

3.3 WATER RESOURCES

The following section compares the probable significant impacts from the Preferred Alternative and the Straight Street Grid Option on water resources on and in the vicinity of the New Whatcom site to those analyzed under the Redevelopment Alternatives (Alternatives 1 - 3) in the *2008 New Whatcom Redevelopment Project Draft EIS* (DEIS) and identifies any new or increased impacts and/or mitigation. This section is based on the September 2008 *Storm Drainage Concept* prepared by KPFF and the October 2008 *Water Quality Technical Report Supplemental Memorandum* prepared by A.C. Kindig & Co., in **Appendices H** and **I**, respectively, to this SDEIS.

3.3.1 Affected Environment

The DEIS describes the existing water resources (including surface and groundwater resources) and drainage facilities onsite and in the site vicinity (including drainage basins, stormwater conveyance facilities and stormwater outfall locations; see **Section 3.3.1** and **Appendix F** and **G** to the DEIS for a detailed description of existing water resources). Significant changes to the information provided in the DEIS are not warranted. Upon further review of site conditions, GIS data and as-built information, additional information is provided below to expand on the information provided in the DEIS.

Aerated Stabilization Basin (ASB)

The ASB, adjacent to the Marine Trades Area, has historically accommodated stormwater discharge from a portion of the New Whatcom site, as described in the DEIS. The ASB must be decommissioned prior to the planned remediation and redevelopment of the ASB as a marina. The DEIS describes two necessary steps to be taken prior to redevelopment of the ASB. First, industrial wastewater and industrial stormwater runoff currently routed to the ASB will need to be terminated, with Department of Ecology (Ecology) concurrence that the industrial discharge and need for industrial discharge coverage in the NPDES program are terminated. Second, an alternative routing of stormwater runoff from the site to an existing or new onsite stormwater treatment system will be required.

To expand on the first step identified in the DEIS, the current industrial wastewater permit for the ASB expires in 2011 and termination of industrial wastewater discharge has begun. Discharge from the PSE Encogen Plant has been rerouted to separate facilities for treatment and discharge.

In terms of the second step, the onsite stormwater system would be capped and abandoned as buildings are demolished and new infrastructure is constructed in association with redevelopment. Stormwater runoff currently collected and conveyed to the ASB would eventually be incorporated into the proposed stormwater control system as it is constructed. In the interim, stormwater runoff would need to be treated by an alternate treatment facility. In areas south of the Whatcom Waterway, a stormwater vault or vaults with an appropriately sized cartridge system (similar to the media filtration cartridge vault described later in this section) would be installed. One or more new outfalls to the Whatcom Waterway would be constructed, and would be used to discharge runoff to handle stormwater runoff from the site, at least on a temporary basis. In order to lessen the potential added discharge at any individual outfall, a

flow splitter and temporary piping system could be installed to route some of the discharge to other existing or newly constructed outfall locations.

In the Marine Trades Area, the existing flow from a portion of the area is conveyed to the ASB via a gravity-flow conveyance system. A similar stormwater vault/filter system facility would be installed immediately upstream of the existing outfall to the ASB for discharge into the existing outfall. Once construction of the proposed stormwater control system is complete, all existing onsite conveyance systems would be capped and abandoned in place. The vaults identified above could then be either removed or incorporated into the proposed stormwater control system.

Conveyance System and Existing Outfalls

The DEIS identifies nine existing outfall locations at the site and describes the conveyance systems discharging to those outfalls. Also noted in the DEIS are two private outfalls conveying runoff from a portion of the Marine Trades Area; through further investigation of as-built plans, those two outfalls have been specifically located. See **Figure 3.3-1** for a depiction of the existing outfalls. No additional changes regarding the existing conveyance system or outfalls are warranted.

3.3.2 Impacts

Draft EIS (Alternatives 1 – 4)

Construction Impacts

As described in the DEIS, stormwater runoff during construction would be collected and routed to stormwater quality treatment facilities prior to discharge. Construction under the EIS Alternatives has the potential to impact water resources adjacent to the site (i.e. Bellingham Bay and Whatcom Waterway), primarily from erosion and sedimentation, but also from pollutants generated by construction equipment and concrete work that could enter nearby waters. Temporary erosion and sedimentation control measures (Best Management Practices, BMPs) and accidental spill response measures would be implemented to address these potential impacts, per a National Pollution Discharge and Elimination System (NPDES) permit from Ecology and compliance with applicable City of Bellingham stormwater management requirements.

The DEIS construction stormwater quality analysis concluded that with proper control of stormwater runoff during construction, use of BMPs and effective accidental spill response planning, adverse impacts from fine sediments and pollutants would be expected to be avoided or limited to small short-term occurrences with no lasting adverse effects. Some minor introductions of fine sediments to Bellingham Bay or Whatcom Waterway from runoff during both heavy rainstorms and due to shoreline restoration work, piling removal, and new piling installation would be likely; however, implementation of Stormwater Pollution Prevention Plan (SWPPP) measures required by the NPDES permit, and other measures required by federal, state and City of Bellingham permits, would preclude adverse impacts to habitat in the Bay or Waterway (see **Section 3.3.2** and **Appendix G** to the DEIS for details).



Figure 3.3-1
Location of Existing Stormwater Outfalls and Basin Boundaries

New Whatcom
Redevelopment EIS

Operational Impacts

For purposes of analysis in the DEIS, a stormwater management plan and certain assumptions were formulated, including the proposed features and configuration of the stormwater management system with redevelopment under Alternatives 1 - 3. The stormwater control system is assumed to be in place in all redevelopment areas by 2016. The system would be designed and constructed in accordance with standards set forth in the City of Bellingham Stormwater Management Ordinance, which is based on the Department of Ecology *Stormwater Management Manual for Western Washington* (2005).

The stormwater conveyance system for the site under Alternatives 1 - 3 is assumed to be based on a gravity flow system. The majority of the site would be served by conveyance systems that would outfall to Bellingham Bay or the Whatcom Waterway. Eight new outfalls would be constructed/reconstructed. Discharge from Area 10 (the Cornwall Beach Area) would occur via dispersion trenches. Existing outfalls to the Bay, serving offsite stormwater collection systems that pass through the site, would continue to discharge and would not be altered by redevelopment of the site.

Stormwater flow rates and treatment volumes for each redevelopment area were estimated using the Ecology Manual (2005) continuous hydrologic model. Stormwater originating on all pollution-generating surfaces (i.e. roads and parking areas) would be collected and treated before discharge to the Bay/Waterway. Water quality treatment would be provided to meet Basic treatment standards from the Ecology Manual. The Port would participate in the LEED for Neighborhood Development (LEED-ND) Pilot Program, which could incorporate stormwater design and low-impact development strategies for future redevelopment projects (see **Section 3.3** and **Appendices F** and **G** to the DEIS for details on the assumed stormwater management system).

As described in the DEIS, vehicular traffic would be the primary source of stormwater pollutants from operation of the New Whatcom redevelopment, similar to other urban mixed use developments. Organic and inorganic pollutants from vehicular traffic would include heavy metals, petroleum products and solids. Pollutants would also be generated from landscape maintenance and wildlife and pet waste. Based on the stormwater quality analysis, the overall quality of stormwater discharged to the Bay and Waterway from onsite water quality treatment facilities under DEIS Alternatives 1 – 3 would be expected to be improved over existing conditions (both for discharge from individual outfalls or for combined discharge from all outfalls), because there is presently no stormwater treatment provided for most of the site (except for the current ASB which is scheduled for termination by 2010).

At full buildout in 2026, all stormwater parameters would be well within the marine water quality standards and well within background conditions in Bellingham Bay, with the exception of fecal coliforms. Fecal coliforms in stormwater runoff in the immediate vicinity of the onsite outfalls could exceed state water quality standards, although there may be little or no change from the existing stormwater discharge of fecal coliforms. Fecal coliforms in stormwater discharge under all EIS Alternatives would not be expected to cause exceedances of state water quality standards of fecal coliforms in Bellingham Bay under any circumstance (see **Appendix G** to the DEIS for details).

There are no known existing uses of groundwater (i.e. industrial or domestic wells) at the site, and no installation/use of any new water supply wells is assumed as part of site redevelopment;

therefore, groundwater use at the site would not change. Assumed redevelopment would typically replace existing impervious surfaces with new impervious surfaces (i.e. buildings and pavement); an overall decrease in the amount of impervious surfaces on the site would result with redevelopment by 2026. As a result, no significant impacts to the shallow aquifer beneath the site would be anticipated with redevelopment.

Under all of the EIS Alternatives, a marina would be constructed on the site of the ASB. There would be the potential for accidental spills and contaminants to enter Bellingham Bay with operation of the marina and increased use by small recreational vessels. With implementation of BMPs outlined in Ecology's *Resource Manual for Pollution in Marinas*, no significant impacts on water quality would be anticipated.

It is assumed that the No Action Alternative would result in similar types of construction and operational impact on a year-by-year basis, and mitigation measure to avoid or minimize such impacts would generally be similar to those for Alternative 1 - 3.

Preferred Alternative

Construction Impacts

Construction under the Preferred Alternative has the potential to temporarily impact water resources adjacent to the site (i.e. Bellingham Bay and Whatcom Waterway), primarily from erosion and sedimentation, but also from pollutants generated by construction equipment and concrete work that could enter nearby waters. Similar to DEIS Alternatives 1 - 3, temporary erosion and sedimentation control measures and accidental spill response measures would be implemented under the Preferred Alternative to address these potential impacts, per a NPDES permit from Ecology and compliance with applicable City of Bellingham stormwater management requirements.

In general, construction impacts under the Preferred Alternative would be expected to be similar to those under DEIS Alternatives 1 - 3. Levels of redevelopment under the Preferred Alternative would be within the range of redevelopment assumed for Alternatives 1 - 3 in the DEIS; the proposed redevelopment would mix and match elements of Alternatives 1 and 2. A revised grading plan was prepared for the Preferred Alternative (see **Section 3.1**, Earth in this SDEIS for details). The amounts of cut and fill estimated for the revised plan would be within the amounts estimated for Alternatives 1 - 3 in the DEIS.

The amount of in-water work under the Preferred Alternative would be somewhat higher than that described in the DEIS for the Whatcom Waterway (see **Chapter 2** to this SDEIS for details). Proposed wave attenuators and rock groins under the Preferred Alternative would increase in-water work in the Whatcom Waterway relative to Alternatives 1 - 3. Despite the differences in in-water work under the Preferred Alternative, stormwater BMPs for in-water work would be the same as those described for the DEIS. Proposed construction of new stormwater outfalls 2 to 4 feet higher in elevation (at elevation 13 to 15 feet rather than elevation 11 feet under Alternative 1 - 3) would reduce the potential risk for water quality impacts at those locations during construction relative to under Alternatives 1 - 3. There would be no substantive changes in construction water quality impacts anticipated under the Preferred Alternative from those described for Alternatives 1 - 3. Similar to the conclusion reached in the DEIS, no adverse water quality impacts during construction would be anticipated under the Preferred Alternative.

with implementation of the mitigation listed in the DEIS (see DEIS **Section 3.3** and **Appendix I** to this **SDEIS** for details).

Operational Impacts

Stormwater Control

A revised stormwater control plan was developed for the Preferred Alternative, based on ongoing coordination between the Port and Ecology, the City of Bellingham and other interested parties (see **Appendix H** to this SDEIS for the details on the revised plan and **Figure 3.3-2** for the conceptual stormwater control plan). The following key design assumptions that were used in developing the stormwater management plan for Alternatives 1 - 3 would also pertain to the revised plan for the Preferred Alternative:

- The interim and permanent stormwater management systems would comply with all applicable Ecology Manual (2005) and City of Bellingham requirements. All stormwater from pollution-generating surfaces would be collected and treated to Basic water quality treatment standards, per the Ecology Manual (2005), as adopted by the City.
- Existing conveyance pipes that pass offsite runoff through the site to existing outfall structures would remain in operation and would be independent of the new onsite conveyance and discharge system for runoff from onsite redevelopment (see the discussion of the Laurel St. stormwater pipe below).
- Stormwater conveyance and treatment facilities would be installed concurrently with construction of the roadway network.
- An environmental cap would be placed over certain contaminated areas of the site (via a clean soil layer and/or placement of impervious surfaces); it is expected that the proposed stormwater system would be installed above the cap and would not encroach into contaminated soil. Otherwise, the system may need to be installed in a utility corridor with clean fill and appropriate separation from adjacent and underlying contaminated soils.
- Eight new outfalls to Bellingham Bay (or the Whatcom Waterway) would be constructed. Outfalls would be designed to prevent any conveyance problems, localized flooding or scouring of the Bay or Waterway. The location of new stormwater outfalls near existing outfalls is intended to minimize the potential for impacts to fish and wildlife.

Several features of the proposed stormwater management system under the Preferred Alternative would differ from or expand upon the conceptual stormwater plan assumed under Alternatives 1 - 3, as discussed below.

The DEIS recognizes that the infrastructure system (including the onsite stormwater system) would be constructed on a phased basis. The proposed stormwater management system under the Preferred Alternative establishes a plan for stormwater runoff conveyance and treatment during the interim phase of New Whatcom redevelopment (subsequent to construction of the primary roadway network, yet prior to full buildout of all development parcels). The roadway grid would be raised 6 to 11 feet above existing grades in the site areas south of the Whatcom Waterway. Parcels between the roadway segments would eventually become building pads. Prior to building development, these undeveloped areas would either be graded to provide a



Figure 3.3-2
Location of Proposed Outfalls and Basin Boundaries
Preferred Alternative

New Whatcom
Redevelopment EIS

gentle slope toward the roadway stormwater system, or stormwater runoff would be pumped to the roadway system. If parcels are unused on an interim basis, runoff from the undeveloped areas would be essentially clean and treatment would not likely be required. If parcels are used for parking on a temporary basis, appropriate treatment would be provided prior to entering the roadway stormwater system (see **Appendix H** to this SDEIS for additional information on the proposed phasing of the stormwater system).

Given the phased construction of the proposed stormwater system, it is possible that portions of the existing system may still function in conjunction with the new system; the exact extent of the use of the existing system is dependent on specific, future development projects. Certain portions of the existing system would be abandoned and capped as required.

Other differences between/expansions on the proposed stormwater system under the Preferred Alternative and the system assumed under Alternative 1 - 3 include:

- The existing City of Bellingham stormwater pipe in Laurel St., which conveys offsite runoff through the site, would need to be relocated through a portion of the site due to the revised layout of the onsite road network. The pipe could be relocated along the new Bloedel Ave. and Commercial St. to its current outfall in order to be aligned with the proposed roadway network (see **Figure 3.3-3** to this SDEIS).
- The proposed basin boundaries, grading plan and Log Pond outfall location would be revised to coordinate with the proposed roadway network (see **Figure 3.3-2** and **Section 3.1**, Earth of this SDEIS).
- Proposed water quality treatment for the roadway network would be via low-impact bioretention units or media filtration cartridge vaults. Both of these options are consistent with the Basic treatment criteria of the Ecology Manual (2005) and bioretention facility option analyzed in the DEIS.
- Two options for the specific design of the stormwater drainage system are proposed and analyzed in this SDEIS: Option 1 proposes two parallel stormwater systems in order to separate non-pollution generating (i.e. building roofs) surface runoff from pollution generating (i.e. roads) surface runoff (this dual system option was not analyzed in the DEIS); Option 2 proposes a single stormwater system (this option is similar to the system analyzed in the DEIS). Option 1 would be considered a LEED Neighborhood Development opportunity by allowing the potential reuse of “clean” runoff as a water feature or landscape design element.
- The stormwater system is expected to include various low-impact development features; however, infiltration of stormwater into soils would be limited due to contamination conditions at the site.

(See **Appendix H** to this SDEIS for further information on the revised stormwater system, including proposed conveyance and water quality facilities within each basin onsite.)

These proposed changes to the stormwater management system under the Preferred Alternative would be consistent with the basic concepts and assumptions for the system assumed for Alternatives 1 - 3 in the DEIS. The proposed system would comply with all

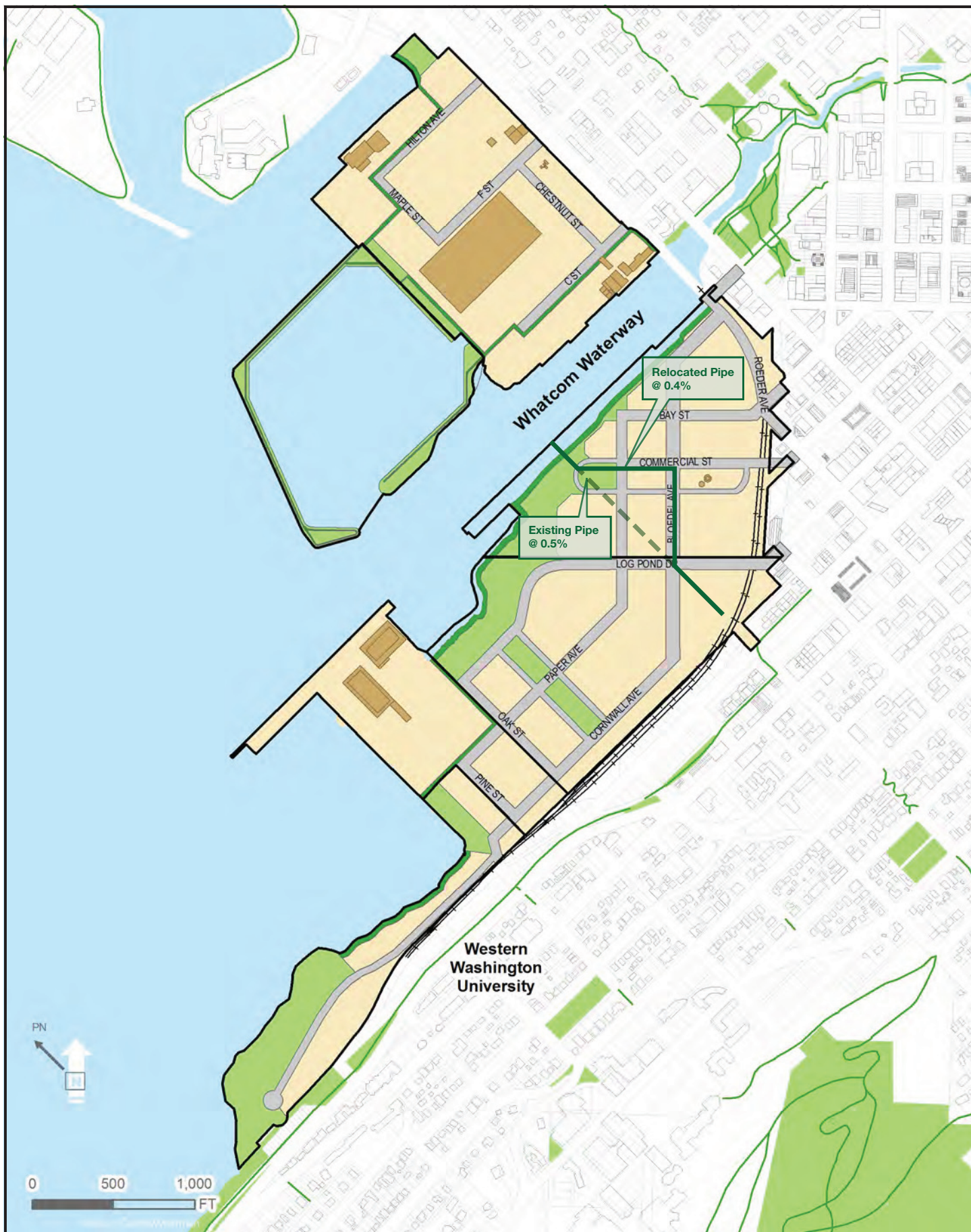


Figure 3.3-3
Proposed Relocated Stormwater Pipe
Preferred Alternative

New Whatcom
Redevelopment EIS

applicable requirements of Ecology and the City of Bellingham. Therefore, the conclusions regarding potential impacts from operation of the stormwater system described in the DEIS would remain valid and no substantive changes in impacts would result (see **Section 3.3.2** and **Appendix G** to the DEIS for details on these potential impacts and the summary of impacts earlier in this section).

Water Quality

Basic stormwater treatment is required under the Ecology 2005 Manual for the New Whatcom redevelopment. Treatment facility types proposed for the Preferred Alternative would meet the Basic stormwater treatment criterion from the Ecology Manual. No adverse impacts to water quality in Bellingham Bay or Whatcom Waterway are reasonably anticipated with redevelopment under the Preferred Alternative, similar to under DEIS Alternatives 1 - 3. Stormwater quality from the site would be expected to improve under the Preferred Alternative, similar to under Alternatives 1 - 3, (see **Appendix G** to the DEIS and **Appendix I** to this SDEIS for details).

The Preferred Alternative calls for water quality treatment of (pollution generating) stormwater runoff via two possible stormwater facility types: low-impact bioretention units, such as Filterra units or equivalent, and/or media filtration cartridge vaults, such as StormFilter systems (see **Appendix I** for descriptions of the operation and maintenance of these systems). The Preferred Alternative using Filterra would be generally within the range of treatment performance of wet vaults and bioretention quantified for the DEIS Alternatives, and superior to some extent for total suspended solids and ammonia-nitrogen. The Preferred Alternative using the StormFilter system would be similar in treatment effectiveness to the wet vaults and bioretention evaluated in the DEIS for total suspended solids, oil and grease, and total petroleum hydrocarbons, but less effective than either wet vaults or bioretention for all other parameters (see Table 3 in **Appendix I** to this SDEIS for details).

If the Filterra system is employed for the Preferred Alternative, water quality conditions would be similar to that predicted for the 50:50 combination of bioretention and wet vault modeled for Alternatives 1 and 3 in the predicted DEIS. For most stormwater parameters, the Filterra system would provide a greater level of treatment than wet vaults, and an equal or greater level of treatment than the type of bioretention examined in the DEIS. Although variable depending on the specific stormwater constituent, on an overall basis the Filterra system performance would be bracketed by the range of stormwater treatment methods examined in the DEIS. Stormwater discharge water quality would be well within state standards prior to any mixing or dilution in the Whatcom Waterway or Bellingham Bay except for fecal coliform (see discussion below). No adverse impacts to water quality in the Waterway or Bay would result from operation of the stormwater system.

If the StormFilter system is employed, the concentrations of most stormwater constituents could be higher than estimated in the DEIS. However, on a site-wide basis, stormwater quality would improve over existing conditions, because all pollution-generating surfaces onsite would have water quality treatment that meets all applicable criteria. Again, stormwater discharge would be well within state standards (except for fecal coliforms) and no adverse impacts would result.

Similar to under DEIS Alternatives 1 and 3, fecal coliform concentrations could be above state standards in the immediate vicinity of site outfalls under the Preferred Alternative (although there may be little or no change from fecal concentrations under existing conditions). Using the Filterra system, fecal coliform concentrations would be expected to be lower than forecast in the

DEIS; using the StormFilter system, fecal coliform concentrations would be expected to be higher than forecast in the DEIS. Fecal coliform concentrations in stormwater discharge under all DEIS Alternatives, as well as under the Preferred Alternative with either the Filterra or the StormFilter systems, would likely be improved or at worst unchanged at buildout in 2026, in comparison to existing conditions; no significant unavoidable adverse impacts would result (see **Appendix I** to this SDEIS for details).

Straight Street Grid Option

The Straight Street Grid Option is assumed to include a mix of land uses, redevelopment density and parks/open space/habitat area similar to under the Preferred Alternative, and within the ranges assumed for Alternatives 1 - 3 in the DEIS. The proposed grading and stormwater management plans under this Option are assumed to be similar to under Alternatives 1 – 3, although no specific stormwater management plan has been defined for this Option. As a result, the construction and operational impacts on water resources under the Straight Street Grid Option would be expected to be comparable to those described for Alternatives 1 - 3 and the Preferred Alternative.

3.3.3 Conclusions

Construction under the Preferred Alternative and the Straight Street Grid Option have the potential to temporarily impact water resources adjacent to the site (i.e. Bellingham Bay and Whatcom Waterway), primarily from erosion and sedimentation, but also from pollutants generated by construction equipment and concrete work that could enter nearby waters. Temporary erosion and sedimentation control measures (BMPs) and accidental spill response measures would be implemented to address these potential impacts, per a NPDES permit from Ecology and compliance with applicable City of Bellingham stormwater management requirements. In general, potential construction impacts under the Preferred Alternative and the Straight Street Grid Option would be expected to be similar to those under DEIS Alternatives 1 – 3. Similar to the conclusion reached in the DEIS, no adverse water quality impacts would be anticipated under the Preferred Alternative and the Straight Street Grid Option with implementation of the mitigation listed in the DEIS.

A revised stormwater management plan was developed for the Preferred Alternative (the stormwater management plan under the Straight Street Grid Option is assumed to be similar to the Preferred Alternative). The proposed interim and permanent stormwater management systems would comply with all applicable Ecology Manual (2005) and City of Bellingham requirements, similar to the stormwater systems under Alternatives 1 - 3. All stormwater from pollution-generating surfaces would be collected and treated to Basic water quality treatment standards, per the Ecology Manual (2005), as adopted by the City. Other key design assumptions that were used in developing the stormwater management plan for Alternatives 1 - 3 would also pertain to the revised plan for the Preferred Alternative.

Several features of the proposed stormwater management system under the Preferred Alternative would differ from or expand upon the conceptual stormwater plan assumed under Alternatives 1 - 3 (i.e. interim stormwater system and phasing, employment of low-impact bioretention units or media filtration cartridge vault water quality treatment facilities and two possible options for stormwater system design). Conclusions regarding potential impacts from operation of the stormwater system described in the DEIS would remain valid and no

substantive changes in impacts would result under the Preferred Alternative or the Straight Street Grid Option. Stormwater quality discharge from the site would be expected to improve under the Preferred Alternative and the Straight Street Grid Option, because there is presently no stormwater quality treatment provided for most of the site under existing conditions, except for the ASB area which is scheduled for termination by 2010.

3.3.4 Mitigation Measures

All mitigation measures identified in the DEIS would also apply to the Preferred Alternative and the Straight Street Grid Option. Additional mitigation measures proposed for the Preferred Alternative are listed below.

The Port expects to incorporate various low-impact development (LID) techniques for stormwater management at the site; however, due to existing contamination, infiltration of runoff would be limited. LID techniques could include the following:

- Two parallel stormwater systems could be installed (Option 1) that would separate non-pollution-generating runoff from pollution-generating runoff. With proper permitting, this option would present an opportunity for rainwater harvesting and reuse (including for landscape irrigation and other non-potable functions) and could serve as a LEED (low impact development) feature.
- Stormwater wetlands or biofiltration swales could be installed in certain areas of the site that would meet requirements for water quality treatment while using low-impact, natural processes for filtration. These could also serve as landscape design features.
- Low-impact bioretention units could be employed for water quality treatment for runoff from pollution-generating surfaces to the extent feasible.

(See **Appendices H** and **I** to this SDEIS for details on these elements of the proposed stormwater management system.)

3.3.5 Significant Unavoidable Adverse Impacts

During construction of in-water structures and removal of creosote piles and wharf structures on the south side of the Whatcom Waterway under the Preferred Alternative and the Straight Street Grid Option, some sediment release to Bellingham Bay or Whatcom Waterway waters in the immediate vicinity of the construction activity would be expected. The turbidity from these short-term releases would be controlled and minimized by implementation of BMPs, but would not be eliminated.

Under the Preferred Alternative and the Straight Street Grid Option, it is probable that during some storm events, fecal coliform concentrations from stormwater runoff in the immediate vicinity of outfalls would exceed state water quality standards, although there may be little or no change from the existing stormwater discharges of fecal coliforms. Mitigation measures to remove and control wildlife and pet sources of fecal coliforms would be expected to offset this potential to a large degree, but may not remove them altogether. Discharges of fecal coliforms in stormwater discharge under the Preferred Alternative and the Straight Street Grid Option would not be expected to cause exceedances of state water quality standards for fecal coliforms

in Bellingham Bay under any circumstance, and no significant unavoidable adverse impacts would result.