

Completion Summary for City of Portland Outfall Basin M-1

1 Summary

The City of Portland (City) has been addressing source control concerns related to the City conveyance systems for more than four decades, and several City programs have evolved to meet changing regulatory requirements and watershed health objectives. Following the 2000 listing of Portland Harbor on the National Priorities List, the City initiated a new partnership with the Oregon Department of Environmental Quality (DEQ) Cleanup Program to identify specific sources of contaminants to City stormwater conveyance systems in the harbor that were not being adequately controlled. This report summarizes the results of this collaborative effort in Outfall Basin M-1.

This Completion Summary includes a weight-of-evidence evaluation to demonstrate that source identification is complete and a summary of source controls (implemented or planned) that will control future contaminant discharges to the Willamette River.

Basin M-1 is located on the east side of the Willamette River in the Mocks Bottom area, along the east bank of the Swan Island Lagoon. Industrial development in this area was fairly recent (roughly the late-1960s to mid-1990s) and sites typically paved operational areas during initial development, so this area does not have a similar history of legacy contamination that has been observed in some of the older industrial areas in the harbor. This basin was one of two basins used by the City and DEQ to pilot different approaches to a conveyance system source investigation. Evaluation of inriver sediment data near the outfall indicated the presence of sediment contamination in the vicinity of the outfall, prompting the City to evaluate whether there may be major sources in the basin. The City conducted source tracing within the basin for a broad array of contaminants and subsequently narrowed the source tracing focus to polychlorinated biphenyls (PCB) based on source tracing results and on an evaluation of stormwater and storm solids samples from the downstream end of the basin.

Source investigation activities in Basin M-1 included inspection of all facilities, sampling in specific branches of the system where sources were suspected, and coordination with DEQ and the U.S. Environmental Protection Agency (EPA) on identified contaminated sites in the basin. Work also included evaluation of contaminant discharges via the dry-weather flow pathway. The City identified one site as a current source of PCBs and other contaminants to the basin and a second site as a potential source of other contaminants. Both sites are conducting investigations under DEQ Cleanup Program authority and are implementing source control measures (SCM) under DEQ oversight. Evaluation of a third site is pending under EPA authority. The majority of the industrial sites within the basin are conducting or have completed investigations under DEQ Cleanup Program authority, have been remediated, are covered by the DEQ Stormwater Quality Program, and/or have been redeveloped under the City's Stormwater Management Manual. Ongoing SCM implementation at the two identified sources, together with current and future source control programs in the basin, are expected to provide necessary source control for Outfall M-1 discharges.

The City has identified the major sources of contaminants to the basin and necessary controls are being implemented under EPA, DEQ, and/or City authority. Therefore, the City has met the remedial investigation (RI)/SCM objectives for Basin M-1.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin M-1, and the rationale for concluding that current and future discharges from the basin are not likely to be significant sources of contaminants to river sediment. The purpose of this report is to demonstrate that, for Basin M-1, the City has met the joint RI/SCM objectives of the August 13, 2003, intergovernmental agreement (IGA) between the City and DEQ. Together, the City and DEQ identified all major sources of contamination to the basin and are using their respective authorities to ensure that source controls are implemented where needed.

This report is included in Appendix A of the *Municipal Stormwater Source Control Report for Portland Harbor* (Municipal Report), which provides additional background and detail regarding the City's harborwide source control efforts, including regulatory and non-regulatory programs to address current and future sources and to minimize recontamination potential.

3 Outfall and Basin Setting

3.1 Basin Location and Configuration

Outfall M-1 discharges to the Swan Island Lagoon on the east side of the Willamette River at approximately River Mile 8.5. The drainage area for the Basin M-1 conveyance system is approximately 162 acres. Figure 1 shows the location of the outfall and drainage basin boundary and provides an overview of the associated stormwater conveyance system.

Additional detail on the Outfall M-1 stormwater conveyance system and associated drainage basin is included in the *Phase 1 Data Evaluation Report and Phase 2 Work Planning for the City of Portland Outfall M-1* (CH2M HILL, 2003).

3.2 Land Use and Potential Upland Sources

Basin M-1 is located in the Mocks Bottom industrial area. The basin is zoned as light industrial and primarily is composed of transportation-related activities (e.g., warehousing and trucking) (see Figure 1). There is one facility that has heavy industrial land use; it conducts truck manufacturing. Tax lots in the Mocks Bottom area tend to be large and are dominated by warehouses, parking, and loading areas.

Sites that were identified as potential sources include four sites in the basin that are in the DEQ Cleanup Program, as listed in DEQ's Environmental Cleanup Site Information (ECSI) database. Table 1 lists these sites and indicates the associated contaminants of interest (COI) and the status of stormwater pathway evaluations. Stormwater pathway evaluations are in progress under DEQ oversight at two sites: the Freightliner - Truck Manufacturing Plant and Fred Devine Diving and Salvage Co. EPA is slated to provide oversight for the evaluation of a third

site (U.S. Navy and Marine Reserve Center). DEQ determined that a stormwater pathway evaluation at the remaining ECSI site either is not needed or is a low priority.

Table 1. DEQ Cleanup Program Sites in Basin M-1

DEQ Cleanup Site	Site COIs ⁽¹⁾	Site Pathway Evaluations	
		Stormwater Pathway ⁽²⁾	Preferential Groundwater Pathway ⁽³⁾
Freightliner - Truck Manufacturing Plant (ESCI #2366)	PAHs, PCBs, metals, phthalates	Source Control Evaluation in Progress	Source Control Evaluation in Progress
Fred Devine Diving and Salvage Co. (ESCI #2365)	SVOCs, PAHs, TPH, metals, phthalates	Source Control Evaluation in Progress	Source Control Evaluation Completed - Source Control Determination Pending
Roadway Express (ESCI #3807)	TPH	Need for Source Control Evaluation to be Determined / Low Priority	Source Control Decision Complete ⁽⁴⁾
U.S. Navy and Marine Reserve Center (ESCI #5109) ⁽⁵⁾	Not listed ⁽⁶⁾	Source Control Evaluation Needed	To Be Determined EPA Source Control Lead

Notes:

PAHs = polycyclic aromatic hydrocarbons; SVOCs = semivolatile organic compounds; TPH = total petroleum hydrocarbons; COIs = contaminants of interest; DEQ = Oregon Department of Environmental Quality; PCBs = polychlorinated biphenyls; ECSI = Environmental Cleanup Site Information; EPA = U.S. Environmental Protection Agency

- (1) Unless otherwise noted, site COIs are those identified in Appendix Q (Source Control Inventory Tables) of the Portland Harbor RI/FS Draft Feasibility Study (FS) (Anchor et al., 2012).
- (2) Source: DEQ Milestone Report, Figure 1b, "Status of Stormwater Source Control Evaluations, January 2013" (DEQ, 2013a).
- (3) Source: DEQ Milestone Report, Figure 3, "Groundwater Source Control Evaluation Status, January 2013" (DEQ, 2013a).
- (4) It is not known whether the source control decision considered the preferential pathway to the City stormwater conveyance system.
- (5) Site evaluation is pending under EPA authority.
- (6) Site is not listed in Appendix Q of the draft FS or Table 4.2-2 of the Portland Harbor RI/FS Draft Final Remedial Investigation Report (Integral et al., 2011), and site COIs are not listed in ECSI database.

Industrial sites covered, or historically covered, by National Pollutant Discharge Elimination System (NPDES) stormwater regulations also were considered as potential sources of pollutants to the City conveyance system. Table 2 lists sites within the basin that currently hold, or historically had, NPDES permits to discharge to the Basin M-1 conveyance system. Figure 1 shows sites with current NPDES permits. Note that the City operates under an NPDES Municipal Separate Storm Sewer System (MS4) stormwater permit that also covers basin drainage areas.

Table 2. Current⁽¹⁾ and Historical NPDES Permit Coverage in Basin M-1

Address	Company	Permit Type	Time Period
6936 N Fathom	Freightliner Truck Manufacturing Plant	Cooling Water (100J)	1992 - 2003
		Boiler Blowdown (500J)	1992 - 1995
		Washwater (1700J)	1993 - 1996
		Stormwater (1200-L)	1992 - 1996
		Stormwater (1200-Z)	1997 - 2008
	Western Star Truck Plant Portland LLC	Stormwater (1200-Z)	2008 - 2012
	Daimler Trucks North America	Stormwater (1200-Z)	2012 - Present
6707 N Basin	United Parcel Service	Stormwater (1200-T)	1995 - 1996
		Stormwater (1200-Z)	1997 - 2012
7000 N Cutter	Maletis Beverage Corp	Stormwater (1200-Z)	2002 - Present
6949 N Cutter	SIC Processing USA LP	Stormwater (1200-Z)	2009 - 2013
6845 N Cutter	Roadway Express	Stormwater (1200-Z)	1998 - 2009
	YRC Inc.	Stormwater (1200-Z)	2009 - Present
6840 N Cutter	Columbia Distributing Co.	Stormwater (1200-Z)	1998 - 2012
	Coho Distributing-Swan Island	Stormwater (1200-Z)	2012 - Present

Notes:

NPDES = National Pollutant Discharge Elimination System

(1) Current permits are indicated in bold.

3.3 Outfall Setting

Outfall M-1 discharges to an area of potential concern (AOPC 17b-Slip) identified by the EPA based on elevated concentrations of PCBs, pesticides, phthalates, PAHs, metals, and other contaminants in river sediment (EPA, 2010). In addition to Outfall M-1, four other City outfalls (Outfalls M-2, M-3, S-1, and S-2) and more than 50 non-City outfalls discharge to AOPC 17b-Slip.

Swan Island Lagoon is a sheltered off-channel area that generally is protected from natural disturbances, but anthropogenic disturbances, such as propwash, likely resuspends material into the water column. The pattern of sediment concentrations adjacent to the outfall may be influenced by more far-field sources (i.e., contaminated sediment from other portions of the lagoon resuspended and deposited in this area).

4 Basin Screening and Source Investigations

Source investigations in Basin M-1 represent a significant amount of coordination between the City and DEQ. The City's investigations in Basin M-1 started shortly after the 2000 listing of Portland Harbor and helped to shape DEQ's and the City's joint approach to future source investigation and control activities in other City basins. In 2001, DEQ and the City initiated a pilot project in Basin M-1 to develop an effective streamlined investigative process using DEQ and City authorities (CH2M HILL, 2002); results of this pilot project (CH2M HILL, 2003 and 2005) served as the basis for development of the 2003 IGA between DEQ and the City. As part of the Phase 1 of the pilot project, the City conducted comprehensive stormwater inspections at all sites in the basin and provided information to DEQ to better address site-specific stormwater pathway evaluations at DEQ Cleanup Program sites.

Following collection of inriver sediment samples in 2002 in the vicinity of the outfall and the basin assessment, the City conducted a second phase of the pilot study and investigated inline solids from the conveyance system in 2003 to identify potential source areas to the basin (CH2M HILL, 2005). The City identified Basin M-1 as a Priority 1 for additional source tracing based on elevated contaminant concentrations in the vicinity of the outfall (CH2M HILL, 2004). Priority 1 basins are considered the highest priority for identifying sources. The subsequent *Data Evaluation Report, Inline Solids in Basins M-1 and 18* (CH2M HILL, 2005) identified PCBs, PAHs, phthalates, dichlorodiphenyltrichloroethane (DDT), and metals (cadmium, chromium, copper, lead, and zinc) for source tracing.

In 2005, the City collected dry-weather flow samples to identify potential sources of metals detected during an Illicit Discharge Elimination Program dry-weather flow investigation in Basin M-1 in September 2002. The results of this investigation indicated that metals were being discharged from the Daimler Trucks North America facility (formerly Freightliner - Truck Manufacturing Plant) in dry-weather flow (BES, 2006).

In 2007, as part of the City's stormwater screening evaluation (BES, 2010a), the City collected stormwater samples from the most accessible location near the downstream end of the basin; this location excludes discharges from shoreline (and one upland) properties connected to the M-1 conveyance system. Additionally, the Lower Willamette Group (LWG) collected sediment trap and stormwater samples in 2007 in the upper northeastern branch of the basin to evaluate stormwater discharges from industrial land uses as part of its loading evaluation (Anchor and Integral, 2008). The City conducted a concurrent sediment trap investigation at that time (BES, 2008). Based on these evaluations and using a conservative screening approach, PCBs were the only contaminant identified as potentially warranting further source tracing in Basin M-1 because concentrations indicated the presence of a source(s) to the basin (BES, 2010a).

In 2009, following a review of data collected from the Freightliner stormwater conveyance system, the City collected inline solids samples to determine if the site was discharging PCBs and other contaminants to the City conveyance system. Additionally, in 2013, the City collected inline solids samples from the locations previously sampled in 2009 to evaluate whether results indicate an ongoing source to the river (BES, 2013). The results indicated that the site is a source of PCBs, metals, PAHs, and phthalates. A stormwater pathway evaluation is underway at the Daimler facility to identify onsite source areas and necessary controls (DEQ, 2013b). The Fred Devine Diving and Salvage Co. site also is in the process of investigating the stormwater

pathway under DEQ oversight, and EPA plans to evaluate the stormwater pathway at the U.S. Navy and Marine Reserve Center.

Data collected from other portions of the basin¹ and a review of facility operations within the basin did not indicate that other major contaminant sources were present, so the City determined that no further City source tracing in Basin M-1 was needed. Table 3 lists investigations and evaluations completed by the City and others in the Basin M-1 conveyance system.

Table 3. Investigations in the Basin M-1 Stormwater Conveyance System

Data Collection Period	Party	Purpose	Documentation
2000	City	Compile basin background information to identify potential sources.	Preliminary Evaluation of City Outfalls (Eastshore) (BES, 2000)
2002	City	Investigate inriver sediment quality in the vicinity of Outfall M-1 and develop recommendations for Phase 2 work to be conducted within the basin.	Phase 1 Data Evaluation Report and Phase 2 Work Planning for the City of Portland Outfall M-1 (CH2M HILL, 2003)
2002	City	Evaluate inriver sediment data near City outfalls to prioritize basins for source tracing.	Programmatic Source Control Remedial Investigation Work Plan (CH2M HILL, 2004)
2003	City	Investigate inline solids within the City's conveyance system and evaluate potential contaminant sources.	Data Evaluation Report, Inline Solids in Basin M-1 and 18 (CH2M HILL, 2005)
2005	City	Investigate dry-weather flow entering the City's stormwater conveyance system.	City Outfall Basin M-1 Dry Weather Flow Sampling Technical Memorandum (TM) (BES, 2006)
2005	City	Evaluate existing data on groundwater plumes and identify the potential for City conveyance systems (including Basin 18) to act as preferential pathways.	Relationships Between Upland Shallow Groundwater Plumes and the City Stormwater and Combined Conveyance System with the Portland Harbor (GSI, 2006)
2007	City	Evaluate stormwater data from City outfalls to identify additional source tracing needs.	Stormwater Evaluation Report, City of Portland Outfall Project (BES, 2010a)
2007	City	Investigate inline solids within the stormwater conveyance system.	Outfall Basin M-1 Sediment Trap Solids Investigation TM (BES, 2008)
2007	Lower Willamette Group (LWG)	Collect harborwide stormwater and sediment trap data to develop land use stormwater loading estimates for input to the inriver fate and transport model.	Portland Harbor RI/FS Round 3A and 3B Stormwater Data Report. Prepared for the LWG (Anchor and Integral, 2008)
2009	City	Investigate discharges to Basin M-1 from the Freightliner Truck Manufacturing Plant's Fathom Street outfall.	Outfall Basin M-1 Inline Solids Investigation TM (BES, 2010b)
2013	City	Conduct a follow up investigation of inline solids in the vicinity of the Freightliner Truck Manufacturing Plant's Fathom Street outfall to Basin M-1.	E-mail communication from BES to DEQ (BES, 2013)

¹ Note that given the system configuration, City source investigation data could not be collected downgradient of the Fred Devine Diving and Salvage Co. site connection to the basin.

Joint investigations by the City and DEQ resulted in the identification of major sources of PCBs and other contaminants in Basin M-1.

5 Completion of Source Identification

The lines of evidence evaluated to confirm that source tracing is complete and all major sources have been identified include (1) source investigation activities conducted in the basin (and upland site information) and (2) land use at remaining upland areas not undergoing DEQ Cleanup Program investigation or redevelopment. Findings from this evaluation are summarized below.

- *Source Tracing Results:* Upland sources of all contaminants selected for source tracing have been identified. The City's source investigations (BES, 2008, 2010b, and 2013) and an investigation conducted at the Freightliner - Truck Manufacturing Plant (ECSI #2366) confirmed that PCBs and other contaminants are present in stormwater solids at the site (Bridgewater, 2011). The City also determined that this site is a source of metals to Basin M-1 via dry-weather flow discharges to the basin (BES, 2006). Metals, PAHs, and phthalates also have been detected in stormwater solids at the Fred Devine Diving and Salvage Co. site (ECSI #2365) during investigation of the stormwater pathway (DEQ, 2012). Data collected from other portions of the basin and a review of facility operations in the basin did not indicate that other major contaminant sources were present.
- *Upland Investigation Coverage and Land Use:* Figure 2 displays the spatial extent of upland site investigations and other programmatic controls (see key to figures provided at beginning of this Appendix). As shown in Figure 2, the majority of the basin has been or is being investigated or likely does not need investigation given land use and existing controls. Sites in the basin:
 - Are or will be investigating the stormwater pathway and implementing SCMs under DEQ Cleanup Program or EPA authority;
 - Have been designated by DEQ as not needing a source control evaluation or as a low priority for completing a source control evaluation; and/or
 - Are covered under NPDES industrial stormwater regulations.

Land use at sites currently not covered by DEQ Cleanup or Water Quality Programs consist of parking areas and warehouse uses with minimal industrial exposures to stormwater. Current and future industrial activities exposed to stormwater will be addressed by the DEQ Water Quality NPDES Program, and non-industrial activities are not a known or suspected major source of contaminants to the City stormwater conveyance system.

Based on these lines of evidence, the City concludes that Basin M-1 source tracing is complete and all major sources have been identified.

6 Basin Source Controls

The City and DEQ collaborated under their respective authorities to identify control mechanisms for all major sources identified in the basin. Source control for major and minor sources in Basin M-1 includes SCMs completed (or planned) at contaminated sites under DEQ Cleanup Program or EPA agreements and ongoing City and DEQ programs that are described in the Municipal Report. Source controls implemented in Basin M-1 are displayed in Figure 2 and summarized in this section.

One type of programmatic source control is the elimination of stormwater exposures to industrial activities. Table 4 lists sites that hold, or historically held, an NPDES No Exposure Certification.

Table 4. Sites with No Exposure Certification (NEC) in Basin M-1⁽¹⁾

Address	Company	NEC Time Period
6840 N Fathom	CAMCO Manufacturing Inc.	1999 - Present
	Xpress Global Systems	2013 - Present
6645 N Ensign	Kool Pak Distribution	2000 - 2005
6650 N Basin	Kent Moving Systems	2003 - 2013
6707 N Basin	United Parcel Service	2012 - Present
6458 N Basin	Parker Hannifin Corp-Connector Div	2000 - Present
6310 N Basin	Swift Transportation	2003 - 2008
6211 N Ensign	Sternwheeler Rose	2000 - 2005

Notes:

(1) Current NECs are indicated in bold.

Table 5 summarizes additional site-specific, programmatic, and conveyance system source controls completed to date for Basin M-1.

Table 5. Basin M-1 Source Controls

Site/Area	Source Controls	Implementation Timeframe
Source Control Measures (SCM) at DEQ Cleanup Program Sites ⁽¹⁾		
Freightliner - Truck Manufacturing Plant (ECSI #2366)	Installation of stormwater filtration unit, coating the roof of the plant building, cleaning portions of the onsite stormwater lines and additional erosion control best management practices.	2003-2010
	Cleaning of N. Fathom St. outfall and lateral connection to the municipal system.	2013
Fred Devine Diving and Salvage Co. (ECSI #2365)	To be determined	To be determined
Roadway Express (ECSI #3807)	Not needed ⁽²⁾	NA
U.S. Navy and Marine Reserve Center (ECSI #5109) ⁽³⁾	To be determined	To be determined
City Conveyance System		
Ensign Street to Outfall	The City system between the Freightliner site connection to N. Ensign Street and the outfall was cleaned following a release from the Freightliner facility to the river.	2006
Fathom Street	Freightliner cleaned a portion of the Fathom Street line in response to a fuel release to the river via the City system.	2009
	Western Star (formerly Freightliner) cleaned a portion of the Fathom Street line following cleaning of the site lateral connection to the municipal system.	2013
Other (Programmatic Source Controls)⁽⁴⁾		
Roadway Express, United Parcel Service	Stormwater Management Manual Requirements	Ongoing
CAMCO Manufacturing, Tube Service Company, United Parcel Service, Xpress Global System	City Discharge Authorizations⁽⁵⁾	Ongoing
See listing in Table 2	NPDES 1200-Z Stormwater Permit Requirements	Ongoing
See listing in Table 4	NPDES No Exposure Certifications	Ongoing

Notes:

DEQ = Oregon Department of Environmental Quality; NPDES = National Pollutant Discharge Elimination System; NA = not applicable; ECSI = Environmental Cleanup Site Information

- (1) For upland sites, descriptions of SCMs are based on information in DEQ Milestone Report (DEQ, 2013a), DEQ source control decisions, and/or reports on file with DEQ.
- (2) DEQ has determined that a source control evaluation is not needed or is a low priority at this site (DEQ, 2013a).
- (3) Evaluation of SCMs is pending under U.S. Environmental Protection Agency (EPA) authority.
- (4) Programmatic source controls are described in detail in the Municipal Report.
- (5) Additional site-specific stormwater pollution controls required and implemented under City Code.

All major contaminant sources have been controlled or will be controlled after implementation of SCMs has been completed under the programs identified above.

Other municipal programs (e.g., periodic inspection of and technical assistance to non-NPDES sites, illicit discharge monitoring, street sweeping, etc.) likely provide additional source control benefits in the basin and will help to address minor sources for which specific control measures have not been required. City programs that control current and future contaminant discharges to the conveyance system are described in the main text of the Municipal Report.

7 Conclusion

The City completed source tracing in Basin M-1 and identified the major and potential sources of contaminants to the City conveyance system. Because necessary SCMs at the identified sources have been implemented or are being determined under appropriate EPA, DEQ, and City regulatory authorities, future discharges from Outfall M-1 are unlikely to represent a significant source of contaminants to the river. However, given the sensitive nature of the lagoon, the City will continue to look for opportunities with existing and future City stormwater programs to reduce suspended solids loading from the basin to the river. The City concludes that it has met the RI/SCM objectives of the IGA and requests a source control decision from DEQ for Basin M-1.

8 References

- Anchor and Integral. 2008. Portland Harbor RI/FS Round 3A and 3B Stormwater Data Report. Prepared for the Lower Willamette Group by Anchor Environmental, L.L. C. and Integral Consulting Inc. September 2008.
- Anchor et al. 2012. Portland Harbor RI/FS Draft Feasibility Study. Prepared for The Lower Willamette Group by Anchor QEA, LLC, Windward Environmental, LLC, Kennedy/Jenks Consultants, and Integral Consulting, Inc. February 2012.
- BES. 2000. Preliminary Evaluation of City Outfalls. Portland Harbor Study Area. Notebook 1: Eastshore Stormwater and CSO Outfalls. City of Portland, Bureau of Environmental Services. December 2000.
- BES. 2006. City Outfall Basin M-1 Dry-Weather Flow Sampling Technical Memorandum No. OF M1-1. City of Portland, Bureau of Environmental Services. April 3, 2006.
- BES. 2008. Outfall Basin M-1 Sediment Trap Solids Investigation Technical Memorandum No. OFM1-2. City of Portland, Bureau of Environmental Services. September 4, 2008.
- BES. 2010a. Stormwater Evaluation Report. City of Portland, Bureau of Environmental Services. February 2010.
- BES. 2010b. Outfall Basin M-1 Inline Solids Investigation, Technical Memorandum No. OF M1-3. City of Portland, Bureau of Environmental Services. January 14, 2010.

- BES. 2013. Subject: Basin M-1 Inline Solids Results. E-mail to C. Harman and A. Liverman (DEQ) from L. Scheffler (BES). July 15, 2013.
- Bridgewater. 2011. Source Control Evaluation Report for Stormwater and Groundwater, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America, LLC. Prepared by Bridgewater Group in association with Maul Foster & Alongi, Inc. December 5, 2011.
- CH2M HILL. 2002. Work Plan: Source Control Pilot Project for the City of Portland Outfalls. Prepared by CH2M HILL for the City of Portland Bureau of Environmental Services. August 2002.
- CH2M HILL. 2003. Phase 1 Data Evaluation Report and Phase 2 Work Planning for City of Portland Outfall M-1, Source Control Pilot Project. Prepared by CH2M HILL for the City of Portland Bureau of Environmental Services. April 2003.
- CH2M HILL. 2004. Programmatic Source Control Remedial Investigation Work Plan of the City of Portland Outfalls Project. Prepared by CH2M HILL for the City of Portland Bureau of Environmental Services. March 19, 2004.
- CH2M HILL. 2005. Data Evaluation Report, Inline Solids in Basins M-1 and 18. Prepared by CH2M HILL for the City of Portland Bureau of Environmental Services. December 2005.
- DEQ. 2012. Letter from DEQ to Mr. J. (Mick) Leitz, Fred Devine Diving and Salvage, Inc., re: Completion of Source Control Decision, the Marine Salvage Consortium, Inc., DBA Fred Devine Diving & Salvage. March 16, 2012.
- DEQ. 2013a. Milestone Report, Upland Source Control at the Portland Harbor Superfund Site, January 2013. Prepared by the Oregon Department of Environmental Quality. January 2013.
- DEQ. 2013b. Letter from DEQ to Zane Gibson, Daimler Trucks, North America re: DEQ Review Notes for "Source Control Evaluation Report for Stormwater and Groundwater, Truck Manufacturing Plant, Western Star Truck Plant, Portland LLC, 6936 North Fathom Street, Portland, Oregon, (DEQ ECSI No. 2366)," December 5, 2011 and Addendum to Source Control Evaluation Report Regarding Stormwater Pathway," March 22, 2013. July 17, 2013.
- EPA. 2010. Re: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Portland Harbor Feasibility Study Source Tables. Letter from EPA to Mr. Bob Wyatt, Chairman, Lower Willamette Group. November 23, 2010.
- GSI. 2006. Relationships Between Upland Shallow Groundwater Plumes and the City Stormwater and Combined Conveyance System within the Portland Harbor. Technical

Memorandum prepared by Groundwater Solutions, Inc., for the City of Portland Bureau of Environmental Services. March 16, 2006.

Integral et al. 2011. Portland Harbor RI/FS, Draft Final Remedial Investigation Report. Prepared for the LWG. Prepared by Integral Consulting Inc., Windward Environmental LLC, Kennedy/Jenks Consultants, and Anchor QEA, LLC. August 29, 2011.

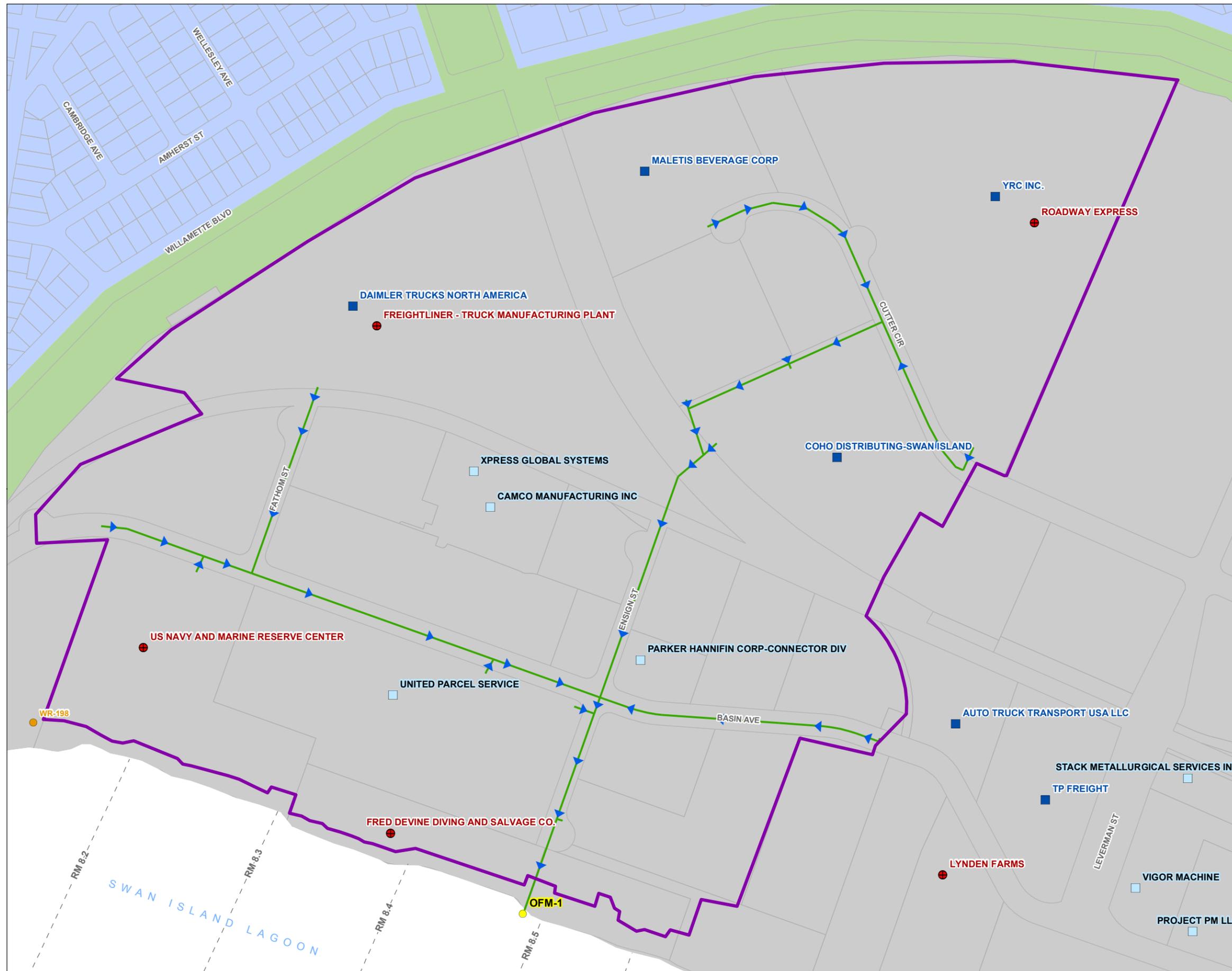
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Figure 1: Basin M-1 Overview

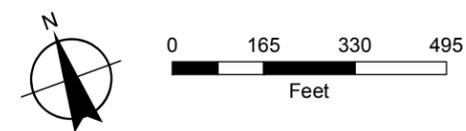
Figure 2: Basin M-1 Upland Site Source Controls

FIGURE 1

**Basin M-1
Overview**



- Basin M-1
- DEQ ECSI Site
- NPDES Stormwater Permit
- NPDES No Exposure Certification
- Conveyance System**
- Storm Line
- City Outfall
- Non-City Outfall
- Land Use/Zoning**
- Light Industrial
- Residential
- Parks and Open Space
- All Other Data**
- River Mile (RM)
- Tax Lot
- Discharges to City Outfall
- Portland Harbor Hydroboundary



MAP NOTES:
Date: January 9, 2014
Data Sources: BES, METRO

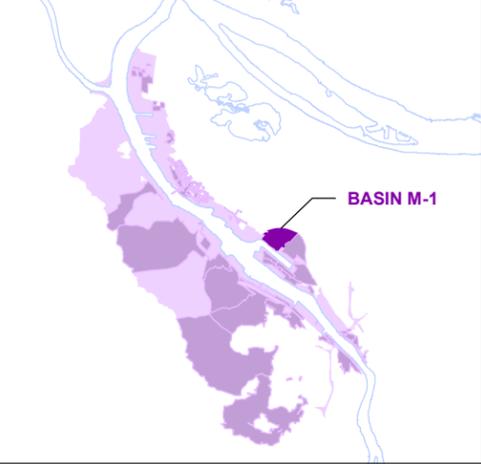
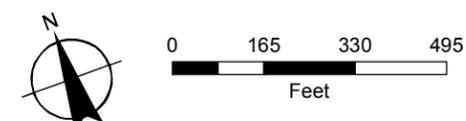


FIGURE 2
Basin M-1
Upland Site Source Controls

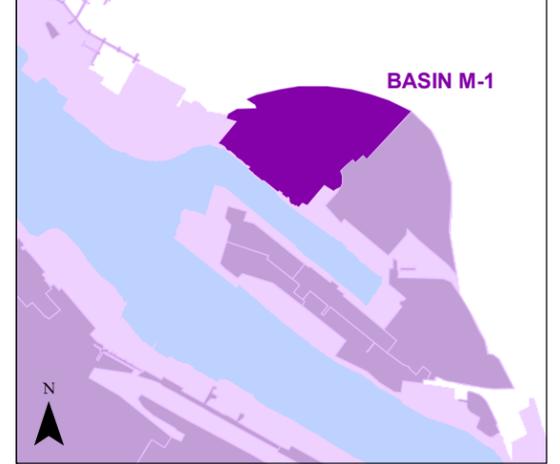


- Basin M-1
- Tax Lot
- DEQ/EPA Stormwater SCEs**
 - SCE implemented or pending
 - SCE not needed or low priority
- All Other Features**
 - NPDES Stormwater Discharge Permit
 - City Discharge Authorization
 - NPDES No Exposure Certification
 - >50% of Site Area Redeveloped Under City SWMM
 - Stormwater Treatment Facility
 - Site Inspection - BES Industrial Stormwater Program
 - Discharges to City Outfall
 - Portland Harbor Hydroboundary



MAP NOTES:
 Date: December 31, 2013
 Data Sources: BES, METRO, Aerial Photo Taken 2012

ENVIRONMENTAL SERVICES
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SWAN ISLAND LAGOON