



BARGHAUSEN
A DIVISION OF CORE STATES GROUP

**CORE
STATES**

PRCCP20250372
1st Review
May 2025

Storm Drainage Report

Puyallup Public Safety Building

PREPARED BY
Kaleb Mapstead

PREPARED FOR

Benaroya Capital, LLC

CLIENT ADDRESS

9675 SE 36th Avenue, Suite 115
Mercer Island, WA 98040

SITE ADDRESS

1015 39th Avenue SE
Puyallup, Washington
98374

PROJECT NO.

23796

DATE

02/26/2025

JURISDICTION

City of Puyallup

1.0 PROJECT OVERVIEW

The Puyallup Public Safety Building project is located on a 77-acre site. The site is located at 1015 39th Avenue SE within the City of Puyallup, Washington and encompasses one existing tax parcel (0419034038). This redevelopment project will consist of approximately 48,700 square feet of tenant improvements to the Benaroya South Hill Business and Technology Center for the proposed Puyallup Police Department and Emergency Operations Center. Limited building envelope improvements for two (2) new entries (one public, one secure), plus parking lot striping and security improvements. This storm drainage report accompanies the construction documents prepared for the project and provides site information and documentation in accordance with the 2019 Washington State Department of Ecology Stormwater Management Manual for Western Washington (SWMMWW) and the City of Puyallup standards.

Add verbiage that the proposed project is part of a larger, Common Plan of Development (Centeris Voltage Park project (2024); Benaroya Parking Expansion project (2022)) occurring at the Benaroya business complex and includes the use of existing stormwater facilities. Discuss how the proposed project may, or may not, affect the existing stormwater R/D facilities.

**THE PROJECT
OVERVIEW
HAS BEEN
UPDATED**

Due to this project being part of an ongoing common plan of development which is greater than 1 acre, a Construction Stormwater General Permit shall be obtained from the Department of Ecology.

**AN NPDES
PERMIT HAS
BEEN APPLIED
FOR**

2.0 CONDITIONS AND REQUIREMENTS SUMMARY

2.1 Analysis of the Minimum Requirements

This project is not Flow Control Exempt. Flow Control Exempt refers to a specific Receiving Waterbody designated by Ecology...revise accordingly. **UPDATED**

Minimum Requirement No. 1: Preparation of a Stormwater Site Plan.

Response: The project creates more than 2,000 square feet of new and/or replaced impervious surfaces. A stormwater site plan has been prepared for this project.

Minimum Requirement No. 2: Construction Stormwater Pollution Prevention Plan (SWPPP).

Response: The project will consider all 13 elements of Construction Stormwater Pollution Prevention. The 13 elements are addressed in the SWPPP provided in Appendix C

Minimum Requirement No. 3: Source Control of Pollution.

Response: Permanent source control Best Management Practices (BMPs) are already in place for the facility's daily operations.

Minimum Requirement No. 4: Preservation of Natural Drainage Systems and Outfalls.

Response: The project will not alter any drainage patterns and preserves the existing storm drainage system and flow paths.

Minimum Requirement No. 5: Onsite Stormwater Management.

Response: The project is flow control exempt and triggers MRs #1 through #9, the project considers BMPs from List #3 of the SWMMWW.

Lawn and Landscape Areas:

Areas of landscape will be disturbed with this project, therefore soil amendments under BMP T5.13 are applicable

Roofs:

Downspout Infiltration:

The nearest soil pit for an immediate adjacent project shows no infiltrative capacity for the soils and therefore infiltration is not feasible

Downspout Dispersion:

Adequate flow paths are not available and therefore dispersion is not feasible.

Other Hard Surfaces:

Dispersion:

Adequate flow paths are not available and therefore dispersion is not feasible.

Revise for List 2 (if unable to meet the LID Performance Standard as noted).

UPDATED

Provide reference (Firm and Date) of the associated geotech report. Provide specificity regarding wet season groundwater elevation and/or hydraulic conductivity to justify the infeasibility finding.

ADDED

Minimum Requirement No. 6: Runoff Treatment.

Response: The redevelopment project creates less than 5,000 square feet of new pollution generating hard surfaces therefore runoff treatment is not required.

Minimum Requirement No. 7: Flow Control.

Response: The redevelopment project does not increase the 100-year flow in any onsite threshold discharge areas (TDA) by more than 0.15 cfs and therefore, the project is exempt.

Minimum Requirement No. 8: Wetlands Protection.

Response: The project does not propose any changes to the natural drainage system. The existing wetlands on and/or adjacent to the site will continue to function as in the existing condition.

Minimum Requirement No. 9: Operation and Maintenance.

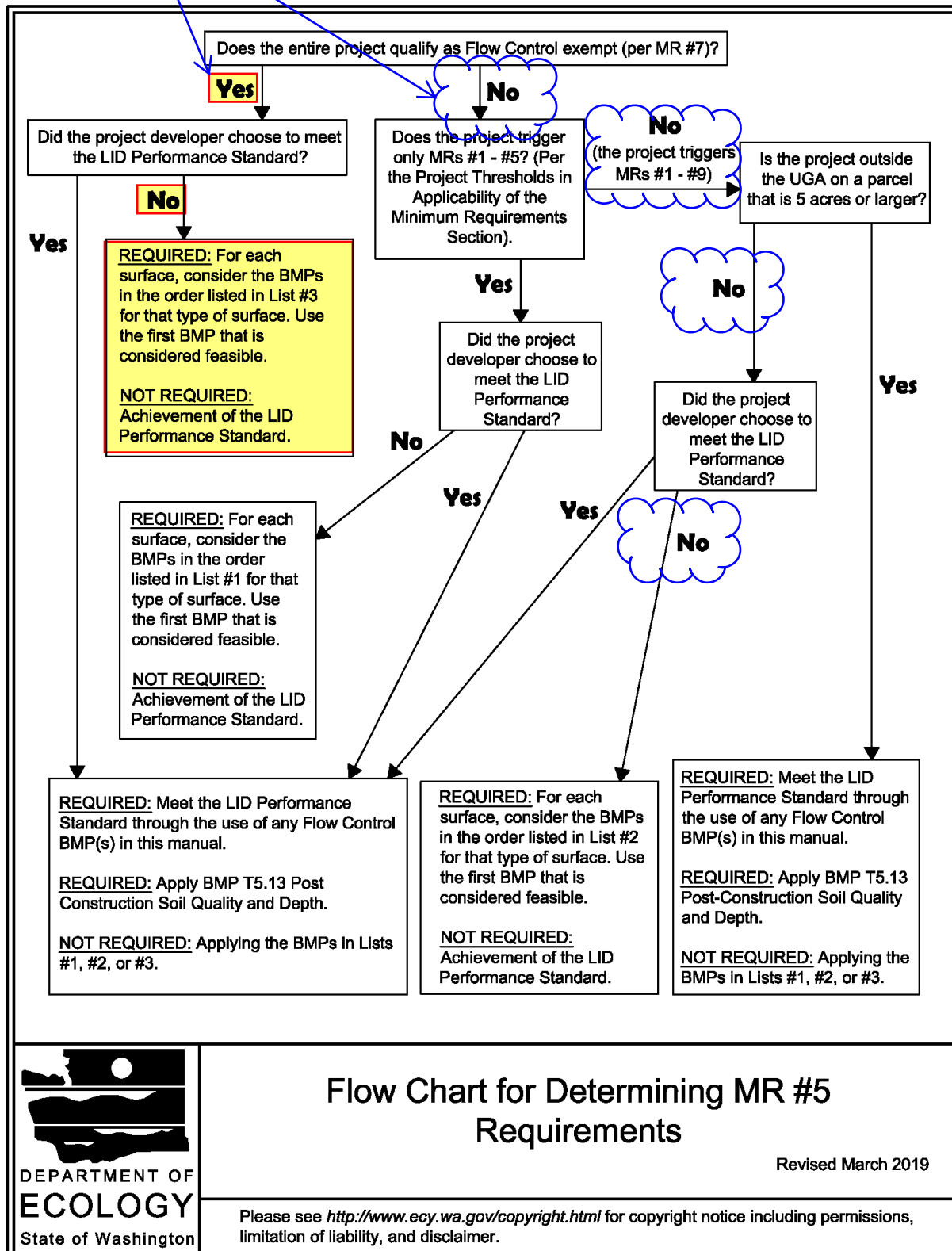
Response: An operations and maintenance manual is provided in Appendix D.

Revise the MR7 Response to account for the Common Plan of Development occurring on the Benaroya Complex. Individual TDAs associated with the project site do not apply since the TDA would be delineated based on overall Common Plan of Development.

UPDATED

Revise per markups on preceding pages.

Figure I-3.3: Flow Chart for Determining MR #5 Requirements



3.0 EXISTING CONDITIONS SUMMARY

The overall facility encompasses approximately 77 acres. The overall site is irregular in shape and contains several buildings and existing data center facilities. The site was initially developed back in the 1980s. The majority of the subject property consists of impervious surfaces (buildings, sidewalks, asphalt pavement) surrounded by maintained lawn and ornamental non-native landscaping. The undeveloped forested portions of the site contain fir and maple trees. The site is bound on the north and east by parcels owned by Pierce College and City of Puyallup Right-of-Way, to the south by 39th Avenue SE and to the west by an existing senior living facility. Site soils in the area of redevelopment consist of primarily Kapowsin gravelly ashy loam, Indianola loamy sands and Everett very gravelly sandy loams. Previous wetland investigations identified potential wetlands on the site, none of which are affected by this project. The project site is not located in any mapped floodplain. Please refer to the exhibits within Appendix A for additional existing conditions.

The immediate project site topography consists of two (2) TDAs. TDA 1 generally slopes from east to west within an existing landscaped area and adjacent drive lane along the west side of the existing building. TDA 2 generally slopes to the north within an existing parking area located along the south side of the existing building. An existing developed stormwater system consisting of catch basins and stormwater piping collect and convey flows from this area to an existing stormwater pond which infiltrates into surrounding soils. No drainage or erosion issues were reported or noted in our site reconnaissance.

There is no upstream basin contributing runoff to this project site as 39th Avenue SE forms the project site's southern boundary and has its own collection and conveyance system. To the east the, flows primarily travel to the north and around this property.

Revise TDA comments due to the proposed project being one of multiple projects happening at the Benaroya complex resulting in this project being part of a Common Plan of Development (as considered, and confirmed, by Ecology). As a result, there would be only one TDA for the project site if runoff all drains to the the existing stormwater pond.

UPDATED

Revise narrative to account for only one TDA. Verify whether flow control BMPs are required per MR7 criteria and one TDA.

UPDATED

4.0 PERMANENT STORMWATER CONTROL PLAN

A. Existing Site Hydrology

The majority of the subject property consists of impervious surfaces building, sidewalks, and asphalt pavements surrounded by maintained lawn and ornamental non-native landscaping. The undeveloped forested portions of the site contain fir and maple trees. An existing developed stormwater system consisting of catch basins and stormwater piping collect and convey flows from this area to an existing stormwater pond which infiltrates into surrounding soils

B. Developed Site Hydrology

Limits of site disturbance will include installation of sediment and erosion control BMPs construction of a new public building entrance along the western side of the existing building, parking lot restriping, security fence/gate installation, and new secure building entrance along the southern side of the existing building. Additional features in the secure area will include an outdoor patio and recreation area. The total disturbed area will cover approximately 0.30 acre.

Approximately 10,204 square feet (0.23 acre) of new plus replaced hard surfaces are proposed with this redevelopment across the two (2) TDAs with TDA1 containing 0.053 acre and TDA2 containing 0.181 acre. Based on the flow chart for redevelopment, all minimum requirements are applicable to the new and replaced hard surfaces within TDA2, however TDA1 does not trigger all minimum requirements. Please refer to the developed basin map within Appendix B.

C. Performance Standards

The Western Washington Hydrology Model (WWHM) methodology was used to model the TDAs in conformance with the SWMMWW and the City of Puyallup standards.

D. Flow Control System

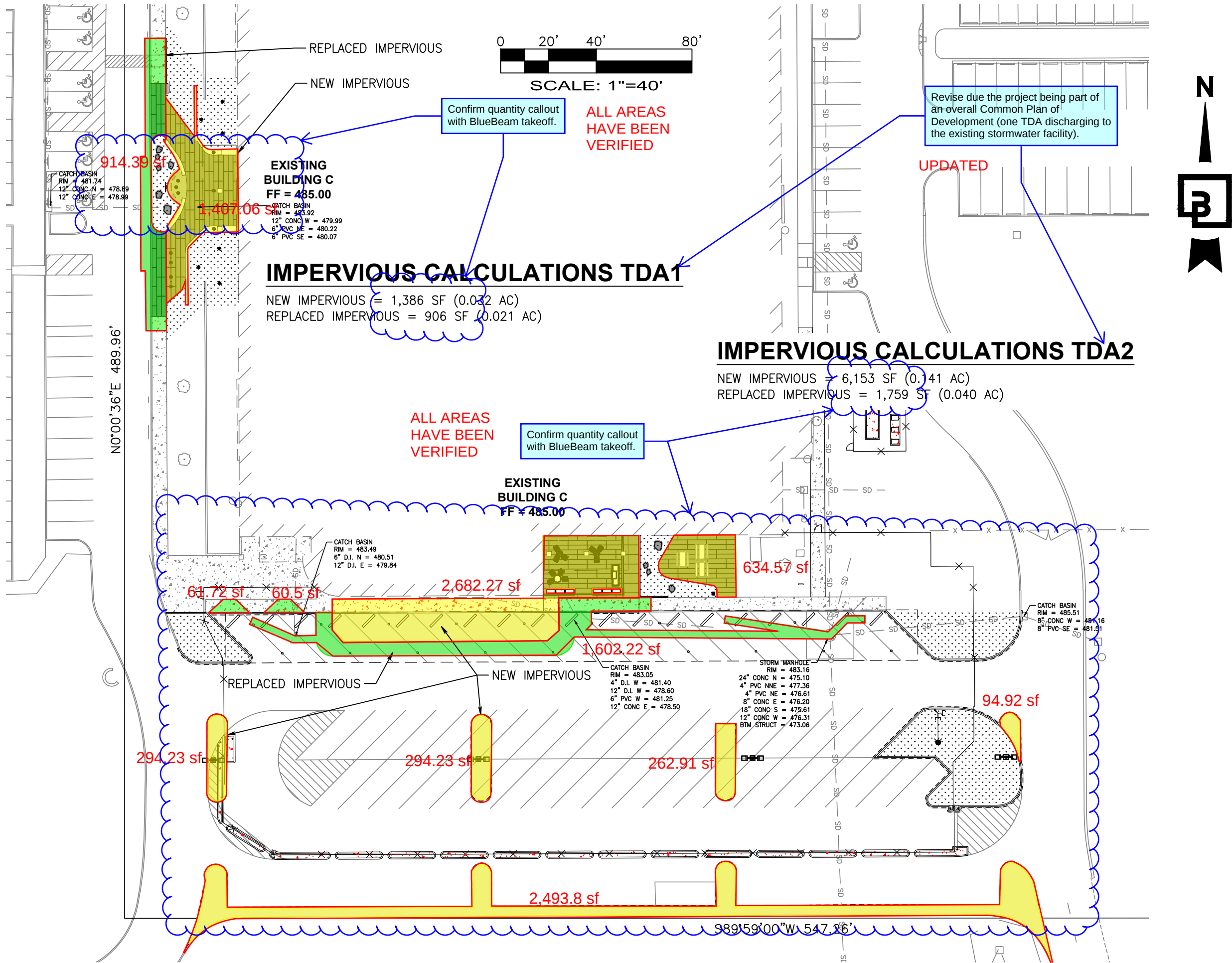
The redevelopment project will not increase the 100-year flow in any onsite TDA by more than 0.15 cfs and therefore, the project is exempt from flow control requirements.

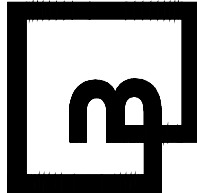
E. Water Quality System

The redevelopment project does not create greater than 5,000 square feet of new pollution generating hard surfaces therefore runoff treatment is not required.

If flow control BMPs are required considering a single TDA, discuss needed improvements to the existing stormwater pond and/or control structure, if any.

NOTED



					Revision									
No.	Date	By	Ckd.	Appr.										
Title:					DEVELOPED BASIN MAP									
For:					-									
Scale:														
Horizontal														
1"=40'														
Vertical														
na														
Designed					—									
Drawn					—									
Checked					—									
Approved					—									
Date					02/07/25									
 Barghausen Consulting Engineers, LLC. 18215 72nd Avenue South Kent, WA 98032 425.251.6222 barghausen.com										Job Number 23796				
Sheet					1 of 1									

WWHM CALCULATIONS

WWHM2012

PROJECT REPORT

TDA1

Revise due the project being part of an overall Common Plan of Development (one TDA discharging to the existing stormwater facility).

UPDATED

General Model Information

WWHM2012 Project Name: 23796TDA1

Site Name:

Site Address:

City:

Report Date: 2/26/2025

Gage: 38 IN CENTRAL

Data Start: 10/01/1901

Data End: 09/30/2059

Timestep: 15 Minute

Precip Scale: 1.000

Version Date: 2023/01/27

Version: 4.2.19

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 1

Bypass:	No
GroundWater:	No
Pervious Land Use C, Forest, Flat	acre 0.053
Pervious Total	0.053
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.053

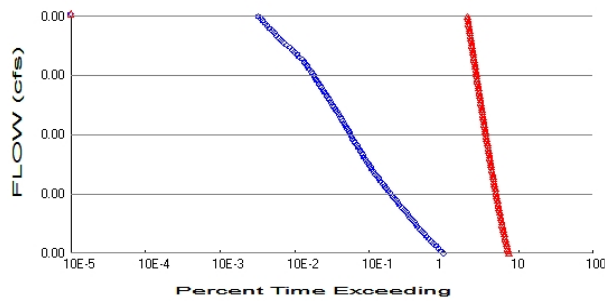
Mitigated Land Use

Basin 1

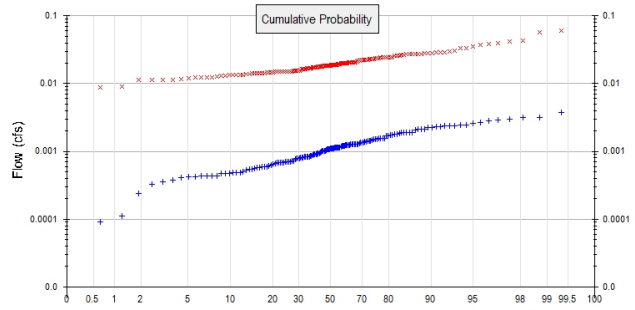
Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
ROADS FLAT	0.053
Impervious Total	0.053
Basin Total	0.053

Analysis Results

POC 1



+ Predeveloped x Mitigated



Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.053
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0
Total Impervious Area: 0.053

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.001117
5 year	0.001738
10 year	0.002075
25 year	0.002418
50 year	0.002622
100 year	0.00279

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.018574
5 year	0.024932
10 year	0.029553
25 year	0.035878
50 year	0.040954
100 year	0.046353

0.046-0.003= 0.043 cfs < 0.15 cfs

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1902	0.001	0.022
1903	0.001	0.024
1904	0.001	0.028
1905	0.001	0.012
1906	0.000	0.014
1907	0.002	0.018
1908	0.001	0.015
1909	0.001	0.019
1910	0.002	0.018
1911	0.001	0.020

Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2025; All Rights Reserved.

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

WWHM2012

PROJECT REPORT

TDA2

Revise due the project being part of
an overall Common Plan of
Development (one TDA discharging to
the existing stormwater facility).

REVISED

General Model Information

WWHM2012 Project Name: 23796TDA2

Site Name:

Site Address:

City:

Report Date: 2/26/2025

Gage: 38 IN CENTRAL

Data Start: 10/01/1901

Data End: 09/30/2059

Timestep: 15 Minute

Precip Scale: 1.000

Version Date: 2023/01/27

Version: 4.2.19

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 1

Bypass:	No
GroundWater:	No
Pervious Land Use C, Forest, Flat	acre 0.181
Pervious Total	0.181
Impervious Land Use	acre
Impervious Total	0
Basin Total	0.181

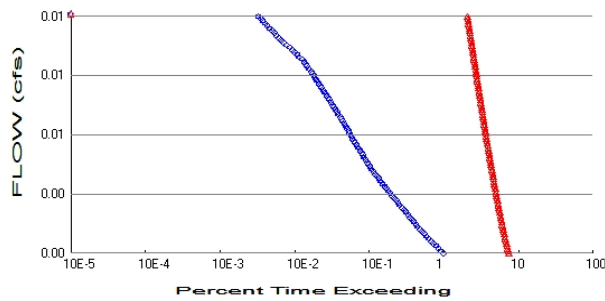
Mitigated Land Use

Basin 1

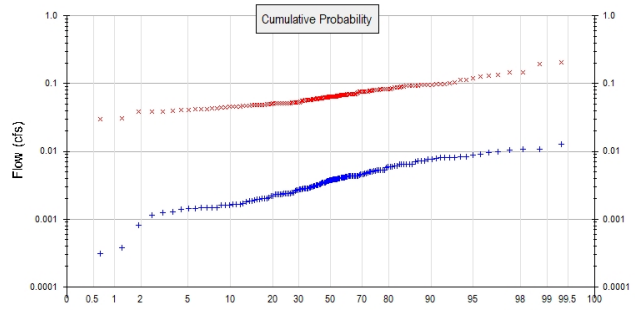
Bypass:	No
GroundWater:	No
Pervious Land Use	acre
Pervious Total	0
Impervious Land Use	acre
ROADS FLAT	0.181
Impervious Total	0.181
Basin Total	0.181

Analysis Results

POC 1



+ Predeveloped x Mitigated



Predeveloped Landuse Totals for POC #1

Total Pervious Area: 0.181
Total Impervious Area: 0

Mitigated Landuse Totals for POC #1

Total Pervious Area: 0
Total Impervious Area: 0.181

Flow Frequency Method: Log Pearson Type III 17B

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	0.003814
5 year	0.005934
10 year	0.007085
25 year	0.008258
50 year	0.008954
100 year	0.009527

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	0.063432
5 year	0.085146
10 year	0.100928
25 year	0.122528
50 year	0.139863
100 year	0.1583

$$0.158 - 0.009 = 0.149 \text{ cfs} < 0.15 \text{ cfs}$$

Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1902	0.003	0.075
1903	0.002	0.083
1904	0.004	0.094
1905	0.002	0.042
1906	0.001	0.047
1907	0.006	0.063
1908	0.004	0.052
1909	0.004	0.064
1910	0.006	0.061
1911	0.004	0.069

Disclaimer

Legal Notice

This program and accompanying documentation are provided 'as-is' without warranty of any kind. The entire risk regarding the performance and results of this program is assumed by End User. Clear Creek Solutions Inc. and the governmental licensee or sublicensees disclaim all warranties, either expressed or implied, including but not limited to implied warranties of program and accompanying documentation. In no event shall Clear Creek Solutions Inc. be liable for any damages whatsoever (including without limitation to damages for loss of business profits, loss of business information, business interruption, and the like) arising out of the use of, or inability to use this program even if Clear Creek Solutions Inc. or their authorized representatives have been advised of the possibility of such damages. Software Copyright © by : Clear Creek Solutions, Inc. 2005-2025; All Rights Reserved.

Clear Creek Solutions, Inc.
6200 Capitol Blvd. Ste F
Olympia, WA. 98501
Toll Free 1(866)943-0304
Local (360)943-0304

www.clearcreeksolutions.com

CONVEYANCE CALCULATIONS

23796-R-CALC-PPSB (Conveyance)-2025-02-26

BARGHAUSEN CONSULTING ENGINEERS - PIPE FLOW CALCULATOR
using the Rational Method & Mannings Equation for 25 year storm event

JOB NAME: PPSB
JOB#: 23796
FILE NO.:

Total Site Area
0.21

C= 0.9 n= 0.012
d= 12 Tc= 6.3

A= Contributing Area (Ac)
C= Runoff Coefficient
Tc= Time of Concentration (min)
I= Intensity at Tc (in/hr)
d= Diameter of Pipe (in)
L= Length of Pipe (ft)
D= Water Depth at Qd (in)
Qd= Design Flow (cfs)
Qf= Full Capacity Flow (cfs)
Vd= Velocity at Design Flow (fps)
Vf= Velocity at Full Flow (fps)
s= Slope of pipe (%)
n= Manning Roughness Coefficient
Tt= Travel Time at Vd (min)

COEFFICIENTS FOR THE RATIONAL METHOD "Ir"-EQUATION				
STORM	Ar	Br	PRECIP=	3.5
2YR	1.58	0.58	Ar=	2.66
10YR	2.44	0.64	Br=	0.65
25YR	2.66	0.65		
50YR	2.75	0.65		
100YR	2.61	0.63		

	FROM	TO	A	s	L	d	Tc	n	C	SUM A	A*C	SUM A*C	I	Qd	Qf	Qd/Qf	D/d	D	Vf	Vd	Tt
TRUE	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====	=====
FALSE	RD9	SD1	0.02	2.00	19	6	6.3	0.012	0.9	0.02	0.02	0.02	2.81	0.05	0.86	0.059	0.165	0.99	4.38	2.37	0.13
TRUE																					
FALSE	RD8	RD7	0.03	1.80	57	6	6.3	0.012	0.9	0.03	0.03	0.03	2.81	0.08	0.82	0.093	0.204	1.23	4.16	2.55	0.37
FALSE	RD7	SD13	0.03	1.00	17	6	6.7	0.012	0.9	0.06	0.03	0.05	2.71	0.15	0.61	0.241	0.333	2.00	3.10	2.54	0.11
TRUE																					
FALSE	RD6	SD12	0.03	2.00	3	6	6.3	0.012	0.9	0.03	0.03	0.03	2.81	0.08	0.86	0.088	0.198	1.19	4.38	2.63	0.02
TRUE																					
FALSE	RD5	SD4	0.03	1.50	43	6	6.3	0.012	0.9	0.03	0.03	0.03	2.81	0.08	0.74	0.102	0.217	1.30	3.79	2.43	0.29
TRUE																					
FALSE	RD4	SD11	0.03	2.00	7	6	6.3	0.012	0.9	0.03	0.03	0.03	2.81	0.08	0.86	0.088	0.198	1.19	4.38	2.63	0.04
TRUE																					
FALSE	RD11	SD10	0.02	2.00	5	6	6.3	0.012	0.9	0.02	0.02	0.02	2.81	0.05	0.86	0.059	0.165	0.99	4.38	2.37	0.04
TRUE																					
FALSE	RD10	SD9	0.02	2.00	11	6	6.3	0.012	0.9	0.02	0.02	0.02	2.81	0.05	0.86	0.059	0.165	0.99	4.38	2.37	0.08
TRUE																					
TRUE																					

APPENDIX C



BARGHAUSEN
A DIVISION OF CORE STATES GROUP

**CORE
STATES**

Stormwater Pollution Prevention Plan (SWPPP)

Puyallup Public Safety Building

PREPARED BY

Kaleb Mapstead

PREPARED FOR

Benaroya Capital, LLC

CLIENT ADDRESS

9675 SE 36th Avenue, Suite 115
Mercer Island, WA 98040

SITE ADDRESS

1015 39th Avenue SE
Puyallup, Washington
98374

PROJECT NO.

23796

DATE

02/26/2025

JURISDICTION

City of Puyallup

Stormwater Pollution Prevention Plan

For
Puyallup Public Safety Building

Prepared For
Benaroya Capital, LLC
9675 SE 36th Avenue
Suite 115
Mercer Island, WA 9040

Owner	Developer	Operator/Contractor
Benaroya Capital, LLC 9675 SE 36 th Avenue Mercer Island, WA 98040	Benaroya Capital, LLC 9675 SE 36 th Avenue Mercer Island, WA 98040	TBD

Project Site Location
1015 39th Avenue SW
Puyallup, WA 98374

Certified Erosion and Sediment Control Lead
TBD

SWPPP Prepared By
Barghausen Consulting Engineers, LLC.
18215 - 72nd Avenue South
Kent, WA 98032
(425) 251-6222
Kaleb Mapstead, PE

SWPPP Preparation Date
February 25, 2025

Project Construction Dates
April 2025 – October 2025

Update to reflect anticipated
permit issuance.

updated

4.0 Construction Phasing and BMP Implementation

The BMP implementation schedule will be driven by the construction schedule. The following provides a sequential list of the proposed construction schedule milestones and the corresponding BMP implementation schedule. The list contains key milestones such as wet season construction.

The BMP implementation schedule listed below is keyed to proposed phases of the construction project, and reflects differences in BMP installations and inspections that relate to wet season construction. The project site is located west of the Cascade Mountain Crest. As such, the dry season is considered to be from May 1 to September 30 and the wet season is considered to be from October 1 to April 30.

Update to reflect anticipated permit issuance.

- | | |
|--|-------------------------------|
| ▪ Estimate of Construction start date: | <u>April 2025</u> |
| ▪ Estimate of Construction finish date: | <u>October 2025</u> |
| ▪ Mobilize equipment on site: | _____ |
| ▪ Mobilize and store all ESC and soil stabilization products (store materials on hand BMP C150): | _____ |
| ▪ Install ESC measures: | _____ |
| ▪ Install stabilized construction entrance: | _____ |
| ▪ Begin clearing and grubbing: | _____ |
| ▪ Temporary erosion control measures (hydroseeding): | _____ |
| ▪ Site inspections reduced to monthly: | _____ |
| ▪ Begin concrete pour and implement BMP C151: | _____ |
| ▪ Excavate and install new utilities and services (Phase 1): | _____ |
| ▪ Complete utility construction: | _____ |
| ▪ Begin implementing soil stabilization and sediment control BMPs throughout the site in preparation for wet season: | _____ |
| ▪ WET SEASON STARTS: | <u>October 1, 2025</u> |

Appendix D – General Permit

To be added by contractor prior to construction.

Due to this project being part of an ongoing Common Plan of Development which is greater than 1 acre, a Construction Stormwater General Permit shall be obtained from the Department of Ecology.

NOTED

Revise to reflect
the current project.

REVISED

Site Inspection Form

General Information			
Project Name:	<u>Wesley Homes Puyallup</u>		
Inspector Name:	TBD	Title:	
Date:		CESCL # :	
Inspection Type:	☐ After a rain event ☐ Weekly ☐ Turbidity/transparency benchmark exceedance ☐ Other		
Weather			
Precipitation	Since last inspection	In last 24 hours	
Description of General Site Conditions:			

Inspection of BMPs			
Element 1: Mark Clearing Limits			
BMP:			

Location	Inspected		Functioning	Problem/Corrective Action
	Y	N	NIP	

BMP:

Location	Inspected		Functioning	Problem/Corrective Action
	Y	N	NIP	

Element 2: Establish Construction Access

BMP:

Location	Inspected		Functioning	Problem/Corrective Action
	Y	N	NIP	

BMP:

Location	Inspected		Functioning	Problem/Corrective Action
	Y	N	NIP	