Cascade Christian

903 25th Street SE
Shaw Road E
Puyallup, Washington, 98372

Clearing and Grading Permit
Technical Information Report (TIR)

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Reviewed By: Bill Fortunato, P.E.
Prepared: May 2019

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Executive Summary

The project site is located west of Shaw Road approximately 900 feet south of the intersection of Pioneer and Shaw Road in Puyallup, Washington. The site is bordered by an existing school to the south, farmland to the west, and a proposed shopping center to the north. The site is currently undeveloped The site consists of one parcel 0420351003 and total 9.11 acres in size of which roughly 4.40 acres of the easterly portion of the parcel are receiving fill.

The proposed project includes fill operations to bring approximately 13,500 cubic yards of soil onto the site for future development purposes. No permanent hard surfaces are proposed as part of this project, and only temporary erosion and sedimentation control Best Management Practices (BMPs) are proposed to facilitate the fill operations.

Design Criteria:
The City of Puyallup uses the 2012 Washington State Department of Ecology Stormwater Management Manual for Western Washington (SMMWW), 2014 Amendment, as adopted by the City of Puyallup and the City of Puyallup Amendments. The existing site is undeveloped and almost entirely pervious.

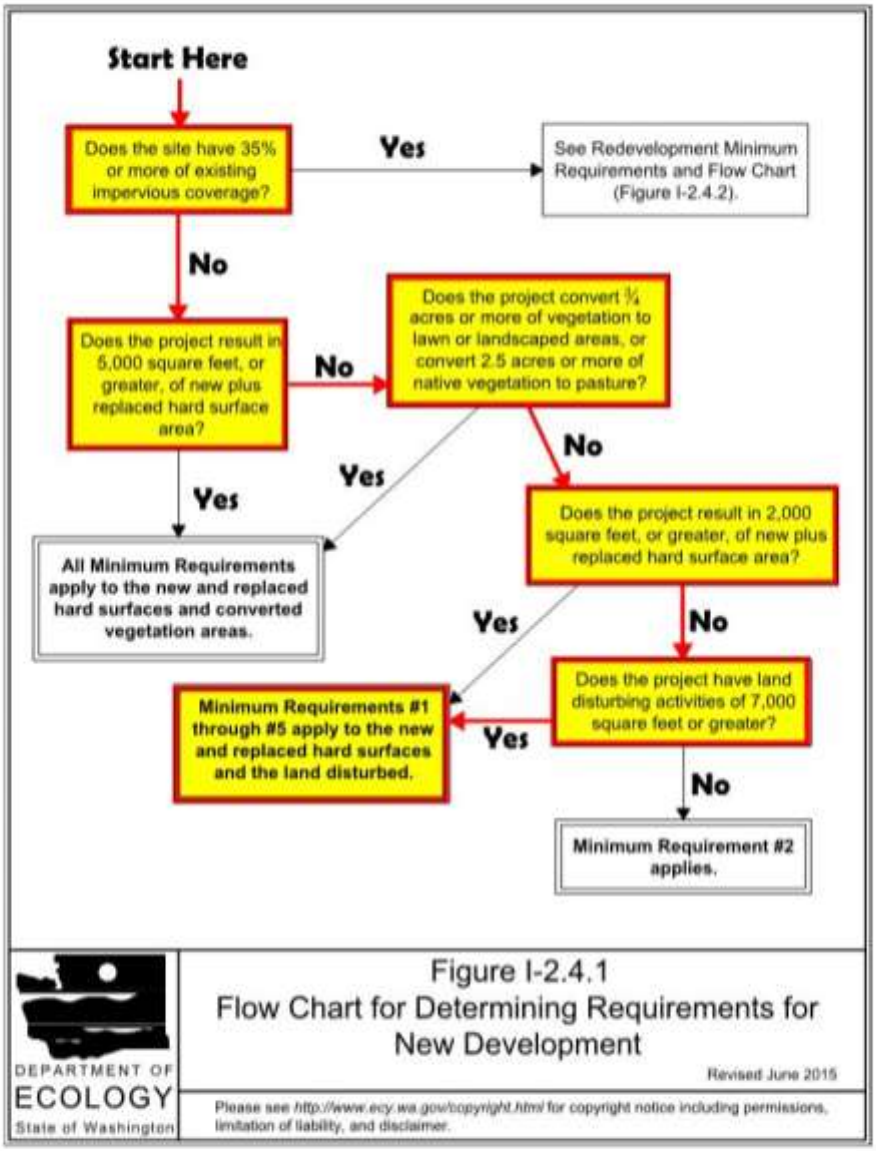
Table 1

Jurisdictional Requirements	
Peak Runoff Control:	Match the pre-developed discharge rates from 50% of the 2-year peak flow up through the full 50-year peak flow. Projects discharging directly to approved water bodies may omit this requirement.
Water Quality:	Upstream of detention: 91% of runoff volume Downstream of detention: Full 2-year release rate
Conveyance Design:	25-year event
Hydrologic Design Method:	Western Washington Hydrology Model (WWHM2012, updated 2/19/2013) for water quality and water quantity analysis

No permanent improvements are proposed as part of this project, as the stabilized construction entrance and haul route are proposed only as temporary BMPs to support the fill activities. Existing pervious surfaces on the site. Although the project does not involve the addition or replacement of any permanent hard surfaces, the amount of land disturbance (which includes grading activities) exceeds 7,000 square feet. Per the SMMWW Flow Chart for Determining Requirements for New Development (Figure 1), the project is therefore responsible for applying Minimum Requirements #1 through #5 to the land disturbed.

Figure 1 – Flow Chart for Determining Requirements for New Development

Figure I-2.4.1 Flow Chart for Determining Requirements for New Development



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Section 1 - Project Overview

Figure 2 - Site Location

Location: 903 25th Street SE; Area to the west of Shaw Road E, Puyallup, WA

Section/Township/Range: SW Quarter of Section 26, Township 20, Range 04

Parcel/Tax Lot(s): 0420351003

Size: 9.11 acres

City, County, State: Puyallup, Pierce County, Washington

Governing Agency: City of Puyallup

Design Criteria: 2012 Washington State Department of Ecology Stormwater Management Manual for Western Washington (SMMWW), 2014 Amendment, and City of Puyallup Amendments.

Drainage Basins, Sub-Basins, and Site Characteristics

Drainage Basin

The project site lies within the Lower Puyallup River Sub-Watershed, which is part of the Puyallup River Watershed, and is in the City of Puyallup's Puyallup River South drainage basin.

Existing Sub-Basins

The existing site is relatively flat, and generally slopes from south to north at slopes between 0% and 2%, and from east to west at slopes between 0% and 1%. Elevations on the site generally range from a high of 71 in the southeast corner to a low of 65 in the northwest corner. Existing ditches/swales are located around the perimeter of the site to capture and contain runoff and sediment.

Proposed Sub-Basins

The proposed sub-basin will remain generally unchanged from the existing condition. An approximately 13,500 cubic yards of fill material will be imported to the site from various sources. The fill is to be generally flat, sloped generally from south to north/northwest. Filtration fences and temporary drainage swales are proposed to capture any sediment and convey runoff from the stockpile to the existing ditches/swales along the north and west areas of the site.

Geotechnical Report

To the best of our knowledge there is no geotechnical report for this parcel. The following information was gathered from a report created by Earth Solutions, LLC (ESNW) on July 15, 2016 for the Pioneer Crossing project immediately to the north of this parcel.

> Underlying the surface, there were alternating layers of loose silty sand (United Soil Classification SM), silt (ML), and poorly graded sands (SP) were encountered extending to the maximum test pit exploration depth of 11 feet. A thin isolated layer of peat was observed approximately 3.5 to 4.5 feet below the surface. Silts, sandy silts and sands with very thin layers of clays and clayey silts comprise the majority of the upper 15 to 17 feet of the stratigraphic profile. Dense to very dense silty sands and sands have been interpreted to be positioned 25 to 36 feet below the subsurface.
>
> Groundwater was observed at each test pit location during ESNW's subsurface exploration (December, 2006) as well as during Terra's subsurface explorations (July 2014). Groundwater seepage was encountered at about 2.5 to 3 below ground surface.

Section 2 - Conditions and Requirements

The project does not propose to add any permanent impervious areas, and all areas that are to receive fill were previously impacted during grading operations related to the Clearing and Grading Permit approved in 2012, and as such do not constitute conversion of native vegetation to pasture. However, the grading activities are classified as land-disturbing activities under the 2012 Stormwater Management Manual for Western Washington (SMMWW), 2014 Amendment, and as such, Minimum Requirements #1 through #5 shall be applied to all disturbed areas.

Minimum Requirement #1: **Preparation of Stormwater Site Plans**
This project proposes to replace greater than 2,000 square feet of impervious surface; thus, Minimum requirement #1 applies and a Stormwater Site Plan must be prepared for review by the local jurisdiction.

Response: *This Storm Drainage Report has been prepared to address this requirement.*

Minimum Requirement #2: **Construction Stormwater Pollution Prevention**
All erosion and sediment control measures shall be governed by the requirements of Department of Ecology's 2012 Stormwater Management Manual for Western Washington, 2014 Amendment, and the General Permit for Construction Stormwater. The thirteen elements as identified in the manual and provided below will be incorporated into the TESC plans:

Element 1: *Mark Clearing Limits*
Element 2: *Establish Construction Access*
Element 3: *Control Flow Rates*
Element 4: *Install Sediment Controls*
Element 5: *Stabilize Soils*
Element 6: *Protect Slopes*
Element 7: *Protect Drain Inlets*
Element 8: *Stabilize Channels and Outlets*
Element 9: *Control Pollutants*
Element 10: *Control De-watering*
Element 11: *Maintain BMPs*
Element 12: *Manage the Project*
Element 13: *Protect Low Impact Development BMPs*

Response: *Erosion and sediment control measures will be installed during construction to address the above elements as needed. See Section 8 of this report for a complete description of the construction and erosion control strategies being implemented.*

Minimum Requirement #3: **Source Control of Pollution**
All known, available and reasonable source control BMPs must be applied to all projects. Source control BMPs must be selected, designed, and maintained according to the 2012 SMMWW (2014 Amendment).

Response: *Source control will be provided as needed per Volume IV of the SMMWW. Source control BMPs will only be applicable during construction operations, as no long-term elements requiring source control are included in the project.*

Minimum Requirement #4: **Preservation of Natural Drainage Systems and Outfalls**
Natural drainage patterns shall be maintained, and discharges from the project site shall occur at the natural location, to the maximum extent practicable. The manner by which runoff is discharged from the project site must not cause a significant adverse impact to downstream receiving waters and downgradient properties. All outfalls require energy dissipation.

Response: *The existing drainage system and outfalls will be maintained as needed. Offsite areas to the south will continue to be collected in perimeter swales along the south and west of the site, while onsite drainage will primarily be directed to the existing drainage ditch at the northwest side of the site by utilizing interceptor swales to convey runoff from the stockpile area.*

Minimum Requirement #5: **On-site Stormwater Management**
Projects shall employ On-site Stormwater Management BMPs in accordance with the following projects thresholds, standards, and lists to infiltrate, disperse, and retain stormwater runoff on-site to the extent feasible without causing flooding or erosion impacts.

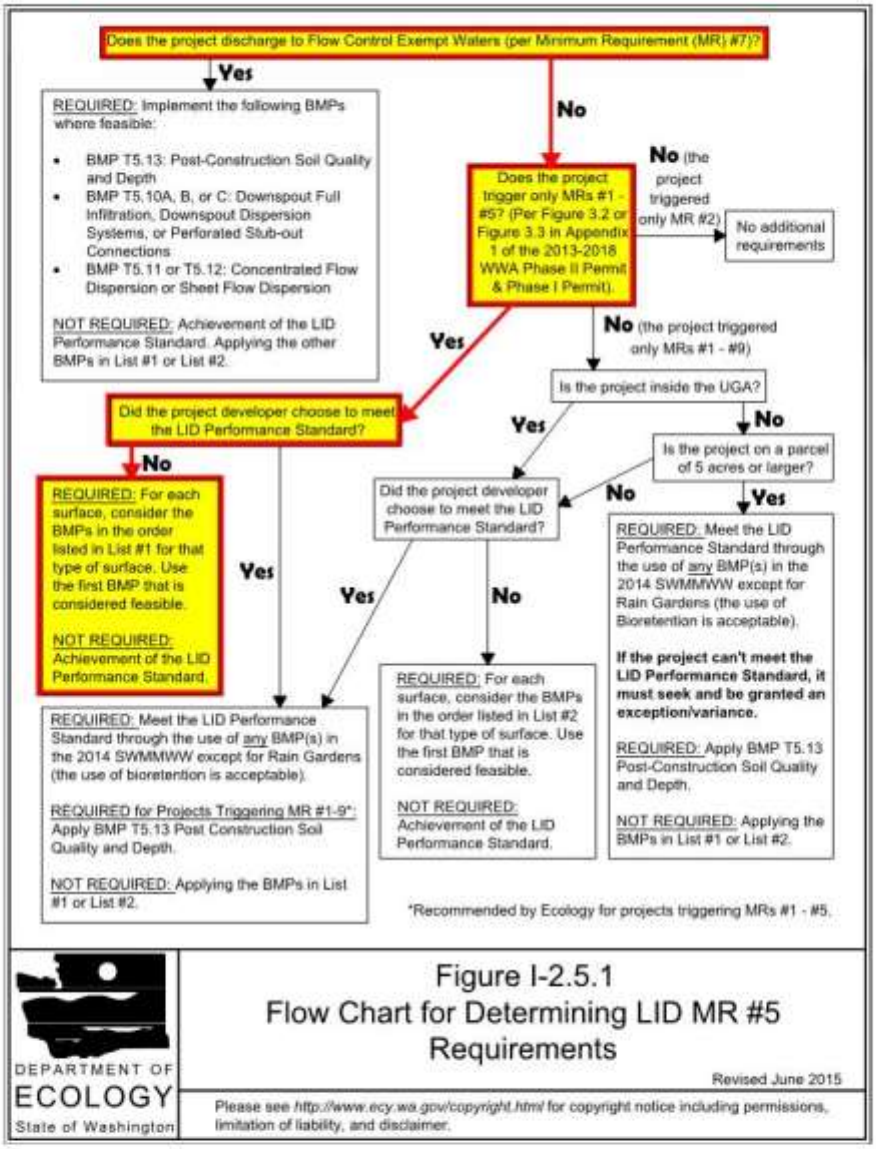
Response: *Per Figure I-2.5.1 Flow Chart for Determining LID MR #5 Requirements, the project is required to consider BMPs in List #1 for each type of surface involved in the project. See below for an evaluation of List #1 BMPs:*

Roofs: No roofs are included in the project.
Other Hard Surfaces: No hard surfaces are included in the project.
Lawn and landscaped areas: The fill area is not considered a landscaped area, and as such is unsuitable for incorporation of post-construction soil quality and depth.

No project surfaces are appropriate for incorporation of List #1 LID BMPs, and as such none shall be incorporated.

Figure 3 – Flow Chart for Determining LID MR #5 Requirements

Figure I-2.5.1 Flow Chart for Determining LID MR #5 Requirements



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Section 3 - Off-Site Analysis

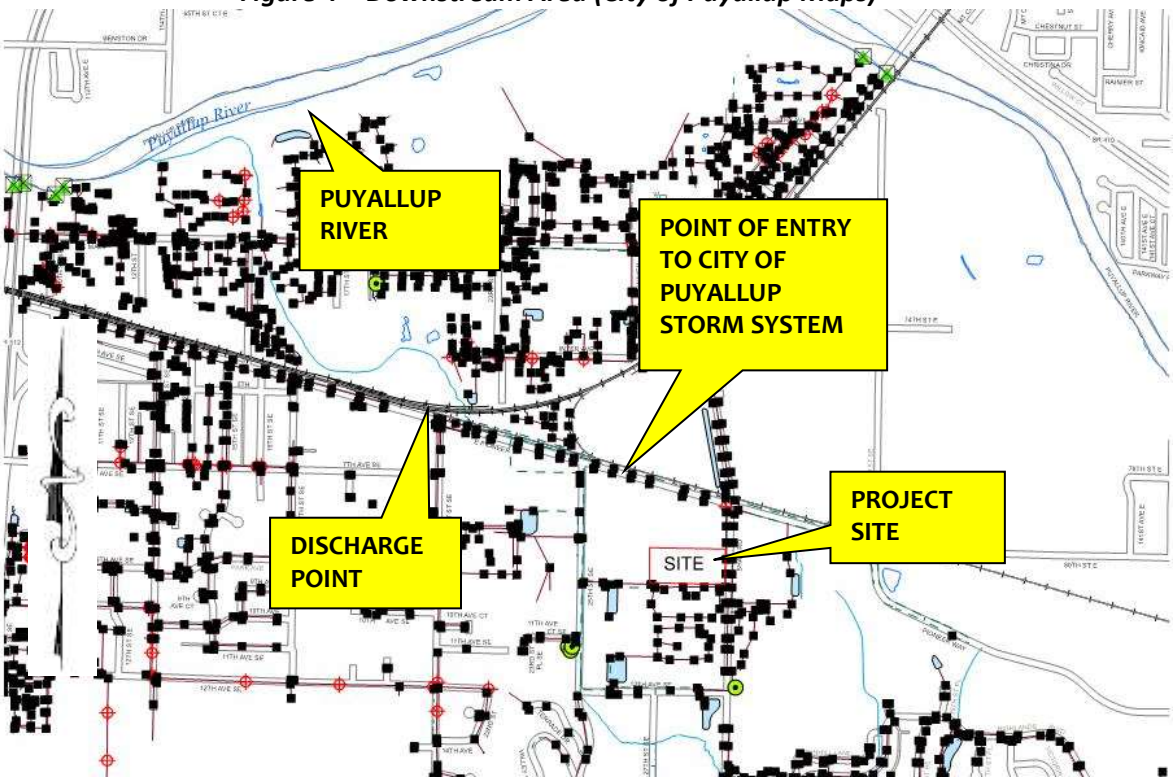
Upstream Analysis

Stormwater runoff from a portion of the site to the south flows does not appear to flow onto the project site. It is likely any discharge from the school/church property to the south is conveyed to the west away from the project limits.

Downstream Analysis

Stormwater runoff on the site is directed to a ditch the northern end of the property. The ditch then drainage to the north to a pond/wetland area on the Pioneer Crossing site. The pond is detained and is discharged to an existing 12" horizontal pipe crossing E Pioneer Avenue and discharging to a ditch on the north side of the road. The ditch then slopes downward to the west for approximately 1/4 mile, where it discharges into a tributary stream (Deer Creek) which flows to the northwest and flows into the Puyallup River.

Figure 4 – Downstream Area (City of Puyallup Maps)



Section 4 - Flow Control and Water Quality Facility Analysis and Design

No permanent flow control or water quality facilities are proposed as part of this project. A sediment pond is proposed on the proposed ESC plans. The portion of the site draining to the pond is approximately 4.40 acres has been evaluated using continuous runoff modeling (WWHM), which is provided as **Appendix D**. The flows generated in that analysis have been used to determine pond, spillway, and orifice sizing below.

Pond Sizing

Determine the required surface area at the top of the riser pipe with the equation:

$$\boldsymbol{SA = 2 \times \left(\frac{Q_2}{0.00096}\right), where\ Q_2\ is\ the\ peak\ flow\ for\ the\ 2-year\ runoff\ event}$$

$$SA = 2 \times \left(\frac{0.463}{0.00096}\right)$$

$$SA = 965\ square\ feet\ required$$

$$\boldsymbol{SA = 977\ square\ feet\ provided}$$

The existing detention pond shall be widened to provide this minimum required pond area.

Principal Spillway (Riser Pipe)

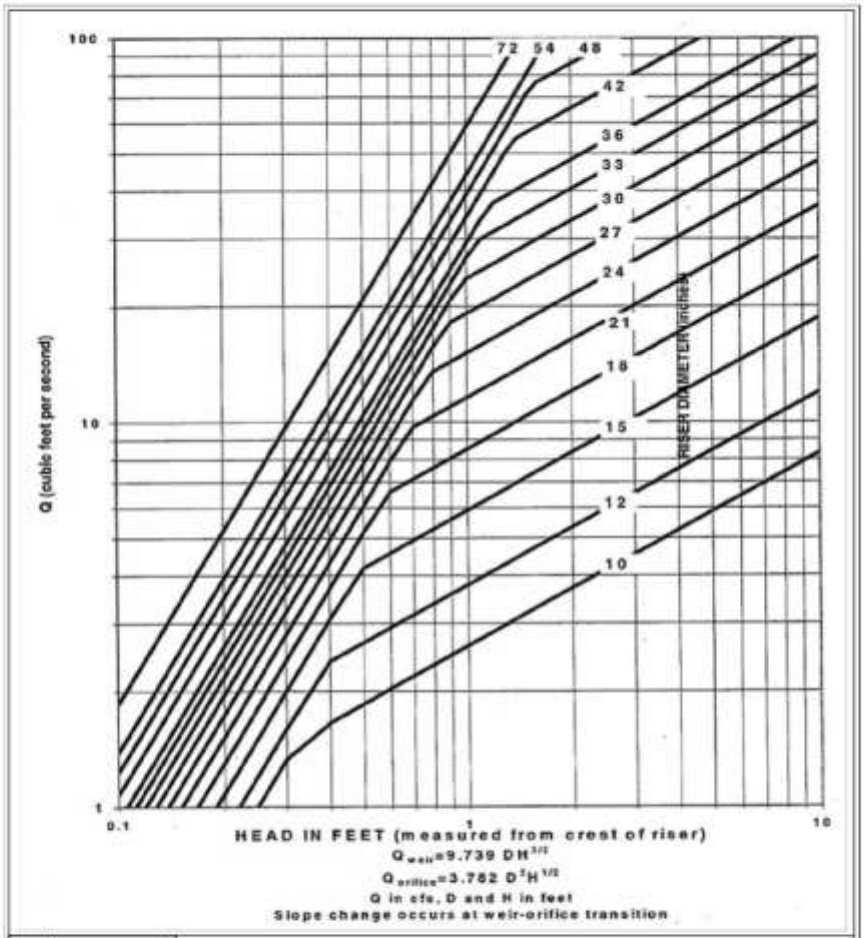
Determine the required diameter for the riser pipe. The riser pipe shall be the minimum necessary to pass the 10-year flow for the developed (unmitigated) site, multiplied by 1.6. Use ***Figure II-4.2.21 Riser Inflow Curves*** (see below).

$$Q_{10} = (1.6)(1.057)$$

$$Q_{10} \approx 1.69\ cfs$$

$$\boldsymbol{The\ existing\ 12"\ riser\ is\ adequate\ to\ convey\ this\ flow}$$

Figure II-4.2.21 Riser Inflow Curves



DEPARTMENT OF ECOLOGY
State of Washington

Figure II-4.2.21
Riser Inflow Curves

Revised November 2015

Dewatering Orifice

Determine the size of the dewatering orifice (minimum 1" in diameter) using the equations below:

$$\boldsymbol{A_O = \frac{A_S(2h)^{0.5}}{(0.6)(3600)(T)(g)^{0.5}}}$$

$A_O = orfice\ area\ (square\ feet)$
$A_S = pond\ surface\ area\ (square\ feet)$
$h = head\ above\ orifice\ height\ (height\ of\ riser\ in\ feet)$
$T = dewatering\ time\ (24\ hours)$
$g = acceleration\ due\ to\ gravity\ (32.2\ {}^{ft}/_{s^2})$

$$A_O = \frac{977(2 \cdot 1.5)^{0.5}}{(0.6)(3600)(24)(32.2)^{0.5}}$$

$$\boldsymbol{A_O = 0.0058}$$

Convert the required surface area to the required diameter, D of the orifice:

$$D = 24\sqrt{\frac{A_O}{\pi}} \quad = \quad 13.54\sqrt{A_O}$$

$$D = 13.54\sqrt{0.0058}$$

$$\boldsymbol{D = 1.03\ inches - use\ 1\ {}^{1}/_{8}\ inches}$$

De-watering orifice to be installed on existing sediment pond riser.

Section 5 - Conveyance System Analysis and Design

As shown in the following conveyance calculations, the flow capacity of both the interceptor swales and culverts well exceed the maximum identified 10-year flow rate of 2.37 cubic feet per second from the site.

MANNING'S EQUATION for OPEN CHANNEL FLOW

Project: **Pioneer Crossing CGF** Location: 2614 E Pioneer Ave

By: LRR Date: 7/24/2018

Chk By: WFF Date: 7/24/2018

version 12-2004

Mannings Formula

$Q = (1.486/n)AR_h^{2/3}S^{1/2}$

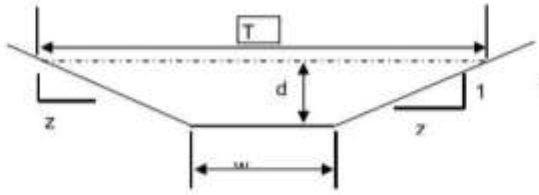
R = A/P

A = cross sectional area

P= wetted perimeter

S = slope of channel

n = Manning's roughness coefficient



$V = (1.49/n)R_h^{2/3}S^{1/2}$

Q = V x A

INPUT	
z (sideslope)=	2
z (sideslope)=	2
b (btm width, ft)=	2
d (depth, ft)=	1
S (slope, ft/ft)	0.01
n_{low} =	0.03
n_{high} =	0.05

Clear Data Entry Cells

				Low N		High N			
Depth, ft	Area, sf	Wetted Perimeter, ft	Hydraulic Radius, ft	Velocity, fps	Flow, cfs	Velocity, fps	Flow, cfs		
1	4.00	6.47	0.62	3.59389591	14.3756	2.156338	8.62535	T =	6
								Dm =	0.667
				Sc low =	0.0166	Sc high =	0.0461		
				.7 Sc	1.3 Sc	.7 Sc	1.3 Sc		
				0.0116	0.0216	0.0323	0.0599		

s_c = critical slope ft / ft

T = top width of the stream

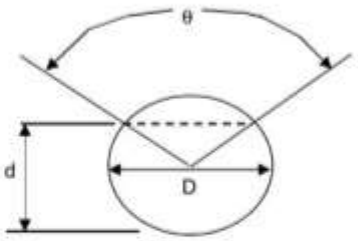
d_m = a/T = mean depth of flow

Created by: Mike O'Shea

MANNING'S EQUATION FOR PIPE FLOW

Project: Pioneer Crossing CFG Location: 2614 E Pioneer Ave
By: LRR Date: 7/24/2018
Chk. By: WFF Date: 7/24/2018
mdo version 12.8.00

Clear Data Entry Cells



INPUT

D=	12	inches
d=	11.28	inches
n=	0.012	mannings coeff
θ=	56.7	degrees
S=	0.01	slope in/in

Mannings Formula

$Q=(1.486/n)AR_h^{2/3}S^{1/2}$

R=A/P
A=cross sectional area
P=wetted perimeter
S=slope of channel
n=Manning's roughness coefficient

$V=(1.49/n)R_h^{2/3}S^{1/2}$
$Q=V \times A$

Solution to Mannings Equation

Area,ft²	Wetted Perimeter, ft	Hydraulic Radius, ft	velocity ft/s	flow, cfs
0.77	2.65	0.29	5.42	4.15

Manning's n-values

PVC	0.01
PE (<9"dia)	0.015
PE (>12"dia)	0.02
PE(9-12"dia)	0.017
CMP	0.025
ADS N12	0.012
HCMP	0.023
Conc	0.013

Created by: Mike O'Shea

Section 6 - Special Reports and Studies

The following Special Reports and Studies were used for this project:

- *Geotechnical Engineering* – by Earth Solutions NW, LLC. (Previously submitted to the city)

Section 7 - Other Permits

The following governmental approvals or permits will likely be required for this project:

- National Pollutant Discharge Elimination System Permit Coverage.
- Stormwater Pollution Prevention Plan

These permits will require approval by the City of Puyallup Planning Division or the Department of Ecology.

Section 8 - CSWPPP Analysis and Design

All erosion and sediment control measures shall be governed by the requirements Department of Ecology's 2012 Storm Water Management for Western Washington (2014 Amendment) and the General Permit for Construction Storm Water. A National Pollutant Discharge Elimination System (NPDES) Permit will be obtained and a Stormwater Pollution Prevention Plan (SWPPP) will be prepared for this project.

A temporary erosion and sedimentation control plan has been prepared to assist the contractor in complying with these requirements. The Erosion and Sediment Control (ESC) plan will be included with the construction plans.

1. Construction Sequence and Procedure

The proposed development includes an erosion/sedimentation control plan designed to prevent sediment-laden run-off from leaving the site during construction. The erosion potential of the site is influenced by four major factors: soil characteristics, vegetative cover, topography, and climate. Erosion/sedimentation control is achieved by a combination of structural measures, cover measures, and construction practices that are tailored to fit the specific site.

The contractor will be responsible for implementing the following erosion control and storm water management control measures. The contractor may designate these tasks to certain subcontractors as they see fit, but the ultimate responsibility for implementing these controls and ensuring their proper functioning remains with the contractor. The order of activities will be as follows.

Phase 1

1. Prior to any construction work on the site, representatives from the City of Puyallup must approve the storm water pollution prevention plan.
2. Mark clearing limits.
3. Install inlet protection to all existing catch basins.
4. Install temporary stabilized construction entrance.
5. Install perimeter silt fences, interceptor swales, etc.
6. Begin clearing and grubbing operations. Clearing and grubbing done from October 1st through April 30th is authorized as long as there are erosion and sediment control measures.
7. Commence fill operations.
8. Disturbed areas of the site where construction activity has ceased for more than 7 days between May 1 and September 30 or 2 days between October 1 and April 30 shall be temporarily seeded and watered or covered with plastic covering.

The degree of erosion risk on the proposed project site is minimal. Slope across the site is minimal. Runoff will not travel at high velocities across the site and, therefore, will not cause noticeable erosion impacts.

2. Temporary Soil Stabilization

Temporary stabilization practices for this project include:

- Temporary seeding and planting of all unpaved areas using the hydro-mulching grass seeding technique.

Structural practices for this project include the following. Refer to the Erosion Control plans for specific locations and details:

- Stabilized construction entrance/exit points and staging area.
- Plastic sheeting (to be utilized for stockpile covering).
- Inlet protection.
- Silt fence.
- Interceptor swales.

Daily inspection of the erosion control measures will be required during construction. Any sediment buildup shall be removed and disposed offsite at an appropriate disposal facility.

Vehicle tracking of mud off-site shall be prevented. A gravel construction entrance/exit will be installed at a location to enter the site. The construction entrance/exit is a minimum requirement and may be supplemented if tracking of mud onto public streets becomes excessive. In the event that mud is tracked off site, it shall be swept and disposed of offsite on a daily basis.

Because vegetative cover is the most important form of erosion control, construction practices must adhere to stringent cover requirements. More specifically, the contractor will not be allowed to leave soils open for more than 7 days between May 1st and September 30th and 2 days between October 1st and April 30th. Soils shall be stabilized at the end of the shift before a holiday or weekend if needed based on the weather forecast. Applicable practices include, but are not limited to, temporary and permanent seeding, sodding, mulching, plastic covering, and soil application of polyacrylamide.

Soil stockpiles must be stabilized from erosion, protected with sediment trapping measures, and, where possible, be located away from storm drain inlets, waterways and drainage channels.

3. Temporary Sediment Control Pond

Storm water shall be detained on-site during construction in existing sediment control BMPs.

4. Permanent Erosion Control and Site Restoration

Upon completion of the project, areas of the site that are not stabilized with paving, rooftops, or landscaping as shown on the site plans will be protected with either grass, ground cover/plantings or existing vegetation. The soil stockpile shall be covered using plastic sheeting conforming to the requirements of SMMWW BMP C123.

5. Inspection Sequence

The construction site operator will periodically inspect the site to confirm BMP functionality.

6. Control of Pollutants Other than Sediments

Pollutants shall be controlled on the work site through the utilization of a centralized area for equipment and an area designated for temporary storage of debris and stockpiled materials.

Section 9 - Construction Cost Estimate

Pursuant to Puyallup Municipal Code Chapter 21.10.060(2) a cost estimate for the stormwater management facilities must be provided as part of the Stormwater Site Plan. This information shall be provided upon plan approval by the City of Puyallup.

Section 10 - Operations and Maintenance Manual

No permanent stormwater facilities are proposed. Thus, an Operations and Maintenance Manual is not required.

Appendix A – Not Used

Appendix B – Plans

SECTION 35, TOWNSHIP 20 N, RANGE 4 E, W.M.

CASCADE CHRISTIAN SCHOOLS

GRADING PERMIT SET

903 25TH STREET SE
PUYALLUP, WASHINGTON

GENERAL NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND OSHA STANDARDS.
2. THE DESIGN SHOWN IS BASED UPON THE ENGINEER'S UNDERSTANDING OF THE EXISTING CONDITIONS. THESE PLANS DO NOT REPRESENT A DETAILED FIELD SURVEY. EXISTING CONDITIONS SHOWN ON THESE PLANS ARE BASED UPON SURVEY PREPARED BY APEX ENGINEERING, DATED SEPTEMBER 2014, AND AS UPDATED IN APRIL 2018. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING FIELD CONDITIONS PRIOR TO BIDDING THE PROPOSED SITEWORK IMPROVEMENTS. IF CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITEWORK WHICH WOULD BE AFFECTED. IF CONTRACTOR DOES NOT ACCEPT EXISTING SURVEY, INCLUDING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEY SHALL HAVE MADE, AT THEIR OWN EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR AND SUBMIT IT TO THE OWNER FOR REVIEW.
3. CAUTION – NOTICE TO CONTRACTOR: THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS
4. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSION AND THE FINAL CONNECTION OF SERVICES.
5. SITE WORK FOR THIS PROJECT SHALL BE CONSTRUCTED PER THE APPROVED, SIGNED CONSTRUCTION PLANS. ELECTRONIC FILES SHALL NOT BE CONSIDERED CONSTRUCTION DOCUMENTS UNLESS SPECIFICALLY STATED AS SUCH AND HANDLED IN ACCORDANCE WITH THE BID DOCUMENTS. SIGNED PAPER PLANS SHALL TAKE PRECEDENCE OVER ELECTRONIC FILES.
6. THE CONTRACTOR SHALL MAINTAIN A SET OF THE CONSTRUCTION PLANS ON-SITE AT ALL TIMES WHILE CONSTRUCTION IS IN PROGRESS.

SITE INFORMATION

PARCEL
TAX PARCEL NUMBER: 0420351003
CURRENT ZONING: CB-SPO
COMMUNITY BUSINESS
SHAW-EAST PIONEER OVERLAY
SITE AREA: 9.11 ACRES

BENCHMARKS

HORIZONTAL DATUM
WASHINGTON STATE PLANE NORTH, NAD 83 (91-HARN)

BASIS OF BEARING:
HELD NORTH 88°57'05" WEST AS THE INVERSE BEARING BETWEEN THE SOUTHEAST CORNER OF SECTION 26 AND THE SOUTHWEST CORNER OF SECTION 26 PER PIERCE COUNTY HORIZONTAL CONTROL (POINT DESIGNATION 086 AND 461, RESPECTIVELY)

VERTICAL DATUM
CITY OF PUYALLUP - NAVD 88 (CONVERTED)

BENCHMARK SE-PID-SHA BM

DESC: TOP OF 3" DOMED BRASS DISK SET IN TOP OF CONCRETE CURB +/-58' EAST OF DRIVEWAY TO RESIDENCE 12807.
ELEV = 67.20' (NAVD88)
PUBLISHED ELEV = 63.71' (CONVERTED TO NAVD88 USING ARMY CORPS OF ENGINEERS CORPSCON SOFTWARE VERSION 6.0.1)

OWNER

CASCADE CHRISTIAN SCHOOLS
15502 96TH STREET E
PUYALLUP, WA 98372
(253)606-2106
CONTACT: DON JOHNSON

CIVIL

PACLAND-SEATTLE
1505 WESTLAKE AVE N, SUITE 305
SEATTLE, WA 98109
(206) 522-9510
CONTACT: BILL FORTUNATO, P.E.
LUKE RANDLES, P.E.

SURVEYING

APEX ENGINEERING
2601 S 35TH, SUITE 200
TACOMA, WA 98409-7479
(253) 473-4494
CONTACT: KENNETH SANDAMAN, P.L.S.

CONTRACTOR

CSI CONSTRUCTION
17721 NE RIVERSIDE PKWY, SUITE A
PORTLAND, OR
(503) 907-0070
CONTACT: MIKE GORMAN

GOVERNING AGENCY

CITY OF PUYALLUP
333 S. MERIDIAN
PUYALLUP, WA 98371
(253) 841-4321

UTILITY LOCATES

UTILITY NOTIFICATION CENTER
CALL BEFORE YOU DIG
(800) 424-5555 OR 811

UTILITY PROVIDERS

STORM
CITY OF PUYALLUP
333 S. MERIDIAN
PUYALLUP, WA 98371
(253) 841-4321

WATER
CITY OF PUYALLUP
333 S. MERIDIAN
PUYALLUP, WA 98371
(253) 841-4321

SEWER
CITY OF PUYALLUP
333 S. MERIDIAN
PUYALLUP, WA 98371
(253) 841-4321

POWER
PUGET SOUND ENERGY
CONSTRUCTION SERVICES
3112 S 38TH ST
TACOMA, WA 98409
(888) 321-7779

NATURAL GAS
PUGET SOUND ENERGY
CONSTRUCTION SERVICES
3112 S 38TH ST
TACOMA, WA 98409
(888) 321-7779

FLOOD ZONE INFORMATION

ZONE X IN THE PORTION OF THE SITE WHICH WORK IS TO OCCUR.

DRAWING INDEX

SHEET NO.	DRAWING TITLE
CV-1.0	COVER SHEET
CV-1.1	GENERAL NOTES
EX-1.0	EXISTING CONDITIONS PLAN
D-1.0	ESC PLAN
D-2.0	ESC DETAILS

LEGAL DESCRIPTION

SECTION 35 TOWNSHIP 20 RANGE 04 QUARTER 12 : N 1/2 OF N 1/2 OF NW OF NE EXC E 30 FT FOR SHAW RD R/W ALSO EXC N 30 FT CYD TO CITY OF PUYALLUP FOR ADDL R/W PER ETN 4153619 0036/07/0701

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	DIA	DIAMETER	MAX	MAXIMUM	S	SOUTH
		DR	DRIVE	MEP	MECHANICAL / ELECTRICAL / PLUMBING	SD	STORM DRAIN
		DTL	DETAIL			SDR	STANDARD DIMENSION RATIO
AFN	ASSESSOR'S FILE NUMBER	E	EAST	MH	MANHOLE		
APN	ASSESSOR'S PARCEL NUMBER	ESAL	EQUIVALENT SINGLE-AXLE LOAD	MIN	MINIMUM	SF	SQUARE FEET
				MJ	MECHANICAL JOINT	SS	SANITARY SEWER
ARCH	ARCHITECTURAL	ESC	EROSION AND SEDIMENT CONTROL	MUTCD	MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES	ST	STREET
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	EX	EXISTING	N	NORTH	STD	STANDARD
		FFE	FINISHED FLOOR ELEVATION	NTS	NOT TO SCALE	SW	SIDEWALK
AVE	AVENUE	FL	FLOW LINE	OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION	TC	TOP OF CURB
BMP	BEST MANAGEMENT PRACTICE	FT	FEET			TG	TOP OF GROUND
		HDPE	HIGH-DENSITY POLYETHYLENE	PE	POLYETHYLENE	TP	TOP OF PAVEMENT
BW	BOTTOM OF WALL	HORIZ	HORIZONTAL	PUD	PLANNED UNIT DEVELOPMENT	TW	TOP OF WALL
CB	CATCH BASIN	HP	HIGH POINT			TYP	TYPICAL
CL	CLASS	HWY	HIGHWAY	PVC	POLYVINYL CHLORIDE	VERT	VERTICAL
CO	CLEANOUT	IE	INVERT ELEVATION	RD	ROAD	W	WEST
COP	CITY OF PUYALLUP	LP	LOW POINT	REQS	REQUIREMENTS	WA	WATER
CY	CUBIC YARDS					WSDOT	WASHINGTON DEPARTMENT OF TRANSPORTATION

CITY NOTES - PROJECT SPECIFIC

1. AT ANY TIME DURING CONSTRUCTION IT IS DETERMINED BY THE CITY THAT MUD AND/OR DEBRIS ARE BEING TRACKED ONTO PUBLIC STREETS WITH INSUFFICIENT CLEANUP, ALL WORK SHALL CEASE UNTIL THIS CONDITION IS CORRECTED. THE CONTRACTOR AND/OR THE PROPERTY OWNER SHALL IMMEDIATELY TAKE ALL STEPS NECESSARY TO PREVENT FUTURE TRACKING OF MUD AND DEBRIS INTO THE PUBLIC RIGHT-OF-WAY, WHICH MAY INCLUDE THE INSTALLATION OF A WHEEL WASH FACILITY ON-SITE.
2. CONTRACTOR SHALL DESIGNATE A WASHINGTON DEPARTMENT OF ECOLOGY CERTIFIED EROSION AND SEDIMENT CONTROL LEADPERSON AND SHALL COMPLY WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THIS PROJECT.
3. SEDIMENT-LADEN RUNOFF SHALL NOT BE ALLOWED TO DISCHARGE BEYOND THE CONSTRUCTION LIMITS IN ACCORANCE WITH THE PROJECT'S NPDES GENERAL STORMWATER PERMIT.

EAST PORTION OF 903 25TH STREET SE

VICINITY MAP

1" = 1000'

APPROVED

BY: _____ CITY OF PUYALLUP ENGINEERING SERVICES

DATE: _____

NOTE:
THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.

THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.

FIELD CONDITIONS MAY NECESSITATE CHANGES TO THESE PLANS AS DETERMINED BY THE ENGINEERING SERVICES MANAGER

No.	Date	By	Revision Description

Designed By:	Issue Date
LRR	3/27/2019
Drawn By:	GRADING PERMIT
LRR	
Checked By:	Project No:
WFT	10-336-005

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CASCADE CHRISTIAN EASTERN PORTION OF 903 25TH STREET SE PUYALLUP, WA	COVER SHEET	CV-1.0

S:\Washington\Puyallup\PWP\Pioneer Crossing\20MDS_CC GRADE AND FILL\PWP00000C.dwg May 20, 2019 - 1:06pm

CITY OF PUYALLUP GENERAL NOTES

1. 1. ALL WORK IN CITY RIGHT-OF-WAY REQUIRES A PERMIT FROM THE CITY OF PUYALLUP. PRIOR TO ANY WORK COMMENCING, THE GENERAL CONTRACTOR SHALL ARRANGE FOR A PRECONSTRUCTION MEETING AT THE DEVELOPMENT SERVICES CENTER TO BE ATTENDED BY ALL CONTRACTORS THAT WILL PERFORM WORK SHOWN ON THE APPROVED ENGINEERING PLANS, REPRESENTATIVES FROM ALL APPLICABLE UTILITY COMPANIES, THE PROJECT OWNER AND APPROPRIATE CITY STAFF. CONTACT ENGINEERING SERVICES AT (253-841-5568) TO SCHEDULE THE MEETING. THE CONTRACTOR IS RESPONSIBLE TO HAVE THEIR OWN SET OF APPROVED PLANS AT THE MEETING.
2. AFTER COMPLETION OF ALL ITEMS SHOWN ON THESE PLANS AND BEFORE ACCEPTANCE OF THE PROJECT THE CONTRACTOR SHALL OBTAIN A 'PUNCH LIST' PREPARED BY THE CITY'S INSPECTOR DETAILING REMAINING ITEMS OF WORK TO BE COMPLETED. ALL ITEMS OF WORK SHOWN ON THESE PLANS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY PRIOR TO ACCEPTANCE OF THE WATER SYSTEM AND PROVISION OF SANITARY SEWER SERVICE.
3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (HEREINAFTER REFERRED TO AS THE 'STANDARD SPECIFICATIONS'), WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER, LATEST EDITION, UNLESS SUPERSEDED OR AMENDED BY THE CITY OF PUYALLUP CITY STANDARDS FOR PUBLIC WORKS ENGINEERING AND CONSTRUCTION (HEREINAFTER REFERRED TO AS THE 'CITY STANDARDS').
4. A COPY OF THESE APPROVED PLANS AND APPLICABLE CITY DEVELOPER SPECIFICATIONS AND DETAILS SHALL BE ON SITE DURING CONSTRUCTION.
5. ANY REVISIONS MADE TO THESE PLANS MUST BE REVIEWED AND APPROVED BY THE DEVELOPER'S ENGINEER AND THE CITY PRIOR TO ANY IMPLEMENTATION IN THE FIELD. THE CITY SHALL NOT BE RESPONSIBLE FOR ANY ERRORS AND/OR OMISSIONS ON THESE PLANS.
6. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL (811) AT LEAST TWO WORKING DAYS IN ADVANCE. THE OWNER AND HIS/HER ENGINEER SHALL BE CONTACTED IMMEDIATELY IF A CONFLICT EXISTS.
7. ANY STRUCTURE AND/OR OBSTRUCTION THAT REQUIRES REMOVAL OR RELOCATION RELATING TO THIS PROJECT SHALL BE DONE SO AT THE DEVELOPER'S EXPENSE.
8. LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE TRUE ELEVATIONS AND LOCATIONS OF HIDDEN UTILITIES. ALL VISIBLE ITEMS SHALL BE THE ENGINEER'S RESPONSIBILITY.
9. THE CONTRACTOR SHALL INSTALL, REPLACE, OR RELOCATE ALL SIGNS, AS SHOWN ON THE PLANS OR AS AFFECTED BY CONSTRUCTION, PER CITY STANDARDS.
10. POWER, STREET LIGHT, CABLE, AND TELEPHONE LINES SHALL BE IN A TRENCH LOCATED WITHIN A 10-FOOT UTILITY EASEMENT ADJACENT TO PUBLIC RIGHT-OF-WAY. RIGHT-OF-WAY CROSSINGS SHALL HAVE A MINIMUM HORIZONTAL SEPARATION FROM OTHER UTILITIES (SEWER, WATER, AND STORM) OF 5 FEET.
11. ALL CONSTRUCTION SURVEYING FOR EXTENSIONS OF PUBLIC FACILITIES SHALL BE DONE UNDER THE DIRECTION OF A WASHINGTON STATE LICENSED LAND SURVEYOR OR A WASHINGTON STATE LICENSED PROFESSIONAL CIVIL ENGINEER.
12. DURING CONSTRUCTION, ALL PUBLIC STREETS ADJACENT TO THIS PROJECT SHALL BE KEPT CLEAN OF ALL MATERIAL DEPOSITS RESULTING FROM ON-SITE CONSTRUCTION, AND EXISTING STRUCTURES SHALL BE PROTECTED AS DIRECTED BY THE CITY.
13. CERTIFIED RECORD DRAWINGS ARE REQUIRED PRIOR TO PROJECT ACCEPTANCE.
14. A NPDES STORMWATER GENERAL PERMIT MAY BE REQUIRED BY THE DEPARTMENT OF ECOLOGY FOR THIS PROJECT. FOR INFORMATION CONTACT THE DEPARTMENT OF ECOLOGY, SOUTHWEST REGION OFFICE AT (360) 407-6300.
15. ANY DISTURBANCE OR DAMAGE TO CRITICAL AREAS AND ASSOCIATED BUFFERS, OR SIGNIFICANT TREES DESIGNATED FOR PRESERVATION AND PROTECTION SHALL BE MITIGATED IN ACCORDANCE WITH A MITIGATION PLAN REVIEWED AND APPROVED BY THE CITY'S PLANNING DIVISION. PREPARATION AND IMPLEMENTATION OF THE MITIGATION PLAN SHALL BE AT THE DEVELOPER'S EXPENSE.

CITY OF PUYALLUP GRADING, EROSION AND SEDIMENTATION NOTES

1. ALL WORK IN CITY RIGHT-OF-WAY REQUIRES A PERMIT FROM THE CITY OF PUYALLUP. PRIOR TO ANY WORK COMMENCING, THE GENERAL CONTRACTOR SHALL ARRANGE FOR A PRECONSTRUCTION MEETING AT THE DEVELOPMENT SERVICES CENTER TO BE ATTENDED BY ALL CONTRACTORS THAT WILL PERFORM WORK SHOWN ON THE ENGINEERING PLANS, REPRESENTATIVES FROM ALL APPLICABLE UTILITY COMPANIES, THE PROJECT OWNER AND APPROPRIATE CITY STAFF. CONTACT ENGINEERING SERVICES TO SCHEDULE THE MEETING (253) 841-5568. THE CONTRACTOR IS RESPONSIBLE TO HAVE THEIR OWN APPROVED SET OF PLANS AT THE MEETING.
2. AFTER COMPLETION OF ALL ITEMS SHOWN ON THESE PLANS AND BEFORE ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL OBTAIN A 'PUNCH LIST' PREPARED BY THE CITY'S INSPECTOR DETAILING REMAINING ITEMS OF WORK TO BE COMPLETED. ALL ITEMS OF WORK SHOWN ON THESE PLANS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY PRIOR TO ACCEPTANCE OF THE WATER SYSTEM AND PROVISION OF SANITARY SEWER SERVICE.
3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (HEREINAFTER REFERRED TO AS THE 'STANDARD SPECIFICATIONS'), WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER, LATEST EDITION, UNLESS SUPERSEDED OR AMENDED BY THE CITY OF PUYALLUP CITY STANDARDS FOR PUBLIC WORKS ENGINEERING AND CONSTRUCTION (HERINAFTER REFERRED TO AS THE 'CITY STANDARDS').
4. A COPY OF THESE APPROVED PLANS AND APPLICABLE CITY DEVELOPER SPECIFICATIONS AND DETAILS SHALL BE ON SITE DURING CONSTRUCTION.
5. ANY REVISIONS MADE TO THESE PLANS MUST BE REVIEWED AND APPROVED BY THE DEVELOPER'S ENGINEER AND THE CITY ENGINEER PRIOR TO ANY IMPLEMENTATION IN THE FIELD. THE CITY SHALL NOT BE RESPONSIBLE FOR ANY ERRORS AND/OR OMISSIONS ON THESE PLANS.
6. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL (811) AT LEAST TWO WORKING DAYS HOURS IN ADVANCE. THE OWNER AND HIS/HER ENGINEER SHALL BE CONTACTED IMMEDIATELY IF A CONFLICT EXISTS.
7. ALL LIMITS OF CLEARING AND AREAS OF VEGETATION PRESERVATION AS PRESCRIBED ON THE PLANS SHALL BE CLEARLY FLAGGED IN THE FIELD AND OBSERVED DURING CONSTRUCTION.
8. ALL REQUIRED SEDIMENTATION AND EROSION CONTROL FACILITIES MUST BE CONSTRUCTED AND IN OPERATION PRIOR TO ANY LAND CLEARING AND/OR OTHER CONSTRUCTION TO ENSURE THAT SEDIMENT LADEN WATER DOES NOT ENTER THE NATURAL DRAINAGE SYSTEM. THE CONTRACTOR SHALL SCHEDULE AN INSPECTION OF THE EROSION CONTROL FACILITIES PRIOR TO ANY LAND CLEARING AND/OR OTHER CONSTRUCTION. ALL EROSION AND SEDIMENT FACILITIES SHALL BE MAINTAINED IN A SATISFACTORY CONDITION AS DETERMINED BY THE CITY, UNTIL SUCH TIME THAT CLEARING AND/OR CONSTRUCTION IS COMPLETED AND THE POTENTIAL FOR ONSITE EROSION HAS PASSED. THE IMPLEMENTATION, MAINTENANCE, REPLACEMENT, AND ADDITIONS TO THE EROSION AND SEDIMENTATION CONTROL SYSTEMS SHALL BE THE RESPONSIBILITY OF THE PERMITTEE.
9. THE EROSION AND SEDIMENTATION CONTROL SYSTEM FACILITIES DEPICTED ON THESE PLANS ARE INTENDED TO BE MINIMUM REQUIREMENTS TO MEET ANTICIPATED SITE CONDITIONS. AS CONSTRUCTION PROGRESSES AND UNEXPECTED OR SEASONAL CONDITIONS DICTATE, FACILITIES WILL BE NECESSARY TO ENSURE COMPLETE SILTATION CONTROL ON THE SITE. DURING THE COURSE OF CONSTRUCTION, IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE PERMITTEE TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES, OVER AND ABOVE THE MINIMUM REQUIREMENTS, AS MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES, SENSITIVE AREAS, NATURAL WATER COURSES, AND/OR STORM DRAINAGE SYSTEMS.
10. APPROVAL OF THESE PLANS IS FOR GRADING, TEMPORARY DRAINAGE, EROSION AND SEDIMENTATION CONTROL ONLY. IT DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT STORM DRAINAGE DESIGN, SIZE OR LOCATION OF PIPES, RESTRICTORS, CHANNELS, OR RETENTION FACILITIES.
11. ANY DISTURBED AREA WHICH HAS BEEN STRIPPED OF VEGETATION AND WHERE NO FURTHER WORK IS ANTICIPATED FOR A PERIOD OF 30 DAYS OR MORE, MUST BE IMMEDIATELY STABILIZED WITH MULCHING, GRASS PLANTING, OR OTHER APPROVED EROSION CONTROL TREATMENT APPLICABLE TO THE TIME OF YEAR IN QUESTION. GRASS SEEDING ALONE WILL BE ACCEPTABLE ONLY DURING THE MONTHS OF APRIL THROUGH SEPTEMBER INCLUSIVE. SEEDING MAY PROCEED OUTSIDE THE SPECIFIED TIME PERIOD WHENEVER IT IS IN THE INTEREST OF THE PERMITTEE BUT MUST BE AUGMENTED WITH MULCHING, NETTING, OR OTHER TREATMENT APPROVED BY THE CITY.
12. IN CASE EROSION OR SEDIMENTATION OCCURS TO ADJACENT PROPERTIES, ALL CONSTRUCTION WORK WITHIN THE DEVELOPMENT THAT WILL FURTHER AGGRAVATE THE SITUATION MUST CEASE, AND THE OWNER/CONTRACTOR WILL IMMEDIATELY COMMENCE RESTORATION METHODS. RESTORATION ACTIVITY WILL CONTINUE UNTIL SUCH TIME AS THE AFFECTED PROPERTY OWNER IS SATISFIED.
13. NO TEMPORARY OR PERMANENT STOCKPILING OF MATERIALS OR EQUIPMENT SHALL OCCUR WITHIN CRITICAL AREAS OR ASSOCIATED BUFFERS, OR THE CRITICAL ROOT ZONE FOR VEGETATION PROPOSED FOR RETENTION.

CITY OF PUYALLUP STORMWATER NOTES

1. ALL WORK IN CITY RIGHT-OF-WAY REQUIRES A PERMIT FROM THE CITY OF PUYALLUP. PRIOR TO ANY WORK COMMENCING, THE GENERAL CONTRACTOR SHALL ARRANGE FOR A PRECONSTRUCTION MEETING AT THE DEVELOPMENT SERVICES CENTER TO BE ATTENDED BY ALL CONTRACTORS THAT WILL PERFORM WORK SHOWN ON THE ENGINEERING PLANS, REPRESENTATIVES FROM ALL APPLICABLE UTILITY COMPANIES, THE PROJECT OWNER AND APPROPRIATE CITY STAFF. CONTACT ENGINEERING SERVICES TO SCHEDULE THE MEETING (253) 841-5568. THE CONTRACTOR IS RESPONSIBLE TO HAVE THEIR OWN APPROVED SET OF PLANS AT THE MEETING.
2. AFTER COMPLETION OF ALL ITEMS SHOWN ON THESE PLANS AND BEFORE ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL OBTAIN A 'PUNCH LIST' PREPARED BY THE CITY'S INSPECTOR DETAILING REMAINING ITEMS OF WORK TO BE COMPLETED. ALL ITEMS OF WORK SHOWN ON THESE PLANS SHALL BE COMPLETED TO THE SATISFACTION OF THE CITY PRIOR TO ACCEPTANCE OF THE WATER SYSTEM AND PROVISION OF SANITARY SEWER SERVICE.
3. ALL MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (HEREINAFTER REFERRED TO AS THE 'STANDARD SPECIFICATIONS'), WASHINGTON STATE DEPARTMENT OF TRANSPORTATION AND AMERICAN PUBLIC WORKS ASSOCIATION, WASHINGTON STATE CHAPTER, LATEST EDITION, UNLESS SUPERSEDED OR AMENDED BY THE CITY OF PUYALLUP CITY STANDARDS FOR PUBLIC WORKS ENGINEERING AND CONSTRUCTION (HEREINAFTER REFERRED TO AS THE 'CITY STANDARDS').
4. A COPY OF THESE APPROVED PLANS AND APPLICABLE CITY DEVELOPER SPECIFICATIONS AND DETAILS SHALL BE ON SITE DURING CONSTRUCTION.
5. ANY REVISIONS MADE TO THESE PLANS MUST BE REVIEWED AND APPROVED BY THE DEVELOPER'S ENGINEER AND THE ENGINEERING SERVICES STAFF PRIOR TO ANY IMPLEMENTATION IN THE FIELD. THE CITY SHALL NOT BE RESPONSIBLE FOR ANY ERRORS AND/OR OMISSIONS ON THESE PLANS.
6. THE CONTRACTOR SHALL HAVE ALL UTILITIES VERIFIED ON THE GROUND PRIOR TO ANY CONSTRUCTION. CALL (811) AT LEAST TWO WORKING DAYS IN ADVANCE. THE OWNER AND HIS/HER ENGINEER SHALL BE CONTACTED IMMEDIATELY IF A CONFLICT EXISTS.
7. ANY STRUCTURE AND/OR OBSTRUCTION WHICH REQUIRE REMOVAL OR RELOCATION RELATING TO THIS PROJECT, SHALL BE DONE SO AT THE DEVELOPER'S EXPENSE.
8. DURING CONSTRUCTION, ALL EXISTING AND NEWLY INSTALLED DRAINAGE STRUCTURES SHALL BE PROTECTED FROM SEDIMENTS.
9. ALL STORM MANHOLES SHALL CONFORM TO CITY STANDARD DETAIL NO. 02.01.01. FLOW CONTROL MANHOLE/OIL WATER SEPARATOR SHALL CONFORM TO CITY STANDARD DETAIL NO. 02.01.06 AND 02.01.07.
10. MANHOLE RING AND COVER SHALL CONFORM TO CITY STANDARD DETAIL 06.01.02 AND 06.01.03. THE COVER SHALL BE MARKED WITH 'STORM' OR 'DRAIN' IN 2-INCH RAISED LETTERS. MINIMUM WEIGHT OF THE FRAME SHALL BE 210 POUNDS. MINIMUM WEIGHT OF THE COVER SHALL BE 150 POUNDS.
11. CATCH BASINS TYPE I SHALL CONFORM TO CITY STANDARD DETAIL NO.02.01.02 AND 02.01.03 AND SHALL BE USED ONLY FOR DEPTHS LESS THAN 5 FEET FROM TOP OF THE GRATE TO THE INVERT OF THE STORM PIPE.
12. CATCH BASINS TYPE II SHALL CONFORM TO CITY STANDARD DETAIL NO.02.01.04 AND SHALL BE USED FOR DEPTHS GREATER THAN 5 FEET FROM TOP OF THE GRATE TO THE INVERT OF THE STORM PIPE.
13. CAST IRON OR DUCTILE IRON FRAME AND GRATE SHALL CONFORM TO CITY STANDARD DETAIL NO.02.01.05. GRATE SHALL BE MARKED WITH 'DRAINS TO STREAM'. SOLID CATCH BASIN LIDS (SQUARE UNLESS NOTED AS ROUND) SHALL CONFORM TO WSDOT STANDARD PLAN B-2 (OLYMPIC FOUNDRY NO. SM60 OR EQUAL). VANED GRATES SHALL CONFORM TO WSDOT STANDARD PLAN B-2A (OLYMPIC FOUNDRY NO. SM60V OR EQUAL).
14. STORMWATER PIPE SHALL BE ONLY PVC, CONCRETE OR DUCTILE IRON PIPE.
   A. THE USE OF ANY OTHER TYPE SHALL BE REVIEWED AND APPROVED BY THE ENGINEERING SERVICES STAFF PRIOR TO INSTALLATION.
   B. PVC PIPE SHALL BE PER ASTM D3034, SDR 35 FOR PIPE SIZE 15-INCH AND SMALLER AND F679 FOR PIPE SIZES 18 TO 27 INCH. MINIMUM COVER ON PVC PIPE SHALL BE 3.0 FEET.
   C. CONCRETE PIPE SHALL CONFORM TO THE WSDOT STANDARD SPECIFICATIONS FOR CONCRETE UNDERDRAIN PIPE. MINIMUM COVER ON CONCRETE PIPE SHALL NOT LESS THAN 3.0 FEET.
   D. DUCTILE IRON PIPE SHALL BE CLASS 50, CONFORMING TO AWWA C151. MINIMUM COVER ON DUCTILE IRON PIPE SHALL BE 1.0 FOOT.
15. TRENCHING, BEDDING, AND BACKFILL FOR PIPE SHALL CONFORM TO CITY STANDARD DETAIL NO. 06.01.01.
16. STORM PIPE SHALL BE A MINIMUM OF 10 FEET AWAY FROM BUILDING FOUNDATIONS AND/OR ROOF LINES.
17. ALL STORM DRAIN MAINS SHALL BE VIDEO INSPECTED BY THE CITY OF PUYALLUP COLLECTIONS DIVISION PRIOR TO FINAL ACCEPTANCE BY THE CITY.
18. AFTER ALL OTHER UTILITIES ARE INSTALLED AND PRIOR TO ASPHALT WORK, ALL STORM PIPE SHALL PASS A LOW PRESSURE AIR TEST IN ACCORDANCE WITH SECTION 7-04.3(4)D OF THE STANDARD SPECIFICATIONS. PRODUCTS USED TO SEAL THE INSIDE OF THE PIPE ARE NOT TO BE USED TO OBTAIN THE AIR TEST.
19. ALL STORM DRAIN MAINS SHALL BE MANDRELLED.
20. ALL TEMPORARY SEDIMENTATION AND EROSION CONTROL MEASURES, AND PROTECTIVE MEASURES FOR CRITICAL AREAS AND SIGNIFICANT TREES SHALL BE INSTALLED PRIOR TO INITIATING ANY CONSTRUCTION ACTIVITIES.

PACLAND EROSION CONTROL NOTES

1. ALL WORKMANSHIP AND MATERIALS SHALL CONFORM TO THE MOST CURRENT APPLICABLE LOCAL, STATE, AND FEDERAL STANDARDS.
2. THE CONTRACTOR SHALL BE RESPONSIBLE AT ALL TIMES FOR PREVENTING SILT-LADEN RUNOFF FROM DISCHARGING FROM THE PROJECT SITE. FAILURE BY THE CONTRACTOR CAN RESULT IN A FINE. THE DESIGNATED TEMPORARY CONTACT PERSON NOTED ON THIS PLAN MUST BE AVAILABLE FOR CONTACT BY TELEPHONE ON A 24 HOUR BASIS THROUGHOUT CONSTRUCTION AND UNTIL THE PROJECT HAS BEEN COMPLETED AND APPROVED BY THE GOVERNMENTAL AGENCY WITH JURISDICTION.
3. THE IMPLEMENTATION OF THESE ESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR FROM THE BEGINNING OF CONSTRUCTION UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE GOVERNMENTAL AGENCY WITH JURISDICTION AND THE SITE IS STABILIZED.
4. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED AND INSPECTED BY THE LOCAL JURISDICTION PRIOR TO ANY CLEARING OR CONSTRUCTION TAKING PLACE. DURING CONSTRUCTION, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE OWNER AND/OR CONTRACTOR UNTIL ALL CONSTRUCTION IS APPROVED.
5. THE EROSION AND SEDIMENTATION CONTROL FACILITIES SHOWN ON THIS PLAN ARE TO BE CONSIDERED ADEQUATE BASIC REQUIREMENTS FOR THE ANTICIPATED SITE CONDITIONS. DURING CONSTRUCTION, DEVIATIONS FROM THIS PLAN MAY BE NECESSARY IN ORDER TO MAINTAIN WATER QUALITY.
6. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED BY THE CONTRACTOR ON A FREQUENT BASIS AND IMMEDIATELY AFTER EACH RAINFALL, AND MAINTAINED AS NECESSARY TO INSURE THEIR CONTINUED FUNCTIONING. ALL SEDIMENT MUST BE REMOVED FROM SILT FENCES, STRAW BALES, SEDIMENT PONDS, ETC. PRIOR TO THE SEDIMENT REACHING 1/2 ITS MAXIMUM POTENTIAL DEPTH.
7. AT NO TIME SHALL CONCRETE, CONCRETE BYPRODUCTS, VEHICLE FLUIDS, PAINT, CHEMICALS, OR OTHER POLLUTING MATTER BE PERMITTED TO DISCHARGE TO THE TEMPORARY OR PERMANENT DRAINAGE SYSTEM, OR TO DISCHARGE FROM THE PROJECT SITE.
8. THE CONTRACTOR PERFORMING THE WORK SHALL MAINTAIN A SET OF THE APPROVED CONSTRUCTION DRAWINGS ON SITE AT ALL TIMES WHILE CONSTRUCTION IS IN PROGRESS.
9. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR PERFORMING THE WORK TO OBTAIN ALL NECESSARY PERMITS FROM THE LOCAL JURISDICTION PRIOR TO COMMENCING ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY.
10. THE CONTRACTOR PERFORMING THE WORK SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE TRAFFIC CONTROL AT ALL TIMES DURING CONSTRUCTION ALONGSIDE OR WITHIN ALL PUBLIC ROADWAYS.
11. THIS APPROVED "TEMPORARY EROSION AND SEDIMENTATION CONTROL PLAN" MUST BE IMPLEMENTED PRIOR TO ANY SITE WORK. SEE THE PLANS AND DETAILS FOR FURTHER INFORMATION.
12. THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER IN THE EVENT OR DISCOVERY OF POOR SOILS, GROUNDWATER OR DISCREPANCIES IN THE EXISTING CONDITIONS AS NOTED ON THE PLANS.
13. MAXIMUM SLOPES SHALL BE 2:1 HORIZ:VERT FOR FILL SLOPES, AND 2:1 HORIZ:VERT FOR CUT SLOPES.
14. ROCKERIES OR OTHER RETAINING FACILITIES EXCEEDING 4' IN HEIGHT AND/OR WITH A SURCHARGE REQUIRE A SEPARATE PERMIT.
15. ALL AREAS DISTURBED DURING CONSTRUCTION WHERE PERMANENT LANDSCAPING WILL NOT BE PROVIDED WITHIN 60 DAYS SHALL BE HYDROSEEDED, OR OTHERWISE STABILIZED, AS REQUIRED. STRAW MULCHING OR PLASTIC SHEETING ARE ACCEPTABLE ALTERNATIVES TO TEMPORARY HYDROSEEDING DURING PERIODS OF LOW GROWTH.
16. ALL AREAS DISTURBED DURING CONSTRUCTION WHERE PERMANENT LANDSCAPING WILL NOT BE PROVIDED WITHIN THE NUMBER OF DAYS SPECIFIED BELOW SHALL BE HYDROSEEDED, OR OTHERWISE STABILIZED, AS REQUIRED. STRAW MULCHING OR PLASTIC SHEETING ARE ACCEPTABLE ALTERNATIVES TO TEMPORARY HYDROSEEDING DURING PERIODS OF LOW GROWTH:
   WEST OF THE CASCADE MOUNTAIN CREST
   DURING THE DRY SEASON (MAY 1 – SEPT. 30): 7 DAYS
   DURING THE WET SEASON (OCTOBER 1 – APRIL 30): 2 DAYS
17. SLOPE STABILIZATION. CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. ROUGHENED SOIL SURFACES ARE PREFERRED TO SMOOTH SURFACES. INTERCEPTORS SHOULD BE CONSTRUCTED AT THE TOP OF LONG, STEEP SLOPES WHICH HAVE SIGNIFICANT AREAS ABOVE THAT CONTRIBUTE RUNOFF. CONCENTRATED RUNOFF SHOULD NOT BE ALLOWED TO FLOW DOWN THE FACE OF A CUT OR FILL SLOPE UNLESS CONTAINED WITHIN AN ADEQUATE CHANNEL OR PIPE SLOPE DRAIN. WHEREVER A SLOPE FACE CROSSES A WATER SEEPAGE PLANE, ADEQUATE DRAINAGE OR OTHER PROTECTION SHOULD BE PROVIDED. IN ADDITION, SLOPES SHOULD BE STABILIZED IN ACCORDANCE WITH ITEM (17) ABOVE.
18. STORM DRAIN INLET PROTECTION. ALL STORM DRAIN INLETS MADE OPERABLE DURING CONSTRUCTION SHALL BE PROTECTED SO THAT STORM WATER RUNOFF SHALL NOT ENTER THE CONVEYANCE SYSTEM WITHOUT FIRST BEING FILTERED OR OTHERWISE TREATED TO REMOVE SEDIMENT.
19. DUST ON THE SITE SHALL BE CONTROLLED PER LOCAL JURISDICTIONAL AIR QUALITY REQUIREMENTS. THE USE OF MOTOR OILS AND OTHER PETROLEUM BASED OR TOXIC LIQUIDS FOR DUST SUPPRESSION OPERATIONS IS PROHIBITED.

PACLAND DEMOLITION NOTES

1. DEMOLITION NOTES ARE FOR CLARIFICATION ONLY AND ARE SHOWN FOR THE CONTRACTOR'S BENEFIT. THESE NOTES ARE NOT INTENDED TO BE COMPREHENSIVE. THE CONTRACTOR SHALL REMOVE OR RELOCATE ALL EXISTING ON-SITE IMPROVEMENTS NECESSARY TO ACCOMMODATE THE PROPOSED CONSTRUCTION.
2. CONTRACTOR IS TO REMOVE ALL EXISTING SURFACE IMPROVEMENTS AND DEBRIS WITHIN THE LIMITS OF WORK UNLESS OTHERWISE NOTED. ALL DEBRIS FOUND ON SITE SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE STATE CODES.
3. CONTRACTOR TO PROTECT EXISTING FEATURES WHICH ARE TO REMAIN.
4. ABANDONED PIPES LOCATED OUTSIDE PROPOSED BUILDING PAD LIMITS WITH AN EXCESS OF 3' COVER MAY BE DECOMMISSIONED AND ABANDONED IN PLACE, PROVIDED THAT THESE ABANDONED UTILITIES ARE GROUTED AND CAPPED. EXISTING SUBSURFACE IMPROVEMENTS AND DEBRIS WITHIN THE PROPOSED BUILDING PAD AREA, INCLUDING 10' BEYOND FOUNDATIONS, SHALL BE REMOVED.
5. CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLE RIMS, DRAINAGE STRUCTURES, VALVE BOXES, VAULT LIDS AND UTILITY ACCESS STRUCTURES TO FINISH GRADE WITHIN AREAS AFFECTED BY PROPOSED CONSTRUCTION.

PACLAND GRADING NOTES

1. THE SPOT ELEVATIONS INDICATED ON THIS PLAN REPRESENT THE DESIGN TOP OF PAVEMENT, UNLESS OTHERWISE NOTED.
2. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION OF EXISTING STRUCTURES INCLUDING REMOVAL OF ANY EXISTING UTILITIES SERVING THE STRUCTURE. UTILITIES ARE TO BE REMOVED TO THE RIGHT-OF-WAY.
3. ALL UNSURFACED AREAS DISTURBED BY GRADING OPERATION SHALL RECEIVE 4 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL STABILIZE DISTURBED AREAS WITH GRASS IN ACCORDANCE WITH LOCAL SPECIFICATION UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
4. ALL CUT AND FILL SLOPES SHALL BE CONSTRUCTED PER THE IBC CODE AND APPLICABLE LOCAL REGULATION. ALL CUT AND FILL SLOPES SHALL BE 3:1 OR FLATTER UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL ASSURE POSITIVE DRAINAGE AWAY FROM BUILDINGS FOR ALL NATURAL AND PAVED AREAS AND SHALL GRADE ALL AREAS TO PRECLUDE PONDING OF WATER.
6. ALL POLLUTANTS OTHER THAN SEDIMENT ON-SITE DURING CONSTRUCTION SHALL BE HANDLED AND DISPOSED OF IN A MANNER THAT DOES NOT CAUSE CONTAMINATION OF STORMWATER. THE CONTRACTOR SHALL ADHERE TO ALL TERMS AND CONDITIONS AS OUTLINED IN THE GENERAL N.P.D.E.S. PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITIES.
7. PROPERTIES AND WATERWAYS DOWNSTREAM OF THE SITE SHALL BE PROTECTED FROM EROSION DUE TO INCREASES IN THE VOLUME, VELOCITY AND PEAK FLOW RATE OF STORMWATER RUNOFF FROM PROJECT SITE.
8. CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE GOVERNING CODES AND BE CONSTRUCTED TO SAME.
9. FOR BOUNDARY AND TOPOGRAPHIC INFORMATION REFER TO PROJECT SURVEY.
10. FOR LAYOUT INFORMATION REFER TO THE SITE PLAN.
11. PROPOSED GRADES SHALL BE LIMITED TO:
   - 11.1. ACCESSIBLE PARKING STALLS AND LANDINGS
     - 11.1.1. 2.0% IN ANY DIRECTION
   - 11.2. ACCESSIBLE PEDESTRIAN PATHS
     - 11.2.1. 2.0% CROSS-SLOPE
     - 11.2.2. 5.0% RUNNING SLOPE

PACLAND STORM DRAINAGE NOTES

1. EXISTING DRAINAGE STRUCTURES TO BE INSPECTED AND REPAIRED AS NEEDED, AND EXISTING PIPES TO BE CLEANED OUT TO REMOVE ALL SILT AND DEBRIS.
2. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITIONS OR BETTER.
3. STORM DRAINAGE PIPE WITH LESS THAN 2'-0" COVER SHALL BE DUCTILE IRON PIPE, OR APPROVED EQUAL TO SUSTAIN H-20 LOADING.
4. ALL ON-SITE STORM DRAINAGE PIPE SHALL BE SMOOTH WALLED INTERIOR, MANUFACTURER'S VERIFICATION OF MANNING'S ROUGHNESS COEFFICIENT N=0.012 OR LESS.
5. PRECAST STRUCTURES MAY BE USED AT CONTRACTOR'S OPTION.
6. ALL CATCH BASINS AND AREA DRAINS ARE TO BE SITUATED SUCH THAT THE OUTSIDE EDGE OF GRATE FRAME IS AT TOE OF CURB OR FLOWLINE OF GUTTER (WHERE APPLICABLE).
7. CATCH BASIN INLET PROTECTION / EROSION CONTROL TO BE USED FOR ALL NEW INLETS.
8. ALL STORM PIPE ENTERING STRUCTURES SHALL BE GROUTED TO ASSURE CONNECTION AT STRUCTURE IS WATERTIGHT.
9. ALL STORM SEWER MANHOLES IN PAVED AREAS SHALL BE FLUSH WITH PAVEMENT, AND SHALL HAVE TRAFFIC BEARING RING AND COVERS. MANHOLES IN UNPAVED AREAS SHALL BE 6" ABOVE FINISH GRADE. LIDS SHALL BE LABELED "STORM SEWER".
10. CONTRACTOR SHALL CONNECT ROOF DRAIN LEADERS AND FOOTING DRAINS TO PROPOSED STORM DRAINS AS SHOWN.
11. CONTRACTOR SHALL CONFIRM STRUCTURE CONSTRUCTABILITY WITH MANUFACTURER PRIOR TO DELIVERY AND INSTALLATION.

APPROVED

BY: ______ CITY OF PUYALLUP ENGINEERING SERVICES

DATE: ______

No.	Date	By	Revision Description
1	5/20/2019	PACLAND	CITY COMMENTS

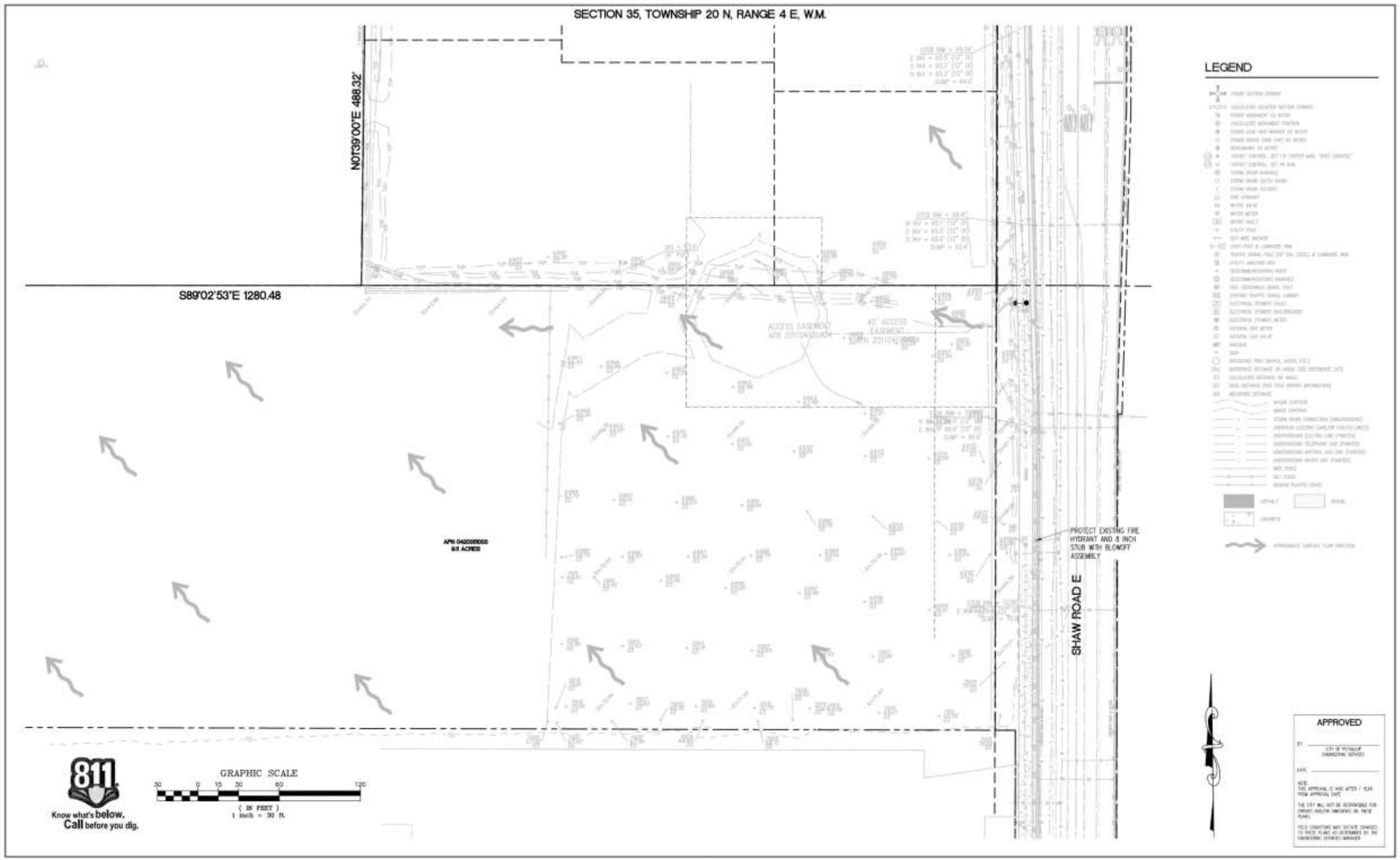
Designed By:	Issue Date:
LRR	3/27/2019
Drawn By:	GRADING PERMIT
LRR	
Checked By:	Project No.:
WFF	10-336-005

PACLAND

CASCADE CHRISTIAN
EASTERN PORTION OF 903 25TH STREET SE
PUYALLUP, WA

GENERAL NOTES

CV-1.1



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CASCADE CHRISTIAN EASTERN PORTION OF 903 25TH STREET SE PUYALLUP, WA	EXISTING CONDITIONS PLAN	EX-1.0

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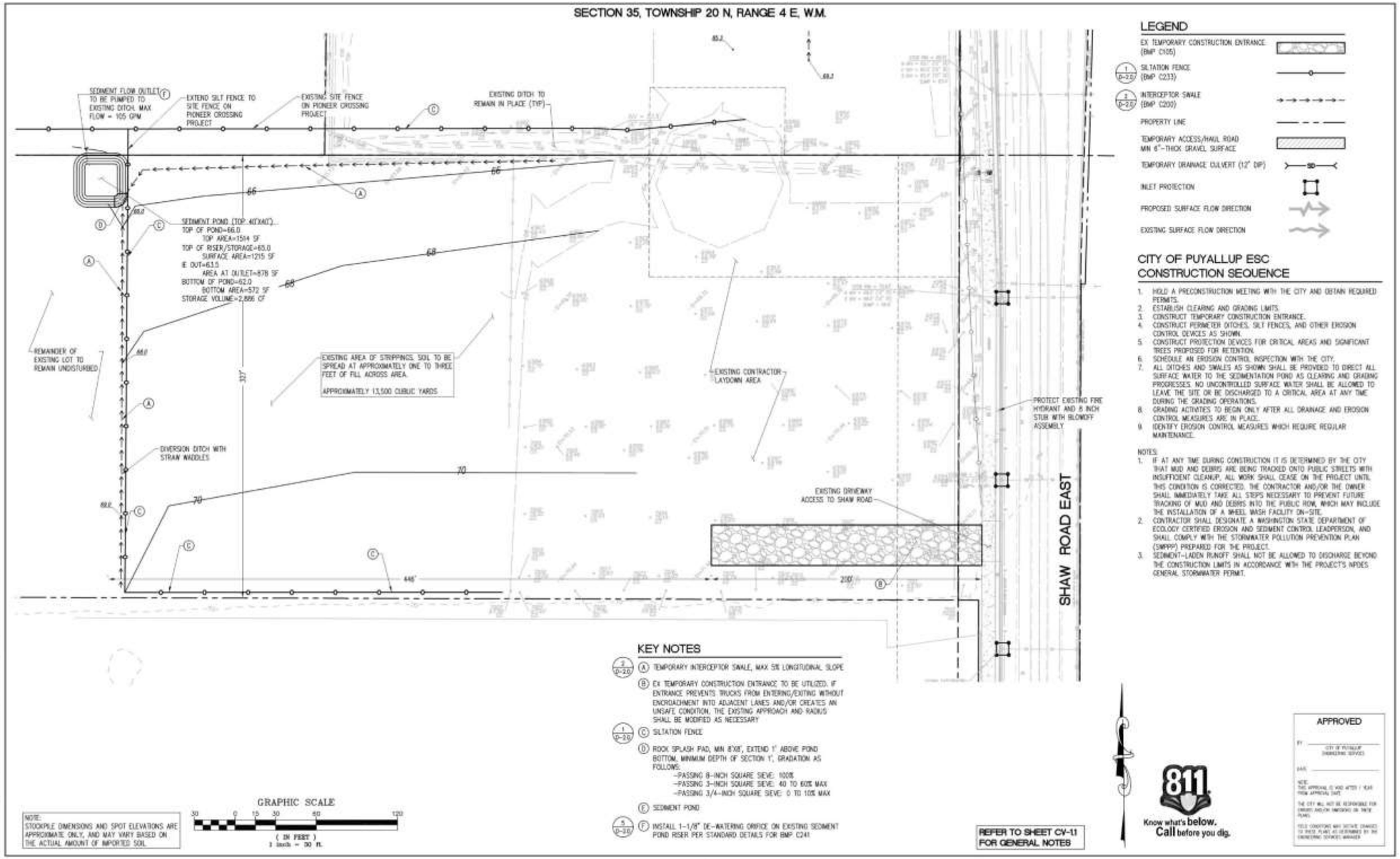
SECTION 35, TOWNSHIP 20 N, RANGE 4 E, W.M.
SEDIMENT FLOW OUTLET (F) TO BE PUMPED TO EXISTING DITCH. MAX FLOW = 105 GPM
EXTEND SILT FENCE TO SITE FENCE ON PIONEER CROSSING PROJECT
EXISTING SITE FENCE ON PIONEER CROSSING PROJECT
EXISTING DITCH TO REMAIN IN PLACE (TYP.)
SEDIMENT POND (TOP 40'X40')
TOP OF POND=66.0
TOP AREA=1514 SF
TOP OF RISER/STORAGE=65.0
SURFACE AREA=1215 SF
IE OUT=63.5
AREA AT OUTLET=878 SF
BOTTOM OF POND=62.0
BOTTOM AREA=572 SF
STORAGE VOLUME=2,886 CF
REMAINDER OF EXISTING LOT TO REMAIN UNDISTURBED
EXISTING AREA OF STRIPPINGS. SOIL TO BE SPREAD AT APPROXIMATELY ONE TO THREE FEET OF FILL ACROSS AREA.
APPROXIMATELY 13,500 CUBIC YARDS
EXISTING CONTRACTOR LAYDOWN AREA
PROTECT EXISTING FIRE HYDRANT AND 8 INCH STUB WITH BLOWOFF ASSEMBLY
DIVERSION DITCH WITH STRAW WADDLES
EXISTING DRIVEWAY ACCESS TO SHAW ROAD
SHAW ROAD EAST
323'
445'
200'
LEGEND
EX TEMPORARY CONSTRUCTION ENTRANCE (BMP C105)
SILTATION FENCE (BMP C233)
INTERCEPTOR SWALE (BMP C200)
PROPERTY LINE
TEMPORARY ACCESS/HAUL ROAD MIN 6"-THICK GRAVEL SURFACE
TEMPORARY DRAINAGE CULVERT (12" DIP)
INLET PROTECTION
PROPOSED SURFACE FLOW DIRECTION
EXISTING SURFACE FLOW DIRECTION
CITY OF PUYALLUP ESC CONSTRUCTION SEQUENCE
1. HOLD A PRECONSTRUCTION MEETING WITH THE CITY AND OBTAIN REQUIRED PERMITS.
2. ESTABLISH CLEARING AND GRADING LIMITS.
3. CONSTRUCT TEMPORARY CONSTRUCTION ENTRANCE.
4. CONSTRUCT PERIMETER DITCHES, SILT FENCES, AND OTHER EROSION CONTROL DEVICES AS SHOWN.
5. CONSTRUCT PROTECTION DEVICES FOR CRITICAL AREAS AND SIGNIFICANT TREES PROPOSED FOR RETENTION.
6. SCHEDULE AN EROSION CONTROL INSPECTION WITH THE CITY.
7. ALL DITCHES AND SWALES AS SHOWN SHALL BE PROVIDED TO DIRECT ALL SURFACE WATER TO THE SEDIMENTATION POND AS CLEARING AND GRADING PROGRESSES. NO UNCONTROLLED SURFACE WATER SHALL BE ALLOWED TO LEAVE THE SITE OR BE DISCHARGED TO A CRITICAL AREA AT ANY TIME DURING THE GRADING OPERATIONS.
8. GRADING ACTIVITIES TO BEGIN ONLY AFTER ALL DRAINAGE AND EROSION CONTROL MEASURES ARE IN PLACE.
9. IDENTIFY EROSION CONTROL MEASURES WHICH REQUIRE REGULAR MAINTENANCE.
NOTES:
1. IF AT ANY TIME DURING CONSTRUCTION IT IS DETERMINED BY THE CITY THAT MUD AND DEBRIS ARE BEING TRACKED ONTO PUBLIC STREETS WITH INSUFFICIENT CLEANUP, ALL WORK SHALL CEASE ON THE PROJECT UNTIL THIS CONDITION IS CORRECTED. THE CONTRACTOR AND/OR THE OWNER SHALL IMMEDIATELY TAKE ALL STEPS NECESSARY TO PREVENT FUTURE TRACKING OF MUD AND DEBRIS INTO THE PUBLIC ROW, WHICH MAY INCLUDE THE INSTALLATION OF A WHEEL WASH FACILITY ON-SITE.
2. CONTRACTOR SHALL DESIGNATE A WASHINGTON STATE DEPARTMENT OF ECOLOGY CERTIFIED EROSION AND SEDIMENT CONTROL LEADPERSON, AND SHALL COMPLY WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED FOR THE PROJECT.
3. SEDIMENT-LADEN RUNOFF SHALL NOT BE ALLOWED TO DISCHARGE BEYOND THE CONSTRUCTION LIMITS IN ACCORDANCE WITH THE PROJECT'S NPDES GENERAL STORMWATER PERMIT.
KEY NOTES
(A) TEMPORARY INTERCEPTOR SWALE, MAX 5% LONGITUDINAL SLOPE
(B) EX TEMPORARY CONSTRUCTION ENTRANCE TO BE UTILIZED. IF ENTRANCE PREVENTS TRUCKS FROM ENTERING/EXITING WITHOUT ENCROACHMENT INTO ADJACENT LANES AND/OR CREATES AN UNSAFE CONDITION, THE EXISTING APPROACH AND RADIUS SHALL BE MODIFIED AS NECESSARY
(C) SILTATION FENCE
(D) ROCK SPLASH PAD, MIN 8'X8', EXTEND 1' ABOVE POND BOTTOM, MINIMUM DEPTH OF SECTION 1', GRADATION AS FOLLOWS:
-PASSING 8-INCH SQUARE SIEVE: 100%
-PASSING 3-INCH SQUARE SIEVE: 40 TO 60% MAX
-PASSING 3/4-INCH SQUARE SIEVE: 0 TO 10% MAX
(E) SEDIMENT POND
(F) INSTALL 1-1/8" DE-WATERING ORIFICE ON EXISTING SEDIMENT POND RISER PER STANDARD DETAILS FOR BMP C241
NOTE: STOCKPILE DIMENSIONS AND SPOT ELEVATIONS ARE APPROXIMATE ONLY, AND MAY VARY BASED ON THE ACTUAL AMOUNT OF IMPORTED SOIL
GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.
REFER TO SHEET CV-1.1 FOR GENERAL NOTES
811 Know what's below. Call before you dig.
APPROVED
CITY OF PUYALLUP ENGINEERING SERVICES
DATE:
NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR CORRECTIONS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE ENGINEERING SERVICES MANAGER
No. Date By Revision Description
1 5/20/2019 PACLAND CITY COMMENTS
Designed By: LRR
Drawn By: LRR
Checked By: MFF
Issue Date: 3/27/2019
GRADING PERMIT
Project No: 10-336-025
PACLAND
CASCADE CHRISTIAN
EASTERN PORTION OF 903 25TH STREET SE
PUYALLUP, WA
ESC PLAN
D-1.0
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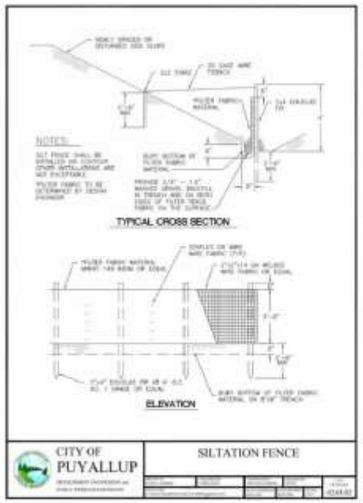
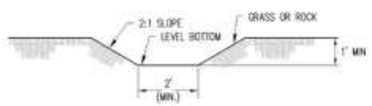
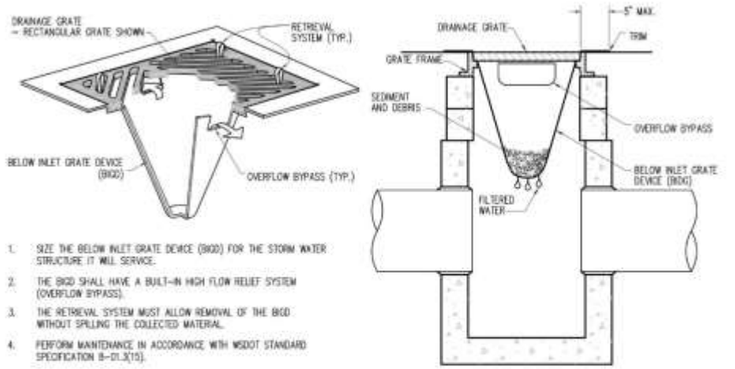


1 SILTATION FENCE
NTS



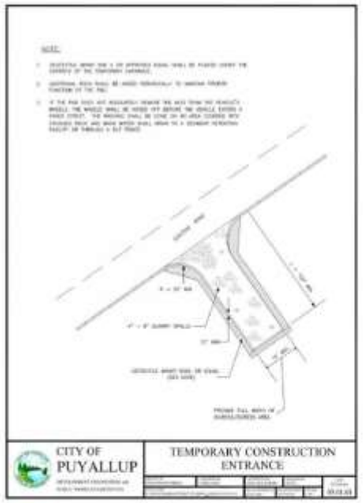
2 TEMPORARY INTERCEPTOR SWALE
NTS

3 GRADING AND ESC NOTES
NTS



1. SIZE THE BELOW INLET GRATE DEVICE (BIGD) FOR THE STORM WATER STRUCTURE IT WILL SERVICE.
2. THE BIGD SHALL HAVE A BUILT-IN HIGH FLOW RELIEF SYSTEM (OVERFLOW BYPASS).
3. THE RETRIEVAL SYSTEM MUST ALLOW REMOVAL OF THE BIGD WITHOUT SPILLING THE COLLECTED MATERIAL.
4. PERFORM MAINTENANCE IN ACCORDANCE WITH WSDOT STANDARD SPECIFICATION 8-01.3(15).

4 INLET PROTECTION
NTS



5 TEMPORARY CONSTRUCTION ENTRANCE
NTS

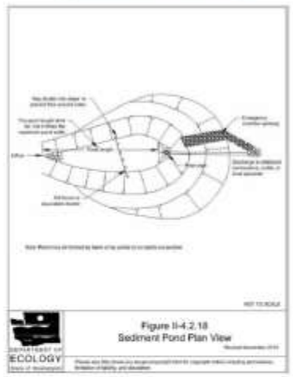


Figure II-4.2.18 Sediment Pond Plan View

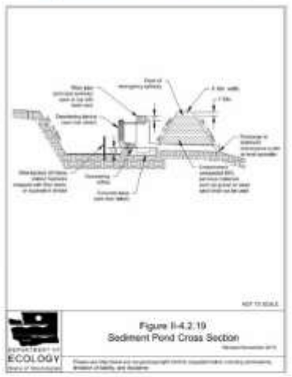


Figure II-4.2.19 Sediment Pond Cross Section

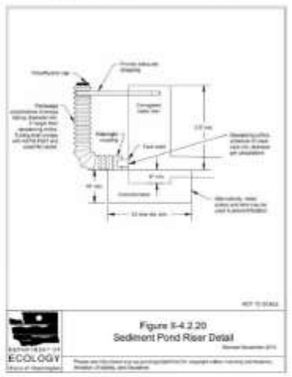


Figure II-4.2.20 Sediment Pond Riser Detail

2014 Stormwater Management Manual for Western Washington
Volume II - Chapter 4 - Page 391

2014 Stormwater Management Manual for Western Washington
Volume II - Chapter 4 - Page 392

2014 Stormwater Management Manual for Western Washington
Volume II - Chapter 4 - Page 393

6 SEDIMENT POND
NTS

MAINTENANCE STANDARDS
1. SEDIMENT SHALL BE REMOVED FROM THE POND WHEN IT REACHES 1 FOOT IN DEPTH.
2. ANY DAMAGE TO THE POND EMBANKMENTS OR SLOPES SHALL BE REPAIRED.

APPROVED
BY: _____ CITY OF PUYALLUP ENGINEERING SERVICES
DATE: _____
NOTE: THIS APPROVAL IS VOID AFTER 1 YEAR FROM APPROVAL DATE.
THE CITY WILL NOT BE RESPONSIBLE FOR ERRORS AND/OR OMISSIONS ON THESE PLANS.
FIELD CONDITIONS MAY DICTATE CHANGES TO THESE PLANS AS DETERMINED BY THE ENGINEERING SERVICES MANAGER.

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No.	Date	By	Revision Description
1	5/20/2019	PACLAND	CITY COMMENTS

Designed By:	Issue Date:
LRR	3/27/2019
Drawn By:	GRADING PERMIT
LRR	
Checked By:	Project No:
RFF	10-336-025

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CASCADE CHRISTIAN EASTERN PORTION OF 903 25TH STREET SE PUYALLUP, WA	ESC DETAILS	D-2.0

Appendix C – Geotechnical Report (N/A)

Appendix D – Sediment Pond Modeling

WWHM2012

PROJECT REPORT

General Model Information

Project Name:	Pioneer Crossing CGF
Site Name:	Pioneer Crossing
Site Address:	2614 E Pioneer
City:	Puyallup
Report Date:	8/14/2018
Gage:	
Data Start:	10/01/1901
Data End:	09/30/2059
Timestep:	15 Minute
Precip Scale:	1.000
Version Date:	2018/07/12
Version:	4.2.15

POC Thresholds

Low Flow Threshold for POC1:	50 Percent of the 2 Year
High Flow Threshold for POC1:	50 Year

Landuse Basin Data

Predeveloped Land Use

Basin A

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Forest, Flat	5.94
Pervious Total	5.94
Impervious Land Use	acre
Impervious Total	0
Basin Total	5.94

Element Flows To:

Surface	Interflow	Groundwater

Mitigated Land Use

Developed

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
C, Lawn, Flat	5.24
Pervious Total	5.24
Impervious Land Use	acre
ROADS FLAT	0.7
Impervious Total	0.7
Basin Total	5.94

Element Flows To:

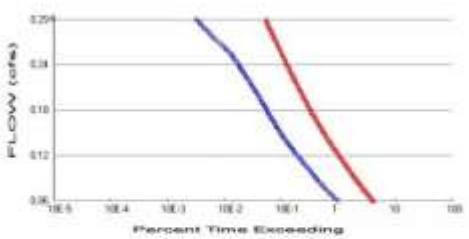
Surface	Interflow	Groundwater

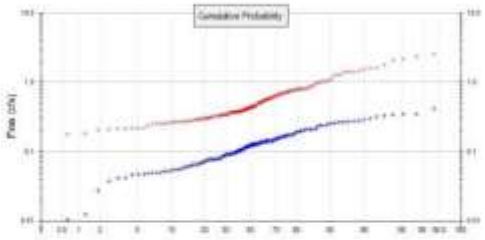
Routing Elements
Predeveloped Routing

Mitigated Routing

Analysis Results

POC 1





+ Predeveloped x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 5.94
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1
Total Pervious Area: 5.24
Total Impervious Area: 0.7

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.125172
5 year	0.194731
10 year	0.232527
25 year	0.270996
50 year	0.293861
100 year	0.312663

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.463204
5 year	0.778771
10 year	1.057278
25 year	1.504581
50 year	1.918332
100 year	2.411446

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1902	0.092	0.341
1903	0.076	0.344
1904	0.125	1.271
1905	0.060	0.281
1906	0.027	0.203
1907	0.192	0.699
1908	0.142	0.379
1909	0.141	0.425
1910	0.194	0.751
1911	0.126	0.591

1912	0.417	2.369
1913	0.200	0.344
1914	0.049	2.060
1915	0.080	0.294
1916	0.125	0.495
1917	0.042	0.167
1918	0.134	0.306
1919	0.099	0.293
1920	0.127	0.522
1921	0.142	0.411
1922	0.143	0.864
1923	0.115	0.449
1924	0.052	0.394
1925	0.065	0.268
1926	0.121	0.382
1927	0.079	0.255
1928	0.097	0.343
1929	0.199	0.767
1930	0.128	0.426
1931	0.118	0.330
1932	0.093	0.368
1933	0.089	0.394
1934	0.262	1.055
1935	0.122	0.279
1936	0.106	0.428
1937	0.169	0.814
1938	0.103	0.328
1939	0.006	0.255
1940	0.114	0.455
1941	0.054	0.380
1942	0.172	0.756
1943	0.088	0.496
1944	0.162	1.025
1945	0.143	0.420
1946	0.077	0.604
1947	0.049	0.240
1948	0.269	0.579
1949	0.231	0.612
1950	0.065	0.217
1951	0.080	0.327
1952	0.351	1.780
1953	0.317	1.414
1954	0.114	0.375
1955	0.093	0.211
1956	0.046	0.184
1957	0.162	0.314
1958	0.339	0.898
1959	0.209	0.815
1960	0.056	0.278
1961	0.211	1.329
1962	0.113	0.374
1963	0.054	0.216
1964	0.060	1.614
1965	0.236	0.604
1966	0.066	0.326
1967	0.101	0.798
1968	0.103	0.399
1969	0.103	0.403

1970	0.161	0.649
1971	0.254	0.703
1972	0.165	2.565
1973	0.210	0.684
1974	0.114	0.687
1975	0.267	1.461
1976	0.141	1.120
1977	0.048	0.216
1978	0.238	0.959
1979	0.065	0.511
1980	0.135	0.795
1981	0.129	0.390
1982	0.053	0.315
1983	0.211	0.650
1984	0.086	0.654
1985	0.140	1.015
1986	0.125	0.341
1987	0.239	0.797
1988	0.152	0.341
1989	0.136	0.329
1990	0.154	0.430
1991	0.121	0.748
1992	0.173	0.576
1993	0.167	0.450
1994	0.251	0.649
1995	0.048	0.292
1996	0.275	0.705
1997	0.106	0.378
1998	0.126	0.649
1999	0.010	0.270
2000	0.095	0.445
2001	0.049	0.297
2002	0.175	1.411
2003	0.152	0.437
2004	0.140	0.574
2005	0.257	1.558
2006	0.078	0.299
2007	0.078	0.577
2008	0.133	0.397
2009	0.091	0.303
2010	0.078	0.379
2011	0.063	0.253
2012	0.091	0.422
2013	0.071	0.550
2014	0.053	0.362
2015	0.101	1.413
2016	0.040	0.263
2017	0.193	0.520
2018	0.351	0.874
2019	0.327	1.274
2020	0.107	0.715
2021	0.174	0.519
2022	0.072	0.565
2023	0.146	0.518
2024	0.275	2.192
2025	0.129	0.290
2026	0.211	0.450
2027	0.076	0.382

2028	0.066	0.176
2029	0.143	0.415
2030	0.265	0.777
2031	0.087	0.211
2032	0.048	0.208
2033	0.077	0.255
2034	0.075	0.271
2035	0.299	0.799
2036	0.155	0.400
2037	0.037	0.271
2038	0.124	0.791
2039	0.012	0.540
2040	0.069	0.359
2041	0.093	0.449
2042	0.290	0.734
2043	0.140	0.554
2044	0.189	0.504
2045	0.129	0.334
2046	0.151	0.368
2047	0.111	0.306
2048	0.144	0.275
2049	0.129	0.463
2050	0.092	0.483
2051	0.134	0.984
2052	0.077	0.262
2053	0.138	0.334
2054	0.175	1.609
2055	0.054	0.373
2056	0.061	0.370
2057	0.095	0.259
2058	0.120	0.304
2059	0.212	1.022

Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	0.4167	2.5649
2	0.3511	2.3688
3	0.3508	2.1924
4	0.3388	2.0599
5	0.3272	1.7800
6	0.3167	1.6140
7	0.2986	1.6095
8	0.2905	1.5583
9	0.2751	1.4614
10	0.2747	1.4139
11	0.2693	1.4129
12	0.2668	1.4112
13	0.2647	1.3292
14	0.2621	1.2742
15	0.2573	1.2708
16	0.2542	1.1201
17	0.2510	1.0547
18	0.2389	1.0249
19	0.2375	1.0225
20	0.2357	1.0152
21	0.2307	0.9839
22	0.2118	0.9587

23	0.2107	0.8981
24	0.2106	0.8737
25	0.2106	0.8639
26	0.2101	0.8151
27	0.2095	0.8138
28	0.1997	0.7989
29	0.1988	0.7980
30	0.1940	0.7966
31	0.1929	0.7949
32	0.1921	0.7909
33	0.1893	0.7770
34	0.1753	0.7672
35	0.1745	0.7562
36	0.1737	0.7507
37	0.1726	0.7484
38	0.1718	0.7341
39	0.1688	0.7149
40	0.1674	0.7046
41	0.1648	0.7029
42	0.1622	0.6988
43	0.1619	0.6869
44	0.1614	0.6845
45	0.1551	0.6538
46	0.1542	0.6501
47	0.1519	0.6492
48	0.1515	0.6491
49	0.1510	0.6488
50	0.1461	0.6120
51	0.1438	0.6042
52	0.1431	0.6039
53	0.1428	0.5912
54	0.1427	0.5788
55	0.1424	0.5765
56	0.1423	0.5762
57	0.1413	0.5743
58	0.1407	0.5651
59	0.1403	0.5540
60	0.1398	0.5500
61	0.1397	0.5400
62	0.1379	0.5224
63	0.1362	0.5199
64	0.1345	0.5191
65	0.1340	0.5178
66	0.1337	0.5110
67	0.1329	0.5043
68	0.1290	0.4960
69	0.1289	0.4954
70	0.1288	0.4834
71	0.1286	0.4633
72	0.1278	0.4549
73	0.1273	0.4504
74	0.1263	0.4496
75	0.1255	0.4494
76	0.1253	0.4486
77	0.1250	0.4451
78	0.1249	0.4374
79	0.1237	0.4301
80	0.1217	0.4279

81	0.1212	0.4265
82	0.1207	0.4250
83	0.1199	0.4218
84	0.1182	0.4204
85	0.1148	0.4153
86	0.1143	0.4114
87	0.1140	0.4034
88	0.1137	0.4004
89	0.1131	0.3993
90	0.1111	0.3966
91	0.1067	0.3943
92	0.1058	0.3940
93	0.1055	0.3900
94	0.1033	0.3823
95	0.1031	0.3821
96	0.1029	0.3799
97	0.1014	0.3794
98	0.1012	0.3793
99	0.0989	0.3783
100	0.0970	0.3749
101	0.0955	0.3739
102	0.0947	0.3735
103	0.0934	0.3705
104	0.0927	0.3680
105	0.0925	0.3678
106	0.0923	0.3617
107	0.0918	0.3592
108	0.0912	0.3442
109	0.0910	0.3436
110	0.0892	0.3430
111	0.0884	0.3410
112	0.0875	0.3409
113	0.0858	0.3407
114	0.0804	0.3341
115	0.0804	0.3337
116	0.0786	0.3300
117	0.0781	0.3287
118	0.0778	0.3277
119	0.0777	0.3270
120	0.0774	0.3256
121	0.0771	0.3151
122	0.0766	0.3145
123	0.0764	0.3063
124	0.0757	0.3059
125	0.0753	0.3044
126	0.0719	0.3034
127	0.0711	0.2993
128	0.0687	0.2968
129	0.0661	0.2936
130	0.0656	0.2932
131	0.0654	0.2922
132	0.0651	0.2903
133	0.0651	0.2806
134	0.0627	0.2785
135	0.0609	0.2783
136	0.0601	0.2748
137	0.0596	0.2715
138	0.0557	0.2709

139	0.0543	0.2698
140	0.0543	0.2675
141	0.0542	0.2633
142	0.0529	0.2624
143	0.0526	0.2587
144	0.0524	0.2553
145	0.0489	0.2550
146	0.0489	0.2548
147	0.0488	0.2531
148	0.0482	0.2396
149	0.0476	0.2168
150	0.0476	0.2163
151	0.0458	0.2163
152	0.0417	0.2114
153	0.0404	0.2113
154	0.0371	0.2083
155	0.0269	0.2029
156	0.0124	0.1840
157	0.0101	0.1759
158	0.0064	0.1673

Duration Flows

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
0.0626	54293	232627	428	Fail
0.0649	50160	218556	435	Fail
0.0673	46575	205592	441	Fail
0.0696	43312	193625	447	Fail
0.0719	40260	182434	453	Fail
0.0743	37456	171964	459	Fail
0.0766	34908	162047	464	Fail
0.0789	32564	152961	469	Fail
0.0813	30321	144429	476	Fail
0.0836	28265	136396	482	Fail
0.0859	26432	128806	487	Fail
0.0883	24786	121715	491	Fail
0.0906	23290	114956	493	Fail
0.0930	21928	108641	495	Fail
0.0953	20631	102768	498	Fail
0.0976	19418	97339	501	Fail
0.1000	18282	92242	504	Fail
0.1023	17257	87699	508	Fail
0.1046	16166	83101	514	Fail
0.1070	15163	78946	520	Fail
0.1093	14266	74846	524	Fail
0.1116	13462	71134	528	Fail
0.1140	12687	67533	532	Fail
0.1163	11939	64043	536	Fail
0.1187	11252	60885	541	Fail
0.1210	10593	57894	546	Fail
0.1233	9978	54880	550	Fail
0.1257	9385	52198	556	Fail
0.1280	8870	49667	559	Fail
0.1303	8332	47290	567	Fail
0.1327	7872	45046	572	Fail
0.1350	7457	42830	574	Fail
0.1373	7036	40808	579	Fail
0.1397	6626	38930	587	Fail
0.1420	6271	37107	591	Fail
0.1443	5983	35473	592	Fail
0.1467	5712	33877	593	Fail
0.1490	5437	32293	593	Fail
0.1514	5200	30858	593	Fail
0.1537	4950	29451	594	Fail
0.1560	4706	28110	597	Fail
0.1584	4515	26908	595	Fail
0.1607	4333	25739	594	Fail
0.1630	4159	24598	591	Fail
0.1654	3958	23540	594	Fail
0.1677	3764	22482	597	Fail
0.1700	3583	21512	600	Fail
0.1724	3418	20609	602	Fail
0.1747	3263	19761	605	Fail
0.1771	3135	19008	606	Fail
0.1794	3029	18293	603	Fail
0.1817	2928	17573	600	Fail
0.1841	2815	16892	600	Fail
0.1864	2685	16266	605	Fail

0.1887	2556	15601	610	Fail
0.1911	2454	15002	611	Fail
0.1934	2359	14415	611	Fail
0.1957	2256	13878	615	Fail
0.1981	2143	13363	623	Fail
0.2004	2038	12809	628	Fail
0.2028	1952	12338	632	Fail
0.2051	1862	11895	638	Fail
0.2074	1778	11440	643	Fail
0.2098	1692	11030	651	Fail
0.2121	1620	10620	655	Fail
0.2144	1561	10205	653	Fail
0.2168	1483	9839	663	Fail
0.2191	1407	9462	672	Fail
0.2214	1340	9136	681	Fail
0.2238	1274	8842	694	Fail
0.2261	1217	8521	700	Fail
0.2284	1163	8177	703	Fail
0.2308	1105	7900	714	Fail
0.2331	1055	7590	719	Fail
0.2355	1006	7330	728	Fail
0.2378	965	7091	734	Fail
0.2401	919	6836	743	Fail
0.2425	873	6598	755	Fail
0.2448	814	6377	783	Fail
0.2471	774	6155	795	Fail
0.2495	738	5933	803	Fail
0.2518	694	5734	826	Fail
0.2541	637	5534	868	Fail
0.2565	601	5333	887	Fail
0.2588	553	5160	933	Fail
0.2612	517	4979	963	Fail
0.2635	478	4807	1005	Fail
0.2658	434	4645	1070	Fail
0.2682	394	4472	1135	Fail
0.2705	363	4311	1187	Fail
0.2728	339	4146	1223	Fail
0.2752	310	3990	1287	Fail
0.2775	295	3868	1311	Fail
0.2798	273	3736	1368	Fail
0.2822	252	3603	1429	Fail
0.2845	237	3466	1462	Fail
0.2869	223	3351	1502	Fail
0.2892	206	3234	1569	Fail
0.2915	194	3130	1613	Fail
0.2939	180	3042	1690	Fail

The development has an increase in flow durations from 1/2 Predeveloped 2 year flow to the 2 year flow or more than a 10% increase from the 2 year to the 50 year flow.
The development has an increase in flow durations for more than 50% of the flows for the range of the duration analysis.

Water Quality

Water Quality BMP Flow and Volume for POC #1

On-line facility volume:	0 acre-feet
On-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.
Off-line facility target flow:	0 cfs.
Adjusted for 15 min:	0 cfs.

LID Report

LID Technique	Used for Treatment ?	Total Volume Needs Treatment (ac-ft)	Volume Through Facility (ac-ft)	Infiltration Volume (ac-ft)	Cumulative Volume Infiltration Credit	Percent Volume Infiltrated	Water Quality	Percent Water Quality Treated	Comment
Total Volume Infiltrated		0.00	0.00	0.00		0.00	0.00	0%	No Treat Credit
Compliance with LID Standard 8% of 2-yr to 50% of 2-yr									Duration Analysis Result = Failed

Pioneer Crossing CGF 8/14/2018 3:23:13 PM Page 17

Model Default Modifications

Total of 0 changes have been made.

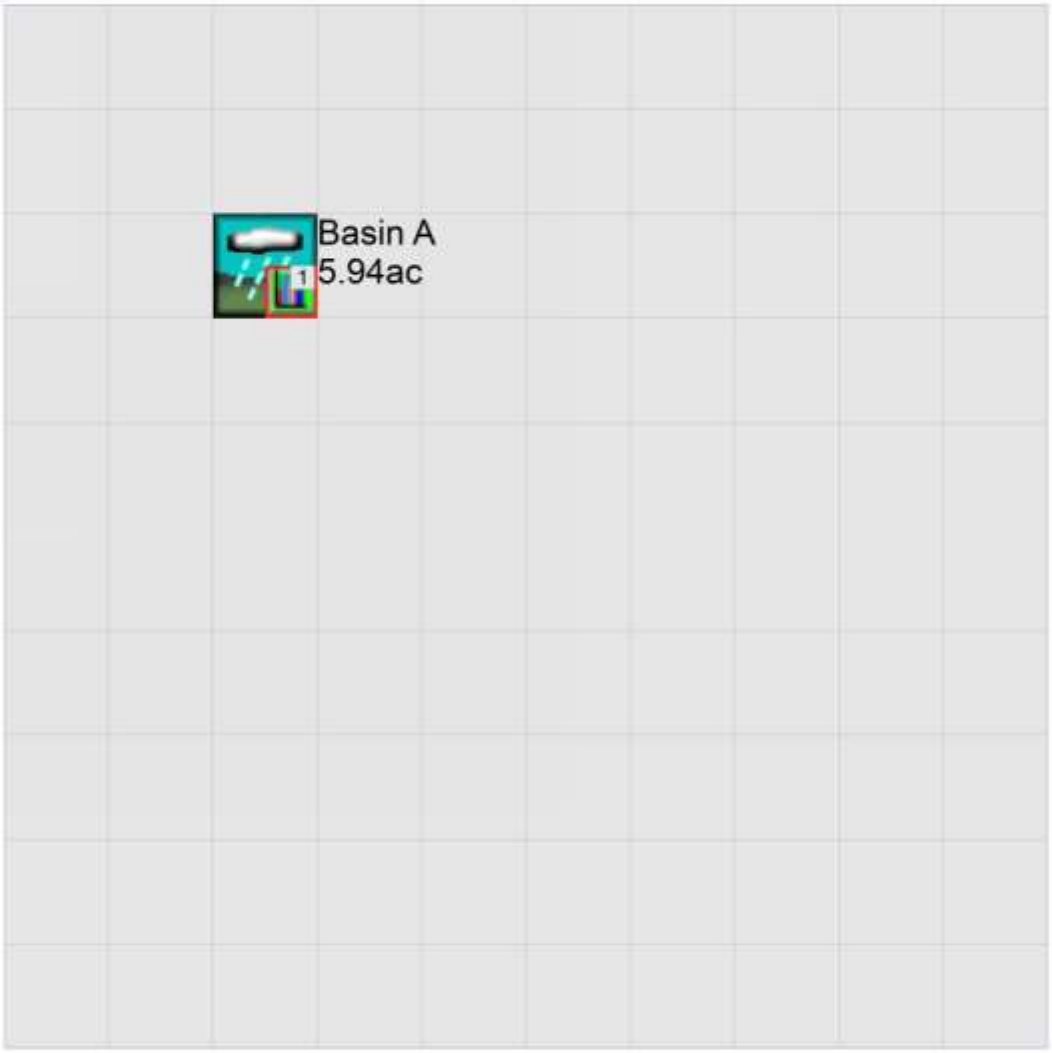
PERLND Changes

No PERLND changes have been made.

IMPLND Changes

No IMPLND changes have been made.

Appendix
Predeveloped Schematic



Mitigated Schematic

Predeveloped UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1901 10 01         END    2059 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Pioneer Crossing CGF.wdm
MESSU       25   PrePioneer Crossing CGF.MES
            27   PrePioneer Crossing CGF.L61
            28   PrePioneer Crossing CGF.L62
            30   POCPioneer Crossing CGF1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:15
      PERLND      10
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title---------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Basin A                   MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1         1    1
  501         1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #          K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                    User  t-series Engl Metr ***
                                    in  out            ***
   10     C, Forest, Flat         1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************ Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   10         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   10         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   10          0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >       PWATER input info: Part 2          ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR     KVARY     AGWRC
   10              0       4.5      0.08       400      0.05       0.5     0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >       PWATER input info: Part 3          ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   10             0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >      PWATER input info: Part 4                              ***
    # -  #      CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   10           0.2       0.5      0.35         6       0.5       0.7
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS      IFWS      LZS       AGWS      GWVS
   10             0         0         0         0       2.5          1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                    User  t-series Engl Metr ***
                                  in  out           ***
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL   ***
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    *********
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI      ***
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >       IWATER input info: Part 2          ***
    # -  # ***  LSUR      SLSUR      NSUR      RETSC
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >       IWATER input info: Part 3          ***
    # -  # ***PETMAX    PETMIN
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
  END IWAT-STATE1
```

```
END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Basin A***
PERLND  10                      5.94     COPY   501     12
PERLND  10                      5.94     COPY   501     13

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1


<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG           ***
                                       in  out                              ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************** Active Sections ******************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ****************** Print-flags ******************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                  ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *     *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN      DELTH     STCOR       KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><-------->  ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                     ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
         *** ac-ft     for each possible exit        for each possible exit
  <------><-------->     <---><---><---><---><---> *** <---><---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #        <Name> # #  ***
WDM      2 PREC     ENGL    1             PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1             IMPLND   1 999 EXTNL  PREC
```

```
WDM      1 EVAP     ENGL    1             PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1             IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    501 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13


END MASS-LINK

END RUN
```

Mitigated UCI File

```
RUN

GLOBAL
  WWHM4 model simulation
  START       1901 10 01        END    2059 09 30
  RUN INTERP OUTPUT LEVEL    3    0
  RESUME     0 RUN     1                    UNIT SYSTEM     1
END GLOBAL

FILES
<File>  <Un#>   <-----------File Name------------------------------>***
<-ID->                                                              ***
WDM         26   Pioneer Crossing CGF.wdm
MESSU       25   MitPioneer Crossing CGF.MES
            27   MitPioneer Crossing CGF.L61
            28   MitPioneer Crossing CGF.L62
            30   POCPioneer Crossing CGF1.dat
END FILES

OPN SEQUENCE
    INGRP               INDELT 00:15
      PERLND      16
      IMPLND       1
      COPY       501
      DISPLY       1
    END INGRP
END OPN SEQUENCE
DISPLY
  DISPLY-INFO1
    # -  #<----------Title----------->***TRAN PIVL DIG1 FIL1  PYR DIG2 FIL2 YRND
    1        Developed                  MAX                    1    2   30    9
  END DISPLY-INFO1
END DISPLY
COPY
  TIMESERIES
    # -  #  NPT  NMN ***
    1          1    1
  501          1    1
  END TIMESERIES
END COPY
GENER
  OPCODE
    #    # OPCD ***
  END OPCODE
  PARM
    #    #          K ***
  END PARM
END GENER
PERLND
  GEN-INFO
    <PLS ><-------Name------->NBLKS   Unit-systems   Printer ***
    # -  #                          User  t-series Engl Metr ***
                                          in  out           ***
   16     C, Lawn, Flat           1    1    1    1   27    0
  END GEN-INFO
  *** Section PWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC ***
   16         0    0    1    0    0    0    0    0    0    0    0    0
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ***************************** PIVL  PYR
    # -  # ATMP SNOW PWAT  SED  PST  PWG PQAL MSTL PEST NITR PHOS TRAC  *********
   16         0    0    4    0    0    0    0    0    0    0    0    0    1    9
  END PRINT-INFO
```

```
  PWAT-PARM1
    <PLS >  PWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP UZFG  VCS  VUZ  VNN VIFW VIRC  VLE INFC  HWT ***
   16         0    0    0    0    0    0    0    0    0    0    0
  END PWAT-PARM1

  PWAT-PARM2
    <PLS >      PWATER input info: Part 2         ***
    # -  # ***FOREST      LZSN    INFILT      LSUR     SLSUR      KVARY      AGWRC
   16              0       4.5      0.03       400      0.05        0.5      0.996
  END PWAT-PARM2

  PWAT-PARM3
    <PLS >      PWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN    INFEXP    INFILD    DEEPFR    BASETP    AGWETP
   16              0         0         2         2         0         0         0
  END PWAT-PARM3
  PWAT-PARM4
    <PLS >      PWATER input info: Part 4                                  ***
    # -  #      CEPSC      UZSN      NSUR     INTFW       IRC     LZETP ***
   16            0.1      0.25      0.25         6       0.5      0.25
  END PWAT-PARM4

  PWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
               ran from 1990 to end of 1992 (pat 1-11-95) RUN 21 ***
    # -  # ***  CEPS      SURS       UZS       IFWS       LZS      AGWS       GWVS
   16              0         0         0         0       2.5         1         0
  END PWAT-STATE1

END PERLND

IMPLND
  GEN-INFO
    <PLS ><-------Name------->   Unit-systems   Printer ***
    # -  #                     User  t-series Engl Metr ***
                                     in  out           ***
    1      ROADS/FLAT             1    1    1   27    0
  END GEN-INFO
  *** Section IWATER***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL    ***
    1         0    0    1    0    0    0
  END ACTIVITY

  PRINT-INFO
    <ILS > ******** Print-flags ******** PIVL  PYR
    # -  # ATMP SNOW IWAT  SLD  IWG IQAL     *********
    1         0    0    4    0    0    0    1    9
  END PRINT-INFO

  IWAT-PARM1
    <PLS >  IWATER variable monthly parameter value flags  ***
    # -  # CSNO RTOP  VRS  VNN RTLI      ***
    1         0    0    0    0    0
  END IWAT-PARM1

  IWAT-PARM2
    <PLS >      IWATER input info: Part 2         ***
    # -  # ***  LSUR     SLSUR      NSUR     RETSC
    1          400      0.01       0.1       0.1
  END IWAT-PARM2

  IWAT-PARM3
    <PLS >      IWATER input info: Part 3         ***
    # -  # ***PETMAX    PETMIN
    1              0         0
```

```
  END IWAT-PARM3

  IWAT-STATE1
    <PLS > *** Initial conditions at start of simulation
    # -  # ***  RETS      SURS
    1              0         0
  END IWAT-STATE1

END IMPLND

SCHEMATIC
<-Source->                 <--Area-->     <-Target->   MBLK   ***
<Name>   #                 <-factor->     <Name>   #   Tbl#   ***
Developed***
PERLND  16                       5.24     COPY   501     12
PERLND  16                       5.24     COPY   501     13
IMPLND   1                        0.7     COPY   501     15

******Routing******
END SCHEMATIC

NETWORK
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
COPY   501 OUTPUT MEAN   1 1   48.4        DISPLY   1     INPUT  TIMSER 1


<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   #        <Name> # #<-factor->strg <Name>   #   #        <Name> # #  ***
END NETWORK

RCHRES
  GEN-INFO
    RCHRES       Name        Nexits   Unit Systems   Printer                ***
    # -  #<------------------><---> User T-series  Engl Metr LKFG            ***
                                       in  out                               ***
  END GEN-INFO
  *** Section RCHRES***

  ACTIVITY
    <PLS > ************* Active Sections ******************************
    # -  # HYFG ADFG CNFG HTFG SDFG GQFG OXFG NUFG PKFG PHFG ***
  END ACTIVITY

  PRINT-INFO
    <PLS > ***************** Print-flags ******************** PIVL  PYR
    # -  # HYDR ADCA CONS HEAT  SED  GQL OXRX NUTR PLNK PHCB PIVL  PYR  *********
  END PRINT-INFO

  HYDR-PARM1
    RCHRES  Flags for each HYDR Section                                   ***
    # -  #  VC A1 A2 A3  ODFVFG for each *** ODGTFG for each     FUNCT  for each
            FG FG FG FG  possible  exit  *** possible  exit      possible  exit
             *  *  *  *     *  *  *  *  *       *  *  *  *  *        ***
  END HYDR-PARM1

  HYDR-PARM2
    # -  #    FTABNO       LEN      DELTH     STCOR        KS      DB50       ***
  <------><--------><--------><--------><--------><--------><--------><--------> ***
  END HYDR-PARM2
  HYDR-INIT
    RCHRES  Initial conditions for each HYDR section                      ***
    # -  # ***   VOL     Initial  value  of COLIND     Initial  value  of OUTDGT
          *** ac-ft     for each possible exit        for each possible exit
  <------><--------->     <---><---><---><---><---> *** <---><---><---><---><---><--->
  END HYDR-INIT
END RCHRES

SPEC-ACTIONS
```

```
END SPEC-ACTIONS
FTABLES
END FTABLES

EXT SOURCES
<-Volume-> <Member> SsysSgap<--Mult-->Tran <-Target vols> <-Grp> <-Member->  ***
<Name>   # <Name> # tem strg<-factor->strg <Name>   #   #       <Name> # #  ***
WDM      2 PREC     ENGL    1              PERLND   1 999 EXTNL  PREC
WDM      2 PREC     ENGL    1              IMPLND   1 999 EXTNL  PREC
WDM      1 EVAP     ENGL    1              PERLND   1 999 EXTNL  PETINP
WDM      1 EVAP     ENGL    1              IMPLND   1 999 EXTNL  PETINP

END EXT SOURCES

EXT TARGETS
<-Volume-> <-Grp> <-Member-><--Mult-->Tran <-Volume-> <Member> Tsys Tgap Amd ***
<Name>   #        <Name> # #<-factor->strg <Name>   # <Name>    tem strg strg***
COPY     1 OUTPUT MEAN   1 1     48.4      WDM    701 FLOW     ENGL      REPL
COPY   501 OUTPUT MEAN   1 1     48.4      WDM    801 FLOW     ENGL      REPL
END EXT TARGETS

MASS-LINK
<Volume>   <-Grp> <-Member-><--Mult-->     <Target>       <-Grp> <-Member->***
<Name>            <Name> # #<-factor->     <Name>                <Name> # #***
  MASS-LINK       12
PERLND     PWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   12

  MASS-LINK       13
PERLND     PWATER IFWO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   13

  MASS-LINK       15
IMPLND     IWATER SURO       0.083333      COPY           INPUT  MEAN
  END MASS-LINK   15


END MASS-LINK

END RUN
```

Predeveloped HSPF Message File

Mitigated HSPF Message File

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