City of Seattle
Seattle Public Utilities

September 30, 2013

TO: Recipients of the Henderson Basin 44 CSO Reduction Project Final EIS and Revised Final EIS, and the Henderson Basin 45 CSO Reduction Project SEPA Determination of Non-Significance/Checklist

FROM: Betty Meyer, SEPA Responsible Official

SUBJECT: Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

PURPOSE OF THIS ADDENDUM

On January 3, 2013, Seattle Public Utilities (SPU) issued the Henderson Basin 44 Combined Sewer Overflow (CSO) Reduction Project Final Environmental Impact Statement (EIS). On September 5, 2013, SPU issued a Revised Final EIS on the project, providing a more complete description of operational noise.

Additionally, on March 26, 2012, SPU prepared a State Environmental Policy Act (SEPA) Environmental Checklist that analyzed the environmental impacts of the proposed Henderson Basin 45 CSO Reduction Project. As lead agency, SPU issued a Determination of Non-Significance (DNS) for that project on April 2, 2012.

Since publication of the aforementioned documents, SPU has continued the project design process for the Henderson Basin 44 and Basin 45 CSO Reduction Projects. In the course of advancing the project designs, a value analysis was completed that showed certain design modifications could improve the performance and cost-effectiveness of SPU's CSO reduction effort. Specifically, SPU determined that, with certain modifications including the addition of real time controls and a slight increase in the size of the underground storage tank in Seward Park, SPU could operate the two basins as a single system and eliminate the need for a separate storage tank in Basin 45. Essentially, SPU would merge the Basin 45 CSO effort into the existing Basin 44 effort and the existing proposal to construct an underground storage tank at a location within Seward Park. This Addendum addresses the proposed design changes in both basins and assesses how those changes affect the analyses included in the aforementioned SEPA documents.

Ray Hoffman, Director
Seattle Public Utilities
700 5th Avenue, Suite 4900
PO Box 34018
Seattle, WA 98124-4018

Tel (206) 684-5851
Fax (206) 684-4631
TDD (206) 233-7241
ray.hoffman@seattle.gov

http://www.seattle.gov/util

As lead agency, SPU has reviewed the findings and concluded that the design revisions do not substantially change the analyses of impacts and alternatives contained in the 2013 Final EIS and Revised Final EIS for the Henderson Basin 44 CSO Reduction Project. It further finds that the impacts previously described in the 2012 SEPA Environmental Checklist for the Henderson Basin 45 CSO Reduction Project will be substantially reduced due to the proposed design changes.

This Addendum has been prepared in accordance with the authority provided in Seattle Municipal Code (SMC) 25.05.600 and in accordance with the procedures described in SMC 25.05.625.

Please submit any comments by close of business on October 15, 2013 to the following:

Betty Meyer, SEPA Responsible Official
Seattle Public Utilities
Seattle Municipal Tower, Suite 4900
P.O. Box 34018
Seattle, WA 98124-4018
betty.meyer@seattle.gov

Signature: Betty Meyer Issue Date: September 30, 2013

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List of Acronyms

CSO	combined sewer overflow
EIS	Environmental Impact Statement
GHG	greenhouse gas
HVAC	heating, ventilation, and air conditioning
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
SEPA	State Environmental Policy Act
SMC	Seattle Municipal Code
SPU	Seattle Public Utilities
UPARR	Urban Park and Recreation Recovery
WAC	Washington Administrative Code

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1 Introduction

1.1 Purpose of this Addendum

This Addendum has been prepared by Seattle Public Utilities (SPU) to analyze certain design changes that would allow SPU to operate Basins 44 and 45 as a single system for CSO reduction purposes and eliminate the need for a separate storage tank in Basin 45. The Addendum assesses how proposed design changes would affect the following previous analyses under the State Environmental Policy Act (SEPA):

- The analysis included in the 2013 Final Environmental Impact Statement (EIS) and Revised Final EIS for the Henderson Basin 44 CSO Reduction Project (SPU 2013a; SPU 2013b); and
- The analysis included in the 2012 SEPA Environmental Checklist for the Henderson Basin 45 CSO Reduction Project (SPU 2012a), resulting in SPU's Determination of Non-Significance (SPU 2012b).

In the course of advancing the project designs for SPU's Basin 44 and 45 CSO reduction projects, a value analysis was completed that showed certain design modifications could improve the performance and cost-effectiveness of SPU's CSO reduction effort. Specifically, SPU determined that, with certain modifications including the addition of real time controls and a slight increase in the size of the underground storage tank in Seward Park, SPU could operate the two basins as a single system and eliminate the need for a separate storage tank in Basin 45. Essentially, SPU would merge the Basin 45 CSO effort into the existing Basin 44 CSO effort and the existing proposal to construct an underground storage tank at a location within Seward Park. This Addendum addresses proposed design changes in both basins and how those changes affect the analyses included in the aforementioned SEPA documents.

In Henderson Basin 44, two alternatives were evaluated in the 2013 Final EIS and Revised Final EIS (SPU 2013a; SPU 2013b): storage under the tennis courts (the Tennis Courts Alternative) and storage under a parking lot (the Parking Lot Alternative) in Seward Park. The analysis presented in this Addendum is the same for both alternatives.

For Henderson Basin 45, SPU examined numerous options and ultimately selected two storage alternatives as the top alternatives: storage under private property at South Holly Street and 57th Avenue South (the Private Property Alternative) and storage within Martha Washington Park (the Park Alternative). SPU selected and previously analyzed the Private Property Alternative; thus, this Addendum only discusses the Private Property Alternative.

1.2 Addendum Organization

Chapter 2 summarizes the originally proposed project elements. The proposed design changes also are described in Table 2-1, comparing the originally proposed and revised project elements.

Chapter 3 provides information on environmental impacts for the proposed design changes. This chapter focuses on expected changes, if any, to impacts previously described for the Henderson Basin 44 CSO Reduction Project in the 2013 Final EIS and Revised Final EIS (SPU 2013a; SPU 2013b), and for the Henderson Basin 45 CSO Reduction Project in the 2012 SEPA Environmental Checklist (SPU 2012a).

2 Original Projects and Proposed Design Changes

2.1 Introduction

This chapter summarizes the originally proposed projects, and the results of the value analysis that resulted in the proposed design changes described in this chapter.

2.2 Summary of Originally Proposed Projects

SPU proposed the Henderson Basin 44 and Basin 45 CSO Reduction Projects to reduce the frequency and volume of CSOs (raw sewage and untreated stormwater overflows) into Lake Washington in the Henderson North Area in southeast Seattle. During heavy rains when the amount of combined sewage (raw sewage and untreated stormwater) exceeds the combined sewer system capacity, excess flows discharge into Lake Washington via outfalls.

The Henderson North Area extends from its northern boundary at South Hudson Street south almost to South Willow Street. The eastern boundary follows Lake Washington and includes Seward Park. The western boundary varies, going no farther west than areas around 52nd Avenue South. Figure 2-1 shows Basins 44 and 45, which are within the Henderson North Area. The geographic limits of the combined sewer systems that contribute to CSOs discharging through CSO Outfalls 44 and 45 define the basins.

The original project descriptions and major elements for these projects are described below, as well as the SEPA processes and documents previously completed. Further details can be reviewed in the original SEPA documents cited in this chapter.

2.2.1 Henderson Basin 44 CSO Reduction Project

The originally proposed Henderson Basin 44 CSO Reduction Project consisted of an underground storage tank to store excess combined sewage flows from Basin 44 during heavy rains, and associated infrastructure, shoreline, and landscape improvements. Once constructed, the project would reduce the frequency and volume of CSOs into Lake Washington.

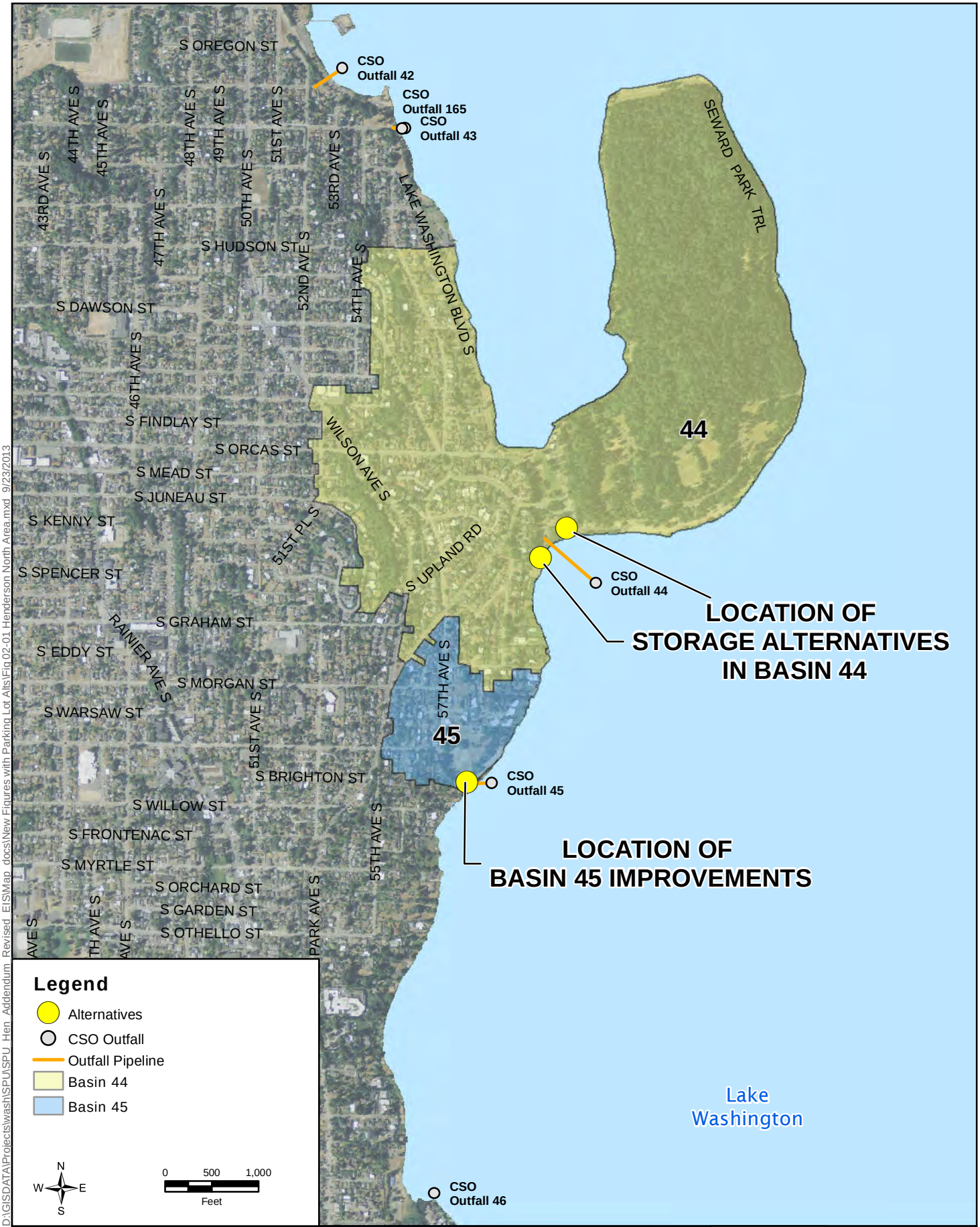
SPU previously determined that the proposed project may have a significant adverse effect on the environment; therefore, an EIS was prepared. The 2012 Draft EIS (SPU 2012c) was circulated in September 2012 for review by agencies and the public. The 2013 Final EIS (SPU 2013a) was issued on January 3, 2013.

In addition to the No Action Alternative, the 2013 Final EIS evaluated two alternatives for the project, both within Seward Park: storage under the tennis courts (the Tennis Courts Alternative) and storage under a parking lot (the Parking Lot Alternative). SPU identified the Tennis Courts Alternative as the preferred alternative. The major elements of the originally proposed project alternatives are shown in Figure 2-2 (Tennis Courts Alternative) and Figure 2-3 (Parking Lot Alternative) and included the following:

- An underground, 2.4-million-gallon storage tank and associated infrastructure
- An underground facilities vault located adjacent to the storage tank containing odor control, mechanical, electrical, and control systems
- Shoreline treatment
- Replacement of the CSO outfall pipe in Lake Washington
- Transfer of National Park Service (NPS) Urban Park and Recreation Recovery (UPARR) grant restrictions from Seward Park to an area along Lake Washington Boulevard South that includes upland landscaping enhancements

The first four elements would be located within Seward Park. The fifth element would be located in a portion of Lake Washington Boulevard Park approximately one mile north of Seward Park near the intersection of Lake Washington Boulevard South and 53rd Avenue South.

In early 2013, the Seward Park Neighbors Coalition (a local neighbors coalition) appealed the adequacy of the 2013 Final EIS (SPU 2013a). An appeal hearing was held on March 25, 2013. In a decision dated April 8, 2013 (Hearing Examiner file W-13-001; Seattle 2013), the Hearing Examiner remanded the SPU Director's adequacy determination on the 2013 Final EIS on the sole issue of project-related operational noise. In response, SPU issued a Revised Final EIS on September 5, 2013 to provide a more complete description of operational noise (SPU 2013b).



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Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

HENDERSON NORTH AREA

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FIGURE 2-1

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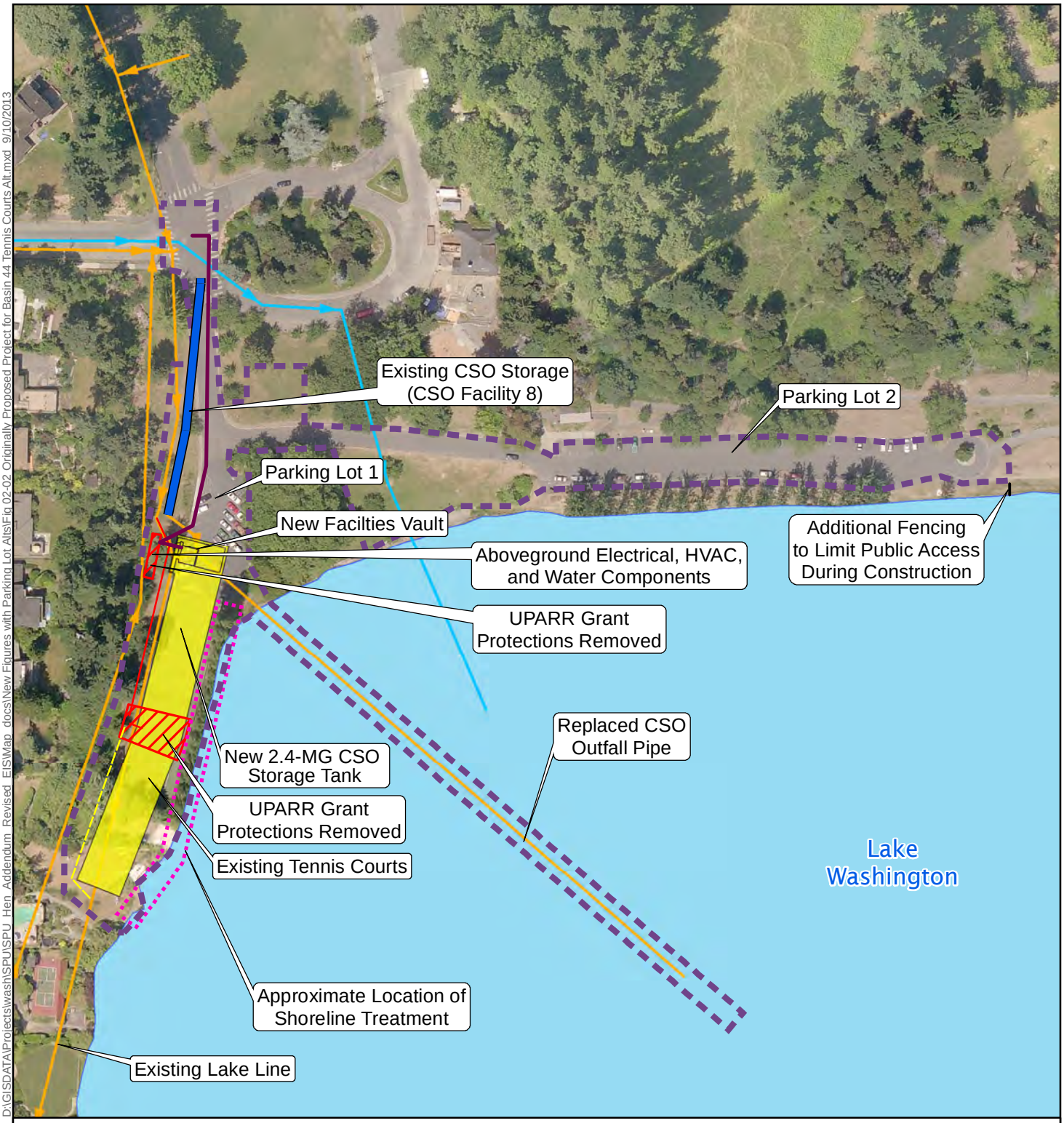

D:\GISDATA\Projects\wash\SPU\SPU_Hen_Addendum_Revised_EIS\Map_docs\New Figures with Parking Lot Alts\Fig 02-02 Originally Proposed Project for Basin 44 Tennis Courts Alt.mxd 9/10/2013

Legend

- UPARR Grant Protections Removed
- Shoreline Treatment
- Construction Impact Area
- Fence Outside Limits of Construction
- New Water Pipe
- Existing CSO Storage
- New Combined Mainline
- Relocated Combined Mainline
- SPU Combined Mainline
- SPU Drainage Mainline

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Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

ORIGINALLY PROPOSED PROJECT FOR BASIN 44 TENNIS COURTS ALTERNATIVE

OCTOBER 2013 | **FIGURE 2-2**

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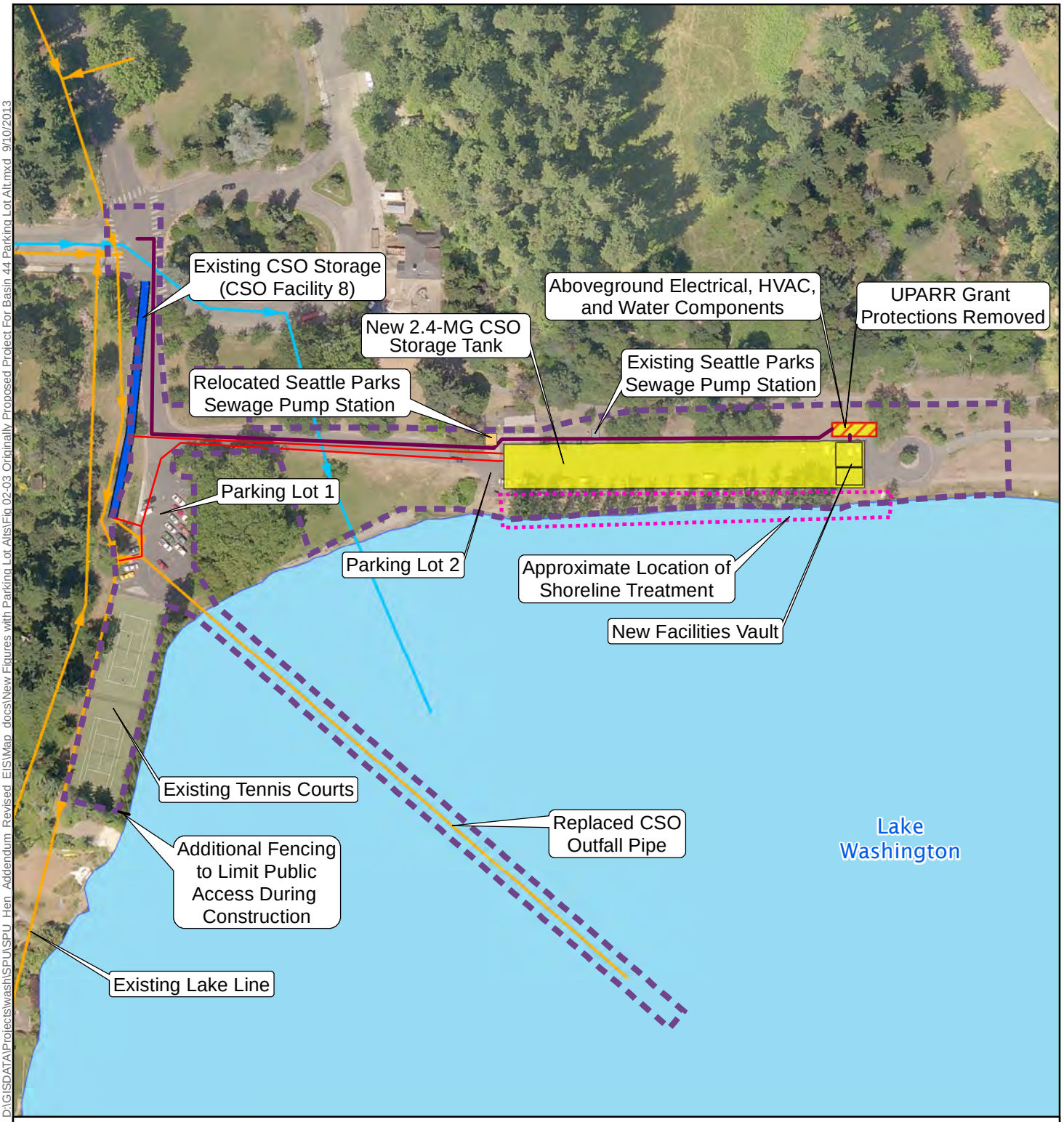

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Legend

- UPARR Grant Protections Removed
- Shoreline Treatment
- Construction Impact Area
- Fence Outside Limits of Construction
- New Water Pipe
- Existing CSO Storage
- New Combined Mainline
- SPU Combined Mainline
- SPU Drainage Mainline

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Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

ORIGINALLY PROPOSED PROJECT FOR BASIN 44 PARKING LOT ALTERNATIVE

OCTOBER 2013 | **FIGURE 2-3**

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2.2.2 Henderson Basin 45 CSO Reduction Project

The originally proposed Henderson Basin 45 CSO Reduction Project consisted of an underground storage tank to store excess combined sewage flows from Basin 45 during heavy rains. Once constructed, the project would reduce the frequency and volume of CSOs into Lake Washington.

SPU examined numerous options for Basin 45 and ultimately selected two storage alternatives as the top alternatives: storage under private property at South Holly Street and 57th Avenue South (the Private Property Alternative) and storage within Martha Washington Park (the Park Alternative). SPU selected the Private Property Alternative as the preferred alternative because the property owner was a willing seller. The major elements of the originally proposed and approved project are shown in Figure 2-4 and included the following:

- An underground 200,000-gallon storage tank and associated infrastructure on the private property
- An underground facilities vault located adjacent to the storage tank containing odor control, mechanical, electrical, and control systems
- An underground diversion structure near the South Holly Street/57th Avenue South intersection, and approximately 75 feet of underground pipe that would direct excess combined sewage during heavy rains into the storage tank
- Approximately 450 to 500 feet of underground gravity-pressure pipe in the 57th Avenue South right-of-way, from South Holly Street to a new maintenance hole located near Lake Washington
- Modifications to existing pipes in the 57th Avenue South right-of-way adjacent to the existing Pump Station 10

SPU completed the 2012 SEPA Environmental Checklist (SPU 2012a) for the Private Property Alternative, and issued a Determination of Non-Significance on April 2, 2012 (SPU 2012b). The comment period ended on April 16, 2012 and the appeal period ended on April 23, 2012.

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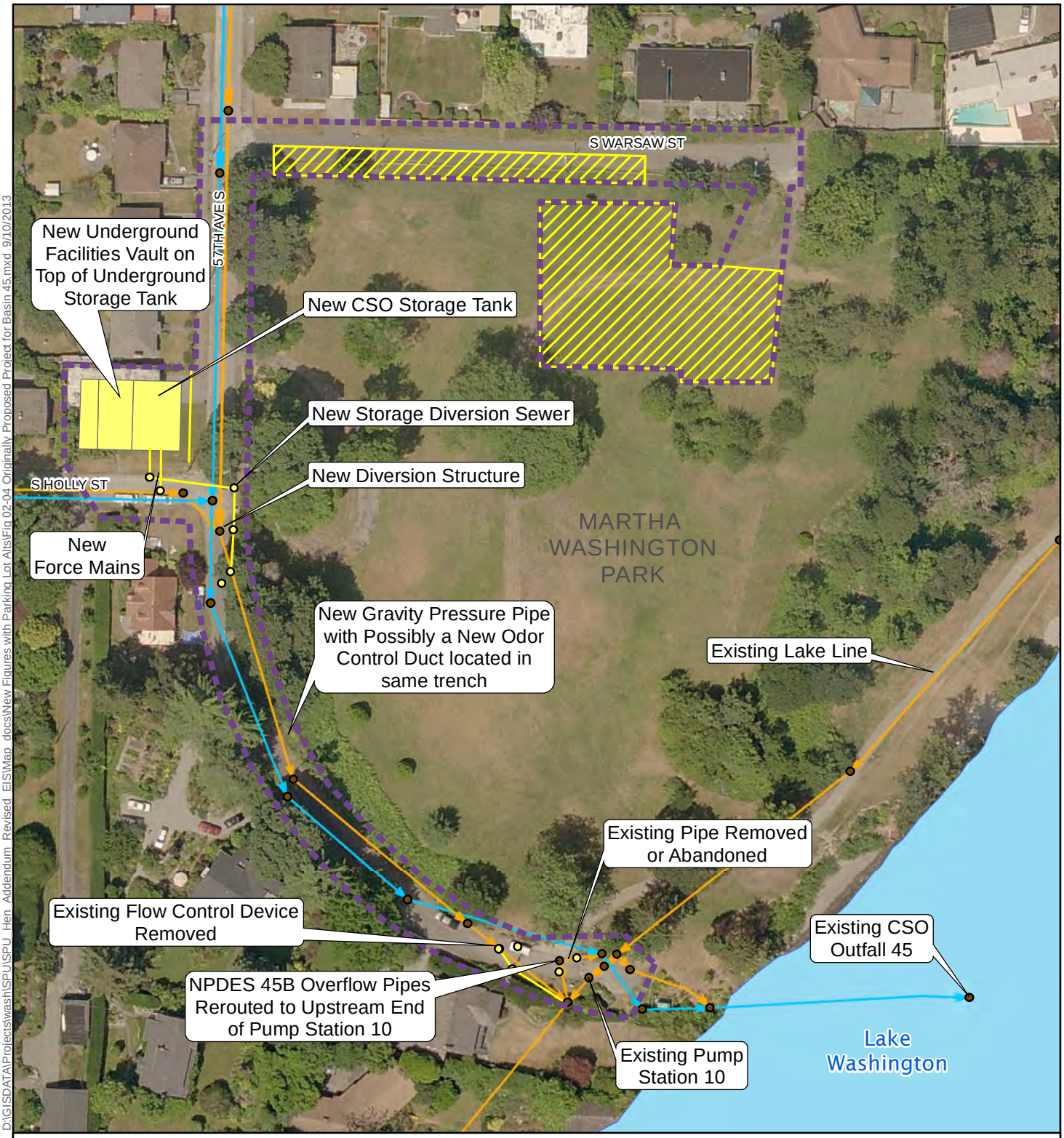

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Legend

- New Maintenance Hole
- Existing Maintenance Hole
- Construction Impact Area
- Potential Contractor Staging Area
- New Combined Mainline
- SPU Combined Mainline
- SPU Drainage Mainline

N W E S

0 50 100 150 Feet

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Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

ORIGINALLY PROPOSED PROJECT FOR BASIN 45

OCTOBER 2013 | **FIGURE 2-4**

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2.3 Proposed Design Changes

As the design progressed, a value analysis was performed to optimize the performance, function, safety, and quality of the proposed facilities, while also identifying areas of potential cost savings. During the value analysis, a design modification was proposed to implement a hydraulic control gate (called the "Lake Line Control Gate") and real time controls, so that SPU could operate Basins 44 and 45 as a single system rather than as two separate systems.

As shown on Figure 2-5, Basins 44 and 45 are adjacent to one another and connected by the existing Lake Line. Combined sewage flows are conveyed via the Lake Line from Basin 44 in Seward Park to Basin 45. Installation and operation of the Lake Line Control Gate on the Lake Line in Basin 44 would allow SPU to retain more combined sewage within Basin 44 and reduce the amount of combined sewage that would flow from Basin 44 to Basin 45. Additional hydraulic modeling of the proposed Lake Line Control Gate indicated that, in order for SPU to operate the two basins as a single system, the storage volume in Basin 44 would need to be increased from 2.4 million gallons to 2.65 million gallons, and the storage volume in Basin 45 could be decreased from 200,000 gallons to 16,000 gallons. This reduced storage volume in Basin 45 would be contained within a storage pipe and associated maintenance holes in the street right-of-way, thus eliminating the need for an underground storage tank on the residential property.

Under low flow conditions (no surcharging[1] in the existing combined sewer system), the Lake Line Control Gate would remain open, allowing combined sewage flows to continue south to the existing Pump Station 10 in Basin 45 (refer to Figure 2-5). During high flow conditions (e.g., during a storm event), the Lake Line Control Gate would partially or fully close based on combined sewage levels within the Lake Line in Basin 45. This would limit the flow of combined sewage from Basin 44 to Basin 45. When the Lake Line Control Gate closes, flows would back up behind the gate, eventually filling the new storage tank in Basin 44. Although closing the Lake Line Control Gate would limit Basin 44 flows going to Basin 45 during a storm event, stormwater from Basin 45 would continue to enter the sewers in Basin 45. With increase in rain and stormwater runoff, flows eventually would fill the new storage pipe in Basin 45. When flow monitoring of the Lake Line in Basin 45 indicated there was capacity available in the combined sewer system, the Lake Line Control Gate would open to allow flow through the Lake Line and allow the new storage tank in Basin 44 and new storage pipe in Basin 45 to drain.

Because the proposed design changes would require less storage in Basin 45, there would be a significant reduction in temporary disturbance, construction duration and related impacts, and cost. The construction duration in Basin 45 originally was estimated to be up to 18 months, but would decrease to approximately 4 to 6 months with the proposed combined project. Based on the design changes identified to date, SPU expects the construction cost for the overall effort to be significantly reduced.

The proposed design changes for each basin are described in more detail below, and are summarized in Table 2-1 at the end of this chapter.

[1] Surcharging occurs when combined sewage flows exceed the capacity of the combined sewer system.

2.3.1 Henderson Basin 44 Proposed Design Changes

The proposed combined project would require changing three elements of the originally proposed Henderson Basin 44 CSO Reduction Project, as described below. Figure 2-6 (Tennis Courts Alternative) and Figure 2-7 (Parking Lot Alternative) show the major project elements and features of the Basin 44 components with the proposed design changes described in this section. These proposed design changes would not change the permits required for the project, as listed in the 2013 Revised Final EIS (SPU 2013b) and Section 3.4 of this Addendum. In addition, there is the potential to add a temporary energy dissipation structure for dewatering discharge that was not part of the originally proposed project.

Increased Storage Volume in Seward Park

The primary design change proposed in Basin 44 is an increase in the storage capacity of the underground tank from 2.4 million gallons to 2.65 million gallons. For both the Parking Lot and Tennis Courts Alternatives, this volume would be obtained by increasing the width and decreasing the length of the originally proposed tank and optimizing the structural design of the tank within the constrained site (see Table 2-1). Though the volume of the tank would increase, the tank would be accommodated within a similar footprint compared to the originally proposed tank (approximately 18,900 square feet for the revised proposed project versus approximately 18,800 to 19,500 square feet[2] for the originally proposed project) because of the following:

- The wall thickness of the tank would decrease from 6 feet to 4 feet thick. The walls were conservatively estimated to be thicker for the originally proposed project due to the limited geotechnical information available at the time. Since then, additional geotechnical borings were conducted that provided more information about the site's geologic and groundwater conditions, allowing the structural design of the storage tank to be refined.
- The freeboard of the tank would be reduced. ("Freeboard" is the height from the underside of the tank's ceiling to the maximum water surface level in the tank.) Decreasing the freeboard would allow the footprint of the tank to be reduced since more of the tank would be available for storage of combined sewage.

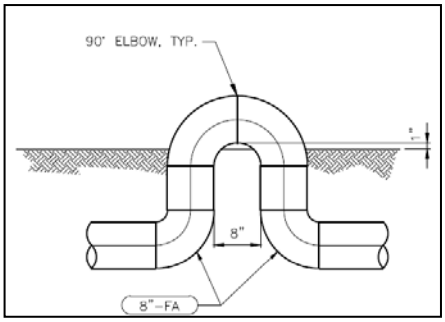
Revisions to Aboveground Components in Seward Park

The proposed design changes would not alter the size or location of the approximate 750-square-foot area containing aboveground electrical and water components (refer to Figure 2-6 and Figure 2-7). However, the types and sizes of some components within that area would change from those originally proposed based on the addition of the proposed Lake Line Control Gate, Storage Tank Isolation Gate, and other specifications developed as the design progressed. Below is a list of the aboveground components that have changed from the aboveground components described in the 2013 Revised Final EIS (SPU 2013b):

- **Electrical cabinet:** The electrical cabinet size has changed from 3 feet long by 1.5 feet wide by 6 feet high to 2 feet long by 4 feet wide by 7.5 feet high.

[2] The approximate tank square footage of the revised proposed project (18,900 square feet) would be the same for both alternatives; the approximate tank square footage of the originally proposed project was18,800 square feet for the Parking Lot Alternative and 19,500 square feet for the Tennis Courts Alternative.

- **Irrigation control cabinet:** An irrigation control cabinet (1 foot long by 1 foot wide by 2.5 feet high) has been added to the aboveground components area because the Seattle Parks Department requires that the landscape improvements be irrigated with an automatic irrigation system that is connected to an irrigation controller.
- **Motor actuator for Storage Tank Isolation Gate:** A motor actuator within an enclosure box (4.5 feet long by 3.5 feet wide by 3.5 feet high) for the Storage Tank Isolation Gate has been added to the aboveground components area for the Tennis Courts Alternative. (The motor actuator would be located underground for the Parking Lot Alternative.) The Storage Tank Isolation Gate would close to prevent the tank from surcharging during large storm events and would direct excess combined sewage through the outfall.
- **Motor actuator for Lake Line Control Gate:** A motor actuator within an enclosure box (4.5 feet long by 3.5 feet wide by 3.5 feet high) for the Lake Line Control Gate has been added to the aboveground components area for the Tennis Courts Alternative. (The motor actuator would be located underground for the Parking Lot Alternative.) The Lake Line Control Gate has been added to optimize flows between Basins 44 and 45. It would partially or fully close based on combined sewage levels within the Lake Line in Basin 45.
- **Odor Control Air Duct Gooseneck:** An 8-inch-diameter odor control air duct gooseneck has been added to the aboveground components area. The gooseneck would come aboveground and then head back underground with no openings to the atmosphere as indicated in the image to the right. The gooseneck has been added to protect the carbon vessel by preventing combined sewage from back-flowing into the carbon vessel.
- **Meter cabinet:** A Seattle City Light meter cabinet (5 feet long by 2 feet wide by 5 feet high) has been added to the aboveground components area to house the electrical meter for the project.



Odor Control Air Duct Gooseneck

Addition of Lake Line Control Gate and Storage Tank Isolation Gate

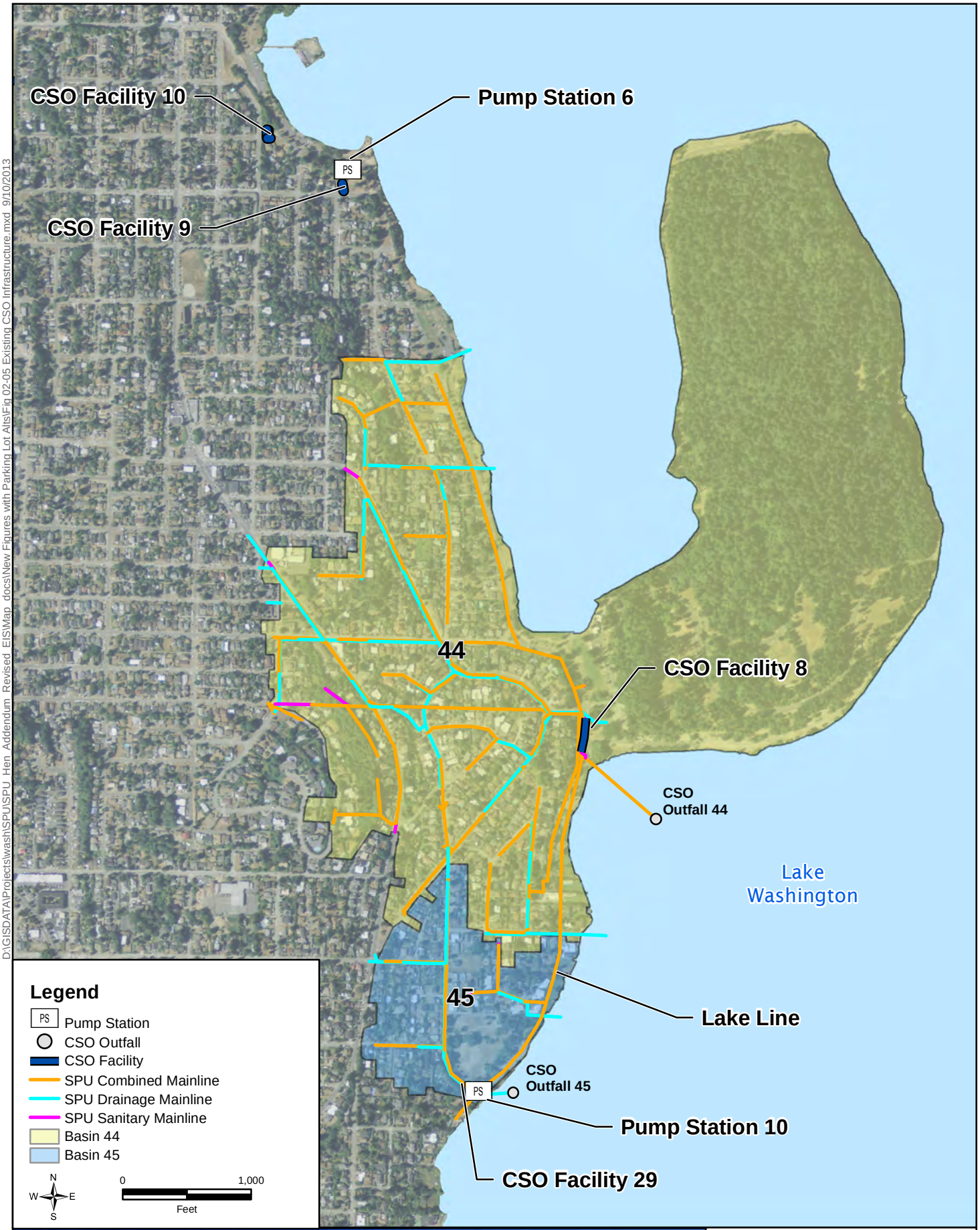
For either alternative, the proposed Lake Line Control Gate and Storage Tank Isolation Gate would be installed in new maintenance holes (refer to Figure 2-6 and Figure 2-7). While the presence of these gates is new, the construction of the maintenance holes was included in the originally proposed project for Basin 44. No additional surface disturbance beyond what was assessed in the 2013 Final EIS would result from installation of the proposed control gates. For the Tennis Courts Alternative, the motor actuators for the control gates would be located aboveground within enclosures located in the UPARR area. For the Parking Lot Alternative, the motor actuators for the control gates would be located underground and outside of the UPARR area. (UPARR area for the Parking Lot Alternative is in a different location than the Tennis Courts Alternative.)

Potential Addition of Temporary Energy Dissipation Structure

The method and location of dewatering discharge was not defined in the 2013 Final EIS due to limited information available at the conceptual design phase.

During preliminary design, the project team determined that a temporary energy dissipation structure may be required during construction for erosion control at the dewatering discharge location below the ordinary high watermark. Dewatering flows could run though a pipe into a settlement tank, where the water would be tested for compliance with water quality standards before being conveyed by a temporary discharge pipe to Lake Washington. No fill and dredge material would be placed in or removed from Lake Washington during the installation and removal of the temporary discharge pipe and energy dissipation structure.

Because no material would be placed in or removed from Lake Washington during the installation and removal of the discharge pipe and energy dissipation structure, shoreline rehabilitation would not be required.



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Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

EXISTING COMBINED SEWER SYSTEM INFRASTRUCTURE

OCTOBER 2013

FIGURE 2-5

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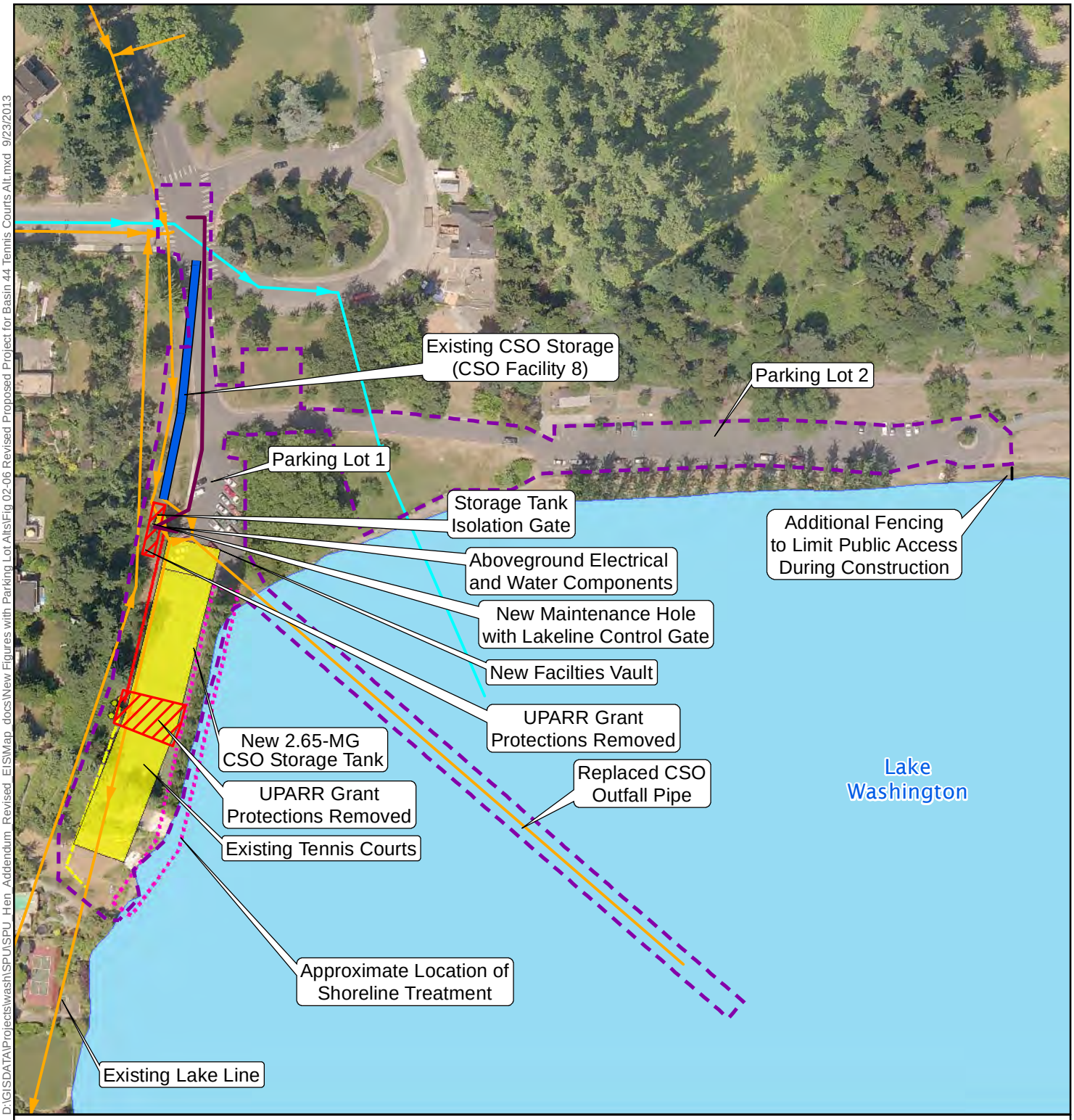

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Legend

- UPARR Grant Protections Removed
- Construction Impact Area
- Fence Outside Limits of Construction
- New Water Pipe
- Existing CSO Storage
- Shoreline Treatment
- SPU Combined Mainline
- SPU Drainage Mainline
- Relocated Combined Mainline
- New Combined Mainline

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Henderson Basin 44 and 45 CSO Reduction Project

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REVISED PROPOSED PROJECT
BASIN 44 ELEMENTS
TENNIS COURTS ALTERNATIVE

OCTOBER 2013 | **FIGURE 2-6**

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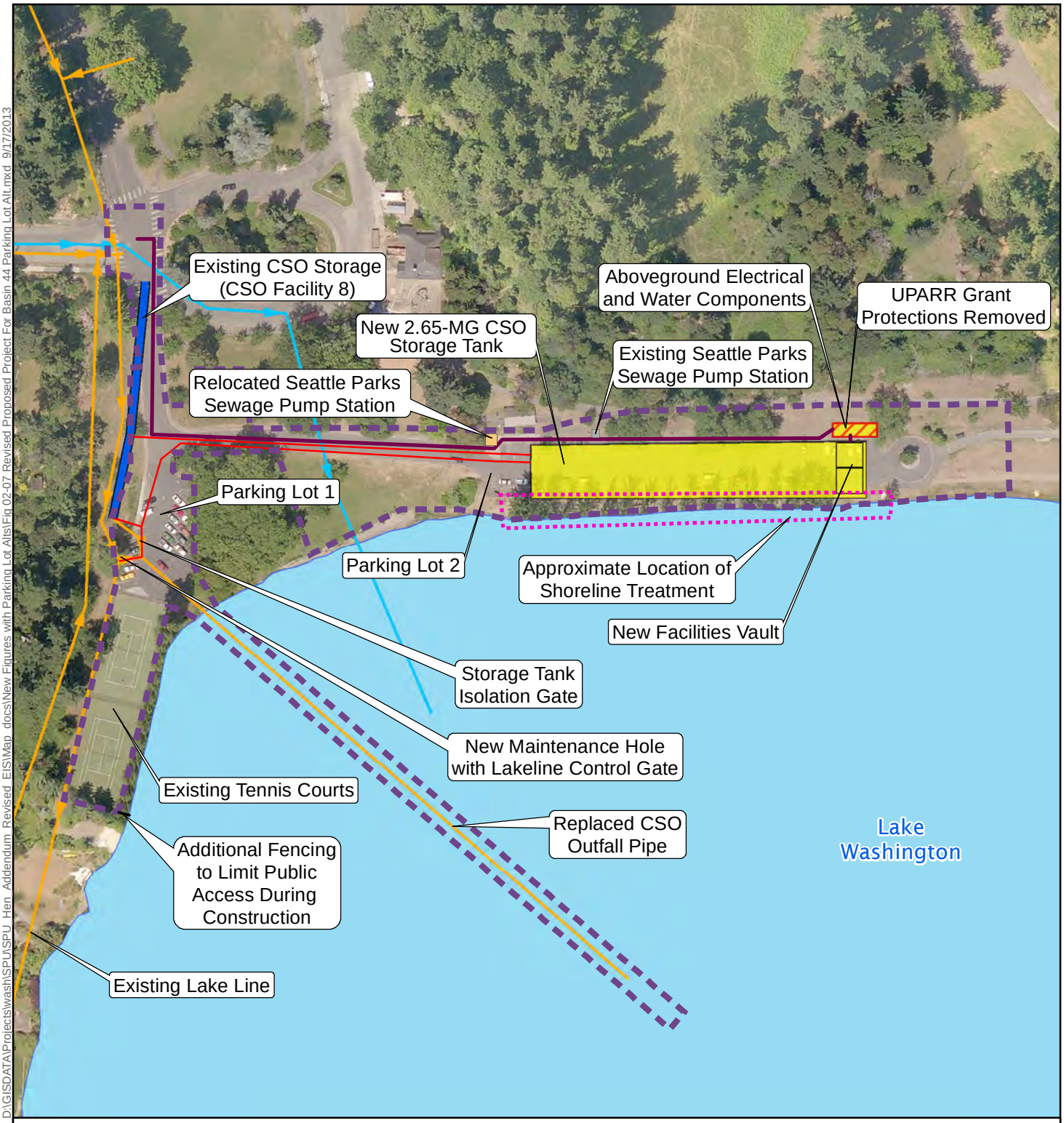

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Legend

- UPARR Grant Protections Removed
- Shoreline Treatment
- Construction Impact Area
- Fence Outside Limits of Construction
- New Water Pipe
- Existing CSO Storage
- New Combined Mainline
- SPU Combined Mainline
- SPU Drainage Mainline

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Henderson Basin 44 and 45 CSO Reduction Project

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REVISED PROPOSED PROJECT
BASIN 44 ELEMENTS
PARKING LOT ALTERNATIVE

OCTOBER 2013 | **FIGURE 2-7**

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2.3.2 Henderson Basin 45 Proposed Design Changes

Reduced Storage Volume and Changed Location

The primary change in design in Basin 45 would be the elimination of the underground storage tank, originally proposed to be placed under private property. The reduced Basin 45 storage volume of 16,000 gallons can be accommodated within a new underground storage pipe and associated maintenance holes. The storage volume in Basin 45 can be significantly reduced because the storage tank in Basin 44 was increased in size and the two basins would operate as a single system. This storage pipe would be an approximately 96-inch-diameter, precast, reinforced concrete pipe and would be approximately 40 feet long. The two maintenance holes, one at either end of the pipe, would be approximately 8 feet in diameter. The storage pipe and maintenance holes would be buried under the 57th Avenue South right-of-way near the CSO outfall and existing buried pump station (Pump Station 10). Its location would eliminate the need for the previously acquired private property and eliminate the conveyance improvements needed by the originally proposed storage tank.

The storage pipe would fill by gravity and drain by a float-actuated valve. Odor control, pumping, and flushing systems would no longer be required (see Table 2-1). SPU would operate and maintain the storage pipe similar to the numerous existing offline storage pipes that are installed throughout its combined sewer system. Eliminating the underground storage tank also would reduce the area of temporary disturbance by 0.6 acre (from 0.7 acre to approximately 0.1 acre), and would reduce construction duration from up to 18 months to approximately 4 to 6 months. See Figure 2-8 for the major Basin 45 elements of the revised proposed project.

Potential Addition of Temporary Energy Dissipation Structure

The method and location of dewatering discharge was not defined in the 2012 SEPA Environmental Checklist (SPU 2012a) due to limited information available at the conceptual design phase.

During preliminary design, the project team determined that a temporary energy dissipation structure may be required during construction for erosion control at the dewatering discharge location below the ordinary high watermark. Dewatering flows could run though a pipe into a settlement tank, where the water would be tested for compliance with water quality standards before being conveyed by a temporary discharge pipe to Lake Washington. No fill and dredge material would be placed in or removed from Lake Washington during the installation and removal of the temporary discharge pipe and energy dissipation structure. Because no material would be placed in or removed from Lake Washington during the installation and removal of the discharge pipe and energy dissipation structure, shoreline rehabilitation would not be required.

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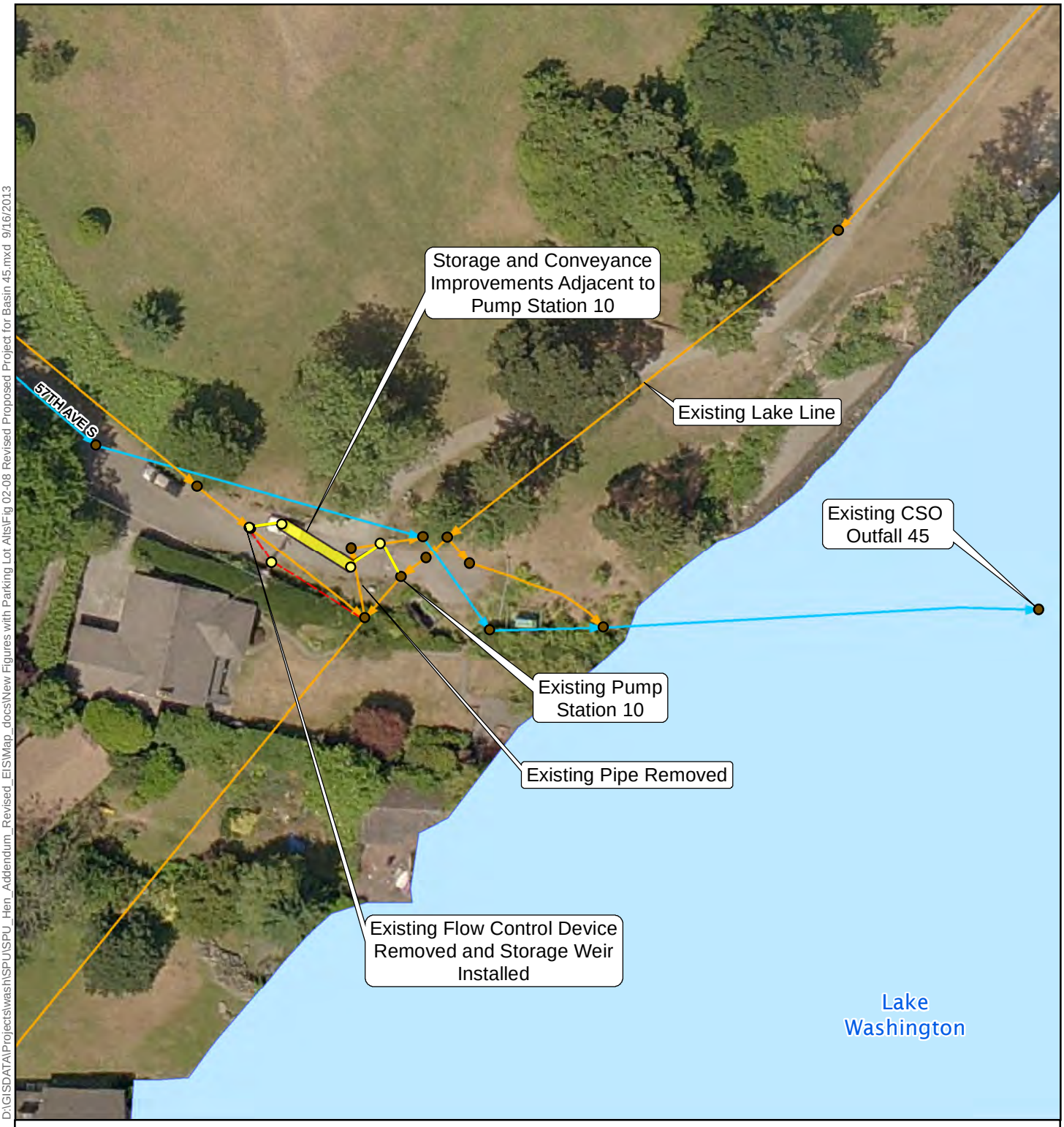

D:\GISDATA\Projects\wash\SPU\SPU_Hen_Addendum_Revised_EIS\Map_docs\New Figures with Parking Lot Alts\Fig 02-08 Revised Proposed Project for Basin 45.mxd 9/16/2013

Legend

- New Maintenance Holes
- Existing Maintenance Hole
- New Combined Mainline
- Relocated Combined Mainline
- SPU Combined Mainline
- SPU Drainage Mainline

N
W E
S

0 25 50 100 Feet

Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

REVISED PROPOSED PROJECT BASIN 45 ELEMENTS

OCTOBER 2013 | **FIGURE 2-8**

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2.3.3 Summary of Design Changes

Table 2-1 provides a summary comparison of the original and the revised major project elements and facilities, construction durations, and other parameters affecting the assessment of potential environmental impacts for Basin 44 and Basin 45. Updated environmental information based on the proposed design changes is described in Chapter 3.

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Table 2-1. Summary of Proposed Design Changes

PROJECT ELEMENT	ORIGINAL PROPOSAL[1]	REVISED PROPOSAL[1]
Approximate Storage Capacity	Basin 44 storage tank: 2.4 million gallons	Basin 44 storage tank: 2.65 million gallons
	Basin 45 storage tank: 200,000 gallons	Basin 45 storage pipe: 16,000 gallons
Approximate Dimensions of Storage Facility	Basin 44 storage tank exterior dimensions: • Tennis Courts Alternative: 390 feet long, 50 feet wide, and 30 feet deep • Parking Lot Alternative: 375 feet long, 50 feet wide, and 30 feet deep	Basin 44 storage tank exterior dimensions: 315 feet long, 60 feet wide, and 30 feet deep
	Basin 45 storage tank exterior dimensions: 72 feet long, 50 feet wide, and 24 feet deep	Basin 45 storage pipe: 40 feet long and 96 inches in diameter
Approximate Exterior Dimensions of Facilities Vault	Basin 44: 35 feet long, 50 feet wide, and 20 feet deep	Basin 44: 33 feet long, 60 feet wide, 20 feet deep
	Basin 45: 28 feet long, 50 feet wide, and 12 feet deep	Basin 45: Facilities vault not required because the change to a storage pipe would eliminate the need for the odor control system, flushing system, and other electrical/mechanical equipment.
Odor Control System	Basin 44: The system would maintain a slight negative air pressure to draw air from the tank and treat it	Basin 44: No change
	Basin 45: The system would maintain a slight negative air pressure to draw air from the tank and treat it	Basin 45: Odor control system not required; SPU would operate and maintain the storage pipe similar to existing offline storage pipes in the SPU system.
Flushing System	Basin 44: The system includes tipping buckets and associated water piping to flush the tank after each use	Basin 44: No change
	Basin 45: The system includes tipping buckets and associated water piping to flush the tank after each use	Basin 45: Flushing system not required; SPU would operate and maintain the storage pipe similar to existing offline storage pipes in the SPU system.

[1] Original and revised proposals for Basin 44 are for both the Tennis Courts Alternative and Parking Lot Alternative unless indicated otherwise.

PROJECT ELEMENT	ORIGINAL PROPOSAL[1]	REVISED PROPOSAL[1]
Approximate Dimensions of Aboveground and At-Grade Features	Basin 44: • Electrical cabinet (3 feet long by 1.5 feet wide by 6 feet high) • Two HVAC air intakes (3 feet long by 3 feet wide by 2 feet high) • Two HVAC air exhausts (3 feet long by 3 feet wide by 2 feet high) • Odor control exhaust (3 feet long by 3 feet wide by 2 feet high) • Reduced pressure backflow assembly enclosure (2.5 feet long by 1 foot wide by 1.5 feet high) • Access hatches to the tank and facilities vault • Maintenances holes • For the Tennis Courts Alternative, maintenance access via the tennis courts • Other details to be developed as design progresses	Basin 44: • Electrical cabinet (2 feet long by 4 feet wide by 7.5 feet high) • HVAC air intake vent grate – at-grade grate (4 feet long by 4 feet wide) • HVAC air exhaust and odor control exhaust vent grate – shared at-grade grate (6 feet long by 4 feet wide) • Reduced pressure backflow assembly enclosure – no change • Access hatches to the tank and facilities vault – no change • Maintenance holes – no change • For the Tennis Courts Alternative, extension of the pavement approximately15 feet to the east of the tennis courts to allow SPU maintenance vehicles to access the storage tank and facilities vault and to allow Parks maintenance vehicles access beyond the tennis courts, without disrupting use of the tennis courts. • An 8-inch-diameter gooseneck for odor control air ducting • Seattle City Light meter cabinet (5 feet long by 2 feet wide by 5 feet high) • Irrigation control cabinet (1 foot long by 1 foot wide by 2.5 feet high) • An enclosure containing a motor actuator for Storage Tank Isolation Gate (4.5 feet long by 3.5 feet wide by 3.5 feet high) for the Tennis Courts Alternative; motor actuator would be located below ground for the Parking Lot Alternative • An enclosure containing a motor actuator for Lake Line Control Gate (4.5 feet long by 3.5 feet wide by 3.5 feet high) for the Tennis Courts Alternative; motor actuator would be located below ground for the Parking Lot Alternative

PROJECT ELEMENT	ORIGINAL PROPOSAL[1]	REVISED PROPOSAL[1]
	Basin 45: • Electrical cabinet (6 feet long by 2 feet wide by 6 feet high) • Two HVAC air intakes (3 feet long by 3 feet wide by 2 feet high) • One HVAC air exhaust (3 feet long by 3 feet wide by 2 feet high) • One odor control exhaust (3 feet long by 3 feet wide by 2 feet high) • Reduced pressure backflow assembly enclosure (2.5 feet long by 1 foot wide by 2 feet high) • Access hatches to the tank and facilities vault • Maintenances holes	Basin 45: • No new aboveground features associated with storage pipe; an existing aboveground electrical cabinet would be re-used with concrete pad improvements. • Maintenance holes
Conveyance Improvements	Basin 44: • Approximately 250 feet of 36- to 48-inch-diameter gravity pipe and 30 feet of 12-inch-diameter force main for Tennis Courts Alternative • Approximately 675 feet of 36-inch-diameter gravity pipe and 625 feet of 18-inch-diameter force main for the Parking Lot Alternative	Basin 44: • No change
	Basin 45: Approximately 525 to 575 feet of 10- and 12-inch-diameter pipe	Basin 45: Approximately 30 feet of 8-, 10-, 12-, and 24-inch-diameter pipe
CSO Outfall 44 Replacement in Lake Washington	Replace existing outfall with 24-inch-diameter gravity pressure pipe approximately 810 feet long	No change
Shoreline Treatment	SPU has two potential options on how the Basin 44 shoreline could be restored after construction of the storage tank: • Retain shoreline in its current state with the existing bulkhead and plant the area between the tank and the lake with lawn and upland and native landscaping, or • Remove the existing bulkhead and construct a new, rounded-gravel beach, with native beach and upland landscaping shoreward and large woody debris or other features anchored in the water to provide cover for fish. Between the beach and the new storage tank, install a new wall made of stone, concrete, or similar material to protect the tank and the tennis courts or parking lot (depending on the alternative) from wave action. Install a new stone wall.	No change

PROJECT ELEMENT	ORIGINAL PROPOSAL[1]	REVISED PROPOSAL[1]
UPARR Conversion and Replacement Area	Two small areas proposed for conversion in Seward Park (total of approximately 3,850 square feet) would lose protection under the NPS UPARR grant program. The UPARR replacement area (approximately 21,300 square feet) would be located near the intersection of Lake Washington Boulevard South and 53rd Avenue South that would include landscape enhancements	No change
Stormwater Treatment	Basin 44: Design to meet City of Seattle Stormwater Code requirements.	Basin 44: No change
	Basin 45: Design to meet City of Seattle Stormwater Code requirements.	Basin 45 proposed revised project would not trigger the following requirements per the City of Seattle Stormwater Code: • Water quality treatment would not be required because the stormwater runoff would not discharge to a combined sewer system, the total new plus replaced pollution-generating impervious surface would be less than 5,000 square feet, and the total new plus replaced pollution-generating pervious surface would be less than 0.75 acre. (SMC 22.805.060B) • Green stormwater infrastructure would not be required because the land disturbing activity would be less than 7,000 square feet, and the total new plus replaced impervious surface would be less than 2,000 square feet. (SMC 22.805.020F) • Flow control would not be required because stormwater would discharge to Lake Washington, which is a designated receiving water. (SPU Stormwater Manual, Volume 3, Section 2.3 and Appendix A)
Property Acquisition	Basin 45: Acquisition of a residential private property required for the storage tank site.	Basin 45: No property acquisition required; storage pipe and conveyance improvements located in street right of way.
Construction Duration	Basin 44: Up to 30 months	Basin 44: No change
	Basin 45: Up to 18 months	Basin 45: Up to 6 months
Approximate Area of Temporary Disturbance	Basin 44: 2.5 acres	Basin 44: No change
	Basin 45: 0.7 acre	Basin 45: 0.1 acre

3 Updated Environmental Information

3.1 Introduction

This chapter describes how, and to what extent, the proposed design changes would alter the potential environmental impacts described previously in the 2013 Final EIS and Revised Final EIS for the Henderson Basin 44 CSO Reduction Project (SPU 2013a; SPU 2013b) or in the 2012 SEPA Environmental Checklist for the Henderson Basin 45 CSO Reduction Project (SPU 2012a).

In Basin 44, changes to the potential environmental impacts are the same for both the Tennis Courts Alternative and the Parking Lot Alternative.

3.2 Henderson Basin 44 Environmental Analysis

An analysis was conducted to determine whether any impacts previously described for the originally proposed project for Basin 44 would change as a result of the proposed design changes.

3.2.1 Environmental Elements with No Changed Effects

Proposed design changes would not substantially increase or change:

- the size or location of areas of temporary disturbance
- the overall footprint of the installed facilities
- post-construction restoration
- UPARR grant conversion and replacement areas
- construction techniques or logistics
- the estimated duration of construction
- the type or frequency of operations and maintenance activities after construction
- the sizing or design of the required odor control system

For these reasons, there would be no increased effects from those reported in the 2013 Final EIS (SPU 2013a) for recreation, cultural resources, habitat, wildlife, fish, transportation, air quality, odor, greenhouse gas emissions/climate change, geology (including construction-related vibration), land and shoreline uses, construction-related noise, public services and utilities, environmental hazards, energy and natural resources, light, glare, or environmental justice. Table 3-3 shows the quantitative environmental impacts on geology, air quality, odor, greenhouse gas emissions/climate change, and energy and natural resources.

3.2.2 Aesthetics

The area containing the aboveground project components would remain at approximately 750 square feet, but some of the types and sizes of the aboveground components would change from the originally proposed project as described in Section 2.3. The biggest change related to aesthetics would be the increase in height of the electrical cabinet, from 6 feet to 7.5 feet. SPU still would revegetate the disturbed area and likely screen the aboveground features with vegetation, as described in the 2013 Final EIS. The landscaping plan would be developed in consultation with Seattle Parks during final design.

3.2.3 Noise

In the 2013 Revised Final EIS (SPU 2013b), SPU established project design criteria for operational noise as described below. These design criteria are specific to the circumstances of this project, such as the Seward Park location, the buried facility design, the proximity to adjoining residential properties, the proximity to park users, the existing noise levels, and other details, and should not be construed to apply to any other CSO reduction, SPU, or City project.

- **Daytime Design Criterion for Residences and Park Users:** This design criterion applies to nearby residences, park users at key sensitive park sites discussed in the 2013 Final EIS (i.e., tennis courts, Picnic Shelter 1, play area, and Audubon Center), as well as park users participating in active and passive park activities elsewhere in the park. This design criterion is a modeled noise increase of no more than 5 dBA (A-weighted decibel) over the documented existing daytime noise levels.
- **Daytime Design Criterion for Transitory Park Users:** This design criterion applies to park users who are not engaged in active or passive park activities, but rather are in transition from parking lots to areas in the park where they would engage in active or passive park activities. This design criterion is to ensure the model-predicted noise levels that would be experienced by transitory park users in the immediate vicinity of the intake/exhaust vents and Lake Line Control Gate and Storage Tank Isolation Gate actuators are roughly equivalent to or lower than the strictest noise limit in the City's noise code (55 dBA during the day).
- **Nighttime Design Criterion for Residences:** This design criterion applies to the residential property lines adjacent to the park at night. The park is closed at night, so this criterion does not apply to park users. This design criterion is a modeled noise increase of no more than 5 dBA over the documented existing nighttime noise levels.

- **Design Criterion for Tones:** This design criterion is that no audible prominent discrete tones would be present. Prominent discrete tones are discrete-frequency sounds that stand out from other sounds and have the potential to cause annoyance. This design criterion translates into the following thresholds, which vary depending on the frequency band:
    - **Low frequency 1/3 octave bands (25 Hz to 125 Hz):** The sound level would be less than 15 dBA higher than the adjacent frequency bands.
    - **Middle frequency 1/3 octave bands (160 Hz to 400 Hz):** The sound level would be less than 8 dBA higher than the adjacent frequency bands.
    - **High frequency 1/3 octave bands (500 Hz to 10,000 Hz):** The sound level would be less than 5 dBA higher than the adjacent frequency bands.

Although the tank size increased, the noise-generating elements shown in the 2013 Revised Final EIS (SPU 2013b) did not increase in size. These elements include odor control fans, pumps, and ventilation fans. The odor control system including the fans did not change as it is based on air leakage into the tank from the hatches, and the hatches did not change. The pumps that empty the tank after an event are sized based on available capacity of the downstream system, which did not change. The sizes of the ventilation fans did not change because the footprint of the facilities vault is essentially the same size as originally proposed.

The revised proposed project includes two motor-operated gates in Basin 44 that were not part of the originally proposed project; the two gates are the Lake Line Control Gate and the Storage Tank Isolation Gate. These gates have motor actuators that drive the movement of the gates. For the Tennis Courts Alternative, the motor actuators for both gates would be located aboveground and would be enclosed in noise-reducing enclosures; see Figure 2-6 for the gate locations for this alternative. For the Parking Lot Alternative, the motor actuators for both gates would be located underground and outside of the Parking Lot Alternative UPARR area; see Figure 2-7 for the gate locations for this alternative.

- **Lake Line Control Gate:** This gate would operate intermittently for approximately 20 seconds at a time approximately 16 times per year during each storm event that typically results in the storage tank being filled. The intermittent operation of the gate typically would last between two hours and two days during each of the 16 events.
- **Storage Tank Isolation Gate:** This gate would operate twice during the approximately one large storm event per year. This corresponds to the one overflow event per year that would occur when the tank is full, and the gate would close to shut off flow to the storage tank. The gate would open at the end of the event when the tank would drain to free up the tank's storage volume.

The noise model developed for the 2013 Revised Final EIS (SPU 2013b) was modified to include the new gates and actuators. See Figure 3-1 for the noise monitoring and receptor locations used in the model. The results of the modeling effort are shown in Table 3-1 and Table 3-2 and in Figure 3-2 and Figure 3-3 for the Tennis Courts Alternative and Figure 3-4 and Figure 3-5 for the Parking Lot Alternative. As shown in the tables and figures, the project noise, including addition of the motor actuators, meets the noise design criteria. Conclusions from the noise analysis are as follows:

- The acoustic modeling for noise levels shows no modeled increase to existing daytime noise levels at residences and key sensitive park sites discussed in the 2013 Final EIS (i.e., tennis courts, Picnic Shelter 1, play area, and Audubon Center), as well as for park users participating in active and passive activities elsewhere in the park. This is true for both the Tennis Courts Alternative and Parking Lot Alternative. This result meets the Daytime Design Criterion for Residences and Park Users, which is a modeled noise increase of no more than 5 dBA over the existing daytime noise levels documented in Table 3-1 and Table 3-2.
- The acoustic modeling for noise levels shows that the highest noise level at park transition areas is 54 dBA for the Tennis Courts Alternative and 51 dBA for the Parking Lot Alternative. These are the levels in the immediate vicinity of the air intake and exhaust vents in or adjacent to parking lots. Additionally, acoustic modeling for noise levels predicts that noise levels in the immediate vicinity of the Lake Line Control Gate and Storage Tank Isolation Gate actuators is 43 dBA for the Tennis Courts Alternative and 41 dBA for the Parking Lot Alternative. These results meet the Daytime Design Criterion for Transitory Park Users, which is to ensure that the model-predicted noise levels that would be experienced by transitory park users (people who are transitioning from parking their cars to other park areas) in the immediate vicinity of the exhaust intake/exhaust vents and actuators are roughly equivalent to or lower than the strictest noise limit in the code (55 dBA during the day). Also as noted earlier, this design criterion, which is less restrictive than the Daytime Design Criterion for Residences and Park Users, is appropriate because park users do not expect noise levels to be quiet for transitory areas such as in or near parking lots, compared to areas where park users engage in active or passive park activities.
- The acoustic modeling for noise levels shows no modeled increase to existing nighttime noise levels at the residential property lines, except at two receptors for the Tennis Courts Alternative. Receptors 3 and 4 are anticipated to have a modeled increase of 1 dBA at the property line, resulting in a total expected noise level of 24 dBA. This result meets the Nighttime Design Criterion for Residences, which is a modeled noise increase of no more than 5 dBA over the existing nighttime noise levels.

- The tonal analysis conducted for the 2013 Final EIS concluded that while it is uncertain whether the facility would produce prominent discrete tones, if they were generated the noise controls incorporated into the facility design are expected to reduce any potential discrete tones to below audible levels, therefore meeting the design criteria of no audible prominent discrete tones. The addition of the Lake Line Control Gate and Storage Tank Isolation Gate actuators does not change the conclusion from the tonal analysis since the most likely source of prominent discreet tones is from the loudest fan, not the actuators.

Table 3-1. Noise Analysis Results for Tennis Courts Alternative

Receptor	Average Noise Level (dBA) [d] (day/night [c])			
	Modeled Existing Noise [a]	Model-Predicted Project-Generated Noise	Model-Predicted Total Noise	Model-Predicted Increase over Existing Noise
R1 Residence [b]	37/23	16/10	37/23	0/0
R2 Residence [b]	37/23	19/13	37/23	0/0
R3 Residence [b]	37/23	21/15	37/24	0/1
R4 Residence [b]	42/23	22/14	42/24	0/1
R5 Residence [b]	42/23	20/12	42/23	0/0
R6 Residence [b]	42/23	17/10	42/23	0/0
R7 Residence [b]	42/23	16/12	42/23	0/0
R8 Residence [b]	37/23	14/9	37/23	0/0
R9 Residence [b]	37/23	12/8	37/23	0/0
R10 Residence [b]	37/23	11/7	37/23	0/0
R11 Tennis Courts	42/NA	29/NA	42/NA	0/NA
R12 Audubon Center	37/NA	19/NA	37/NA	0/NA
R13 Playground	37/NA	21/NA	37/NA	0/NA
R14 Picnic Shelter	37/NA	18/NA	37/NA	0/NA
R15 Beach Between Parking Lots 1 and 2	37/NA	23/NA	37/NA	0/NA
R16 Beach East of Parking Lot 2	46/NA	12/NA	46/NA	0/NA
R17 Air Exhaust Vent for Tennis Courts Alternative	37/NA	54/NA	54/NA	17/NA
R18 Air Intake Vent for Tennis Courts Alternative	37/NA	48/NA	48/NA	11/NA
R20 Lake Line Control Gate and the Storage Tank Isolation Gate	37/NA	42/NA	43/NA	6/NA

Note a: Daytime levels from nearest representative daytime monitoring location; nighttime levels from nighttime monitoring location.

Note b: Receptor at residential property line.

Note c: Seward Park facilities are closed at night, so the nighttime noise levels at Receptors R11 through R18 are not applicable (NA).

Note d: The average noise level specifically refers to the equivalent-continuous noise level (Leq).

Table 3-2. Noise Analysis Results for Parking Lot Alternative

Receptor	Average Noise Level (dBA) [d] (day/night [c])			
	Modeled Existing Noise [a]	Model-Predicted Project-Generated Noise	Model-Predicted Total Noise	Model-Predicted Increase over Existing Noise
R1 Residence [b]	37/23	12/5	37/23	0/0
R2 Residence [b]	37/23	12/6	37/23	0/0
R3 Residence [b]	37/23	12/7	37/23	0/0
R4 Residence [b]	42/23	13/9	42/23	0/0
R5 Residence [b]	42/23	13/8	42/23	0/0
R6 Residence [b]	42/23	12/7	42/23	0/0
R7 Residence [b]	42/23	12/7	42/23	0/0
R8 Residence [b]	37/23	12/6	37/23	0/0
R9 Residence [b]	37/23	11/5	37/23	0/0
R10 Residence [b]	37/23	11/4	37/23	0/0
R11 Tennis Courts	42/NA	17/NA	42/NA	0/NA
R12 Audubon Center	37/NA	15/NA	37/NA	0/NA
R13 Playground	37/NA	16/NA	37/NA	0/NA
R14 Picnic Shelter	37/NA	18/NA	37/NA	0/NA
R15 Beach Between Parking Lots 1 and 2	37/NA	16/NA	37/NA	0/NA
R16 Beach East of Parking Lot 2	46/NA	28/NA	46/NA	0/NA
R19 Air Intake and Exhaust Vents for Parking Lot Alternative	46/NA	49/NA	51/NA	5/NA
R20 Lake Line Control Gate and the Storage Tank Isolation Gate	37/NA	39/NA	41/NA	4/NA

Note a: Daytime levels from nearest representative daytime monitoring location; nighttime levels from nighttime monitoring location.

Note b: Receptor at residential property line.

Note c: Seward Park facilities are closed at night, so the nighttime noise levels at Receptors R11 through R19 are not applicable (NA).

Note d: The average noise level specifically refers to the equivalent-continuous noise level (Leq).

3.2.4 Water Resources

The proposed design changes would require work in and adjacent to Lake Washington with the possible installation and removal of a temporary discharge pipe and energy dissipation structure. Clean dewatering water would enter a discharge pipe that would run aboveground and terminate at the shoreline of Lake Washington below the ordinary high watermark at the temporary energy dissipation structure. The structure would prevent the dewatering discharge from causing erosion along the Lake Washington shoreline. No fill or dredge material would be placed in or removed from Lake Washington during the installation and removal of the dewatering discharge pipe and energy dissipation structure.

3.3 Henderson Basin 45 Environmental Analysis

An analysis was conducted to determine whether any impacts previously described for the originally proposed project in Basin 45 would change as a result of the proposed design changes and, if so, whether those impacts are within the range of those identified previously or, if applicable, would be less, or less likely, to occur.

Elimination of the originally proposed storage tank, facilities vault, and corresponding equipment and conveyance would reduce or eliminate many impacts in the project area, primarily due to the significant reduction in the area of disturbance and the shortening of the construction duration by at least 12 months. SPU determined that the revised proposed project would have substantially lower impact on the following environmental elements:

- Earth
- Air
- Water
- Plants
- Animals
- Energy and Natural Resources
- Environmental Health
- Land and Shoreline Use
- Housing
- Aesthetics
- Light and Glare
- Recreation
- Historic and Cultural Preservation
- Transportation
- Public Services
- Utilities

Table 3-3 shows the quantitative reductions in environmental impacts on earth, air, and transportation that would result from the proposed design changes, compared to those of the originally proposed project.

Additional notable changes to the analysis included in the 2012 SEPA Environmental Checklist are related to the possible addition of a temporary energy dissipation structure and change in stormwater treatment and control approach for the revised proposed project.

The proposed design changes would require work in and adjacent to Lake Washington with the possible installation and removal of the temporary discharge pipe and energy dissipation structure. Clean dewatering water would enter a discharge pipe that would run aboveground and terminate at the shoreline of Lake Washington below the ordinary high watermark at the temporary energy dissipation structure. The structure would prevent the dewatering discharge from causing erosion along the Lake Washington shoreline. No fill or dredge material would be placed in or removed from Lake Washington during the installation and removal of the dewatering discharge pipe and energy dissipation structure.

The stormwater treatment and control approach also would change with the proposed design changes. After construction, the originally proposed project would have triggered the following City of Seattle Stormwater Code requirements: water quality treatment and green stormwater infrastructure to the maximum extent feasible. The revised proposed project does not trigger these stormwater requirements because the new storage pipe would be installed under existing pavement:

- Water quality treatment would not be required because the stormwater runoff would not discharge to a combined sewer system, the total new plus replaced pollution-generating impervious surface would be less than 5,000 square feet, and the total new plus replaced pollution-generating pervious surface would be less than 0.75 acre. (SMC 22.805.060B)
- Green stormwater infrastructure would not be required because the land disturbing activity would be less than 7,000 square feet, and the total new plus replaced impervious surface would be less than 2,000 square feet. (SMC 22.805.020F)

Table 3-3. Comparison of the Original and Revised Proposals

ENVIRONMENTAL ELEMENT	IMPACT CATEGORY	ESTIMATED IMPACT OF ORIGINAL PROPOSAL	ESTIMATED IMPACT OF REVISED PROPOSAL	NET CHANGE IN IMPACTS FOR BASIN 44 AND BASIN 45
Earth/Geology	Excavation Quantity	• Basin 44 storage tank, facilities vault, and conveyance improvements: Approximately 44,400 cubic yards • Basin 45 storage tank and facilities vault: Approximately 5,200 cubic yards • Basin 45 conveyance improvements along 57th Avenue South: Approximately 2,300 cubic yards	• Basin 44 storage tank, facilities vault, and conveyance improvements: Approximately 44,400 cubic yards • Basin 45 storage and conveyance improvements along 57th Avenue South: Approximately 700 cubic yards	6,800 cubic yards less excavation
	Fill Quantity	• Basin 44 storage tank, facilities vault, and conveyance improvements: Approximately 3,700 cubic yards • Basin 45 storage tank and facilities vault: Approximately 800 cubic yards • Basin 45 conveyance improvements along 57th Avenue South: Approximately 2,200 cubic yards	• Basin 44 storage tank, facilities vault, and conveyance improvements: Approximately 3,700 cubic yards • Basin 45 storage and conveyance improvements along 57th Avenue South: Approximately 500 cubic yards	2,500 cubic yards less fill
	Net Increase in Impervious Surface	• Basin 44: 5,500 square feet for Tennis Courts Alternative; 0 square feet for Parking Lot Alternative • Basin 45: 200 square feet	• Basin 44: 7,900 square feet for the Tennis Courts Alternative; 0 square feet for the Parking Lot Alternative • Basin 45: 0 square feet	2,200 square feet increase in impervious surface for the Tennis Courts Alternative 200 square feet less in impervious surface for the Parking Lot Alternative
Air/Air Quality, Odor, and Climate Change	Greenhouse Gas Emissions by Emission Type	• Basin 44 Buildings: 35,439 metric tons equivalent carbon dioxide • Basin 45 Buildings: 8,033 metric tons equivalent carbon dioxide	• Basin 44 Buildings: 35,439 metric tons equivalent carbon dioxide • Basin 45 Buildings: 1,183 metric tons equivalent carbon dioxide	Buildings: 6,850 fewer metric tons equivalent carbon dioxide

ENVIRONMENTAL ELEMENT	IMPACT CATEGORY	ESTIMATED IMPACT OF ORIGINAL PROPOSAL	ESTIMATED IMPACT OF REVISED PROPOSAL	NET CHANGE IN IMPACTS FOR BASIN 44 AND BASIN 45
		• Basin 44 Pavement: 490 metric tons equivalent carbon dioxide • Basin 45 Pavement: 350 metric tons equivalent carbon dioxide	• Basin 44 Pavement: 490 metric tons equivalent carbon dioxide • Basin 45 Pavement: 210 metric tons equivalent carbon dioxide	Pavement: 140 fewer metric tons equivalent carbon dioxide
		• Basin 44 Construction: 2,290 metric tons equivalent carbon dioxide • Basin 45 Construction: 563 metric tons equivalent carbon dioxide	• Basin 44 Construction: 2,290 metric tons equivalent carbon dioxide • Basin 45 Construction: 96 metric tons equivalent carbon dioxide	Construction: 467 fewer metric tons equivalent carbon dioxide
		• Basin 44 Annual O&M: 0.06 metric tons equivalent carbon dioxide • Basin 45 Annual O&M: 0.15 metric tons equivalent carbon dioxide	• Basin 44 Annual O&M: 0.06 metric tons equivalent carbon dioxide • Basin 45 Annual O&M: 0.08 metric tons equivalent carbon dioxide	Annual O&M: 0.07 fewer metric tons equivalent carbon dioxide
Transportation/ Energy and Natural Resources	Vehicular Trips during Construction	• Basin 44 Truck Trips (e.g., semi trucks, dump trucks, concrete pumper trucks): 5,500 • Basin 45 Truck Trips (e.g., semi trucks, dump trucks, concrete pumper trucks): 1,690	• Basin 44 Truck Trips (e.g., semi trucks, dump trucks, concrete pumper trucks): 5,500 • Basin 45 Truck Trips (e.g., semi trucks, dump trucks, concrete pumper trucks): 200	Truck Trips (e.g., semi trucks, dump trucks, concrete pumper trucks): 1,490 fewer
		• Basin 44 Service Work Truck and Van Trips: 4,300 • Basin 45 Service Work Truck and Van Trips: 1,644	• Basin 44 Service Work Truck and Van Trips: 4,300 • Basin 45 Service Work Truck and Van Trips: 550	Service Work Truck and Van Trips: 1,094 fewer
		• Basin 44 Contractor Employee Vehicles: 8,600 • Basin 45 Contractor Employee Vehicles: 5,480	• Basin 44 Contractor Employee Vehicles: 8,600 • Basin 45 Contractor Employee Vehicles: 1,830	Contractor Employee Vehicles: 3,650 fewer
	Vehicular Trips After Construction (Routine Operations and Maintenance)	• Basin 44: One vehicle trip four times per year • Basin 45: One vehicle trip four times per year	• Basin 44: One vehicle trip four times per year • Basin 45: One vehicle trip two times per year	Two fewer vehicle trips per year.

3.4 Required Approvals and Permits

Table 3-4 provides a list of permits required for the revised proposal due to the elimination of the storage tank and addition of the storage pipe and in-water work associated with the potential temporary energy dissipation structures in Basin 44 and Basin 45.

Table 3-4. List of Permits Required for Revised Proposal

AGENCY/JURISDICTION	PERMIT/APPROVAL
FEDERAL	
National Park Service (NPS)	• UPARR Grant Amendment for Partial Conversion • Memorandum of Agreement (NPS, DAHP, Seattle Parks, and SPU) • National Environmental Policy Act Compliance
U.S. Army Corps of Engineers (Corps)	• Rivers and Harbors Act Section 10/Clean Water Act Section 404 Permit(s)
U.S. Fish and Wildlife Service/National Marine Fisheries Service	• Section 7 Endangered Species Act (ESA) Compliance and Magnuson-Stevens Fishery Conservation and Management (MSFCM) Act Compliance[1]
STATE	
Washington Department of Ecology	• Facility Plan Approval • NPDES Construction Stormwater General Permit (CSGP) • Clean Water Act Section 401 Water Quality Certification[1] • Coastal Zone Consistency Determination[1]
Washington Department of Fish and Wildlife	• Hydraulic Project Approval(s)
Washington Department of Archaeology and Historic Preservation (DAHP)	• Section 106 National Historic Preservation Act (NHPA) Consultation Review(s)[2]
LOCAL	
Seattle City Council	• Initiative 42 Approval (Park Lands Conversion) • Partial Transfer of Jurisdiction via Ordinance • Type V Council Land Use Decision
Seattle Department of Planning and Development	• Type V Council Land Use Decision – Concept Approval for City Facility[3] • Master Use Permit II – SEPA Conditioning Approval[3] • Master Use Permit II – Shoreline Substantial Development Permit(s)[3] • Construction Permit(s) • Electrical Permit(s) • Side Sewer Permit(s) • Mechanical Permit(s)
Seattle Design Commission	• Project Review
Seattle Department of Transportation	• Street Use Permit(s) • Street Improvement Permit

AGENCY/JURISDICTION	PERMIT/APPROVAL
Seattle Department of Parks and Recreation	• Partial Transfer of Jurisdiction (PTOJ) • Revocable Use Permit(s)
Seattle Public Utilities	• Environmentally Critical Areas (ECA) Exemption(s) • State Environmental Policy Act (SEPA) Compliance
Public Health – Seattle & King County	• Health Permit(s) (Air Gap) • Plumbing Permit(s)
King County Industrial Waste Program	• Industrial Waste Discharge Permit

[1]These may be reviewed as part of a Corps Permit.

[2]The Corps and the NPS will conduct NHPA 106 consultation.

[3]Applications processed concurrently.

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Legend

- Monitoring Location
- Modeled Receptor
- Proposed Underground Storage Tank

0 100 200 400 Feet

N W E S

Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

NOISE MONITORING AND RECEPTOR LOCATIONS

OCTOBER 2013 | **FIGURE 3-1**

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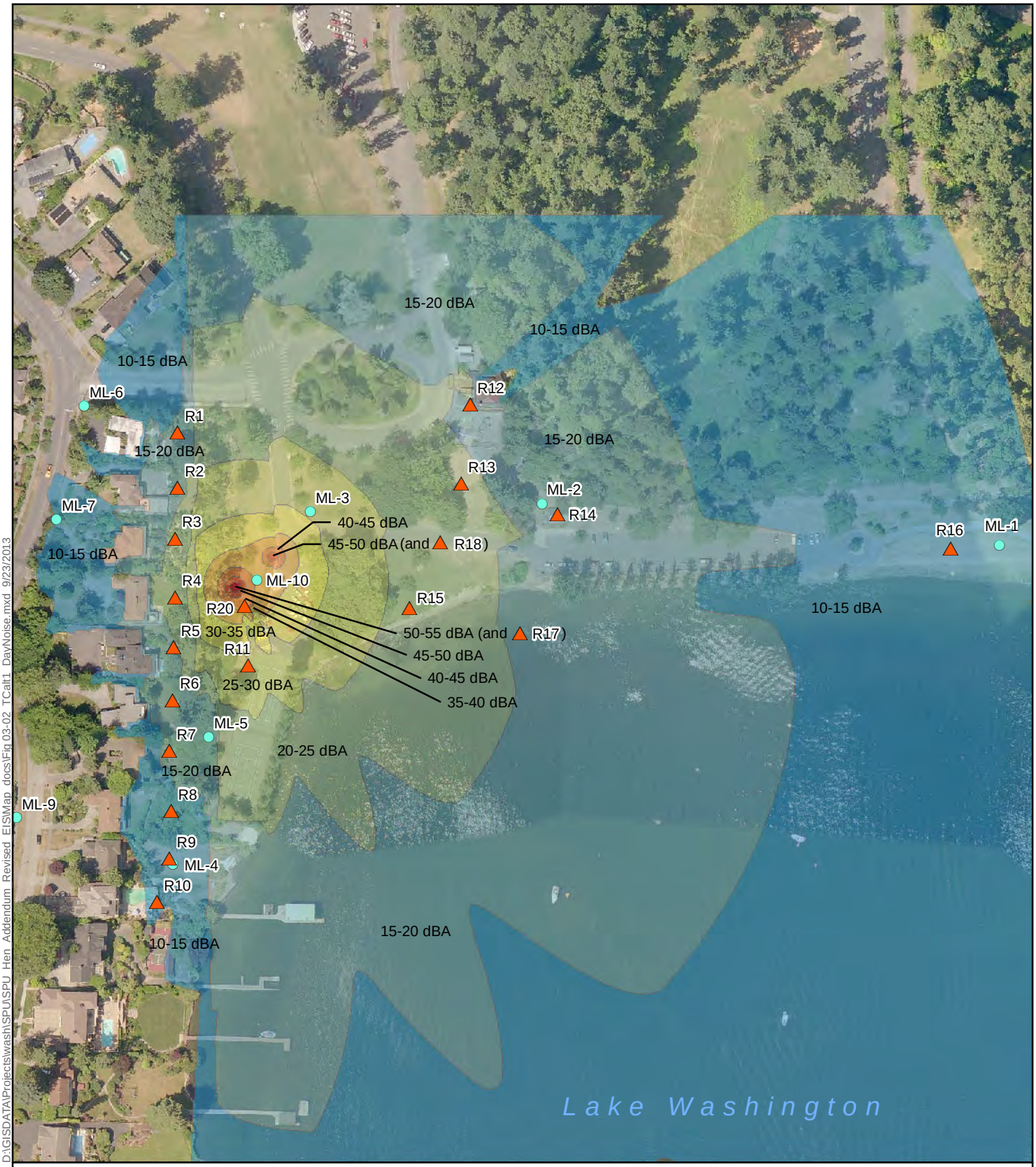

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Legend

	dBA		
Monitoring Location	10-15	25-30	40-45
Modeled Receptor	15-20	30-35	45-50
	20-25	35-40	50-55

0 50 100 200 300 Feet

N W E S

Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

MODEL-PREDICTED DAYTIME PROJECT-GENERATED NOISE FOR TENNIS COURTS ALTERNATIVE

OCTOBER 2013 | **FIGURE 3-2**

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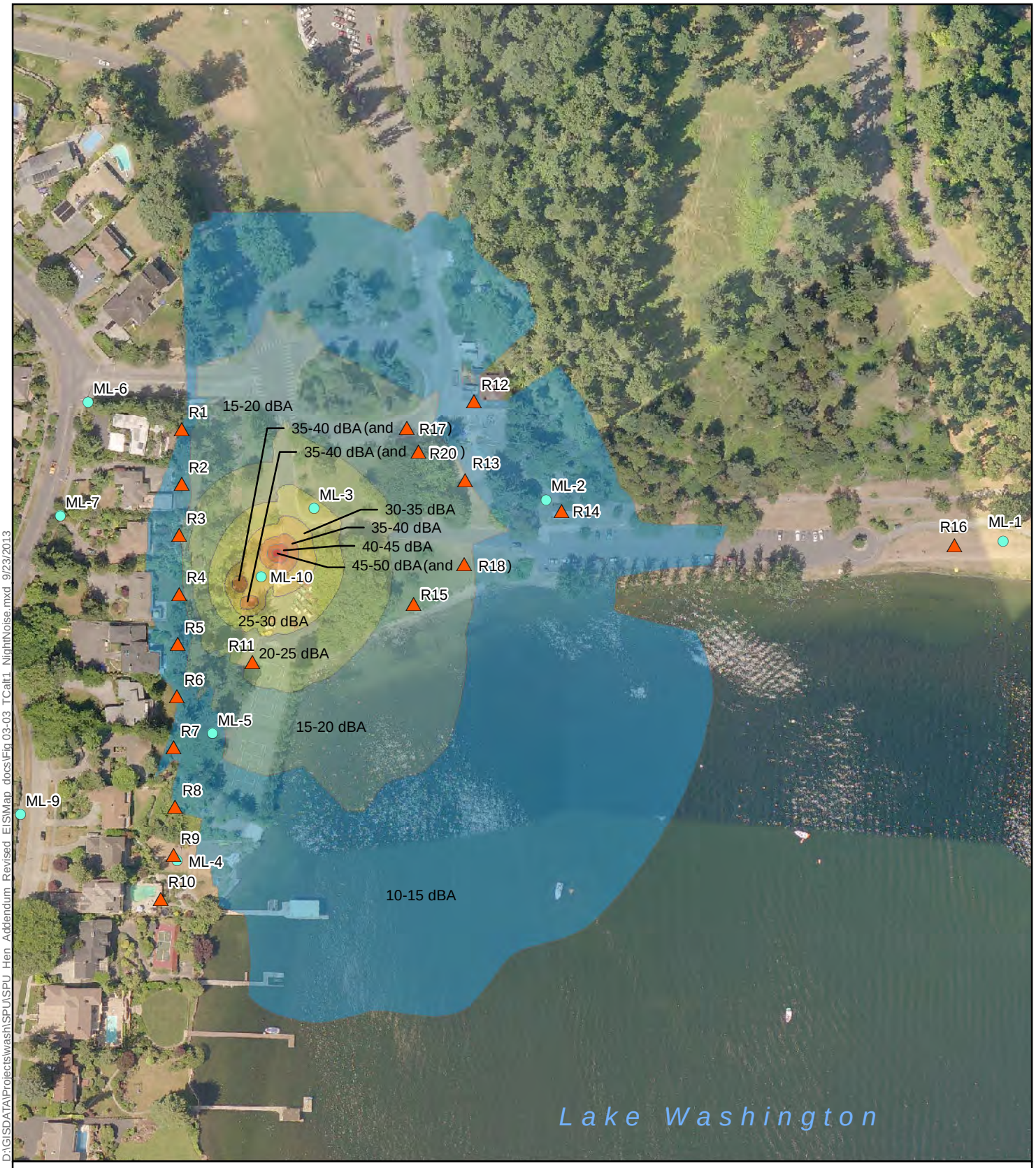

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Legend

- Monitoring Location
- Modeled Receptor

dBA

10-15	25-30	40-45	
15-20	30-35	45-50	
20-25	35-40		

0 50 100 200 300 Feet

N W E S

Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

MODEL-PREDICTED NIGHTTIME PROJECT-GENERATED NOISE FOR TENNIS COURTS ALTERNATIVE

OCTOBER 2013 | **FIGURE 3-3**

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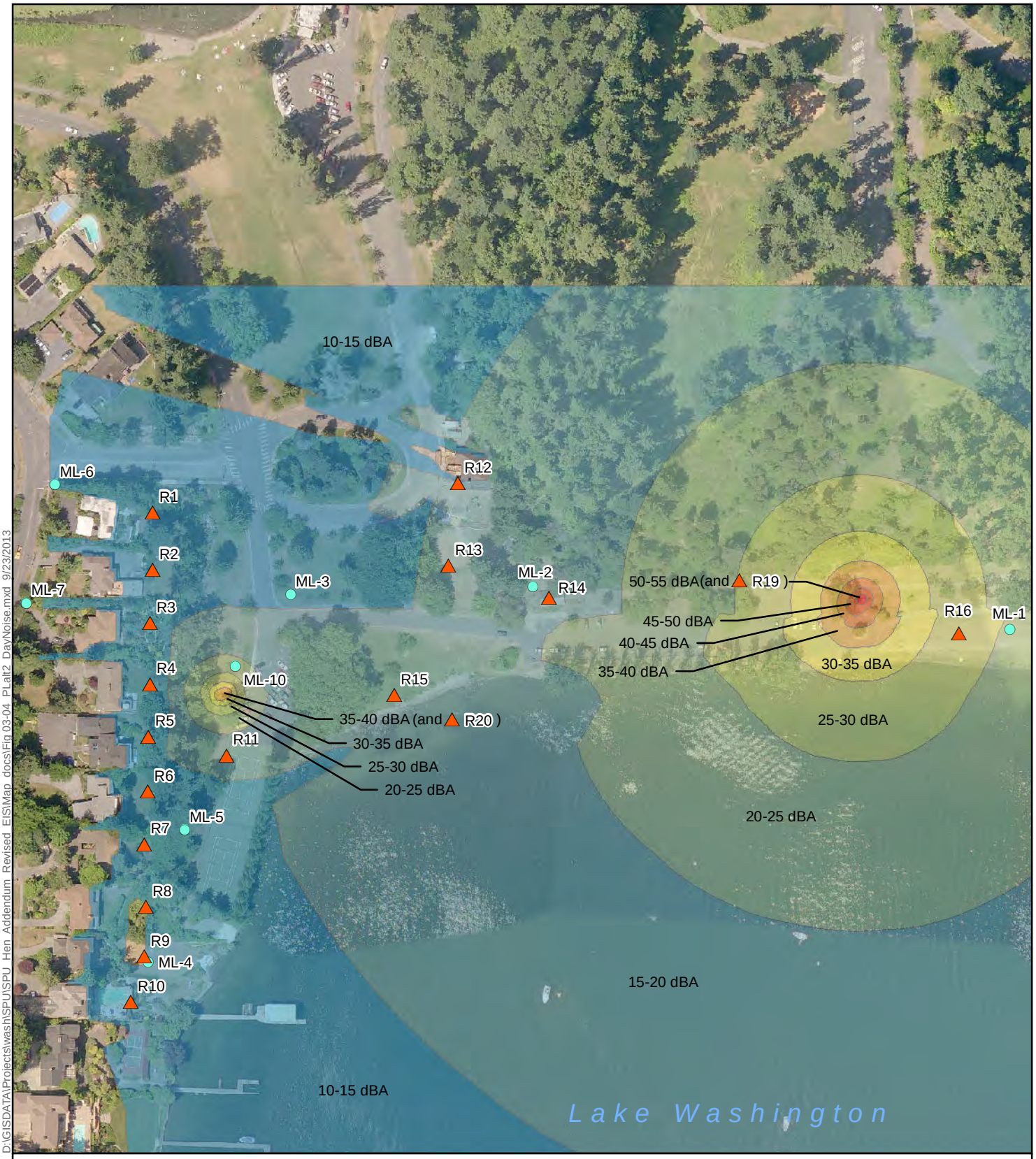

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Legend

- Monitoring Location
- Modeled Receptor

dBA

10-15	25-30	40-45
15-20	30-35	45-50
20-25	35-40	50-55

0 50 100 200 300 Feet

N W E S

Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

MODEL-PREDICTED DAYTIME PROJECT-GENERATED NOISE FOR PARKING LOT ALTERNATIVE

OCTOBER 2013 | **FIGURE 3-4**

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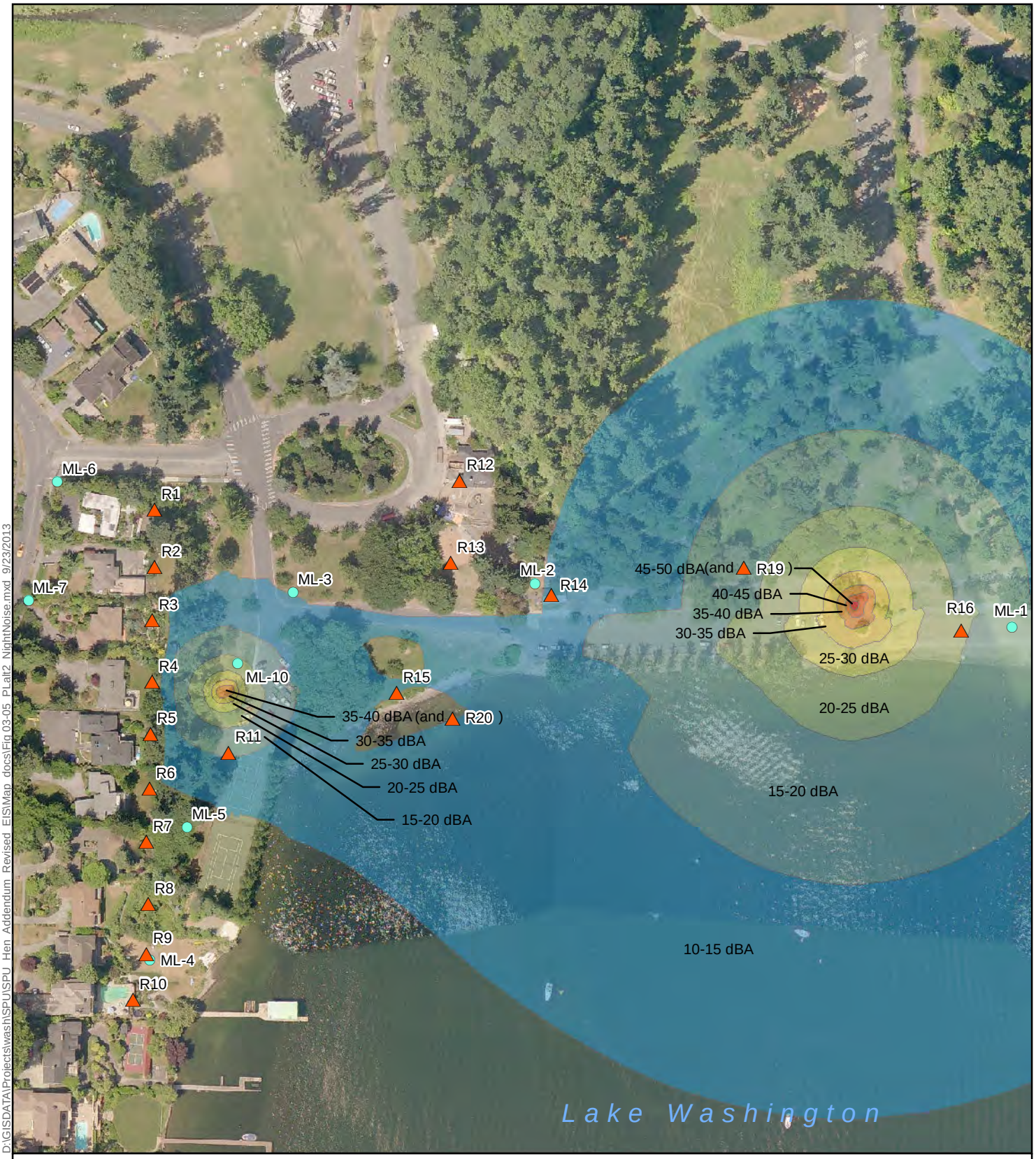

D:\GISDATA\Projects\wash\SPU\SPU Hen Addendum Revised EIS\Map docs\Fig 03-05 Plait2 NightNoise.mxd 9/23/2013

Legend

- Monitoring Location
- Modeled Receptor

dBA

10-15	25-30	40-45
15-20	30-35	45-50
20-25	35-40	

0 50 100 200 300 Feet

N W E S

Seattle Public Utilities

Henderson Basin 44 and 45 CSO Reduction Project

Addendum to Final EIS, Revised Final EIS, and Determination of Non-Significance

MODEL-PREDICTED NIGHTTIME PROJECT-GENERATED NOISE FOR PARKING LOT ALTERNATIVE

OCTOBER 2013 | **FIGURE 3-5**

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4 Conclusion

Based on an analysis of the proposed design, SPU has concluded that the revisions to the proposal do not substantially change the analysis of significant impacts and alternatives contained in the 2013 Final EIS and Revised Final EIS (SPU 2013a; SPU 2013b) and would significantly reduce many of the previously estimated impacts contained in the 2012 SEPA Environmental Checklist (SPU 2012A).

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5 References

City of Seattle. 2013. "Findings and Decision of the Hearing Examiner for the City of Seattle in the Matter of the Appeal of Seward Park Neighbors Coalition from a decision from the Director, Seattle Public Utilities, regarding the adequacy of an environmental impact statement." Hearing Examiner File W-13-001.

SPU (Seattle Public Utilities). 2012a. "Henderson Basin 45 CSO Reduction Project, State Environmental Policy Act Environmental Checklist." March 2012.

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