

Technical Memorandum

CSO Sediment Quality Characterization SAP Addendum: Barton St. Pump Station Overflow

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Prepared for:

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Department of Natural Resources and Parks

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Introduction

King County will sample sediments in Fauntleroy Cove (Puget Sound) in the vicinity of the Barton St. Pump Station Overflow discharge location in support of King County’s Sediment Management Plan (SMP). Sampling is scheduled to occur in August of 2023. This memorandum is an addendum to the 2022 [Combined Sewer Overflow \(CSO\) Sediment Quality Characterization Sampling and Analysis Plan](#) (SAP) (King County, 2022a) and addresses the sampling design and analytical requirements specific to this sampling event. All other aspects of the sampling and analysis are specified in the 2022 SAP.

Background

The 60-inch discharge pipe which serves the Barton St. Pump Station (057) is located near the Fauntleroy Ferry Terminal in West Seattle in Puget. The Barton St Pump Station overflow location is currently under supplemental compliance to bring it back into control (overflow of no more than one untreated discharge per year on average, over 20-year period). The King County Consent Decree includes a Supplemental Compliance Plan for the Barton St. Pump Station (submitted to Ecology April 23, 2018). The Barton St Pump Station has discharged between 0 and 3 times a year between 2002 and 2021. The 20-year average is 1.2 times per year (King County, 2022b). Additional overflow information is presented in Table 1 below.

Table 1. Summary of CSO Overflow conditions.

| CSO site | Overflow status | 1983 Baseline ¹ million gallons discharged | 1983 Baseline ¹ overflow events per year |
|-------------------------|---|---|---|
| Barton St. Pump Station | Uncontrolled – Under Supplemental Compliance ^{2,3} | 8 | 9 |

¹ CSO discharge volumes and number of events represent a baseline condition in 1983 before any CSO controls were implemented and flow monitoring began (King County, 2018b).

² King County CSO Control Program 2021 Annual Report using historical modeling to estimate the 20-year average when monitoring records do not go back far enough.

³ King County, 2018a – Barton CSO control project included the installation of Green Stormwater Infrastructure (rain gardens) and increased pump station capacity. The project was completed in 2015.

The Barton St Pump Station discharges to Fauntleroy Cove. The area near the Barton outfall also receives discharges from the City of Seattle CSO #94.¹ There is also a nearby stormwater discharge location for the City of Seattle from separated stormwater basins in the area. Fauntleroy Creek, located just south of the Ferry Terminal, drains an urban commercial/residential area. There are also nearby creosote-treated pilings at the Fauntleroy ferry terminal.

¹ City of Seattle CSO #94 is controlled to Washington State standard of no more than one untreated discharge per year on average.

The Barton St. Pump Station Overflow was identified as a site for additional sediment sampling to verify likely natural recovery per King County’s SMP update (King County, 2018a). The sediments near the outfall were sampled in 1997 (six locations), 2011 (six locations), and in 2016 (13 locations). In 2011, samples from all six locations exceeded the marine sediment quality standards (SQS) (WAC 173-204-320) — or dry weight equivalent Lowest Apparent Effects Threshold (LAET) where appropriate — for one or more polycyclic aromatic hydrocarbon (PAH), phthalate, or other organic chemical. In 2016, two of the 13 locations sampled had one or more exceedance of the SQS for benzyl butyl phthalate, chrysene, or anthracene. The SMP update (King County, 2018a) noted improved conditions near the Barton St. Pump Station Overflow based on the 2016 sampling data. The plan recommended resampling these locations in 5-10 years to verify likely natural recovery in the area. This sediment characterization is designed to conduct that determination.

Sample Design and Location of Sampling Stations

The sampling design uses the scaling analysis presented in Appendix B of the SAP (King County, 2022a).² The nine-sample pattern is a subset of sampling locations from the 2016 sampling event. It reoccupies the six 2011 sampling locations (CSO-BT-1 to -6) scaled at a 70-foot separation based on historical discharge conditions (Figure 1). It also includes three inshore sampling locations that were added in 2016 (CSO-BT-11 to -13). These stations were added in 2016 based on modeling efforts showing some inshore transport and deposition. Four locations sampled in 2016 (CSO-BT-06 to -10) will not be resampled as there were no exceedances of marine standards and relatively low chemical levels at these locations in 2016. The sampling stations in relation to the Barton St. Pump Station Overflow are shown in Figure 2. All the sampling locations are reoccupied stations, and thus, will help improve our understanding of natural recovery in the area. The sampling station locator names and associated coordinates are presented in Table 2.

Table 2. Station locators and associated coordinates.

| Locator ^a | Easting ^b | Northing ^b |
|----------------------|----------------------|-----------------------|
| CSO-BT-1 | 1254221 | 195031 |
| CSO-BT-2 | 1254193 | 194973 |
| CSO-BT-3 | 1254247 | 195097 |
| CSO-BT-4 | 1254145 | 195022 |
| CSO-BT-5 | 1254176 | 195088 |
| CSO-BT-6 | 1254106 | 195081 |

² This scaling analysis was first conducted in support of the *CSO Sediment Quality Characterization SAP* (King County, 2011) and is also included in the updated 2022 SAP for ease of reference.

| Locator ^a | Easting ^b | Northing ^b |
|----------------------|----------------------|-----------------------|
| CSO-BT-11 | 1254280 | 195044 |
| CSO-BT-12 | 1254330 | 195002 |
| CSO-BT-13 | 1254270 | 194975 |

^a Existing Station/Locator in King County Environmental Laboratory LIMS
^b Coordinates are in NAD93(HARN) / Washington North (ft US)

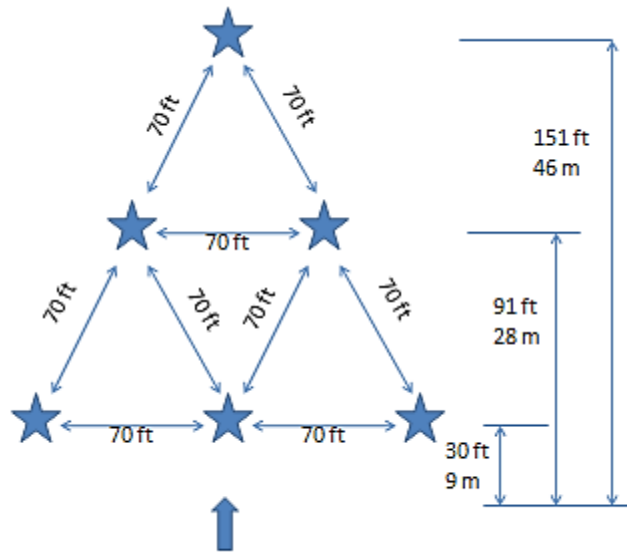


Figure 1. 2011 sampling array for Barton St. Pump Station Overflow.

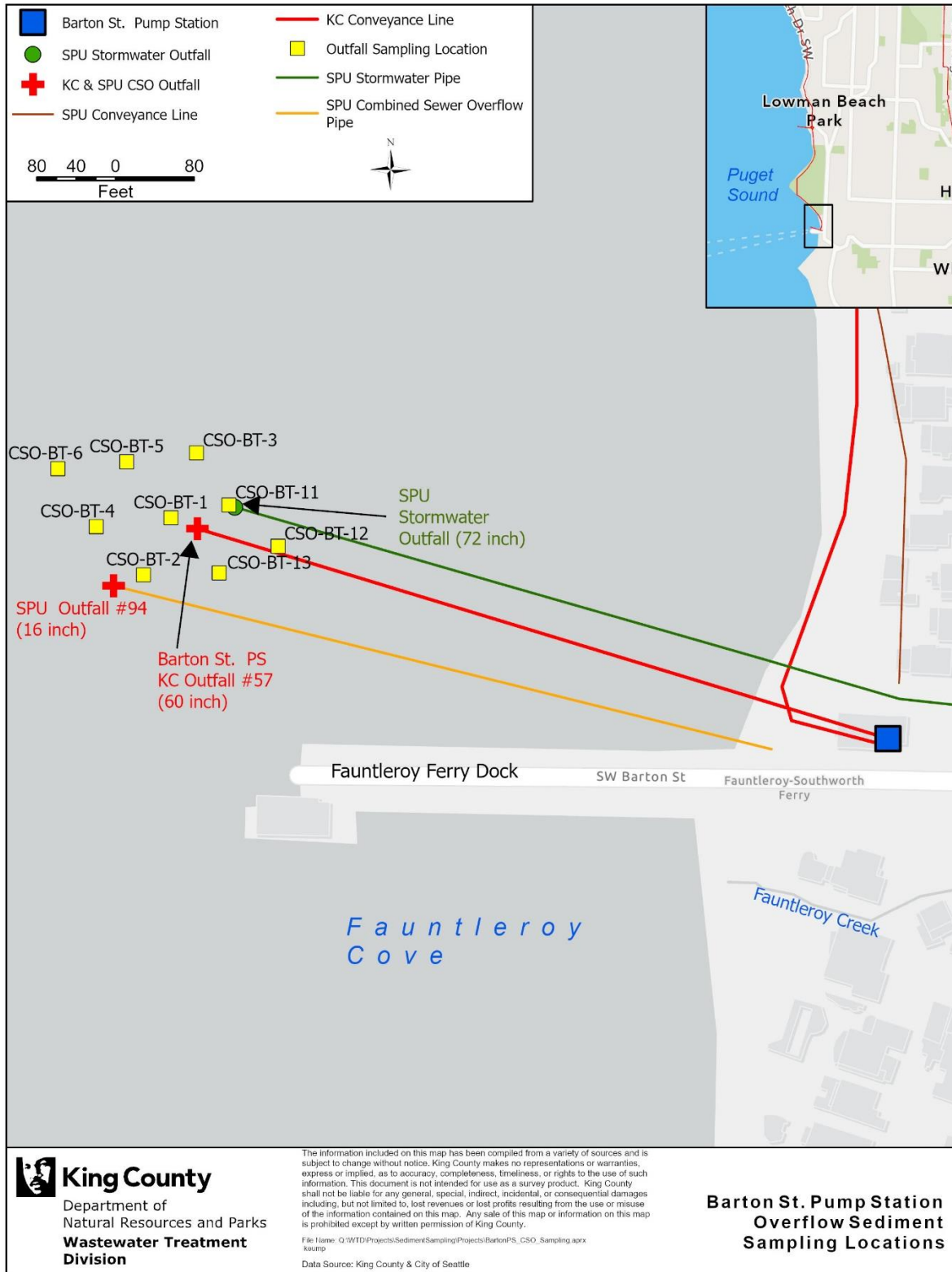


Figure 2. Barton St. Pump Station sediment sampling locations.

Parameters

The parameters to be analyzed will be the marine sediment analytes listed in Table 2 of the 2022 SAP (King County, 2022a). These include metals, base/neutral/acid semivolatile organic compounds, polychlorinated biphenyls (PCBs) as Aroclors, and conventional parameters including ammonia and total sulfides. The specific list of parameters and analytical methods are available in Section 6.0 of the 2022 SAP.

Project Schedule

The field sampling schedule and approximate timing of laboratory analysis and data reporting are summarized in Table 3. Data will be submitted to the regional Environmental Information Management (EIM) system after the study report is finalized.

Table 3. Target schedule for sampling, analysis, and data reporting.

| Work item | Target Date(s) |
|------------------------------|----------------|
| Field sampling | August 2023* |
| Laboratory analysis complete | December 2023 |
| Study report complete | May 2024 |

*Sampling to be completed in September as a backup date.

Responsibilities

The King County Environmental Laboratory will conduct the field sampling (Field Sciences Unit) and sample analysis. The task leads for the Barton St Pump Station Overflow sediment sampling and reporting are the same task leads shown in Section 2.0 of the 2022 SAP (King County, 2022a). The exceptions include the substitution of Wendy Eash-Loucks for Jennifer Lanksbury and Arina Podnozova for Keith Solberg.

- **Wendy Eash-Loucks** King County Water and Land Resources Division – (206) 477-4683 wendy.eash-loucks@kingcounty.gov Science and Technical Support Section. Preparation of SAP addendum, data analysis, and writing of study report.
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References

King County. 2011. CSO Sediment Quality Characterization: Final Sampling and Analysis Plan. Prepared by Scott Mickelson, King County Department of Natural Resources and Parks, Marine and Sediment Assessment Group. Seattle, Washington

King County. 2018a. King County Sediment Management Plan 2018 Update. Prepared for King County Department of Natural Resources and Parks, Sediment Management Program. Prepared by Anchor QEA, LLC. Seattle, Washington.

King County. 2018b. Comprehensive Sediment Quality Summary Report for CSO Discharge Locations. King County Department of Natural Resources and Parks, Wastewater Treatment Division. Seattle, Washington

King County. 2022a. CSO Sediment Quality Characterization: Sampling and Analysis Plan. Prepared by Jennifer Lanksbury and Debra Williston, King County Department of Natural Resources and Parks. Seattle, Washington.

King County. 2022b. Combined Sewer Overflow Control Program: 2021 Annual CSO and Consent Decree Report. King County Department of Natural Resources and Parks, Wastewater Treatment Division.