



City of Seattle

Gregory J. Nickels, Mayor

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**Department of Planning and Development**

D. M. Sugimura, Director

**CITY OF SEATTLE  
ANALYSIS AND DECISION OF THE DIRECTOR  
OF THE DEPARTMENT OF PLANNING AND DEVELOPMENT**

**Application Numbers:** 3008611/3008245

**Applicant Name:** Roderick Boyd

**Addresses of Proposal:** 5106 Shilshole Avenue NW/2329 West Commodore Way

**SUMMARY OF PROPOSED ACTION**

Shoreline Substantial Development Permit to install a new 2,000 linear foot, 7 foot diameter sewage pipeline under the Lake Washington Ship Canal and new below grade flow control structures with access at grade in an environmentally critical area. Review includes excavation of 7,000 cubic yards of material. Related installation under Project #3008245. The existing structures at 5100 Shilshole Avenue NW will be demolished. The determination of non-significance was issued by King County Wastewater Treatment Division.

Shoreline Substantial Development Permit to install a 2,000 linear foot, 7 foot diameter sewage pipeline under the Lake Washington Ship Canal with new below grade junction structures. Review includes excavation of 25,000 cubic yards of material. Related installation is under project #3008611. The Determination of Non-Significance was issued by King County Wastewater Treatment Division.

The following approvals are required:

**Shoreline Substantial Development Permit** - to allow construction in the CM and CN Shoreline Environments. (Seattle Municipal Code 23.60.600J)

**Special Use Approval** – to allow a utility line in the CN shoreline environment.

**SEPA - Conditioning pursuant to Seattle’s SEPA policies.** Chapter 25.05.600, Seattle Municipal Code. (Environmental documents prepared by SDOT)

**SEPA DETERMINATION:**

Exempt     DNS     MDNS     EIS

DNS with conditions\*

DNS involving non-exempt grading or demolition or involving another agency with jurisdiction\*.

\*Determination of Non-Significance (DNS) issued by King County on March 18, 2008.

**BACKGROUND DATA**

Site Description

The north end of the project is zoned IG2U65' (General Industrial 2 65 foot height limit) at the Ballard Regulator, located at the northeast corner of the intersection of 20<sup>th</sup> Avenue NW and Shilshole Avenue Northwest (5110 Shilshole Avenue NW). The project will extend southwest from this point, crossing under Salmon Bay to two locations. The sliplining will terminate near the south shore of the bay north of the intersection of West Commodore Way and 23<sup>rd</sup> Avenue West. The tunnel will terminate at the southeast corner of the intersection of West Commodore Way and 24<sup>th</sup> Avenue West (2329 West Commodore Way), zoned IG2U65'.

Area Description

The site is located on the Lake Washington Ship Canal which was constructed in 1916, connecting Lake Washington and Lake Union to Puget Sound. The Hiram M. Chittenden Locks (Locks) were also constructed at the western end of the canal, downstream of Salmon Bay to provide boats access to the canal. This construction resulted in what is now one of the most modified estuary systems on the west coast of North America. The waterway is a narrow channel in the Montlake and Fremont cuts which widens in areas such as Salmon Bay. Development of the Ship Canal waterway has lead to extensive armoring of the shoreline, minimal natural shoreline vegetation, and increased overwater structures, which has resulted in a loss of quality shallow water habitat and shoreline complexity. Land use along the Ship Canal is dominated by residential neighborhoods in the upland areas and water-dependent businesses bordering the shoreline. These water-dependent businesses include marinas, commercial shipyards and dry-docks, along with some houseboat communities.

Existing environmental conditions in the project area are degraded. The Ship Canal has a trend of increasing water temperatures, and often suffers from degraded water and sediment due to urban runoff and adjacent commercial and industrial sites. The abrupt transition between salt and freshwater that hinders the mixing of water in the canal can also combine with increased nutrients and contaminants to create anaerobic conditions in the summer. The Washington State Department of Ecology, Water Quality Program lists the ship canal on the 2004 list for fecal coliform. There is minimal natural vegetation in the vicinity of the project.

Proposal Description

King County Wastewater Treatment Division proposes to supplement the Ballard Siphon with a separate pipe and to line the existing pipes with new pipes. The separate pipe will be placed in a tunnel under the bed of Salmon Bay. The two lining pipes will be inserted into the existing wood-stave pipes. Structures associated with the three pipes will also be constructed. The

separate pipe will be about 7 feet in diameter. It will be placed within an approximately 9 to 12 foot diameter tunnel. The tunnel will be about 2,000 feet long. It will be constructed between two vertical shafts that will be sunk on land: one at the north end of the tunnel, next to the Ballard Regulator, and one at the south end at a location south of West Commodore Way. The north shaft will be about 40 feet in diameter and 140 feet deep. The south shaft will be about 70 feet in diameter and 100 feet deep. These depths and the downward slope of the tunnel from the south shaft will place the tunnel below the bed of Salmon Bay. Consequently, no in-water construction will take place.

A tunnel boring machine (TBM) will bore the tunnel from the south shaft to the north shaft. Tunnel segments will be placed one after the other behind the TBM as it progresses. In this way the tunnel will be complete when the TBM reaches the north shaft. When the boring machine reaches the north shaft it will be disassembled and the pieces will be lifted out of the shaft. The new pipe will be placed in the tunnel and both shafts. From the shafts this pipe will connect to the Ballard Regulator in the north and the North Interceptor in the south. To make the south connection, a short section of pipe (about 130 feet) will be constructed by trenching between the shaft site and the North Interceptor, which runs under West Commodore Way.

The diameter of the south shaft will be larger than that of the north shaft because a larger area is needed inside the TBM launching shaft to assemble and support the boring machine and to remove the material excavated by the machine. As the boring machine progresses, this material will be transported back to the south shaft and then lifted out of the shaft to be trucked away.

The two new lining pipes will each be about 30 inches in diameter and will line the full length of both existing pipes. The method by which they will be inserted into the existing pipes is known as "sliplining". To conduct the sliplining, a pit will be excavated down to the existing pipes next to the Ballard Regulator. Then a segment of the pipes will be removed and sliplining equipment will be placed in the pit. Surface-based equipment on the south end will insert rods through the existing pipes to the pit. The rods will be used to pull the new pipe through the existing pipe. The equipment in the pit will fuse pipe segments together one after the other as the pipe is pulled. One of the existing pipes will be sliplined at a time.

The new structures will consist of new access and flow regulation structures. An underground addition to the Ballard Regulator will be constructed. This addition will house new flow regulation structures. These structures will control flows to the separate and lined pipes. The addition will occupy about 1,000 square feet. A concrete slab whose upper surface will be at ground level will form the roof of the addition. On the south side, new manholes and a flow regulation structure will be constructed underground at the shaft site to control flows from the separate pipe to the North Interceptor.

For the sliplining, metal tubes and a concrete support structure will be constructed into and on the existing 72 inch pipe to guide the slipline pulling rods. These facilities will be constructed at the north end of the 72 inch pipe next to the existing concrete structure. In addition, a new vault will be constructed to access the 72 inch pipe a few feet further downstream (south) to allow the pipe to be plugged for maintenance and in the event of an emergency.

Public Comments

No comments were received during the comment period for this project ended on May 30, 2008.

**ANALYSIS – SPECIAL USE APPROVAL**

Seattle Municipal Code (SMC) 23.60.242 allows utility lines as a special use in the Conservancy Navigation environment and are subject to the approval criteria set forth in SMC 23.60.032 as follows.

- A. *That the proposed use will be consistent with the policies of RCW 90.58.020 and the Shoreline Policies;*

The project would replace wastewater conveyance infrastructure that has reached the end of its useful lifespan. Delaying this replacement could potentially result in failure of the existing siphon, which would result in contamination of the Lake Washington Ship Canal and its associated shorelines with wastewater effluent. This would not only damage the ecology of the area, but could impinge upon public access to and use of the shoreline environment. This project is a proactive step to ensure long-term wastewater system capacity and reliability, and will reduce the potential for environmentally damaging infrastructure failures.

- B. *That the proposed use will not interfere with the normal public use of public shoreline.*

The project action is the replacement of an existing underground utility. The project area is highly industrial in nature, and shoreline uses are primarily associated with private businesses. Upon completion of construction, public access to shoreline areas will be unchanged.

- C. *The proposed use of the site and design of the project will be compatible with other permitted uses within the area.*

Both sides of the Lake Washington Ship Canal are industrial in nature, and nearby uses include storage and distribution warehouses, marine repair shops, light manufacturing, and commercial buildings. The only permanent above-ground structure will be the expanded Ballard Regulator station on the north side of the ship canal, which will be immediately adjacent to the existing regulator facility.

- D. *That the proposed use will cause no unreasonably adverse effects to the shoreline environment in which it is to be located.*

The project would not convert any undeveloped areas within the shoreline environment from their natural state, nor would any permanent structures be sited on land not already devoted to industrial uses. The project is intended to prevent pollution of the Lake Washington Ship Canal that could result from failure of the exiting siphon.

- E. *That the public interest suffers no substantial detrimental effect.*

Based on the reasons detailed above, King County believes the project will have an overall positive effect on the shoreline environment and will be in the best interests of the public.

## **DECISION – SPECIAL USE APPROVAL**

The proposed action is **CONDITIONALLY GRANTED.**

### **ANALYSIS - SHORELINE SUBSTANTIAL DEVELOPMENT PERMIT**

SMC Section 23.60.030 provides criteria for review of shoreline substantial development permits. Specifically, the section states that a substantial development permit shall be issued only when the proposed development is consistent with:

- A. *The policies and procedures of Chapter 90.58 RCW;*
- B. *The regulations of this Chapter; and*
- C. *The provisions of Chapter 173-27 WAC.*

Chapter 90.58 of the Revised Code of Washington (RCW) codifies the State's policies with respect to managing shorelines and fostering reasonable and appropriate shoreline uses. Specifically, the Act contemplates protection against adverse effects to the public health, the land and its vegetation and wildlife, and the waters of the state and their aquatic life. The Act further provides definitions and concepts and delegates responsibility for implementation to specific state and local governmental entities. Local governments are given primary responsibility for initiating and administering the regulatory program of the Act. The State Department of Ecology (DOE), on the other hand, is given responsibility for insuring compliance among local governments with the policy of the State and provisions of the Act. Pursuant to the requirements of the Act, the City of Seattle has adopted a local shoreline master program that has been approved by the DOE. The City of Seattle Shoreline Master Program (SSMP) is codified in SMC Chapter 23.60.

In evaluating applications for shoreline substantial development permits, the Director must determine that a proposed use meets the criteria set forth in SSMP 23.60.030. Specifically, development standards of the shoreline environment and underlying zone must be considered and a determination must be made whether any special permit requirements or conditions are necessary to preserve or enhance the shoreline area. In order to obtain a shoreline substantial development permit, an applicant must demonstrate that the proposal is consistent with the shoreline policies established in SSMP Section 23.60.004. Additionally, the applicant must further demonstrate that the proposal meets the criteria and development standards for the specific shoreline environment in which the site is located, any applicable special approval criteria, general shoreline master program development standards, and the development standards for specific uses.

### **Conservancy Navigation and Conservancy Management Shoreline Environments**

Permitted uses in the CN and CM environments are contained in SSMP Subchapter XV, Part 1. Development standards for specific uses are contained in SSMP Subchapter XV, Part 2. The proposal conforms to all shoreline master plan development standards for the CN and CM environments. The openings where both ends of the tunnel rise to the surface are classified as upland lots per SMC 23.60.924 and located in the CM shoreline environment as designated by the Seattle Shoreline Master Program. The submerged portion of the tunnel below the sediments of the Ship Canal is located in a CN environment. The proposed tunnel requires a Shoreline

Substantial Development Permit pursuant to SSMP 23.60.020. Utility lines are permitted in the CN shoreline environment as a special use per SMC 23.60.242B. SMC 23.60.270 states that developments in the CN environment shall be located and designed to avoid interference with navigation. The utility line will be located beneath the sediments of the Ship Canal so, it will not interfere with navigation.

Utility lines are permitted outright in the CM shoreline environment per SMC 23.60.420A.1. The openings to the tunnel located in the CM environment are on dry land upland lots, so the tunnel has been designed to minimize disturbance of any critical habits area per SMC 23.60.452. The openings to the tunnel are well below the 30 foot maximum height limit and the 35 percent allowed in the CM environment. The lots are upland lots but the height at the ends of the tunnel will be near grade, so the view corridors across the both sites on the north and south sides of the Ship Canal will not be obstructed in the CM environment per SMC 23.60.458. Regulated public access is not required for upland lots in the CM environment per SMC 23.60.460A and C.

#### Shoreline Policies (RCW 90.58 and SSMP 23.60.004)

The Shoreline Goals and Policies which are part of the Seattle Comprehensive Plan's Land Use Element and the purpose and location criteria for each shoreline environment designation contained in SMC 23.60.220 must be considered in making all discretionary decisions in the shoreline district.

The goals for shoreline use include long-term over short-term benefits, the integration and location of compatible uses within segments of the shoreline, and the location of all non-water dependent uses upland to optimize shoreline use and access. The goals also include providing for the optimum amount of public access-both physical and visual- to the shoreline of Seattle and the preservation and enhancement of views of the shoreline and water from upland areas where appropriate.

#### Development Standards for All Environments (23.60.152 SMC)

These general standards apply to all uses in the shoreline environment. They require the design and construction of all uses be conducted in an environmentally sound manner, consistent with the Shoreline Management Program and with best management practices for the specific use or activity. All shoreline development and uses must in part:

- 1) Minimize any increase in surface runoff and control, treat and release surface water runoff so that receiving water quality and shore properties and features are not adversely affected;
- 2) Utilize permeable surfacing where practicable to minimize surface water accumulation and runoff;
- 3) Control erosion during project construction and operation;
- 4) Be located, designed, constructed, and managed to avoid disturbance, minimize adverse impacts and protect fish and wildlife habitat conservation areas, including but not limited to, spawning, nesting, rearing and habitat areas, commercial and recreational shellfish areas, kelp and eel grass beds, and migratory routes. Where avoidance of adverse impacts is not practicable, project mitigation measures relating to the type, quantity and extend of mitigation to the protection of species and habitat functions may be approved by the Director in consultation with state resource management agencies and federally recognized tribes.

- 5) All shoreline developments and uses shall be located, designed, constructed and managed to minimize interference with or adverse impacts to beneficial natural shoreline processes such as water circulation, littoral drift, sand movement, erosion and accretion.
- 6) All shoreline development and uses shall be designed, constructed and managed in a manner that minimizes adverse impacts to surrounding land and water uses and is compatible with the affected area;
- 7) All development activities shall be located and designed to minimize or prevent the need for shoreline defense and stabilization measures and flood protection works such as bulkheads, other bank stabilization landfills, levees, dikes, groins, jetties, or substantial site regrades.

### Short-term Impacts

The following temporary or construction-related impacts are expected: construction material and equipment pose some potential danger of erosion and stormwater contamination. The contamination and erosion could lead to both water quality and aquatic habitat damage. In order to be prepared to provide a fast and effective response to spills or other actions which cause new contaminants to be introduced into the aquatic environment, it is necessary to condition the project to require that prior to commencing construction an emergency containment plan and procedures be developed and all necessary equipment be stocked on the site.

### Procedures for Administration of the Shoreline Management Act (WAC 173-27)

Pursuant to the language and intent of RCW 90.58, WAC 173-27 establishes basic rules for the permit system to be adopted by local government. It provides the framework for permits to be administered by local governments including time requirements for permits, revisions to permits, notice of application, formats for permits, and provisions for review by the State DOE. Because DOE has approved the Seattle Shoreline Master Program, consistency with the criteria and procedures prescribed by SMC Chapter 23.60 is also considered consistency with the WAC 173-27 and RCW 90.58.

### Summary

The proposed development will be consistent with the policies and procedures of RCW 90.58, WAC 173-27, and Chapter 23.60 SMC also known as the Seattle Shoreline Master Program (SSMP). As conditioned, the development will have no adverse effect on the shoreline, the near shore environment, and the waters of Puget Sound.

## **DECISION - SHORELINE SUBSTANTIAL DEVELOPMENT PERMIT**

The proposed action is **CONDITIONALLY GRANTED**.

### **ANALYSIS – STATE ENVIRONMENTAL POLICY ACT (SEPA)**

The initial disclosure of the potential impacts from this project was made in the environmental checklist and threshold determination (dated March 18, 2008) submitted by King County Wastewater Treatment Division. The information in the checklist, plans, supplemental information submitted by the applicant, and the experience of the Department with the review of similar projects, form the basis for this analysis and decision.

SMC 25.05.660 allows for conditioning of a project to “mitigate the environmental impact” based upon “mitigation measures...related to specific, adverse environmental impacts clearly identified in an environmental document on the proposal”. In addition, the City may also rely on the analysis and mitigation program from other federal, state or local agencies if the City finds that said analysis and mitigation provides “adequate analysis of and mitigation for the specific adverse environmental impacts of the project action..., the City as lead agency shall not impose additional mitigation...”

The SEPA Overview Policy (SMC 25.05.665) establishes the relationship between codes, policies, and environmental review. Specific policies for specific elements of the environment, certain neighborhood plans, and other policies explicitly referenced may serve as the basis for exercising substantive SEPA authority. The Overview Policy states in part: *"where City regulations have been adopted to address an environmental impact, it shall be presumed that such regulations are adequate to achieve sufficient mitigation"* (subject to some limitations).

Under certain limitations/circumstances (SMC 25.05.665 D 1-7) mitigation can be considered. Thus, a more detailed discussion of some of the impacts is presented below.

### Short - Term Impacts

The following temporary or construction-related impacts are expected:

- decreased air quality due to suspended particulates from construction activities and hydrocarbon emissions from construction vehicles and equipment;
- increased dust caused by construction activities; potential soil erosion and potential disturbance to subsurface soils during grading, excavation, and general site work;
- increased traffic and demand for parking from construction equipment and personnel;
- conflicts with normal pedestrian and vehicular movement adjacent to the site;
- increased noise; and
- consumption of renewable and non-renewable resources.

Several adopted City codes and/or ordinances provide mitigation for some of the identified impacts. Specifically these are: Stormwater, Grading and Drainage Control Code (grading, site excavation and soil erosion); Street Use Ordinance (watering streets to suppress dust, removal of debris, and obstruction of the pedestrian right-of-way); and the Noise Ordinance (construction noise). The Environmentally Critical Areas (ECA) ordinance and Director’s Rules (DR) 33-2006 and 3-94 regulate development and construction techniques in designated ECAs. Compliance with these applicable codes and ordinances will reduce or eliminate most of the short-term impacts to the environment. Other impacts may not be adequately mitigated by existing ordinances, as discussed below.

### Air Quality

Greenhouse gas emissions associated with development come from multiple sources; the extraction, processing, transportation, construction and disposal of materials and landscape disturbance (Embodied Emissions); energy demand created by the development after it is completed (Energy Emissions); and transportation demands created by the development after it is completed (Transportation Emissions). Short-term impacts generated from the embodied emissions results in increases in carbon dioxide and other green house gases thereby impacting

air quality and contributing to climate change and global warming. While these impacts are adverse they are not expected to be significant due to the relatively minor contribution of greenhouse gas emissions from this specific project. The other types of emissions are considered under the use-related impacts discussed later in this document. No SEPA conditioning is necessary to mitigate air quality impacts pursuant to SEPA policy SMC 25.05.675A.

The proposal will only involve temporary construction-related air emissions. These will include dust generated by construction activities and exhaust from construction equipment. Emissions will consist primarily of soil particles, carbon monoxide and hydrocarbons. Odors could be temporarily emitted where existing sewer pipes or vaults are opened during construction. A King County Greenhouse Gas Emissions worksheet attached to the environmental checklist.

During dry weather, construction-related dust emissions from the project will be minimized through dust control measures such as watering construction areas to wet bare soils and cleaning roadways around construction areas. Construction equipment-related emissions will be reduced by requiring proper maintenance of equipment, using electrically powered equipment where practical, and avoiding prolonged idling of vehicles and equipment.

Puget Sound Clean Air Agency (PSCAA) regulations require control of fugitive dust to protect air quality. Compliance with PSCAA regulations will mitigate the potential adverse short term impacts to air associated with new construction. As discussed in the Shoreline analysis above, Best Management Practices (BMPs) to address air quality issues during construction are incorporated into the project and will be required as conditions of approval of the Shoreline Permit. Therefore no further mitigation pursuant to SEPA policies in SMC 25.05.675A is warranted.

### Construction Impacts

SMC 25.05.675B provides policies for the limitation of construction related impacts. In addition, there are several City codes that will provide authority to evaluate and address impacts of the project, including the City's ECA ordinance, the Stormwater, Grading and Drainage Control Code and the City's Shoreline Code. The Stormwater, Grading and Drainage Control Code provides extensive conditioning authority and prescriptive construction methodology to assure safe construction techniques are used. As discussed above, Best Management Practices (BMPs) to address construction impacts are incorporated into the project and will be required as conditions of approval of the Shoreline Permit. Therefore, no further mitigation pursuant to SEPA policies in SMC 25.05.675B is warranted.

### Noise

The SEPA checklist indicates that construction noise will typically consist of engine noise, reverse gear warning systems, and mechanical and scraping noises associated with the use of heavy construction equipment such as bulldozer, graders, scrapers and loaders. Construction noise levels will vary depending on the specific equipment used for particular activities. Based on previous construction projects, typical noise levels can be expected to range from about 70 to 90 dBA measured at a distance of 50 feet from the source. At the slipline insertion pit, use of a vibratory pile driver in combination with other equipment could temporarily increase noise levels to as much as 97 dBA. Materials hauling activities and workers' vehicles will add slightly to

traffic noise on roads used to access the site during project construction. The Seattle Noise Ordinance permits increase in permissible sound levels associated with construction and equipment between the hours of 7:00 AM and 10:00 PM on weekdays and 9:00 AM and 10:00 PM on weekends. The ends of the tunnel are located in industrial zones and the tunnel boring will occur below the sediments of the Ship Canal so noise will not be heard above grade. The limitations stipulated in the Noise Ordinance (SMC 25.08) are sufficient to mitigate noise impacts from truck trips.

The following measures will be required to control noise impacts during construction.

- Mufflers on all gas powered equipment.
- Provide electricity from the power grid and encourage the use of electric or hydraulic tools whenever practicable.
- Notify residents and businesses near active construction areas of upcoming noisy construction activities.
- Provide a 24 hour construction hotline to promptly respond to questions and complaints.
- Provide noise barriers if needed.

### Long-term Impacts

Long-term or use-related impacts from the proposal are also anticipated as a result of approval of this proposal including: a limited amount of traffic and parking demand for regular maintenance at both ends of the tunnel; increases in carbon dioxide and other greenhouse gas emissions and increased light and glare.

### Greenhouse Gas Emissions and Other Impacts

Emissions from the generation of greenhouse gases due to the increased energy and transportation demands may be adverse but are not expected to be significant due to the relatively minor contribution of emissions from this specific project. The other impacts such as but not limited to, increased ambient noise, and increased demand on public services and utilities are mitigated by codes and are not sufficiently adverse to warrant further mitigation by condition.

### Archeological/Historic/Cultural Resources

Because a portion of the proposal sites at both ends of the tunnel are located within the identified U.S. Government Meander Line, the potential exists for discovery of previously unknown archeological significant resources. DR 2-98 provides clarification of the SEPA Historic Preservation Policy for potential archeologically significant sites (SMC 25.05.675H) and requirements for archeological assessments. A cultural resources assessment was submitted with this application indicating that no cultural materials were identified during pedestrian survey or sub-surface investigation. However, in the event such resources are found during construction, the proposal will be conditioned pursuant to DR 2-98 and as noted at the end of this report.

Because historic fill and previously undisturbed shoreline soils may be encountered, excavation will be monitored by a professional archaeologist. If artifacts are uncovered during excavation, work will be stopped pending notification of and consultation with the Washington Department of Archaeology and Historic Preservation, the City of Seattle Historic Preservation Program, the King County Historic Preservation Program and, if Native American archaeological resources

are encountered, concerned Tribes. Construction-related vibration is not expected to affect any structures located near project sites. However, item B.1.h. above identifies measures to protect structures from potential vibration impacts during construction.

The Ballard Regulator site abuts, but is not within, the Ballard Avenue Historic District. This district is listed on the National Register of Historic Places and the Washington Heritage Register. It is also a City of Seattle Landmark District. The project is adjacent to the rear of a building in the Historic District and is not visible from the District. The project will not affect this district.

### Water Quality

No disturbance of the water is expected since all work will be subterranean below the sediments of the Ship Canal. There is the potential for debris to enter the water, so care will have to be taken to prevent this from occurring. In addition to the requirements set forth by SMC 23.60.152, recommendations to protect the water quality of the Ship Canal shall also be followed as conditioned below pursuant to the authority found in SMC 25.05.675S.

### Earth

A geotechnical report including recommendations for construction was submitted with this application and was reviewed by the Department's geotechnical engineer. The report said that native soils are Alderwood north of Salmon Bay and Indanola south of Salmon Bay. Artificial fill of varying depths also occurs in parts of the project area. A report on a geotechnical boring made in 1975 at the intersection of 20<sup>th</sup> Avenue NW and Shilshole Avenue NW indicates that the soil at this location consists of artificial fill to a depth of up to 20 feet. This fill is mainly sand with some gravel. The soil below 20 feet is glacial fill. A report also exists for a geotechnical boring made in 1979 near the shoreline near the south end of the existing Ballard Siphon pipeline. This report indicates that the soil at this location is "loose brown sandy silt with rocks and wood" (artificial fill) to a depth of 8 feet and "a sequence of hard gray silts, silty sands and sand" between 8 and 49 feet.

Geotechnical borings were also conducted for the proposed project. A surficial layer of fill was observed in the upland borings conducted on both sides of Salmon Bay. Below this fill layer different subsurface conditions were found on the two sides of the bay. Near the north shaft location, very dense, silty sand with gravel over hard, silty clay with interbedded sand was generally observed to the maximum depth explored (151.5 ft.). At the south shaft location, interbedded silt, clay and sand (very stiff/medium dense to hard/very dense over very stiff to hard, clay with slickensides and sand-filled fractures was generally observed to the maximum depth explored (179 ft.).

About 12,400 cubic yards of fill material will be needed to backfill excavations made for shafts, pipes and structures. Backfill material will be a suitable material such as gravel or controlled density fill. This material will be obtained from local commercial sources. Some erosion could occur during excavation and filling for shafts, trenches or structures, but erosion control measures will be used to minimize this potential. Nearly the entire project site will be covered by impervious surfaces. This will only be a slight increase over the existing extend of impervious surfaces.

Temporary erosion and sedimentation control measures will be employed throughout project construction. Typical measures that could be used are filter fabric fences, hay bales, covering soil stockpiles and exposed soils, and use of settling tanks or other means to prevent sediment from leaving the site.

Additional Best Management practices and other measures could include the following:

- Designate personnel to inspect and maintain temporary erosion and sediment control measures;
- Store materials away from surface waters;
- Refuel construction equipment and vehicles away from surface waters whenever practicable;
- Maintain spill containment and clean up material at the construction site;
- Contain equipment, materials and vehicle wash water associated with construction and keep it from draining into surface waters;
- Dispose of spoils at an approved disposal site.
- Use appropriate means to minimize tracking of sediment onto public roadways by construction vehicles;
- Restore disturbed areas by repaving or replanting as soon as practical after construction is completed.

Temporary erosion and sediment control measures will be identified in the project's construction plans and specifications. Appropriate erosion and sediment control measures will be installed prior to clearing, grading or excavation activities.

Vibration generated by construction activities is expected to be minor and not affect nearby structures. However, to protect existing structures, a maximum vibration limit will be specified to ensure that structures are not compromised. Vibration in the immediate area of construction will be monitored during construction to ensure that it does not exceed allowable limits. A pre-construction and post-construction vibration survey will also be used to evaluate construction induced vibration.

The project itself is a measure to minimize potential impacts to Salmon Bay sediments. The existing pipes are aging and thus have the potential to eventually fail and discharge untreated wastewater to Salmon Bay. The proposed project will greatly reduce this potential. By increasing the capacity of the Ballard Siphon, the project will reduce the number and volume of combined sewer overflows into Salmon Bay and the Lake Washington Ship Canal. This will improve the quality of Salmon Bay sediments.

#### Traffic and Transportation

The proposal will not require any new roads or streets. Construction activities on the north end of the project will temporarily occupy the westbound lanes of Shilshole Avenue NW at the Ballard Regulator. Pipe installation on the south end will require excavation of a trench across the eastbound lanes into the center of West Commodore Way. After construction is complete, these streets will be repaved in accordance with City of Seattle requirements. All affected streets are public.

Construction at the Ballard Regulator site will take place near three railroad tracks that run along the southern edge of Shilshole Avenue NW. Construction will temporarily divert Shilshole Avenue NW vehicle traffic onto two of the tracks. A local railroad uses the tracks several times per week. Part of the project will occur near Salmon Bay, which is used for water transportation. Neither construction nor operation of the project will affect water transportation in the bay.

The project will generate one or two vehicle trips per week for maintenance for the life of the project. It is estimated that over the course of the approximately two year construction period, construction could generate a total of about 2700 one-way vehicle trips on the north side of the project and about 9500 one-way vehicle trips on the south side.

Transportation impact mitigation could include the following during construction.

- Use flaggers if necessary to manage traffic during construction.
- Develop a traffic control plan describing detour routes, lane closures, sidewalk closures, signage, flagging, hauling routes, etc. for approval by the City of Seattle prior to start of construction.
- To the extent practicable, schedule construction traffic to avoid peak commuter hours. Try to minimize weekday truck traffic during rush hours.
- Require construction vehicles to follow major arterial routes to the maximum extent practicable.
- Work with the railroad company to minimize disruption of rail service along Shilshole Avenue NW.
- Provide on-site parking for construction workers.

### Parking

The completed project will have space for parking a few more vehicles than the current 2 to 3 vehicle space at the Ballard Regulator and will have 2 or 3 parking spaces at the south shaft site. On the north end, project construction will temporarily displace about 8 to 12 parking spaces along Shilshole Avenue NW. On the south end, the project will temporarily displace up to about 60 parking spaces in the parking lot at the south shaft site. About half of these sites will be permanently eliminated. In addition, project construction will temporarily displace about 15 parking spaces on West Commodore Way next to the parking lot.

### Conclusion

In conclusion, no additional adverse impacts to the canal sediments or water quality are expected, and the proposed siphon tunnel will be consistent with the provisions set forth by 90.58 RCW, 173-27 WAC, and the provisions of Chapter 23.60 SMC, also known as the Seattle Shoreline Master Program (SSMP).

## **CONDITIONS – SHORELINE AND SPECIAL USE APPROVAL**

### Project Conditions

1. Prior to commencing construction an emergency containment plan and procedures shall be developed and include the requirement that all necessary equipment for toxic spill clean-up be stocked on the site. A sufficient number of personnel that will be present during construction shall be trained in the proper implementation of this plan.

2. Prior to commencement of work the owner(s) and/or responsible party(s) shall notify in writing all contractors and sub-contractors of the general requirements of the Seattle Shoreline Master Program (SSMP 23.60.152), including the requirements set forth in conditions of the MUP.

### Construction Conditions

The following condition(s) to be enforced during construction shall be posted at the site in a location on the property line that is visible and accessible to the public and to construction personnel from the street right-of-way. If more than one street abuts the site, conditions shall be posted at each street. The conditions will be affixed to placards prepared by DPD. The placards will be issued along with the Master Use Permit set of plans. The placards shall be laminated with clear plastic or other waterproofing material and shall remain posted on-site for the duration of the construction.

3. No debris, construction material, and/or toxic material shall directly or indirectly enter the Lake Washington Ship Canal during the proposed construction work.
4. Appropriate best management practices (BMPs) shall be employed to prevent debris, construction material and/or toxic material from entering the Lake Washington Ship Canal directly or via the stormwater during the proposed work. BMPs shall include the installation of a silt fence to contain any sediment laden runoff from the site.
5. Best Management practices shall include the following:
  - Designate personnel to inspect and maintain temporary erosion and sediment control measures;
  - Store materials away from surface waters;
  - Refuel construction equipment and vehicles away from surface waters whenever practicable;
  - Maintain spill containment and clean up material at the construction site;
  - Contain equipment, materials and vehicle wash water associated with construction and keep it from draining into surface waters;
  - Dispose of spoils at an approved disposal site.
  - Use appropriate means to minimize tracking of sediment onto public roadways by construction vehicles;
  - Restore disturbed areas by repaving or replanting as soon as practical after construction is completed.

### **CONDITIONS – SEPA**

#### During Construction

The following condition(s) to be enforced during construction shall be posted at the site in a location on the property line that is visible and accessible to the public and to construction personnel from the street right-of-way. If more than one street abuts the site, conditions shall be posted at each street. The conditions will be affixed to placards prepared by DPD. The placards shall be issued along with the building permit set of plans. The placards shall be laminated with clear plastic or other waterproofing material and shall remain posted on-site for the duration of the construction.

6. The following measures will be required to control noise impacts during construction:

- Mufflers on all gas powered equipment shall be used.
- Electricity shall be provided from the power grid and the use of electric or hydraulic tools shall be encouraged whenever practicable.
- Residents and businesses near active construction areas shall be notified of upcoming noisy construction activities.
- A 24 hour construction hotline shall be provided to promptly respond to questions and complaints.
- Noise barriers shall be provided when needed.

7. If resources of potential archaeological significance are encountered during construction or excavation, the owners and/or responsible parties shall:

- Stop work immediately and notify DPD (Malli Anderson, 206-233-3858) and the Washington State Archaeologist at the State Office of Archaeology and Historic Preservation (OAHF).
- Follow the procedures outlined in Appendix A of DR 2-98 for assessment and/or protection of potentially significant archeological resources.
- Abide by all regulations pertaining to discovery and excavation of archaeological resources, including but not limited to Chapters 27.34, 27.53, 27.44, 79.01 and 79.90 RCW and Chapter 25.48 WAC, as applicable, or their successors.

8. Transportation impact mitigation shall include:

- Flaggers shall be used to manage traffic during construction.
- Implement a traffic control describing detour routes, lane closures, sidewalk closures, signage, flagging, hauling routes, etc. approved by the Land Use Planner.
- Schedule construction traffic to avoid peak commuter hours. Minimize weekday truck traffic during rush hours.
- Require construction vehicles to follow major arterial routes.
- Coordinate with the railroad companies to minimize disruption of rail service along Shilshole Avenue NW.
- Provide on-site parking for construction workers.

Signature: \_\_\_\_\_ (signature on file)

Date: January 22, 2009

Malli Anderson, Land Use Planner  
Department of Planning and Development