

November 22, 2024

Gilbert LaForce, PE
El Paso County
2880 International Circle, Suite 110
Colorado Springs, CO 8010

Re: ***La Foret Certification Letter
El Paso County, Colorado***

Dear Mr. LaForce:

This letter serves as the certification for La Foret, El Paso County, CO consistent with El Paso County Engineering Manual ("ECM") Section 5.10.B, which states, " *Engineering Record Drawings shall be accompanied by a certification letter from the Engineer of Record*". As the Engineer of record, I, Kevin Kofford, certify the site and adjacent properties (as affected by work performed under the County permit) are stable with respect to settlement and subsidence, sloughing of cut and fill slopes, revegetation or other ground cover, and that the improvements (public improvements, common development improvements, site grading and paving) meet or exceed the minimum design requirements. For sites including detention and/or water quality facilities, the certification letter shall include a statement that the facilities provide the required storage volume and will meet the required release rates, as documented by an attached UDFCD design form submitted with the original application, the stage areas, elevations and outlet dimensions.

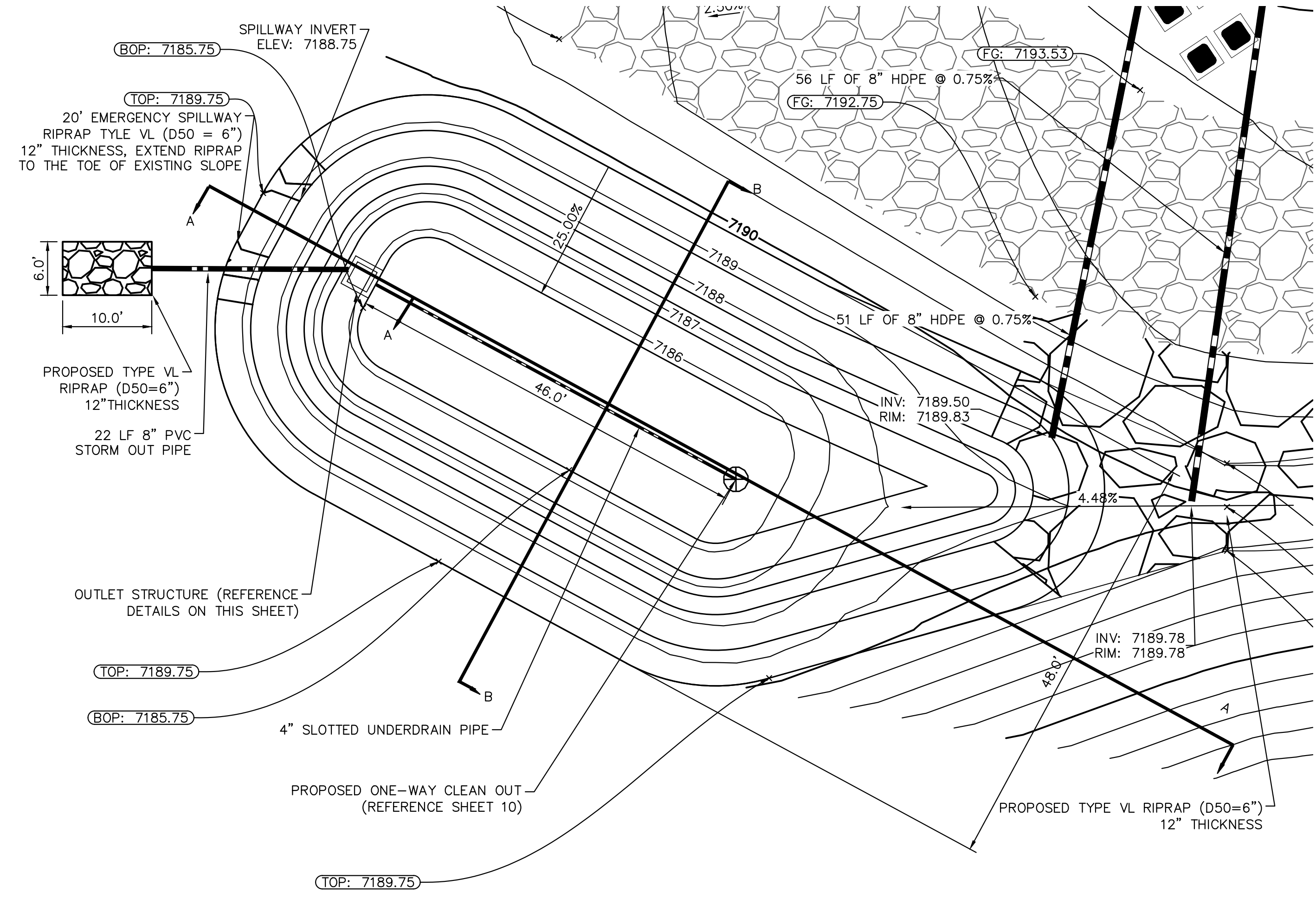
Based upon this information and information gathered during periodic site visits to the site during significant/key phases of the infrastructure installation, *Kimley-Horn & Associates, Inc.* is of the opinion that the work performed under the County Permit, per Section 5.10.B of the ECM, have been constructed in general compliance with the approved Construction Plans as filed with the County dated November 15, 2023.

Statement Of Engineer in Responsible Charge:

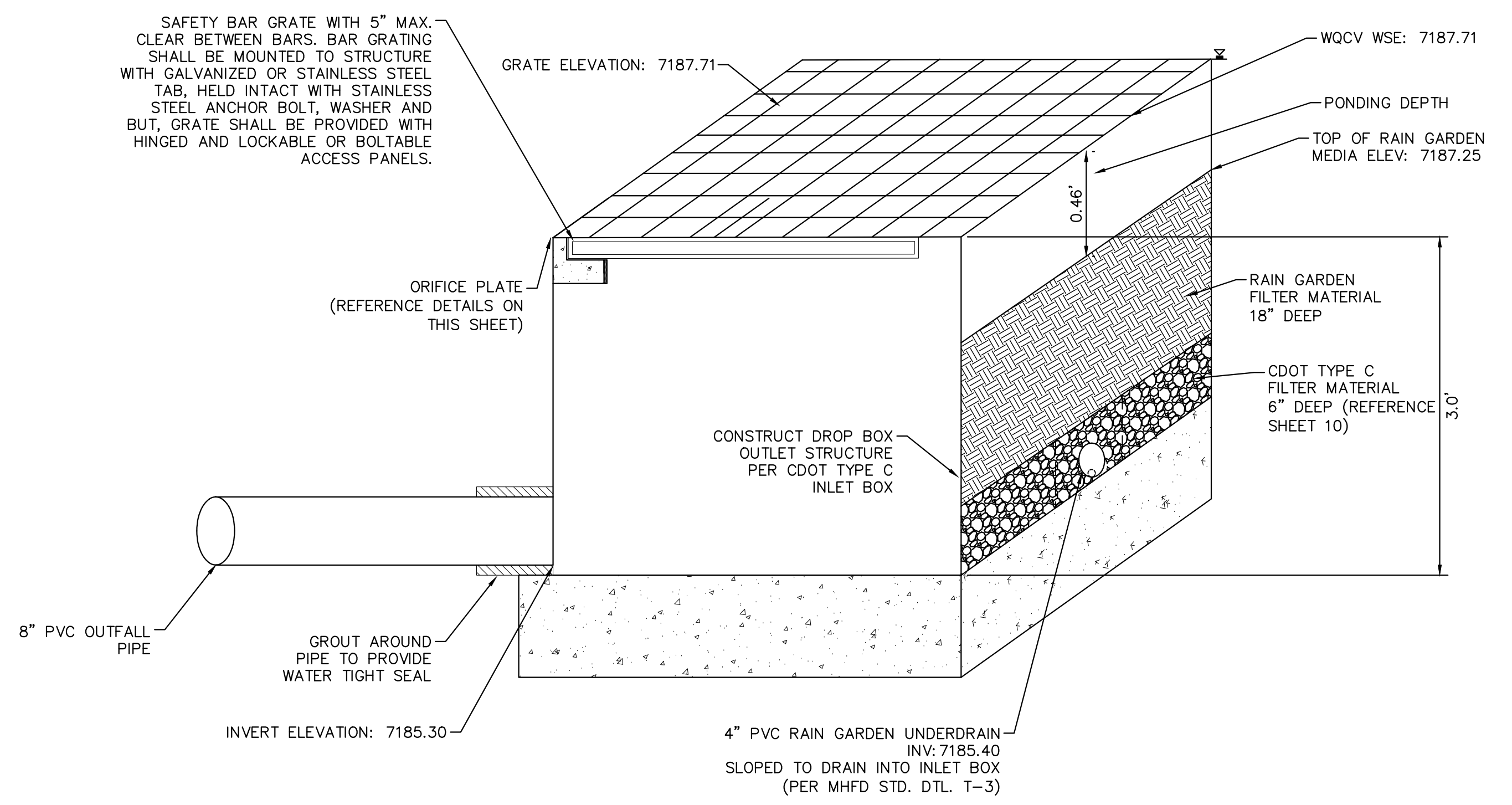
I, Kevin R. Kofford, a registered Professional Engineer in the State of Colorado, in accordance with Sections 5.2 and 5.3 of the Bylaws and Rules of the State Board of Registration for Professional Engineers and Professional Land Surveyors, do hereby certify that I or a person under my responsible charge periodically observed the construction of the above-mentioned project. Based on the on-site field observations and review of pertinent documentation, it is my professional opinion that the required infrastructure improvements have been installed and are in general compliance with the approved Construction Plans as filed with El Paso County. For BMPs with a Water Quality Capture Volume (WQCV), I have attached the post-construction As-Built drawings. The As-Built drawings accurately depict the final installation of the stormwater BMPs and verify the WQCV.

Kevin R. Kofford, P.E.
Colorado No. 57234

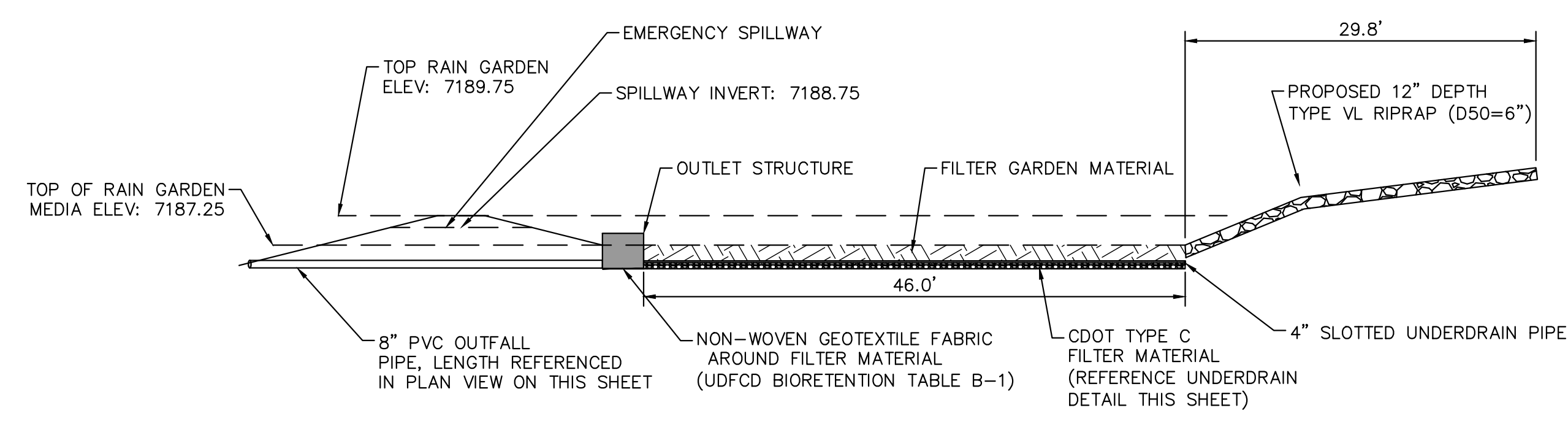
K:\COS_Civil\096971007_La_Foret\CADD\PlanSheets\SDP\096971007_SDP_GD.dwg Evans, Wyatt 10/26/2023 10:00 AM



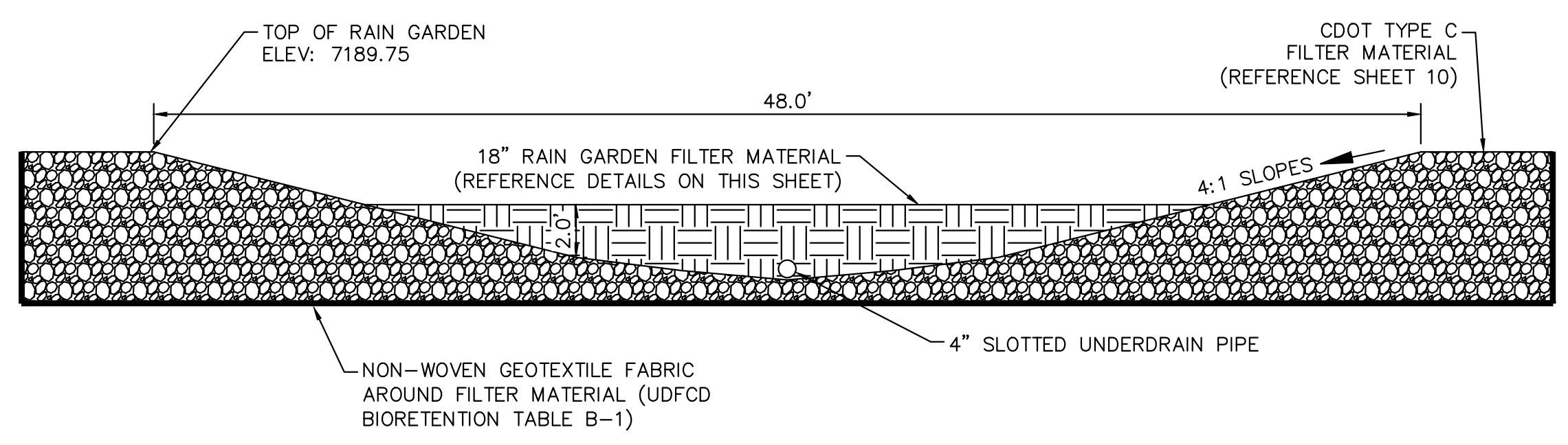
RAIN GARDEN PLAN VIEW
1" = 10'



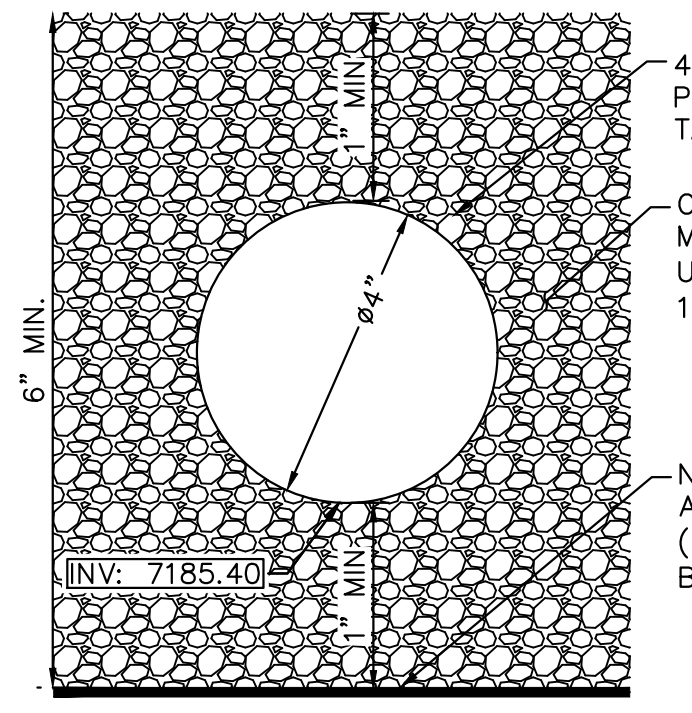
RAIN GARDEN OUTLET STRUCTURE SECTION A-A DETAIL
N.T.S.



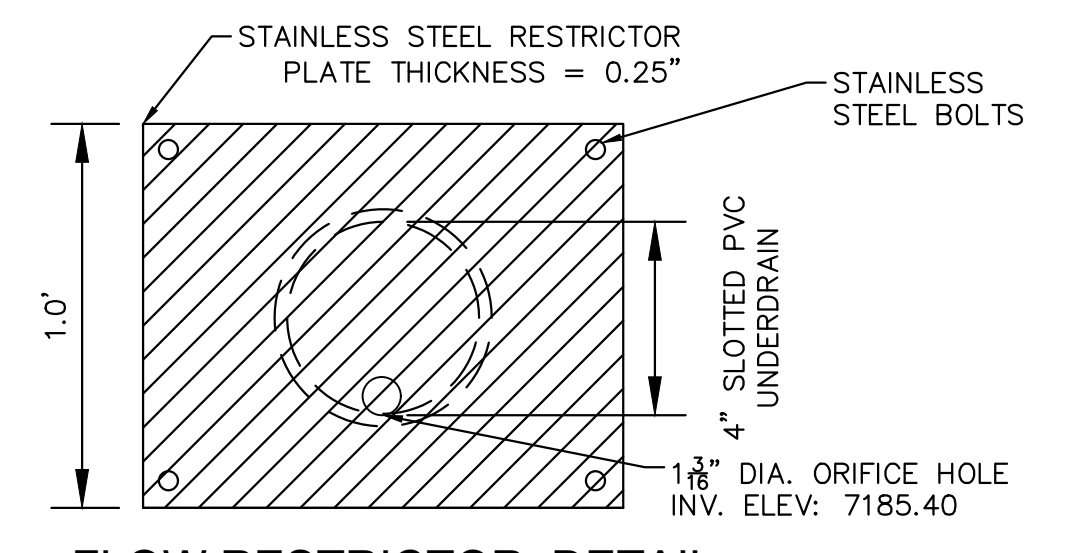
RAIN GARDEN SECTION A-A DETAIL
1" = 10'



RAIN GARDEN SECTION B-B DETAIL
1" = 5'



RAIN GARDEN UNDERDRAIN
N.T.S.



FLOW RESTRICTOR DETAIL
N.T.S.

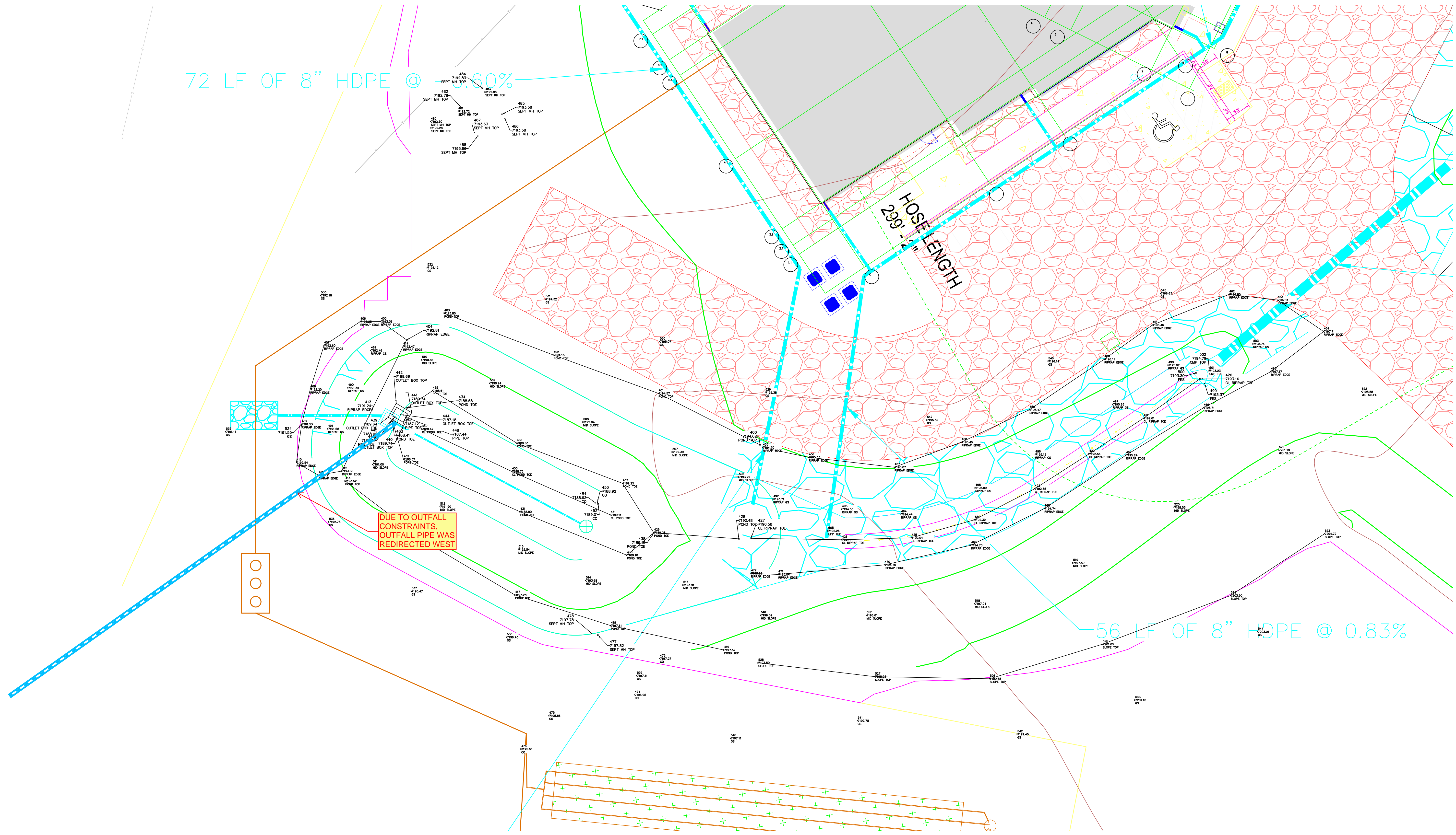
NO.	REVISION	BY	DATE	APPR.
Kimley»Horn				
2023 KIMLEY-HORN AND ASSOCIATES, INC. 2 North Nevada Avenue Suite 300 Colorado Springs, Colorado 80903 (719) 453-0180				
DESIGNED BY: KFK DRAWN BY: AJL CHECKED BY: KFK DATE: 10/26/2023				
LA FORET EL PASO COUNTY, COLORADO CONSTRUCTION DOCUMENTS RAIN GARDEN DETAILS				
PROJECT NO. 096971007				
SHEET 9				

72 LF OF 8" HDPE @ 0.60%

HOSE LENGTH
299' - 11"

DUE TO OUTFALL
CONSTRAINTS,
OUTFALL PIPE WAS
REDIRECTED WEST

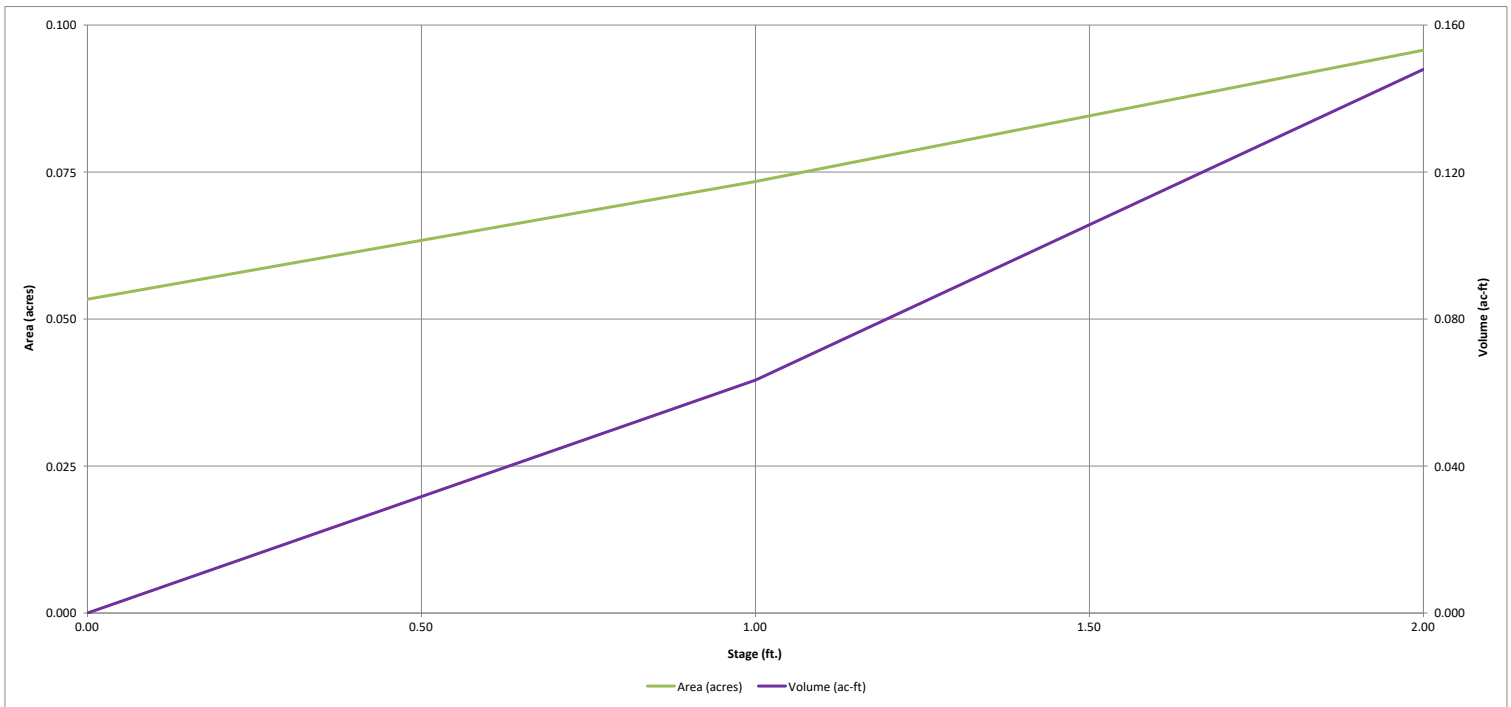
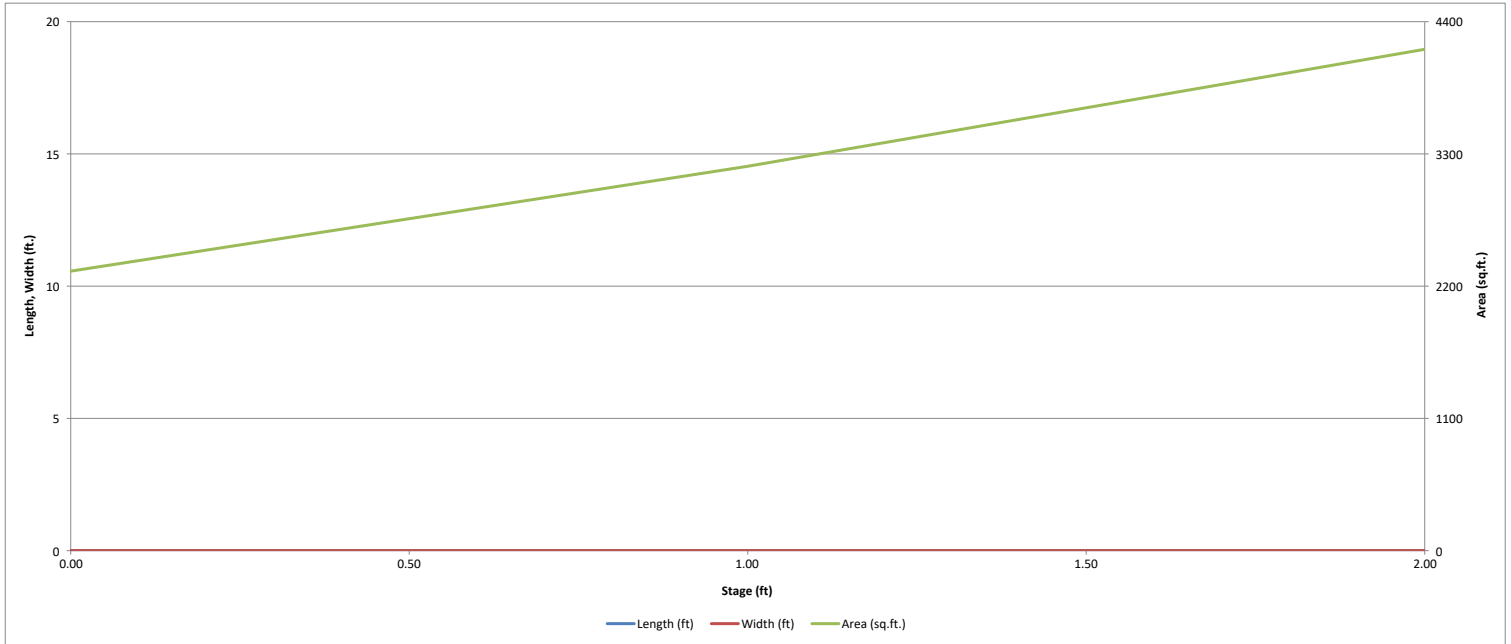
56 LF OF 8" HDPE @ 0.83%



DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-*Detention, Version 4.06 (July 2022)*

UD DETENTION SPREADSHEET FROM APPROVED FDR



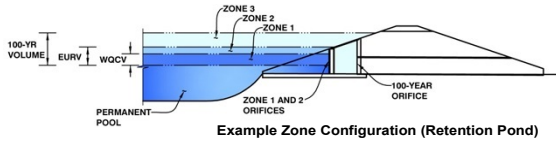
UD DETENTION SPREADSHEET FROM APPROVED FDR

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: _____

Basin ID: _____



	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.46	0.027	Filtration Media
Zone 2			
Zone 3			
Total (all zones)		0.027	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = ft (distance below the filtration media surface)
 Underdrain Orifice Diameter = inches

Calculated Parameters for Underdrain
 Underdrain Orifice Area = ft²
 Underdrain Orifice Centroid = feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice = ft (relative to basin bottom at Stage = 0 ft)
 Depth at top of Zone using Orifice Plate = ft (relative to basin bottom at Stage = 0 ft)
 Orifice Plate: Orifice Vertical Spacing = inches
 Orifice Plate: Orifice Area per Row = sq. inches

Calculated Parameters for Plate
 WQ Orifice Area per Row = ft²
 Elliptical Half-Width = feet
 Elliptical Slot Centroid = feet
 Elliptical Slot Area = ft²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>
Orifice Area (sq. inches)	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>
Stage of Orifice Centroid (ft)	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>
Orifice Area (sq. inches)	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>	<input style="width: 80px;" type="text"/>

User Input: Vertical Orifice (Circular or Rectangular)

Invert of Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
 Depth at top of Zone using Vertical Orifice = ft (relative to basin bottom at Stage = 0 ft)
 Vertical Orifice Diameter = inches

Calculated Parameters for Vertical Orifice
 Vertical Orifice Area = ft²
 Vertical Orifice Centroid = feet

User Input: Overflow Weir (Dropbox with Flat or Sloped Grate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

Overflow Weir Front Edge Height, H_o = ft (relative to basin bottom at Stage = 0 ft)
 Overflow Weir Front Edge Length = feet
 Overflow Weir Grate Slope = H:V
 Horiz. Length of Weir Sides = feet
 Overflow Grate Type =
 Debris Clogging % = %

Calculated Parameters for Overflow Weir
 Height of Grate Upper Edge, H_u = feet
 Overflow Weir Slope Length = feet
 Grate Open Area / 100-yr Orifice Area =
 Overflow Grate Open Area w/o Debris = ft²
 Overflow Grate Open Area w/ Debris = ft²

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

Depth to Invert of Outlet Pipe = ft (distance below basin bottom at Stage = 0 ft)
 Circular Orifice Diameter = inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate
 Outlet Orifice Area = ft²
 Outlet Orifice Centroid = feet
 Half-Central Angle of Restrictor Plate on Pipe = radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage = ft (relative to basin bottom at Stage = 0 ft)
 Spillway Crest Length = feet
 Spillway End Slopes = H:V
 Freeboard above Max Water Surface = feet

Calculated Parameters for Spillway
 Spillway Design Flow Depth = feet
 Stage at Top of Freeboard = feet
 Basin Area at Top of Freeboard = acres
 Basin Volume at Top of Freeboard = acre-ft

Routed Hydrograph Results

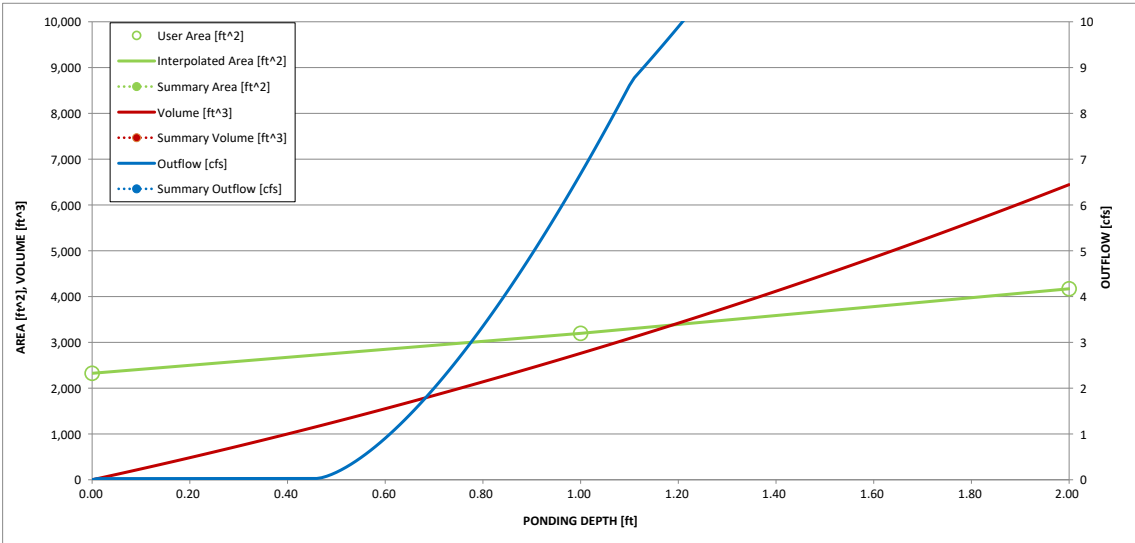
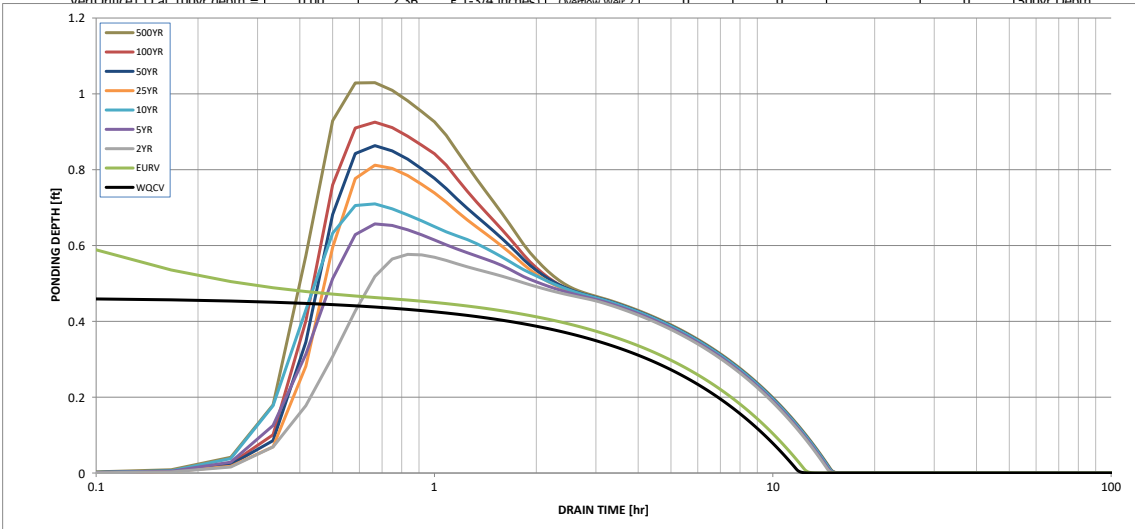
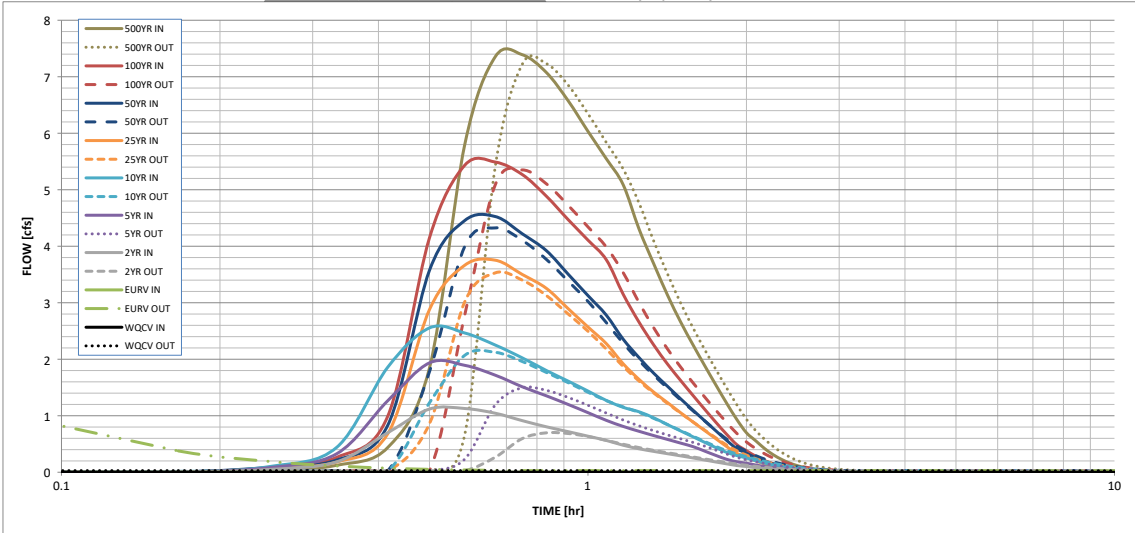
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.14
One-Hour Rainfall Depth (in) =	0.027	0.076	0.077	0.130	0.179	0.255	0.312	0.389	0.535
CUHP Runoff Volume (acre-ft) =	N/A	N/A	0.077	0.130	0.179	0.255	0.312	0.389	0.535
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.4	1.1	1.6	2.9	3.6	4.5	6.2
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.4	1.1	1.6	2.9	3.6	4.5	6.2
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.14	0.38	0.56	0.99	1.24	1.55	2.16
Peak Inflow Q (cfs) =	N/A	N/A	1.1	1.9	2.6	3.8	4.5	5.5	7.4
Peak Outflow Q (cfs) =	0.03	5.3	0.7	1.5	2.1	3.5	4.3	5.4	7.2
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.4	1.3	1.2	1.2	1.2	1.2
Structure Controlling Flow =	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1
Max Velocity through Gate 1 (fps) =	-0.01	-0.01	-0.01	0.0	0.0	0.0	0.0	0.0	0.0
Max Velocity through Gate 2 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours) =	12	12	14	13	13	11	11	10	8
Time to Drain 99% of Inflow Volume (hours) =	12	12	14	14	14	14	14	13	13
Maximum Ponding Depth (ft) =	0.47	1.17	0.58	0.66	0.71	0.81	0.86	0.93	1.03
Area at Maximum Ponding Depth (acres) =	0.06	0.08	0.06	0.07	0.07	0.07	0.07	0.07	0.07
Maximum Volume Stored (acre-ft) =	0.027	0.076	0.034	0.039	0.042	0.050	0.053	0.058	0.065

UD DETENTION SPREADSHEET FROM APPROVED FDR

DETENTION BASIN OUTLET STRUCTURE DESIGN

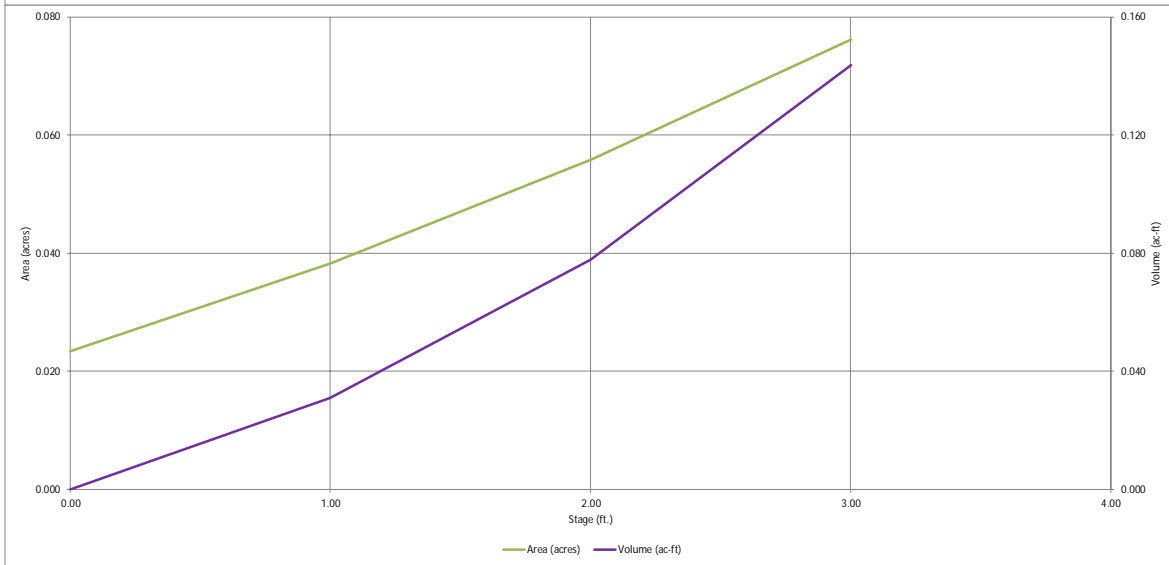
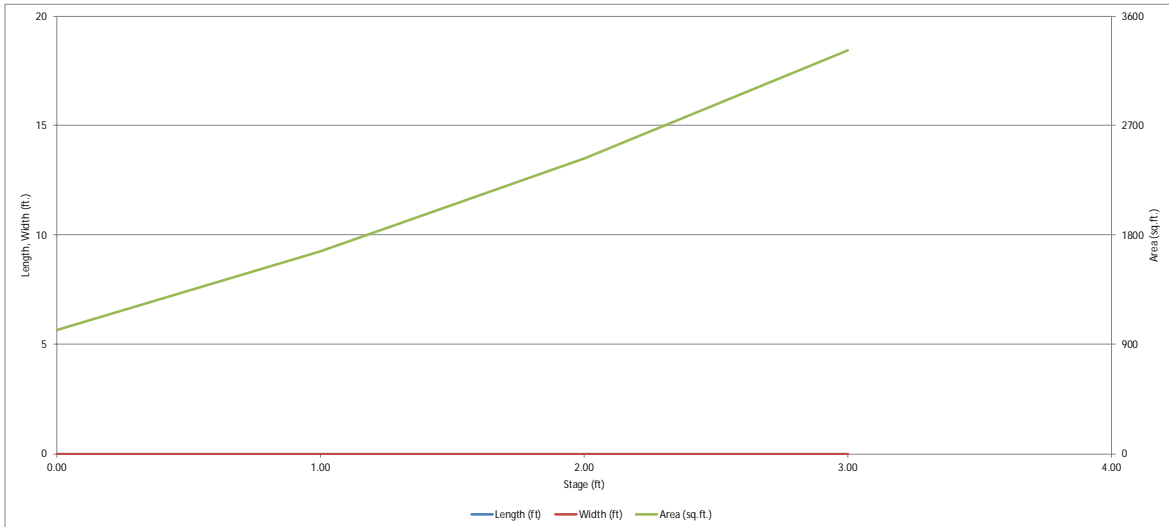
MHFD-Detention, Version 4.06 (July 2022)



S-A-V-D Chart Axis Override

	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			

UD DETENTION SPREADSHEET WITH AS BUILT INFO

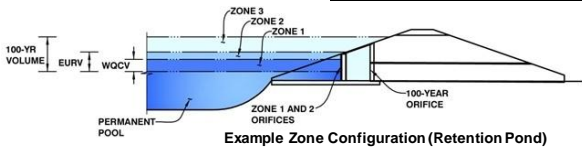


UD DETENTION SPREADSHEET WITH AS BUILT INFO

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)

Project: _____
 Basin ID: _____



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	0.89	0.027	Filtration Media
Zone 2			
Zone 3			
Total (all zones)		0.027	

User Input: Orifice at Underdrain Outlet (typically used to drain WQCV in a Filtration BMP)

Underdrain Orifice Invert Depth = <input style="width: 100px;" type="text" value="1.88"/> ft (distance below the filtration media surface)	Underdrain Orifice Area = <input style="width: 100px;" type="text" value="0.0"/> ft ²
Underdrain Orifice Diameter = <input style="width: 100px;" type="text" value="0.82"/> inches	Underdrain Orifice Centroid = <input style="width: 100px;" type="text" value="0.03"/> feet

User Input: Orifice Plate with one or more orifices or Elliptical Slot Weir (typically used to drain WQCV and/or EURV in a sedimentation BMP)

Calculated Parameters for Plate

Centroid of Lowest Orifice = <input style="width: 100px;" type="text"/> ft (relative to basin bottom at Stage = 0 ft)	WO Orifice Area per Row = <input style="width: 100px;" type="text" value="N/A"/> ft ²
Depth at top of Zone using Orifice Plate = <input style="width: 100px;" type="text"/> ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width = <input style="width: 100px;" type="text" value="N/A"/> feet
Orifice Plate: Orifice Vertical Spacing = <input style="width: 100px;" type="text"/> inches	Elliptical Slot Centroid = <input style="width: 100px;" type="text" value="N/A"/> feet
Orifice Plate: Orifice Area per Row = <input style="width: 100px;" type="text"/> sq. inches	Elliptical Slot Area = <input style="width: 100px;" type="text" value="N/A"/> ft ²

User Input: Stage and Total Area of Each Orifice Row (numbered from lowest to highest)

	Row 1 (optional)	Row 2 (optional)	Row 3 (optional)	Row 4 (optional)	Row 5 (optional)	Row 6 (optional)	Row 7 (optional)	Row 8 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

	Row 9 (optional)	Row 10 (optional)	Row 11 (optional)	Row 12 (optional)	Row 13 (optional)	Row 14 (optional)	Row 15 (optional)	Row 16 (optional)
Stage of Orifice Centroid (ft)								
Orifice Area (sq. inches)								

User Input: Vertical Orifice (Circular or Rectangular)

Calculated Parameters for Vertical Orifice

Invert of Vertical Orifice = <input style="width: 100px;" type="text" value="Not Selected"/> <input style="width: 100px;" type="text" value="Not Selected"/> ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Area = <input style="width: 100px;" type="text" value="Not Selected"/> ft ²
Depth at top of Zone using Vertical Orifice = <input style="width: 100px;" type="text"/> ft (relative to basin bottom at Stage = 0 ft)	Vertical Orifice Centroid = <input style="width: 100px;" type="text" value="Not Selected"/> feet
Vertical Orifice Diameter = <input style="width: 100px;" type="text"/> inches	

User Input: Overflow Weir (Dropbox with Flat or Sloped Gate and Outlet Pipe OR Rectangular/Trapezoidal Weir and No Outlet Pipe)

Calculated Parameters for Overflow Weir

Overflow Weir Front Edge Height, Ho = <input style="width: 100px;" type="text" value="Not Selected"/> <input style="width: 100px;" type="text" value="Not Selected"/> ft (relative to basin bottom at Stage = 0 ft)	Height of Gate Upper Edge, Hi = <input style="width: 100px;" type="text" value="Not Selected"/> feet
Overflow Weir Front Edge Length = <input style="width: 100px;" type="text" value="2.60"/> feet	Overflow Weir Slope Length = <input style="width: 100px;" type="text" value="2.60"/> feet
Overflow Weir Gate Slope = <input style="width: 100px;" type="text" value="0.00"/> H:V	Gate Open Area / 100-yr Orifice Area = <input style="width: 100px;" type="text"/>
Horiz. Length of Weir Sides = <input style="width: 100px;" type="text" value="2.60"/> feet	Overflow Gate Open Area w/o Debris = <input style="width: 100px;" type="text" value="4.70"/> ft ²
Overflow Gate Type = <input style="width: 100px;" type="text" value="Type C Gate"/>	Overflow Gate Open Area w/ Debris = <input style="width: 100px;" type="text" value="2.35"/> ft ²
Debris Clogging % = <input style="width: 100px;" type="text" value="50%"/> %	

User Input: Outlet Pipe w/ Flow Restriction Plate (Circular Orifice, Restrictor Plate, or Rectangular Orifice)

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate

Depth to Invert of Outlet Pipe = <input style="width: 100px;" type="text" value="Not Selected"/> <input style="width: 100px;" type="text" value="Not Selected"/> ft (distance below basin bottom at Stage = 0 ft)	Outlet Orifice Area = <input style="width: 100px;" type="text" value="Not Selected"/> ft ²
Circular Orifice Diameter = <input style="width: 100px;" type="text"/> inches	Outlet Orifice Centroid = <input style="width: 100px;" type="text" value="Not Selected"/> feet
	Half-Central Angle of Restrictor Plate on Pipe = <input style="width: 100px;" type="text" value="N/A"/> radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Calculated Parameters for Spillway

Spillway Invert Stage = <input style="width: 100px;" type="text"/> ft (relative to basin bottom at Stage = 0 ft)	Spillway Design Flow Depth = <input style="width: 100px;" type="text"/> feet
Spillway Crest Length = <input style="width: 100px;" type="text"/> feet	Stage at Top of Freeboard = <input style="width: 100px;" type="text"/> feet
Spillway End Slopes = <input style="width: 100px;" type="text"/> H:V	Basin Area at Top of Freeboard = <input style="width: 100px;" type="text"/> acres
Freeboard above Max Water Surface = <input style="width: 100px;" type="text"/> feet	Basin Volume at Top of Freeboard = <input style="width: 100px;" type="text"/> acre-ft

Routed Hydrograph Results

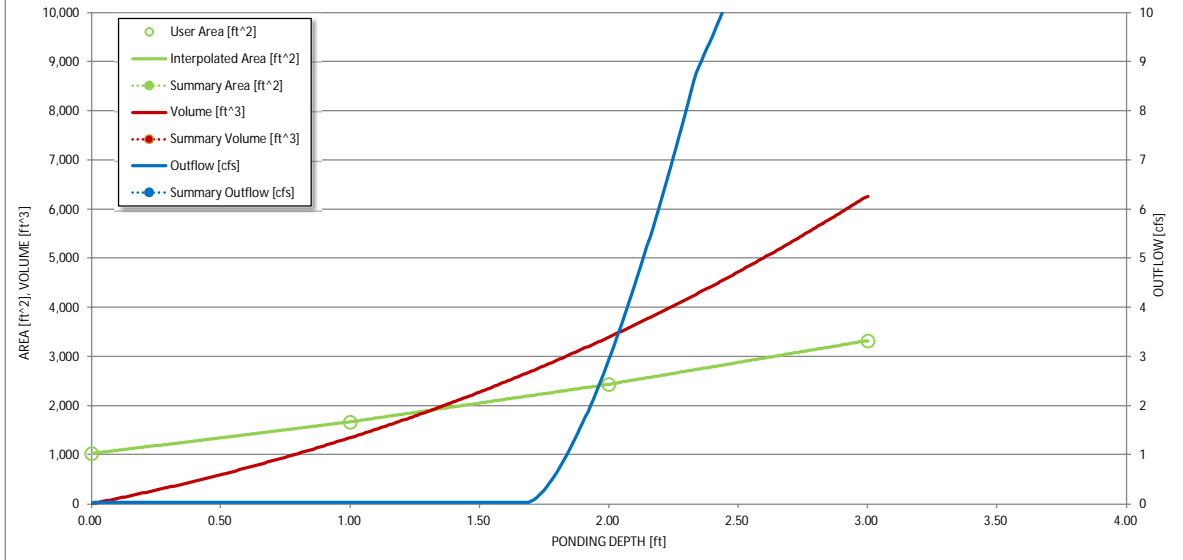
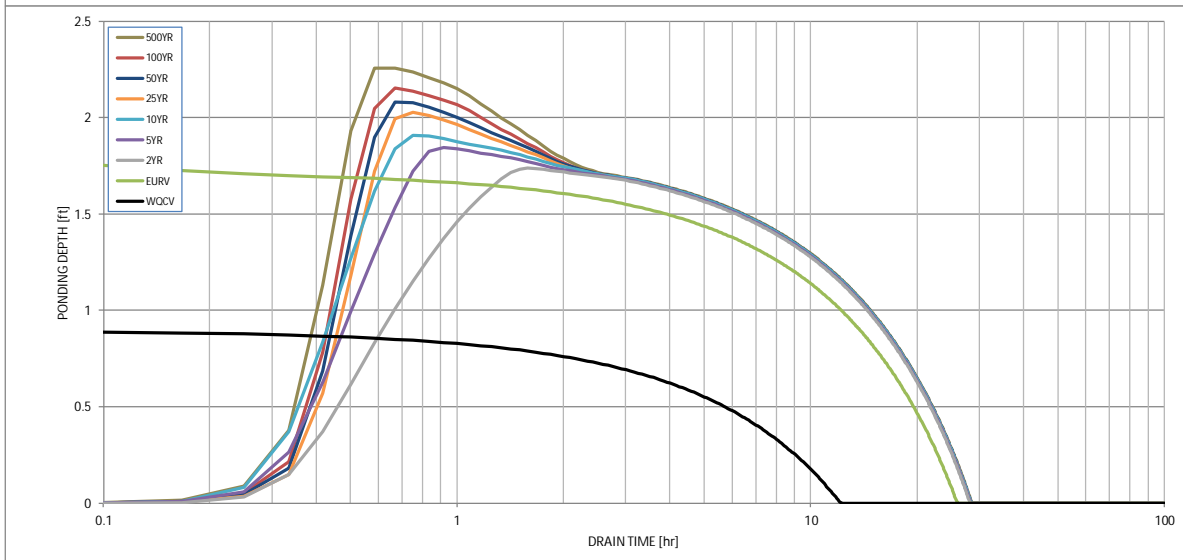
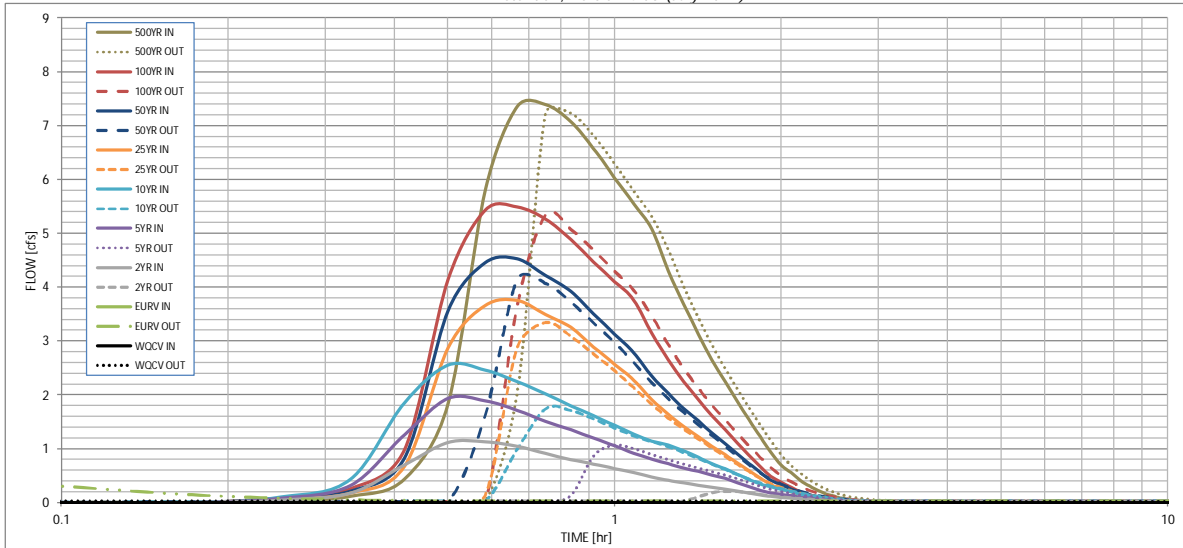
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through AF).

	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year	500 Year
Design Storm Return Period									
One-Hour Rainfall Depth (in)	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	3.14
CUHP Runoff Volume (acre-ft)	0.027	0.076	0.077	0.130	0.179	0.255	0.312	0.389	0.535
Inflow Hydrograph Volume (acre-ft)	N/A	N/A	0.077	0.130	0.179	0.255	0.312	0.389	0.535
CUHP Predevelopment Peak Q (cfs)	N/A	N/A	0.4	1.1	1.6	2.9	3.6	4.5	6.2
OPTIONAL Override Predevelopment Peak Q (cfs)	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre)	N/A	N/A	0.14	0.38	0.56	0.99	1.24	1.55	2.16
Peak Inflow Q (cfs)	N/A	N/A	1.1	1.9	2.6	3.8	4.5	5.5	7.4
Peak Outflow Q (cfs)	0.03	1.4	0.2	1.1	1.7	3.3	4.1	5.3	7.2
Ratio Peak Outflow to Predevelopment Q	N/A	N/A	N/A	1.0	1.1	1.2	1.2	1.2	1.2
Structure Controlling Flow	Filtration Media	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1
Max Velocity through Gate 1 (fps)	N/A	-0.01	-0.01	0.0	0.0	0.0	0.0	0.0	0.0
Max Velocity through Gate 2 (fps)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Time to Drain 97% of Inflow Volume (hours)	12	25	27	26	26	25	24	23	21
Time to Drain 99% of Inflow Volume (hours)	12	26	28	28	28	27	27	27	26
Maximum Ponding Depth (ft)	0.90	1.97	1.74	1.85	1.91	2.03	2.08	2.15	2.26
Area at Maximum Ponding Depth (acres)	0.04	0.06	0.05	0.05	0.05	0.06	0.06	0.06	0.06
Maximum Volume Stored (acre-ft)	0.027	0.076	0.063	0.069	0.072	0.079	0.082	0.086	0.092

UD DETENTION SPREADSHEET WITH AS BUILT INFO

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.06 (July 2022)



S-A-V-D Chart Axis Override	X-axis	Left Y-Axis	Right Y-Axis
minimum bound			
maximum bound			