Seattle Iron & Metals Corp.
Engineering Report
730 S. Myrtle Street, Seattle, WA
April 29, 2013 / Revised October 1, 2013

Seattle Iron & Metals Corporation
Engineering Report

730 S. Myrtle Street
Seattle, Washington

April 29, 2013
Revised October 1, 2013

Submitted to

Washington State Department of Ecology
Under the Industrial Stormwater General Permit
Permit No. WAR – 125002

Prepared for

Seattle Iron & Metals Corporation
601 S. Myrtle Street
Seattle, Washington 98108

kpff *Consulting Engineers*
2407 North 31st Street
Tacoma, WA 98407

Project No. 112143.20

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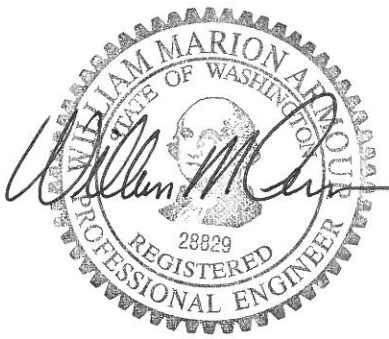
Seattle Iron & Metals Corporation
Engineering Report

This Engineering Report was prepared under the supervision and direction of the undersigned, whose seal as a registered professional engineer is affixed below:



10.1.2013

William M. Armour, P.E
KPFF Consulting Engineers

1.0 INTRODUCTION AND BACKGROUND

This Engineering Report has been prepared and submitted in accordance with the requirements of Pollution Control Hearings Board (PCHB) Case No. 12-076 - Motion and Order to Dismiss with Prejudice, dated February 28, 2013 and incorporated attachment PCHB No. 12-076 – Settlement Agreement (see Appendix A). This Settlement Agreement (Agreement) was executed in response to alleged violations of Industrial Stormwater General Permit WAC-125002 (Permit), issued to Seattle Iron & Metals by the Washington State Department of Ecology (Ecology) on May 31, 2011, and as modified on May 16, 2012 for operations on the property located at 730 S. Myrtle Street (see Appendix B).

On June 18, 2012 Ecology issued a Notice of Penalty Incurred and Due No. 9180 (Penalty) in to Seattle Iron & Metals (SIM) for alleged violations of the Permit. On July 20, 2012 SIM filed an appeal to the PCHB challenging both the imposition and amount of the Penalty. As a result of the appeal the Settlement Agreement was reached reducing the amount of the Penalty, and requiring 1) the preparation of an Engineering Report, 2) approval of a Stormwater Pollution Prevention Plan meeting Permit condition S3, and 3) monitoring in compliance with automobile salvage and scrap metal recycling industrial use as required by Permit condition S5.B (Table 3).

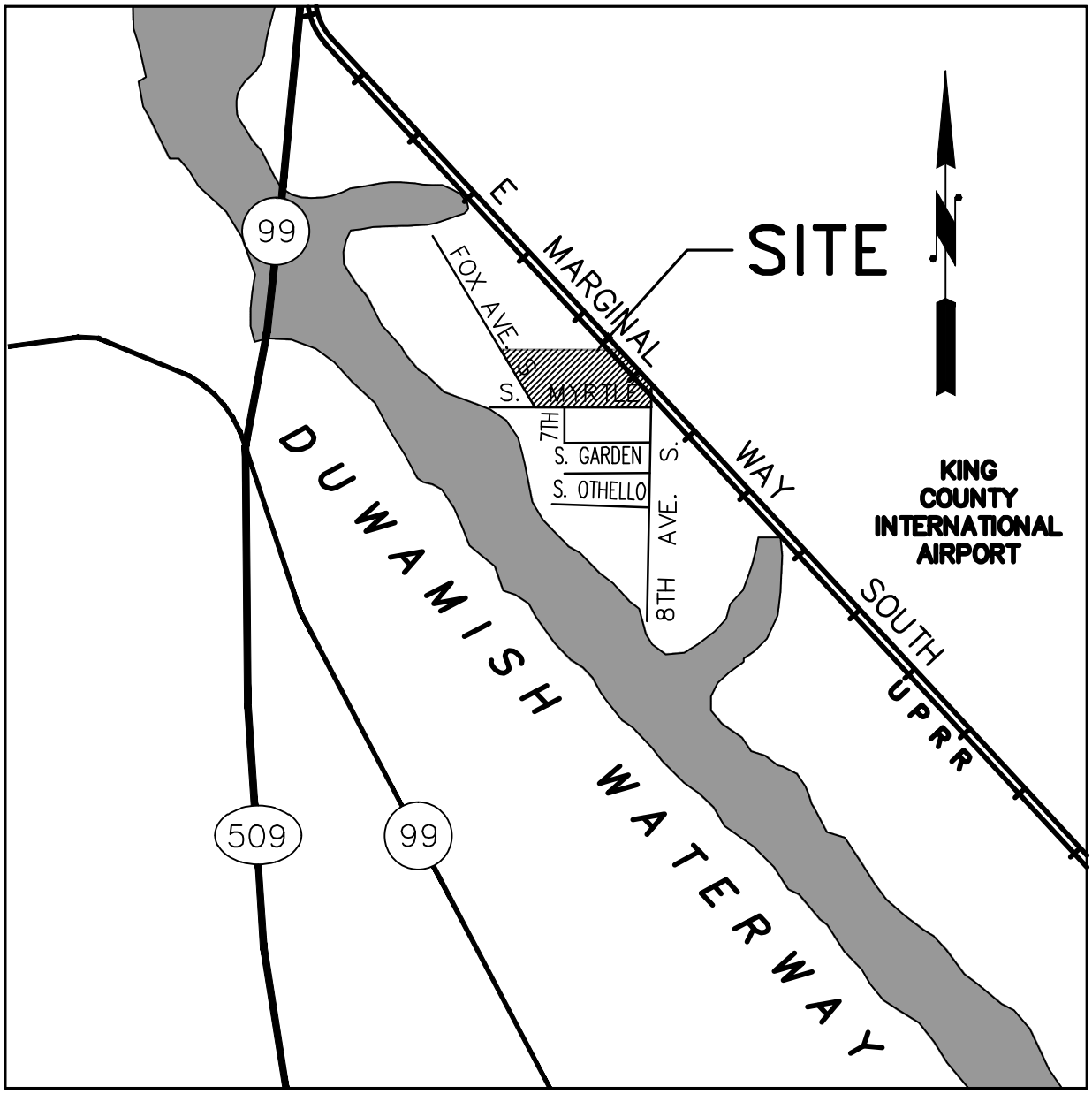
As required by the Washington Administrative Code (WAC) 173-240-110, before constructing or modifying industrial wastewater facilities, engineering reports, and plans and specifications for the project must be submitted to the Washington State Department of Ecology (Ecology) and approved by the department. The construction or modification of industrial wastewater facilities are required to conform to a set schedule of tasks in the following order: 1) submission and approval of an engineering report; 2) submission and approval of plans and specifications for the proposed improvements; and 3) submission of an operation and maintenance manual. This report represents the first step in the mandated three step process.

Engineering reports for industrial wastewater facilities must be sufficiently complete so that plans and specifications can be developed from the information provided without substantial changes. This engineering report follows the Engineering Report Outline contained in WAC 173-240-130. Two copies of this report are being provided to Ecology as required by the WAC.

2.0 TYPE OF INDUSTRY OR BUSINESS

Seattle Iron & Metals Corporation moved to its present location at 601 S. Myrtle Street from Harbor Island in July 1999 due to the expansion of the Port of Seattle's Terminal 18. SIM collects ferrous and non-ferrous metals for recycling. These two types of metals are stockpiled and handled separately. After collection, the metals are sorted by grade and sized (if necessary). Ultimately, after grading and sizing, the metals are sold to other companies for recycling, generating new metal products. There is no significant processing of the metals other than mechanical size reduction. The type of facility SIM operates at 601 S. Myrtle Street is identified as "Metal Scrap and Waste Materials" (SIC Code 5093). Stormwater discharges from the 601 S Myrtle Street facility are permitted under NPDES Permit WA-003196-8 issued by Ecology to SIM on October 25, 2007 with an effective date of December 1, 2007.

SIM leases the property located at 730 S. Myrtle Street (see Figure 1) for storage of equipment and collection containers, maintenance of collection containers under cover, and for temporary parking of trucks and containers on chassis used in shipping and export of metal products. No metal processing is conducted on this site and no metal shred, automobile shredder residue, or related materials are stored on-site. With a facility type of "Local Trucking with Storage" (SIC Code 4214), stormwater discharges from the 730 S. Myrtle Street site are permitted under



VICINITY MAP

N.T.S.

PROJ NO: 112143.20	SCALE: AS NOTED	PROJECT	DRAWN BY: MRK	SHEET
kpff Consulting Engineers 2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162		SEATTLE IRON METALS VICINITY MAP 730 SOUTH MYRTLE	DESIGNED BY: WMA CHECKED BY: WMA DATE: 04/26/2013	FIG. 1

Industrial Stormwater General Permit No. WAR-125002. This Engineering Report addresses only the subject property, 730 S. Myrtle Street.

3.0 730 S. MYRTLE STREET DESCRIPTION

SIM leased the 730 S. Myrtle Street property in 1999. Identified in the King County, Washington Assessor records as Parcel 2734100270, the property is in the name of Reliable Transfer and Storage and consists of 140,465 square feet (3.22 acres) of land. The parcel is bounded to the south by S. Myrtle Street, to the west by Fox Avenue S., to the north by two industrial properties, one used for warehousing and the other used for outside storage, and to the east by an industrially zoned property used as a tavern/lounge.

Prior to SIM leasing the property, the site had been improved with perimeter and internal fencing and a 4,800 square foot metal shed. Other improvements include a billboard owned by Clear Channel Communications and concrete slabs/foundations remaining from previous industrial uses. The site is unpaved, with the existing surface consisting primarily of compacted gravel and dirt. There are no surficial indications of the presence of a piped storm drain system or other utilities including domestic water and fire services or sanitary side sewer connections although City of Seattle sewer cards indicate that the site was previously served by a combined sewer system leaving the site in the east/northeast portion of the property and connecting to sanitary sewer along the west side of East Marginal Way S. A waterline was identified by Utility Locating Service crossing the eastern portion of the site from north to south in the vacated Corson Avenue S. right-of-way. There are limited areas of vegetation, with most located immediately adjacent to perimeter fencing. No other site improvements have been made to the property by SIM.

The site is divided into three operational areas by internal fencing running north to south. The western area is designated as the equipment staging yard, the central area as the equipment storage yard, and the eastern most area as the export yard. Normal operations consist of trucks and trailers entering from S. Myrtle Street through the unfenced equipment staging yard and proceeding through an entrance gate into the fenced equipment storage yard. Trucks and trailers can also enter the equipment storage yard from S. Myrtle Street through the entrance gate of the export yard. Trucks typically enter into the central equipment storage yard to either drop off or pick up empty collection bins. At the end of the day trucks park in this area.

The export yard on the east end of the site is used for staging of loaded shipping containers bound for overseas delivery and also includes covered storage along the east fence line for container handling trucks and other related equipment. Trucks entering the export yard via the S. Myrtle Street gate primarily drop off or pick up loaded shipping containers.

Finally, the 730 S. Myrtle Street property has been identified by the Washington State Department of Ecology as a Model Toxics Cleanup Act site as of April 2013, and is now listed on Ecology's Contaminated Sites List with a Facility/Site Identification No. 9809. The property owners have agreed to enter into the Voluntary Cleanup Program for the site which is being pursued on a concurrent timeline with the improvements presented in this report.

4.0 KIND AND QUANTITY OF FINISHED PRODUCTS

Operation at the 730 S. Myrtle Street facility does not include producing a product of any kind; therefore quantity information has not been provided in this report.

5.0 INDUSTRIAL STORMWATER PERMITTING

Based on classification as Local Trucking with Storage (SIC Code 4214) Seattle Iron & Metals applied for and was issued coverage for the facility under an Industrial Stormwater General Permit. Permit No. WAR-125002 for the 730 S. Myrtle Street facility from the Washington State Department of Ecology on October 21, 2009 which was modified on May 16, 2012 (see Appendix B).

As required under the Permit, SIM has implemented Level 1 and Level 2 corrective actions. Level 1 corrective actions included:

- Conducting an inspection to investigate the cause of benchmark exceedance.
- Review of the site Stormwater Pollution Prevention Plan (SWPPP) to ensure it fully complies with Permit Condition S3, and containes the correct Best Management Practices (BMPs) from Ecology's Stormwater Management Manual for Western Washington.
- Making appropriate revisions to the SWPPP to include additional Operational Source Control BMPs with the goal of achieving benchmark values. The revised SWPPP was certified as required by the Permit.
- Implementing Operational Source Control measures including covering of additional collection bins, disposing of inoperable equipment, storage of small collection drums under cover in storage containers and implementation of dust control measures on the 730 S Myrtle Street site.
- The Level 1 corrective actions were summarized in the Annual Report for the subject site and were submitted to Ecology as required by the Permit.

Level 2 corrective actions included:

- Review of the SWPPP to ensure that if fully complies with Permit Condition S3.
- Making appropriate revisions to the SWPPP to include additional Structural Source Control BMPs with the goal of achieving benchmark values. The revised SWPPP was certified as required by the Permit.
- Implementing additional Structural Source Control measures including construction of a gravel/compost filter perimeter berm along the south and west sides of the site and installation of quarry spall entrances at the site's point of entry.
- The Level 2 corrective actions were summarized in the Annual Report for the subject site and were submitted to Ecology as required by the Permit.

Level 3 corrective actions are required when applicable benchmark values for a single parameter are exceeded for any three quarters during a calendar year, with SIM expected to be at Level 3 by the end of September, 2013. Level 3 corrective actions include the following:

- Review of the SWPPP to ensure that if fully complied with Permit Condition S3.
- Making appropriate revisions to the SWPPP to include additional Treatment BMPs with the goal of achieving benchmark values. The permit holder shall sign and certify the revised SWPPP in accordance with S3.A.6. of the Permit. Sections of the SWPPP that address stormwater treatment design shall be certified by a licensed professional engineer, geologist, hydrogeologist, or Certified Professional in Storm Water Quality.
- Before installing Treatment BMPs that require site-specific design or sizing of structures, equipment, or processes to collect, convey, treat, reclaim, or dispose of industrial stormwater the permit holder shall submit an engineering report, plans and

specifications, and an operations and maintenance manual to Ecology for review and approval.

Per the Agreement Seattle Iron & Metals is required to comply with the following obligations:

- Within 60 days of the effective date of the Agreement, develop and submit to Ecology for Ecology's review and approval and engineering report in accordance with WAC 172-240 that addresses short and long term operational and structural source control and treatment BMPs with the goal of achieving permit benchmarks, including hydraulic aspects of structural and treatment BMPs and timeframes for completion. This report is submitted to Ecology in response to this obligation and to satisfy requirements for a Level 3 corrective action.
- Within 30 days of the effective date of the Agreement submit to Ecology a SWPPP that meets all provisions of Permit Special Condition S3. In addition to meeting all SWPPP requirements under Permit Special Condition S3, the SWPPP must also include practices and procedures for cleaning all scrap metal dumpsters, containers, and barrels to be stored on the permitted property. The SWPPP must also provide for proper cover and containment of all scrap metal dumpsters, containers, and barrels; proper cover and containment of any liquid chemical and/or petroleum products or wastes stored at the facility subject to the Permit. SIM will submit copies of the previous six (6) months of daily inspection and spill logs with the revised SWPPP. SIM has prepared and submitted a revised SWPPP on April 1, 2013 to satisfy this obligation and that required as part of a Level 3 corrective action.
- At the time of the next sampling period, as required by provision S4.B.1.a. of the Permit, after the effective date, SIM shall sample, have analyzed, and provide reports for pollutants for an Automobile Salvage and Scrap Recycling (5015 and 50930 industrial use as required under Permit condition S5.B (Table 3).

Based on PCHB No 12-076 Order of Dismissal and the Agreement, the following compliance schedule is required:

Table 1- Required Documents and Compliance Schedule

Document	Effective/Due Date
Settlement Agreement	2/28/2013
Engineering Report	4/29/2013
Stormwater Pollution Prevention Plan	4/1/2013
Monitoring in Compliance with Automobile Salvage and Scrap Metal Recycling	Next Sampling Period after the Effective Date

This report represents the Engineering Report, submitted as required by the Agreement between Ecology and Seattle Iron & Metals, and proactively fulfills the requirement for submission of an Engineering Report as required under Level 3 Corrective Actions.

Also included in this report is an overview of the proposed site modifications, stormwater modeling, conceptual plans and a tentative implementation schedule. Construction documents and specifications for the proposed improvements, and the operation and maintenance manual required under WAC 173-240-110 will be provided to the Department of Ecology at a later date.

6.0 QUANTITY AND QUALITY OF WATER USED BY SIM AND DISPOSAL METHODS

This report addresses the collection, conveyance and treatment of stormwater runoff for the 730 S. Myrtle Street facility owned and operated by SIM. While available in the vicinity of the property, the site is not connected to an active domestic water supply. The facility is primarily used for storage of equipment and collection containers, maintenance of collection containers inside an enclosed building, and for temporary parking of trucks and containers on chassis used in shipping and export of metal products. The facility does not manufacture or process any product on the site.

According to the Environmental Protection Agency's online NPDES dictionary the definition of process wastewater is:

> "Any water which, during manufacturing or processing, comes into direct contact with, or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product."

By definition there is no process wastewater generated onsite since there is no manufacturing or processing of materials conducted at the facility. There is no domestic wastewater generated at the 730 S. Myrtle Street facility. Likewise, the facility does not manufacture or process materials and does not have any mechanical equipment, including air conditioning or refrigeration units that use non-contact cooling water. Additionally, there is no water used on the site that is lost to evaporation.

7.0 EXISTING STORMWATER COLLECTION, CONVEYANCE, AND TREATMENT

The 730 S. Myrtle Street property has an industrial history. Review of aerial photographs from 1929 show Corson Avenue still in service, with the portion of the property west of Corson having already been developed with buildings with an open parking/storage along the western frontage of Corson. Records list this facility as the former Tyee Lumber Company. That portion of the property east of Corson does not appear to have been developed in the 1929 photo. Aerial photography from 1936 shows the site to have generally remained the same as the 1929 photo.

Photography from 1946 shows the site more developed with additional building coverage and it appears that Corson Avenue S has been vacated, with one small building having been built on the portion of the site east of Corson. All other previously constructed improvements appear to remain on the site.

The next available aerial photo is from 1993 and shows all previously constructed buildings and site improvement having been removed. The site appears to be a dirt lot with traces of building slabs visible, and miscellaneous vehicles parked on the northwest portion of the site. The shed building located along the eastern side of the site adjacent to East Marginal Way is visible.

A photo taken of the site in 1999 shows car parking and equipment storage on the central and western portion of the property. Stacked containers and containers on chassis are visible on the eastern portion of the site. The site appears to have been covered with gravel, and there are no visible signs of previous building slabs. A photo from 2005 shows storage of collection bins, equipment, and chassis on trailers throughout the site.

Today the 730 S. Myrtle Street site consists of an unpaved lot covered with compacted gravel and dirt with the only physical improvements being perimeter fencing around the central and eastern portions of the site and a three sided metal shed located adjacent to East Marginal

Way. There are several small concrete slabs located in the western and central portions of the site. While domestic water, sanitary sewer, and natural gas are available in the adjacent S. Myrtle Street and Fox Avenue S. right-of-way, the site does not appear to be connected to these utilities. The site has an electrical service connection serving the shed structure and site security and lighting as well as the billboard located in the northeast corner of the property.

A summary of the site's land cover is provided in Table 2 below:

Table 2 – 730 S. Myrtle Street Land Cover

Land Cover Type	Area (Square Feet)	Area (Acres)
Shed	4,800	0.11
Concrete Pads	1,462	0.03
Compacted Gravel/Dirt	134,203	3.08
Total Site	140,465	3.22

No storm drainage improvements have been located on the site. City of Seattle sewer cards for the site and surrounding area indicate former sanitary/storm/combined sewer on the property, but there are no visible indications of this system. One section of utility pipe in the northeast corner of the site was uncovered during a site excavation and appeared to be in the general vicinity of the system piping shown on the sewer cards, but no other portions of the system have been discovered.

Lacking a storm drain system, stormwater falling on the site is conveyed overland via sheet flow from a highpoint near mid-site and running east-west towards the perimeter of the property. Site slope is generally in the 0.5% to 3.5% range, with localized depressions that do not drain. Runoff is conveyed from this ridge to the south to S. Myrtle Street right-of-way with stormwater continuing south into the right-of-way, then continuing to the west where it is intercepted by City of Seattle catch basins along S. Myrtle Street and conveyed westward via 24-inch storm drain pipe to the Duwamish River at the western terminus of Myrtle Street. Approximately 2.04 acres of the site currently drains to the Myrtle Street storm drain system. See Figure 2 for delineation of the site's pre-developed drainage basins.

Stormwater conveyed from the mid-site ridge to the north sheet flows onto the adjacent property where stormwater runoff is then conveyed westward to Fox Avenue S. This stormwater is intercepted by a 12-inch City of Seattle storm drain flowing north/northwest along Fox Avenue ultimately discharging to the Duwamish River at the S. Brighton Street outfall. There is also a small area of the 730 S. Myrtle Street site that drains westward from the ridge towards Fox Avenue which is also intercepted by the City's Fox Avenue S. storm drain system. Approximately 1.09 acres of the site currently drains to Fox Avenue.

The existing shed located along the eastern side of the site does not have gutter or downspouts. The shed roof is sloped to drain east towards East Marginal Way S. and does not comingle with on-site stormwater runoff.

Without a storm drain system there is no opportunity to collect, convey and treat stormwater runoff in more traditional manner. As part of Level 2 corrective actions implemented by SIM to prevent sediment laden stormwater from entering City right-of-way, a perimeter filter berm and gravel stabilized quarry spall entrances were installed in October, 2012. The perimeter filter berm consists of a 6-foot wide, 12-inch high triangular berm composed of ¾" to 3" washed, well

graded gravel with less than 5% fines covered with a 2” to 3” compost blanket. This berm was installed as a structural BMP to reduce sediment from being transported off-site. See Appendix C for details of the placement and cross section of the filter berm.

LEGEND

PRE-DEVELOPED SITE BASIN	=	2.04 ACRES
NEW IMPERVIOUS PGIS ADDED TO SITE BASIN	=	1.09 ACRES
TOTAL DEVELOPED SITE BASIN	=	3.13 ACRES

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

PRELIMINARY DESIGN

Plotted: 4/26/13 at 3:56pm By: mkamaval

NO.	DATE	BY	CHD.	APPR.	REVISION

DATE 4/29/2013 | SCALE AS SHOWN
DESIGNED WMA | CHECKED WMA
DRAWN MRK | PROJECT NAME
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730 SOUTH MYRTLE STREET

SITE BASINS
FIGURE 2

SHEET
SHEET 1 OF 1

8.0 PROPOSED STORMWATER COLLECTION, CONVEYANCE, AND TREATMENT

This report proposes to install a new piped storm drain system on the 730 S. Myrtle Street site, which will collect and convey stormwater runoff from the entire site to a central location for treatment. Figures 3 and 4 show the proposed storm drain system.

The design of the proposed storm drain system has been developed to collect and treat that portion of the site used for storage of equipment, trucks, and containers on chassis while balancing the design with site constraints. These constraints include the flat nature of the site, relatively shallow groundwater surface and need to minimize construction dewatering, depth of the existing City storm drain system, possible subsurface contamination from historical site uses, and providing an appropriate treatment system capable of treating the water quality design storm based on Ecology approved continuous modeling.

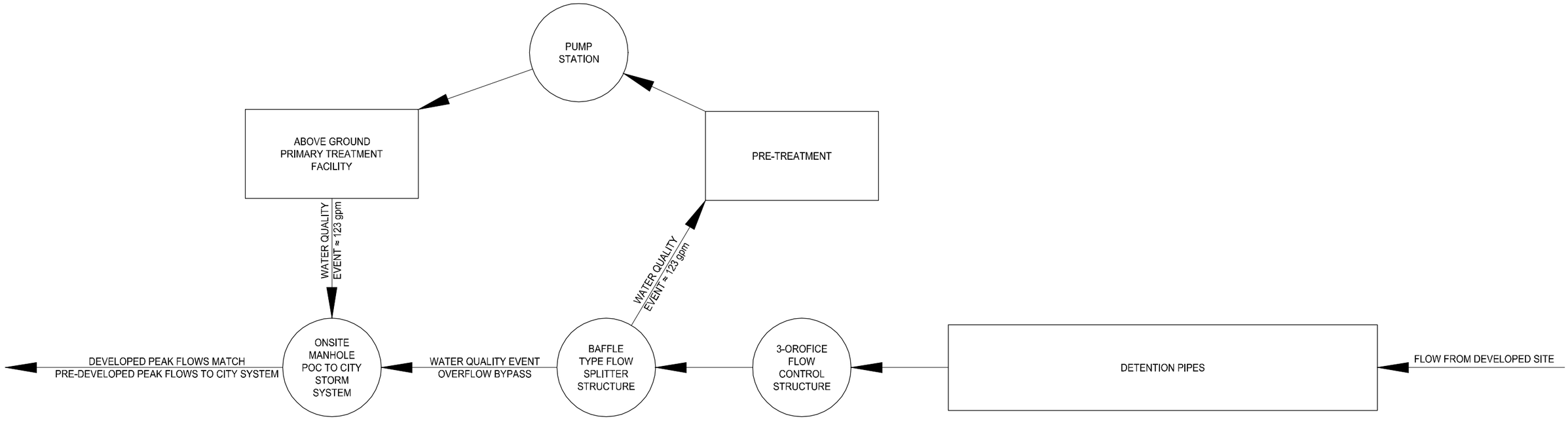
8.1 Proposed System Overview

As noted previously, the site is no longer served by storm or combined sewer facilities. Since research identified possible storm/combined sewer on the site, a number of site visits and explorations were conducted to verify the presence of these facilities for possible use in addressing stormwater discharges from the site. Available information showed that the combined system, if intact, would connect to King County Metro sanitary sewer. During site explorations one pipe was discovered in the general vicinity of the suspected sewer system, but the remaining system was not located. In addition to the site visits and explorations, preliminary discussions with King County Metro indicated that acceptance of stormwater runoff to their sanitary sewer was unlikely to be acceptable.

The subject property consists primarily of an unpaved lot with compacted dirt and gravel surfacing. The primary water quality issues associated this type of unimproved property include turbidity and suspended solids mobilized during storm events. With the present and anticipated site use being equipment, collection bin, and truck and trailer storage other contaminates of concern include copper, zinc. Other contaminates could include lead and total petroleum hydrocarbons (TPH)-diesel. For further discussion on stormwater characterization and Permit limits, see Section 9 of this report.

The first step in addressing stormwater quality at this site is provide a stable surfacing that is not subject to disturbance during day-to-day operations and will not be displaced by stormwater runoff. This report proposes to pave the site with asphalt over a crushed rock base course which will significantly reduce the amount of sediment in runoff from the site. Site pavement will be designed in accordance with standard engineering practice based on vehicle types and anticipated trip generation.

In order to manage site runoff so that it can be collected and conveyed to on-site treatment, the site will be graded in such a way that stormwater is directed away from the perimeter of the property inward to a central storm drain system. Site grades will be established to maximize collection of site runoff, balance earthwork to the extent feasible, and to achieve necessary grades at site entrances and at the existing shed.



PRELIMINARY DESIGN

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NO.	DATE	BY	CHD.	APPR.	REVISION

DATE 4/29/2013 | SCALE AS SHOWN
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DRAWN MRK | PROJECT NAME
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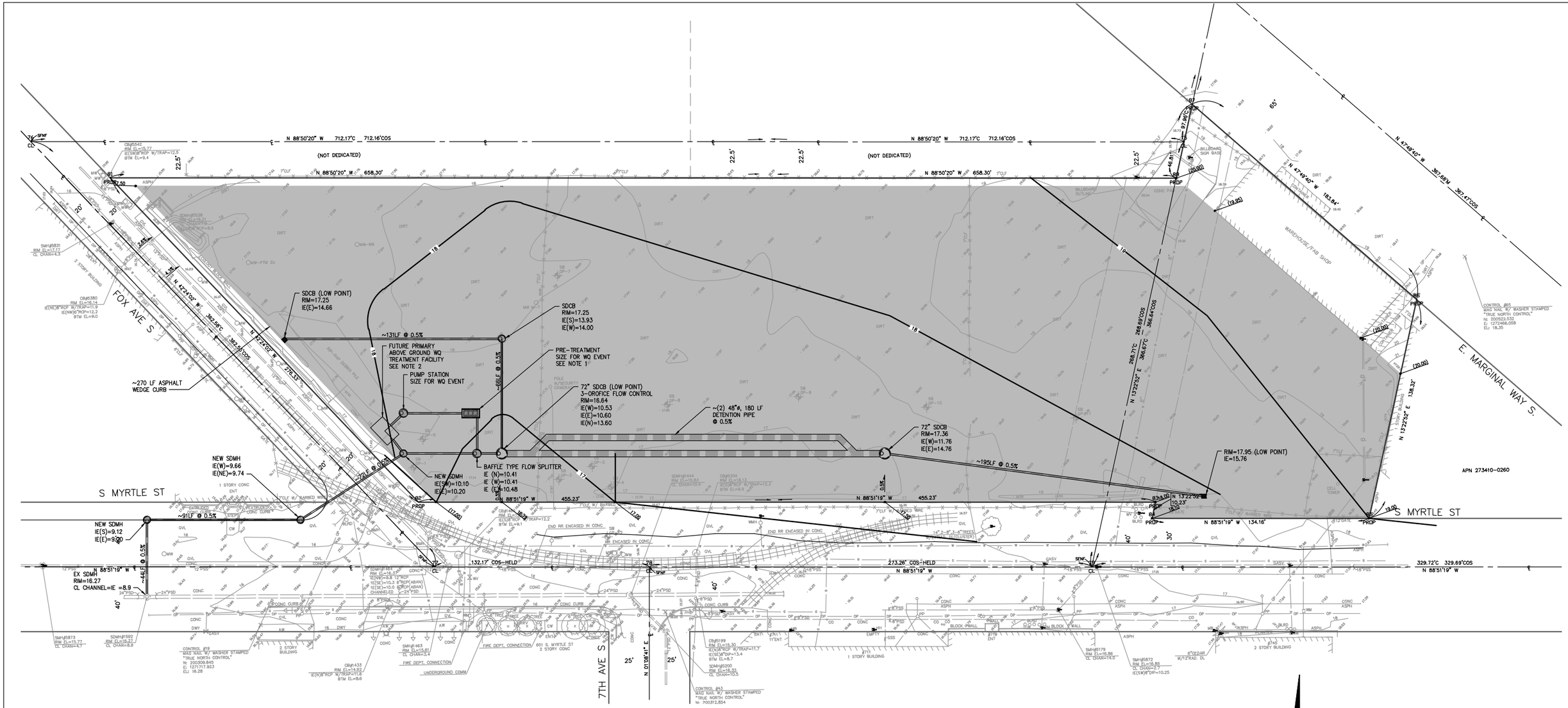
SEATTLE IRON & METALS
730 SOUTH MYRTLE STREET

STORM DRAIN SYSTEM FLOW DIAGRAM
FIGURE 3

SHEET 1 OF 1



NOTES:

1. ACCEPTABLE PRETREATMENT UNITS INCLUDE:
   - CONTECH ENGINEERED SOLUTIONS CPS STORMWATER TREATMENT SYSTEM
   - CONTECH ENGINEERED SOLUTIONS VORTECH SYSTEM
   - STORMWATER Rx CLAVER SYSTEM
   - OLDCASTLE PRECAST OIL/WATER SEPARATOR W/ COALESCING PLATES

2. POSSIBLE PRIMARY TREATMENT TECHNOLOGIES INCLUDE:
   - SAND FILTER
   - AMENDED SAND FILTER
   - CHITOSAN ENHANCED SAND FILTER (CESF)
   - PASSIVE FILTRATION MEDIA
   - ELECTROCOAGULATION

3. ALL PIPES ARE 12"ø U.N.O.

N

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)
1 inch = 30 ft.

PRELIMINARY DESIGN

Plotted: 4/26/13 at 4:01pm By: mkamawal

NO.	DATE	BY	CHD.	APPR.	REVISION

DATE 4/29/2013 | SCALE AS SHOWN
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STORM DRAINAGE PLAN
FIGURE 4

SHEET 1 OF 1

The proposed storm drain system will be comprised of the following components:

- Catch Basins
- Collection Piping
- Manhole Structures
- Detention Piping
- Flow Splitter Structure
- Pre-treatment
- Stormwater Pump Station
- Stormwater Primary Treatment

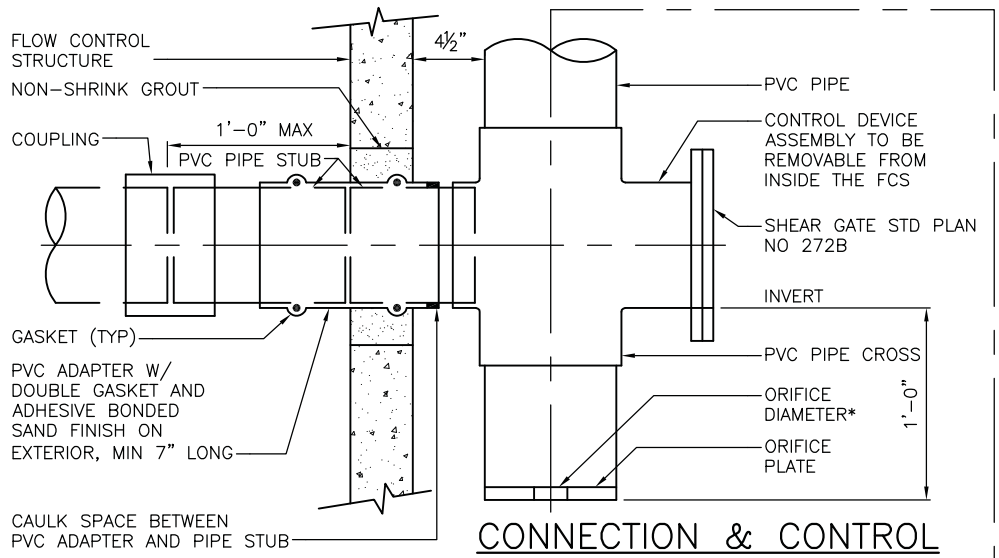
Currently the site discharges to two separate stormwater outfalls, one at the end of S. Myrtle Street and the other at the end of S. Brighton Street. With collection and conveyance of on-site stormwater to a single on-site storm drain and treatment system and the requirement for compliance testing, this report proposes to consolidate all site drainage and discharge site runoff to the S. Myrtle Street storm drain system and outfall only. While this configuration will provide a single point of compliance for stormwater compliance monitoring, by redirecting the 1.09 acres of runoff currently going to the Fox Avenue S. storm drain system, detention is necessary to avoid surcharging of the existing City storm drain system in S. Myrtle Street.

The site's stormwater collection and conveyance system (see Figure 4) will consist of catch basins, manholes, and conveyance piping. Catch basin and manhole structures will adhere to City of Seattle and Washington State Department of Transportation standard designs and will be modified as necessary to accommodate site specific vehicle loading requirements. Collection piping materials will be selected based on vehicle loading and depth of bury established during final system design. All site collection and conveyance piping will be connected directly to detention where the water quality event flow can be directed to treatment, and where peak flows from larger storm events can be reduced to pre-developed flow rates without surcharge of the S. Myrtle Street storm drain system. Catch basins will have sumps allowing the use of catch basin filters for additional sediment control, and piping will have a minimum diameter of 12 inches and a minimum slope of 0.5%. See Section 8.4 for information related to sizing of the stormwater collection and conveyance system.

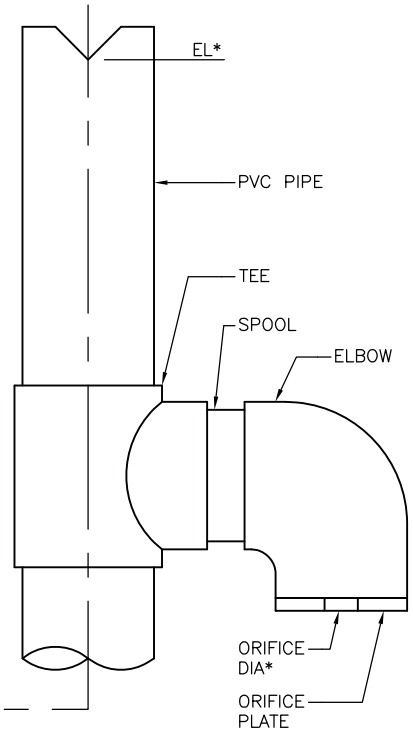
Detention will be provided within the southernmost portion of the site, parallel to S Myrtle Street. Comprised of 48" diameter pipe, the downstream (west) end of the detention facility will be placed closer to Fox Avenue S. due to elevation constraints at the connection point to the S. Myrtle Street storm drain system. The upstream and downstream ends of the detention facility will terminate in 6-foot diameter manholes with grated lids acting as catch basins, and will also be the connection point for the collection and conveyance system serving the eastern and western portions of the site. The downstream (west) manhole is configured as a City of Seattle standard flow control structure (see Figure 5). The flow control structure will meter out stormwater from the detention pipe through the use of an 18 inch flow control riser with orifice plates and overflow weir. The riser will detain stormwater runoff from the site to reduce peak flows to pre-developed rates equivalent to the rate from the 2.04 acre portion of the site currently discharging to the S. Myrtle Street storm drain system in order to prevent City system surcharging. Stormwater passing through the riser will discharge detained stormwater via an 18-inch diameter pipe to a flow splitter structure.

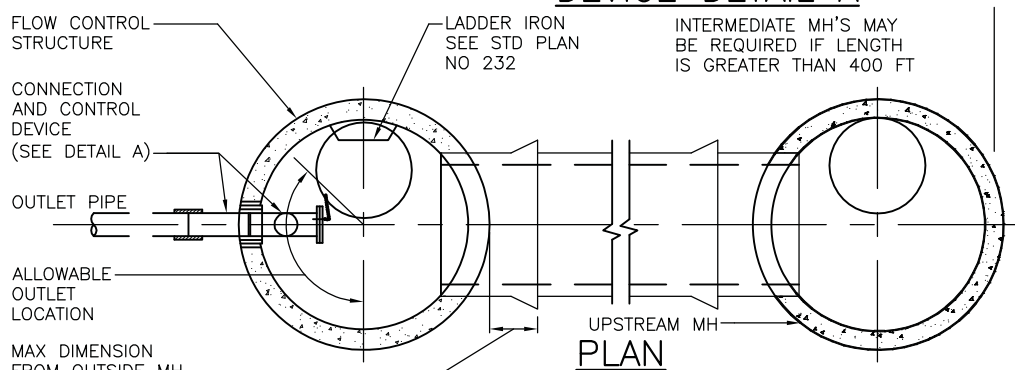
The flow splitter consists of a 4-foot diameter manhole fitted with a baffle wall (see Figure 6). The baffle wall will divert the stormwater flow for the water quality event to below grade pre-treatment, pump station, and above grade primary treatment. Storm flow in excess of the water

REV DATE: FEB 2010

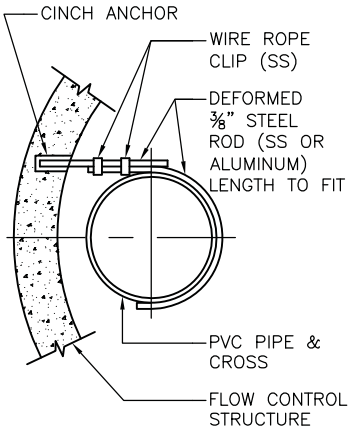


CONNECTION & CONTROL DEVICE DETAIL A

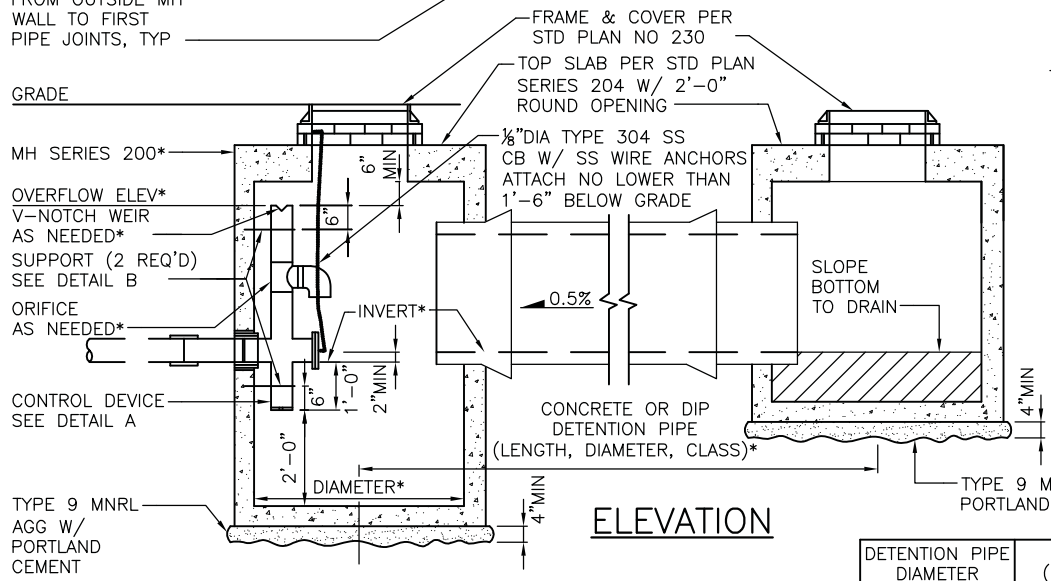




PLAN



PIPE SUPPORT DETAIL B



ELEVATION

FLOW CONTROL STRUCTURE & DETENTION PIPE

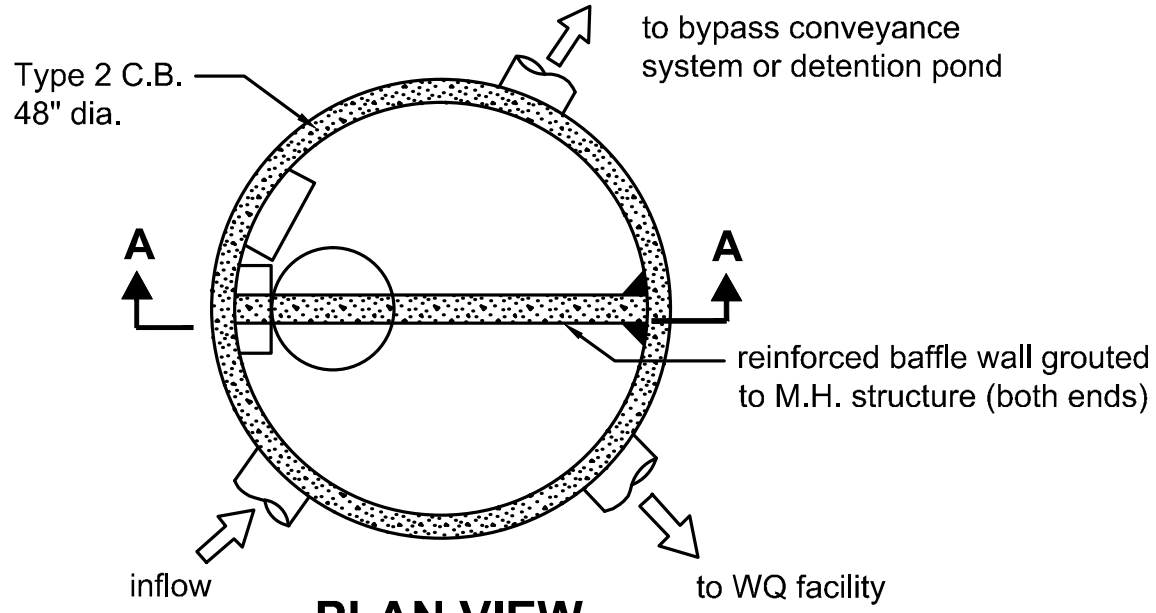
DETENTION PIPE DIAMETER	FCS * (MH SIZE)	UPSTREAM * (MH SIZE)
18"	201B	201A OR B
24"	201B	201A OR B
30"	202B	202B
36"	202B	202B
48"	203B	203B
60"	204B	204B
72"	205B	205B

*SPECIFIC DESIGN INFORMATION AS INDICATED ON CONSTRUCTION DRAWINGS

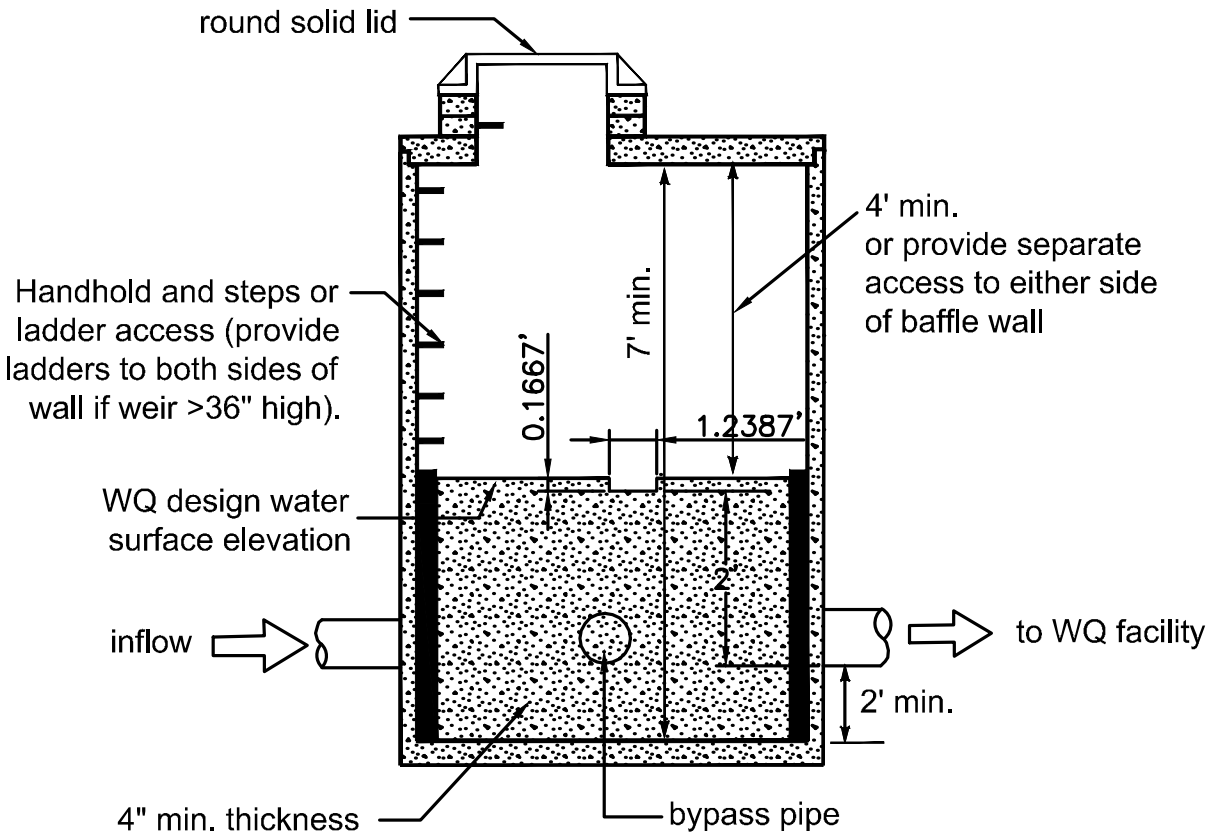
REF STD SPEC SEC 7-16

City of Seattle | NOT TO SCALE | FLOW CONTROL STRUCTURE (CONC OR DIP DETENTION PIPE)

FIGURE 5



PLAN VIEW
NTS



SECTION A-A
NTS

PROJ NO: 112143.20	SCALE: AS NOTED	PROJECT	DRAWN BY: MRK	SHEET
kpff Consulting Engineers 2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396-0150 Fax (253) 396-0162		SEATTLE IRON METALS BAFFLE FLOW SPLITTER 730 SOUTH MYRTLE	DESIGNED BY: WMA CHECKED BY: WMA DATE: 04/29/2013	FIG. 6

quality event will bypass around treatment (off-line treatment). Stormwater flow in excess of the water quality flow rate will bypass treatment and will be conveyed westward to the S. Myrtle Street storm drain system. The discharge pipe from the site's terminal manhole will be fitted with a check valve assembly to prevent stormwater flows from the City system from entering the onsite system. For additional information related to detention computations see Section 8.3.

The project will provide stormwater treatment in two phases (see Figure 7). As discussed in Section 9 of this report, Phase 1 improvements will include grading and paving of the site and installation of the stormwater collection and conveyance system, detention, flow control structure, and discharge piping from the site to the City storm drain in S. Myrtle Street. Also included in the Phase 1 improvements will be installation of below grade pre-treatment and the pump station manhole.

While a selection of specific pre-treatment unit has not been made, pre-treatment will include catch basin inserts as described in Section 10.2.3 of this report and the following technologies:

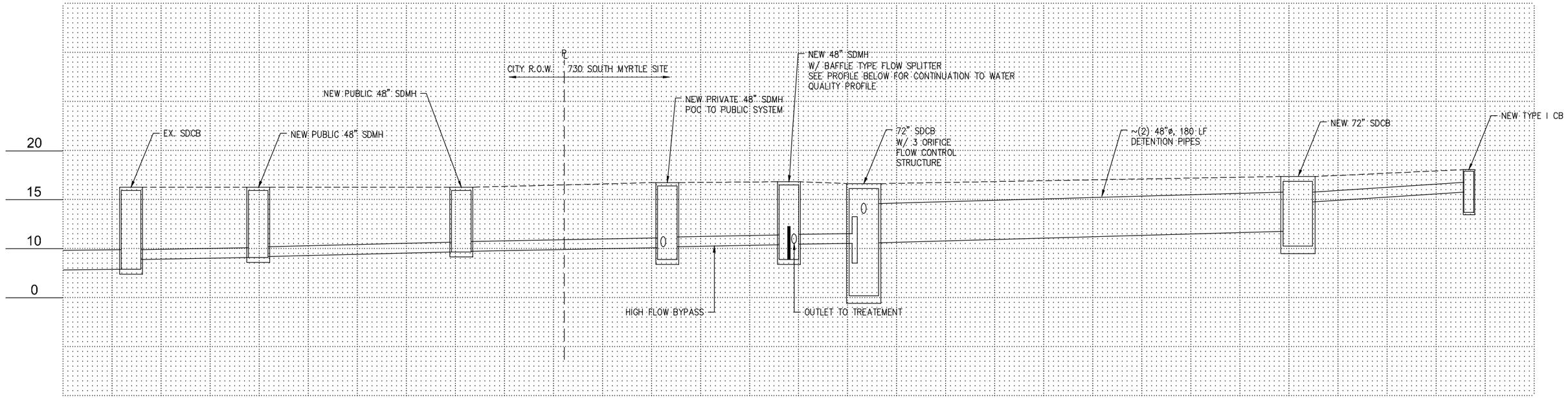
- CONTECH Engineering Solutions CDS Stormwater Treatment System
- CONTECH Engineering Solutions Vortechs System
- StormwateRx Clara System
- Oldcastle Precast Oil/Water Separator

As discussed in Section 10.2.4, selection of primary treatment is contingent on obtaining stormwater test data representative of site conditions after paving. This report recommends that stormwater testing for the chemicals of concern be accomplished for a 6-month period following completion of the Phase 1 improvements, with this data being used in selection of appropriate primary treatment targeted for site operations. Technologies considered candidates for primary treatment include the following:

- Sand Filter
- Amended Sand Filter
- Chitosan Enhanced Sand Filter (CESF)
- Passive Filtration Media
- Electrocoagulation

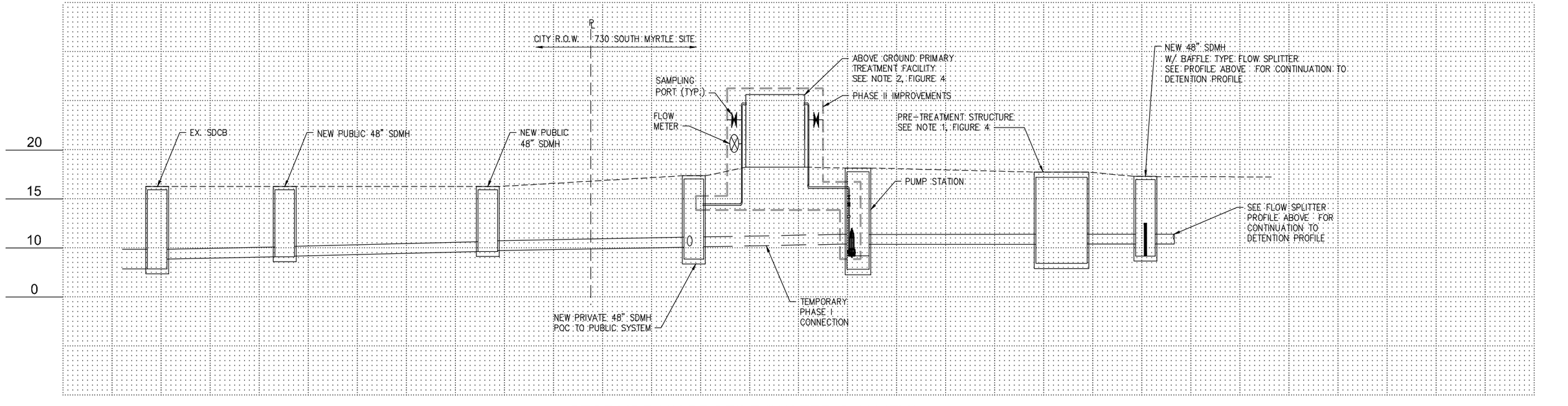
After completion of testing selection of an appropriate primary treatment technology will be accomplished along with final design and permitting of Phase 2 improvements. Phase 2 improvements will include installation of the pump station equipment and above grade primary treatment to complete the collection, conveyance and treatment system for the 730 S. Myrtle Street site.

In order to be able to monitor the effectiveness of the Phase 1 improvements, stormwater samples will be collected downstream of the pre-treatment device at the pump station manhole prior to stormwater discharge off-site. After installation of the Phase 2 improvements, two sampling ports will be installed, one on the influent (pre-treatment) pipe to primary treatment and one on the effluent (post-treatment) pipe downstream of primary treatment (see Figure 6). After passing through the treatment system, the treated stormwater will flow via gravity to an on-site manhole located in the southwest corner of the site, where it will be discharged to the City storm drain system and the Duwamish River. A flow meter will be installed in the discharge piping from the primary treatment (similar to a vehicle's odometer) that will keep a running total of flow through the treatment system. This flow meter will be read manually by SIM staff on a monthly basis to determine the monthly flow treated by the system.



STORMDRAIN PROFILE "DETENTION"

SCALE: V:1"=5' H:NTS



STORMDRAIN PROFILE "WATER QUALITY"

SCALE: V:1"=5' H:NTS

PRELIMINARY DESIGN

NO.	DATE	BY	CHD.	APPR.	REVISION

DATE 4/29/2013 | SCALE AS SHOWN
DESIGNED WMA | CHECKED WMA
DRAWN MRK | PROJECT NAME
JOB NO. 112143.20

kpff Consulting Engineers
2407 North 31st St # 100
Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

SEATTLE IRON & METALS
730 SOUTH MYRTLE STREET

STORM DRAINAGE PROFILE
FIGURE 7

SHEET 1 OF 1

Plotted: 4/26/13 at 4:04pm By: mkamawal

8.2 Stormwater Treatment Sizing

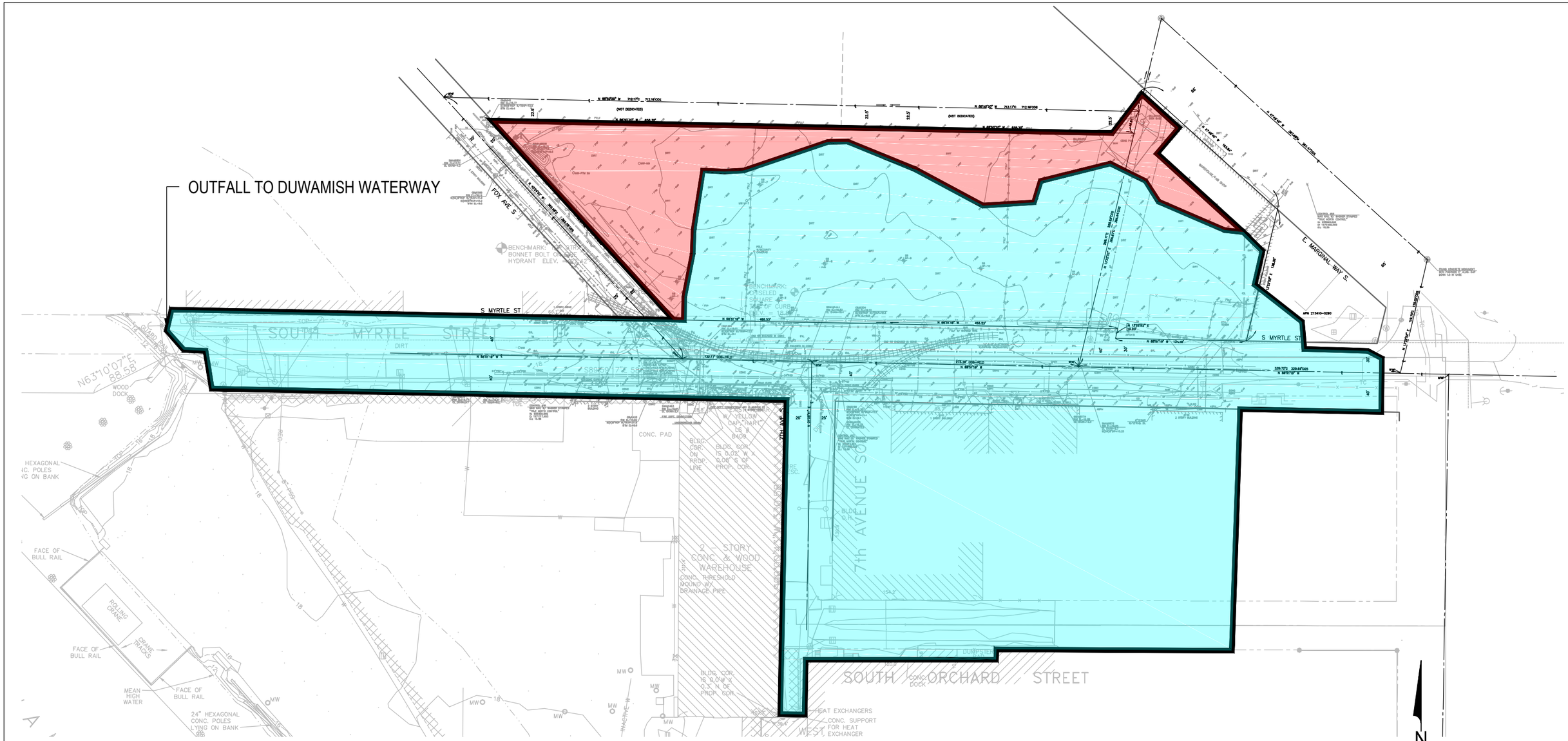
According to the Department of Ecology's Stormwater Management Manual for Western Washington (SWMMWW) Volume III, Chapter 2, stormwater treatment BMPs are to be designed using an Ecology approved continuous stormwater model. For purposes of sizing the stormwater treatment for the SIM 730 S. Myrtle Street facility, KPFF Consulting Engineers utilized MGS Flood v4.12 by MGS Software, LLC, an Ecology approved continuous model. Since the subject site is located in Seattle, modeling was conducted utilizing the City of Seattle rainfall data set for the 158 year period and adjusted to a 15 minute time step per the City's Stormwater Manual. Using the model and site information for the drainage basin contributing flow to the treatment unit, the stormwater model was run to determine the treatment design flow rate for the water quality event, defined as the flow rate at or below which 91% of the total runoff volume for the simulation period is treated. Based on the treatment flow rate generated by the stormwater modeling, pre-treatment, stormwater pump station, and primary treatment will be designed for a treatment design flow rate of no greater than 0.271 cfs (123 gpm). The MGS Flood stormwater modeling information and supporting sizing calculations are provided in Appendix D.

Pre-treatment will operate under gravity flow. Primary treatment, due to the nature of the equipment will be installed above grade on a concrete pad. In order to convey stormwater to above grade treatment a pump station will be required. Based on the anticipated project phasing, Phase I will install the pump station manhole and will temporarily connect the pump station discharge pipe to the site's terminal manhole allow stormwater passing though pre-treatment to discharge to the City system via gravity. As part of the Phase 2 improvements the pump assemblies and associated controllers will be installed along with the primary treatment equipment. The pump station will be equipped with two pumps each capable of pumping the treatment design flow rate of 123 gpm. The pumps will operate in a lead/lag configuration providing redundancy in the event of a pump failure.

8.3 Stormwater Detention Sizing

To configure the storm drain system to allow for discharge of site runoff through a single outfall stormwater from the northern portion of the site totaling 1.09 acres detention is required to prevent surcharging of the City's storm drain system located in S. Myrtle Street. In order to verify if there was sufficient capacity in the existing City system to convey the additional stormwater runoff from the northern portion of the site, an analysis of the systems hydraulic grade line (HGL) was conducted (see Appendix E for computations). Utilizing MGS Flood to generate peak system flows using City of Seattle rainfall data for the 158 year time period and a 5 minute time step, peak flow information was entered into a MS Excel spreadsheet to determine the 25-year HGL. Based on this analysis there is sufficient capacity to pass the 25-year flow from existing contributing area (Figure 8), but insufficient capacity to accommodate the additional 1.09 acres currently discharging to Fox Avenue S.

In order to provide protection of the City's storm drain infrastructure, detention is required to reduce peak flows from the combined site flows. Detention requirements were computed using MGS Flood utilizing the City's rainfall data and a 5 minute time step. Detention computations used a City of Seattle standard flow control device incorporating an 18 inch riser and two orifices, as well as an overflow weir at the top of the riser device. Rainfall was routed through the facility and orifices adjusted until post-developed peak flow for the combined 3.13 acre site matched the pre-developed peak flow for the 2.04 acres of the site that currently drains to S. Myrtle Street. MGS Flood assumes that detention is provided in a vault structure; values and routing have been adjusted for a configuration that uses pipe for stormwater storage.



LEGEND

	PRE-DEVELOPED DRAINAGE BASIN	=	6.96 ACRES
	NEW IMPERVIOUS AREA ADDED TO DRAINAGE BASIN	=	1.09 ACRES
	TOTAL DEVELOPED DRAINAGE BASIN	=	8.05 ACRES

GRAPHIC SCALE
50 0 25 50 100
(IN FEET)
1 inch = 50 ft.

PRELIMINARY DESIGN

Plotted: 4/26/13 at 4:06pm By: mkamawal

NO.	DATE	BY	CHD.	APPR.	REVISION

DATE 4/29/2013 | SCALE AS SHOWN
DESIGNED WMA | CHECKED WMA
DRAWN MRK | PROJECT NAME
JOB NO. 112143.20

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Tacoma, Washington 98407
(253) 396-0150 Fax (253) 396-0162

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730 SOUTH MYRTLE STREET

DRAINAGE BASINS
FIGURE 8

SHEET
SHEET 1 OF 1

Based on the modeling, approximately 360 feet of 48 inch diameter pipe will be required. The MGS Flood stormwater modeling information and supporting sizing calculations are provided in Appendix F.

8.4 Stormwater Collection and Conveyance System Design and Sizing

The stormwater collection and conveyance system layout was designed to intercept as much of the site as possible while balancing depth below grade to minimize construction and operational impacts due to groundwater. Final design of the conveyance system will be performed to ensure that the system would convey the 25-year treatment design flow and meet City of Seattle storm drain conveyance requirements. For purposes of design, PVC pipe was selected due to it flow characteristics, availability and ease of installation. To minimize installation depth a typical minimum cover of 2.5 feet over the pipe and a uniform pipe slope of 0.5% has been used. Each reach of the proposed storm drain system was sized to accommodate the runoff from the drainage basin to each catch basin. Figure 4 shows the location of the proposed storm drainage system.

Conveyance will be computed utilizing MGS Flood and the City of Seattle 158 year rainfall data set and a 5 minute time step to generate peak flow rates in each pipe reach. Peak flow rates will then be entered into an MS Excel spread sheet to determine pipe sizes using Manning's equation. Stormwater computations for on-site conveyance is provided in Appendix G.

8.5 Interim Stormwater Treatment

As noted in Section 7.0, a perimeter filter berm consisting of a 6-foot wide, 12-inch high triangular berm composed of ¾" to 3" washed, well graded gravel with a 2" to 3" compost blanket was installed as a structural BMP as a Level 2 Corrective Action to reduce sediment from being transported off-site. With the proposed stormwater collection, conveyance, and treatment selection tentatively scheduled to be completed in late 2014, an additional treatment measure will be constructed to supplement the filter berm already installed.

Importantly, interim options are severely constrained by permitting and other City code requirements. The Sediment Trap described below can be installed immediately, without permitting restrictions, while the permitting process for the permanent stormwater conveyance system is in process, which has a long permitting lead time (see Section 17.0). Therefore, this interim measure is designed to improve stormwater quality until the permanent stormwater collection, conveyance, and treatment phase of the project is appropriately permitted and can be constructed.

Comprised of a lined Sediment Trap per the Washington State Department of Ecology BMP C240, installation of this BMP will be used to collect and store sediment prior to discharge of stormwater from the site. Placed behind (upstream) of the previously installed filter berm, the sediment trap would allow stormwater from approximately 0.69 acres of the project site to be collected and sediment settled out prior to discharge through the previously installed filter berm. Downstream of the sediment trap and filter berm a level spreader (Ecology BMP C206) will be installed to provide an outlet converting any concentrated flow to sheet flow prior to discharge from the property.

Information regarding sizing and design of the Sediment Trap is included in Appendix H.

9.0 PERMIT LIMITS AND STORMWATER CHARACTERIZATION

This section identifies the characteristics of the stormwater being discharged and identifies the permit requirements. Since the property is already covered under an existing Industrial Stormwater General Permit (ISWGP) and the pollutants of concern at the facility have been defined, this analysis focuses solely on the pollutants identified in the Permit and described further in this section.

9.1 Permit Limits

As described previously, stormwater discharged from the property is managed under ISWGP Permit No. WAR-125002. After proposed improvements are implemented at the site, industrial stormwater will discharge through one outfall as addressed in this report. Monthly monitoring is required for the post-treatment discharge to this outfall with the following expected pollutant discharge numerical limits for the new permit based on recent discussions with Ecology:

Table 3 – 730 S. Myrtle Street Permit Benchmark Values

	Permit Benchmark Values	
Parameter	**Average Monthly**	**Maximum Daily**
Turbidity, NTU		25
Copper, Total Recoverable		14 µg/L
Zinc, Total Recoverable		117 µg/L
Lead, Total Recoverable		81.6 µg/L
TPH-Diesel		10.0 mg/L
Oil and Grease	No Visual Sheen	
pH	6 to 9	

Past sampling has been conducted at the facility and has shown that the property had exceedances of these limits for turbidity, copper, and zinc. No samples were collected for lead or TPH-Diesel and the pH was within the limits in all samples. However, these data are based on samples taken from the unimproved gravel yard which is not representative of stormwater discharges to the outfall following implementation of the property improvements. These improvements include paving the property and installation of upgraded best management practices (BMPs).

9.2 Stormwater Characterization

9.2.1 Stormwater Volumes and Flow Rates

As described in the previous sections, the treatment system at the property is designed to be able to collect and convey the water quality event before an overflow condition arises. The treatment flow rate for the water quality event for an off-line treatment system is calculated to be 123 gpm. This flow rate will be used to compare treatment technologies.

9.2.2 Stormwater Quality

In order to determine the potential appropriate treatment technologies, it was first necessary to determine the quality of the stormwater that would be entering the system. Currently, the property is an unpaved lot with a hard gravel surface and no stormwater collection or conveyance system. As part of the development of the property, it will be paved with asphalt and will include a stormwater collection and conveyance system. The use of the property will remain the same. Therefore, there is no representative data available from the site that can be used to predict future conditions for the stormwater to be treated.

With lack of actual data at the facility, including pollutant concentrations in terms of both quantity and the form of the pollutants (dissolved versus particulate) and particle size distribution and the lack of bench scale tests, it is impractical to select a treatment technology at the current time. In absence of the required information, a treatment system that is selected may be inappropriate for the facility's future conditions, focus on the wrong type of pollutant, and may be unable to meet the benchmark limits.

Due to the absence of relevant data that could be applied to the facility, it was determined that the most beneficial approach is to develop the facility as planned including the stormwater collection and conveyance system and install pre-treatment at the facility. The facility would then operate under normal conditions and effluent samples from the pre-treatment unit would be collected to identify the quality of stormwater that would need to be treated by the primary treatment system. Additionally, samples may be collected for bench scale testing by vendors, facilitating better surety with final treatment selection. Finally, analytes of interest to Ecology's Toxics Cleanup Program (TCP) could be built into the testing program to ensure that the final stormwater treatment system selected addresses TCP concerns about contamination present in the subsurface.

It is much easier to select pre-treatment for a facility of this nature, as the primary function of pre-treatment is to reduce the quantity of particulates, suspended solids and oils and greases that are present in the stormwater. The pre-treatment not only provides the first step in the treatment train process, but it also provides a level of particulate removal that will prevent the pumps from clogging.

9.2.3 Pre-Treatment Influent Stormwater Quality

In order to select an appropriate pre-treatment system, it was necessary to determine an approximate quality of stormwater entering the system. In lieu of relevant site-specific data, stormwater quality from facilities that have similar characteristics was evaluated to try and predict the characteristics of future site conditions. This data is shown on Table 5. Analytical data from the following sites was evaluated:

- The property in its current condition – Samples from 2011 and 2012 show significantly elevated concentrations of all constituents. This quality is significantly worse than anticipated future stormwater quality, after paving is completed.
- The main SIM facility at 601 S. Myrtle Street – Data collected of the stormwater system influent from March 2008 to December 2010 was evaluated. This time period is prior to installation of pre-treatment at the site. This quality is based on the use of the site as a processing and storage facility for metal shredding and recycling and is anticipated to be significantly worse than the future quality of the property.

- Associated Petroleum Products – This is a roughly 3-acre site in Tacoma, Washintgon used for transfer of fuel products, offices, and vehicle storage. Significant roof runoff from galvanized surfaces contribute zinc. However, due to the size of the facility, the paved surfaces and the vehicle traffic, this data may be more similar to that anticipated for this property.
- Confidential Client – 2 sites for a confidential client from similar areas in Seattle that are paved and have high truck volumes, lots of short radius turns and little to no galvanized roofing.
- An average of Puget Sound Commercial and Industrial facilities from the *Control of Toxic Chemicals in Puget Sound, Phase 1: Initial Estimate of Loadings* (Hart Crowser 2007).
- An average of parking lots and loading docks from *A Survey of Zinc Concentrations in Industrial Stormwater Runoff* (Ecology 2006).

For the majority of sites listed above, both the average concentrations and the 95% upper confidence limit (UCL) were determined from the available data. In order to ensure that the stormwater quality is sufficiently addressed at this Site, it was determined that using a conservative assumption of the water quality was appropriate. Therefore the following stormwater quality has been determined to be potentially representative of future conditions for purposes of pre-treatment selection.

Table 5 - Stormwater Quality Characteristics

			730 S. Myrtle Street Property as a Dirt Lot										SIM (601 S. Myrtle St.)[1]		APP[1]		T-18		T-25/30		Puget Sound Commercial/Industrial[2]		Parking and Loading Dock Averaged Discharge [3]		Assumed Influent Concentrations		Removal Efficiency Necessary (from assumed max.)
			6/22/12		11/29/12		12/17/12		9/26/11		3/5/12		Avg from March 2008 to Dec 2010	95% UCL from March 2008 to Dec 2010	Avg from Jan 2009 to May 2010	95% UCL from Jan 2009 to May 2010	Avg. from Sept. 2010 to May 2012	95% UCL from Sept. 2010 to May 2012	Avg. from Sept. 2010 to April 2012	95% UCL from Sept. 2010 to April 2012	Median	Median plus 2 standard deviations	Mean		Average	Maximum	
Parameter	Unit	Benchmark Value	GP1	GP2	GP1	GP2	GP1	GP2	GP1	GP2	GP1	GP2	Influent (prior to installation of pre-treatment)		All	All	All	All	All	All							
Turbidity	NTU	25	412	4620	1240	458	51	428	1070	4600	2070	1200	484.62	696.5			53	63.9	52.6	64.4					150	300	92%
pH	Std. Units	5 to 9	7.66	8.24	7.24	7.35	7.15	7.36	7.56	7.76	8.22	8.4	7.71	8.14	6.5	6.59									7.5	8.5	0%
Total Copper	ug/L	14	153	1050	593	110	68	93	224	862	778	338	659.6	1228			66.6	137.4	48.2	162.5	25	26.8			100	200	93%
Total Zinc	ug/L	117	93.3	6360	3180	597	779	806	1310	5460	3510	1880	8790.93	12978	507.4	641.2	751	1466	489.5	1335	120	121.8	70.5		1000	2000	94%
Total Lead	ug/L	81.6	568	824	704	88.7	60.5	76.6					1510.49	3157			99	NA			20	22.3			100	200	59%
TPH - NWTPH - Dx[4]	mg/L	10	.050 U	.050 U	.050 U	.050 U	.050 U	.050 U							0.73	12.9	2.2	2.94	1.6	1.53					10	20	50%
Oil Sheen	Yes/No	Visual	No Numerical Results																								

1. From Associated Petroleum Products Engineering Report - 2320 and 2326 Milwaukee Way, Tacoma WA (Floyd|Snider 2010).
2. From Control of Toxic Chemicals in Puget Sound, Phase 1: Initial Estimate of Loadings (Hart Crowser 2007)
3. From "A Survey of Zinc Concentrations in Industrial Stormwater Runoff" (Ecology 2006)
4. The results reported are TPH-D. Heavy Oil concentrations were typically 1,000 to 10,000 ug/L.

Table 6 – Assumed Influent Concentrations Following Phase 1 Improvements

Parameter	Assumed Influent Concentrations	
	Average	**Maximum**
Turbidity, NTU	150	300
Copper, Total Recoverable	100 µg/L	200 µg/L
Zinc, Total Recoverable	1000 µg/L	2000 µg/L
Lead, Total Recoverable	100 µg/L	200 µg/L
pH	7.9	8.5
TPH-Diesel	10 mg/L	20 mg/L
Oil and Grease	Visual Sheen	

The likely source of pollutants on the property are anticipated to be residual metal that remains on roll-offs, containers, vehicles and equipment, residual metal that is tracked in on vehicle tires, zinc from vehicle tires, copper from brake pads, and TPH from operational vehicles and crushed vehicles that are being transported. There are no buildings on the property and only a limited amount of galvanized fencing. Based on this it is assumed that the majority of the pollutants will be present in particulate form and not in dissolved. The assumption was made that the ratio of particulate to dissolved would be similar to the confidential sites. At these sites, the dissolved fraction was typically 15% of the total concentration. Therefore, it is assumed that the metals in stormwater at the 730 S. Myrtle Street property are 85% particulate and 15% dissolved.

This water quality data is used in Section 10 to identify the pollutants of concern at the site and evaluate potential treatment technologies.

10.0 TREATMENT TECHNOLOGIES

This section identifies and describes known and available treatment technologies applicable to the stormwater at the 730 S. Myrtle Street property. It is important to note that all treatment technologies presented here are in addition to the pollutant-removal BMPs described in SIM's site-specific Stormwater Pollution Prevention Plan (SWPPP) that will be implemented on the developed property. BMPs of note include vacuum sweeping of pavement and daily sweeping of S. Myrtle Street by SIM to mitigate track out by vehicles not owned or operated by SIM.

10.1 Identification of Pollutants of Concern

Table 5 contains a summary of the assumed influent concentrations for the subject property. The following expected pollutants of concern in the NPDES Permit were evaluated and are not carried forth for additional evaluation for the reasons described below:

- *Turbidity*-Based on the anticipated influent turbidity concentration at the subject property, turbidity will be a key pollutant that the treatment system will need to address.
- *pH*—As shown in Table 5, pH is anticipated to have an average concentration of 7.5 and a maximum of 8.5. Concentrations at the current site were between 7.15 and

8.4. Since the pH level has always been within the limits without any treatment, further evaluation of treatment technologies for pH is not necessary.

- *Metals*: Copper, zinc and lead—Copper, zinc and lead are all required sampling parameters of the new NPDES Permit. Assumed influent concentrations of copper and zinc are significantly higher than the benchmark values. Lead concentrations are assumed to be slightly higher than the benchmark values, but will still need to be addressed by a treatment system.
- *Diesel-range total petroleum hydrocarbons (TPH-Dx)*—As shown in Table 5, TPH-D is anticipated to be higher than the benchmark values of 10 mg/L. Further evaluation of treatment technologies for TPH-Dx is necessary.
- *Oils and Greases* - It is anticipated that any system that removes TPH-Dx will also prevent sheen formation. Therefore, the evaluation of a system to remove TPH-Dx can be viewed as a surrogate for oils and greases and no further evaluation is necessary for oils and greases.

Therefore, the following pollutants may require treatment to meet permit limits and will be carried forth for treatment technology analysis:

- Turbidity
- Copper
- Zinc
- Lead
- TPH-Dx

10.2 Identification and Screening of Potential Treatment Technologies

The treatment alternatives identified in this section focus on the stormwater pollutants identified above. The stormwater system to be installed at the facility will be composed of a treatment train consisting of pre-treatment system and a primary stormwater treatment system.

10.2.1 Treatment Technology Requirements

In order to determine if the above system is applicable to the facility, technologies that could be used at the property were identified and compared to the required criteria for the property. The following criteria were used to evaluate the applicable technologies:

- The treatment technology must meet the following requirements:
  - Approval by Ecology. In order to determine which technologies are Ecology-approved, resources from Ecology were used, including the current *Western Washington Stormwater Manual* that identifies suggested stormwater treatment options for industrial yards.
  - Appropriate to the facility, its operations and the anticipated pollutant concentrations.
  - Able to meet the ISWGP Permit limits.
  - Able to be implemented at the facility.
  - Allow for simple and routine maintenance that can be accomplished by SIM personnel or outside vendors.

10.2.2 Treatment System Evaluation

Based on the above criteria, the following technologies for site treatment were not carried forward based on the following reasons:

- **Stormwater Re-use**—SIM's 730 S. Myrtle Street operations do not use a substantial amount of water.
- **Sanitary Sewer Discharge**—It is not a current policy of the City of Seattle (and many other Puget Sound cities and counties) to accept stormwater discharges from industry to the sanitary sewer system, as it takes away needed capacity from the existing sewage infrastructure.
- **Carbon Adsorption**—Carbon adsorption is focused on the removal of any remaining organics including benzene, BTEX, and residual oils and greases. The carbon bed also filters small amounts of solids that remain in the stormwater and also filters dissolved metals to a small degree. Since hydrocarbons are not anticipated to be a primary concern, this technology is not applicable.
- **Oil/Water Separator with Coalescing Plates**—This is a standard oil/water separator with the addition of coalescing plates which provides additional hydrocarbon removal. Primarily removes oils and greases and TPHs with additional benefit of removing suspended solids and associated metals through particulate settling. Since hydrocarbons are not anticipated to be the sole and primary concern, this technology is not applicable exclusively for treatment. Oil water separation is considered for pre-treatment, however.
- **Biofiltration (including swales, strips, and wetlands) and Wet Ponds**—Due to the availability of space, shallow groundwater table, the industrial nature of the area, and the presence of contaminated groundwater and soil, this type of treatment is not appropriate for the facility.
- **Infiltration**—Due to the presence of contaminated soils and groundwater at the site and the nature of the pollutants in the water to be infiltrated, some type of treatment would be required to meet City of Seattle requirements beforehand. Therefore, infiltration could not be considered as a stand-alone treatment option.
- **Wet Vaults—**Wet vaults are similar in function to the proposed pre-treatment oil/water separatorand therefore would be a redundant system at this facility and unable to meet the necessary ISWGP Permit limits.

The following technologies were carried forth for further analysis:

- **Pre-Treatment**
  - **Catch Basin Inserts**—Catch basin inserts with media packets promote the removal of total suspended solids, organics (including oils), and metals. An example of this is the Triton Catch Basin Insert by Contech products and the AquaGuardian by AquaShield.
  - **Hydrodynamic Devices**—Hydrodynamic devices such as separators employ a gravity mechanism (i.e., oil/water separators) in open wet vaults or wet vaults with coalescing plates to remove oil, water insoluble hydrocarbons, and settleable solids from stormwater runoff. Other hydrodynamic devices such as

swirl regulators and concentrators are compact flow control and treatment units with inside structure designed to improve solids and oil removal and retention. An example is the Vortechs Treatment System manufactured by the Contech Company.

- **Oil/Water Separator**—An oil/water separator (OWS) is a device designed to separate gross amounts of oil and suspended solids from the stormwater. The OWS is designed to have multiple chambers with baffles separating them designed to capture floatables including oils and greases and to capture solids that settle out. An example of this is the Clara manufactured by StormwateRx.

- **Primary Treatment**
  - **Sand Filter**—Sets of sand filter pods piped in parallel provide removal of suspended solids including metals in particulate form, and TSS.
  - **Amended Sand Filter**—Adding select media (such as steel fiber or crushed limestone) to sand filters resulted in removing additional dissolved zinc from stormwater in tests documented in the *Western Washington Stormwater Manual* (Ecology 2005).
  - **Chitosan Enhanced Sand Filter (CESF)** – CESF uses the addition of chitosan in a sand filter that creates an ionic attraction to the fine particles that are suspended in stormwater. The particles combine to form larger particles which are then easily removed from the stormwater through the sand filter technology. The addition of chitosan can increase the removal of turbidity by 95% and increases the removal of metals and other particulates.
  - **Passive Filtration Media**—Filtering stormwater passively through media specific to the pollutant being treated—such as compost stormwater filter media, bone char, peat, organo-clay, zeolite, perlite, or iron-infused media—can enhance removal of oils and greases and other organics, dissolved metals such as copper and zinc, and suspended solids removal. Peat is a highly organic material formed by the accumulation and decomposition of aquatic plants in wetlands and bogs; organo-clays are surfactant modified clays produced by replacing exchangeable cations in natural clays with organic cations; zeolite is a naturally occurring mineral with a high surface area that is mined for use as a cation exchange and anion adsorption medium; perlite is a naturally-occurring volcanic ash with a high surface area for adhesion of oil and grease; iron-infused media consists of an open-cell structured media infused with small bits of iron to remove dissolved phosphate, copper, and zinc (Minton 2005). The activated alumina is coated with ferrous oxide, ferrous hydroxide, and ferrous sulfide for increased retention due to chemical reduction of dissolved metals. An example of this system is the StormwaterRx Aquip system, which is amended with sand and activated carbon.
  - **Electrocoagulation** - Electrocoagulation is a water treatment process whereby an electric current is applied across metal plates to remove various contaminants from water. Heavy metals (ions) and colloids (organics and inorganics) are primarily held in solution by electrical charges and particle size. By applying an electrical charge to a solution of contaminated water, you can destabilize the charges on the various particles and generate a coagulation reaction (Water Tectonics 2013). An example of this system in the WaveIonics system from Water Tectonics.

Table 7 shows the pollutant removal focus for each of the treatment technologies described above. The format to identify the focus of each technology is similar to that used by Ecology in Volume V of the *Western Washington Stormwater Manual* (Ecology 2005). In Table 7, a designation of "Major" for a pollutant identifies that pollutant as the primary focus for a particular treatment technology. "Minor" indicates that the technology performs only supplemental pollutant removal for that pollutant. Finally, those pollutants with "-" for a particular technology are not affected by the technology.

10.2.3 Pre-Treatment System Selection

The pre-treatment technologies identified for pre-treatment are:

- Catch Basin Inserts
- Hydrodynamic Separator
- Oil/Water Separator

Due to the ease of installation, the lower capital costs, minimal operation and maintenance costs, and the possibility of reduced pollutants in stormwater, catch basin inserts have been selected as part of the pre-treatment process. There are numerous models and manufacturers of this technology including Triton Catch Basin Insert by Contech products and the AquaGuardian by AquaShield. The specific catch basin insert will be determined by availability, cost, discussions with vendors and applicability to the facility.

Hydrodynamic separation technology has been approved through the Technology Assessment Protocol – Ecology (TAPE) Program for pre-treatment of stormwater. Pretreatment is defined as "Intended to achieve 50% removal of fine (50 micron-mean size) and 80% removal of coarse (125-micron-mean size) total suspended solids for influent concentrations greater than 100 mg/L, but less than 200 mg/L. For influent concentrations less than 100 mg/L, facilities are intended to achieve effluent goals of 50 mg/L of fine and 20 mg/L of coarse total suspended solids (http://www.ecy.wa.gov/programs/wq/stormwater/newtech/Pretreatment.html).

Oil/Water Separators provide similar levels of treatment as hydrodynamic separators and are typically accepted technologies by Ecology for pre-treatment of stormwater. In combination with primary treatment, oil/water separators are routinely installed to remove hydrocarbons and provide some removal of particulate matter.

Both hydrodynamic separators and oil/water separators are appropriate for this facility as pre-treatment systems. The model and manufacturer to be installed will be determined based on availability, vendor discussions, grading and elevation requirements, and cost. Some of the acceptable models are:

- CONTECH Engineering Solutions CDS Stormwater Treatment System
- CONTECH Engineered Solutions Vortechs System
- StormwateRx Clara System
- Oldcastle Precast Oil/Water Separator

Table 7

Identification of Treatment Technologies and Pollutant Removal Focus[1]

Pollutant	Pre-Treatment			Primary Treatment				
	Catch Basin Inserts	Hydro-dynamic Separators	Oil Water Separators	Sand Filter	Amended Sand Filter	Passive Filtration Media	Chitosan Enhanced Sand Filter	Electro-coagulation
Turbidity	Major	Major	Major	Major	Major	Major	Major	Major
Copper, Total Recoverable	Major	Minor	Minor	Major	Major	Major	Major	Major
Zinc, Total Recoverable	Major	Minor	Minor	Major	Major	Major	Major	Major
Lead, Total Recoverable	Major	Minor	Minor	Major	Major	Major	Major	Major
TPH	Major	Minor	Major	Minor	Minor	Major	Minor	Minor

Notes:

1 The major and minor designations do not indicate removal efficiencies, only identify the targets of removal.

- No treatment is provided by this technology

Major Primary focus of treatment technology.

Minor Treatment technology provides supplemental removal of pollutant.

Abbreviation:

It should be noted that if additional hydrocarbon removal is desired, the addition of coalescing plates may be used as well.

10.2.4 Primary Treatment System Selection

As described above, the final selection of the treatment system will be determined based upon effluent results from the pre-treatment system collected during routine operation at the facility. Applicable primary treatment technologies include:

- Sand Filter
- Amended Sand Filter
- Chitosan Enhanced Sand Filter (CESF)
- Passive Filtration Media
- Electrocoagulation

In order to properly select the appropriate treatment technology, samples will be routinely collected during storm events for the ISWGP Permit parameters. The following reporting limits and analytical methodologies shown in Table 8 will be used.

Table 8 – Effluent Testing Following Completion of Phase 1 Improvements

Parameter	Analytical Method	Method Detection Limit	Benchmark Value
pH	USEPA 150.1	0.01 SU	5.0–9.0 SU
Turbidity	USEPA 180.1	0.05 NTU	25 NTU
Total Copper	USEPA 200.8	0.5 µg/L	14 µg/L
Dissolved Copper	USEPA 200.8	0.5 µg/L	
Total Zinc	USEPA 200.8	4 µg/L	117 µg/L
Dissolved Zinc	USEPA 200.8	4 µg/L	
Total Lead	USEPA 200.8	0.1 µg/L	81.6 µg/L
Dissolved Lead	USEPA 200.8	0.1 µg/L	
Total Petroleum Hydrocarbons	NWTPH-Dx	Diesel: 0.25 µg/L Heavy Oil: 0.5 µg/L	10. mg/L

In addition samples will be analyzed for particle size distribution. Additional samples may be analyzed by vendors for bench scaled tests and to determine appropriate treatment technologies. These bench scale tests can provide additional confirmation concerning the suitability of treatment technologies.

Samples will periodically be collected from both the influent and effluent of the pre-treatment system. This will assist in both determining the appropriate primary treatment technology and the effectiveness of the pre-treatment system. Effluent samples and periodically, influent

samples, will be collected during a 6-month evaluation period and will be collected a minimum of twice per month, depending upon the rain events of this period.

Once the data is received, SIM will prepare an addendum to this engineering report that will provide an AKART analysis and identify the preferred treatment technology to be installed at the property. The analysis will include a stormwater quality data compilation, a comparison of the individual technologies and an economic evaluation. In order for a treatment technology to be considered AKART, an economic analysis must be performed to determine if it is economically reasonable to install and operate the treatment technologies at the facility. In order to efficiently compare the treatment technologies, order of magnitude costs will be developed for each treatment technology. The economic analysis will identify the system that will provide the most cost-effective pollutant removal on a dollar per gram basis and are also capable of meeting the stringent ISWGP permit limits

11.0 DESCRIPTION OF THE OUTFALL AND RECEIVING WATER

The discharge location is shown in Figure 8. The discharge point is located at the end of S. Myrtle Street. A 24" diameter pipe conveys the storm flow from the site, as well as public road storm drainage from S. Myrtle Street and other surrounding properties as shown on Figure 8 to the Duwamish Waterway. Energy dispersal and bank protection is provided at low tide by rip rap and quarry spalls beneath the outfall. The site's treatment system will only use the S. Myrtle Street outfall to the Duwamish River as described elsewhere in this report. The proposed storm drain collection, conveyance and treatment system will not discharge to a municipal sanitary sewerage system, and does not propose any discharge through land application, seepage lagoons, irrigation, or subsurface disposal

As stated in the Fact Sheet for Seattle Iron & Metals NPDES Permit No. WA 00-3196-8 dated October 25, 2007, the Duwamish River is designated as good quality freshwater receiving water in the vicinity of the outfall. Other nearby point source outfalls with individual NPDES permits include Lafarge and TODD Pacific/Vigor Shipyard, although both facilities either reuse their stormwater or route industrial stormwater to King County for treatment. Significant nearby non-point sources of pollutants include municipal stormwater runoff. According to WAC 173-201A-260; "The marine water criteria must apply at all other locations where the salinity values are greater than one part per thousand…" However, further investigation of this waterway revealed that the salinity is in the vicinity of 19 ppt (part per thousand) that clearly indicates freshwater quality criteria may not be applicable to this waterway. The NPDES permit, therefore, considers this waterway as estuary and sets permit requirements accordingly. There are other active and significant nearby point source outfalls that discharge to the receiving water that fall under Ecology's general industrial NPDES permit.

12.0 SLUDGE DISPOSAL

All materials collected in the proposed treatment BMP's including sweeping, catch basin inserts, and from routine maintenance of the oil water separator will be disposed of in a legal manner by SIM staff or by the vendor providing maintenance of the BMP.

13.0 OWNERSHIP, OPERATION, AND MAINTENANCE RESPONSIBILITY

Seattle Iron & Metals Corporation is the operator and party responsible to maintain the proposed stormwater collection, conveyance and treatment system after construction.

14.0 COMPLIANCE WITH STATE, LOCAL, OR FEDERAL WATER POLLUTION CONTROL ACT OR PLANS

The Seattle Iron & Metals Corporation facility located at 730 S. Myrtle Street in Seattle, Washington will comply with any state or local water quality management plans or any plan adopted under the Federal Water Pollution Control Act, as amended.

The 730 S. Myrtle Street property has been identified by the Washington State Department of Ecology as a Model Toxics Cleanup Act site as of April 2013, and is now listed on Ecology's Contaminated Sites List with a Facility/Site Identification No. 9809. The property owners have agreed to enter into the Voluntary Cleanup Program for the site which is being pursued on a concurrent timeline with the improvements presented in this report. Stormwater improvements will be coordinated with any Voluntary Cleanup Program actions and investigations undertaken on the property.

15.0 PROVISIONS FOR ANY FUTURE PLANS

As described in Section 8.0, the stormwater collection, conveyance and treatment system proposed in this engineering report, has been designed to include future installation of primary treatment BMP's identified elsewhere in this report as Phase 2 improvements.

With the inclusion of pre-treatment and future primary treatment noted in Section 8.1 and Section 10, the proposed stormwater treatment system is expected to be considered AKART. An AKART analysis will be provided in a revision to this Engineering Report following installation of Phase 1 improvement and collection of stormwater test results from the improved site which will allow evaluation and selection of an appropriate Phase 2 primary treatment technology. Beyond the Phase 1 and Phase 2 improvements described in this report no future stormwater treatment improvements are planned.

Upon completion of construction of the proposed treatment system including Phase I and Phase II improvements, SIM will conduct sampling to identify the effectiveness of the proposed treatment system and to provide the necessary information to accomplish system adjustments to optimize performance.

16.0 SOURCE CONTROL MEASURE EVALUATION

In the development of the design or the proposed collection, conveyance and treatment system for the 730 S. Myrtle Street facility, source control BMPs recommended in Volume IV, Chapter 2 of the SWMMWW were identified and evaluated for appropriateness. The operational and structural control for pollutant specific BMPs for the following commercial or industrial activities related to SIM's facility and operation were evaluated:

- BMPs for Parking and Storage of Vehicles and Equipment
- BMPs for Storage of Liquid, Food Waste, or Dangerous Waste Containers

The recommended BMPs for each of these activities described in the SWMMWW are noted below:

16.1 BMPs for Parking and Storage of Vehicles and Equipment

This activity is applicable to the SIM facility since personally owned vehicles (POV) and SIM fleet vehicles are routinely parked at the site. Employee and other POV's are typically parked on the site as identified elsewhere in this report. Per Volume IV, Chapter 2 of the SWMMWW, the description of possible pollutant sources include hydrocarbons and other organic compounds, oils and greases, metals, and suspended solids caused by the parked vehicles.

The approach to control pollutants from entering stormwater runoff for parking lots that are located on **high-use sites** provide appropriate oil removal equipment for the contaminated stormwater runoff. According to the definition for high use sites:

"Establishments subject to a vehicle high-use intensity have been determined to be significant sources of oil contamination of stormwater. Examples of potential high use areas include customer parking lots at fast food stores, grocery stores, taverns, restaurants, large shopping malls, discount warehouse stores, quick-lube shops, and banks. If the PGIS [pollution generating impervious surface] for a high-use site exceeds 5,000 square feet in a threshold discharge area, an oil control BMP from the Oil Control Menu is necessary. A high-use site at a commercial or industrial establishment has one of the following characteristics: (Gaus/King County, 1994)

- Is subject to an expected average daily vehicle traffic (ADT) count equal to or greater than 100 vehicles per 1,000 square feet of gross building area: or
- Is subject to storage of a fleet of 25 or more diesel vehicles that are over 10 tons gross weight (trucks, buses, trains, heavy equipment, etc.).

    - The total gross floor area of the facility is approximately 4,800 square feet, which would require the facility to have an expected average daily vehicle traffic count of at least 480 vehicles (4,800 ÷ 1,000 x 100 = 480). The site does not see anywhere near this much traffic per day. To put it in perspective, the site would need to experience over an 8-hour day approximately 60 vehicles per hour to meet this total. Based on this criteria the site in not a high-use site.
    - No fleet vehicles are parked at the site during the day with the exception of those delivering product. Historically, the total number of fleet vehicles parked at the site overnight is never more than 25. Based on this criteria the site in not a high-use site.

For this activity, the following operational BMPs are recommended:

- If washing of a parking lot is conducted, discharge the washwater to a sanitary sewer, if allowed by the local sewer authority, or other approved wastewater treatment system, or collect if for off-site disposal.
- Do not hose down the area to a storm drain or to a receiving water. Sweep parking lots, storage areas, and driveways, regularly to collect dirt, waste, and debris.

    - Since the subject site in it current configuration is a dirt lot, no washing of the site surface is performed. This site cannot be swept due to the site surfacing.

- After completion of Phase 1 improvements it is expected that the site will be swept to reduce sediment from entering the propsed storm drain system.

For this activity, applicable treatment BMPs include:

- An oil removal system such as an API or CP oil and water separator, catch basin filter, or equivalent BMP, approved by the local jurisdiction for parking lots meeting the threshold vehicle traffic intensity level of a *high-use site.*

    - This engineering report proposes to implement treatment measures that would address parking for a high-use site in the form of catch basin filters and a pre-treatment structure similar in function to an oil water separator.

16.2 BMPs for Storage of Liquids, Food Waste, or Dangerous Waste Containers

According to SWMMWW Volume IV, Chapter 2, storage of liquids can pollute stormwater runoff. Steel and plastic drums with volumetric capacities of 55 gallons or less are typically used at industrial facilities for container storage of liquids and powders. The BMPs specified below apply to container(s) located outside a building used for temporary storage of accumulated food wastes, vegetable or animal grease, used oil, liquid feedstock or cleaning chemical or Dangerous Wastes (liquid or solid) unless the business is permitted by Ecology to store the wastes (SWMMWW Volume IV, Appendix IV-D R.4). Leaks and spills of pollutant materials during handling and storage are the primary sources of pollutants. Oil and grease, acid-alkali pH, BOD, COD are potential pollutant constituents.

Pollutant Control Approach: Store containers in impervious containment under a roof or other appropriate cover, or in a building. For roll-containers (for example, dumpsters) that are picked up directly by the collection truck, a filet can be placed on both sides of the curb to facilitate moving the dumpster. If a storage area is to be used on-site for less than 30 days, a portable temporary secondary system like that shown in SWMMWW Volume IV, Figure 2.8 can be used in lieu of a permanent system as described above.

Applicable operational BMPs include:

- Place tight-fitting lids on all containers.
- Place drip pans beneath all mounted container taps and at all potential drip and spill locations during filling and unloading of containers.
- Inspect container storage areas regularly for corrosion, structural failure, spills, leaks, overfills, and failure of piping systems. Check containers daily for leaks/spills. Replace containers, and replace and tighten bungs in drums as needed.
- Businesses accumulating Dangerous Wastes that do not contain free liquids need only to store these wastes in a sloped designated area with the containers elevated or otherwise protected from storm water run-on.
- Drums stored in an area where unauthorized persons may gain access must be secured in a manner that prevents accidental spillage, pilferage, or any unauthorized use. (see SWMMWW Volume IV, Figure 2.9.).
- If the material is a Dangerous Waste, the business owner must comply with any additional Ecology requirements as specified in SWMMWW Volume IV, Appendix IV-D R.3.
- Storage of reactive, ignitable, or flammable liquids must comply with the Uniform Fire Code (SWMMWW Volume IV, Appendix IV-D R.2).

- Cover dumpsters, or keep them under cover such as a lean-to, to prevent the entry of stormwater. Replace or repair leaking garbage dumpsters.
- Drain dumpsters and/or dumpster pads to sanitary sewer. Keep dumpster lids closed. Install waterproof liners.

Applicable structural source control BMPs include:

- Keep containers with Dangerous Waste, food waste, or other potential pollutant liquids inside a building unless this is impracticable due to site constraints or Uniform Fire Code requirements.
- Store containers in a designated area, which is covered, bermed or diked, paved and impervious in order to contain leaks, and spills (see SWMMWW Volume IV, Figure 2.10). The secondary containment shall be sloped to drain into a dead-end sump for the collection of leaks and small spills.
- For liquid wastes, surround the containers with a dike as illustrated in SWMMWW Volume IV, Figure 2.10. The dike must be of sufficient height to provide a volume of either 10 percent of the total enclosed container volume or 110 percent of the volume contained in the largest container, whichever is greater, or, if a single container, 110 percent of the volume of that container.
- Where material is temporarily stored in drums, a containment system can be used as illustrated, in lieu of the above system (see SWMMWW Volume IV, Figure 2.8).
- Place containers mounted for direct removal of a liquid chemical for use by employees inside a containment area as described above. Use a drip pan during liquid transfer (see SWMMWW Volume IV, Figure 2.11).

Applicable treatment BMPs include:

- For contaminated stormwater in the containment area, connect the sump outlet to a sanitary sewer, if approved by the local Sewer Authority, or to appropriate treatment such as an API or CP oil/water separator, catch basin filter or other appropriate system (see SWMMWW Volume V). Equipment the sump outlet with a normally closed valve to prevent the release of spilled or leaked liquids, especially flammables (compliance with Fire Codes), and dangerous liquids. This valve may be opened only for the conveyance of contaminated stormwater to treatment.
- Another option for discharge of contaminated stormwater is to pump it from a dead-end sump or catchment to a tank truck or other appropriate vehicle for off-site treatment and/or disposal.

    - Once improved, the 730 S. Myrtle Street site will be paved and will be graded in such a way that stormwater runoff is contained within the site. Site stormwater will be collected and treated using appropriate treatment methods as identified above.
    - SIM stores all steel or plastic containers with volumetric capacities of 55 gallons or less under cover.
    - Approximately 40% of SIM's roll-off containers are equipped with custom-fitted covers. Containers with fitted covers will be preferentially used to store and transport materials. Lidded containers will be kept closed when not in use.
    - Whenever possible, open containers without a cover will be kept under cover (when not in use) or moved to SIM's 601 S. Myrtle Street property.

- The remaining containers will not have custom-fitted covers, but these will be used to transport larger pieces of scrap metal that do not contain metal residuals of concern.
- Some percentage of containers will remain uncovered when in long-term use because scrap materials sometimes are transported in pieces too large to fit under the custom lids.

17.0 TIMETABLE FOR DESIGN AND CONSTRUCTION

Based on our understanding of the process associated with the submission, review, and approval of this revised engineering report, the tentative schedule to permit and install the proposed system improvements, subject to City of Seattle and other permitting authority review and approval is:

Table 9 – SIM Stormwater Treatment Improvement Schedule

Submit Engineering Report to Ecology	April 29, 2013
Resubmittal of Engineering Report to Ecology for Approval	October 1, 2013
Ecology Conditional Approval of Engineering Report	October 4, 2013
Voluntary Cleanup Program Application/Work Plan Prep	September-December 2013
Construction of Interim Treatment Measures	14 days
Interim Measure Installation Complete	October 21,2013
Data Collection (2x/mo.) Dependent on Rain Amt & Timing	October – December 2013
Preparation of Master Use Permit (MUP)/SEPA Documents	45 Days
Submission of MUP/SEPA to City of Seattle for Approval	November 18, 2013
Approval of MUP/SEPA by the City	May 25, 2014
Preparation of Permit Documents for Site Improvements	60 Days
Submission of Site Permit Document to the City of Seattle	December 3, 2013
Ecology Coordination on VCP Activities	December, 2013
Consult w/Ecology on Interim Measures Performance	January, 2014
VCP Sampling	February, 2014
Potential Other Interim, Non-Permanent Measures	February – April 2014
Revise Construction Documents per VCP/Toxics Input	February-April, 2014
Approval of Site Permit Documents by the City	April 22, 2014
Preparation of Permit Documents for Street Improvements	60 Days
Submission of Street Permit Documents to the City	December 3, 2013
Approval of Street Permit Documents by the City	April 22, 2014
Project Bidding	30 Days
Phase 1 Construction	90 Days
Phase 1 Construction Completion	August 27, 2014
Stormwater Monitoring and Testing (6 months)	October 2014-March 2015
Prepare Revised Engineering Report for Phase 2 Improvements including AKART Analysis	60 Days
Submit Revised Engineering Report w/Phase 2 to Ecology	May 26, 2015
Ecology Conditional Approval of Phase 2 Report	July 21, 2015
Pre-order Phase 2 Equipment	60 Days
Prepare Revised Construction Plans for Permitting	21 days
Submit Revised Construction Plan to City of Seattle	August 12, 2015
City of Seattle Plan Approval	September 8, 2015

Phase 2 Equipment Delivery	September 15, 2015
Commence Construction	September 16, 2015
Construction Completion	October 27, 2015
System Testing and Adjustment	30 Days
Submit O&M Manual and Revised SWPPP to Ecology	September 27, 2015

18.0 SEPA / NEPA COMPLIANCE

SIM will prepare a SEPA Checklist as required by City of Seattle requirements for construction of the proposed improvements at the time of project permitting. The project is not subject to National Environmental Policy Act (NEPA).

19.0 SOLID WASTE LEACHATE TREATMENT SYSTEM

This project will not allow leachate from its solid waste material to enter state ground or surface waters. All solid waste will be disposed of offsite in a legal manner.

Appendix A

POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

SEATTLE IRON AND METALS CORP., Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondents.	PCHB No. 12-076 ORDER OF DISMISSAL

The Board being advised that the parties have reached a settlement in this matter, and it appearing that there is no contested case remaining for hearing, IT IS ORDERED that the case is DISMISSED.

SO ORDERED this 28th day of February, 2013.

POLLUTION CONTROL HEARINGS BOARD

Tom McDonald

TOM MCDONALD, Member

J Marchioro

Joan Marchioro, Presiding
Administrative Appeals Judge

POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

SEATTLE IRON & METALS CORP., a Washington corporation, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent.	Case No. 12-076 MOTION AND ORDER TO DISMISS WITH PREJUDICE

Respondent, State of Washington, Department of Ecology, represented by Robert W. Ferguson, Attorney General, and Gordon Karg, Assistant Attorney General, and Appellant, Seattle Iron & Metals Corp., represented by Matthew Stock and Stephen Parkinson, Joyce Ziker Parkinson, PLLC, hereby submit this agreed Motion and Order to Dismiss with Prejudice.

I. MOTION TO DISMISS

Based upon the attached Settlement Agreement, incorporated herein by this reference, and WAC 371-08-440, the parties move the Board for an Order to dismiss this appeal with prejudice.

JOYCE ZIKER PARKINSON, PLLC
1601 Fifth Avenue, Suite 2040
Seattle, Washington 98101
Tel: 206-957-5960 / Fax: 206-957-5961

RESPECTFULLY SUBMITTED this 27th day of February 2013.

Presented by:

ROBERT W. FERGUSON
Attorney General

2/26/13

GORDON KARG, WSBA #37178
Assistant Attorney General
Attorneys for Respondent
(360) 586-4615

JOYCE ZIKER PARKINSON, PLLC

MATTHEW STOCK, WSBA #40223
STEPHEN PARKINSON, WSBA #21111
Attorneys for Appellant
(206) 957-5960

II. ORDER OF DISMISSAL

Based upon the above Motion, IT IS HEREBY,

ORDERED that the above-captioned appeal is DISMISSED with prejudice.

DONE this _____ day of _____ 2013

POLLUTION CONTROL HEARINGS BOARD

JOAN MARCHIORO, Presiding

JOYCE ZIKER PARKINSON, PLLC
1601 Fifth Avenue, Suite 2040
Seattle, Washington 98101
Tel: 206-957-5960 / Fax: 206-957-5961

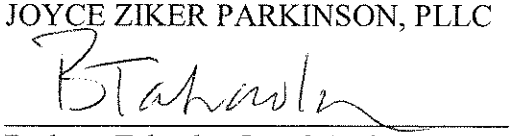
CERTIFICATE OF SERVICE

I hereby certify that on this day I caused to be served a copy of the foregoing document directed to the following individuals in the manner indicated below:

Pollution Control Hearings Board PO Box 40903 Olympia WA, 98504-0903 Fax: (360) 586-2253	☐ ☒ ☐ ☒ ☐	Hand Delivery Via Messenger Service First Class Mail Federal Express Facsimile E-mail
Gordon Karg Assistant Attorney General Attorney General of Washington Ecology Division P.O. Box 40117 Olympia, WA 98504-0117 GordonK1@ATG.WA.GOV	☐ ☐ ☐ ☐ ☒	Hand Delivery Via Messenger Service First Class Mail Federal Express Facsimile E-mail (GordonK1@ATG.WA.GOV; HollyF@ATG.WA.GOV; ECYOLYEF@ATG.WA.GOV)

DATED this 27th day of February, 2013.

JOYCE ZIKER PARKINSON, PLLC



Barbara Takaoka, Legal Assistant

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POLLUTION CONTROL HEARINGS BOARD
STATE OF WASHINGTON

SEATTLE IRON & METALS CORP., a Washington corporation, Appellant, v. STATE OF WASHINGTON, DEPARTMENT OF ECOLOGY, Respondent.	PCHB No. 12-076 SETTLEMENT AGREEMENT

Respondent, State of Washington, Department of Ecology, represented by Robert W. Ferguson, Attorney General and Gordon Karg, Assistant Attorney General; and Appellant, Seattle Iron & Metals Corp., a Washington Corporation, represented by Stephen T. Parkinson and Matthew J. Stock, attorneys at law, hereby submit this Settlement Agreement to the Pollution Control Hearings Board (Board) as a full and final settlement of the above-referenced appeal, and request that the Board dismiss the appeal with prejudice.

I. RELEASE AND SETTLEMENT AGREEMENT

This Release and Settlement Agreement (Agreement) is entered into by and between the State of Washington Department of Ecology (Ecology), and Seattle Iron & Metals Corp. (Seattle Iron), a Washington corporation. For purposes of this Agreement, the parties may be referred to individually as "Party" and collectively as "Parties."

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

II. RECITALS

A. Seattle Iron operates an industrial facility at 730 South Myrtle Street in Seattle, Washington (hereafter the "Property").

B. Stormwater discharges from the Property are governed by Industrial Stormwater General Permit WAC125002 (Permit), which Ecology issued to Seattle Iron on October 21, 2009. Ecology modified the Permit on May 16, 2012.

C. On June 18, 2012, Ecology issued Notice of Penalty Incurred and Due No. 9180 (Penalty) in the amount of $15,000.00 to Seattle Iron for alleged violations of the Permit.

D. On July 20, 2012, Seattle Iron filed with the Board a timely appeal challenging both the imposition and amount of the Penalty (Appeal).

E. The Parties wish to avoid the cost and inconvenience associated with the Appeal, and, therefore, enter into this Agreement to resolve all issues relating to the Appeal.

F. As partial consideration for this Agreement, Seattle Iron has installed a gravel filter berm on or near the boundaries of the Property as specified and described in Attachments A and B.

G. As partial consideration for this Agreement, Seattle Iron has performed an investigation to determine if a sanitary sewer connection exists or existed on or near the Property and if it would be feasible to direct stormwater from the Property to an existing sanitary sewer connection.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which is acknowledged, the Parties represent, acknowledge, and agree as follows:

III. SETTLEMENT AGREEMENT

The Parties desire to resolve the dispute herein and avoid the cost and time associated with further litigation. The Parties therefore stipulate and agree as follows:

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

A. SCOPE

This Agreement constitutes the entire agreement between the Parties to this Appeal, and settles all issues raised by the Penalty. Ecology agrees to deem the Penalty satisfied upon Seattle Iron's satisfactory and timely completion of its obligations under this Agreement. This Agreement applies only to the Penalty, and does not in any way limit Ecology's authority to issue other penalties or enforcement actions for violations that are not addressed in the Penalty.

B. RESOLUTION OF THE PENALTY

1. Conditional Reduction of the Penalty

Ecology agrees to accept a reduced Penalty amount of $11,000 in exchange for Seattle Iron's dismissal of the Appeal. The Parties further agree that Ecology shall hold in abeyance the total remaining penalty amount of $4,000 (hereafter the "Remainder") for two (2) years from the effective date, subject to the following conditions:

a. Violation of Agreement

In the event that Seattle Iron fails to meet any of its obligations under this Agreement, Ecology will reinstate the total remaining Penalty amount and the Remainder shall become immediately due and payable without right of administrative or judicial review, except as provided in paragraph C of this Agreement.

b. Additional Violations

If Ecology finds that Seattle Iron has violated any provision of RCW 90.48 and/or any provision of the Permit within two (2) years from the effective date, and Ecology issues an order pursuant to RCW 90.48.120(2) and/or a notice of penalty pursuant to RCW 90.48.144 for such violation, the suspension of the Remainder shall be withdrawn and become due and owing within thirty (30) days of Ecology's written demand for payment in addition to any other penalty Ecology may assess based on the new violation(s) (except as provided in paragraph B.1.c). If Seattle Iron fails to pay, then in any judicial action to collect the Remainder, Seattle Iron shall not have the right to contest the merits of the Penalty. However,

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Ecology Division
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Seattle Iron does not waive, and expressly preserves, its right to contest and/or appeal any additional penalties levied by Ecology as a result of such violations.

c. Appeal of Additional Violations

If Seattle Iron appeals the additional violation(s) to the Board, then the Remainder shall continue to be suspended unless and until such time that the Board affirms Ecology's determination that a violation has occurred. At that time, Seattle Iron's obligation to pay the Remainder shall become effective as described in paragraph B.1.b. In any action to collect the Remainder after the Board's disposition of the additional violation(s), Seattle Iron agrees to waive any statute of limitations defense regarding Ecology's ability to collect the Remainder. In the event the Board does not affirm any of the additional violation(s), the obligation of Seattle Iron to pay the Remainder expires unless there is a subsequent violation(s) assessed by Ecology within two (2) years from the effective date.

2. Payment

Within thirty (30) days of the effective date, Seattle Iron shall pay the reduced Penalty amount of $11,000 to Ecology. Seattle Iron shall make the payment by check or money order, either of which shall make reference to "Penalty No. 9180," directly payable to "Department of Ecology," and shall send the payment to:

Department of Ecology
Attn: Cashiering Section
P.O. Box 47611
Lacey, WA 98504-7611

3. Failure to Make Timely Payments

If Ecology does not receive Seattle Iron's payment of $11,000 within thirty (30) days of the Effective Date, the full Penalty amount of $15,000 shall become immediately due and payable without further right of administrative or judicial review, except as provided in paragraph C of this Agreement.

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

4. Compliance

Seattle Iron shall comply with the following obligations under this Agreement. Failure to comply with these obligations is a "Violation of Agreement" as set forth in paragraph B.1.a of this Agreement.

a. Submission of Engineering Report.

Within sixty (60) days of the effective date, Seattle Iron shall develop and submit to Ecology, for Ecology's approval, an engineering report in accordance with WAC 173-240 that addresses short and long term operational and structural source control and treatment Best Management Practices (BMPs) with the goal of achieving permit benchmarks for discharges from the facility covered by the Permit and includes details on hydraulic aspects of structural and treatment BMPs and timeframes for completion.

b. Approval of Stormwater Pollution Prevention Plan Meeting Permit Special Condition S3

Within thirty (30) days of the effective date, Seattle Iron shall submit to Ecology a Stormwater Pollution Prevention Plan (SWPPP) that meets all provisions of Permit Special Condition S3. In addition to meeting all SWPPP requirements as set out in Permit Special Condition S3, the SWPPP must also include practices and procedures for cleaning all scrap metal dumpsters, containers, and barrels to be stored on the permitted Property; the SWPPP must also provide for proper cover and containment of all scrap metal dumpsters, containers, and barrels; and proper cover and containment of any liquid chemical and/or petroleum products or wastes stored at the facility subject to the Permit. Seattle Iron will submit copies of the previous six (6) months of daily inspection and spill logs with the revised SWPPP.

c. Monitoring in Compliance With Automobile Salvage and Scrap Metal Recycling

Beginning at the time of the next sampling period, as required by provision S4.B.1.a of the Permit, after the effective date, Seattle Iron shall sample, have analyzed, and provide

ATTORNEY GENERAL OF WASHINGTON
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PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

reports for pollutants as required for an Automobile Salvage and Scrap Recycling (5015 and 5093) industrial use as required by Permit condition S5.B (Table 3).

C. REMEDIES

In the event that Seattle Iron violates the terms of this Agreement, Ecology may pursue all remedies available by law. By entering into this Agreement, Seattle Iron shall have waived its right of administrative or judicial review on the underlying merits of the Penalty. However, Seattle Iron does not waive and expressly preserves the right to contest whether violations of this Agreement have occurred.

D. NO ADMISSION OF LIABILITY

The Parties enter into this Agreement to resolve a dispute, and, therefore, acknowledge that the payment and obligations assumed under this Agreement are not intended to be and shall not be construed as an admission of liability by any Party. Moreover, nothing herein shall be construed or interpreted as a concession or admission by the Parties with respect to any dispute that any of them may now or in the future have with each other or with any other person or entity. Neither this Agreement nor any part of the negotiations in connection with this Agreement shall constitute evidence with respect to any dispute the Parties may have with one another, except this Agreement may be used as evidence to enforce any of the terms or conditions of this Agreement.

E. SERVICE

In the event Ecology pursues any remedy in Thurston County Superior Court, Seattle Iron agrees to accept service of the summons and complaint by United States mail in lieu of personal service, at Ecology's option. Service by mail shall be deemed complete upon the third day following the day the summons and complaint are placed in the mail. Service shall be made upon Seattle Iron's counsel:

Joyce Ziker Parkinson, PLLC
1601 Fifth Avenue, Suite 2040
Seattle, Washington 98101

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

Seattle Iron agrees to accept service at this address unless Seattle Iron informs Ecology in writing of any changes.

F. PRESS RELEASES AND OTHER DOCUMENTS

Any document prepared by Seattle Iron related to this Agreement, such as a press release, shall be identified as resulting from a settlement with Ecology. In addition, any sum paid to a third party, not a party to this Agreement, as a result of this Agreement, shall be identified as resulting from a settlement with Ecology in any public statement.

G. TAX CREDIT DISALLOWED

Seattle Iron shall not deduct or credit against taxes due or payable: (a) any monies paid as cash payments; (b) monies utilized for implementation of supplemental environmental projects under this Agreement; or (c) in-kind contributions for supplemental environmental projects under this Agreement, nor otherwise receive any tax benefits from payment of monies as cash payments or for implementation of supplemental environmental projects under this Agreement.

H. WAIVER OF APPEAL RIGHTS

Seattle Iron understands that it has the right to contest the Penalty by presenting evidence at a Board hearing. Seattle Iron voluntarily waives its right to a hearing upon signature and acceptance of this Agreement by representatives for Seattle Iron and Ecology.

I. RELEASE OF LIABILITY

Seattle Iron and its heirs, assigns, or other successors in interest, agree to release and discharge Ecology and its officers, agents, employees, agencies, and departments from any damages and causes of action of any nature arising out of the incidents that gave rise to the Appeal.

J. DISMISSAL OF APPEAL

Seattle Iron agrees to dismiss the Appeal with prejudice. The Parties consent to the submission of this Agreement to the Board and request that, based upon a full and final

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

settlement having been reached, the Board dismiss this Appeal with prejudice. Both Parties further agree to bear their own costs and attorneys' fees associated with the Appeal.

K. EFFECTIVE DATE

This Agreement shall become effective upon the date of the Board's issuance of an order dismissing the Appeal (the effective date).

L. CONSTRUCTION

This Agreement is a product of negotiations between the Parties and has been jointly drafted and approved by each Party. For these reasons, no provision of this Agreement shall be interpreted or construed against a Party for the reason that said Party proffered the language at issue.

M. SIGNATORIES AUTHORIZED

The undersigned representatives for Ecology and Seattle Iron certify that they are fully authorized by the Party whom they represent to enter into the terms and conditions of this Agreement and to legally bind such Party thereto.

N. COUNTERPARTS

This Agreement may be executed by facsimile or PDF, and in counterparts, each of which shall be deemed an original, and said counterparts shall constitute but one and the same instrument.

O. HEADINGS

Paragraph headings in this Agreement are included only for the convenience of reference and shall not affect the interpretation of any provision of this Agreement nor any of the rights or obligations of the Parties.

P. SEVERABILITY

If any covenant, condition, term, or provision of this Agreement is illegal, or if the application thereof to any person or in any circumstance shall to any extent be judicially determined to be invalid or unenforceable, the remainder of this Agreement, or the application

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
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Olympia, WA 98504-0117
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of such covenant, condition, term, or provision to persons or in circumstances other than those to which it is held to be invalid or unenforceable, shall not be affected thereby, and each covenant, condition, term and provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

Q. ATTORNEYS' FEES AND COSTS

The Parties shall bear their own attorneys' fees incurred in connection with the negotiation and implementation of this Agreement. In any action brought to enforce the terms of this Agreement, the Parties shall bear their own attorneys' fees incurred therein.

R. GOVERNING LAW; VENUE

This Agreement shall be construed and interpreted according to the laws of the state of Washington. The Parties agree that the venue for any judicial action to enforce this Agreement and/or to collect the Penalty, or any portion thereof, shall be the Thurston County Superior Court.

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

Kevin Fitzpatrick

KEVIN FITZPATRICK
Section Manager
Water Quality Program, NWRO

Dated: _____

SEATTLE IRON & METALS CORP.

_____

Alan Sidell
President
Seattle Iron & Metals Corp.

Dated: _____

ROBERT W. FERGUSON
Attorney General

_____

GORDON KARG, WSBA #37178
Assistant Attorney General
Attorneys for Respondent
(360) 586-4615

Dated: 2/20/15

JOYCE ZIKER PARKINSON, PLLC

_____

MATTHEW J. STOCK, WSBA #40223
Attorneys for Appellant
206-957-5960

Dated: _____

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

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STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY

KEVIN FITZPATRICK
Section Manager
Water Quality Program, NWRO

Dated: _____

SEATTLE IRON & METALS CORP.

Alan Sidell
President
Seattle Iron & Metals Corp.

Dated: 2-12-13

ROBERT W. FERGUSON
Attorney General

GORDON KARG, WSBA #37178
Assistant Attorney General
Attorneys for Respondent
(360) 586-4615

Dated: _____

JOYCE ZIKER PARKINSON, PLLC

MATTHEW J. STOCK, WSBA #40223
Attorneys for Appellant
206-957-5960

Dated: 2/20/2013

ATTORNEY GENERAL OF WASHINGTON
Ecology Division
PO Box 40117
Olympia, WA 98504-0117
(360) 586-6770

Appendix B

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47600 • Olympia, WA 98504-7600 • 360-407-6000
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

May 16, 2012

Ed Armstrong
Seattle Iron And Metals Corporation
601 S Myrtle St
Seattle, WA 98108-3424

Permit Number: WAR125002
Seattle Iron & Metals Corp Truck Parking
Seattle

RE: Final Issuance of the Modified Industrial Stormwater General Permit

Dear Industrial Stormwater General Permit Holder:

The Washington State Department of Ecology (Ecology) has issued a final modified Industrial Stormwater National Pollutant Discharge Elimination System and State Waste Discharge General Permit (permit). A copy of your new permit is enclosed. The modified permit is effective July 1, 2012 and scheduled to expire January 1, 2015.

Purpose of the Permit Modification
The permit modification is necessary to address the April 25, 2011 order by the Washington State Pollution Control Hearings Board, which required significant changes to the sampling and corrective action requirements. Ecology has also made revisions to the effluent limits for fecal coliform that apply to approximately eighty facilities discharging to 303(d)-listed impaired waterbodies. Other minor changes were made in response to public comments and to correct various errors and typos. A summary of significant changes to the permit is enclosed.

Applying for Coverage under the Permit
Facilities that are covered under the existing permit will automatically be covered under the new modified permit. New or unpermitted facilities may obtain coverage under the permit by submitting a complete permit application to Ecology and satisfying all applicable public notice and State Environmental Policy Act requirements (WAC 173-226-200). The application is available online at: www.ecy.wa.gov/biblio/ecy02084.html.

Permit Documents
The response to public comments and fact sheet addendum for the modification are available online at: www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html.

Public Notice Process and Comments
Ecology accepted written comments on the draft permit and fact sheet from **February 1 to March 16, 2012.** Ecology held four public workshops on the draft permit in Seattle, Vancouver, Mount Vernon, and Moses Lake. Ecology held one public hearing in Seattle on March 12, 2012.

Your Right to Appeal the Permit Modification
You have a right to appeal the permit modification to the Pollution Control Hearing Board (PCHB) within 30 days of the date of receipt of this notice. The appeal process is governed by Chapter 43.21B RCW and Chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal you must do the following within 30 days of the date of receipt of this permit issuance notice:

- File your appeal and a copy of this notice with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this notice on Ecology in paper form - by mail or in person. (See addresses below.) Email is not accepted.

Address and Location Information

Street Addresses	Mailing Addresses
Department of Ecology Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	**Department of Ecology** Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
Pollution Control Hearings Board 1111 Israel Road SW, Suite 301 Tumwater, WA 98501	**Pollution Control Hearings Board** PO Box 40903 Olympia, WA 98504-0903

Questions
If you have questions about the permit, please contact Jeff Killelea at (360) 407-6127, or by email at jeff.killelea@ecy.wa.gov.

Sincerely,

Bill Moore, P.E., Manager
Program Development Services Section
Water Quality Program

Enclosure

Issuance Date: October 21, 2009
Effective Date: January 1, 2010
Expiration Date: January 1, 2015

Modification Issuance Date: May 16, 2012
Modification Effective Date: July 1, 2012

INDUSTRIAL STORMWATER GENERAL PERMIT

A National Pollutant Discharge Elimination System (NPDES) and State Waste Discharge General Permit for Stormwater Discharges Associated With Industrial Activities

State of Washington
Department of Ecology
Olympia, Washington 98504-7600

In compliance with the provisions of
The State of Washington Water Pollution Control Law
Chapter 90.48 Revised Code of Washington
and
The Federal Water Pollution Control Act
(The Clean Water Act)
Title 33 United States Code, Section 1251 et seq.

Until this permit expires, is modified or revoked, Permittees that have properly obtained coverage under this general permit are authorized to discharge in accordance with the special and general conditions which follow.

Kelly Susewind, P.E., P.G. Manager
Water Quality Program
Washington State Department of Ecology

TABLE OF CONTENTS

SUMMARY OF PERMIT REPORTS & SUBMITTALS

Permit Section	Submittal	Frequency	Due Date(s)
S1.F	Conditional "No Exposure" Certification Form	As necessary	As necessary
S2.B	*Application* for Permit Coverage	As necessary	As necessary
S2.B.	Request Modification of Permit Coverage	As necessary	As necessary
S2.D	Request Transfer of Coverage	As necessary	As necessary
S9.A	Discharge Monitoring Reports (DMRs)	1/quarter	within 45 days after the end of each quarter
S9.B	Annual Report	1/year	May 15th (except 2010)
S9.C.	SWPPP, if requested by *Ecology*	Per *Ecology* request	Within 14 days of request
S9.E	Noncompliance Notification	As necessary	Within 30 days of noncompliance event

SUMMARY OF REQUIRED ONSITE DOCUMENTATION[1]

Permit Condition(s)	Document Title
S3.A.4.a	*Stormwater Pollution Prevention Plan* (SWPPP)[2]
S9.B	Copies of Annual Reports
S9.C.1.a	Copy of Permit
S9.C.1.b	Copy of Permit Coverage Letter
S9.C.1.c	Original Sampling Records (Field Notes and Laboratory Reports)
S7.C & S9.C.1.d	Site Inspection Reports
S9.C.1.j	Copies of Discharge Monitoring Reports (DMRs)

[1] A complete list is contained in Condition S9.C. The permittee shall make all plans, documents and records required by this permit immediately available to Ecology or the local jurisdiction upon request.
[2] With signed and completed SWPPP Certification Form(s) – see Appendix 3

SPECIAL CONDITIONS

S1. PERMIT COVERAGE

A. Facilities Required to Seek Coverage Under This General Permit

This statewide permit applies to *facilities* conducting *industrial activities* that *discharge stormwater* to a surface water body or to a *storm sewer* system that drains to a surface water body. Beginning on the effective date of this permit and lasting through its expiration date, the Permittee is authorized to *discharge stormwater* and conditionally approved non-stormwater *discharges* to *waters of the state*. All *discharges* and activities authorized by this permit shall be consistent with the terms and conditions of this permit.

The permit requires coverage for private entities, state, and *local government* facilities, and includes *existing facilities* and *new facilities*. Facilities conducting industrial activities listed in Table 1 or referenced in S1.A3 shall apply for coverage under this permit or apply for a Conditional No Exposure exemption, if eligible (Condition S1.F). The *Department of Ecology (Ecology)* may also require permit coverage for any *facility* on a case-by-case basis in order to protect *waters of the state* (Condition S1.B).

1. Facilities engaged in any industrial activities in Table 1 shall apply for coverage if *stormwater* from the *facility discharges* to a surface water body, or to a *storm sewer* system that *discharges* to a surface water body. The *Standard Industrial Classification (SIC)* groups generally, but not always, associated with these activities are listed in Table 1.

Table 1: Activities Requiring Permit Coverage and the Associated SIC Code Groups

Industrial Activities	SIC Code
Metal Mining	10xx
Coal Mining	12xx
Oil and Gas Extraction	13xx
Mining and Quarrying of Nonmetallic Minerals, except Fuels (except facilities in SIC Codes 1411, 1422, 1423, 1429, 1442, 1446, 1445, 1459, and 1499; these facilities are covered under the Sand and Gravel General Permit)	14xx
Food and Kindred Products	20xx
Tobacco Products	21xx
Textile Mill Products	22xx
Apparel and Other Finished Products Made from Fabrics and Similar Material	23xx
Lumber and Wood Products	24xx
Furniture and Fixtures	25xx
Paper and Allied Products	26xx
Printing, Publishing and Allied Industries	27xx
Chemicals and Allied Products	28xx
Petroleum Refining and Related Industries (Except facilities in SIC 2951; these facilities are covered under the Sand and Gravel General Permit)	29xx
Rubber and Miscellaneous Products	30xx
Leather and Leather Products	31xx
Stone, Clay, Glass, and Concrete Products (Except facilities in SIC 3272-3273; these	32xx

Industrial Activities	SIC Code
facilities are covered under the Sand and Gravel General Permit)	
Primary Metal Industries	33xx
Fabricated Metal Products	34xx
Industrial and Commercial Machinery and Computer Equipment	35xx
Electronic and Other Electrical Equipment and Components	36xx
Transportation Equipment	37xx
Measuring, Analyzing, and Controlling Instruments; Photographic, Medical, and Optical Goods; Watches and Clocks	38xx
Miscellaneous Manufacturing Industries	39xx
Farm Product Storage	4221
Refrigerated Storage	4222
General Storage	4225
Recycling facilities involved in the recycling of materials, including but not limited to, metal scrap yards, battery reclaimers, salvage yards, auto recyclers, and automobile junkyards.	5015 and 5093
Steam Electric Power Generation	N/A
Active *landfills*, including, but not limited to, wood waste and inert *landfills*, transfer stations, open dumps, compost facilities, and *land application sites*, except as described in S1.C.6 or C.7.	4953
Hazardous waste treatment, storage, and disposal (TSD) facilities, and recycling facilities regulated under Chapter 173-303 WAC.	N/A
Treatment works treating domestic sewage, or any other sewage sludge, or wastewater treatment device or system, used in the storage, recycling, and reclamation of municipal or domestic sewage (including land dedicated to the disposal of sewage sludge that are located within the confines of the *facility*) with the design flow capacity of 1 million gallons per day (MGD) or more, or required to have a pretreatment program under *40 CFR* §403.	4952
Transportation facilities which have *vehicle maintenance* activity, equipment cleaning operations, or airport deicing operations: • Railroad Transportation • Local and Suburban Transit and Interurban Highway Passenger Transportation • Motor Freight Transportation (except SIC 4221–25) • United States Postal Service • Water Transportation • Air Transportation • Petroleum Bulk Stations and Terminals	 40xx 41xx 42xx 43xx 44xx 45xx 5171

2. Any *facility* that has an existing *National Pollutant Discharge Elimination System (NPDES)* permit which does not address all *stormwater discharges associated with industrial activity* [*40 CFR* Subpart 122.26(b)(14)] shall obtain permit coverage.
3. Any *inactive facility* which is listed under *40 CFR* Subpart 122.26(b)(14) where *significant materials* remain onsite and are exposed to *stormwater* shall obtain permit coverage.

B. Significant Contributors of Pollutants

Ecology may require a *facility* to obtain coverage under this permit if *Ecology* determines the *facility*:

1. Is a *significant contributor of pollutants* to *waters of the state*, including *ground water*;
2. May reasonably be expected to cause a violation of any *water quality standard*; or
3. Conducts *industrial activity*, or has a SIC code, with *stormwater* characteristics similar to any *industrial activity* or SIC code listed in Table 1 in S1.A1.

C. Facilities Not Required to Obtain Coverage

Ecology does not require the types of facilities listed below to obtain coverage under this permit, unless determined to be a *significant contributor of pollutants*.

1. Industrial facilities that submit an *application* and qualify for a Conditional "No Exposure" Exemption. (Condition S1.F)
2. Industrial facilities that *discharge stormwater* only to a municipal *combined sewer* or *sanitary sewer*. *Discharge* of stormwater to sanitary or *combined sewers* shall only occur as authorized by the municipal sewage authority.
3. Industrial facilities that *discharge stormwater* only to groundwater (e.g., on-site infiltration) with no *discharge* to *surface waters of the state* under any condition.
4. Office buildings and/or administrative parking lots from which *stormwater* does not commingle with stormwater from areas associated with *industrial activity*.
5. Any part of a *facility* with a *discharge* that is in compliance with the instructions of an On-Scene-Coordinator pursuant to *40 CFR* part 300 (The National Oil and Hazardous Substances Pollution Contingency Plan) or 33 CFR 153.10(e) (Pollution by Oil and Hazardous Substances), in accordance with *40 CFR* 122.3(d).
6. Any *land application site* used for the beneficial use of industrial or municipal wastewater for agricultural activities or when applied for landscaping purposes at agronomic rates.
7. Any farmland, domestic garden, or land used for sludge management where domestic sewage sludge (biosolids) is beneficially reused (nutrient builder or soil conditioner) and which is not physically located in the confines of domestic sewage treatment

works, or areas that are in compliance with Section 405 (Disposal of Sewage Sludge) of the *Clean Water Act (CWA)*.

8. Any inactive coal mining operation if:
   a. The performance bond issued to the *facility* by the appropriate Surface Mining Control and Reclamation Act (SMCRA) authority has been released from applicable state or federal reclamation requirements after December 17, 1990.
   b. The mine does not have a *discharge* of *stormwater* that comes in contact with any overburden, raw material, intermediate products, finished products, byproducts, or waste products located on the site of the *facility*.
9. Inactive mining, inactive oil and gas operations, or inactive *landfills* where neither an owner nor an operator can be identified.
10. Closed *landfills* that are capped and stabilized, in compliance with Chapter 173-304 WAC, and in which no *significant materials* or industrial *pollutants* remain exposed to *stormwater*. Permittee's with existing coverage may submit a *Notice of Termination* in accordance with Special Condition S13.A.1.

D. Facilities Excluded from Coverage

Ecology will not cover the following facilities or activities under this permit:

1. Any part of a *facility* that has a *stormwater discharge* subject to *stormwater* Effluent Limitations Guidelines, New Source Performance Standards (NSPS) Under *40 CFR* Subchapter N, or Toxic Pollutant Effluent Standards under *40 CFR* Subchapter D Part 129; these facilities must apply for NPDES permit coverage in an individual or industry-specific *general permit* for those *stormwater discharges*.

   Below is a list of categories of industries specified in *40 CFR* Subchapter N for which at least one subpart includes *stormwater* effluent limitations guidelines or NSPS. Industries included in this list should review the Subchapter N guidelines to determine if they are subject to a *stormwater* effluent limitation guideline for activities which they perform at their site.

40 CFR 411 Cement manufacturing	40 CFR 423 Steam electric power generating
40 CFR 412 Feedlots	40 CFR 434 Coal mining
40 CFR 418 Fertilizer manufacturing	40 CFR 436 Mineral mining and processing
40 CFR 419 Petroleum refining	40 CFR 440 Ore mining and dressing
40 CFR 422 Phosphate manufacturing	40 CFR 443 Paving and roofing materials (tars & asphalt)

   Facilities discharging any of the following toxic *pollutants*, which are limited by effluent standards in *40 CFR* Subchapter D Part 129: Aldrin/Dieldrin; DDT; Endrin; Toxaphene; Benzidine; or Polychlorinated Biphenyls (PCBs); these facilities shall obtain coverage under an individual NPDES permit.

2. Nonpoint source silvicultural activities with natural *runoff* that are excluded in *40 CFR* Subpart 122.27.

3. Industrial activities operated by any department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government of the United States, or another entity, such as a private contractor, performing industrial activity for any such department, agency, or instrumentality.
4. Facilities located on Tribal lands or facilities that *discharge stormwater* to receiving waters subject to *water quality standards* of Indian Tribes, including portions of the Puyallup River and other waters on trust or restricted lands within the 1873 Survey Area of the Puyallup Tribe of Indians Reservation.
5. Any *facility* authorized to *discharge stormwater* associated with *industrial activity* under an existing NPDES individual or other *general permit.*
6. All *construction activities*. Operators of these construction activities shall seek coverage under the Construction Stormwater General Permit or an individual NPDES permit for *stormwater* associated with *construction activity.*
7. Facilities that *discharge* to a water body with a *control plan*, unless this *general permit* adequately provides the level of protection required by the *control plan.*
8. *New dischargers* to a water body listed pursuant to Section 303(d) of the CWA, unless the Permittee meets the requirements of Condition S6.B.
9. Hazardous waste *landfills* subject to *40 CFR* Part 445, Subpart A.

E. Discharges to Ground

1. For sites that *discharge* to both surface water and *ground water*, the terms and conditions of this permit shall apply to all *ground water discharges*.
2. Facilities that *discharge* to *ground water* through an *underground injection control well* shall comply with any applicable requirements of the Underground Injection Control (UIC) regulations, Chapter 173-218 WAC.

F. Conditional "No Exposure" Exemption

1. Any *industrial activity* identified for coverage under Condition S1.A. that is eligible for a "No Exposure" exemption from the permit under *40 CFR* 122.26 (g), may submit a No Exposure Certification Form to *Ecology*, either in writing or electronically.
   a. A Permittee is automatically granted a No Exposure exemption 90 days from *Ecology*'s receipt of a complete and accurate No Exposure Certification Form, unless *Ecology* informs the applicant in writing or electronically within 90 days that it has denied or approved the request.
   b. *Ecology* will automatically terminate permit coverage when it grants the No Exposure exemption to a permitted *facility*.
   c. Facilities which are granted a No Exposure exemption must submit a No Exposure Certification Form to *Ecology* once every five years, or by October 1, 2013, whichever is earlier.

d. No Exposure exemptions are conditional. If there is a change at the *facility* that results in the exposure of industrial activities or materials to *stormwater*, the *facility* is required to immediately apply for and obtain a permit.

S2. APPLICATION FOR COVERAGE

A. Obtaining Permit Coverage

1. Permitted Facilities

   Permittees with coverage under the existing industrial *stormwater general permit* (effective date Nov 15, 2008) are automatically covered under this permit unless otherwise notified by *Ecology*.

2. Unpermitted Facilities

   Unpermitted facilities that require coverage under this permit shall submit a complete and accurate permit *application* to *Ecology* as follows:

   a. Existing Facilities

      i. Unpermitted existing facilities that require coverage under this permit shall submit a complete and accurate permit *application* to *Ecology*.

      ii. Existing facilities are facilities in operation prior to the effective date of this permit, January 1, 2010.

   b. New Facilities

      New facilities are facilities that begin operation on or after the effective date of this permit, January 1, 2010. All unpermitted new facilities shall:

      i. Submit a complete and accurate permit *application* to *Ecology* at least 60 days before the commencement of *stormwater discharge* from the *facility*.

      ii. The *application* shall include certification that the *facility* has met the applicable public notice and *State Environmental Policy Act (SEPA)* requirements in WAC 173-226-200(f).

B. Modification of Permit Coverage

A Permittee anticipating a *significant process change*, or otherwise requesting a modification of permit coverage, shall submit a complete Modification of Coverage Form to *Ecology*. The Permittee shall:

1. Apply for modification of coverage at least 60 days before implementing a *significant process change*; or by May15th prior to a Corrective Action deadline, if requesting a Level 2 or 3 time extension or waiver request per Condition S8.B-D.
2. Complete the public notice requirements in WAC 173-226-130(5) as part of a complete *application* for modification of coverage.
3. Comply with SEPA as part of a complete *application* for modification of coverage if undergoing a *significant process change*.

C. Permit Coverage Timeline

1. If the applicant does not receive notification from *Ecology*, permit coverage automatically commences on whichever of the following dates occurs last:
   a. The 31st day following receipt by *Ecology* of a completed *application* for coverage .
   b. The 31st day following the end of a 30-day public comment period.
   c. The effective date of the *general permit*.
2. *Ecology* may need additional time to review the *application*:
   a. If the *application* is incomplete.
   b. If it requires additional site-specific information.
   c. If the public requests a public hearing.
   d. If members of the public file comments.
   e. When more information is necessary to determine whether coverage under the *general permit* is appropriate.
3. When *Ecology* needs additional time:
   a. *Ecology* will notify the applicant in writing within 30 days and identify the issues that the applicant must resolve before a decision can be reached.
   b. *Ecology* will submit the final decision to the applicant in writing. If *Ecology* approves the *application* for coverage, coverage begins the 31st day following approval, or the date the approval letter is issued, whichever is later.

D. Transfer of Permit Coverage

Coverage under this *general permit* shall automatically transfer to a *new discharger*, if all of the following conditions are met:

1. The Permittee (existing *discharger*) and *new discharger* submit to *Ecology* a complete, written, signed agreement (Transfer of Coverage Form) containing a specific date for transfer of permit responsibility, coverage, and liability.
2. The type of industrial activities and practices remain substantially unchanged.
3. *Ecology* does not notify the Permittee of the need to submit a new *application* for coverage under the *general permit* or for an individual permit pursuant to Chapters 173-216, 173-220, and 173-226 WAC.
4. *Ecology* does not notify the existing *discharger* and *new discharger* of its intent to revoke coverage under the *general permit*. The transfer is effective on the date specified in the written agreement unless *Ecology* gives this notice.

S3. STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

A. General Requirements

1. All Permittees and applicants for coverage under this permit shall develop and implement a SWPPP for the permitted *facility* as follows:
2. The SWPPP shall specify the *Best Management Practices* (BMPs) necessary to:
   a. Provide *all known, available, and reasonable methods of prevention, control, and treatment (AKART)* of *stormwater pollution.*
   b. Ensure the *discharge* does not cause or contribute to a violation of the *Water Quality Standards.*
   c. Comply with applicable federal technology-based treatment requirements under *40 CFR* 125.3.
3. Proper Selection and Use of *Stormwater Management Manuals (SWMM)*:

   BMPs shall be consistent with:

   a. *Stormwater Management Manual* for Western Washington (*2005* edition), for sites west of the crest of the Cascade Mountains.
   b. *Stormwater Management Manual* for Eastern Washington (*2004* edition), for sites east of the crest of the Cascade Mountains.
   c. Revisions to the manuals in S3.A.3. a & b., or other *stormwater* management guidance documents or manuals which provide an equivalent level of *pollution* prevention, that are approved by *Ecology* and incorporated into this permit in accordance with the permit modification requirements of WAC 173-220-190. For purposes of this section, the documents listed in Appendix 10 of the Phase I Municipal Stormwater Permit are hereby incorporated into this permit.
   d. Documentation in the SWPPP that the BMPs selected are *demonstrably equivalent* to practices contained in stormwater technical manuals approved by *Ecology*, including the proper selection, implementation, and maintenance of all applicable and appropriate *best management practices* for on-site *pollution* control.
4. Update of the SWPPP
   a. The Permittee shall modify the SWPPP if the owner/operator or the applicable local or state regulatory authority determines during inspections or investigations that the SWPPP is, or would be, ineffective in eliminating or significantly minimizing *pollutants* in *stormwater* discharges from the site. The Permittee shall modify the SWPPP:
      i. As necessary to include additional or modified BMPs designed to correct problems identified.
      ii. To correct the deficiencies identified in writing from *Ecology* within 30 days of notice.

b. The Permittee shall modify the SWPPP whenever there is a change in design, construction, operation, or maintenance at the *facility* that significantly changes the nature of *pollutants* discharged in *stormwater* from the *facility*, or significantly increases the quantity of pollutants discharged.

5. Other *Pollution Control Plans*

The Permittee may incorporate by reference applicable portions of plans prepared for other purposes at their *facility*. Plans or portions of plans incorporated by reference into a SWPPP become enforceable requirements of this permit and must be available along with the SWPPP as required in S9.F. A *Pollution* Prevention Plan prepared under the Hazardous Waste Reduction Act, Chapter 70.95C RCW, is an example of such a plan.

6. Signatory Requirements

The Permittee shall sign and certify all SWPPPs in accordance with General Condition G2, each time it revises or modifies a SWPPP to comply with Conditions S3.A.4 (Update of the SWPPP), S7 (Inspections) or S8 (Corrective Actions). A SWPPP Certification Form is contained in Appendix 3 of this permit.

B. Specific SWPPP Requirements

The SWPPP shall contain a site map, a detailed assessment of the *facility*, a detailed description of the BMPs, Spill Prevention and Emergency Cleanup Plan, and a sampling plan. The Permittee shall identify any parts of the SWPPP which the *facility* wants to claim as Confidential Business Information.

1. The site map shall identify:
   a. The scale or include relative distances between significant structures and drainage systems.
   b. Significant features.
   c. The *stormwater* drainage and *discharge* structures and identify, by name, any other party other than the Permittee that owns any *stormwater* drainage or discharge structures.
   d. The *stormwater* drainage areas for each *stormwater discharge* point off-site (including discharges to *ground water*) and assign a unique identifying number for each discharge point.
   e. Each sampling location by unique identifying number.
   f. Paved areas and buildings.
   g. Areas of *pollutant* contact (actual or potential) associated with specific industrial activities.
   h. Conditionally approved non-*stormwater* discharges (Condition S5.D).
   i. Surface water locations (including wetlands and drainage ditches).
   j. Areas of existing and potential soil *erosion* (in a *significant amount*).

k. *Vehicle maintenance* areas.

l. Lands and waters adjacent to the site that may be helpful in identifying *discharge* points or drainage routes.

2. The *facility* assessment shall include a description of the *facility*; an inventory of *facility* activities and equipment that contribute to or have the potential to contribute any *pollutants* to *stormwater*; and, an inventory of materials that contribute to or have the potential to contribute pollutants to *stormwater*.

   a. The *facility* description shall describe:

      i. The industrial activities conducted at the site.

      ii. *Regular business hours* and seasonal variations in business hours or industrial activities.

      iii. The general layout of the *facility* including buildings and storage of raw materials, and the flow of goods and materials through the *facility*.

   b. The inventory of industrial activities shall identify all areas associated with industrial activities (see Table 1) that have been or may potentially be sources of *pollutants*, including, but not limited to, the following:

      i. Loading and unloading of dry bulk materials or liquids.

      ii. Outdoor storage of materials or products.

      iii. Outdoor manufacturing and processing.

      iv. On-site dust or particulate generating processes.

      v. On-site waste treatment, storage, or disposal.

      vi. *Vehicle* and equipment fueling, maintenance, and/or cleaning (includes washing).

      vii. Roofs or other surfaces exposed to *air emissions* from a manufacturing building or a process area.

      viii. Roofs or other surfaces composed of materials that may be mobilized by *stormwater* (e.g., galvanized roofs, galvanized fences, etc.).

   c. The inventory of materials shall list:

      i. The types of materials handled at the site that potentially may be exposed to precipitation or *runoff* and could result in *stormwater pollution*.

      ii. A short narrative for each material describing the potential of the *pollutant* to be present in *stormwater* discharges. The Permittee shall update this narrative when data become available to verify the presence or absence of these pollutants.

      iii. A narrative description of any potential sources of *pollutants* from past activities, materials and spills that were previously handled, treated, stored, or disposed of in a manner to allow ongoing exposure to *stormwater*. Include the

method and location of on-site storage or disposal. List significant spills and significant leaks of toxic or hazardous pollutants.

3. The SWPPP shall identify specific individuals by name or by title within the organization (*pollution* prevention team) whose responsibilities include: SWPPP development, implementation, maintenance, and modification.

4. *Best Management Practices* (BMPs)

   a. General BMP Requirements

      The Permittee shall describe each BMP selected to eliminate or reduce the potential to contaminate *stormwater* and prevent violations of *water quality standards*.

   b. No later than July 1, 2010, the Permittee shall include each of the following mandatory BMPs in the SWPPP and implement the BMPs. The Permittee may omit individual BMPs if site conditions render the BMP unnecessary, infeasible, or the Permittee provides alternative and equally effective BMPs; if the Permittee clearly justifies each BMP omission in the SWPPP. Prior to July 1, 2010, the Permittee shall implement the BMP requirements of the previous Industrial *Stormwater General Permit*, or Condition S3.B.4 of this permit.

      i. Operational *Source Control BMPs*

         1) The SWPPP shall include the *Operational Source Control BMPs* listed as "applicable" in *Ecology*'s SWMMs, or other guidance documents or manuals approved in accordance with S3.A.3.c.

         2) Good Housekeeping: The SWPPP shall include BMPs that define ongoing maintenance and cleanup, as appropriate, of areas which may contribute *pollutants* to *stormwater* discharges. The SWPPP shall include the schedule/frequency for completing each housekeeping task, based upon *industrial activity*, sampling results and observations made during inspections. The Permittee shall:

            a) Vacuum paved surfaces with a vacuum sweeper (or a sweeper with a vacuum attachment) to remove accumulated *pollutants* a minimum of once per quarter.

            b) Identify and control all on-site sources of dust to minimize *stormwater* contamination from the deposition of dust on areas exposed to precipitation.

            c) Inspect and maintain bag houses monthly to prevent the escape of dust from the system. Immediately remove any accumulated dust at the base of exterior bag houses.

            d) Keep all dumpsters under cover or fit with a lid that must remain closed when not in use.

3) Preventive Maintenance: The SWPPP shall include BMPs to inspect and maintain the *stormwater* drainage, source controls, treatment systems (if any), and plant equipment and systems that could fail and result in contamination of *stormwater*. The SWPPP shall include the schedule/frequency for completing each maintenance task. The Permittee must:

   a) Clean catch basins when the depth of debris reaches 60% of the sump depth. In addition, the Permittee must keep the debris surface at least 6 inches below the outlet pipe.

   b) Inspect all equipment and vehicles during monthly site inspections for leaking fluids such as oil, antifreeze, etc. Take leaking equipment and *vehicles* out of service or prevent leaks from spilling on the ground until repaired.

   c) Immediately clean up spills and leaks (e.g., using absorbents, vacuuming, etc.) to prevent the *discharge* of *pollutants*.

4) Spill Prevention and Emergency Cleanup Plan (SPECP): The SWPPP shall include a SPECP that includes BMPs to prevent spills that can contaminate *stormwater*. The SPECP shall specify BMPs for *material handling* procedures, storage requirements, cleanup equipment and procedures, and spill logs, as appropriate. The Permittee shall:

   a) Store all chemical liquids, fluids, and petroleum products, on an impervious surface that is surrounded with a containment berm or dike that is capable of containing 10% of the total enclosed tank volume or 110% of the volume contained in the largest tank, whichever is greater.

   b) Prevent precipitation from accumulating in containment areas with a roof or equivalent structure or include a plan on how it will manage and dispose of accumulated water if a containment area cover is not practical.

   c) Locate spill kits within 25 feet of all stationary fueling stations, fuel transfer stations, and mobile fueling units. At a minimum, spill kits shall include:

      i) Oil absorbents capable of absorbing 15 gallons of fuel.

      ii) A storm drain plug or cover kit.

      iii) A non-water containment boom, a minimum of 10 feet in length with a 12 gallon absorbent capacity.

      iv) A non-metallic shovel.

      v) Two five-gallon buckets with lids.

d) Not lock shut-off fueling nozzles in the open position. Do not "top-off" tanks being refueled.

e) Block, plug or cover storm drains that receive *runoff* from areas where fueling, during fueling.

f) Use drip pans or equivalent containment measures during all petroleum transfer operations.

g) Locate materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone *vehicle*s and equipment awaiting maintenance to protected areas).

h) Use drip pans and absorbents under or around leaky *vehicles* and equipment or store indoors where feasible. Drain fluids from equipment and *vehicles* prior to on-site storage or disposal.

i) Maintain a spill log that includes the following information for chemical and petroleum spills: date, time, amount, location, and reason for spill; date/time clean-up completed, notifications made and staff involved.

5) Employee Training: The SWPPP shall include BMPs to provide SWPPP training for employees who have duties in areas of industrial activities subject to this permit. At a minimum, the training plan shall include:

a) The content of the training,

i) An overview of what is in the SWPPP.

ii) How employees make a difference in complying with the SWPPP and preventing contamination of *stormwater*.

iii) Spill response procedures, good housekeeping, maintenance requirements, and material management practices.

b) How the Permittee will conduct training.

c) The frequency/schedule of training. The Permittee shall train employees annually, at a minimum.

d) A log of the dates on which specific employees received training.

6) Inspections and Recordkeeping: The SWPPP shall include documentation of procedures to ensure compliance with permit requirements for inspections and recordkeeping. At a minimum, the SWPPP shall:

a) Identify *facility* personnel who will inspect designated equipment and *facility* areas as required in Condition S7.

b) Contain a visual inspection report or check list that includes all items required by Condition S7.C.

c) Provide a tracking or follow-up procedure to ensure that a report is prepared and any appropriate action taken in response to visual inspections.

d) Define how the Permittee will comply with signature requirements and records retention identified in Special Condition S9, Reporting and Recordkeeping Requirements.

e) Include a certification of compliance with the SWPPP and permit for each inspection using the language in S7.C.1.c.

7) *Illicit Discharges*: The SWPPP shall include measures to identify and eliminate the *discharge* of *process wastewater*, *domestic wastewater*, *noncontact cooling water*, and other *illicit discharges*, to *stormwater* sewers, or to surface waters and *ground waters of the state*. The Permittee can find BMPs to identify and eliminate *illicit discharges* in Volume IV of *Ecology*'s SWMM for Western Washington and Chapter 8 of the SWMM for Eastern Washington.

Water from washing *vehicles* or equipment, steam cleaning and/or pressure washing is considered *process wastewater*. The Permittee must not allow this process wastewater to comingle with *stormwater* or enter storm drains; and must collect in a tank for off-site disposal, or *discharge* it to a *sanitary sewer*, with written approval from the local sewage authority.

ii. Structural *Source Control BMPs*

1) The SWPPP shall include the *Structural Source Control BMPs* listed as "applicable" in *Ecology*'s SWMMs, or other guidance documents or manuals approved in accordance with S3.A.3.c.

2) The SWPPP shall include BMPs to minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and *runoff* by either locating these industrial materials and activities inside or protecting them with storm resistant coverings.

Permittees shall:

a) Use grading, berming, or curbing to prevent *runoff* of contaminated flows and divert run-on away from these areas.

b) Perform all cleaning operations indoors, under cover, or in bermed areas that prevent *stormwater runoff* and run-on and also that capture any overspray.

c) Ensure that all washwater drains to a collection system that directs the washwater to further treatment or storage and not to the *stormwater drainage system*.

iii. *Treatment BMPs*

The Permittee shall:

1) Use *Treatment BMPs* consistent with the applicable documents referenced in Condition S3.A.3.

2) Employ oil/water separators, booms, skimmers or other methods to eliminate or minimize oil and grease contamination of *stormwater* discharges.

3) Obtain *Ecology* approval before beginning construction/installation of all *treatment BMPs* that include the addition of chemicals to provide treatment.

iv. *Stormwater* Peak *Runoff* Rate and Volume Control BMPs

Facilities with *new development* or *redevelopment* shall evaluate whether flow control BMPs are necessary to satisfy the state's AKART requirements, and prevent violations of water quality standards. If flow control BMPs are required, they shall be selected according to S3.A.3.

v. *Erosion and Sediment Control BMPs*

The SWPPP shall describe the BMPs necessary to prevent the *erosion* of soils and other earthen materials (crushed rock/gravel, etc.) and prevent off-site *sedimentation* and violations of *water quality standards.* The Permittee shall implement and maintain:

1) *Sediment* control BMPs such as *detention* or retention ponds or traps, vegetated filter strips, bioswales, or other permanent *sediment* control BMPs to minimize *sediment* loads in *stormwater* discharges.

2) Filtration BMPs to remove solids from catch basins, sumps or other *stormwater* collection and conveyance system components (filter socks, modular canisters, sand filtration, centrifugal separators, etc.).

5. Sampling Plan

The SWPPP shall include a sampling plan. The plan shall:

a. Identify points of *discharge* to surface water, *storm sewers*, or discrete *ground water* infiltration locations, such as dry wells or *detention* ponds.

b. Include documentation of why each *discharge* point is not sampled per S4.B.2.c (if applicable):

i. Location of which *discharge* points the Permittee does not sample because the *pollutant* concentrations are substantially identical to a discharge point being sampled.

ii. General industrial activities conducted in the drainage area of each *discharge* point.

iii. *Best Management Practices* conducted in the drainage area of each outfall.

iv. Exposed materials located in the drainage area of each *discharge* point that are likely to be significant contributors of *pollutants* to *stormwater discharges*.

v. Impervious surfaces in the drainage area that could affect the percolation of *stormwater runoff* into the ground (e.g., asphalt, crushed rock, grass, etc.).

vi. Reasons why the Permittee expects the *discharge* points to discharge substantially identical effluents.

c. Identify each sampling location by its unique identifying number such as A1, A2, etc.

d. Identify staff responsible for conducting *stormwater* sampling.

e. Specify procedures for sample collection and handling.

f. Specify procedures for sending samples to a laboratory.

g. Identify parameters for analysis, holding times and preservatives, laboratory *quantitation levels,* and analytical methods.

h. Specify the procedure for submitting results to *Ecology*.

S4. GENERAL SAMPLING REQUIREMENTS

A. General Requirements

The Permittee shall conduct sampling of *stormwater* in accordance with this permit and the SWPPP.

B. Sampling Requirements

1. Sample Timing and Frequency

a. The Permittee shall sample the *discharge* from each designated location at least once per quarter:

1st Quarter = January, February, and March

2nd Quarter = April, May, and June

3rd Quarter = July, August, and September

4th Quarter = October, November, and December

b. Permittees shall sample the *stormwater discharge* from the first fall storm event each year. "First fall storm event" means the first time after October 1st of each year that precipitation occurs and results in a *stormwater discharge* from a *facility*.

c. Permittees shall collect samples within the first 12 hours of *stormwater discharge* events. If it is not possible to collect a sample within the first 12 hours of a *stormwater* discharge event, the Permittee must collect the sample as soon as practicable after the first 12 hours, and keep documentation with the sampling records (Condition S4.B.3) explaining why they could not collect samples within the first 12

hours; or if it is unknown (e.g., discharge was occurring during start of regular business hours).

d. The Permittee shall obtain *representative samples,* which may be a single grab sample, a time-proportional sample, or a flow-proportional sample.

e. Permittees need not sample outside of *regular business hours*, during unsafe conditions, or during quarters where there is no discharge, but shall submit a Discharge Monitoring Report each reporting period (Condition S9.A).

2. Sample Location(s)

a. The Permittee shall designate sampling location(s) at the point(s) where it discharges *stormwater* associated with *industrial activity* off-site.

b. The Permittee is not required to sample on-site discharges to ground (e.g., infiltration, etc.) or *sanitary sewer* discharges, unless specifically required by *Ecology* (Condition G12).

c. The Permittee shall sample each distinct point of *discharge* off-site except as otherwise exempt from monitoring as a "substantially identical outfall" per S3.B.5.b. The Permittee is required to monitor only one of the "substantially identical outfalls" if two or more outfalls discharge substantially identical effluents (based on similar industrial activities and site conditions).

d. The exception to sampling each point of *discharge* in S4.B.2.c does not apply to any point of discharge subject to numeric effluent limitations (Conditions S5.C, S6.C & S6.D).

3. Sample Documentation

For each *stormwater* sample taken, the Permittee shall record the following information and retain it on-site for *Ecology* review:

a. Sample date.

b. Sample time.

c. A notation describing if the Permittee collected the sample within the first 12 hours of *stormwater* discharge events; or, if it is unknown (e.g., discharge was occurring during start of regular business hours).

d. An explanation of why it could not collect a sample within the first 12 hours of a *stormwater discharge* event, if it was not possible. Or, if it is unknown, an explanation of why it doesn't know if a sample was collected within or outside the first 12 hours of stormwater discharge.

e. Sample location (using SWPPP identifying number).

f. Method of sampling, and method of sample preservation, if applicable.

g. Individual who performed the sampling.

4. Laboratory Documentation

The Permittee shall retain laboratory reports on-site for *Ecology* review and shall ensure that all laboratory reports providing data for all parameters include the following information:

a. Date of analysis.

b. Parameter name.

c. CAS number, if applicable.

d. Analytical method(s).

e. Individual who performed the analysis.

f. Method detection limit (MDL).

g. Laboratory *quantitation level* (QL) achieved by the laboratory.

h. Reporting units.

i. Sample result.

j. Quality assurance/quality control data.

5. The Permittee shall maintain the original records onsite and make them available to *Ecology* upon request.

6. The Permittee may suspend sampling for one or more parameters (other than "visible oil sheen") based on consistent attainment of *benchmark* values when:

   a. Eight consecutive quarterly samples, collected after the effective date of this permit, demonstrate a reported value equal to or less than the *benchmark* value; or for pH, within the range of 5.0 – 9.0.

   b. For purposes of tallying "consecutive quarterly samples":

      i. Do not include any quarters in which the Permittee did not collect a sample, but should have (e.g., discharge(s) occurred during normal working hours, and during safe conditions; but no sample was collected during the entire quarter). If this occurs, the tally of consecutive quarterly samples is reset to zero.

      ii. Do not include any quarters in which the Permittee did not collect a sample because there was no *discharge* during the quarter (or the discharges during the quarter occurred outside normal working hours or during unsafe conditions). These quarters are not included in the calculation of eight consecutive quarters, but do not cause the tally to be reset; i.e., they are skipped over.

      iii. Permittees who suspended sampling based on consistent attainment of benchmarks prior to July 1, 2012 must resume/continue sampling until a total of eight consecutive quarterly samples demonstrate consistent attainment.

   c. Permittees monitoring more than once per quarter shall average all of the monitoring results for each parameter (except pH and "visible oil sheen") and compare the average value to the *benchmark* value.

7. A Permittee who has a *significant process change* shall not use previous sampling results to demonstrate consistent attainment.
8. Suspension of sampling based on consistent attainment *does not* apply to *pollutant* parameters subject to numeric effluent limits based on federal Effluent Limitation Guidelines (Condition S5.C) or Section 303(d) of the *Clean Water Act* (Condition S6).

C. Analytical Procedures for Sampling Requirements

The Permittee shall ensure that analytical methods used to meet the sampling requirements specified in this permit conform to the latest revision of the *Guidelines Establishing Test Procedures for the Analysis of Pollutants* contained in *40 CFR* Part 136.

D. Laboratory Accreditation

1. The Permittee shall ensure that all analytical data required by *Ecology* is prepared by a laboratory registered or accredited under the provisions of, Accreditation of Environmental Laboratories, Chapter 173-50 WAC.
2. *Turbidity* and pH are exempt from this requirement, unless the laboratory must be registered or accredited for any other parameter.

S5. BENCHMARKS, EFFLUENT LIMITATIONS AND SPECIFIC SAMPLING REQUIREMENTS

A. Benchmarks and Sampling Requirements

1. Permittees shall sample their *stormwater discharges* as specified in Condition S4 and as specified in Table 2.
2. Additional sampling and/or requirements apply to specific industrial categories (S5.B), and facilities subject to effluent limitation guidelines (S5.C), and certain discharges to impaired waterbodies (S6).
3. If a Permittee's discharge exceeds a *benchmark* listed in Table 2, the Permittee shall take the actions specified in Condition S8. Permittees sampling more than once per quarter shall average the sample results for each parameter (except pH and "visible oil sheen") and compare the average value to the *benchmark* to determine if the discharge has exceeded a *benchmark* value.

Table 2: Benchmarks and Sampling Requirements Applicable to All Facilities

Parameter	Units	Benchmark Value	Analytical Method	Laboratory Quantitation Level [a]	Minimum Sampling Frequency [b]
Turbidity	NTU	25	EPA 180.1 Meter	0.5	1/quarter
pH	Standard Units	Between 5.0 and 9.0	Meter/Paper [c]	±0.5	1/quarter
Oil Sheen	Yes/No	No Visible Oil Sheen	N/A	N/A	1/quarter
Copper, Total	µg/L	Western WA: 14 Eastern WA: 32	EPA 200.8	2.0	1/quarter
Zinc, Total	µg/L	117	EPA 200.8	2.5	1/quarter

[a] The Permittee shall ensure laboratory results comply with the *quantitation level* specified in the table. However, if a Permittee knows that an alternate, less sensitive method (higher detection level and *quantitation level*) from *40 CFR* Part 136 is sufficient to produce measurable results in its effluent, it may use that method for analysis.

[b] 1/quarter means 1 sample taken each quarter, year-round.

[c] Permittees shall use either a calibrated pH meter or narrow-range pH indicator paper with a resolution not greater than ± 0.5 SU.

B. Additional Sampling Requirements for Specific Industrial Groups

1. In addition to the requirements in Table 2, all Permittees identified by an *industrial activity* in Table 3 shall sample *stormwater* discharges as specified in Condition S4 and in Table 3.
2. If a *discharge* exceeds a *benchmark* listed in Table 3, the Permittee shall take the actions specified in Condition S8. Permittees sampling more than once per quarter shall average the sample results for each parameter and compare the average value to the *benchmark* to determine if it the discharge has exceeded a *benchmark*.

Table 3: Additional Benchmarks and Sampling Requirements Applicable to Specific Industries

Parameter	Units	Benchmark Value	Analytical Method	Laboratory Quantitation Level [a]	Minimum Sampling Frequency [b]
1. Chemical and Allied Products (28xx), Food and Kindred Products (20xx)					
BOD_5	mg/L	30	EPA 405.1 or SM 5210B	2	1/quarter
Nitrate/Nitrite, as Nitrogen	mg/L	0.68	EPA 353.1	0.10	1/quarter
Phosphorus, Total	mg/L	2.0	EPA 365.1	0.10	1/quarter
2. Primary Metals(33xx), Metals Mining (10xx), Automobile Salvage and Scrap Recycling (5015 and 5093), Metals Fabricating (34xx)					
Lead, Total	µg/L	81.6	EPA 200.8	0.5	1/quarter
Total Petroleum Hydrocarbons (TPH)	mg/L	10	NWTPH-Dx	0.1	1/quarter
3. Hazardous Waste Treatment, Storage and Disposal Facilities and Dangerous Waste Recyclers subject to the provisions of Resource Conservation and Recovery Act (RCRA) Subtitle C					
Chemical Oxygen Demand (COD)	mg/L	120	SM5220-D	10	1/quarter
Ammonia, Total, as N	mg/L	2.1	SM4500-NH3- GH	0.3	1/quarter
TSS	mg/L	100	SM2540-D	5	1/quarter
Arsenic, Total	µg/L	150	EPA 200.8	0.5	1/quarter
Cadmium, Total	µg/L	2.1	EPA 200.8	0.25	1/quarter
Cyanide, Total	µg/L	22	SM 4500-CN I	10	1/quarter
Lead, Total	µg/L	81.6	EPA 200.8	0.5	1/quarter
Magnesium, Total	µg/L	64	EPA 200.7	80	1/quarter
Mercury, Total	µg/L	1.4	EPA 1631E	0.0005	1/quarter
Selenium, Total	µg/L	5.0	EPA 200.8	1.0	1/quarter
Silver, Total	µg/L	3.8	EPA 200.8	0.2	1/quarter
Total Petroleum Hydrocarbons (TPH)	mg/L	10	NWTPH-Dx	0.1	1/quarter
4. Air Transportation[c] (45xx)					
Ammonia	mg/L	2.1	SM4500-NH3- GH	0.3	1/quarter
BOD_5	mg/L	30	EPA 405.1 or SM 5210B	2	1/quarter
COD	mg/L	120	EPA 410.2	5	1/quarter
Nitrate/Nitrite, as N	mg/L	0.68	EPA 4500-NO3-E/F/H	0.10	1/quarter

Parameter	Units	Benchmark Value	Analytical Method	Laboratory Quantitation Level [a]	Minimum Sampling Frequency [b]
5. Timber Product Industry (24xx), Paper and Allied Products (26xx)					
COD	mg/L	120	SM5220-D	10	1/quarter
TSS	mg/L	100	SM2540-D	5	1/quarter

a The Permittee shall ensure laboratory results comply with the *quantitation level* specified in the table. However, if a Permittee knows that an alternate, less sensitive method (higher detection level and *quantitation level*) from *40 CFR* Part 136 is sufficient to produce measurable results in their effluent, that method may be used for analysis.

b. 1/quarter means 1 sample taken each quarter, year-round.

c. For airports where a single permittee, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, monitor these additional four parameters in those outfalls that collect *runoff* from areas where deicing activities occur (SIC 4512-4581).

C. Stormwater Discharges Subject to Effluent Limitation Guidelines

1. Permittees with discharges from the following activities shall comply with the effluent limits and monitor as specified in Condition S4 and Tables 4 and 5.
2. The *discharge* of the *pollutant*s at a level more than that identified and authorized by this permit for these activities shall constitute a violation of the terms and conditions of this permit.
3. Permittees operating non-hazardous waste *landfill*s subject to the provisions of *40 CFR* Part 445 Subpart B shall not exceed the effluent limits[3] listed in Table 4.

[3] As set forth in *40 CFR* Part 445 Subpart B, these numeric effluent limits apply to contaminated *stormwater* discharges from Municipal Solid Waste Landfills that have not been closed in accordance with *40 CFR* 258.60, and to contaminated *stormwater* discharges from those landfills that are subject to the provisions of *40 CFR* Part 257 except for discharges from any of the following facilities:
(a) landfills operated in conjunction with other industrial or commercial operations, when the landfill receives only wastes generated by the industrial or commercial operation directly associated with the landfill;
(b) landfills operated in conjunction with other industrial or commercial operations, when the landfill receives wastes generated by the industrial or commercial operation directly associated with the landfill and also receives other wastes, provided that the other wastes received for disposal are generated by a facility that is subject to the same provisions in *40 CFR* Subchapter N as the industrial or commercial operation, or that the other wastes received are of similar nature to the wastes generated by the industrial or commercial operation;
(c) landfills operated in conjunction with CWT facilities subject to *40 CFR* Part 437, so long as the CWT facility commingles the landfill wastewater with other non-landfill wastewater for discharge. A landfill directly associated with a CWT facility is subject to this part if the CWT facility discharges landfill wastewater separately from other CWT wastewater or commingles the wastewater from its landfill only with wastewater from other landfills; or
(d) landfills operated in conjunction with other industrial or commercial operations when the landfill receives wastes from public service activities, so long as the company owning the landfill does not receive a fee or other remuneration for the disposal service.

Table 4: Effluent Limits Applicable to Non-Hazardous Waste Landfills Subject to 40 CFR Part 445 Subpart B

Parameter	Units	Average Monthly [a]	Maximum Daily [b]	Analytical Method [c]	Laboratory Quantitation Level [d]	Minimum Sampling Frequency [e]
BOD_5	mg/L	37	140	EPA 405.1 or SM 5210B	2	1/quarter
TSS	mg/L	27	88	SM2540-D	5	1/quarter
Ammonia (total as N)	mg/L	4.9	10	SM4500-NH3-GH.	0.3	1/quarter
Alpha Terpineol	µg/L	16	33	EPA 625	5	1/quarter
Benzoic Acid	µg/L	71	120	EPA 625	50	1/quarter
p-Cresol (4-methylphenol)	µg/L	14	25	EPA 8270D	10 ug/L	1/quarter
Phenol	µg/L	15	26	EPA 625	4.0	1/quarter
Zinc, Total	µg/L	110	200	EPA 200.8	2.5	1/quarter
pH	SU	Between 6.0 and 9.0		Meter/Paper[e]	±0.1	1/quarter

a. Average monthly effluent limit means the highest allowable average of daily discharges over a calendar month. To calculate the *discharge* value to compare to the limit, you add the value of each daily discharge measured during a calendar month and divide this sum by the total number of daily discharges measured. If only one sample is taken during the calendar month, the average monthly effluent limitation applies to that sample. If only one sample is taken during the reporting period, the average monthly effluent limitation applies to that sample.

b. Maximum daily effluent limit means the highest allowable daily discharge. The daily *discharge* means the *discharge of a pollutant* measured during a calendar day. The daily discharge is the average measurement of the *pollutant* over the day; this does not apply to pH.

c. Or other equivalent EPA-approved method with the same or lower *quantitation level*.

d. The Permittee shall ensure laboratory results comply with the *quantitation level* specified in the table. However, if a Permittee knows that an alternate, less sensitive (higher detection level and *quantitation level*) from *40 CFR* Part 136 method will provide measurable results in its effluent, it may use that method for analysis.

e 1/quarter means 1 sample taken each quarter, year-round.

D. Conditionally Authorized Non-Stormwater Discharges

1. The categories and sources of non-*stormwater* discharges identified in Condition S5. D.2, below, are conditionally authorized, provided:

   a. The *discharge* is otherwise consistent with the terms and conditions of this permit, including Condition S5, S6 and S10.

b. The Permittee conducts the following assessment for each non-*stormwater discharge* (except for S5.D.2.a & f) and documents the assessment in the SWPPP, consistent with Condition S3.B.2. The Permittee shall:

i. Identify each source.

ii. Identify the location of the discharge into the *stormwater* collection system.

iii. Characterize the discharge including estimated flows or flow volume, and likely *pollutant*s which may be present.

iv. Evaluate and implement available and reasonable *source control BMPs* to reduce or eliminate the discharge.

v. Evaluate compliance of the *discharge* with the state *water quality standards*.

vi. Identify appropriate BMPs for each discharge to control *pollutant*s and or flow volumes.

2. Conditionally authorized non-*stormwater* discharges include:

a. Discharges from fire fighting activities.

b. Fire protection system flushing, testing, and maintenance.

c. Discharges of potable water including water line flushing, provided that water line flushing must be de-chlorinated prior to discharge.

d. Uncontaminated air conditioning or compressor condensate.

e. Landscape watering and irrigation drainage.

f. Uncontaminated *ground water* or spring water.

g. Discharges associated with dewatering of foundations, footing drains, or utility vaults where flows are not contaminated with process materials such as solvents.

h. Incidental windblown mist from cooling towers that collects on rooftops or areas adjacent to the cooling tower. This does not include intentional discharges from cooling towers such as piped cooling tower blow down or drains.

E. Prohibited Discharges

Unless authorized by a separate NPDES or state waste *discharge* permit, the following discharges are prohibited:

1. The discharge of *process wastewater* is not authorized. *Stormwater* that commingles with *process wastewater* is considered *process wastewater*.

2. *Illicit discharges* are not authorized by this permit. Conditionally authorized non-*stormwater* discharges in compliance with Condition S5.D are not *illicit discharges*.

F. General Prohibitions

Permittees shall manage *stormwater* to prevent the *discharge* of:

1. Synthetic, natural or processed oil or oil-containing products as identified by an oil sheen, and
2. Trash and floating debris.

S6. DISCHARGES TO 303(D)-LISTED OR TMDL WATERS

A. General Requirements for Discharges to 303(d)-listed Waters

Permittees with coverage under this permit that *discharge* to a *303(d)-listed water body* shall conduct sampling and inspections in accordance with Conditions S4, S6, and S7.

B. Limits on Coverage for New Discharges to TMDL or 303(d)-listed Waters

Facilities that meet the definition of "*new discharger*" and *discharge* to a *303(d) listed waterbody* are not eligible for coverage under this permit unless the *facility*:

1. Prevents all exposure to *stormwater* of the *pollutant*(s) for which the waterbody is impaired, and retains documentation of procedures taken to prevent exposure onsite with its SWPPP; or
2. Documents that the *pollutant*(s) for which the waterbody is impaired is not present at the *facility*, and retains documentation of this finding with the SWPPP; or
3. Provides *Ecology* with data to support a showing that the *discharge* is not expected to cause or contribute to an exceedance of a water quality standard, and retain such data onsite with its SWPPP. The *facility* must provide data and other technical information to *Ecology* sufficient to demonstrate:
   a. For discharges to waters without an *EPA* approved or established *TMDL*, that the *discharge* of the *pollutant* for which the water is impaired will meet in-stream water quality criteria at the point of discharge to the waterbody; or
   b. For discharges to waters with an *EPA* approved or established *TMDL*, that there are sufficient remaining *wasteload allocations* in an *EPA* approved or established *TMDL* to allow industrial *stormwater discharge* and that existing *dischargers* to the waterbody are subject to compliance schedules designed to bring the waterbody into attainment with *water quality standards*.

Facilities are eligible for coverage under this permit if *Ecology* issues permit coverage based upon an affirmative determination that the *discharge* will not cause or contribute to the existing impairment.

C. Additional Sampling Requirements and Effluent Limits for Discharges to Certain 303(d)-listed Waters

1. Beginning July 1, 2010, Permittees discharging to a *303(d)-listed water body* that does not have an EPA-approved *total maximum daily load (TMDL)* shall comply with the applicable sampling requirements and effluent limits in Table 5, unless a compliance schedule is requested and granted in accordance with S6.C.1.b&c.

a. Facilities subject to these limits include, but may not be limited to, facilities listed in Appendix 4.

b. For purposes of this condition, "applicable sampling requirements and effluent limits" means the sampling and effluent limits in Table 5 that correspond to the specific parameter(s) the receiving water is *303(d)-listed* for at the time of permit coverage, or Total Suspended Solids (TSS) if the waterbody is *303(d)-listed* for any *sediment* quality parameter at the time of permit coverage.

c. Permittees may request a compliance schedule for relief from the July 1, 2010 deadline to comply with an applicable effluent limit in Condition S6.C. Permittees shall submit requests for compliance schedules in writing to *Ecology* no later than January 31, 2010 and shall include the company name, *facility* location, industrial *stormwater* permit number, and the reason for requesting a compliance schedule.

d. *Ecology* will consider all compliance schedule requests submitted by January 31, 2010. If *Ecology* determines that a Permittee is unable to comply with the applicable effluent limits by July 1, 2010, *Ecology* will establish a compliance schedule to require compliance as soon as possible, and no later than twenty-four months, or two complete wet seasons, after the effective date of this permit. *Ecology* will send its decision regarding the request for compliance schedule to the Permittee no sooner than April 1, 2010.

e. For purposes of this condition, "wet season" means Oct 1st through June 30th.

Table 5: Sampling and Effluent Limits Applicable to Discharges to 303(d)-listed Waters

Parameter	Units	Effluent Limit		Analytical Method [a]	Laboratory Quantitation Level [b]	Sampling Frequency
		Fresh Water	Marine			
Turbidity	NTUs	25	25	EPA 180.1 Meter	0.5	1/quarter [c]
pH	SU	[i]	Between 7.0 and 8.5	Meter [d]	±0.5	1/quarter [c]
Fecal Coliform Bacteria	# colonies/ 100 mL	[h]	[h]	SM 9222D	20 CFU/ 100 mL	1/quarter [c]
TSS [e]	mg/L	30	30	SM2540-D	5	1/quarter [c]
Phosphorus, Total	mg/L	[f]	[f]	EPA 365.1	0.01	1/quarter [c]
Ammonia, total as N	mg/L	[f]	[f]	SM 4500 NH^3-GH	0.3	1/quarter [c]
Copper, Total	µg/L	[f]	[f]	EPA 200.8	2.0	1/quarter [c]
Lead, Total	µg/L	[f]	[f]	EPA 200.8	0.5	1/quarter [c]
Mercury, Total	µg/L	2.1	1.8	EPA1631E	0.0005	1/quarter [c]
Zinc, Total	µg/L	[f]	[f]	EPA 200.8	2.5	1/quarter [c]
Pentachlorophenol	µg/L	9[g]	[f]	EPA 625	1.0	1/quarter [c]

[a] Or other equivalent method with the same reporting level.

[b] The Permittee shall ensure laboratory results comply with the *quantitation level* specified in the table.

[c] 1/quarter means 1 sample taken each quarter, e.g., Q1 = Jan 1 – March 31st, Q2 = April 1 – June 30th, etc.

[d] Permittees shall use either a calibrated pH meter consistent with *EPA* 9040 or an approved state method.

[e] A Permittee who discharges to a water body *303(d)-listed* for any *sediment* quality parameter shall sample the *discharge* for TSS.

[f] Site-specific effluent limitation will be assigned at the time of permit coverage.

[g] Based on a pH of 7.0.

[h] A numeric effluent limit does not apply, but permittees must sample according to Table 5. In addition, the following mandatory BMPs shall be incorporated into the SWPPP and implemented:

1) Use all known, available and reasonable methods to prevent rodents, birds, and other animals from feeding/nesting/roosting at the facility. Nothing in this section shall be construed as allowing violations of any applicable federal, state or local statutes, ordinances, or regulations including the Migratory Bird Treaty Act.

2) perform at least one annual dry weather inspection of the stormwater system to identify and eliminate sanitary sewer cross-connections;

3) Install structural source control BMPs to address on-site activities and sources that could cause bacterial contamination (e.g., dumpsters, compost piles, food waste, animal products, etc.):

4) Implement operational source control BMPs to prevent bacterial contamination from any known sources of fecal coliform bacteria (e.g., animal waste, etc.);

5) Additional bacteria-related sampling and/or BMPs, if ordered by Ecology on a case-by-case basis.

[i] The effluent limit for a Permittee who discharges to a fresh water body *303(d)-listed* for pH is: Between 6.0 and 8.5, if the 303(d)-listing is for high pH only; Between 6.5 and 9.0, if the 303(d)-listing is for low pH only; and Between 6.5 and 8.5 if the 303(d)-listing is for both low and high pH. All pH effluent limits are applied end-of-pipe.

D. Requirements for Discharges to Waters with Applicable TMDLs

1. The Permittee shall comply with *applicable TMDL* determinations. *Applicable TMDLs* or *TMDL* determinations are *TMDLs* which have been completed by the issuance date of this permit, or which have been completed prior to the date that the Permittee's *application* is received by *Ecology*, whichever is later. *Ecology* will list the Permittee's requirements to comply with this condition on the letter of permit coverage.
2. *TMDL* requirements associated with *TMDLs* completed after the issuance date of this permit only become effective if they are imposed through an administrative order issued by *Ecology*.
3. Where *Ecology* has established a *TMDL wasteload allocation* and sampling requirements for the Permittee's discharge, the Permittee shall comply with all requirements of the *TMDL* as listed in Appendix 5.
4. Where *Ecology* has established a *TMDL* general *wasteload allocation* for industrial *stormwater* discharges for a parameter present in the Permittee's discharge, but has not identified specific requirements, *Ecology* will assume the Permittee's compliance with the terms and conditions of the permit complies with the approved *TMDL*.
5. Where *Ecology* has not established a *TMDL wasteload allocation* for industrial *stormwater* discharges for a parameter present in the Permittee's discharge, but has not excluded these discharges, *Ecology* will assume the Permittee's compliance with the terms and conditions of this permit complies with the approved *TMDL*.
6. Where a *TMDL* for a parameter present in the Permittee's *discharge* specifically precludes or prohibits discharges of *stormwater* associated with *industrial activity*, the Permittee is not eligible for coverage under this permit.

S7. INSPECTIONS

A. Inspection Frequency and Personnel

1. The Permittee shall conduct and document visual inspections of the site each month.
2. The Permittee shall ensure that inspections are conducted by *qualified personnel.*

B. Inspection Components

Each inspection shall include:

1. Observations made at *stormwater* sampling locations and areas where *stormwater* associated with *industrial activity* is discharged off-site; or discharged to *waters of the state,* or to a *storm sewer* system that drains to *waters of the state.*
2. Observations for the presence of floating materials, visible oil sheen, discoloration, *turbidity*, odor, etc. in the *stormwater* discharge(s).
3. Observations for the presence of *illicit discharges* such as *domestic wastewater, noncontact cooling water*, or *process wastewater* (including *leachate*).

a. If an *illicit discharge* is discovered, the Permittee shall notify *Ecology* within seven days.

b. The Permittee shall eliminate the *illicit discharge* within 30 days.

4. A verification that the descriptions of potential *pollutant* sources required under this permit are accurate.

5. A verification that the site map in the SWPPP reflects current conditions.

6. An assessment of all BMPs that have been implemented, noting all of the following:

   a. Effectiveness of BMPs inspected.

   b. Locations of BMPs that need maintenance.

   c. Reason maintenance is needed and a schedule for maintenance.

   d. Locations where additional or different BMPs are needed and the rationale for the additional or different BMPs.

C. Inspection Results

1. The Permittee shall record the results of each inspection in an inspection report or checklist and keep the records on-site for *Ecology* review. The Permittee shall ensure each inspection report documents the observations, verifications and assessments required in S7.B and includes:

   a. Time and date of the inspection.

   b. Locations inspected.

   c. Statements that, in the judgment of 1) the person conducting the site inspection, and 2) the person described in Condition G2., the site is either in compliance or out of compliance with the terms and conditions of the SWPPP and this permit.

   d. A summary report and a schedule of implementation of the remedial actions that the Permittee plans to take if the site inspection indicates that the site is out of compliance. The remedial actions taken must meet the requirements of the SWPPP and the permit.

   e. Name, title, and signature of the person conducting site inspection; and the following statement: "I certify that this report is true, accurate, and complete, to the best of my knowledge and belief."

   f. Certification and signature of the person described in Condition G2.A, or a duly authorized representative of the *facility*, in accordance with Condition G.2.B.

D. Reports of Non-Compliance

The Permittee shall prepare reports of non-compliance identified during an inspection in accordance with the requirements of Condition S9.E.

S8. CORRECTIVE ACTIONS

A. Implementation of Source Control and Treatment BMPs from Previous Permit

In addition to the Corrective Action Requirements of S8.B-D, Permittees shall implement any applicable Level 1, 2 or 3 Responses required by the previous Industrial Stormwater *General Permit*(s). Permittees shall continue to operate and/or maintain any source control or *treatment BMP*s related to Level 1, 2 or 3 Responses implemented prior to the effective date of this permit.

B. Level One Corrective Actions – Operational Source Control BMPs

Permittees that exceed any applicable *benchmark* value(s) in Table 2 or Table 3, shall complete a Level 1 Corrective Action for each parameter exceeded in accordance with the following:

1. Within 14 days of receipt of sampling results that indicate a benchmark exceedance:
   a. Conduct an inspection to investigate the cause.
   b. Review the SWPPP and ensure that it fully complies with Permit Condition S3, and contains the correct BMPs from the applicable *Stormwater Management Manual.*
   c. Make appropriate revisions to the SWPPP to include additional *Operational Source Control BMPs* with the goal of achieving the applicable *benchmark* value(s) in future discharges. The Permittee shall sign and certify the revised SWPPP in accordance with S3.A.6.
2. Summarize the Level 1 Corrective Actions in the Annual Report (Condition S9.B)
3. **Level One Deadline:** The Permittee shall fully implement the revised SWPPP according to Permit Condition S3 and the applicable *Stormwater Management Manual* as soon as possible, but no later than the DMR due date for the quarter the *benchmark* was exceeded.

C. Level Two Corrective Actions – Structural Source Control BMPs

Permittees that exceed an applicable *benchmark* value (for a single parameter) for any two quarters during a calendar year shall complete a Level 2 Corrective Action in accordance with S8.C. Alternatively, the permittee may skip Level 2 and complete a Level 3 Corrective Action in accordance with Condition S8.D.

1. Review the SWPPP and ensure that it fully complies with Permit Condition S3.
2. Make appropriate revisions to the SWPPP to include additional *Structural Source Control BMPs* with the goal of achieving the applicable *benchmark* value(s) in future discharges. The Permittee shall sign and certify the revised SWPPP in accordance with S3.A.6.
3. Summarize the Level 2 Corrective Actions (planned or taken) in the Annual Report (Condition S9.B).

4. **Level 2 Deadline:** The Permittee shall fully implement the revised SWPPP according to Permit Condition S3 and the applicable *Stormwater Management Manual* as soon as possible, but no later than August 31st the following year[4].

   a. If installation of necessary *Structural Source Control BMPs* is not feasible by August 31st the following year, *Ecology* may approve additional time, by approving a *Modification of Permit Coverage.*

   b. If installation of *Structural Source Control BMPs* is not feasible or not necessary to prevent discharges that may cause or contribute to a violation of a water quality standard, *Ecology* may waive the requirement for additional *Structural Source Control BMPs* by approving a *Modification of Permit Coverage.*

   c. To request a time extension or waiver, a Permittee shall submit a detailed explanation of why it is making the request (technical basis), and a *Modification of Coverage* form to *Ecology* in accordance with Condition S2.B, by May 15th prior to Level 2 Deadline. *Ecology* will approve or deny the request within 60 days of receipt of a complete *Modification of Coverage* request.

   d. For the year following the calendar year the permittee triggered a Level 2 corrective action, benchmark exceedences (for the same parameter) do not count towards additional Level 2 or 3 Corrective Actions.

D. Level Three Corrective Actions – Treatment BMPs

Permittees that exceed an applicable *benchmark* value (for a single parameter) for any three quarters during a calendar year shall complete a Level 3 Corrective Action in accordance with S8.D. A Level 2 Corrective Action is not required.

1. Review the SWPPP and ensure that it fully complies with Permit Condition S3.
2. Make appropriate revisions to the SWPPP to include additional *Treatment BMPs* with the goal of achieving the applicable *benchmark* value(s) in future discharges. Revisions shall include additional operational and/or structural source control BMPs if necessary for proper performance and maintenance of *Treatment BMPs.*

   a. The Permittee shall sign and certify the revised SWPPP in accordance with S3.A.6.

   b. A licensed professional engineer, geologist, hydrogeologist, or Certified Professional in Storm Water Quality (CPSWQ) shall design and stamp the portion of the SWPPP that addresses *stormwater* treatment structures or processes.

      i. *Ecology* may waive the requirement for a licensed or certified professional upon request of the Permittee and demonstration that the Permittee or treatment device vendor can properly design and install the treatment device; or the treatment BMP doesn't require site-specific design or sizing (e.g., off-the-shelf filtration units, etc.).

      ii. *Ecology* will not waive the Level 3 requirement for a licensed or certified professional more than one time during the permit cycle.

[4] For Level 2 Corrective Actions triggered in 2011 and due in 2012, the Level 2 Deadline is September 30, 2012.

3. Before installing treatment BMPs that require the site-specific design or sizing of structures, equipment, or processes to collect, convey, treat, reclaim, or dispose of industrial stormwater, the Permittee shall submit an engineering report, plans and specifications, and an operations and maintenance (O&M) manual to Ecology for review in accordance with Chapter 173-240 WAC.

   a. The engineering report shall be submitted no later than the May 15th prior to the Level 3 deadline, unless an alternate due date is specified in an order.

   b. The plans and specifications and O&M Manual shall be submitted at least 30 days before construction/installation, unless an alternate date is specified in an order. Upon request of the Permittee, Ecology may allow final conceptual drawings to be substituted for plans and specifications.

4. Summarize the Level 3 Corrective Actions (planned or taken) in the Annual Report (Condition S9.B). Include information on how monitoring, assessment or evaluation information was (or will be) used to determine whether existing treatment BMPs will be modified/enhanced, or if new/additional treatment BMPs will be installed.

5. **Level 3 Deadline**: The Permittee shall fully implement the revised SWPPP according to Permit Condition S3 and the applicable *Stormwater Management Manual* as soon as possible, but no later than September 30th the following year.

   a. If installation of necessary *Treatment BMPs* is not feasible by the Level 3 Deadline; *Ecology* may approve additional time by approving a *Modification of Permit Coverage*.

   b. If installation of *Treatment BMPs* is not feasible or not necessary to prevent discharges that may cause or contribute to violation of a water quality standard, *Ecology* may waive the requirement for *Treatment BMPs* by approving a *Modification of Permit Coverage*.

   c. To request a time extension or waiver, a Permittee shall submit a detailed explanation of why it is making the request (technical basis), and a Modification of Coverage form to *Ecology* in accordance with Condition S2.B, by May 15th prior to the Level 3 Deadline. *Ecology* will approve or deny the request within 60 days of receipt of a complete *Modification of Coverage* request.

   d. For the year following the calendar year the Permittee triggered a Level 3 corrective action, benchmark exceedences (for the same parameter) do not count towards additional Level 2 or 3 Corrective Actions.

S9. REPORTING AND RECORDKEEPING

A. Discharge Monitoring Reports

1. The Permittee shall submit sampling data obtained during each reporting period on a Discharge Monitoring Report (DMR) form provided, or otherwise approved, by *Ecology*.

2. The Permittee shall submit sampling results within 45 days of the end of each reporting period.
3. The first reporting period shall begin on the effective date of permit coverage.
4. Upon permit coverage, the Permittee shall ensure that DMRs are postmarked or received by *Ecology* by the DMR Due Dates below:

Table 7: Reporting Dates and DMR Due Dates

Reporting Period	Months	DMR Due Date
1st	January-March	May 15
2nd	April-June	August 14
3rd	July-Sept	November 14
4th	October-December	February 14

5. DMRs shall be submitted using *Ecology*'s WAWebDMR system or by mail to the following address:

Department of Ecology
Water Quality Program – Industrial Stormwater
PO Box 47696
Olympia, Washington 98504-7696

6. Upon permit coverage, the Permittee shall submit a DMR each reporting period, whether or not the *facility* has discharged *stormwater* from the site.
   a. If no *stormwater* sample was obtained from the site during a given reporting period, the Permittee shall submit the DMR form indicating "no sample obtained", or "no discharge during the quarter", as applicable.
   b. If a Permittee has suspended sampling for a parameter due to consistent attainment, the Permittee shall submit a DMR and indicate that it has achieved Consistent Attainment for that parameter(s).

B. Annual Reports

1. The Permittee shall submit a complete and accurate Annual Report to the Department of *Ecology* no later than May 15th of each year (except 2010) using a form provided by or otherwise approved by *Ecology*.
2. The annual report shall include corrective action documentation as required in S8.B-D. If corrective action is not yet completed at the time of submission of this annual report, the Permittee must describe the status of any outstanding corrective action(s).
3. Permittees shall include the following information with each annual report. The Permittee shall:
   a. Identify the condition triggering the need for corrective action review.
   b. Describe the problem(s) and identify the dates they were discovered.
   c. Summarize any Level 1, 2 or 3 corrective actions completed during the previous calendar year and include the dates it completed the corrective actions.

d. Describe the status of any Level 2 or 3 corrective actions triggered during the previous calendar year, and identify the date it expects to complete corrective actions.

4. Permittees shall retain a copy of all annual reports onsite for *Ecology* review.

C. Records Retention

1. The Permittee shall retain the following documents onsite for a minimum of five years:
   a. A copy of this permit.
   b. A copy of the permit coverage letter.
   c. Records of all sampling information specified in Condition S4.B.3.
   d. Inspection reports including documentation specified in Condition S7.
   e. Any other documentation of compliance with permit requirements.
   f. All equipment calibration records.
   g. All BMP maintenance records.
   h. All original recordings for continuous sampling instrumentation.
   i. Copies of all laboratory reports as described in Condition S3.B.4.
   j. Copies of all reports required by this permit.
   k. Records of all data used to complete the *application* for this permit.
2. The Permittee shall extend the period of records retention during the course of any unresolved litigation regarding the *discharge* of *pollutant*s by the Permittee, or when requested by *Ecology*.
3. The Permittee shall make all plans, documents and records required by this permit immediately available to *Ecology* or the local jurisdiction upon request; or within 14 days of a written request from *Ecology*.

D. Additional Sampling by the Permittee

If the Permittee samples any *pollutant* at a designated sampling point more frequently than required by this permit, then the Permittee shall include the results in the calculation and reporting of the data submitted in the Permittee's DMR.

E. Reporting Permit Violations

1. In the event the Permittee is unable to comply with any of the terms and conditions of this permit which may endanger human health or the environment, or the facility experiences any *bypass* or upset which causes an exceedance of any effluent limitation in the permit, the Permittee shall:
   a. Immediately take action to minimize potential *pollution* or otherwise stop the noncompliance and correct the problem.

b. Immediately notify the appropriate *Ecology* regional office of the failure to comply.

c. Submit a detailed written report to *Ecology* within 30 days unless *Ecology* requests an earlier submission. The Permittee's report shall contain:

i. A description of the noncompliance, including exact dates and times.

ii. Whether the noncompliance has been corrected and, if not, when the noncompliance will be corrected.

iii. The steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

2. Compliance with the requirements of this section does not relieve the Permittee from responsibility to maintain continuous compliance with the terms and conditions of this permit or the resulting liability for failure to comply.

F. Public Access to SWPPP

The Permittee shall provide access to, or a copy of, the SWPPP to the public when requested in writing. Upon receiving a written request from the public for the SWPPP, the Permittee shall:

1. Provide a copy of the SWPPP to the requestor within 14 days of receipt of the written request; or
2. Notify the requestor within 10 days of receipt of the written request of the location and times within normal business hours when the requestor may view the SWPPP , and provide access to the SWPPP within 14 days of receipt of the written request; or
3. Provide a copy of the plans and records to *Ecology*, where the requestor may view the records, within 14 days of a request; or may arrange with the requestor for an alternative, mutually agreed upon location for viewing and/or copying of the plans and records. If access to the plans and records is provided at a location other than at an *Ecology* office, the Permittee will provide reasonable access to copying services for which it may charge a reasonable fee.

S10. COMPLIANCE WITH STANDARDS

A. Discharges shall not cause or contribute to a violation of *Surface Water Quality Standards* (Chapter 173-201A WAC), Ground Water Quality Standards (Chapter 173-200 WAC), Sediment Management Standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (*40 CFR* 131.36). Discharges that are not in compliance with these standards are prohibited.

B. *Ecology* will presume compliance with *water quality standards*, unless *discharge* monitoring data or other site specific information demonstrates that a discharge causes or contributes to violation of *water quality standards*, when the Permittee is:

1. In full compliance with all permit conditions, including planning, sampling, monitoring, reporting, and recordkeeping conditions.
2. Fully implementing storm water *best management practices* contained in storm water technical manuals approved by the department, or practices that are *demonstrably equivalent* to practices contained in storm water technical manuals approved by *Ecology*, including the proper selection, implementation, and maintenance of all applicable and appropriate *best management practices* for on-site *pollution* control.

C. Prior to the *discharge* of *stormwater* and non-stormwater to *waters of the state*, the Permittee shall apply all known and reasonable methods of prevention, control, and treatment (*AKART*). To comply with this condition, the Permittee shall prepare and implement an adequate SWPPP, with all applicable and appropriate BMPs, including the BMPs necessary to meet the standards identified in Condition S10.A, and shall install and maintain the BMPs in accordance with the SWPPP, applicable SWMMs, and the terms and conditions of this permit.

S11. PERMIT FEES

A. The Permittee shall pay permit fees assessed by *Ecology* and established in Chapter 173-224 WAC.

B. *Ecology* will continue to assess permit fees until it terminates a permit in accordance with Special Condition S13 or revoked in accordance with General Condition G5.

S12. SOLID AND LIQUID WASTE MANAGEMENT

The Permittee shall not allow solid waste material or *leachate* to cause violations of the State Surface *Water Quality Standards* (Chapter 173-201A WAC), the *Ground Water Quality Standards* (Chapter 173-200 WAC) or the Sediment Management Standards (Chapter 173-204 WAC).

S13. NOTICE OF TERMINATION (NOT)

A. Conditions for a NOT

Ecology may approve a *Notice of Termination* (NOT) request when the Permittee meets one or more of the following conditions:

1. All permitted *stormwater* discharges associated with *industrial activity* that are authorized by this permit cease because the *industrial activity* has ceased, and no *significant materials* or industrial *pollutants* remain exposed to *stormwater.*
2. The party that is responsible for permit coverage (signatory to *application*) sells or otherwise legally transfers responsibility for the *industrial activity.*
3. All *stormwater* discharges associated with *industrial activity* are prevented because the *stormwater* is redirected to a *sanitary sewer*, or discharged to ground (e.g., infiltration, etc.).

B. Procedure for Obtaining Termination

1. The Permittee shall apply for a NOT on a form specified by *Ecology* (NOT Form).
2. The Permittee seeking permit coverage termination shall sign the NOT in accordance with Condition G2. of this permit.
3. The Permittee shall submit the completed NOT form to *Ecology* at the address in Condition S9.A.5.

GENERAL CONDITIONS

G1. DISCHARGE VIOLATIONS

All discharges and activities authorized by this *general permit* shall be consistent with the terms and conditions of this *general permit*. Any *discharge* of any *pollutant* more frequently than, or at a level in excess of that identified and authorized by the *general permit*, shall constitute a violation of the terms and conditions of this permit.

G2. SIGNATORY REQUIREMENTS

A. All permit *applications* shall be signed:

1. In the case of corporations, by a responsible corporate officer of at least the level of vice president of a corporation.
2. In the case of a partnership, by a general partner of a partnership.
3. In the case of sole proprietorship, by the proprietor.
4. In the case of a municipal, state, or other public *facility*, by either a principal executive officer or ranking elected official.

B. All reports required by this permit and other information requested by *Ecology* shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the *Ecology*.
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated *facility*, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

C. Changes to authorization. If an authorization under paragraph G2.B.2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the *facility*, a new authorization satisfying the requirements of paragraph G2.B.2 above shall be submitted to *Ecology* prior to, or together with, any reports, information, or *applications* to be signed by an authorized representative.

D. Certification. Any person signing a document under this section shall make the following certification:

> "I certify under penalty of law, that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that *qualified personnel* properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there

are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

G3. RIGHT OF INSPECTION AND ENTRY

The Permittee shall allow an authorized representative of *Ecology*, upon the presentation of credentials and such other documents as may be required by law:

A. To enter upon the premises where a *discharge* is located or where any records shall be kept under the terms and conditions of this permit.

B. To have access to and copy, at reasonable times and at reasonable cost, any records required to be kept under the terms and conditions of this permit.

C. To inspect, at reasonable times, any facilities, equipment (including sampling and control equipment), practices, methods, or operations regulated or required under this permit.

D. To sample or monitor, at reasonable times, any substances or parameters at any location for purposes of assuring permit compliance or as otherwise authorized by the *Clean Water Act*.

G4. GENERAL PERMIT MODIFICATION AND REVOCATION

This permit may be modified, revoked and reissued, or terminated in accordance with the provisions of Chapter 173-226 WAC. Grounds for modification, revocation and reissuance, or termination include, but are not limited to, the following:

A. When a change which occurs in the technology or practices for control or abatement of *pollutant*s applicable to the category of *dischargers* covered under this permit.

B. When effluent limitation guidelines or standards are promulgated pursuant to the CWA or Chapter 90.48 RCW, for the category of *dischargers* covered under this permit.

C. When a water quality management plan containing requirements applicable to the category of *dischargers* covered under this permit is approved.

D. When information is obtained which indicates that cumulative effects on the environment from *dischargers* covered under this permit are unacceptable.

G5. REVOCATION OF COVERAGE UNDER THE PERMIT

A. Pursuant with Chapter 43.21B RCW and Chapter 173-226 WAC, *Ecology* may terminate coverage for any *discharger* under this permit for cause. Cases where coverage may be terminated include, but are not limited to, the following:

1. Violation of any term or condition of this permit.
2. Obtaining coverage under this permit by misrepresentation or failure to disclose fully all relevant facts.
3. A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

4. Failure or refusal of the Permittee to allow entry as required in RCW 90.48.090.
5. A determination that the permitted activity endangers human health or the environment, or contributes to *water quality standards* violations.
6. Nonpayment of permit fees or penalties assessed pursuant to RCW 90.48.465 and Chapter 173-224 WAC.
7. Failure of the Permittee to satisfy the public notice requirements of WAC 173-226-130(5), when applicable.

B. *Ecology* may require any *discharger* under this permit to apply for and obtain coverage under an individual permit or another more specific *general permit*.

C. Permittees who have their coverage revoked for cause according to WAC 173-226-240 may request temporary coverage under this permit during the time an individual permit is being developed, provided the request is made within 90 days from the time of revocation and is submitted along with a complete individual permit *application* form.

G6. REPORTING A CAUSE FOR MODIFICATION

The Permittee shall submit a new *application*, or a supplement to the previous *application*, whenever a material change to the *industrial activity* or in the quantity or type of *discharge* is anticipated which is not specifically authorized by this permit. This *application* shall be submitted at least 60 days prior to any proposed changes. The filing of a request by the Permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not relieve the Permittee of the duty to comply with the existing permit until it is modified or reissued.

G7. COMPLIANCE WITH OTHER LAWS AND STATUTES

Nothing in this permit shall be construed as excusing the Permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G8. DUTY TO REAPPLY

The Permittee shall apply for permit renewal at least 180 days prior to the expiration date of this permit.

G9. REMOVED SUBSTANCES

Collected screenings, grit, solids, sludges, filter backwash, or other *pollutants* removed in the course of treatment or control of *stormwater* shall not be resuspended or reintroduced to the final effluent stream for *discharge* to state waters.

G10. DUTY TO PROVIDE INFORMATION

The Permittee shall submit to *Ecology*, within a reasonable time, all information which *Ecology* may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit or to determine compliance with this permit. The Permittee shall also submit to *Ecology*, upon request, copies of records required to be kept by this permit [*40 CFR* 122.41(h)].

G11. OTHER REQUIREMENTS OF 40 CFR

All other requirements of *40 CFR* 122.41 and 122.42 are incorporated in this permit by reference.

G12. ADDITIONAL SAMPLING

Ecology may establish specific sampling requirements in addition to those contained in this permit by administrative order or permit modification.

G13. PENALTIES FOR VIOLATING PERMIT CONDITIONS

Any person who is found guilty of willfully violating the terms and conditions of this permit shall be deemed guilty of a crime, and upon conviction thereof shall be punished by a fine of up to $10,000 and costs of prosecution, or by imprisonment at the discretion of the court. Each day upon which a willful violation occurs may be deemed a separate and additional violation.

Any person who violates the terms and conditions of this permit shall incur, in addition to any other penalty as provided by law, a civil penalty in the amount of up to $10,000 for every such violation. Each and every such violation shall be a separate and distinct offense, and in case of a continuing violation, every day's continuance shall be deemed to be a separate and distinct violation.

G14. UPSET

Definition – "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of the following paragraph are met.

A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that: 1) an upset occurred and that the Permittee can identify the cause(s) of the upset; 2) the permitted *facility* was being properly operated at the time of the upset; 3) the Permittee submitted notice of the upset as required in condition S9.E; and 4) the Permittee complied with any remedial measures required under this permit.

In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

G15. PROPERTY RIGHTS

This permit does not convey any property rights of any sort, or any exclusive privilege.

G16. DUTY TO COMPLY

The Permittee shall comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the *Clean Water Act* and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or denial of a permit renewal *application*.

G17. TOXIC POLLUTANTS

The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the *Clean Water Act* for toxic *pollutant*s within the time provided in the regulations that establish those standards or prohibitions, even if this permit has not yet been modified to incorporate the requirement.

G18. PENALTIES FOR TAMPERING

The *Clean Water Act* provides that any person who falsifies, tampers with, or knowingly renders inaccurate any sampling device or method required to be maintained under this permit shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than two years per violation, or by both. If a conviction of a person is for a violation committed after a first conviction of such person under this Condition, punishment shall be a fine of not more than $20,000 per day of violation, or imprisonment of not more than four years, or both.

G19. REPORTING PLANNED CHANGES

The Permittee shall, as soon as possible, give notice to *Ecology* of planned physical alterations, modifications or additions to the permitted *industrial activity*, which will result in:

A. The permitted *facility* being determined to be a new source pursuant to *40 CFR* 122.29(b).

B. A *significant process change*, as defined in the glossary of this permit.

C. A change in the location of *industrial activity* that affects the Permittee's sampling requirements in Conditions S3, S4, S5, and S6.

Following such notice, permit coverage may be modified, or revoked and reissued pursuant to *40 CFR* 122.62(a) to specify and limit any *pollutant*s not previously limited. Until such modification is effective, any new or increased *discharge* in excess of permit limits or not specifically authorized by this permit constitutes a violation.

G20. REPORTING OTHER INFORMATION

Where the Permittee becomes aware that it failed to submit any relevant facts in a permit *application*, or submitted incorrect information in a permit *application* or in any report to *Ecology*, it shall promptly submit such facts or information.

G21. REPORTING ANTICIPATED NON-COMPLIANCE

The Permittee shall give advance notice to *Ecology* by submission of a new *application*, or supplement to the existing *application*, at least 45 days prior to commencement of such discharges, of any *facility* expansions, production increases, or other planned changes, such as process modifications, in the permitted *facility* or activity which may result in noncompliance with permit limits or conditions. Any maintenance of facilities, which might necessitate unavoidable interruption of operation and degradation of effluent quality, shall be scheduled during non-critical water quality periods and carried out in a manner approved by *Ecology*.

G22. REQUESTS TO BE EXCLUDED FROM COVERAGE UNDER THE PERMIT

A. Any *discharger* authorized by this permit may request to be excluded from coverage under the *general permit* by applying for an individual permit.

B. The *discharger* shall submit to *Ecology* an *application* as described in WAC 173-220-040 or WAC 173-216-070, whichever is applicable, with reasons supporting the request. These reasons shall fully document how an individual permit will apply to the applicant in a way that the *general permit* cannot.

C. *Ecology* may make specific requests for information to support the request. *Ecology* shall either issue an individual permit or deny the request with a statement explaining the reason for the denial.

D. When an individual permit is issued to a *discharger* otherwise subject to the industrial *stormwater general permit*, the applicability of the industrial *stormwater general permit* to that Permittee is automatically terminated on the effective date of the individual permit.

G23. APPEALS

A. The terms and conditions of this *general permit*, as they apply to the appropriate class of *dischargers*, are subject to appeal by any person within 30 days of issuance of this *general permit*, in accordance with Chapter 43.21B RCW, and Chapter 173-226 WAC.

B. The terms and conditions of this *general permit*, as they apply to an individual *discharger*, are appealable in accordance with Chapter 43.21B RCW within 30 days of the effective date of coverage of that *discharger*. Consideration of an appeal of *general permit* coverage of an individual *discharger* is limited to the *general permit*'s applicability or nonapplicability to that individual *discharger*.

C. The appeal of *general permit* coverage of an individual *discharger* does not affect any other *discharger*s covered under this *general permit*. If the terms and conditions of this *general permit* are found to be inapplicable to any individual *discharger*(s), the matter shall be remanded to *Ecology* for consideration of issuance of an individual permit or permits.

G24. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or *application* of any provision of this permit to any circumstance, is held invalid, the *application* of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

G25. BYPASS PROHIBITED

Bypass, which is the intentional diversion of waste streams from any portion of a treatment *facility*, is prohibited, and *Ecology* may take enforcement action against a Permittee for *bypass* unless one of the following circumstances (A, B, or C) is applicable.

A. *Bypass* for Essential Maintenance without the Potential to Cause Violation of Permit Limits or Conditions

Bypass is authorized if it is for essential maintenance and does not have the potential to cause violations of limitations or other conditions of this permit, or adversely impact public health as determined by *Ecology* prior to the *bypass*. The Permittee must submit prior notice, if possible, at least ten (10) days before the date of the *bypass*.

B. *Bypass* Which is Unavoidable, Unanticipated, and Results in Noncompliance of this Permit

This *bypass* is permitted only if:

1. *Bypass* is unavoidable to prevent loss of life, personal injury, or *severe property damage*. "*Severe property damage*" means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a *bypass*.

2. There are no feasible alternatives to the *bypass*, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment downtime (but not if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a *bypass* which occurred during normal periods of equipment downtime or preventative maintenance), or transport of untreated wastes to another treatment *facility*.
3. *Ecology* is properly notified of the *bypass* as required in condition S9E of this permit.

C. *Bypass* which is Anticipated and has the Potential to Result in Noncompliance of this Permit

The Permittee must notify *Ecology* at least thirty (30) days before the planned date of *bypass*. The notice must contain (1) a description of the *bypass* and its cause; (2) an analysis of all known alternatives which would eliminate, reduce, or mitigate the need for bypassing; (3) a cost-effectiveness analysis of alternatives including comparative resource damage assessment; (4) the minimum and maximum duration of *bypass* under each alternative; (5) a recommendation as to the preferred alternative for conducting the *bypass*; (6) the projected date of *bypass* initiation; (7) a statement of compliance with SEPA; (8) a request for modification of *water quality standards* as provided for in WAC 173-201A-410, if an exceedance of any water quality standard is anticipated; and (9) steps taken or planned to reduce, eliminate, and prevent reoccurrence of the *bypass*.

For probable construction bypasses, the need to *bypass* is to be identified as early in the planning process as possible. The analysis required above must be considered during preparation of the engineering report or facilities plan and plans and specifications and must be included to the extent practical. In cases where the probable need to *bypass* is determined early, continued analysis is necessary up to and including the construction period in an effort to minimize or eliminate the *bypass*.

Ecology will consider the following prior to issuing an administrative order for this type *bypass*:

1. If the *bypass* is necessary to perform construction or maintenance-related activities essential to meet the requirements of this permit.
2. If there are feasible alternatives to *bypass*, such as the use of auxiliary treatment facilities, retention of untreated wastes, stopping production, maintenance during normal periods of equipment down time, or transport of untreated wastes to another treatment *facility*.
3. If the *bypass* is planned and scheduled to minimize adverse effects on the public and the environment.

After consideration of the above and the adverse effects of the proposed *bypass* and any other relevant factors, *Ecology* will approve or deny the request. The public must be notified and given an opportunity to comment on *bypass* incidents of significant duration, to the extent feasible. Approval of a request to *bypass* will be by administrative order issued by *Ecology* under RCW 90.48.120.

APPENDIX 1 - ACRONYMS

BMP	Best Management Practice
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response Compensation & Liability Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWA	Centralized Waste Treatment
EPA	Environmental Protection Agency
ESC	Erosion and Sediment Control
FWPCA	Federal Water Pollution Control Act
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
RCRA	Resource Conservation and Recovery Act
RCW	Revised Code of Washington
SARA	Superfund Amendment and Reauthorization Act
SEPA	State Environmental Policy Act
SIC	Standard Industrial Classification
SMCRA	Surface Mining Control and Reclamation Act
SWMM	Stormwater Management Manual
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total Maximum Daily Load
USC	United States Code
USEPA	United States Environmental Protection Agency
WAC	Washington Administrative Code
WQ	Water Quality

APPENDIX 2 - DEFINITIONS

40 CFR means Title 40 of the Code of Federal Regulations, which is the codification of the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government.

303(d)-listed water body means waterbodies as listed as Category 5 on Washington State's Water Quality Assessment.

Air Emission means a release of air contaminants into the ambient air.

AKART is an acronym for "all known, available, and reasonable methods of prevention, control, and treatment." AKART represents the most current methodology that can be reasonably required for preventing, controlling, or abating the *pollutants* and controlling *pollution* associated with a discharge.

Applicable TMDL means any *TMDL* which has been completed either before the issuance date of this permit or the date the permittee first obtains coverage under this permit, whichever is later.

Application means a request for coverage under this *general permit* pursuant to WAC 173-226-200. Also called a *Notice of Intent (NOI)*.

Best Management Practices (*BMPs* - general definition) means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the *pollution* of *waters of the state*. BMPs include treatment systems, operating procedures, and practices to control: plant site *runoff*, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In this permit BMPs are further categorized as operational source control, structural source control, *erosion* and *sediment* control, and *treatment BMPs*.

Benchmark means a *pollutant* concentration used as a permit threshold, below which a pollutant is considered unlikely to cause a water quality violation, and above which it may. When pollutant concentrations exceed benchmarks, corrective action requirements take effect. Benchmark values are not *water quality standards* and are not numeric effluent limitations; they are indicator values.

Bypass means the intentional diversion of waste streams from any portion of a treatment *facility*.

Clean Water Act (CWA) means the Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et seq.

Combined Sewer means a sewer which has been designed to serve as a *sanitary sewer* and a *storm sewer*, and into which inflow is allowed by local ordinance.

Construction Activity means clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, industrial buildings, and demolition activity.

Control Plan means a *total maximum daily load (TMDL)* determination, restrictions for the protection of endangered species, a *ground water* management plan, or other limitations that regulate or set limits on discharges to a specific water body or *ground water* recharge area.

Demonstrably Equivalent means that the technical basis for the selection of all storm water *best management practices* are documented within a storm water *pollution* prevention plan. The storm water *pollution* prevention plan must document: 1) The method and reasons for choosing the storm water *best management practices* selected; 2) The *pollutant* removal performance expected from the practices selected; 3) The technical basis supporting the performance claims for the practices selected, including any available existing data concerning field performance of the practices selected; 4) An assessment of how the selected practices will comply with state *water quality standards*; and 5) An assessment of how the selected practices will satisfy both applicable federal technology-based treatment requirements and state requirements to use all known, available, and reasonable methods of prevention, control, and treatment.

Detention means the temporary storage of *stormwater* to improve quality and/or to reduce the mass flow rate of discharge.

Discharge [of a pollutant] means any addition of any *pollutant* or combination of pollutants to waters of the United States from any point source. This definition includes additions of pollutants into waters of the United States from: surface *runoff* which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, *municipality*, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

Discharger means an owner or operator of any *facility* or activity subject to regulation under Chapter 90.48 RCW or the Federal *Clean Water Act.*

Domestic Wastewater means water carrying human wastes, including kitchen, bath, and laundry wastes from residences, buildings, industrial establishments, or other places, together with such *ground water* infiltration or surface waters as may be present.

Ecology means the Washington State Department of *Ecology*.

EPA means the United States Environmental Protection Agency.

Equivalent BMPs means operational, source control, treatment, or innovative BMPs which result in equal or better quality of *stormwater discharge* to surface water or to *ground water* than BMPs selected from the SWMM.

Erosion means the wearing away of the land surface by running water, wind, ice, or other geological agents, including such processes as gravitational creep.

Erosion and Sediment Control BMPs means BMPs that are intended to prevent *erosion* and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering, filter fences, and *sediment* traps and ponds.

Existing Facility means a *facility* that was in operation prior to the effective date of this permit. It also includes any *facility* that is not categorically included for coverage but is in operation when identified by *Ecology* as a *significant contributor of pollutants*.

Facility means any NPDES "point source" (including land or appurtenances thereto) that is subject to regulation under the NPDES program. See *40 CFR* 122.2.

General Permit means a permit which covers multiple *dischargers* of a point source category within a designated geographical area, in lieu of individual permits being issued to each *discharger*.

Ground Water means water in a saturated zone or stratum beneath the land surface or a surface water body.

Illicit Discharge means any *discharge* that is not composed entirely of *stormwater* except (1) discharges authorized pursuant to a separate NPDES permit, or (2) conditionally authorized non-*stormwater* discharges identified in Condition S5.D.

Inactive Facility means a *facility* that no longer engages in business, production, providing services, or any auxiliary operation.

Industrial Activity means (1) the 11 categories of industrial activities identified in *40 CFR* 122.26(b)(14)(i-xi) that must apply for either coverage under this permit or no exposure certification, (2) any *facility* conducting any activities described in Table 1, and (3) identified by *Ecology* as a *significant contributor of pollutants*. Table 1 lists the 11 categories of industrial activities identified in *40 CFR* 122.26(b)(14)(i-xi) in a different format.

Landfill means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a *land application site*, surface impoundment, injection well, or waste pile.

Land Application Site means an area where wastes are applied onto or incorporated into the soil surface (excluding manure spreading operations) for treatment or disposal.

Leachate means water or other liquid that has percolated through raw material, product or waste and contains substances in solution or suspension as a result of the contact with these materials.

Local Government means any county, city, or town having its own government for local affairs.

Material Handling means storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product.

Municipality means a political unit such as a city, town or county; incorporated for local self-government.

National Pollutant Discharge Elimination System (NPDES) means the national program for issuing, modifying, revoking, and reissuing, terminating, and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of the Federal *Clean Water Act*, for the *discharge* of *pollutants* to *surface waters of the state* from point sources. These permits are referred to as NPDES permits and, in Washington State, are administered by the Washington Department of *Ecology*.

New Development means land disturbing activities, including Class IV -general forest practices that are conversions from timber land to other uses; structural development, including construction or installation of a building or other structure; creation of impervious surfaces; and subdivision, short subdivision and binding site plans, as defined and applied in Chapter 58.17 RCW. Projects meeting the definition of redevelopment shall not be considered new development.

New Discharge(r) means a *facility* from which there is a discharge, that did not commence the *discharge* at a particular site prior to August 13, 1979, which is not a new source, and which has never received a finally effective NPDES permit for discharges at that site. See *40 CFR* 122.2.

New Facility means a *facility* that begins activities that result in a *discharge* or a potential discharge to *waters of the state* on or after the effective date of this *general permit*.

Noncontact Cooling Water means water used for cooling which does not come into direct contact with any raw material, intermediate product, waste product, or finished product.

Notice of Termination (NOT) means a request for termination of coverage under this *general permit* as specified by Special Condition S13 of this permit.

Operational Source Control BMPs means schedule of activities, prohibition of practices, maintenance procedures, employee training, good housekeeping, and other managerial practices to prevent or reduce the *pollution* of *waters of the state*. Not included are BMPs that require construction of *pollution* control devices.

Pollutant means the *discharge* of any of the following to *waters of the state*: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste. This term does not include sewage from vessels within the meaning of section 312 of the FWPCA nor does it include dredged or fill material discharged in accordance with a permit issued under section 404 of the FWPCA.

Pollution means contamination or other alteration of the physical, chemical, or biological properties of *waters of the state*; including change in temperature, taste, color, *turbidity*, or odor of the waters; or such *discharge* of any liquid, gaseous, solid, radioactive or other substance into any *waters of the state* as will or is likely to create a nuisance or render such waters harmful,

detrimental or injurious to the public health, safety or welfare; or to domestic, commercial, industrial, agricultural, recreational, or other legitimate beneficial uses; or to livestock, wild animals, birds, fish, or other aquatic life.

Process Wastewater means any water which, during manufacturing or processing, comes into direct contact or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Qualified Personnel means those who possess the knowledge and skills to assess conditions and activities that could impact *stormwater* quality at the *facility*, and evaluate the effectiveness of *best management practices* required by this permit.

Quantitation Level (QL) also known as Minimum Level of Quantitation (ML) means the lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Reasonable Potential means the likely probability for *pollutant*s in the *discharge* to exceed the applicable water quality criteria in the receiving water body.

Redevelopment means on a site that is already substantially developed (i.e., has 35% or more of existing impervious surface coverage), the creation or addition of impervious surfaces; the expansion of a building footprint or addition or replacement of a structure; structural development including construction, installation or expansion of a building or other structure; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities.

Regular Business Hours means those time frames when the *facility* is engaged in its primary production process, but does not include additional shifts or weekends when partial staffing is at the site primarily for maintenance and incidental production activities. *Regular business hours* do not include periods of time that the *facility* is inactive and *unstaffed.*

Representative [sample] means a sample of the *discharge* that accurately characterizes *stormwater runoff* generated in the designated drainage area of the *facility.*

Runoff means that portion of rainfall or snowmelt water not absorbed into the ground that becomes surface flow.

Sanitary Sewer means a sewer which is designed to convey *domestic wastewater.*

Sediment means the fragmented material that originates from the weathering and *erosion* of rocks, unconsolidated deposits, or unpaved yards, and is transported by, suspended in, or deposited by water.

Severe Property Damage means substantial physical damage to property, damage to the treatment facilities which would cause them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a *bypass*. *Severe property damage* does not mean economic loss caused by delays in production.

Significant Amount means an amount of a *pollutant* in a *discharge* that is amenable to available and reasonable methods of prevention, control, or treatment; or an amount of a *pollutant* that has a *reasonable potential* to cause a violation of surface or *ground water quality standards* or *sediment* management standards.

Significant Contributor of Pollutant(s) means a *facility* determined by *Ecology* to be a contributor of a *significant amount*(s) of a *pollutant*(s) to *waters of the state.*

Significant Materials includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the *facility* is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with *stormwater* discharges.

Significant Process Change means any modification of the *facility* that would result in any of the following:

1. Add different *pollutants* in a *significant amount* to the discharge.
2. Increase the *pollutants* in the *stormwater discharge* by a *significant amount.*
3. Add a new *industrial activity* (SIC) that was not previously covered.
4. Add additional impervious surface or acreage such that *stormwater* discharge would be increased by 25% or more.

Source Control BMPs means structures or operations that are intended to prevent pollutants from coming into contact with stormwater through physical separation of areas or careful management of activities that are sources of pollutants. This permit separates source control into two types: *structural source control BMPs* and *operational source control BMPs*.

Standard Industrial Classification (SIC) is the statistical classification standard underlying all establishment-based federal economic statistics classified by industry as reported in the 1987 SIC Manual by the Office of Management and Budget.

State Environmental Policy Act (SEPA) means the Washington State Law, RCW 43.21C.020, intended to prevent or eliminate damage to the environment.

Storm Sewer means a sewer that is specifically designed to carry *stormwater*. Also called a storm drain.

Stormwater means that portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a *stormwater drainage system* into a defined surface water body, or a constructed infiltration *facility*.

Stormwater Discharge Associated with Industrial Activity means the *discharge* from any conveyance that is used for collecting and conveying *stormwater* and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant (see *40 CFR* 122(b)(14)).

Stormwater Drainage System means constructed and natural features which function together as a system to collect, convey, channel, hold, inhibit, retain, detain, infiltrate or divert *stormwater*.

Stormwater Management Manual (SWMM) or Manual means the technical manuals prepared by *Ecology* for *stormwater* management in western and eastern Washington.

Stormwater Pollution Prevention Plan (SWPPP) means a documented plan to implement measures to identify, prevent, and control the contamination of point source discharges of *stormwater*.

Structural Source Control BMPs means physical, structural, or mechanical devices or facilities that are intended to prevent *pollutants* from entering *stormwater*.

Surface Waters of the State includes lakes, rivers, ponds, streams, inland waters, salt waters, and all other surface waters and water courses within the jurisdiction of the state.

Total Maximum Daily Load (TMDL) means a calculation of the maximum amount of a *pollutant* that a water body can receive and still meet state *water quality standards*. Percentages of the *total maximum daily load* are allocated to the various *pollutant* sources. A *TMDL* is the sum of the allowable loads of a single *pollutant* from all contributing point and nonpoint sources. The *TMDL* calculations include a "margin of safety" to ensure that the water body can be protected in case there are unforeseen events or unknown sources of the *pollutant*. The calculation also accounts for seasonable variation in water quality.

Treatment BMPs means BMPs that are intended to remove *pollutants* from *stormwater*.

Turbidity means the clarity of water expressed as nephelometric *turbidity* units (NTU) and measured with a calibrated turbidimeter.

Underground Injection Control Well means a well that is used to *discharge* fluids into the subsurface. An *underground injection control well* is one of the following:

1. A bored, drilled, or driven shaft,
2. An improved sinkhole, or
3. A subsurface fluid distribution system. (WAC 173-218-030)

Unstaffed means the *facility* has no assigned staff. A site may be "*unstaffed*" even when security personnel are present, provided that *pollutant* generating activities are not included in their duties.

Vehicle means a motor-driven conveyance that transports people or freight, such as an automobile, truck, train, or airplane.

Vehicle Maintenance means the rehabilitation, mechanical repairing, painting, fueling, and/or lubricating of a motor-driven conveyance that transports people or freight, such as an automobile, truck, train, or airplane.

Wasteload Allocation (WLA) means the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of *pollution*. WLAs constitute a type of water quality based effluent limitation (*40 CFR* 130.2(h)).

Water Quality Standards means the Water Quality Standards for *Surface Waters of the State* of Washington, Chapter 173-201A WAC, Ground Water Quality Standards (Chapter 173-200 WAC), Sediment Management Standards (Chapter 173-204 WAC), and human health-based criteria in the National Toxics Rule (*40 CFR* 131.36).

Waters of the State includes those waters defined as "waters of the United States" in *40 CFR* Subpart 122.2 within the geographic boundaries of Washington State. State statute defines "*waters of the state*" to include lakes, rivers, ponds, streams, wetlands, inland waters, under*ground waters*, salt waters and all other surface waters and water courses within the jurisdiction of the state of Washington (Chapter 90.48 RCW).

APPENDIX 3 - SWPPP CERTIFICATION FORM

The Permittee shall use this form to sign and certify that the Stormwater Pollution Prevention Plan (SWPPP) is complete, accurate and in compliance with Conditions S3 and S8 of the Industrial Stormwater General Permit.

- A SWPPP certification form needs to be completed and attached to all SWPPPs.
- Each time a Level 1, 2, or 3 Corrective Action is required, this form needs to be re-signed and re-certified by the Permittee, and attached to the SWPPP.

Is this SWPPP certification in response to a Level 1, 2 or 3 Corrective Action? ☐Yes ☐No

If Yes:

- Type of Corrective Action?: ☐Level 1 ☐Level 2 ☐Level 3
- Date SWPPP update/revision completed:_____.

"I certify under penalty of law that this SWPPP and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate information to determine compliance with the Industrial Stormwater General Permit. Based on my inquiry of the person or persons who are responsible for stormwater management at my facility, this SWPPP is, to the best of my knowledge and belief, true, accurate, and complete, and in full compliance with Permit Conditions S3 and S8, including the correct Best Management Practices from the applicable Stormwater Management Manual. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Operator's Printed Name *	Title
Operator's Signature *	Date

* Federal regulations require this document to be signed as follows:
For a corporation, by a principal executive officer of at least the level of vice president;
For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

This document shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Ecology.
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

Changes to authorization. If an authorization under number 2 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of number 2 above shall be submitted to Ecology prior to, or together with, any reports, information, or applications to be signed by an authorized representative.

APPENDIX 4 - EXISTING DISCHARGERS TO IMPAIRED WATER BODIES

This appendix has a link below to a website list of existing Permittees that *discharge pollutants* of concern to impaired water bodies.

http://www.ecy.wa.gov/programs/wq/stormwater/industrial/permitdocs/iswgpapp4.pdf

This list is based on the best information available to *Ecology*. There will be changes and updates to this list based on new, more accurate information. If changes or updates are made, *Ecology* will notify the affected permittees directly. Such changes or updates will not become effective until 30 days after the affected *dischargers* are notified.

This list is generated by comparing the *discharge* point of each individual *discharger* permitted under the Industrial *Stormwater General Permit* with the 2008 list of Category 5 impaired waters (the *303(d) list*), approved by US *EPA* on January 29, 2009.

APPENDIX 5 - DISCHARGERS SUBJECT TO TMDL REQUIREMENTS

The list of *dischargers* identified as discharging to water bodies which have completed water quality clean-up plans or *TMDLs* and associated monitoring requirements can be viewed on *Ecology*'s website at: http://www.ecy.wa.gov/programs/wq/stormwater/industrial/index.html

The most current list can also be obtained by contacting Ecology at:

Industrial Stormwater General Permit
Washington State Department of Ecology
P.O. Box 47696
Olympia, WA 98504-7600

This list is based on the best information available to *Ecology*. There will be changes and updates to this list based on new, more accurate information. If changes or updates are made, *Ecology* will notify the affected permittees directly. Such changes or updates will not become effective until 30 days after the affected *dischargers* are notified.

2012 Industrial Stormwater General Permit Modification

Summary of Changes

This table contains a summary of changes to the Industrial Stormwater General Permit (ISGP). The underlined language (e.g., 12 hours) indicates new language, and the "struck-out" language (e.g., ~~30 minutes~~) indicates deleted language. This table does not include minor changes made to correct errors. For a complete set of permit conditions, please refer to the ISGP issued May 16, 2012 and effective July 1, 2012.

Page 7; Condition S1, Table 1	**Facilities Required to Seek Coverage Under This General Permit** Transportation facilities which have *vehicle maintenance* activity ~~shops~~, ~~*material handling* facilities,~~ equipment cleaning operations, or airport deicing operations:
Page 10; Condition S1.D.3	**Facilities Excluded from Coverage** Industrial activities operated by any department, agency, or instrumentality of the executive, legislative, and judicial branches of the Federal Government of the United States, or another entity, such as a private contractor, performing industrial activity for any such department, agency, or instrumentality. ~~Facilities located on federal land or are federally owned or operated.~~
Page 11; Condition S2.B.1	**Modification of Permit Coverage** Apply for modification of coverage at least 60 days before implementing a *significant process change*; or by May15th ~~June 1st~~ prior to a Corrective Action deadline, if requesting a Level 2 or 3 time extension or waiver request per Condition S8.B-D.
Page 12; Condition S2.C.1	**Permit Coverage Timeline** If the applicant does not receive notification from *Ecology*, permit coverage ~~or modification of coverage~~ automatically commences on whichever of the following dates occurs last: a. The 31st day following receipt by *Ecology* of a completed *application* for coverage ~~or modification of coverage~~ form. b. The 31st day following the end of a 30-day public comment period.
Page 21-22; Condition S4.B.1.c	**Sampling Requirements** Permittees shall collect samples within the first 12 hours of *stormwater discharge* events. If it is not possible to collect a sample within the first 12 hours of a *stormwater* discharge event, the Permittee must collect the sample as soon as practicable after the first 12 hours, and keep documentation with the sampling records (Condition S4.B.3) explaining why they could not collect samples within the first 12 hours; or if it is unknown (e.g., discharge was occurring during start of regular business hours).
Page 22; Condition S4.B.3.c&d	**Sampling Requirements** A notation describing if the Permittee collected the sample within the first 12 hours ~~30 minutes~~ of *stormwater* discharge events; or, if it is unknown (e.g., discharge was occurring during start of *regular business hours*). An explanation of why it could not collect a sample within the first 12 hours ~~30 minutes~~ of a *stormwater discharge* event, if it was not possible. Or, if it is unknown, an explanation of why it doesn't know if a sample was collected within or outside the first 12 hours of *stormwater* discharge.

Page 23; Condition S4.B.6.a&b	**Sampling Requirements** The Permittee may suspend sampling for one or more parameters (other than "visible oil sheen") based on consistent attainment of *benchmark* values when: a. Eight ~~Four~~ consecutive quarterly samples, collected after the effective date of this permit, demonstrate a reported value equal to or less than the *benchmark* value; or for pH, within the range of 5.0 – 9.0. iii. Permittees who suspended sampling based on consistent attainment of benchmarks prior to July 1, 2012 must resume/continue sampling until a total of eight consecutive quarterly samples demonstrate consistent attainment.
Page 32; Condition S6.C, Table 5, Footnote "h"	**Sampling and Effluent Limits Applicable to Discharges to 303(d)-listed Waters** **Fecal Coliform Bacteria** ~~[h] The effluent limit is the water recreation bacteria criteria (WAC 173-201A) applicable to the receiving waterbody.~~ [h] A numeric effluent limit does not apply, but permittees must sample according to Table 5. In addition, the following mandatory BMPs shall be incorporated into the SWPPP and implemented: 1) Use all known, available and reasonable methods to prevent rodents, birds, and other animals from feeding/nesting/roosting at the facility. Nothing in this section shall be construed as allowing violations of any applicable federal, state or local statutes, ordinances, or regulations including the Migratory Bird Treaty Act. 2) Perform at least one annual dry weather inspection of the stormwater system to identify and eliminate sanitary sewer cross-connections; 3) Install structural source control BMPs to address on-site activities and sources that could cause bacterial contamination (e.g., dumpsters, compost piles, food waste, animal products, etc.): 4) Implement operational source control BMPs to prevent bacterial contamination from any known sources of fecal coliform bacteria (e.g., animal waste, etc.); 5) Additional bacteria-related sampling and/or BMPs, if ordered by Ecology on a case-by-case basis.
Page 35; Condition S8.B	**Level One Corrective Actions – Operational Source Control BMPs** Permittees that exceed any applicable *benchmark* value(s) in Table 2 or Table 3, shall complete a Level 1 Corrective Action for each parameter exceeded in accordance with the following: 1. Within 14 days of receipt of sampling results that indicate a benchmark exceedance: a. Conduct an inspection to investigate the cause. b. Review the SWPPP and ensure that it fully complies with Permit Condition S3, and contains the correct BMPs from the applicable *Stormwater Management Manual*. c. Make appropriate revisions to the SWPPP to include additional *Operational Source Control BMPs* with the goal of achieving the applicable *benchmark* value(s) in future discharges. The Permittee shall sign and certify the revised SWPPP in accordance with S3.A.6.
Pages 35-36; Condition S8.C	**Level Two Corrective Actions – Structural Source Control BMPs** Permittees that exceed an applicable *benchmark* value (for a single parameter) for any two quarters during a calendar year shall complete a Level 2 Corrective Action in accordance with

	S8.C. Alternatively, the permittee may skip Level 2 and complete a Level 3 Corrective Action in accordance with Condition S8.D. 1. Review the SWPPP and ensure that it fully complies with Permit Condition S3. 2. Make appropriate revisions to the SWPPP to include additional *Structural Source Control BMPs* with the goal of achieving the applicable *benchmark* value(s) in future discharges. The Permittee shall sign and certify the revised SWPPP in accordance with S3.A.6. 3. Summarize the Level 2 Corrective Actions (planned or taken) in the Annual Report (Condition S9.B). 4. **Level 2 Deadline:** The Permittee shall fully implement the revised SWPPP according to Permit Condition S3 and the applicable *Stormwater Management Manual* as soon as possible, but no later than August 31st ~~September 30th~~ the following year[5]. a. If installation of necessary *Structural Source Control BMPs* is not feasible by August 31st ~~September 30th~~ the following year, *Ecology* may approve additional time, by approving a *Modification of Permit Coverage*. b. If installation of *Structural Source Control BMPs* is not feasible or not necessary to prevent discharges that may cause or contribute to a violation of a water quality standard, *Ecology* may waive the requirement for additional *Structural Source Control BMPs* by approving a *Modification of Permit Coverage*. c. To request a time extension or waiver, a Permittee shall submit a detailed explanation of why it is making the request (technical basis), and a *Modification of Coverage* form to *Ecology* in accordance with Condition S2.B, by May 15th ~~June 1st~~ prior to Level 2 Deadline. *Ecology* will approve or deny the request within 60 days of receipt of a complete *Modification of Coverage* request. d. For the year following the calendar year the permittee triggered a Level 2 corrective action, benchmark exceedences (for the same parameter) do not count towards additional Level 2 or 3 Corrective Actions. [5]For Level 2 Corrective Actions triggered in 2011 and due in 2012, the Level 2 Deadline is September 30, 2012. ~~[4] Facilities that continue to exceed benchmarks after a Level 2 Corrective Action is triggered, but prior to the Level 2 Deadline, are not required to complete another Level 2 or 3 Corrective Action the following year for the same parameter. However, a Level 1 Corrective Action is required each time a benchmark is exceeded.~~
Pages 36-37; Condition S8.D	**Level Three Corrective Actions – Treatment BMPs** Permittees that exceed an applicable *benchmark* value (for a single parameter) for any three quarters during a calendar year shall complete a Level 3 Corrective Action in accordance with ~~the following~~[5] S8.D. A Level 2 Corrective Action is not required. 1. Review the SWPPP and ensure that it fully complies with Permit Condition S3. 2. Make appropriate revisions to the SWPPP to include additional *Treatment BMPs* with the goal of achieving the applicable *benchmark* value(s) in future discharges. Revisions shall include additional operational and/or structural source control BMPs if necessary for proper performance and maintenance of *Treatment BMPs*. a. The Permittee shall sign and certify the revised SWPPP in accordance with S3.A.6.

b. A licensed professional engineer, geologist, hydrogeologist, or Certified Professional in Storm Water Quality (CPSWQ) shall design and stamp the portion of the SWPPP that addresses *stormwater* treatment structures or processes.

i. *Ecology* may waive the requirement for a licensed or certified professional upon request of the Permittee and demonstration that the Permittee or treatment device vendor can properly design and install the treatment device; or the treatment BMP doesn't require site-specific design or sizing (e.g., off-the-shelf filtration units, etc.).

ii. *Ecology* will not waive the Level 3 requirement for a licensed or certified professional more than one time during the permit cycle.

3. Before installing treatment BMPs that require the site-specific design or sizing of structures, equipment, or processes to collect, convey, treat, reclaim, or dispose of industrial stormwater, the Permittee shall submit an engineering report, plans and specifications, and an operations and maintenance (O&M) manual to Ecology for review in accordance with Chapter 173-240 WAC.

a. The engineering report shall be submitted no later than the May 15th prior to the Level 3 deadline, unless an alternate due date is specified in an order.

b. The plans and specifications and O&M Manual shall be submitted at least 30 days before construction/installation, unless an alternate date is specified in an order. Upon request of the Permittee, Ecology may allow final conceptual drawings to be substituted for plans and specifications.

4. Summarize the Level 3 Corrective Actions (planned or taken) in the Annual Report (Condition S9.B). Include information on how monitoring, assessment or evaluation information was (or will be) used to determine whether existing treatment BMPs will be modified/enhanced, or if new/additional treatment BMPs will be installed.

5. **Level 3 Deadline**: The Permittee shall fully implement the revised SWPPP according to Permit Condition S3 and the applicable *Stormwater Management Manual* as soon as possible, but no later than September 30th the following year.

a.If installation of necessary *Treatment BMPs* is not feasible by the Level 3 Deadline; *Ecology* may approve additional time by approving a *Modification of Permit Coverage*.

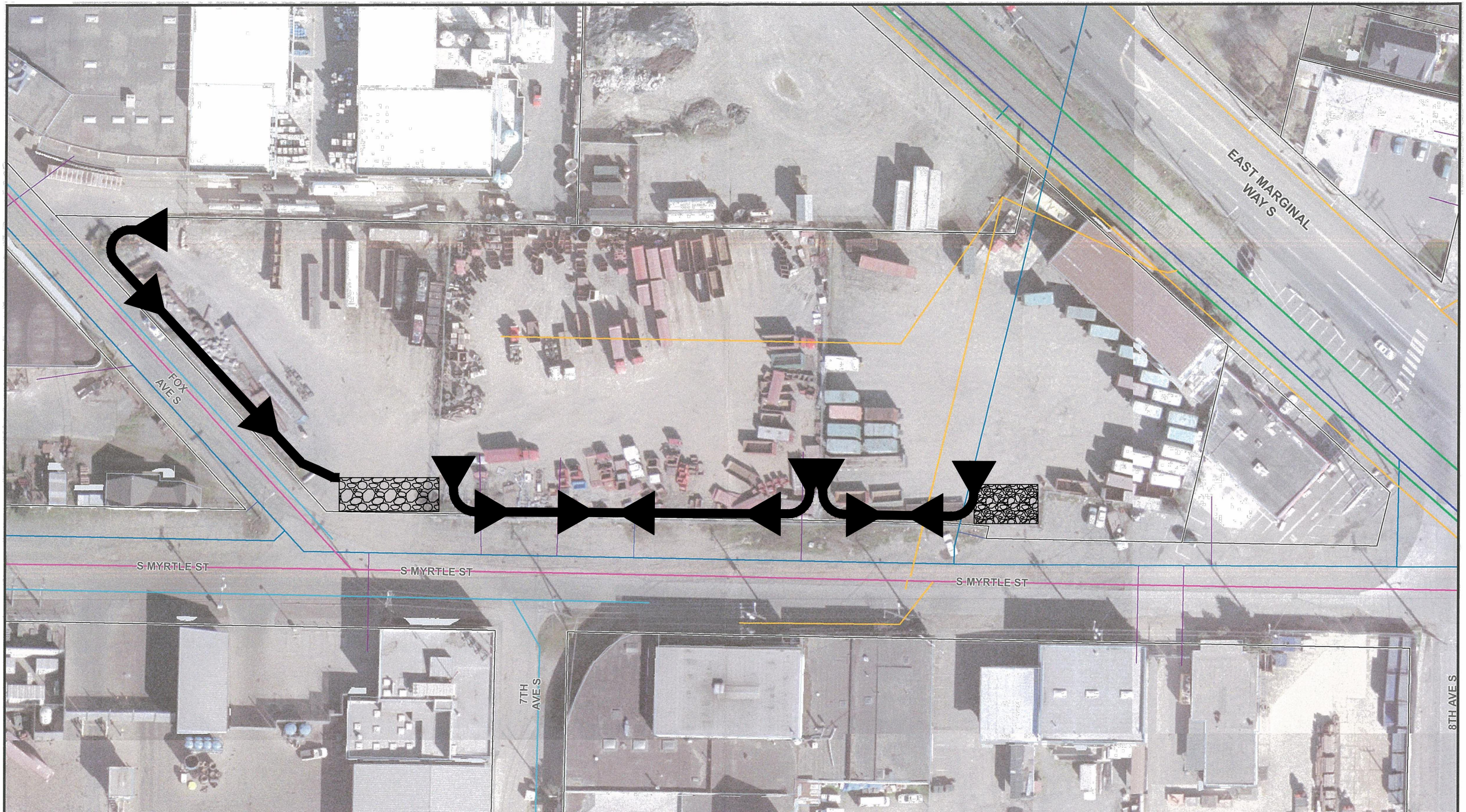
b. If installation of *Treatment BMPs* is not feasible or not necessary to prevent discharges that may cause or contribute to violation of a water quality standard, *Ecology* may waive the requirement for *Treatment BMPs* by approving a *Modification of Permit Coverage*.

c. To request a time extension or waiver, a Permittee shall submit a detailed explanation of why it is making the request (technical basis), and a Modification of Coverage form to *Ecology* in accordance with Condition S2.B, by ~~June 1st~~ May 15th prior to the Level 3 Deadline. *Ecology* will approve or deny the request within 60 days of receipt of a complete *Modification of Coverage* request.

d.For the year following the calendar year the Permittee triggered a Level 3 corrective action, benchmark exceedences (for the same parameter) do not count towards additional Level 2 or 3 Corrective Actions.

~~[5]Facilities that continue to exceed benchmarks after a Level 3 Corrective Action is triggered, but prior to the Level 3 Deadline, are not required to complete another Level 2 or 3 Corrective Action the following year for the same parameter. However, a Level 1 Corrective Action is required each time a benchmark is exceeded.~~

Appendix C



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GRAVEL FILTER BERM
SEE DETAIL EXHIBIT B

QUARRY SPALL ENTRANCE

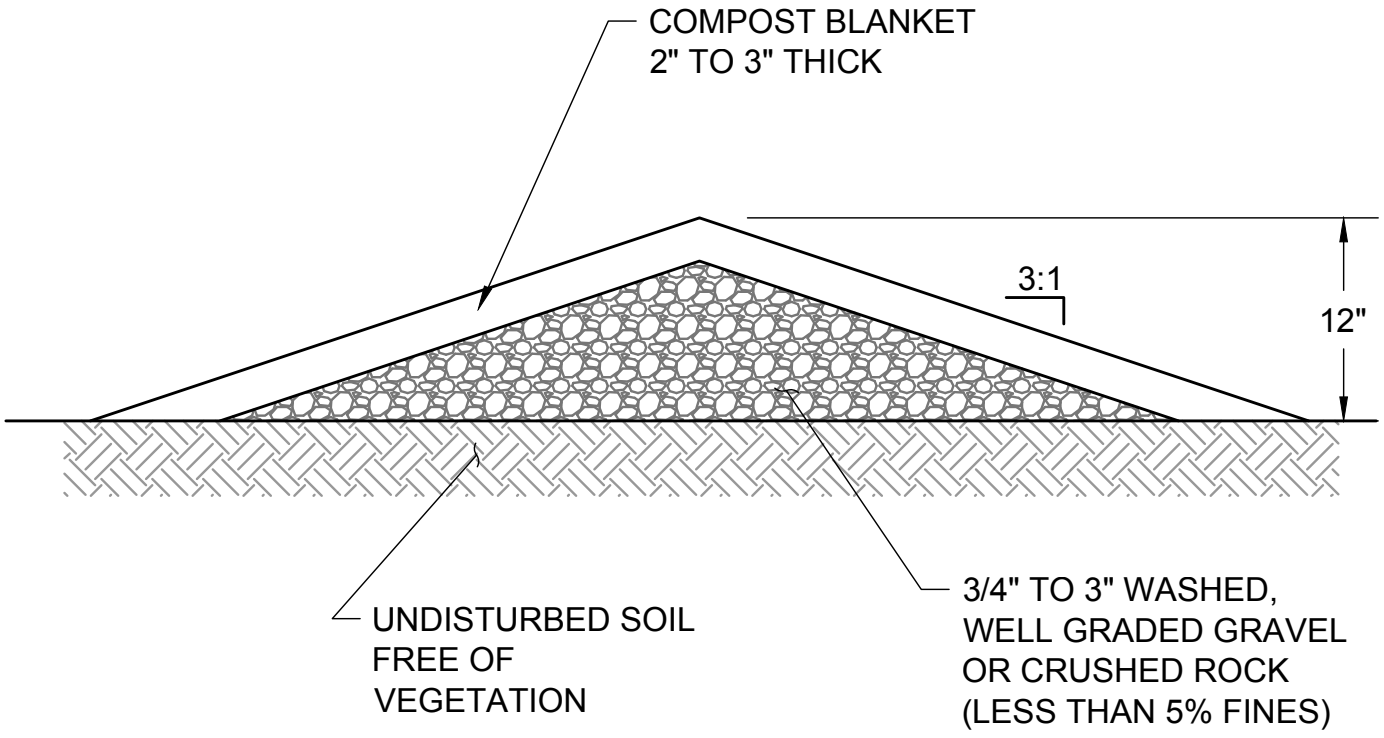
730 S. Myrtle St.
March, 2005 Aerial Photo

NOTE: Conversion from City of Seattle Datum to NAVD88 Datum: Too convert between City of Seattle and NAVD88 Datums use: ("City of Seattle Datum" + 9.70 = NAVD88). There are inconsistencies in the City of Seattle Datum, the conversion may vary up to +/-1 ft. in specific areas throughout the City. In areas and applications where a more accurate conversion factor is critical, elevations should be field checked and vertical relationships between the two datums be determined for that particular area.

Coordinate System: State Plane, NAD83-91, Washington North Zone | Produced by the Seattle Public Utilities - IT GIS on Jan 12, 2009

EXHIBIT A

See map legend on separate page.



PROJ NO: 107028	SCALE: NTS	STANDARD DETAIL	DRAWN BY: MRK	SHEET
kpff Consulting Engineers 2407 North 31st Street, Suite 100 Tacoma, Washington 98407 (253) 396–0150 Fax (253) 396–0162		EXHIBIT B GRAVEL FILTER BERM	DESIGNED BY: WMA CHECKED BY: WMA DATE: 07/20/12	EX. B

Appendix D

MGS FLOOD
PROJECT REPORT

Program Version: MGSFlood 4.12
Program License Number: 201110006
Run Date: 04/24/2013 4:49 PM

Input File Name: Pond.fld
Project Name: SIM Dirt Lot
Analysis Title:
Comments:

PRECIPITATION INPUT

Computational Time Step (Minutes): 60

Extended Precipitation Timeseries Selected
Climatic Region Number: 42

Full Period of Record Available used for Routing
Precipitation Station : 99003805 Seattle 38 in_5min 10/01/1939-10/01/2097
Evaporation Station : 991038 Seattle 38 in MAP
Evaporation Scale Factor : 0.750

HSPF Parameter Region Number: 1
HSPF Parameter Region Name : USGS Default

********** Default HSPF Parameters Used (Not Modified by User) **********

********** WATERSHED DEFINITION **********

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 1

---------- Subbasin : Subbasin 1 ----------

	-------Area(Acres) --------
Till Forest	0.000
Till Pasture	0.000
Till Grass	0.000
Outwash Forest	0.000
Outwash Pasture	0.000
Outwash Grass	0.000
Wetland	0.000
Green Roof	0.000
User	0.000
Impervious	2.040
Subbasin Total	2.040

----------SCENARIO: POSTDEVELOPED
Number of Subbasins: 1

---------- Subbasin : Subbasin 1 ----------

	-------Area(Acres) --------
Till Forest	0.000
Till Pasture	0.000
Till Grass	0.000
Outwash Forest	0.000
Outwash Pasture	0.000
Outwash Grass	0.000
Wetland	0.000
Green Roof	0.000
User	0.000
Impervious	3.130
Subbasin Total	3.130

********** LINK DATA **********

----------SCENARIO: PREDEVELOPED
Number of Links: 0

********** LINK DATA **********

----------SCENARIO: POSTDEVELOPED
Number of Links: 1

Link Name: POND
Link Type: Structure
Downstream Link: None

Prismatic Pond Option Used
Pond Floor Elevation (ft) : 100.00
Riser Crest Elevation (ft) : 103.00
Max Pond Elevation (ft) : 103.50
Storage Depth (ft) : 3.00
Pond Bottom Length (ft) : 84.4
Pond Bottom Width (ft) : 42.2
Pond Side Slopes (ft/ft) : L1= 0.00 L2= 0.00 W1= 0.00 W2= 0.00
Bottom Area (sq-ft) : 3565.
Area at Riser Crest El (sq-ft) : 3,565.
(acres) : 0.082
Volume at Riser Crest (cu-ft) : 10,694.
(ac-ft) : 0.245
Area at Max Elevation (sq-ft) : 3565.
(acres) : 0.082
Vol at Max Elevation (cu-ft) : 12,833.
(ac-ft) : 0.295

Massmann Infiltration Option Used
Hydraulic Conductivity (in/hr) : 0.00
Depth to Water Table (ft) : 100.00
Bio-Fouling Potential : Low
Maintenance : Average or Better

Riser Geometry
Riser Structure Type : Circular
Riser Diameter (in) : 18.00
Common Length (ft) : 0.080
Riser Crest Elevation : 103.00 ft

Hydraulic Structure Geometry

Number of Devices: 2

---Device Number 1 ---
Device Type : Circular Orifice
Control Elevation (ft) : 100.00
Diameter (in) : 3.13
Orientation : Horizontal
Elbow : No

--- Device Number 2 ---
Device Type : Vertical Rectangular Orifice
Control Elevation (ft) : 101.03
Length (in) : 1.01
Height (in) : 23.65
Orientation : Vertical
Elbow : No

**************************FLOOD FREQUENCY AND DURATION STATISTICS********************

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 1
Number of Links: 0

----------SCENARIO: POSTDEVELOPED
Number of Subbasins: 1
Number of Links: 1

********** Link: POND ********** Link WSEL Stats
WSEL Frequency Data(ft)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	WSEL Peak (ft)
1.05-Year	100.964
1.11-Year	101.029
1.25-Year	101.200
2.00-Year	101.535
3.33-Year	101.799

5-Year	102.015
10-Year	102.200
25-Year	102.444
50-Year	102.526
100-Year	102.844

*************Water Quality Facility Data **************

----------SCENARIO: PREDEVELOPED

Number of Links: 0

----------SCENARIO: POSTDEVELOPED

Number of Links: 1

********** Link: POND **********

Basic Wet Pond Volume (91% Exceedance): 14435. cu-ft
Computed Large Wet Pond Volume, 1.5*Basic Volume: 21652. cu-ft

2-Year Discharge Rate : 0.405 cfs

15-Minute Timestep, Water Quality Treatment Design Discharge
On-line Design Discharge Rate (91% Exceedance): 0.47 cfs
Off-line Design Discharge Rate (91% Exceedance): 0.27 cfs

Infiltration/Filtration Statistics----------
Total Runoff Volume (ac-ft): 1311.12
Total Runoff Infiltrated (ac-ft): 0.00, 0.00%
Total Runoff Filtered (ac-ft): 0.00, 0.00%
Percent Treated (Infiltrated+Filtered)/Total Volume: 0.00%

*************Compliance Point Results **************

Scenario Predeveloped Compliance Subbasin: Subbasin 1

Scenario Postdeveloped Compliance Link: POND

***** Point of Compliance Flow Frequency Data *****
Recurrence Interval Computed Using Gringorten Plotting Position

Predevelopment Runoff		Postdevelopment Runoff	
Tr (Years)	Discharge (cfs)	Tr (Years)	Discharge (cfs)
2-Year	0.548	2-Year	0.405
5-Year	0.698	5-Year	0.591
10-Year	0.798	10-Year	0.674
25-Year	0.922	25-Year	0.793
50-Year	1.058	50-Year	0.829

100-Year	1.148	100-Year	0.991
200-Year	1.322	200-Year	1.038

** Record too Short to Compute Peak Discharge for These Recurrence Intervals

****** Flow Duration Performance According to Dept. of Ecology Criteria ******

Excursion at Predeveloped ½Q2 (Must be Less Than 0%):	-1.5%	PASS
Maximum Excursion from ½Q2 to Q2 (Must be Less Than 0%):	-0.3%	PASS
Maximum Excursion from Q2 to Q50 (Must be less than 10%):	6.2%	PASS
Percent Excursion from Q2 to Q50 (Must be less than 50%):	9.7%	PASS

POND MEETS ALL DURATION DESIGN CRITERIA: PASS

Appendix E

SIM Dirt Lot - Backwater Analysis/ HGL
730 South Myrtle St.

Ke = 0.5

All elevations are based on NAVD88

[1]'From Headwater depth for Smooth Interior Pipes with Inlet Control' Nomograph

[2]col(15) or (16) - Col(17) +Col(18) +Col(19)

Analysis using the 25-year storm flows

				5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20					
Pipe	**Q**	**Length**	**Pipe dia.**	**"n"**	**Outlet IE**	**Inlet IE**	**Barrel Area**	**Barrel Vel**	**Barrel Vel Head**	**TW Elev**	**Friction Loss**	**Entr. HGL Elev**	**Entr Head Loss**	**Exit Head Loss**	**Outlet Control Elev**	**Inlet Control Elev**	**Appr. Head Vel**	**Bend Head Loss**	**Junc. Head Loss**	**HW Elev[2]**	**Kb**	**Q1**	**Q3**	**Kj**	**HW/D[1]**
1	7.14	77.33	24	0.012	6.78	7.17	3.14	2.27	0.080	12.14	0.065	12.21	0.040	0.080	12.33	8.53	2.27	0	0	10.05	0	7.14	0	0	0.68
2	7.14	268.27	24	0.012	7.17	8.52	3.14	2.27	0.080	10.05	0.226	10.28	0.040	0.080	10.40	9.88	1.57	1.98	1.59	12.39	1.26	4.36	2.78	1.01	0.68
3	2.78	44	18	0.012	8.9	9.12	1.77	1.57	0.038	12.39	0.026	12.42	0.019	0.038	12.48	10.01	1.57	1.98	0.00	12.89	1.26	2.78	0	0.00	0.59
4	2.78	91	18	0.012	9.2	9.66	1.77	1.57	0.038	12.89	0.054	12.94	0.019	0.038	13.00	10.55	1.57	0.31	0.00	11.74	0.2	2.78	0	0.00	0.59
5	2.78	72	18	0.012	9.74	10.1	1.77	1.57	0.038	11.74	0.043	11.78	0.019	0.038	11.84	10.99	1.77	0.00	0.00	10.07	0	2.78	0	0.00	0.59

Analysis using the 100-year storm flows

1	9.87	77.33	24	0.012	6.78	7.17	3.14	3.14	0.153	12.14	0.124	12.26	0.077	0.153	12.49	8.83	3.14	0	0	9.35	0	9.87	0	0	0.83
2	9.87	268.27	24	0.012	7.17	8.52	3.14	3.14	0.153	9.35	0.432	9.78	0.077	0.153	10.01	10.18	2.17	2.74	2.19	12.93	1.26	6.03	3.84	1.01	0.83
3	3.84	44	18	0.012	8.9	9.12	1.77	2.17	0.073	12.93	0.050	12.98	0.037	0.073	13.09	10.22	2.17	2.74	0.00	13.66	1.26	3.84	0	0.00	0.73
4	3.84	91	18	0.012	9.2	9.66	1.77	2.17	0.073	13.66	0.103	13.76	0.037	0.073	13.87	10.76	2.17	0.43	0.00	12.13	0.2	3.84	0	0.00	0.73
5	3.84	72	18	0.012	9.74	10.1	1.77	2.17	0.073	12.13	0.081	12.21	0.037	0.073	12.32	11.20	1.77	0.00	0.00	10.56	0	3.84	0	0.00	0.73

Appendix F

MGS FLOOD
PROJECT REPORT

Program Version: MGSFlood 4.12
Program License Number: 201110006
Run Date: 04/25/2013 11:00 AM

Input File Name: vault5 min.fld
Project Name: SIM Dirt Lot
Analysis Title:
Comments:

PRECIPITATION INPUT

Computational Time Step (Minutes): 5

Extended Precipitation Timeseries Selected
Climatic Region Number: 42

Full Period of Record Available used for Routing
Precipitation Station : 99003805 Seattle 38 in_5min 10/01/1939-10/01/2097
Evaporation Station : 991038 Seattle 38 in MAP
Evaporation Scale Factor : 0.750

HSPF Parameter Region Number: 1
HSPF Parameter Region Name : USGS Default

********** Default HSPF Parameters Used (Not Modified by User) **********

********** WATERSHED DEFINITION **********

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 1

---------- Subbasin : Subbasin 1 ----------

	-------Area(Acres) --------
Till Forest	0.000
Till Pasture	0.000
Till Grass	0.000
Outwash Forest	0.000
Outwash Pasture	0.000
Outwash Grass	0.000
Wetland	0.000
Green Roof	0.000
User	0.000
Impervious	2.040
Subbasin Total	2.040

----------SCENARIO: POSTDEVELOPED
Number of Subbasins: 1

---------- Subbasin : Subbasin 1 ----------

	-------Area(Acres) --------
Till Forest	0.000
Till Pasture	0.000
Till Grass	0.000
Outwash Forest	0.000
Outwash Pasture	0.000
Outwash Grass	0.000
Wetland	0.000
Green Roof	0.000
User	0.000
Impervious	3.130
Subbasin Total	3.130

********** **LINK DATA** **********

----------SCENARIO: PREDEVELOPED
Number of Links: 0

********** **LINK DATA** **********

----------SCENARIO: POSTDEVELOPED
Number of Links: 1

Link Name: New Structure Lnk1
Link Type: Structure
Downstream Link: None

Prismatic Pond Option Used

Pond Floor Elevation (ft)	:	100.00		
Riser Crest Elevation (ft)		:	103.90	
Max Pond Elevation (ft)	:	104.00		
Storage Depth (ft)	:	3.90		
Pond Bottom Length (ft)	:	350.0		
Pond Bottom Width (ft)	:	3.0		
Pond Side Slopes (ft/ft)	: L1= 0.00	L2= 0.00	W1= 0.00	W2= 0.00
Bottom Area (sq-ft)	:	1050.		
Area at Riser Crest El (sq-ft)	:	1,050.		
(acres)	:	0.024		
Volume at Riser Crest (cu-ft)	:	4,095.		
(ac-ft)	:	0.094		
Area at Max Elevation (sq-ft)	:	1050.		
(acres)	:	0.024		
Vol at Max Elevation (cu-ft)	:	4,305.		
(ac-ft)	:	0.099		

Massmann Infiltration Option Used
Hydraulic Conductivity (in/hr) : 0.00
Depth to Water Table (ft) : 100.00
Bio-Fouling Potential : Low
Maintenance : Average or Better

Riser Geometry
Riser Structure Type : Circular
Riser Diameter (in) : 18.00
Common Length (ft) : 1.900
Riser Crest Elevation : 103.90 ft

Hydraulic Structure Geometry

Number of Devices: 3

---Device Number 1 ---
Device Type : Circular Orifice
Control Elevation (ft) : 100.00
Diameter (in) : 4.25
Orientation : Horizontal
Elbow : No

---Device Number 2 ---
Device Type : Circular Orifice
Control Elevation (ft) : 101.00
Diameter (in) : 3.50
Orientation : Horizontal
Elbow : Yes

--- Device Number 3 ---
Device Type : Rectangular Weir that Intersects the Riser Top
Invert Elevation (ft) : 103.30
Length (ft) : 1.900

**************************FLOOD FREQUENCY AND DURATION STATISTICS********************

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 1
Number of Links: 0

----------SCENARIO: POSTDEVELOPED
Number of Subbasins: 1
Number of Links: 1

********** Link: New Structure Lnk1 ********** Link WSEL Stats
WSEL Frequency Data(ft)
(Recurrence Interval Computed Using Gringorten Plotting Position)

Tr (yrs)	WSEL Peak (ft)
1.05-Year	101.016

1.11-Year	101.121
1.25-Year	101.230
2.00-Year	101.582
3.33-Year	101.901
5-Year	102.226
10-Year	102.627
25-Year	102.984
50-Year	103.467
100-Year	103.612

*************Water Quality Facility Data ***************

----------SCENARIO: PREDEVELOPED

Number of Links: 0

----------SCENARIO: POSTDEVELOPED

Number of Links: 1

********** Link: New Structure Lnk1 **********

Basic Wet Pond Volume (91% Exceedance): 14558. cu-ft
Computed Large Wet Pond Volume, 1.5*Basic Volume: 21837. cu-ft

Infiltration/Filtration Statistics----------
Total Runoff Volume (ac-ft): 1329.50
Total Runoff Infiltrated (ac-ft): 0.00, 0.00%
Total Runoff Filtered (ac-ft): 0.00, 0.00%
Percent Treated (Infiltrated+Filtered)/Total Volume: 0.00%

*************Compliance Point Results ***************

Scenario Predeveloped Compliance Subbasin: Subbasin 1

Scenario Postdeveloped Compliance Link: New Structure Lnk1

***** Point of Compliance Flow Frequency Data *****
Recurrence Interval Computed Using Gringorten Plotting Position

Predevelopment Runoff		Postdevelopment Runoff	
Tr (Years)	Discharge (cfs)	Tr (Years)	Discharge (cfs)
2-Year	0.846	2-Year	0.843
5-Year	1.239	5-Year	1.063
10-Year	1.515	10-Year	1.176
25-Year	1.809	25-Year	1.292
50-Year	2.116	50-Year	1.830
100-Year	2.502	100-Year	2.484
200-Year	2.564	200-Year	2.508

** Record too Short to Compute Peak Discharge for These Recurrence Intervals

****** Flow Duration Performance According to Dept. of Ecology Criteria ******

Excursion at Predeveloped ½Q2 (Must be Less Than 0%):	213.7%	FAIL
Maximum Excursion from ½Q2 to Q2 (Must be Less Than 0%):	257.8%	FAIL
Maximum Excursion from Q2 to Q50 (Must be less than 10%):	213.5%	FAIL
Percent Excursion from Q2 to Q50 (Must be less than 50%):	32.3%	PASS

POND FAILS ONE OR MORE DURATION DESIGN CRITERIA: FAIL

Blue Indicates Data Entry Cells, the rest are calculated.

Pond Design Steps:

1. Enter the Target pond volume obtained from the MGSFlood
2. Enter the pipe dimensions such that pond volume at overflow approximates the Target Volume
3. Enter the outlet structures obtained from the optimizer
4. Copy rating table from RatingTable tab to MGSFlood and test performance.

Target Volume from Optimizer (ac-ft) **0.099** ac-ft
4321 cu-ft

Storage Volume Provided by Horizontal Pipe of Diameter D
Pipe Diameter (d) **4.0** **ft**
Pipe Length **360** **ft**
Overflow Elevation: **103.90** **ft**

Pond Volume at Overflow (cu ft): **4439**

					orifice #1	orifice #2	orifice #3	Notch weir	weir		
		dia/width (in)=			4.25	3.50	0.00	22.80	18.00		
		elev (ft)=			100.00	101.00	100.00	103.30	103.90	total	Orifice
elev. ft	y/d	Wetted Area s.f.	storage cu.ft.	storage (ac.ft)	flow cfs	flow cfs	flow cfs	flow cfs	flow cfs	flow cfs	Level
100.00	0.000	0.000	0	0	0.000	0.000	0.000	0.000	0.000	0.000	Orifice 1
100.20	0.050	0.235	85	0.002	0.219	0.000	0.000	0.000	0.000	0.219	
100.40	0.100	0.654	236	0.005	0.310	0.000	0.000	0.000	0.000	0.310	
100.60	0.150	1.182	426	0.010	0.379	0.000	0.000	0.000	0.000	0.379	
100.80	0.200	1.789	644	0.015	0.438	0.000	0.000	0.000	0.000	0.438	
101.00	0.250	2.456	884	0.020	0.490	0.000	0.000	0.000	0.000	0.490	
101.20	0.300	3.171	1142	0.026	0.537	0.149	0.000	0.000	0.000	0.685	
101.40	0.350	3.920	1411	0.032	0.580	0.210	0.000	0.000	0.000	0.790	Orifice 2
101.60	0.400	4.694	1690	0.039	0.620	0.257	0.000	0.000	0.000	0.877	
101.80	0.450	5.485	1975	0.045	0.657	0.297	0.000	0.000	0.000	0.954	
102.00	0.500	6.283	2262	0.052	0.693	0.332	0.000	0.000	0.000	1.025	
102.20	0.550	7.082	2549	0.059	0.727	0.364	0.000	0.000	0.000	1.091	
102.40	0.600	7.872	2834	0.065	0.759	0.393	0.000	0.000	0.000	1.152	
102.60	0.650	8.646	3113	0.071	0.790	0.420	0.000	0.000	0.000	1.210	
102.80	0.700	9.395	3382	0.078	0.820	0.446	0.000	0.000	0.000	1.266	
103.00	0.750	10.109	3639	0.084	0.849	0.470	0.000	0.000	0.000	1.318	
103.20	0.800	10.778	3880	0.089	0.876	0.493	0.000	0.000	0.000	1.369	
103.40	0.850	11.384	4098	0.094	0.903	0.515	0.000	0.160	0.000	1.578	
103.60	0.900	11.912	4288	0.098	0.930	0.536	0.000	0.832	0.000	2.297	
103.80	0.950	12.331	4439	0.102	0.955	0.556	0.000	1.790	0.000	3.301	
104.00	1.000	12.566	4524	0.104	0.980	0.575	0.000	2.964	0.158	4.678	Overflow

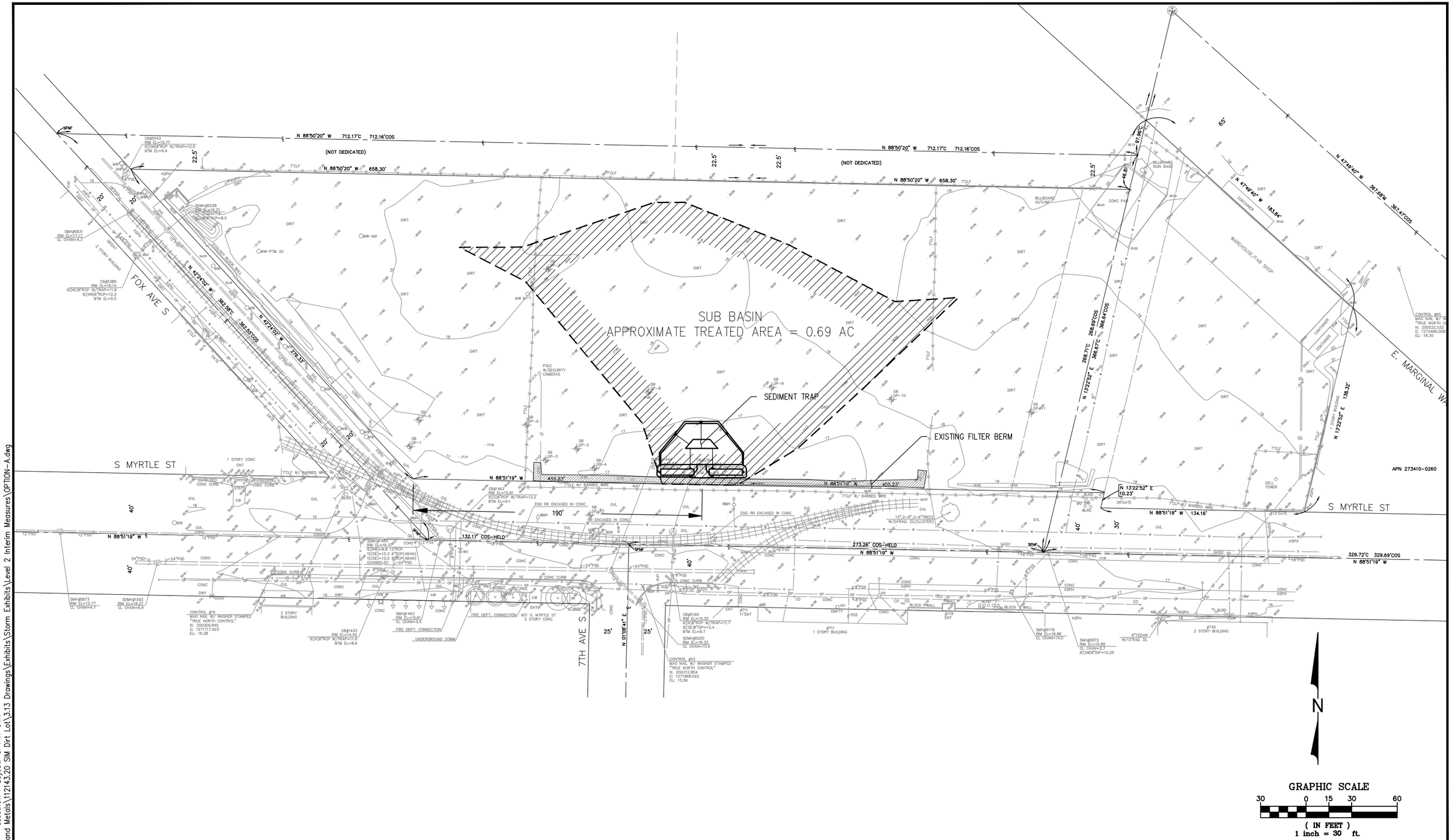
Appendix G

SIM Dirt Lot
Conveyance Design

n = 0.012

BW Pipe #	Pipe #	Nominal Diameter (in.)	ID (ft)	radius (ft)	Pipe Length (ft)	Pipe Slope	IE In	IE Out	Rim Elev.	Q_{25} (cfs)	β_{25} (rad.)	A_{25} (sf)	R_{25}	Q_{calc}	Q_{calc} - Q_{25}	V_{25} (fps)	y_{25} (ft)	A_{FULL} (sf)	R_{FULL}	Q_{FULL} (cfs)	V_{FULL} (fps)	Comments
SW Myrtle St																						
3	3	18	1.5000	0.7500	44	0.0050	8.90	9.12		2.78	2.75884	0.6709	0.3242	2.780	0.00	4.14	0.6073	1.7671	0.3750	8.068	4.57	
4	4	18	1.5000	0.7500	91	0.0050	9.20	9.66		2.78	2.75884	0.6709	0.3242	2.780	0.00	4.14	0.6073	1.7671	0.3750	8.068	4.57	
5	5	18	1.5000	0.7500	72	0.0050	9.74	10.10		2.78	2.75884	0.6709	0.3242	2.780	0.00	4.14	0.6073	1.7671	0.3750	8.068	4.57	
ON-SITE PIPING																						
		12	1.0000	0.5000		0.0050				0.271	1.91664	0.1220	0.1273	0.271	0.00	2.22	0.2126	0.7854	0.2500	2.737	3.48	to water quality
		12	1.0000	0.5000		0.0050				2.08	3.76025	0.5425	0.2886	2.080	0.00	3.83	0.6522	0.7854	0.2500	2.737	3.48	convey 3/4 of site
		12	1.0000	0.5000		0.0050				0.7	2.51091	0.2402	0.1913	0.700	0.00	2.91	0.3449	0.7854	0.2500	2.737	3.48	convey 1/4 of site

Appendix H



Plotted: Sep 23, 2013 - 10:10am aseethoff Layout: OPT A-OVR
N:\Civil\112-\112143 Seattle Iron and Metals\112143.20 SIM Dirt Lot\3.13 Drawings\Exhibits\Storm Exhibits\Level 2 Interim Measures\OPTION-A.dwg

kpff Consulting Engineers
101 Stewart Street, Suite 400
Seattle, Washington 98101
(206) 382-0600 Fax (206) 382-0500

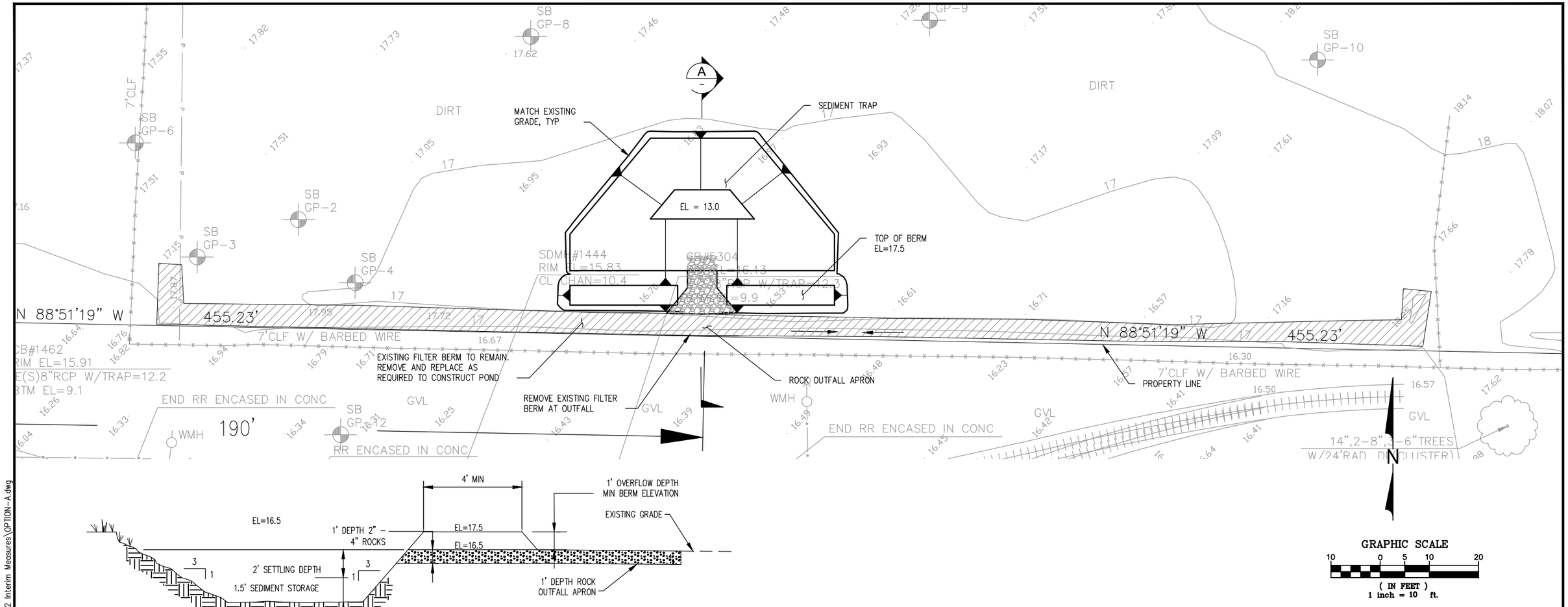
NO.	DATE	BY	REVISION

SEATTLE IRON & METALS

730 SOUTH MYRTLE STREET, SEATTLE, WA.

WATER QUALITY INTERIM MEASURES
SEDIMENT TRAP

DRAWN:	ED	PROJECT NO.:	112143
DESIGN:	ED	SCALE:	AS SHOWN
CHECKED:	AS	DATE:	AUG 06, 2013
DRAWING NO.		**C-1**	
SHEET NO.		**1** OF **2**	



NOTE:
MAY BE CONSTRUCTED BY EXCAVATION OR BY BUILDING A BERM

SEDIMENT TRAP OUTLET SECTION A-A

SEDIMENT TRAP OUTLET

GRAPHIC SCALE
10 0 5 10 20
(IN FEET)
1 inch = 10 ft.

kpff Consulting Engineers
101 Stewart Street, Suite 400
Seattle, Washington 98101
(206) 382-0600 Fax (206) 382-0500

NO.	DATE	BY	REVISION

SEATTLE IRON & METALS
730 SOUTH MYRTLE STREET, SEATTLE, WA.
WATER QUALITY INTERIM MEASURES
SEDIMENT TRAP

DRAWN: ED	PROJECT NO.: 112143
DESIGN: ED	SCALE: AS SHOWN
CHECKED: AS	DATE: AUG 06, 2013
DRAWING NO.	C-2
SHEET NO.	2 OF 2

Plotted: Sep 23, 2013 - 10:11am aseethoff Layout: OPT A-DETAIL
N:\Civil\112-\112143 Seattle Iron and Metals\112143.20 SIM Dirt Lot\3.13 Drawings\Exhibits\Storm Exhibits\Level 2 Interim Measures\OPTION-A.dwg

BMP C240: Sediment Trap

Purpose

A sediment trap is a small temporary ponding area with a gravel outlet used to collect and store sediment from sites cleared and/or graded during construction. Sediment traps, along with other perimeter controls, shall be installed before any land disturbance takes place in the drainage area.

Conditions of Use

Prior to leaving a construction site, stormwater runoff must pass through a sediment pond or trap or other appropriate sediment removal best management practice. Non-engineered sediment traps may be used on-site prior to an engineered sediment trap or sediment pond to provide additional sediment removal capacity.

It is intended for use on sites where the tributary drainage area is less than 3 acres, with no unusual drainage features, and a projected build-out time of six months or less. The sediment trap is a temporary measure (with a design life of approximately 6 months) and shall be maintained until the site area is permanently protected against erosion by vegetation and/or structures.

Sediment traps and ponds are only effective in removing sediment down to about the medium silt size fraction. Runoff with sediment of finer grades (fine silt and clay) will pass through untreated, emphasizing the need to control erosion to the maximum extent first.

Whenever possible, sediment-laden water shall be discharged into on-site, relatively level, vegetated areas (see BMP C234 – Vegetated Strip). This is the only way to effectively remove fine particles from runoff unless chemical treatment or filtration is used. This can be particularly useful after initial treatment in a sediment trap or pond. The areas of release must be evaluated on a site-by-site basis in order to determine appropriate locations for and methods of releasing runoff. Vegetated wetlands shall not be used for this purpose. Frequently, it may be possible to pump water from the collection point at the downhill end of the site to an upslope vegetated area. Pumping shall only augment the treatment system, not replace it, because of the possibility of pump failure or runoff volume in excess of pump capacity.

All projects that are constructing permanent facilities for runoff quantity control should use the rough-graded or final-graded permanent facilities for traps and ponds. This includes combined facilities and infiltration facilities. When permanent facilities are used as temporary sedimentation facilities, the surface area requirement of a sediment trap or pond must be met. If the surface area requirements are larger than the surface area of the permanent facility, then the trap or pond shall be enlarged to comply with the surface area requirement. The permanent pond shall also be divided into two cells as required for sediment ponds.

Either a permanent control structure or the temporary control structure (described in BMP C241, Temporary Sediment Pond) can be used. If a permanent control structure is used, it may be advisable to partially restrict the lower orifice with gravel to increase residence time while still allowing dewatering of the pond. A shut-off valve may be added to the control structure to allow complete retention of stormwater in emergency situations. In this case, an emergency overflow weir must be added.

A skimmer may be used for the sediment trap outlet if approved by the Local Permitting Authority.

Design and Installation Specifications

- See Figures 4.2.16 and 4.2.17 for details.
- If permanent runoff control facilities are part of the project, they should be used for sediment retention.
- To determine the sediment trap geometry, first calculate the design surface area (SA) of the trap, measured at the invert of the weir. Use the following equation:

  $SA = FS(Q_2/V_S)$

  where

  Q_2 = Design inflow based on the peak discharge from the developed 2-year runoff event from the contributing drainage area as computed in the hydrologic analysis. The 10-year peak flow shall be used if the project size, expected timing and duration of construction, or downstream conditions warrant a higher level of protection. If no hydrologic analysis is required, the Rational Method may be used.

  V_S = The settling velocity of the soil particle of interest. The 0.02 mm (medium silt) particle with an assumed density of 2.65 g/cm^3 has been selected as the particle of interest and has a settling velocity (V_S) of 0.00096 ft/sec.

  FS = A safety factor of 2 to account for non-ideal settling.

  Therefore, the equation for computing surface area becomes:

  $SA = 2 \times Q_2/0.00096$ or

  2080 square feet per cfs of inflow

  Note: Even if permanent facilities are used, they must still have a surface area that is at least as large as that derived from the above formula. If they do not, the pond must be enlarged.
- To aid in determining sediment depth, all sediment traps shall have a staff gauge with a prominent mark 1-foot above the bottom of the trap.

- Sediment traps may not be feasible on utility projects due to the limited work space or the short-term nature of the work. Portable tanks may be used in place of sediment traps for utility projects.

Maintenance Standards

- Sediment shall be removed from the trap when it reaches 1-foot in depth.
- Any damage to the pond embankments or slopes shall be repaired.

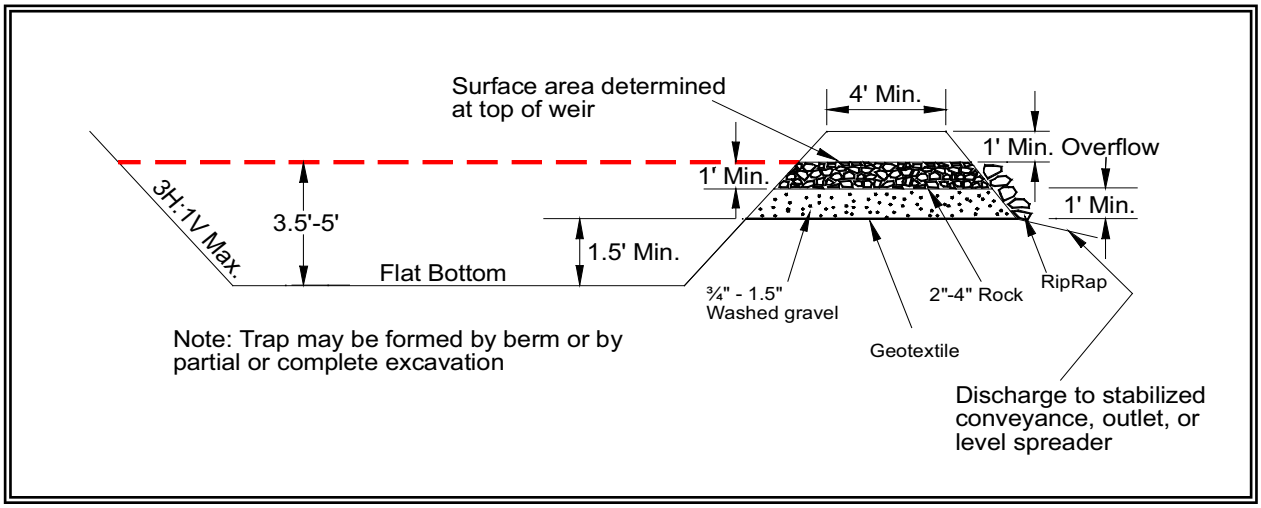


Figure 4.2.16 – Cross Section of Sediment Trap

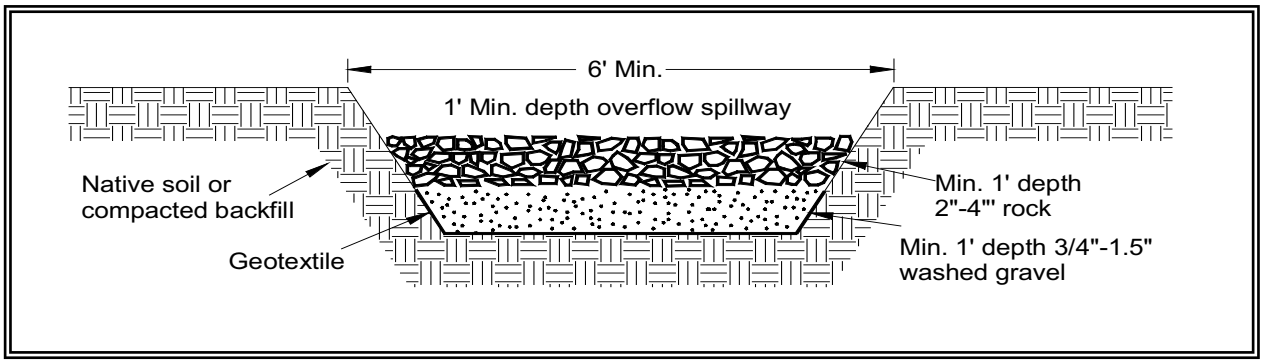


Figure 4.2.17 – Sediment Trap Outlet

MGS FLOOD
PROJECT REPORT

Program Version: MGSFlood 4.12
Program License Number: 201110006
Run Date: 09/20/2013 4:00 PM

Input File Name: SED pond A.fld
Project Name: SIM Dirt Lot
Analysis Title: TESC Measures
Comments: Option A

PRECIPITATION INPUT

Computational Time Step (Minutes): 5

Extended Precipitation Timeseries Selected
Climatic Region Number: 42

Full Period of Record Available used for Routing
Precipitation Station : 99003805 Seattle 38 in_5min 10/01/1939-10/01/2097
Evaporation Station : 991038 Seattle 38 in MAP
Evaporation Scale Factor : 0.750

HSPF Parameter Region Number: 1
HSPF Parameter Region Name : USGS Default

********** Default HSPF Parameters Used (Not Modified by User) **********

********** WATERSHED DEFINITION **********

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 1

---------- Subbasin : Subbasin 1 ----------

-------Area(Acres) --------	
Till Forest	0.000
Till Pasture	0.000
Till Grass	0.000
Outwash Forest	0.000
Outwash Pasture	0.000
Outwash Grass	0.000
Wetland	0.000
Green Roof	0.000
User	0.000
Impervious	0.690
Subbasin Total	0.690

----------SCENARIO: POSTDEVELOPED

Number of Subbasins: 1

---------- Subbasin : Subbasin 1 ----------

	-------Area(Acres) --------
Till Forest	0.000
Till Pasture	0.000
Till Grass	0.000
Outwash Forest	0.000
Outwash Pasture	0.000
Outwash Grass	0.000
Wetland	0.000
Green Roof	0.000
User	0.000
Impervious	0.690
Subbasin Total	0.690

**************************FLOOD FREQUENCY AND DURATION STATISTICS*********************

----------SCENARIO: PREDEVELOPED
Number of Subbasins: 1
Number of Links: 0

----------SCENARIO: POSTDEVELOPED
Number of Subbasins: 1
Number of Links: 0

*************Compliance Point Results ***************

Scenario Predeveloped Compliance Subbasin: Subbasin 1

Scenario Postdeveloped Compliance Subbasin: Subbasin 1

***** Point of Compliance Flow Frequency Data *****
Recurrence Interval Computed Using Gringorten Plotting Position

Predevelopment Runoff		Postdevelopment Runoff	
Tr (Years)	Discharge (cfs)	Tr (Years)	Discharge (cfs)
2-Year	0.286	2-Year	0.286
5-Year	0.419	5-Year	0.419
10-Year	0.512	10-Year	0.512
25-Year	0.612	25-Year	0.612
50-Year	0.716	50-Year	0.716
100-Year	0.846	100-Year	0.846
200-Year	0.867	200-Year	0.867

** Record too Short to Compute Peak Discharge for These Recurrence Intervals

Sediment Trap Option A Sizing

$Q_{2yr\ dev}$ = 0.286 cfs

Sediment Trap Surface Area = 2080(0.286 cfs)
= 594 sf

Providing 925 sf at top of pond/ bottom of overflow berm