STORMWATER DRAINAGE CONTROL CERTIFICATE

Land Use Planning Division

www.multco.us/landuse ▪ Email: land.use.planning@multco.us ▪ Phone: (503) 988-3043

> 500 SQUARE FEET OF NEW / REPLACED IMPERVIOUS SURFACES

NOTE TO PROPERTY OWNER/APPLICANT: Please have an Oregon Licensed Professional Engineer fill out this Certificate and attach a signed site plan, stamped and signed storm water system details, and stamped and signed storm water calculations used to support the conclusion. Please note that replacement of existing structures does not provide a credit to the square footage threshold.

Property Address or Legal Description: 31522 SE Dodge Park Blvd.

Description of Project: New Residence w/ Stormwater Planter

The following stormwater drainage control system will be required:

- ☐ Use of Gutter, downspout, and splash block drainage control system;
- ☐ Natural Infiltration Process; or
- ☑ Construction of an on-site storm water drainage control system.

The rate of stormwater runoff attributed to the new/replaced development for a 10-year/24-hour storm event will be no greater than that which existed prior to any development as measured from the property line or from the point of discharge into a water body with the use of the designated system [MCC 39.6235].

I certify the attached signed site plan showing the areas needed for the chosen system type, stamped and signed storm water system design details, and stamped and signed calculations dated 3/5/24 will meet the requirements listed above.

Signature: Dan Symons

Print Name: Dan Symons, P.E.

Business Name: Symons Engineering Consultants

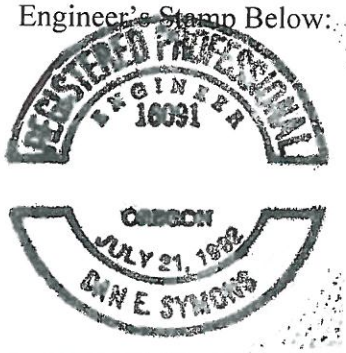
Address: P.O. Box 1692, Hood River, OR 97031

Phone #: 971-219-9111

Email: dans@symonsengineering.com

Date: 3/05/2024

Engineer's Stamp Below:



RENEWS 6/30/24

NOTE TO ENGINEER: Please check one box above. Multnomah County does not use the City of Portland's storm water ordinance. As part of your review, MCC 39.6235 requires that you must consider all new, replaced, and existing structures and impervious areas and determine that the newly generated stormwater from the new or replaced impervious surfaces is in compliance with Multnomah County Code for a 10-year/24-hour storm event. This Storm Water Drainage Control Certificate does not apply to shingle or roof replacement on lawfully established structures.

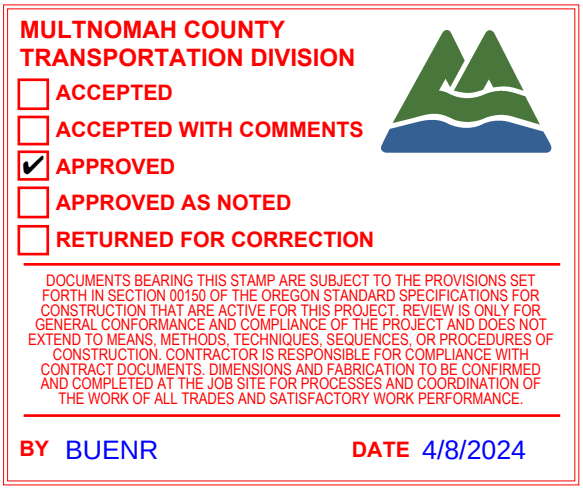
Proposed is single family residence at 31522 SE Dodge Park Blvd, Gresham, OR.

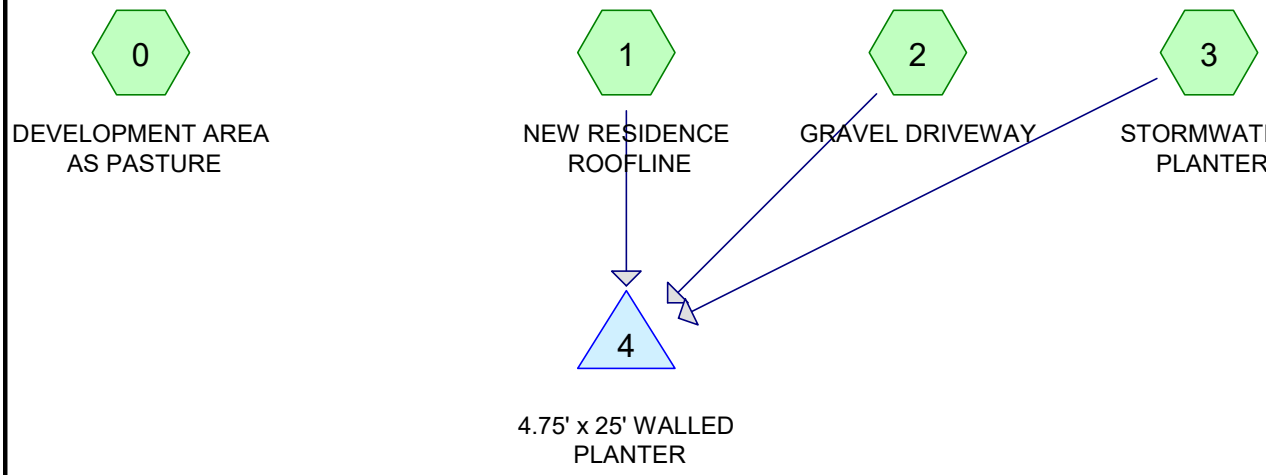
This 0.1-acre lot is located in unincorporated Multnomah County outside the urban growth boundary in the Johnson Creek watershed. Stormwater drainage is already available with the existing catch basin and piped storm system.

Stormwater management is provided on-site by use of a stormwater planter for managing newly proposed impervious surfaces. The proposed roofline shall be piped directly to a walled stormwater planter. Stormwater runoff will be detained, not only from the roofline, but also runoff captured from the graveled driveway area. Water quality treatment is provided via mechanical filtration and bioremediation in the soil and vegetation.

Seasonally-high groundwater can be as little as 1.5-2’ below ground surface and the infiltrating capacity of in-situ soil is poor, therefore the stormwater planter does count on infiltration for stormwater management and uses a 24” beehive structure w/ an underdrain and multiple orifices as a flow control device to provide on-site detention.

Proposed discharge from the managed stormwater system for the 10-YR design storm event is less than the historic, undeveloped, discharge rate for the development area in the 10-YR design storm event. Discharge was modeled for both proposed and historic conditions using the Santa Barbara Urban Hydrology (SBUH) method in HydroCAD, utilizing the design storm data from the neighboring City of Gresham and soil data from USDA NRCS Custom Soil Resource Report.





Subcat Reach Pond Link

Routing Diagram for 31522 SE DODGE PARK BLVD WALLED PLANTER
Prepared by Symons Engineering Consultants, Printed 3/5/2024
HydroCAD® 10.00-26 s/n 04326 © 2020 HydroCAD Software Solutions LLC

Summary for Subcatchment 0: DEVELOPMENT AREA AS PASTURE

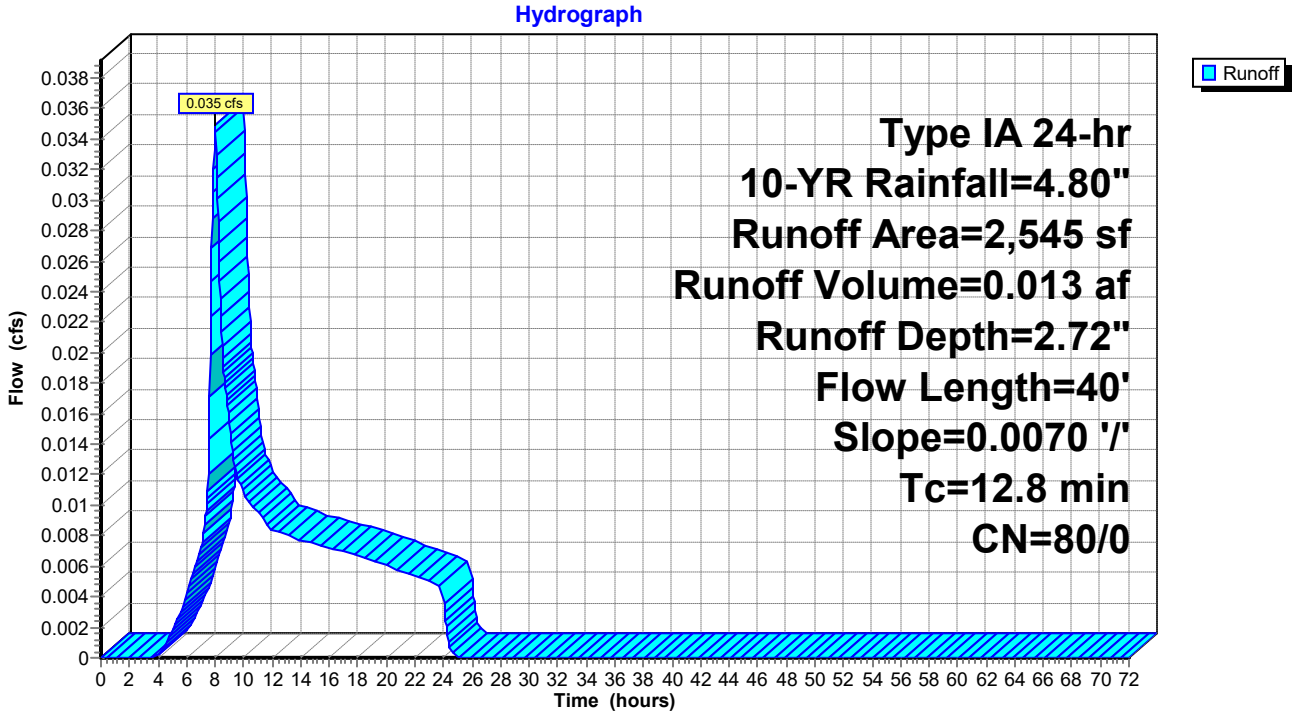
Runoff = 0.035 cfs @ 8.00 hrs, Volume= 0.013 af, Depth= 2.72"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.04 hrs
Type IA 24-hr 10-YR Rainfall=4.80"

	Area (sf)	CN	Description
	2,170	80	Pasture/grassland/range, Good, HSG D
	225	80	Pasture/grassland/range, Good, HSG D
*	119	80	Pasture/grassland/range, Good, HSG D
*	31	80	Pasture/grassland/range, Good, HSG D
	2,545	80	Weighted Average
	2,545	80	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.8	40	0.0070	0.05		**Sheet Flow, SHEET** Grass: Short n= 0.150 P2= 1.00"

Subcatchment 0: DEVELOPMENT AREA AS PASTURE



Summary for Subcatchment 1: NEW RESIDENCE ROOFLINE

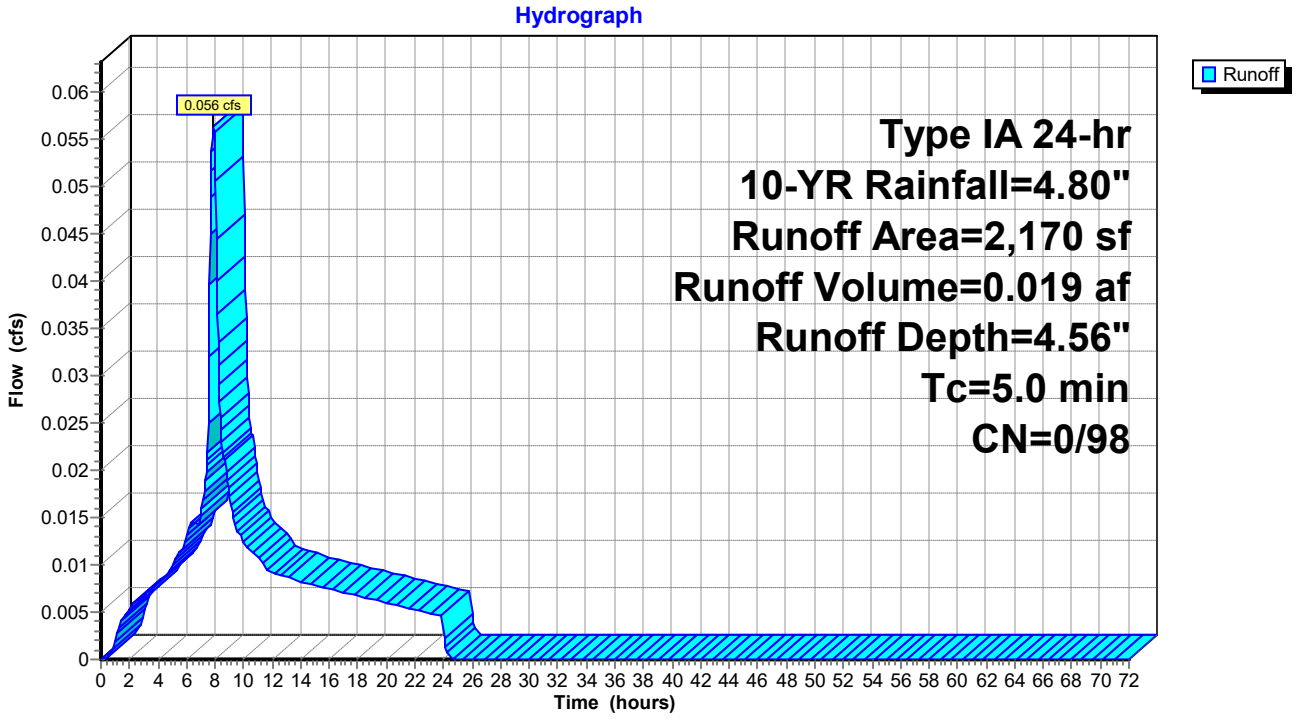
Runoff = 0.056 cfs @ 7.89 hrs, Volume= 0.019 af, Depth= 4.56"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.04 hrs
Type IA 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
2,170	98	Unconnected roofs, HSG D
2,170	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Subcatchment 1: NEW RESIDENCE ROOFLINE



Summary for Subcatchment 2: GRAVEL DRIVEWAY

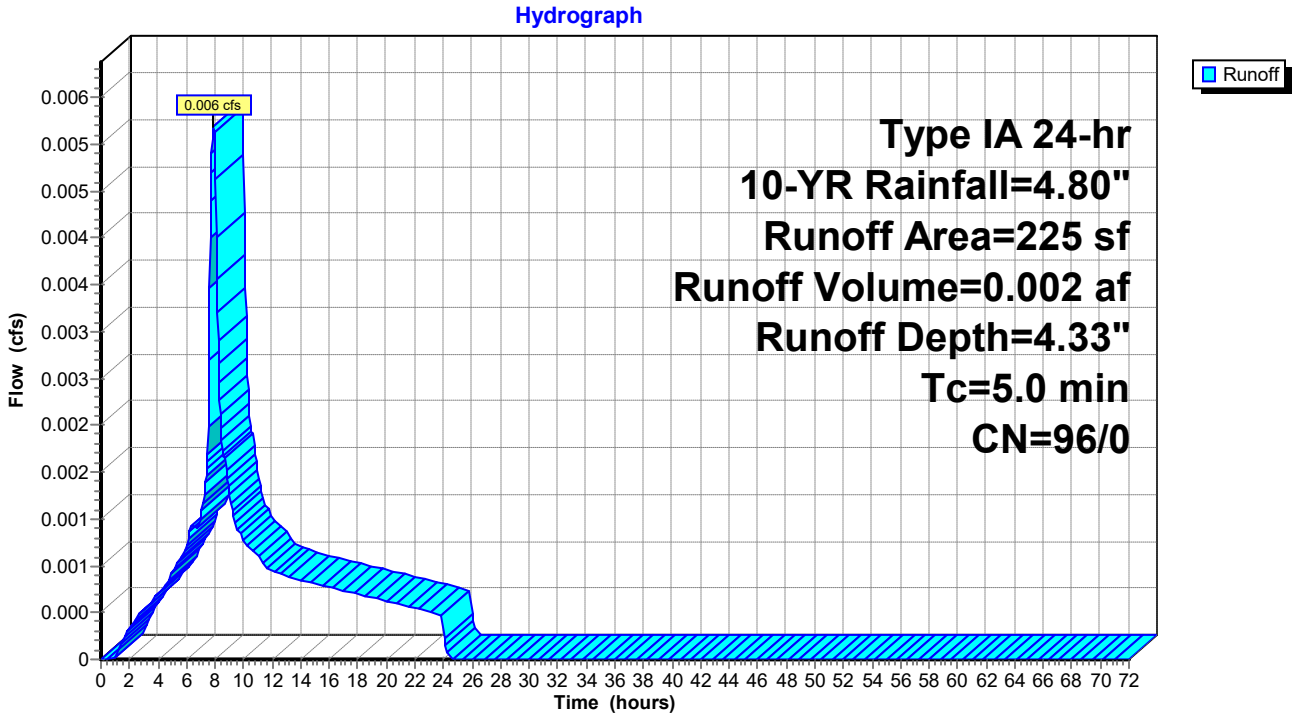
Runoff = 0.006 cfs @ 7.90 hrs, Volume= 0.002 af, Depth= 4.33"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.04 hrs
Type IA 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
225	96	Gravel surface, HSG D
225	96	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Subcatchment 2: GRAVEL DRIVEWAY



Summary for Subcatchment 3: STORMWATER PLANTER

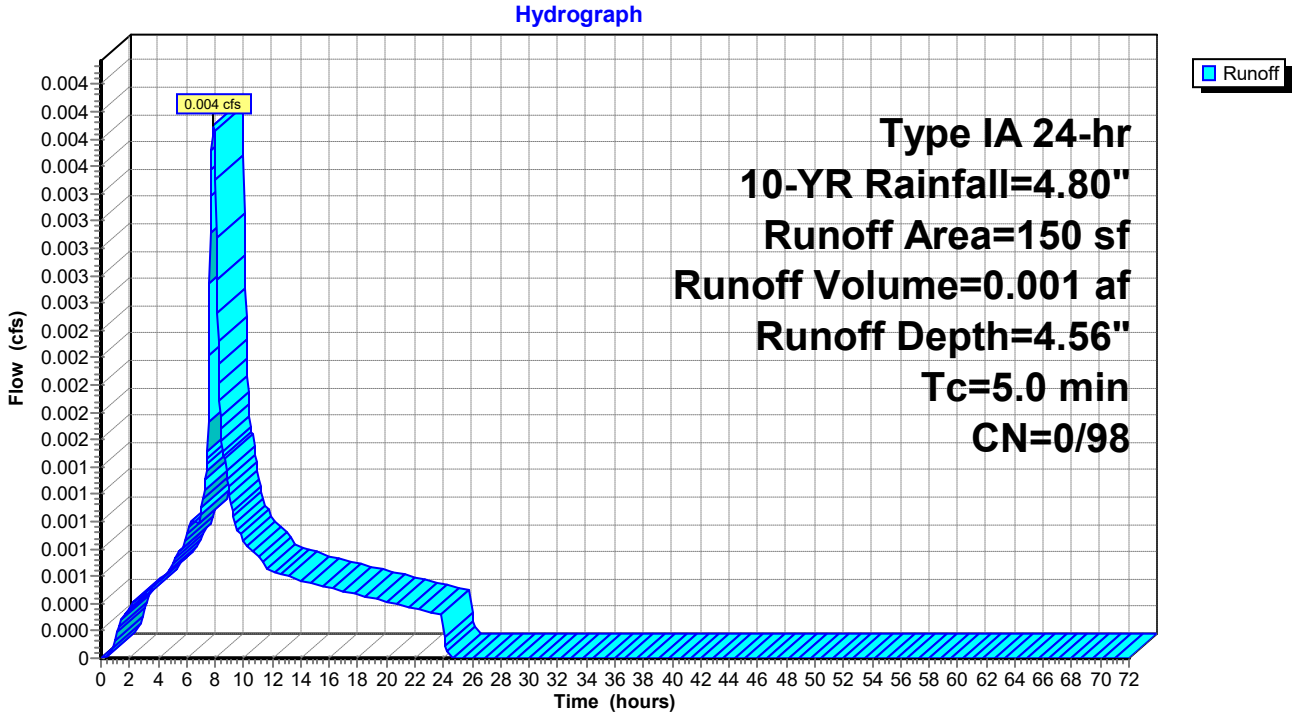
Runoff = 0.004 cfs @ 7.89 hrs, Volume= 0.001 af, Depth= 4.56"

Runoff by SBUH method, Split Pervious/Imperv., Time Span= 0.00-72.00 hrs, dt= 0.04 hrs
Type IA 24-hr 10-YR Rainfall=4.80"

Area (sf)	CN	Description
119	98	Water Surface, HSG D
31	98	Unconnected pavement, HSG D
150	98	Weighted Average
150	98	100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, DIRECT**

Subcatchment 3: STORMWATER PLANTER



Summary for Pond 4: 4.75' x 25' WALLED PLANTER

Inflow Area = 0.058 ac, 91.16% Impervious, Inflow Depth = 4.54" for 10-YR event
Inflow = 0.066 cfs @ 7.89 hrs, Volume= 0.022 af
Outflow = 0.032 cfs @ 8.36 hrs, Volume= 0.022 af, Atten= 52%, Lag= 28.2 min
Primary = 0.032 cfs @ 8.36 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.04 hrs
Peak Elev= 2.90' @ 8.36 hrs Surf.Area= 238 sf Storage= 167 cf
Flood Elev= 3.70' Surf.Area= 238 sf Storage= 261 cf

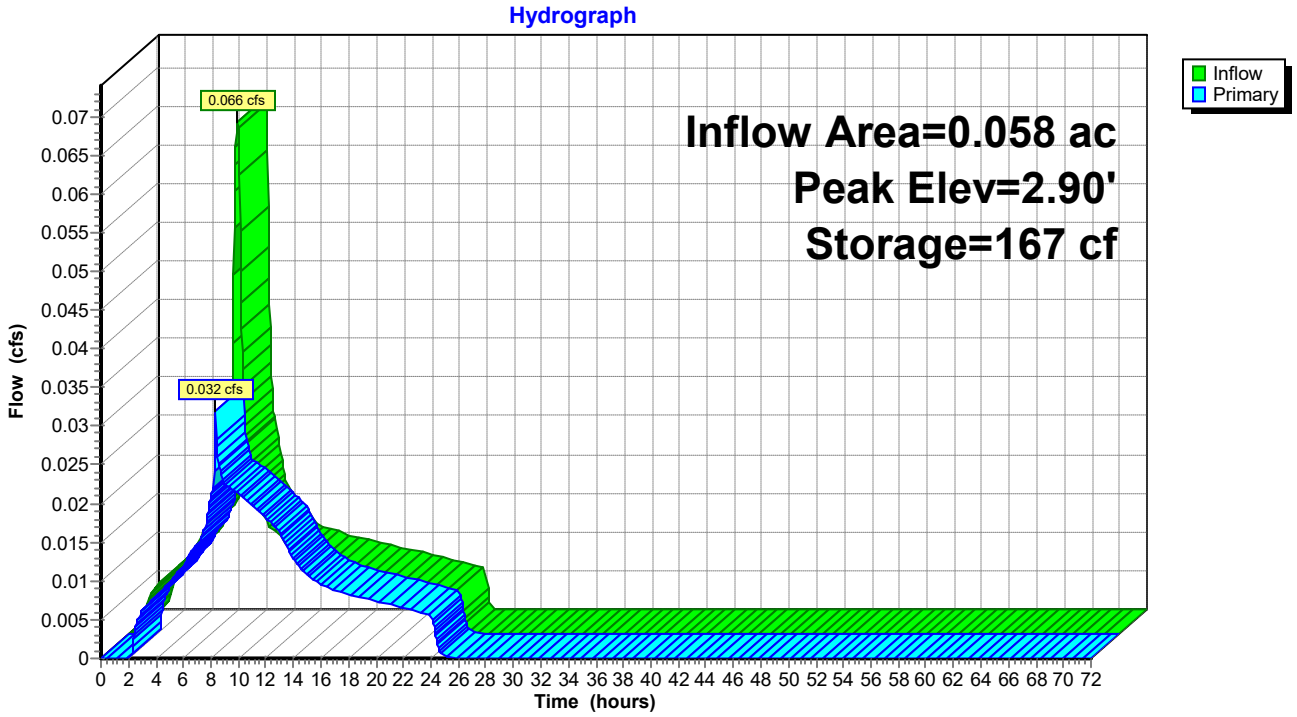
Plug-Flow detention time= 86.8 min calculated for 0.022 af (98% of inflow)
Center-of-Mass det. time= 67.7 min (725.7 - 658.0)

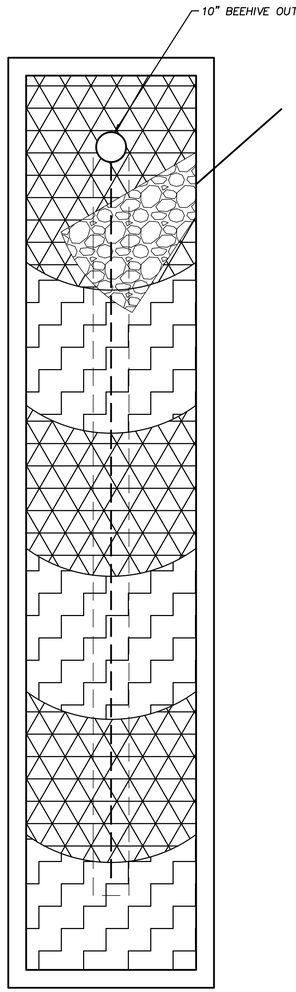
Volume	Invert	Avail.Storage	Storage Description
#1	0.60'	71 cf	**4.75'W x 25.00'L x 1.50'H 18" SOIL MEDIA** 178 cf Overall x 40.0% Voids
#2	2.10'	190 cf	**4.75'W x 25.00'L x 1.60'H 10" PONDING & 9" FREEBOARD**
		261 cf	Total Available Storage

Device	Routing	Invert	Outlet Devices
#1	Primary	0.59'	**4.000" Round CULVERT** L= 13.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 0.59' / 0.33' S= 0.0200 '/' Cc= 0.900 n= 0.011 PVC, smooth interior, Flow Area= 0.09 sf
#2	Device 1	2.90'	**24.000" Horiz. OVERFLOW WEIR** C= 0.600 Limited to weir flow at low heads
#3	Device 1	1.10'	**0.800" Vert. LOWER ORIFICE** C= 0.600

Primary OutFlow Max=0.026 cfs @ 8.36 hrs HW=2.90' (Free Discharge)
└─**1=CULVERT** (Passes 0.026 cfs of 0.616 cfs potential flow)
  ├─**2=OVERFLOW WEIR** (Weir Controls 0.003 cfs @ 0.18 fps)
  └─**3=LOWER ORIFICE** (Orifice Controls 0.022 cfs @ 6.41 fps)

Pond 4: 4.75' x 25' WALLED PLANTER





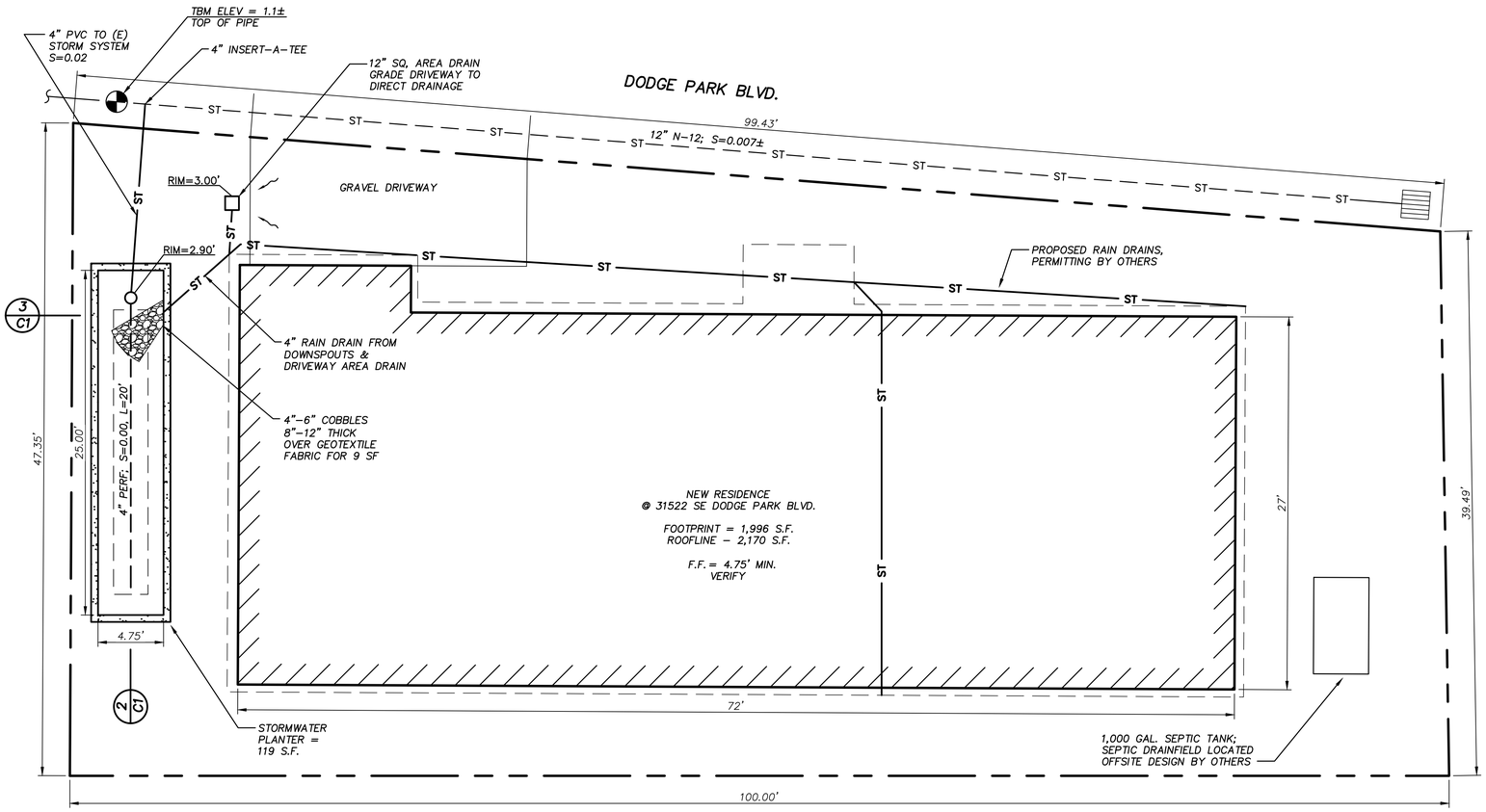
STORMWATER PLANTER PLANTING PLAN

1 — SCALE: 1" = 2'

STORM01

STORMWATER FACILITIES – PLANTING MATRIX							
STORMWATER FACILITY PLANTINGS: 80 HERBACEOUS PER 100 SF							TOTAL
SYMBOL	PLANT CATEGORY	SCIENTIFIC NAME	COMMON NAME	SIZE	POTENTIAL HEIGHT	SPACING O.C.	S.F. / QTY.
	HERBACEOUS	"Juncus patens"	SPREADING RUSH	#1	3'	12"	54 / 43
		"Carex Testacae"	NZ ORANGE SEDGE	#1	2'	12"	53 / 42

GROWING MEDIA: USE THE STANDARD BLEND. LOAMY SOIL, SAND, & COMPOST THAT IS 30–40% COMPOST BY VOLUME, HAS A PARTICLE GRADATION IN CONFORMANCE WITH ASTM C1 17/C136 (AASHTO T11/T27), ORGANIC MATTER CONTENT IN CONFORMANCE W/ ASTM D2974 (LOSS ON IGNITION TEST) W/ SOIL ORGANIC CONTENT AT A MINIMUM 10%, & A pH OF 5.5 TO 7.



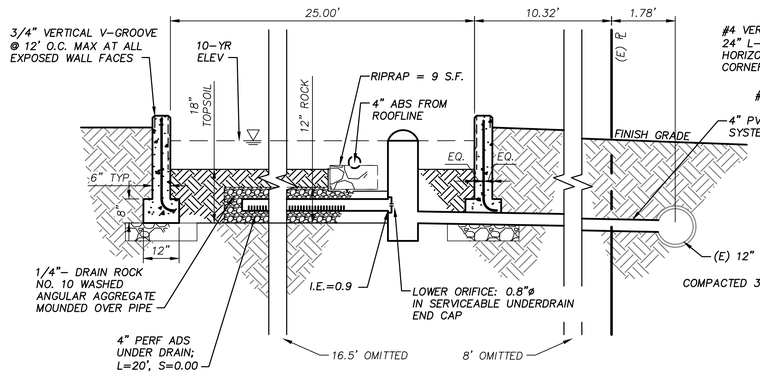
NOTE: FOOTING DRAINS AND/OR CRAWL SPACE LOW POINT DRAIN SHALL NOT CONNECT TO PLANTER DESIGNED TO DETAIN STORMWATER. SUCH DISCHARGE POINTS ARE DESIGN BY OTHERS.

STORMWATER SITE PLAN

NORTH

SCALE: 1" = 5'

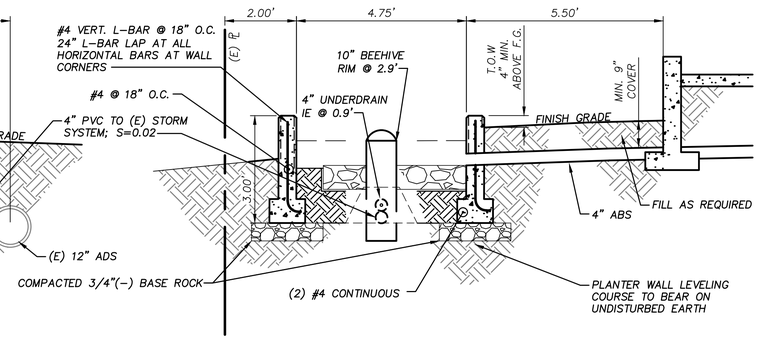
0 1.25 2.5 5 10



STORMWATER PLANTER SECTION

2 — SCALE: 1" = 2'

STORM02



STORMWATER PLANTER SECTION

3 — SCALE: 1" = 2'

STORM02

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REGISTERED PROFESSIONAL ENGINEER
16,091
OREGON
JULY 21, 1992
DAN E. SYMONS
RENEWS 6/30/24

CLIENT

JEFF WALDIEN
3646 CANDLEWOOD CT NE
KEIZER, OR 97303
503-580-3339

PROJECT

WARREN STORMWATER CERTIFICATE

SITE ADDRESS

31522 SE DODGE PARK BL
GRESHAM, OR 97080

SHEET NAME

STORMWATER SITE PLAN

REVISION

△ 03/05/24 ISSUED FOR CERTIFICATE
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ISSUE DATE	MARCH 5, 2024
DRAWING FILE	24-01c.DWG
PROJECT NUMBER	24-01

C1

SHEET NO.