utility zoning. City of Victoria Development
SO-10 Archeological Findings Risk of discovering archeological items during construction.	 Greenfield (undisturbed) vs. Brownfield (disturbed) Consider archeological studies completed to date 	 Evidence: Previous EIS studies gathered cultural use of marine resource McLoughlin was identified as
SO-11 Impact to local First Nations How the option impacts local First Nations, either by providing benefits, or lack of consultation.	 Has the local First Nations been consulted on the proposed sites? Are there opportunities for the local First Nations to benefit through the development of the option? 	 Evidence: CRD has consulted impacted and there is no material difference McLoughlin Point Local First Nations will not be Rock Bay Local First Nations will finance Conclusion: Good
SO-12 Leading Development Opportunity to be a catalyst for future development or	 Opportunity to enable further development or beautification of an area (e.g. project could bring in roads and utilities, which will encourage future development). Opportunities to improve existing communities (e.g. through upgrades to off-site 	 Evidence: Surrounding area for both sit are in good condition. Upgra

Evidence

erty owners adjacent to conveyance pipe routes could add ezoning application process.

required but would not impact schedule since this process

fy typical height and setback requirements for typical public

Permit will be required.

red information about and assessed the traditional and rces in this area, as well as the traditional transportation harvesting.

s a traditional gathering area.

water Treatment Program - Stage 2 Environmental Impact b. 34 (Worley Parsons)

atures are expected to be less than significant at all CAWTP

Study of Core Area Wastewater Treatment Program Facilities ent - March 2014- p. 34 (Tera).

pgical findings along the conveyance pipe routes are unknown sed by a qualified archaeologist.

ed First Nations extensively for all of the options under review erence in how the options meet the criterion.

penefit financially or otherwise from this option.

cially benefit from this option through the sale of land.

ites have access to gas, hydro, water, and sewer lines; which ades are not required.

PAGE 10 of 11

Criteria and Description	Considerations	
improvements in existing development.	services)	 <u>Rock Bay</u> CRD Staff have advised that catalyst for the development site as well as the existing in Conclusion: Good
SO-13 Cultural and Heritage impacts Ability to use and/or respect culture and heritage. This would include consideration of existing structures or features on the proposed sites.	How the option respects and incorporates existing cultural or heritage structures, site, or artifacts	 Evidence: <u>McLoughlin Point</u> The site does not contain an used in the design. The design of the building exculture, and heritage. <u>Rock Bay</u> The site contains two swisting
		 The site contains two existing incorporated into the plant d The design of the administration honor history, culture, and h Conclusion: Good

Evidence

at the City of Victoria staff believe that this option would be a t of residual surplus land at the BC Hydro/Transport Canada ndustrial/commercial land around the site.

ny existing structures with historical significance that could be

exterior and site landscaping will reflect and honor history,

ng structures with historical significance that could be lesign.

ation building exterior and site landscaping will reflect and neritage.

