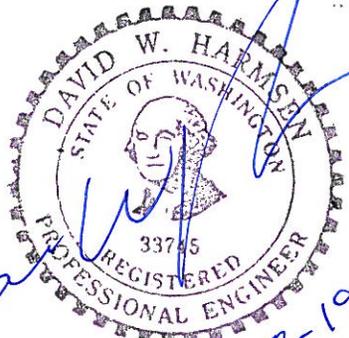


**CONCEPTUAL STORMWATER SITE PLAN
FOR THE
PRELIMINARY PLAT OF
BLUEBERRY MEADOWS
MONROE, WASHINGTON**

FEBRUARY 22, 2019



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PROJECT OVERVIEW

This Stormwater Site Plan has been prepared for the Preliminary Plat of Blueberry Meadows in Monroe, Washington. The project consists of 29 zero lot line lots spread over 7 buildings with a Tract set aside for a future 9 zero lot line lots in 2 buildings. A looped internal road network provides access to the buildings as well as additional parking and provides for two access points to Blueberry Lane. Currently, the site is vacant. The 3.0 acre site is located northwest at the intersection of Blueberry Lane and Kelsey Street, see Figure 1: Vicinity Map.

METHODOLOGY

The drainage design for the project has been prepared based on the requirements of the 2014 Department of Ecology Stormwater Management Manual (DOE Manual) as adopted by the City of Monroe. WWHM2012 as provided by DOE has been used for determining basin runoff and for sizing of the stormwater facilities. Based on the flow charts in Figure 2.3 of the DOE Manual and the site parameters, the project is subject to Minimum Requirements 1-9.

The project site parameters are:

- The project is new development.
- The project will create 5,000 sf of new or replaced impervious area.

MR 1: PREPARATION OF STORMWATER SITE PLANS

DRAINAGE PLAN DESCRIPTION

Stormwater runoff from roofs and paved areas will be collected and conveyed to infiltration trenches located under the access drive.

WATER QUALITY MEASURES

Following is a list of the proposed construction water quality BMPs. See MR 3: Water Pollution Source Control for more information. The proposed BMPs are as follows:

- BMP C103, High Visibility Fence
- BMP C105, Construction Entrance
- BMP C107, Construction Road/Parking Area Stabilization
- BMP C120, Temporary and Permanent Seeding
- BMP C121, Mulching
- BMP C123, Plastic Covering
- BMP C125, Topsoiling/Composting
- BMP C140, Dust Control
- BMP C220, Storm Inlet Protection
- Temporary Infiltration Pond

DETENTION SIZING

Flow control will consist of infiltration into the underlying soils using several underground, infiltration trenches. As a result there will be no surface runoff from the site.

CONVEYANCE CALCULATIONS

It is anticipated that pipe runs will be short and that conveyance will not be an issue.

STORMWATER TREATMENT BMP'S

The roof runoff is considered clean and treatment is not required. The runoff from the new access drive will utilize cartridge filter treatment systems. See Minimum Requirement #6 for additional information.

PROTECTION OF WETLANDS

There are no wetlands on or adjacent to the site.

OPERATIONS AND MAINTENANCE

This will be provided with the permit documents after preliminary approval.

EXISTING CONDITIONS SUMMARY

DESCRIPTION

The site is located northwest of the intersection of Blueberry Lane and Kelsey Street. Railroad Right of Way lies immediately to the north. The 3.0 acre, triangular site is currently vacant with a ground cover of unmaintained grass and native shrubs. The topography of the site lies between 61 feet and 65 feet with a portion of a berm from previous grading projects along the northwest boundary. See Figure 2: Existing Site Map for more information.

SOILS DESCRIPTION

GeoTest Services, Inc has performed soils exploration on the site and has documented the underlying soils in their report *Monroe Townhouses*. In general, the soils are topsoil over various depths of fill (3 ft to greater than 10 ft) placed over native sands and gravels (alluvium). Geotest gave preliminary, design infiltration rates of the alluvium of 10 inches per hour.

EXISTING BASIN

The existing basin is the full site. As 100 percent infiltration is proposed, no existing basin calculations were performed.

OFFSITE ANALYSIS & MITIGATION

No runoff is proposed to leave the site.

UPSTREAM ANALYSIS

The site is bounded by Blueberry Lane to the south and Kelsey Street to the east. To the west is current construction for a multi-family residential development. To the north lies the railroad. The roads block drainage from the south and east, the railroad from the north, and the multi-family to the west is downstream; so there is no upstream basin.

DOWNSTREAM ANALYSIS

No runoff is proposed to leave the site.

PROPOSED CONDITIONS SUMMARY

The site will be sub-divided into 29 zero-lot line lots consisting of 7 multi-unit buildings; one 6-unit buildings to the northwest, five 4 unit buildings around the remaining edges of the site, and one 3-unit building in the center. A Tract has been set aside for future development of 9 zero lot line lots in one 6-unit building and one 3-unit building. Two driveway aprons will provide access from Blueberry Lane and will provide frontage along the buildings. See Figure 3: Developed Conditions.

MR 2: CONSTRUCTION STORMWATER POLLUTION PREVENTION (SWPP)

This SWPPP Narrative has been prepared as part of the Preliminary Plat of Blueberry Meadows and is conceptual in nature. The project proposes greater than 1 acre of land disturbing activities and will require a Department of Ecology Construction Stormwater General Permit.

The construction site has the following characteristics:

Disturbed Area: Approximately 2.94 ac
Soil Type: Sultan silt loam
(Runoff is slow and the hazard of water erosion is slight)
Average slope: 0.5-2%
Critical Areas: None

1. CONSTRUCTION STORMWATER POLLUTION PREVENTION ELEMENTS

A Construction Stormwater Management Plan will be prepared that addresses the 13 Required Elements summarized below:

Element #1: Mark Clearing Limits

The construction plans will delineate the limits of the clearing for the site. These will be located in the field prior to clearing taking place.

Element #2: Establish Construction Access

Construction access will be taken from the west access from Blueberry Lane. A stabilized construction entrance will be installed at that location.

Element #3: Control Flow Rates

Temporary infiltration ponds will be constructed by the contractor to allow construction runoff to infiltrate.

Element #4: Install Sediment Controls

Sediment controls and their installation will be delineated on the construction documents in the future.

Element #5: Stabilize Soils

In planting areas the exposed soils will be stabilized per BMPs C120, C121, C123, and C125. In paved areas the soils will be stabilized by the placement of the rock base course as part of C107. Temporary stockpiles will be mulched, seeded or covered with plastic.

Element #6: Protect Slopes

The site is flat and will not require slope protection.

Element #7: Protect Drain Inlets

The storm drains along Blueberry Land and Kelsey Street will be protected with filter inserts.

Element #8: Stabilize Channels and Outlets

No channels or outfalls are proposed.

Element #9: Control of Pollutants

All pollutants, including waste materials and demolition debris, that occur onsite shall be handled and disposed of in a manner that does not cause contamination of stormwater. Good housekeeping and preventative measures will be taken to ensure that the site will be kept clean, well organized, and free of debris.

Element #10: Control De-Watering

No dewatering is expected as no excavation to the water table is anticipated.

Element #11: Maintain BMPs

Notes for the maintenance of erosion control facilities will be included on the construction plans.

Element #12: Manage the Project

The project will be subject to seasonal work limitations, site inspection and monitoring as required by the City of Monroe. Erosion control monitoring and supervision will be managed by the contractor.

Element #13: Protect Low Impact Development

At present, no LID features are proposed as the site achieves 100% infiltration. This Element will be implemented if LID features are added during the design phase.

MR 3: WATER POLLUTION SOURCE CONTROL

PERMANENT SOURCE CONTROL BMPs

Being a residential development source control will consist of maintained garbage facilities, maintenance of the storm drain system, and pavement sweeping.

MR 4: PRESERVATION OF NATURAL DRAINAGE

Infiltration of the storm water runoff from the developed site is proposed. This matches the existing conditions where there is essentially no surface discharge from the site. As such there is no downstream drainage that will be impacted by the discharge of surface water from the proposed development. By allowing the runoff to continue to infiltrate, the natural drainage will be preserved.

MR 5: ON-SITE STORMWATER MANAGMENT

The site is located within City limits and will require MR's 1-9. As such, it needs to meet the Low Impact Development Performance Standard (LIDPS) and use BMP T5.13 on pervious surfaces OR meet the requirements of List #2.

There are no storm systems in the local area that do not tie to some form of infiltration and it is expected that the City will not allow a storm drainage connection to their system. Therefore, on-site infiltration is the proposed solution to stormwater increases. All infiltration systems will need to be bedded into the native alluvial soils. This will require removal of the fill soils down to the alluvial material. Depending on depth and location of groundwater, either the trench will be bedded directly in the alluvial material or C33 sand will be used as backfill to the bottom of the infiltration system.

With these measures in place, the project is proposed to achieve 100 percent infiltration of runoff, meeting the requirements of the LIDPS.

MR 6: RUNOFF TREATMENT

With greater than 5,000 sf of pollution generating impervious surfaces, the site will be required to treat runoff. Based on the Treatment Facility Selection Flow Chart, the following requirements apply:

Step 1: Identify Pollutants of Concern: Based on the Downstream Analysis, there are no 303d listed waterbodies in the area. Infiltration will be used to control runoff. Pollutants will be typical of those for a residential development.

Step 2: Detemine if an Oil Control Facility is Required: The site will have less than 100 vehicles per 1,000 sf of building area per the traffic report. There will be no fueling or maintenance of vehicles on the site.

Step 3 Determine if Infiltration for Pollutant Removal Is Practical: The site will fail Soil Suitability in the alluvial soils at the proposed infiltration depth.

Step 4 Determine if Phosphorous Control is Required: There is no indication in the downstream analysis that there is a phosphorous issue in the downstream system. Infiltration is the proposed means of controlling runoff.

Step 5 Determine if Enhanced Treatment is Required: Based on the proposed land use, residential, enhanced treatment is not required. The adjacent pond is man-made and is not expected to count as a “fresh water designated for aquatic life use”.

Therefore; **Basic Treatment** is required.

Storm water treatment of the parking lot runoff will be accomplished through the use of catch basin cartridge filter treatment systems by Contech Stormwater Solutions. The system is approved for stand alone general use by the Department of Ecology and is sized to treat the 6-month developed stormwater runoff rate while safely conveying larger stormwater events to the infiltration facility. All catchbasins collecting stormwater from pollutant generating impervious surfaces will be treatment catchbasins.

Final sizing and cartridge count will be determined during the final design.

MR 7: FLOW CONTROL

The project proposes full infiltration through the use of underground, rock, infiltration galleries. Geotest Services, Inc has determined that the lower alluvial soils are expected to have a design rate of 10 in/hr. See their report in Appendix A for more information.

The project will be subdivided into 4 sub basins as shown on Figure 3. The basin areas and ground coverage is included with the WWHM2012 output in Appendix B.

The infiltration galleries will have the following dimensions:

Basin ID	Length	Width	Depth	% Infiltrated
1	20	5	3	100
2	120	9	3	100
3	120	7	3	100
4	110	8	3	100

These trenches account for all runoff from access, walkways, planters, the two buildings in the midst of the development and the front roofs of all the edge buildings. The rear roofs of the edge buildings will use roof downspout infiltration systems. These systems can be sized using grain-size with a length of standard trench per 1,000 sf of tributary

roof area. In this case, the length of 2 ft wide by 1.5 foot deep trench would be 30 lineal feet per 1,000 sf roof area.

With these two systems types, 100 percent of the developed site runoff is to be infiltrated. The final storm drainage report will further detail the systems and sizing calculations.

See attached WWHM2012 screen captures in Appendix A.

MR 8: WETLANDS PROTECTION

There are no wetlands or other critical areas on or near the site.

MR 9: BASIN/WATERSHED PLANNING

The City of Monroe does not have any specific drainage basin or watershed requirements.

MR 10: OPERATION AND MAINTENANCE

A full operations and Maintenance Manual will accompany the final drainage report.

FIGURES

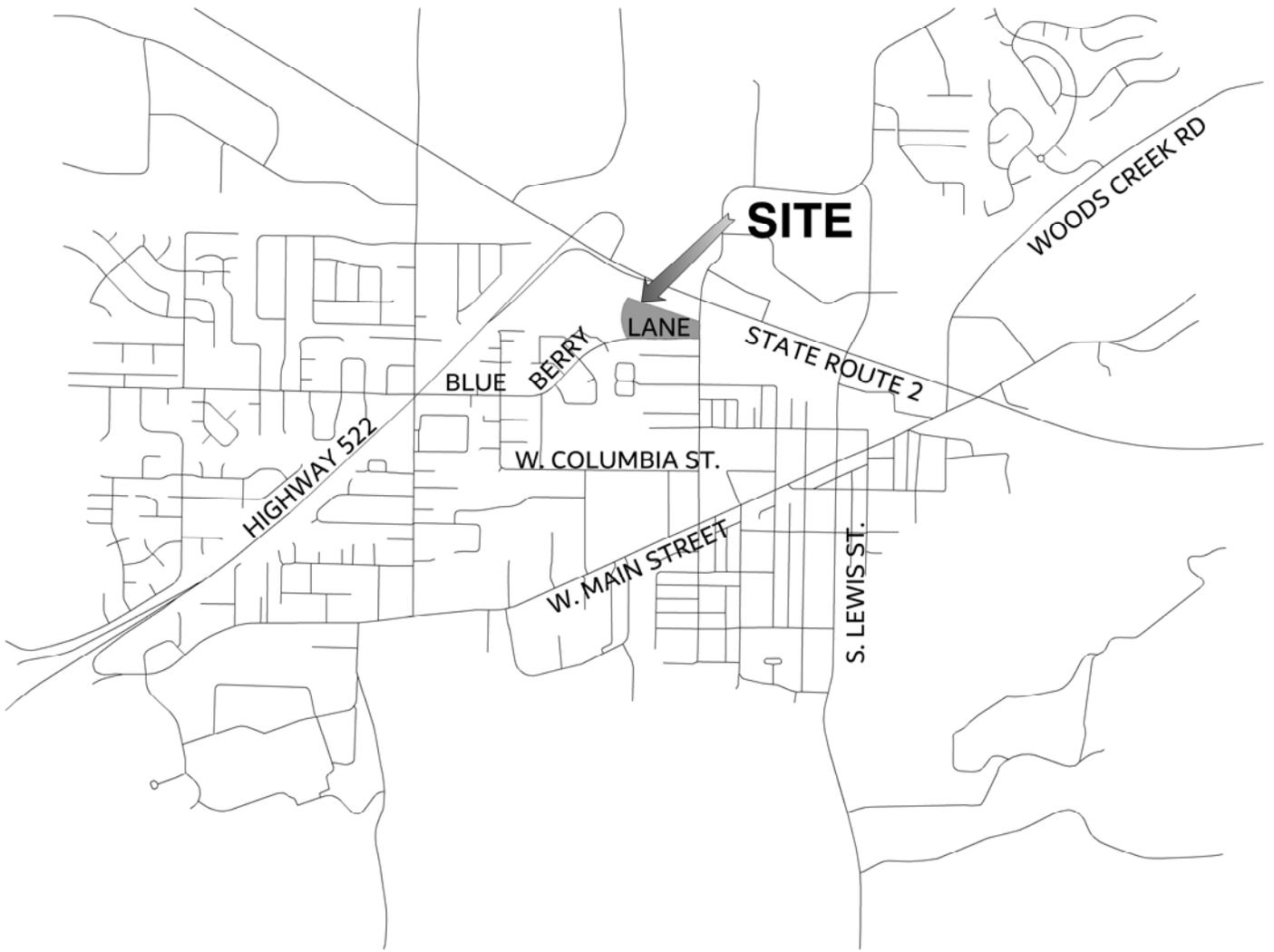
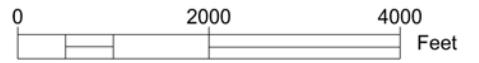


FIGURE 1 - VICINITY MAP

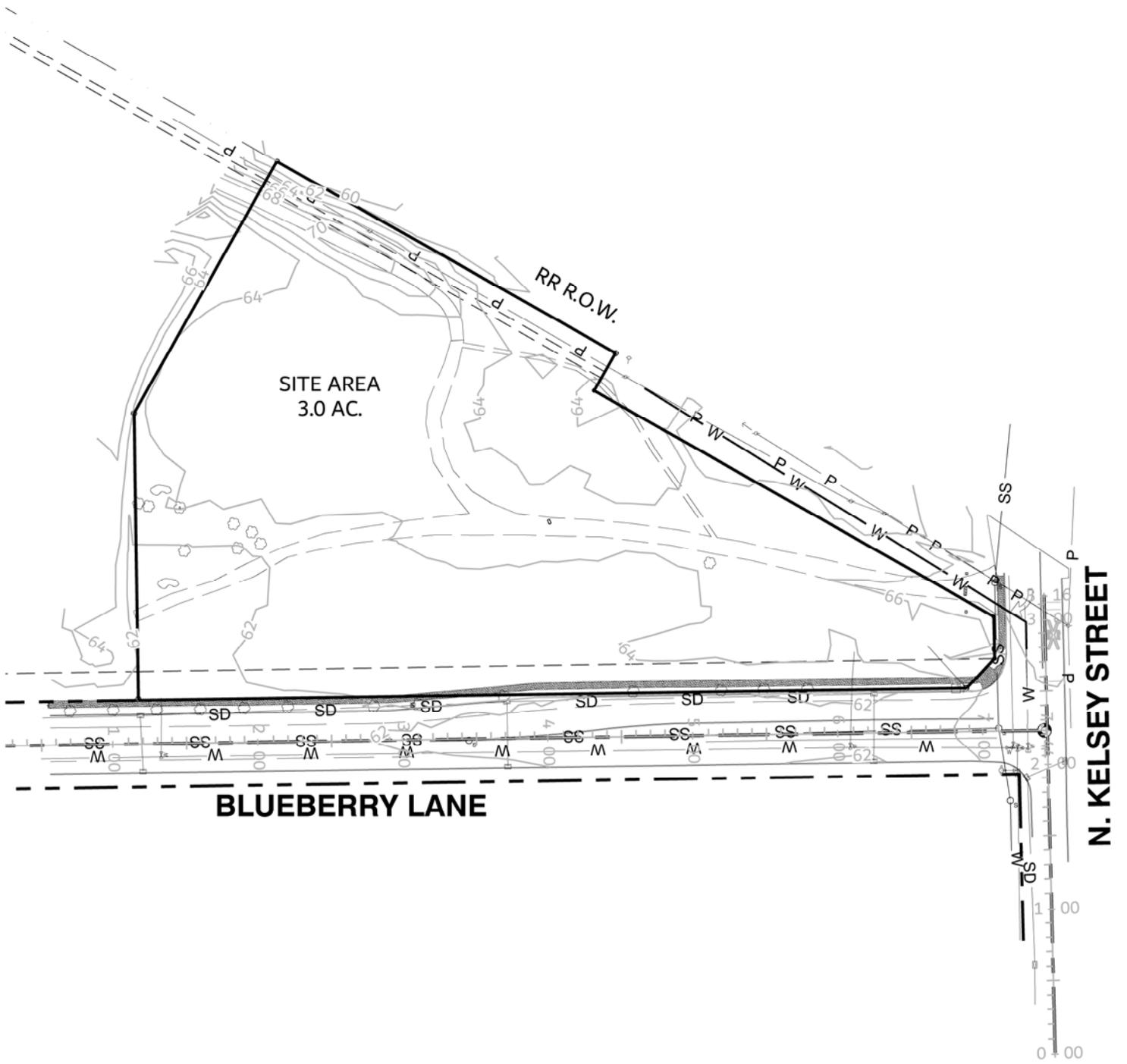


FIGURE 2 - EXISTING CONDITIONS

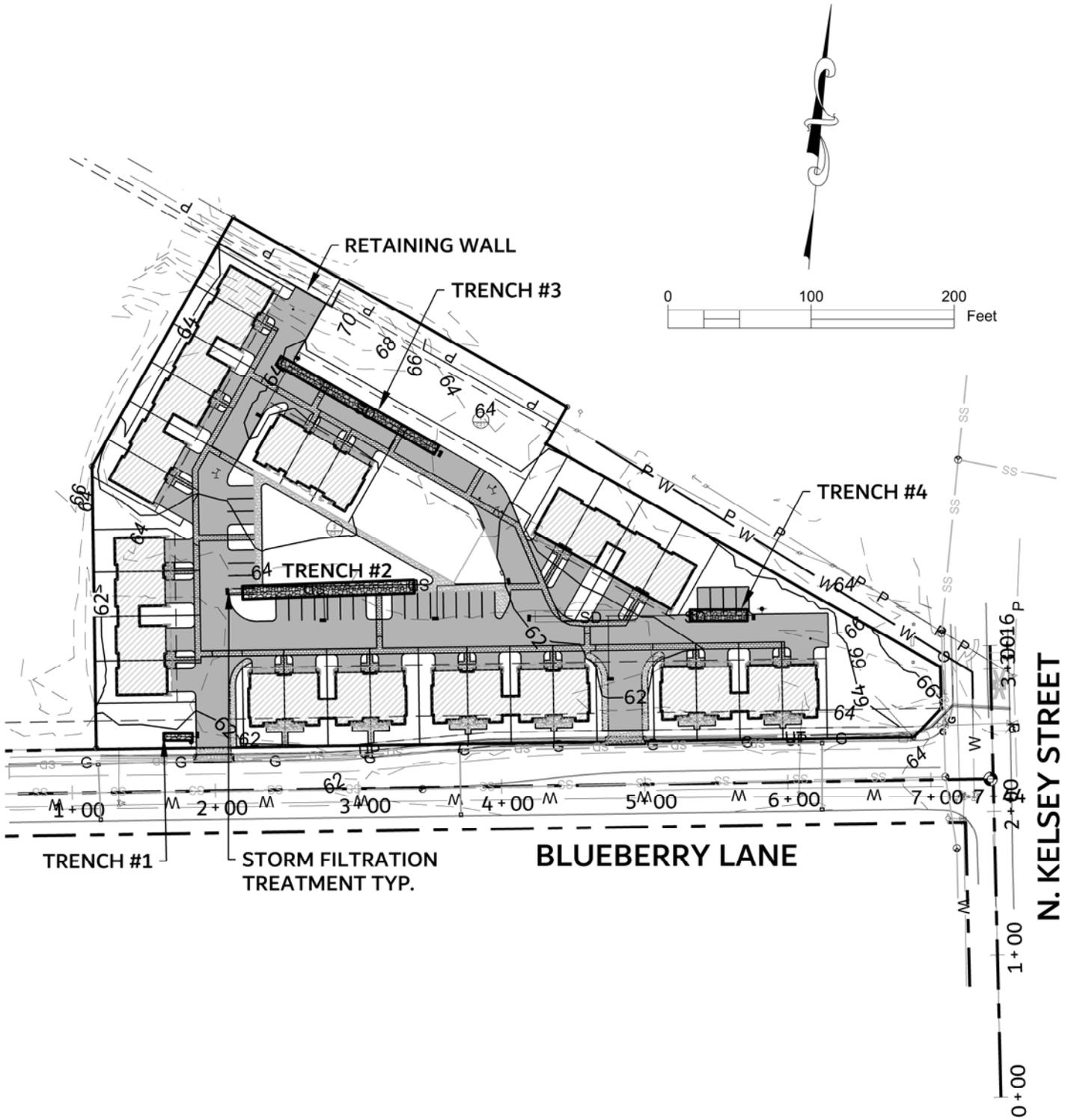


FIGURE 3 - DEVELOPED CONDITIONS

APPENDIX A
WWHM2012 SCREEN CAPTURES

Basin 1 Predeveloped

Subbasin Name: Basin 1

Flows To : Surface: Gravel Trench Bed 1, Interflow: Gravel Trench Bed 1, Groundwater: (empty)

Area in Basin Show Only Selected

Available Pervious		Available Impervious	
	Acres		Acres
<input type="checkbox"/> A/B, Forest, Flat	0	<input checked="" type="checkbox"/> ROADS/FLAT	.06
<input type="checkbox"/> A/B, Forest, Mod	0	<input type="checkbox"/> ROADS/MOD	0
<input type="checkbox"/> A/B, Forest, Steep	0	<input type="checkbox"/> ROADS/STEEP	0
<input type="checkbox"/> A/B, Pasture, Flat	0	<input checked="" type="checkbox"/> ROOF TOPS/FLAT	0
<input type="checkbox"/> A/B, Pasture, Mod	0	<input type="checkbox"/> DRIVEWAYS/FLAT	0
<input type="checkbox"/> A/B, Pasture, Steep	0	<input type="checkbox"/> DRIVEWAYS/MOD	0
<input checked="" type="checkbox"/> A/B, Lawn, Flat	.03	<input type="checkbox"/> DRIVEWAYS/STEEP	0
<input type="checkbox"/> A/B, Lawn, Mod	0	<input type="checkbox"/> SIDEWALKS/FLAT	0
<input type="checkbox"/> A/B, Lawn, Steep	0	<input type="checkbox"/> SIDEWALKS/MOD	0
<input type="checkbox"/> C, Forest, Flat	0	<input type="checkbox"/> SIDEWALKS/STEEP	0
<input type="checkbox"/> C, Forest, Mod	0	<input type="checkbox"/> PARKING/FLAT	0
<input type="checkbox"/> C, Forest, Steep	0	<input type="checkbox"/> PARKING/MOD	0
<input type="checkbox"/> C, Pasture, Flat	0	<input type="checkbox"/> PARKING/STEEP	0
<input type="checkbox"/> C, Pasture, Mod	0	<input type="checkbox"/> POND	0
<input type="checkbox"/> C, Pasture, Steep	0	<input type="checkbox"/> Porous Pavement	0
<input type="checkbox"/> C, Lawn, Flat	0		
<input type="checkbox"/> C, Lawn, Mod	0		
<input type="checkbox"/> C, Lawn, Steep	0		
<input type="checkbox"/> SAT, Forest, Flat	0		
<input type="checkbox"/> SAT, Forest, Mod	0		
<input type="checkbox"/> SAT, Forest, Steep	0		

Pervious Total: 0.03 Acres
 Impervious Total: 0.06 Acres
 Basin Total: 0.09 Acres

BASIN 1 INPUT

Gravel Trench Bed 1 Predeveloped

Facility Name: Gravel Trench Bed 1

Outlet 1: 0, Outlet 2: 0, Outlet 3: 0

Downstream Connection: Gravel Trench/Bed

Facility Type: Precipitation Applied to Facility, Evaporation Applied to Facility

Quick Trench Facility Dimension Diagram

Facility Dimensions:

- Trench Length (ft): 20
- Trench Bottom Width (ft): 5
- Effective Total Depth (ft): 4
- Top and bottom slope (H/V): 0
- Left Side Slope (H/V): 0
- Right Side Slope (H/V): 0

Material Layers for Trench/Bed:

- Layer 1 Thickness (ft): 5
- Layer 1 porosity (0-1): 0.4
- Layer 2 Thickness (ft): 0
- Layer 2 porosity (0-1): 0
- Layer 3 Thickness (ft): 0
- Layer 3 porosity (0-1): 0

Infiltration: Yes

- Measured Infiltration Rate (in/hr): 10
- Reduction Factor (infiltr*factor): 1
- Use Wetted Surface Area (sidewalls): NO
- Total Volume Infiltrated (ac-ft): 11.379
- Total Volume Through Riser (ac-ft): 0.001

Outlet Structure Data:

- Riser Height (ft): 3
- Riser Diameter (in): 8
- Riser Type: Flat
- Notch Type: (empty)

Orifice Number, Diameter (in), Height (ft):

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Trench Volume at Riser Head (ac-ft): .003

Show Trench Open Table

Initial Stage (ft): 0

Total Volume Through Facility (ac-ft): 11.379
 Percent Infiltrated: 100

TRENCH 1 INPUT AND RESULTS

Basin 2 Predeveloped

Subbasin Name: Basin 2

Flows To : Surface: Gravel Trench Bed 2, Interflow: Gravel Trench Bed 2, Groundwater:

Area in Basin Show Only Selected

Available Pervious		Available Impervious	
	Acres		Acres
<input type="checkbox"/> A/B, Forest, Flat	0	<input checked="" type="checkbox"/> ROADS/FLAT	.43
<input type="checkbox"/> A/B, Forest, Mod	0	<input type="checkbox"/> ROADS/MOD	0
<input type="checkbox"/> A/B, Forest, Steep	0	<input type="checkbox"/> ROADS/STEEP	0
<input type="checkbox"/> A/B, Pasture, Flat	0	<input checked="" type="checkbox"/> ROOF TOPS/FLAT	2
<input type="checkbox"/> A/B, Pasture, Mod	0	<input type="checkbox"/> DRIVEWAYS/FLAT	0
<input type="checkbox"/> A/B, Pasture, Steep	0	<input type="checkbox"/> DRIVEWAYS/MOD	0
<input checked="" type="checkbox"/> A/B, Lawn, Flat	.24	<input type="checkbox"/> DRIVEWAYS/STEEP	0
<input type="checkbox"/> A/B, Lawn, Mod	0	<input type="checkbox"/> SIDEWALKS/FLAT	0
<input type="checkbox"/> A/B, Lawn, Steep	0	<input type="checkbox"/> SIDEWALKS/MOD	0
<input type="checkbox"/> C, Forest, Flat	0	<input type="checkbox"/> SIDEWALKS/STEEP	0
<input type="checkbox"/> C, Forest, Mod	0	<input type="checkbox"/> PARKING/FLAT	0
<input type="checkbox"/> C, Forest, Steep	0	<input type="checkbox"/> PARKING/MOD	0
<input type="checkbox"/> C, Pasture, Flat	0	<input type="checkbox"/> PARKING/STEEP	0
<input type="checkbox"/> C, Pasture, Mod	0	<input type="checkbox"/> POND	0
<input type="checkbox"/> C, Pasture, Steep	0	<input type="checkbox"/> Porous Pavement	0
<input type="checkbox"/> C, Lawn, Flat	0		
<input type="checkbox"/> C, Lawn, Mod	0		
<input type="checkbox"/> C, Lawn, Steep	0		
<input type="checkbox"/> SAT, Forest, Flat	0		
<input type="checkbox"/> SAT, Forest, Mod	0		
<input type="checkbox"/> SAT, Forest, Steep	0		

Pervious Total: 0.24 Acres
 Impervious Total: 0.63 Acres
 Basin Total: 0.87 Acres

BASIN 2 INPUT

Gravel Trench Bed 2 Predeveloped

Facility Name: Gravel Trench Bed 2

Outlet 1: 0, Outlet 2: 0, Outlet 3: 0

Downstream Connection: Gravel Trench/Bed

Facility Type: Precipitation Applied to Facility, Evaporation Applied to Facility

Quick Trench Facility Dimension Diagram

Facility Dimensions:

Trench Length (ft): 120
 Trench Bottom Width (ft): 9
 Effective Total Depth (ft): 4
 Top and bottom slope (H/V): 0
 Left Side Slope (H/V): 0
 Right Side Slope (H/V): 0

Outlet Structure Data:

Riser Height (ft): 3
 Riser Diameter (in): 8
 Riser Type: Flat
 Notch Type:

Material Layers for Trench/Bed:

Layer 1 Thickness (ft): 4, Layer 1 porosity (0-1): 0.4
 Layer 2 Thickness (ft): 0, Layer 2 porosity (0-1): 0
 Layer 3 Thickness (ft): 0, Layer 3 porosity (0-1): 0

Infiltration: Yes

Measured Infiltration Rate (in/hr): 10
 Reduction Factor (infiltr*factor): 1
 Use Wetted Surface Area (sidewalls): NO

Total Volume Infiltrated (ac-ft): 121.912
 Total Volume Through Riser (ac-ft): 0.005

Orifice Number, Diameter (in), Height (ft):

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Trench Volume at Riser Head (ac-ft): .030

Show Trench Open Table

Initial Stage (ft): 0
 Total Volume Through Facility (ac-ft): 121.917
 Percent Infiltrated: 100

TRENCH 2 INPUT AND RESULTS

Basin 3 Predeveloped

Subbasin Name: Basin 3

Flows To : Surface: Gravel Trench Bed 3, Interflow: Gravel Trench Bed 3, Groundwater: [Empty]

Area in Basin Show Only Selected

Available Pervious		Available Impervious	
	Acres		Acres
<input type="checkbox"/> A/B, Forest, Flat	0	<input checked="" type="checkbox"/> ROADS/FLAT	.31
<input type="checkbox"/> A/B, Forest, Mod	0	<input type="checkbox"/> ROADS/MOD	0
<input type="checkbox"/> A/B, Forest, Steep	0	<input type="checkbox"/> ROADS/STEEP	0
<input type="checkbox"/> A/B, Pasture, Flat	0	<input checked="" type="checkbox"/> ROOF TOPS/FLAT	.18
<input type="checkbox"/> A/B, Pasture, Mod	0	<input type="checkbox"/> DRIVEWAYS/FLAT	0
<input type="checkbox"/> A/B, Pasture, Steep	0	<input type="checkbox"/> DRIVEWAYS/MOD	0
<input checked="" type="checkbox"/> A/B, Lawn, Flat	.06	<input type="checkbox"/> DRIVEWAYS/STEEP	0
<input type="checkbox"/> A/B, Lawn, Mod	0	<input type="checkbox"/> SIDEWALKS/FLAT	0
<input type="checkbox"/> A/B, Lawn, Steep	0	<input type="checkbox"/> SIDEWALKS/MOD	0
<input type="checkbox"/> C, Forest, Flat	0	<input type="checkbox"/> SIDEWALKS/STEEP	0
<input type="checkbox"/> C, Forest, Mod	0	<input type="checkbox"/> PARKING/FLAT	0
<input type="checkbox"/> C, Forest, Steep	0	<input type="checkbox"/> PARKING/MOD	0
<input type="checkbox"/> C, Pasture, Flat	0	<input type="checkbox"/> PARKING/STEEP	0
<input type="checkbox"/> C, Pasture, Mod	0	<input type="checkbox"/> POND	0
<input type="checkbox"/> C, Pasture, Steep	0	<input type="checkbox"/> Porous Pavement	0
<input type="checkbox"/> C, Lawn, Flat	0		
<input type="checkbox"/> C, Lawn, Mod	0		
<input type="checkbox"/> C, Lawn, Steep	0		
<input type="checkbox"/> SAT, Forest, Flat	0		
<input type="checkbox"/> SAT, Forest, Mod	0		
<input type="checkbox"/> SAT, Forest, Steep	0		

Pervious Total: 0.06 Acres
 Impervious Total: 0.49 Acres
 Basin Total: 0.55 Acres

BASIN 3 INPUT

Gravel Trench Bed 3 Predeveloped

Facility Name: Gravel Trench Bed 3

Outlet 1: 0, Outlet 2: 0, Outlet 3: 0

Downstream Connection: Gravel Trench/Bed

Facility Type: Precipitation Applied to Facility, Evaporation Applied to Facility

Quick Trench Facility Dimension Diagram

Facility Dimensions

Trench Length (ft): 120
 Trench Bottom Width (ft): 7
 Effective Total Depth (ft): 4
 Top and bottom slope (H/V): 0
 Left Side Slope (H/V): 0
 Right Side Slope (H/V): 0

Outlet Structure Data

Riser Height (ft): 3
 Riser Diameter (in): 8
 Riser Type: Flat
 Notch Type: [Empty]

Material Layers for Trench/Bed

Layer 1 Thickness (ft): 4, Layer 1 porosity (0-1): 0.4
 Layer 2 Thickness (ft): 0, Layer 2 porosity (0-1): 0
 Layer 3 Thickness (ft): 0, Layer 3 porosity (0-1): 0

Infiltration Yes

Measured Infiltration Rate (in/hr): 10
 Reduction Factor (infiltr*factor): 1
 Use Wetted Surface Area (sidewalls): NO

Trench Volume at Riser Head (ac-ft): .023

Show Trench Open Table

Initial Stage (ft): 0

Total Volume Infiltrated (ac-ft): 94.634
 Total Volume Through Facility (ac-ft): 94.638
 Total Volume Through Riser (ac-ft): 0.004
 Percent Infiltrated: 100

TRENCH 3 INPUT AND RESULTS

Basin 4 Predeveloped

Subbasin Name: Basin 4

Flows To : Surface: Gravel Trench Bed 4, Interflow: Gravel Trench Bed 4, Groundwater: [Empty]

Area in Basin Show Only Selected

Available Pervious	Acres	Available Impervious	Acres
<input type="checkbox"/> A/B, Forest, Flat	0	<input checked="" type="checkbox"/> ROADS/FLAT	.33
<input type="checkbox"/> A/B, Forest, Mod	0	<input type="checkbox"/> ROADS/MOD	0
<input type="checkbox"/> A/B, Forest, Steep	0	<input type="checkbox"/> ROADS/STEEP	0
<input type="checkbox"/> A/B, Pasture, Flat	0	<input checked="" type="checkbox"/> ROOF TOPS/FLAT	.12
<input type="checkbox"/> A/B, Pasture, Mod	0	<input type="checkbox"/> DRIVEWAYS/FLAT	0
<input type="checkbox"/> A/B, Pasture, Steep	0	<input type="checkbox"/> DRIVEWAYS/MOD	0
<input checked="" type="checkbox"/> A/B, Lawn, Flat	.05	<input type="checkbox"/> DRIVEWAYS/STEEP	0
<input type="checkbox"/> A/B, Lawn, Mod	0	<input type="checkbox"/> SIDEWALKS/FLAT	0
<input type="checkbox"/> A/B, Lawn, Steep	0	<input type="checkbox"/> SIDEWALKS/MOD	0
<input type="checkbox"/> C, Forest, Flat	0	<input type="checkbox"/> SIDEWALKS/STEEP	0
<input type="checkbox"/> C, Forest, Mod	0	<input type="checkbox"/> PARKING/FLAT	0
<input type="checkbox"/> C, Forest, Steep	0	<input type="checkbox"/> PARKING/MOD	0
<input type="checkbox"/> C, Pasture, Flat	0	<input type="checkbox"/> PARKING/STEEP	0
<input type="checkbox"/> C, Pasture, Mod	0	<input type="checkbox"/> POND	0
<input type="checkbox"/> C, Pasture, Steep	0	<input type="checkbox"/> Porous Pavement	0
<input type="checkbox"/> C, Lawn, Flat	0		
<input type="checkbox"/> C, Lawn, Mod	0		
<input type="checkbox"/> C, Lawn, Steep	0		
<input type="checkbox"/> SAT, Forest, Flat	0		
<input type="checkbox"/> SAT, Forest, Mod	0		
<input type="checkbox"/> SAT, Forest, Steep	0		

Pervious Total: 0.05 Acres
 Impervious Total: 0.45 Acres
 Basin Total: 0.5 Acres

BASIN 4 INPUT

Gravel Trench Bed 4 Predeveloped

Facility Name: Gravel Trench Bed 4

Outlet 1: 0, Outlet 2: 0, Outlet 3: 0

Downstream Connection: Gravel Trench/Bed

Facility Type: Precipitation Applied to Facility, Evaporation Applied to Facility

Quick Trench Facility Dimension Diagram

Facility Dimensions:

- Trench Length (ft): 110
- Trench Bottom Width (ft): 8
- Effective Total Depth (ft): 4
- Top and bottom slope (H/V): 0
- Left Side Slope (H/V): 0
- Right Side Slope (H/V): 0

Material Layers for Trench/Bed:

- Layer 1 Thickness (ft): 4
- Layer 1 porosity (0-1): 0.4
- Layer 2 Thickness (ft): 0
- Layer 2 porosity (0-1): 0
- Layer 3 Thickness (ft): 0
- Layer 3 porosity (0-1): 0

Infiltration: Yes

Measured Infiltration Rate (in/hr): 10
 Reduction Factor (infiltr*factor): 1
 Use Wetted Surface Area (sidewalls): NO

Total Volume Infiltrated (ac-ft): 86.878
 Total Volume Through Riser (ac-ft): 0

Outlet Structure Data:

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Trench Volume at Riser Head (ac-ft): .024

Initial Stage (ft): 0

Show Trench Open Table

Total Volume Through Facility (ac-ft): 86.878
 Percent Infiltrated: 100

TRENCH 4 INPUT AND RESULTS

APPENDIX B
WWHM2012 DATA

WWHM2012
PROJECT REPORT

General Model Information

Project Name: Blueberry
Site Name: Blueberry, LLC
Site Address:
City:
Report Date: 6/28/2018
Gage: Everett
Data Start: 1948/10/01
Data End: 2009/09/30
Timestep: 15 Minute
Precip Scale: 1.20
Version Date: 2016/02/25
Version: 4.2.12

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 A B, Lawn, Flat	acre 0.03
Pervious Total	0.03
Impervious Land Use ROADS FLAT	acre 0.06
Impervious Total	0.06
Basin Total	0.09

Element Flows To:
Surface Interflow Groundwater
Gravel Trench Bed 1 Gravel Trench Bed 1

Basin 2

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Lawn, Flat	0.24
Pervious Total	0.24
Impervious Land Use	acre
ROADS FLAT	0.43
ROOF TOPS FLAT	0.2
Impervious Total	0.63
Basin Total	0.87

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 2	Gravel Trench Bed 2	

Basin 3

Bypass:	No
GroundWater:	No
Pervious Land Use	acre
A B, Lawn, Flat	0.06
Pervious Total	0.06
Impervious Land Use	acre
ROADS FLAT	0.31
ROOF TOPS FLAT	0.18
Impervious Total	0.49
Basin Total	0.55

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 3	Gravel Trench Bed 3	

Basin 4

Bypass: No

GroundWater: No

Pervious Land Use acre
A B, Lawn, Flat 0.05

Pervious Total 0.05

Impervious Land Use acre
ROADS FLAT 0.33
ROOF TOPS FLAT 0.12

Impervious Total 0.45

Basin Total 0.5

Element Flows To:

Surface	Interflow	Groundwater
Gravel Trench Bed 4	Gravel Trench Bed 4	

Mitigated Land Use

Routing Elements

Predeveloped Routing

Gravel Trench Bed 1

Bottom Length: 20.00 ft.
 Bottom Width: 5.00 ft.
 Trench bottom slope 1: 0 To 1
 Trench Left side slope 0: 0 To 1
 Trench right side slope 2: 0 To 1
 Material thickness of first layer: 5
 Pour Space of material for first layer: 0.4
 Material thickness of second layer: 0
 Pour Space of material for second layer: 0
 Material thickness of third layer: 0
 Pour Space of material for third layer: 0
 Infiltration On
 Infiltration rate: 10
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 11.379
 Total Volume Through Riser (ac-ft.): 0.001
 Total Volume Through Facility (ac-ft.): 11.379
 Percent Infiltrated: 100
 Total Precip Applied to Facility: 0
 Total Evap From Facility: 0
 Discharge Structure
 Riser Height: 3 ft.
 Riser Diameter: 8 in.
 Element Flows To:
 Outlet 1 Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.002	0.000	0.000	0.000
0.0444	0.002	0.000	0.000	0.023
0.0889	0.002	0.000	0.000	0.023
0.1333	0.002	0.000	0.000	0.023
0.1778	0.002	0.000	0.000	0.023
0.2222	0.002	0.000	0.000	0.023
0.2667	0.002	0.000	0.000	0.023
0.3111	0.002	0.000	0.000	0.023
0.3556	0.002	0.000	0.000	0.023
0.4000	0.002	0.000	0.000	0.023
0.4444	0.002	0.000	0.000	0.023
0.4889	0.002	0.000	0.000	0.023
0.5333	0.002	0.000	0.000	0.023
0.5778	0.002	0.000	0.000	0.023
0.6222	0.002	0.000	0.000	0.023
0.6667	0.002	0.000	0.000	0.023
0.7111	0.002	0.000	0.000	0.023
0.7556	0.002	0.000	0.000	0.023
0.8000	0.002	0.000	0.000	0.023
0.8444	0.002	0.000	0.000	0.023
0.8889	0.002	0.000	0.000	0.023
0.9333	0.002	0.000	0.000	0.023

0.9778	0.002	0.000	0.000	0.023
1.0222	0.002	0.000	0.000	0.023
1.0667	0.002	0.001	0.000	0.023
1.1111	0.002	0.001	0.000	0.023
1.1556	0.002	0.001	0.000	0.023
1.2000	0.002	0.001	0.000	0.023
1.2444	0.002	0.001	0.000	0.023
1.2889	0.002	0.001	0.000	0.023
1.3333	0.002	0.001	0.000	0.023
1.3778	0.002	0.001	0.000	0.023
1.4222	0.002	0.001	0.000	0.023
1.4667	0.002	0.001	0.000	0.023
1.5111	0.002	0.001	0.000	0.023
1.5556	0.002	0.001	0.000	0.023
1.6000	0.002	0.001	0.000	0.023
1.6444	0.002	0.001	0.000	0.023
1.6889	0.002	0.001	0.000	0.023
1.7333	0.002	0.001	0.000	0.023
1.7778	0.002	0.001	0.000	0.023
1.8222	0.002	0.001	0.000	0.023
1.8667	0.002	0.001	0.000	0.023
1.9111	0.002	0.001	0.000	0.023
1.9556	0.002	0.001	0.000	0.023
2.0000	0.002	0.001	0.000	0.023
2.0444	0.002	0.001	0.000	0.023
2.0889	0.002	0.001	0.000	0.023
2.1333	0.002	0.002	0.000	0.023
2.1778	0.002	0.002	0.000	0.023
2.2222	0.002	0.002	0.000	0.023
2.2667	0.002	0.002	0.000	0.023
2.3111	0.002	0.002	0.000	0.023
2.3556	0.002	0.002	0.000	0.023
2.4000	0.002	0.002	0.000	0.023
2.4444	0.002	0.002	0.000	0.023
2.4889	0.002	0.002	0.000	0.023
2.5333	0.002	0.002	0.000	0.023
2.5778	0.002	0.002	0.000	0.023
2.6222	0.002	0.002	0.000	0.023
2.6667	0.002	0.002	0.000	0.023
2.7111	0.002	0.002	0.000	0.023
2.7556	0.002	0.002	0.000	0.023
2.8000	0.002	0.002	0.000	0.023
2.8444	0.002	0.002	0.000	0.023
2.8889	0.002	0.002	0.000	0.023
2.9333	0.002	0.002	0.000	0.023
2.9778	0.002	0.002	0.000	0.023
3.0222	0.002	0.002	0.023	0.023
3.0667	0.002	0.002	0.121	0.023
3.1111	0.002	0.002	0.255	0.023
3.1556	0.002	0.002	0.404	0.023
3.2000	0.002	0.002	0.547	0.023
3.2444	0.002	0.003	0.665	0.023
3.2889	0.002	0.003	0.747	0.023
3.3333	0.002	0.003	0.799	0.023
3.3778	0.002	0.003	0.860	0.023
3.4222	0.002	0.003	0.909	0.023
3.4667	0.002	0.003	0.956	0.023
3.5111	0.002	0.003	1.000	0.023

3.5556	0.002	0.003	1.043	0.023
3.6000	0.002	0.003	1.084	0.023
3.6444	0.002	0.003	1.123	0.023
3.6889	0.002	0.003	1.161	0.023
3.7333	0.002	0.003	1.198	0.023
3.7778	0.002	0.003	1.234	0.023
3.8222	0.002	0.003	1.269	0.023
3.8667	0.002	0.003	1.303	0.023
3.9111	0.002	0.003	1.336	0.023
3.9556	0.002	0.003	1.368	0.023
4.0000	0.002	0.003	1.399	0.023

Gravel Trench Bed 2

Bottom Length:	120.00 ft.
Bottom Width:	9.00 ft.
Trench bottom slope 1:	0 To 1
Trench Left side slope 0:	0 To 1
Trench right side slope 2:	0 To 1
Material thickness of first layer:	4
Pour Space of material for first layer:	0.4
Material thickness of second layer:	0
Pour Space of material for second layer:	0
Material thickness of third layer:	0
Pour Space of material for third layer:	0
Infiltration On	
Infiltration rate:	10
Infiltration safety factor:	1
Total Volume Infiltrated (ac-ft.):	121.912
Total Volume Through Riser (ac-ft.):	0.005
Total Volume Through Facility (ac-ft.):	121.917
Percent Infiltrated:	100
Total Precip Applied to Facility:	0
Total Evap From Facility:	0
Discharge Structure	
Riser Height:	3 ft.
Riser Diameter:	8 in.
Element Flows To:	
Outlet 1	Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.024	0.000	0.000	0.000
0.0444	0.024	0.000	0.000	0.250
0.0889	0.024	0.000	0.000	0.250
0.1333	0.024	0.001	0.000	0.250
0.1778	0.024	0.001	0.000	0.250
0.2222	0.024	0.002	0.000	0.250
0.2667	0.024	0.002	0.000	0.250
0.3111	0.024	0.003	0.000	0.250
0.3556	0.024	0.003	0.000	0.250
0.4000	0.024	0.004	0.000	0.250
0.4444	0.024	0.004	0.000	0.250
0.4889	0.024	0.004	0.000	0.250
0.5333	0.024	0.005	0.000	0.250
0.5778	0.024	0.005	0.000	0.250
0.6222	0.024	0.006	0.000	0.250
0.6667	0.024	0.006	0.000	0.250
0.7111	0.024	0.007	0.000	0.250
0.7556	0.024	0.007	0.000	0.250
0.8000	0.024	0.007	0.000	0.250
0.8444	0.024	0.008	0.000	0.250
0.8889	0.024	0.008	0.000	0.250
0.9333	0.024	0.009	0.000	0.250
0.9778	0.024	0.009	0.000	0.250
1.0222	0.024	0.010	0.000	0.250
1.0667	0.024	0.010	0.000	0.250
1.1111	0.024	0.011	0.000	0.250

1.1556	0.024	0.011	0.000	0.250
1.2000	0.024	0.011	0.000	0.250
1.2444	0.024	0.012	0.000	0.250
1.2889	0.024	0.012	0.000	0.250
1.3333	0.024	0.013	0.000	0.250
1.3778	0.024	0.013	0.000	0.250
1.4222	0.024	0.014	0.000	0.250
1.4667	0.024	0.014	0.000	0.250
1.5111	0.024	0.015	0.000	0.250
1.5556	0.024	0.015	0.000	0.250
1.6000	0.024	0.015	0.000	0.250
1.6444	0.024	0.016	0.000	0.250
1.6889	0.024	0.016	0.000	0.250
1.7333	0.024	0.017	0.000	0.250
1.7778	0.024	0.017	0.000	0.250
1.8222	0.024	0.018	0.000	0.250
1.8667	0.024	0.018	0.000	0.250
1.9111	0.024	0.019	0.000	0.250
1.9556	0.024	0.019	0.000	0.250
2.0000	0.024	0.019	0.000	0.250
2.0444	0.024	0.020	0.000	0.250
2.0889	0.024	0.020	0.000	0.250
2.1333	0.024	0.021	0.000	0.250
2.1778	0.024	0.021	0.000	0.250
2.2222	0.024	0.022	0.000	0.250
2.2667	0.024	0.022	0.000	0.250
2.3111	0.024	0.022	0.000	0.250
2.3556	0.024	0.023	0.000	0.250
2.4000	0.024	0.023	0.000	0.250
2.4444	0.024	0.024	0.000	0.250
2.4889	0.024	0.024	0.000	0.250
2.5333	0.024	0.025	0.000	0.250
2.5778	0.024	0.025	0.000	0.250
2.6222	0.024	0.026	0.000	0.250
2.6667	0.024	0.026	0.000	0.250
2.7111	0.024	0.026	0.000	0.250
2.7556	0.024	0.027	0.000	0.250
2.8000	0.024	0.027	0.000	0.250
2.8444	0.024	0.028	0.000	0.250
2.8889	0.024	0.028	0.000	0.250
2.9333	0.024	0.029	0.000	0.250
2.9778	0.024	0.029	0.000	0.250
3.0222	0.024	0.030	0.023	0.250
3.0667	0.024	0.030	0.121	0.250
3.1111	0.024	0.030	0.255	0.250
3.1556	0.024	0.031	0.404	0.250
3.2000	0.024	0.031	0.547	0.250
3.2444	0.024	0.032	0.665	0.250
3.2889	0.024	0.032	0.747	0.250
3.3333	0.024	0.033	0.799	0.250
3.3778	0.024	0.033	0.860	0.250
3.4222	0.024	0.033	0.909	0.250
3.4667	0.024	0.034	0.956	0.250
3.5111	0.024	0.034	1.000	0.250
3.5556	0.024	0.035	1.043	0.250
3.6000	0.024	0.035	1.084	0.250
3.6444	0.024	0.036	1.123	0.250
3.6889	0.024	0.036	1.161	0.250

3.7333	0.024	0.037	1.198	0.250
3.7778	0.024	0.037	1.234	0.250
3.8222	0.024	0.037	1.269	0.250
3.8667	0.024	0.038	1.303	0.250
3.9111	0.024	0.038	1.336	0.250
3.9556	0.024	0.039	1.368	0.250
4.0000	0.024	0.039	1.399	0.250

Gravel Trench Bed 3

Bottom Length: 120.00 ft.
 Bottom Width: 7.00 ft.
 Trench bottom slope 1: 0 To 1
 Trench Left side slope 0: 0 To 1
 Trench right side slope 2: 0 To 1
 Material thickness of first layer: 4
 Pour Space of material for first layer: 0.4
 Material thickness of second layer: 0
 Pour Space of material for second layer: 0
 Material thickness of third layer: 0
 Pour Space of material for third layer: 0
 Infiltration On
 Infiltration rate: 10
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 94.634
 Total Volume Through Riser (ac-ft.): 0.004
 Total Volume Through Facility (ac-ft.): 94.638
 Percent Infiltrated: 100
 Total Precip Applied to Facility: 0
 Total Evap From Facility: 0
 Discharge Structure
 Riser Height: 3 ft.
 Riser Diameter: 8 in.
 Element Flows To:
 Outlet 1 Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.019	0.000	0.000	0.000
0.0444	0.019	0.000	0.000	0.194
0.0889	0.019	0.000	0.000	0.194
0.1333	0.019	0.001	0.000	0.194
0.1778	0.019	0.001	0.000	0.194
0.2222	0.019	0.001	0.000	0.194
0.2667	0.019	0.002	0.000	0.194
0.3111	0.019	0.002	0.000	0.194
0.3556	0.019	0.002	0.000	0.194
0.4000	0.019	0.003	0.000	0.194
0.4444	0.019	0.003	0.000	0.194
0.4889	0.019	0.003	0.000	0.194
0.5333	0.019	0.004	0.000	0.194
0.5778	0.019	0.004	0.000	0.194
0.6222	0.019	0.004	0.000	0.194
0.6667	0.019	0.005	0.000	0.194
0.7111	0.019	0.005	0.000	0.194
0.7556	0.019	0.005	0.000	0.194
0.8000	0.019	0.006	0.000	0.194
0.8444	0.019	0.006	0.000	0.194
0.8889	0.019	0.006	0.000	0.194
0.9333	0.019	0.007	0.000	0.194
0.9778	0.019	0.007	0.000	0.194
1.0222	0.019	0.007	0.000	0.194
1.0667	0.019	0.008	0.000	0.194
1.1111	0.019	0.008	0.000	0.194

1.1556	0.019	0.008	0.000	0.194
1.2000	0.019	0.009	0.000	0.194
1.2444	0.019	0.009	0.000	0.194
1.2889	0.019	0.009	0.000	0.194
1.3333	0.019	0.010	0.000	0.194
1.3778	0.019	0.010	0.000	0.194
1.4222	0.019	0.011	0.000	0.194
1.4667	0.019	0.011	0.000	0.194
1.5111	0.019	0.011	0.000	0.194
1.5556	0.019	0.012	0.000	0.194
1.6000	0.019	0.012	0.000	0.194
1.6444	0.019	0.012	0.000	0.194
1.6889	0.019	0.013	0.000	0.194
1.7333	0.019	0.013	0.000	0.194
1.7778	0.019	0.013	0.000	0.194
1.8222	0.019	0.014	0.000	0.194
1.8667	0.019	0.014	0.000	0.194
1.9111	0.019	0.014	0.000	0.194
1.9556	0.019	0.015	0.000	0.194
2.0000	0.019	0.015	0.000	0.194
2.0444	0.019	0.015	0.000	0.194
2.0889	0.019	0.016	0.000	0.194
2.1333	0.019	0.016	0.000	0.194
2.1778	0.019	0.016	0.000	0.194
2.2222	0.019	0.017	0.000	0.194
2.2667	0.019	0.017	0.000	0.194
2.3111	0.019	0.017	0.000	0.194
2.3556	0.019	0.018	0.000	0.194
2.4000	0.019	0.018	0.000	0.194
2.4444	0.019	0.018	0.000	0.194
2.4889	0.019	0.019	0.000	0.194
2.5333	0.019	0.019	0.000	0.194
2.5778	0.019	0.019	0.000	0.194
2.6222	0.019	0.020	0.000	0.194
2.6667	0.019	0.020	0.000	0.194
2.7111	0.019	0.020	0.000	0.194
2.7556	0.019	0.021	0.000	0.194
2.8000	0.019	0.021	0.000	0.194
2.8444	0.019	0.021	0.000	0.194
2.8889	0.019	0.022	0.000	0.194
2.9333	0.019	0.022	0.000	0.194
2.9778	0.019	0.023	0.000	0.194
3.0222	0.019	0.023	0.023	0.194
3.0667	0.019	0.023	0.121	0.194
3.1111	0.019	0.024	0.255	0.194
3.1556	0.019	0.024	0.404	0.194
3.2000	0.019	0.024	0.547	0.194
3.2444	0.019	0.025	0.665	0.194
3.2889	0.019	0.025	0.747	0.194
3.3333	0.019	0.025	0.799	0.194
3.3778	0.019	0.026	0.860	0.194
3.4222	0.019	0.026	0.909	0.194
3.4667	0.019	0.026	0.956	0.194
3.5111	0.019	0.027	1.000	0.194
3.5556	0.019	0.027	1.043	0.194
3.6000	0.019	0.027	1.084	0.194
3.6444	0.019	0.028	1.123	0.194
3.6889	0.019	0.028	1.161	0.194

3.7333	0.019	0.028	1.198	0.194
3.7778	0.019	0.029	1.234	0.194
3.8222	0.019	0.029	1.269	0.194
3.8667	0.019	0.029	1.303	0.194
3.9111	0.019	0.030	1.336	0.194
3.9556	0.019	0.030	1.368	0.194
4.0000	0.019	0.030	1.399	0.194

Gravel Trench Bed 4

Bottom Length: 110.00 ft.
 Bottom Width: 8.00 ft.
 Trench bottom slope 1: 0 To 1
 Trench Left side slope 0: 0 To 1
 Trench right side slope 2: 0 To 1
 Material thickness of first layer: 4
 Pour Space of material for first layer: 0.4
 Material thickness of second layer: 0
 Pour Space of material for second layer: 0
 Material thickness of third layer: 0
 Pour Space of material for third layer: 0
 Infiltration On
 Infiltration rate: 10
 Infiltration safety factor: 1
 Total Volume Infiltrated (ac-ft.): 86.878
 Total Volume Through Riser (ac-ft.): 0
 Total Volume Through Facility (ac-ft.): 86.878
 Percent Infiltrated: 100
 Total Precip Applied to Facility: 0
 Total Evap From Facility: 0
 Discharge Structure
 Riser Height: 3 ft.
 Riser Diameter: 8 in.
 Element Flows To:
 Outlet 1 Outlet 2

Gravel Trench Bed Hydraulic Table

Stage(feet)	Area(ac.)	Volume(ac-ft.)	Discharge(cfs)	Infilt(cfs)
0.0000	0.020	0.000	0.000	0.000
0.0444	0.020	0.000	0.000	0.203
0.0889	0.020	0.000	0.000	0.203
0.1333	0.020	0.001	0.000	0.203
0.1778	0.020	0.001	0.000	0.203
0.2222	0.020	0.001	0.000	0.203
0.2667	0.020	0.002	0.000	0.203
0.3111	0.020	0.002	0.000	0.203
0.3556	0.020	0.002	0.000	0.203
0.4000	0.020	0.003	0.000	0.203
0.4444	0.020	0.003	0.000	0.203
0.4889	0.020	0.004	0.000	0.203
0.5333	0.020	0.004	0.000	0.203
0.5778	0.020	0.004	0.000	0.203
0.6222	0.020	0.005	0.000	0.203
0.6667	0.020	0.005	0.000	0.203
0.7111	0.020	0.005	0.000	0.203
0.7556	0.020	0.006	0.000	0.203
0.8000	0.020	0.006	0.000	0.203
0.8444	0.020	0.006	0.000	0.203
0.8889	0.020	0.007	0.000	0.203
0.9333	0.020	0.007	0.000	0.203
0.9778	0.020	0.007	0.000	0.203
1.0222	0.020	0.008	0.000	0.203
1.0667	0.020	0.008	0.000	0.203
1.1111	0.020	0.009	0.000	0.203

1.1556	0.020	0.009	0.000	0.203
1.2000	0.020	0.009	0.000	0.203
1.2444	0.020	0.010	0.000	0.203
1.2889	0.020	0.010	0.000	0.203
1.3333	0.020	0.010	0.000	0.203
1.3778	0.020	0.011	0.000	0.203
1.4222	0.020	0.011	0.000	0.203
1.4667	0.020	0.011	0.000	0.203
1.5111	0.020	0.012	0.000	0.203
1.5556	0.020	0.012	0.000	0.203
1.6000	0.020	0.012	0.000	0.203
1.6444	0.020	0.013	0.000	0.203
1.6889	0.020	0.013	0.000	0.203
1.7333	0.020	0.014	0.000	0.203
1.7778	0.020	0.014	0.000	0.203
1.8222	0.020	0.014	0.000	0.203
1.8667	0.020	0.015	0.000	0.203
1.9111	0.020	0.015	0.000	0.203
1.9556	0.020	0.015	0.000	0.203
2.0000	0.020	0.016	0.000	0.203
2.0444	0.020	0.016	0.000	0.203
2.0889	0.020	0.016	0.000	0.203
2.1333	0.020	0.017	0.000	0.203
2.1778	0.020	0.017	0.000	0.203
2.2222	0.020	0.018	0.000	0.203
2.2667	0.020	0.018	0.000	0.203
2.3111	0.020	0.018	0.000	0.203
2.3556	0.020	0.019	0.000	0.203
2.4000	0.020	0.019	0.000	0.203
2.4444	0.020	0.019	0.000	0.203
2.4889	0.020	0.020	0.000	0.203
2.5333	0.020	0.020	0.000	0.203
2.5778	0.020	0.020	0.000	0.203
2.6222	0.020	0.021	0.000	0.203
2.6667	0.020	0.021	0.000	0.203
2.7111	0.020	0.021	0.000	0.203
2.7556	0.020	0.022	0.000	0.203
2.8000	0.020	0.022	0.000	0.203
2.8444	0.020	0.023	0.000	0.203
2.8889	0.020	0.023	0.000	0.203
2.9333	0.020	0.023	0.000	0.203
2.9778	0.020	0.024	0.000	0.203
3.0222	0.020	0.024	0.023	0.203
3.0667	0.020	0.024	0.121	0.203
3.1111	0.020	0.025	0.255	0.203
3.1556	0.020	0.025	0.404	0.203
3.2000	0.020	0.025	0.547	0.203
3.2444	0.020	0.026	0.665	0.203
3.2889	0.020	0.026	0.747	0.203
3.3333	0.020	0.026	0.799	0.203
3.3778	0.020	0.027	0.860	0.203
3.4222	0.020	0.027	0.909	0.203
3.4667	0.020	0.028	0.956	0.203
3.5111	0.020	0.028	1.000	0.203
3.5556	0.020	0.028	1.043	0.203
3.6000	0.020	0.029	1.084	0.203
3.6444	0.020	0.029	1.123	0.203
3.6889	0.020	0.029	1.161	0.203

3.7333	0.020	0.030	1.198	0.203
3.7778	0.020	0.030	1.234	0.203
3.8222	0.020	0.030	1.269	0.203
3.8667	0.020	0.031	1.303	0.203
3.9111	0.020	0.031	1.336	0.203
3.9556	0.020	0.032	1.368	0.203
4.0000	0.020	0.032	1.399	0.203

Mitigated Routing

Analysis Results

POC 1

POC #1 was not reported because POC must exist in both scenarios and both scenarios must have been run.

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

Mitigated UCI File

Predeveloped HSPF Message File

Mitigated HSPF Message File

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