

Mike Bramlett

From: Mike Bramlett
Sent: Friday, March 25, 2022 6:57 AM
To: Wodiuk - DNR, Jessica
Cc: Doug.Hollister@state.co.us; John.Hunyadi@state.co.us
Subject: Non-Jurisdictional Water Impoundment Structure Notice - Homestead North at Sterling Ranch Filing 1 Full Spectrum Detention Pond
Attachments: NOI Pond C_Homestead North F1.pdf

Jessica,

I have attached a notice of non-jurisdictional water impoundment structure for the full spectrum detention pond associated with Homestead North at Sterling Ranch Filing 1. This pond provides detention and water quality for the single family lots and roadways that are part of the filing 1 development.

Please let me know if you need additional information / drawings.

Thanks

Mike Bramlett, PE
Client Manager
JR Engineering, LLC
5475 Tech Center Drive, Suite 235, Colorado Springs, CO 80919
Phone: (719) 593-2593 Cell: (719) 659-7679

mbramlett@jrengineering.com

March 21, 2022



Colorado Division of Water Resources

310 E. Abriendo Ave., Suite B
Pueblo, CO 81004

RE: Non-Jurisdictional Water Impoundment Structure Notice
Homestead North at Sterling Ranch Filing 1, El Paso County

JR Engineering is performing civil engineering services for the proposed Homestead North at Sterling Ranch Filing 1 development northeast of the intersection of Vollmer Road and future Briargate Parkway in El Paso County. The development is comprised of urban residential lots, tracts roadways and utilities.

As part of this development, one (1) full spectrum detention pond is proposed. The pond is identified as Pond C. The pond will have an embankment on the downhill side but, in my opinion, the pond is non-jurisdictional and provide no public exposure in the event of embankment failure as they are adjacent to the Sand Creek drainageway. Groundwater is not anticipated to be encountered based on the depth of excavation and soils report completed by Entech Engineering. In the event groundwater is encountered, your office will be notified.

I have attached the NOI and the grading/pond plans for the pond. I have also attached an overall vicinity map to help define the location of the proposed pond.

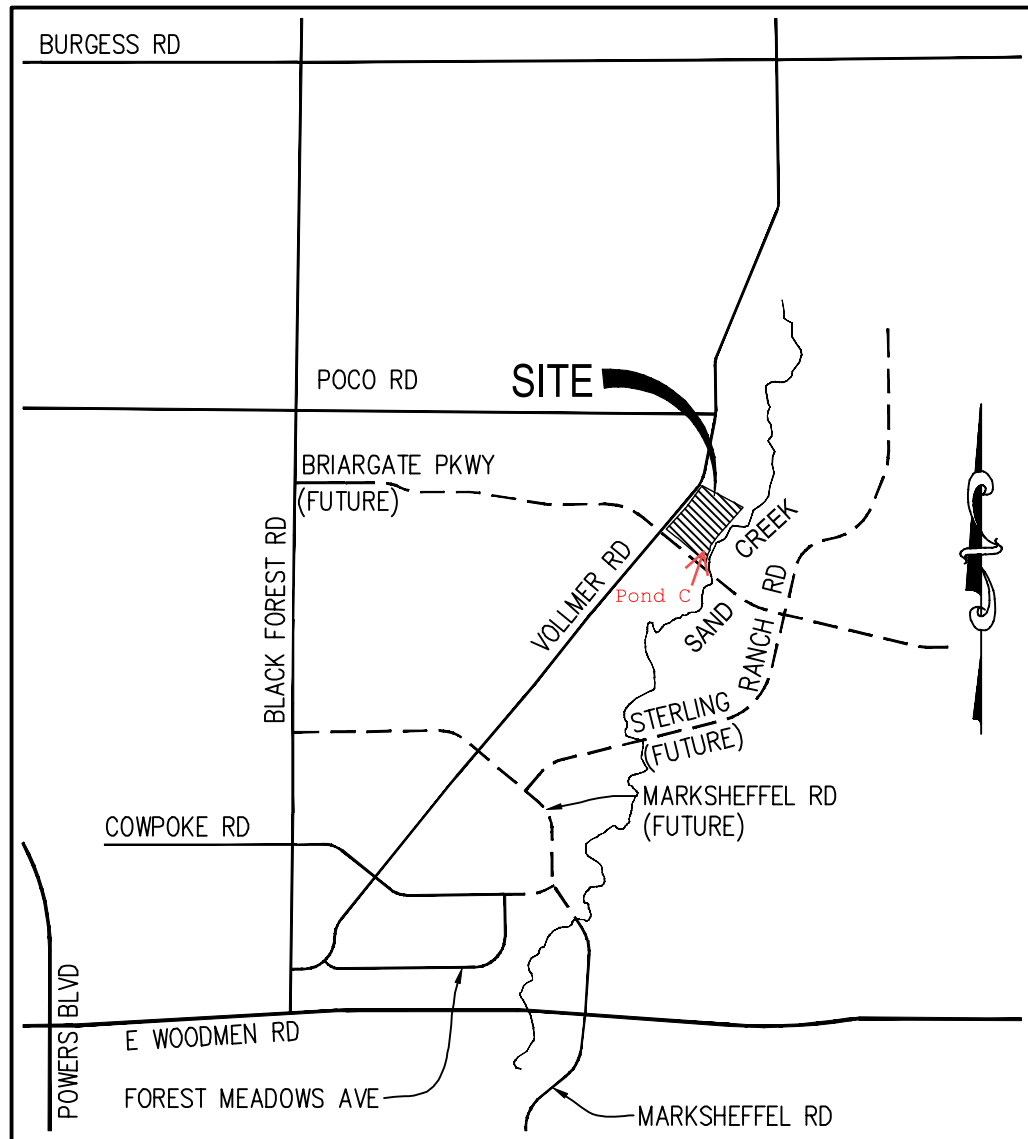
If additional information or clarification is needed to support this submittal, please feel free to contact me.

Respectfully submitted,

JR ENGINEERING, LLC



Mike Bramlett, PE
Client Manager
Ph: (303) 267-6240
Cell: (719) 659-7679
Email: mbramlett@jrengineering.com



VICINITY MAP

N.T.S.

VICINITY MAP
 HOMESTEAD NORTH FIL. 1
 JOB NO. 25188.00
 08/24/21
 SHEET 1 OF 1



J·R ENGINEERING

A Westrian Company

Centennial 303-740-9393 • Colorado Springs 719-593-2593
 Fort Collins 970-491-9888 • www.jrengineering.com



COLORADO

Division of Water Resources

Department of Natural Resources

www.water.state.co.us P 303.866.3581

NON-JURISDICTIONAL WATER IMPOUNDMENT STRUCTURE¹

This notice is required per Section 37-87-125, C.R.S. (1998) and must be submitted to the Division Engineer's Office a minimum of 45 days prior to construction.

OWNER INFORMATION

Name: SR LAND, LLC Telephone/E-Mail: (719) 491-3024 / JMORLEY3870@AOL.COM
 Address: 20 BOULDER CRESCENT, SUITE 200 COLORADO SPRINGS CO 80903
 Street / P.O. Box/ Rural Route City State Zip Code
 Responsible Person: JIM MORLEY Telephone/E-Mail: (719) 491-3024 / JMORLEY3870@AOL.COM
 Address: 20 BOULDER CRESCENT, SUITE 200 COLORADO SPRINGS CO 80903
 Street / P.O. Box/ Rural Route City State Zip Code
 Contractor: TO BE DETERMINED. Telephone/E-Mail: (TO BE DETERMINED.)

STRUCTURE INFORMATION

Name of Dam: HOMESTEAD NORTH F1 - POND C Water Division: 2 Water District: 10

Location: (Provide Section, Township, Range, **and** GPS Point taken at crest of dam above streamline/outlet)

- Section: 33, Township: 12S, Range: 65W, 6th P.M.

- Northing 4313295.13 meters, Easting 528589.33 meters (Datum should be UTM, NAD 83)

Dam Dimensions:

- Vertical Height²: 9.9 ft., Length: 190 ft., Crest Width: 10 ft., Slopes: U/S: 4 (H:1V), D/S 4 (H:1V)

Reservoir:

- Surface Area¹: 1.49 acres, Capacity¹: 9.3 acre-feet, Drainage Area*: 224.3 acres

*(If drainage area is unknown leave blank and a spillway size will be assigned):

Emergency Spillway: (See Table 1, Spillway Sizing Guidelines)

- Bottom Width: 123 ft., Side Slopes: 4 H:1V, Freeboard³: 2.5' ft

Outlet Conduit Type: RCP, Size: 48" inches, Location: SAND CREEK

Stream Name or Water Source⁴: SAND CREEK Proposed Water Use: FULL SPECTRUM DETENTION POND

Water Court Case or WDID : _____
 (Water District Identification Number)


 Signature of Owner

3/21/22

Date

Office Use Only

DIVISION ENGINEER'S REQUIREMENTS:

Dam I.D.

Signature of Division Engineer

Date

¹ A "Non-Jurisdictional Structure" is a dam creating a reservoir with a capacity of 100 acre-feet or less and a surface area of 20 acres or less and a vertical height (footnote 2) of 10 feet or less. Non-jurisdictional size dams are regulated and subject to the authority of the State Engineer consistent with sections 37-87-102 and 37-87-105 C.R.S.

² "Vertical Height" is measured from the elevation of the lowest point of the natural surface of the ground or the invert of the outlet conduit (whichever is lower) where that point occurs along the longitudinal centerline of the dam up to the crest of the emergency spillway of the dam.

³ "Freeboard" is the vertical distance from the bottom of spillway to the crest of the dam. Minimum Freeboard is 3 feet.

⁴ If construction in reservoir intercepts groundwater, a well permit is required. (Well permit applications can be found at www.water.state.co.us)



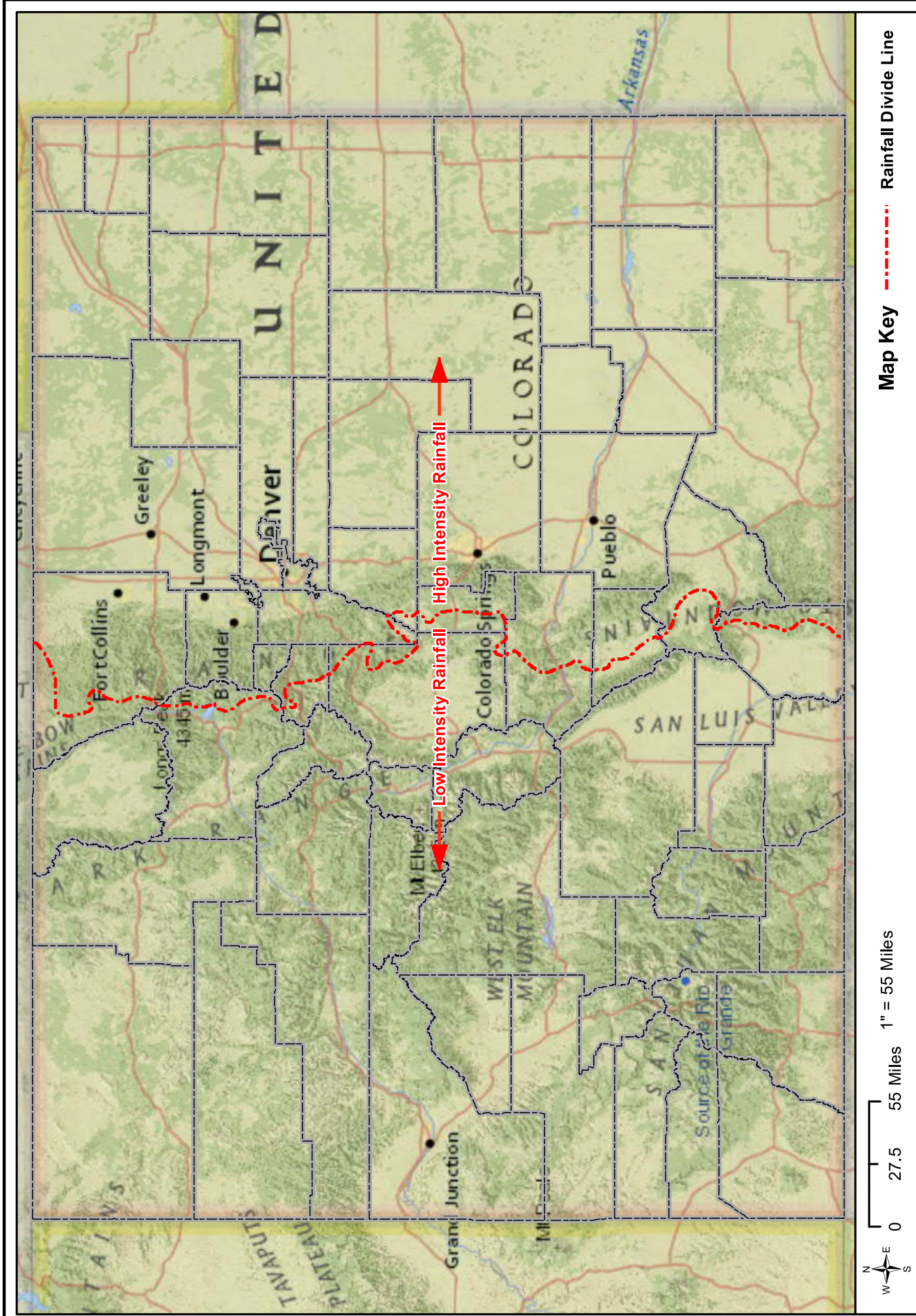
Table 1 DAM SAFETY BRANCH Spillway Sizing Guidelines for Non-Jurisdictional Dams

Drainage Area (Acres)	Minimum Recommended Bottom Width ¹ (Feet) Low Intensity Rainfall Zone	Minimum Recommended Bottom Width ¹ (Feet) High Intensity Rainfall Zone
175	8	8
225	8	10
275	8	12
325	8	15
375	10	17
425	11	19
475	12	21
525	13	24
575	15	26
625	16	28
675	17	30
725	19	33
775	20	35
825	21	37
875	22	39
925	24	42
975	25	44
1025	26	46
1075	28	48
1125	29	51
1175	30	53
1225	31	55
1275	33	57
1325	34	59
1375	35	62
1425	37	64
1475	38	66

¹Minimum recommended bottom width for drainage areas less than 175 acres is 8 feet



Spillway Section



Map Key - - - - - Rainfall Divide Line

Rainfall Intensity Zones for Non-Jurisdictional Dam Spillway Sizing

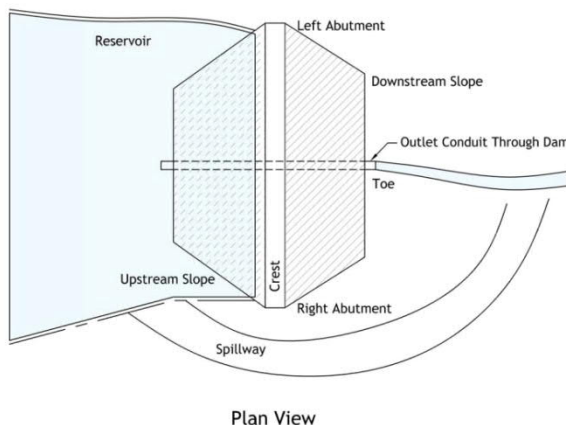
COLORADO
Division of Water Resources
Department of Natural Resources



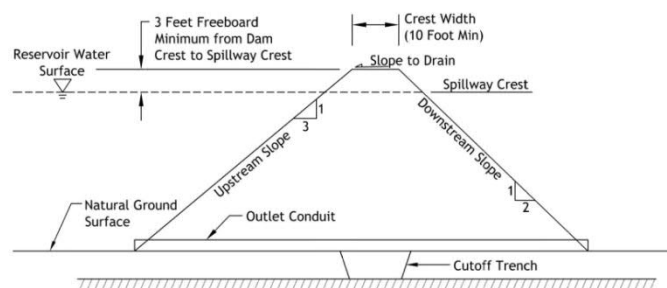


DAM SAFETY BRANCH Specifications for Construction of Non-Jurisdictional Dams

- Site Selection:
 - Foundation soils should be firm to provide adequate support for the embankment and should have low permeability to allow for water retention. Site selection should consider potential downstream property damage in the event of a dam failure. Construction of dams in boggy areas, areas with non-uniform fractured rock, or sands/gravels is not recommended and an engineer should be hired to evaluate the site conditions. Any part of the reservoir basin excavated below grade cannot expose groundwater.
- Embankment Design:
 - Backfill material to be used for construction of the cutoff trench and embankment should be a suitable clay material and contain no material larger than 6 inches in diameter.
 - The upstream slope should be constructed with a slope no steeper than 3:1, and the downstream slope should be no steeper than 2:1 (see cross section below). The dam crest should have a minimum width of 10 feet and the surface should be graded with positive drainage toward the reservoir basin.
 - It is recommended that rock rip rap or other suitable material be placed on the upstream slope of the embankment to protect it from wave action. A suitable gravel or geosynthetic material should be placed under the rip rap to prevent fine material from washing out from behind the larger rock.
 - The embankment should be fenced to restrict livestock from accessing the dam since they damage the protective vegetation and increase erosion.
- Embankment Construction
 - The topsoil and all organic material should be removed from the foundation of the proposed dam site. Organic soil should only be reused for placement on the completed embankment to promote the re-growth of vegetation.
 - A cutoff trench should be excavated under the full length of the centerline of the dam with sloping sides (1:1 min.), a minimum bottom width of 3 feet and a depth of 3 feet.
 - The foundation of the dam should be scarified/ripped to a depth of 6-inches to provide proper contact between the native foundation and embankment. This surface should then be moisture treated before placement of fill.
 - Fill material should be placed in layers not exceeding 12 inches in thickness prior to compaction. Suitable backfill material should have enough clay and moisture content to roll a small ball by hand. If this cannot be done, the soil is likely too dry or does not have adequate clay content.
 - Each lift should be thoroughly compacted using a sheeps foot compactor. Care should be taken not to allow the top layers of the soil to dry out between placement of lifts.
 - Fill should be placed in uniform lifts that cover the entire embankment length and width.
- Outlet
 - Unless a waiver is granted in writing by the Division Engineer, all non-jurisdictional dams require an outlet conduit positioned at the natural low point of the reservoir basin. A minimum diameter of 12 inches is recommended and should be controlled at the upstream end by a valve and trash rack.
- Emergency Spillway
 - The spillway should have sufficient width to provide capacity to route the runoff from the drainage basin above the dam during rainfall/runoff events.
 - The emergency spillway should be located on natural ground far enough away to prevent erosion of the dam embankment. A spillway over the dam embankment is not acceptable.
 - A minimum of 3 feet of freeboard is required from the bottom of the emergency spillway to the top of the dam.
 - To determine the minimum spillway width, see the attached table for your area and drainage basin size.
- Example Plan View and Cross Section



Plan View



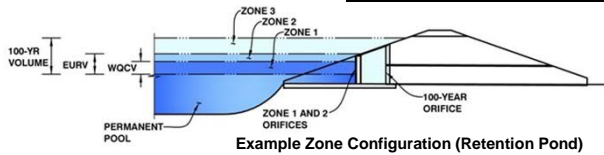
Cross Section Through Dam at Outlet

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.04 (February 2021)

Project: Pond C with offsite flow

Basin ID:



	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	3.32	1.285	Orifice Plate
Zone 2 (EURV)	4.27	0.892	Orifice Plate
Zone 3 (100-year)	9.35	6.216	Weir&Pipe (Restrict)
Total (all zones)		8.393	

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

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

Calculated Parameters for Underdrain
Underdrain Orifice Area = N/A ft²
Underdrain Orifice Centroid = N/A 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)

Invert of Lowest Orifice = 0.00 ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate = 4.27 ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing = N/A inches
Orifice Plate: Orifice Area per Row = 4.69 sq. inches (use rectangular openings)

Calculated Parameters for Plate
WQ Orifice Area per Row = 3.257E-02 ft²
Elliptical Half-Width = N/A feet
Elliptical Slot Centroid = N/A feet
Elliptical Slot Area = N/A ft²

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

	Row 1 (required)	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)	0.00	1.25	2.50					
Orifice Area (sq. inches)	4.69	4.69	4.69					

	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)

Invert of Vertical Orifice = Not Selected Not Selected ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Vertical Orifice = Not Selected Not Selected ft (relative to basin bottom at Stage = 0 ft)
Vertical Orifice Diameter = Not Selected Not Selected inches

Calculated Parameters for Vertical Orifice
Vertical Orifice Area = Not Selected Not Selected ft²
Vertical Orifice Centroid = Not Selected Not Selected 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 = 4.36 ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length = 7.00 feet
Overflow Weir Grate Slope = 4.00 H:V
Horiz. Length of Weir Sides = 12.42 feet
Overflow Grate Type = Close Mesh Grate
Debris Clogging % = 75%

Calculated Parameters for Overflow Weir
Height of Grate Upper Edge, H_u = 7.47 feet
Overflow Weir Slope Length = 12.80 feet
Grate Open Area / 100-yr Orifice Area = 7.70
Overflow Grate Open Area w/o Debris = 70.89 ft²
Overflow Grate Open Area w/ Debris = 17.72 ft²

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

Depth to Invert of Outlet Pipe = 6.29 ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter = 48.00 inches
Restrictor Plate Height Above Pipe Invert = 33.00 inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Plate
Outlet Orifice Area = 9.21 ft²
Outlet Orifice Centroid = 1.54 feet
Half-Central Angle of Restrictor Plate on Pipe = 1.96 radians

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage = 9.99 ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length = 123.00 feet
Spillway End Slopes = 4.00 H:V
Freeboard above Max Water Surface = 1.00 feet

Calculated Parameters for Spillway
Spillway Design Flow Depth = 0.74 feet
Stage at Top of Freeboard = 11.73 feet
Basin Area at Top of Freeboard = 1.67 acres
Basin Volume at Top of Freeboard = 12.10 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	4.00
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52	4.00
CUHP Runoff Volume (acre-ft) =	1.285	2.177	3.053	6.690	10.314	16.752	21.154	27.479	55.481
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	3.053	6.690	10.314	16.752	21.154	27.479	55.481
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	17.6	49.5	77.1	142.3	179.0	229.8	455.6
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A							
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.08	0.22	0.34	0.63	0.80	1.02	2.03
Peak Inflow Q (cfs) =	N/A	N/A	29.2	62.9	90.7	154.6	191.5	243.2	468.8
Peak Outflow Q (cfs) =	0.7	0.8	2.3	20.6	43.8	91.5	124.0	170.1	467.1
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	0.4	0.6	0.6	0.7	0.7	1.0
Structure Controlling Flow =	Plate	Plate	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Overflow Weir 1	Outlet Plate 1	Spillway
Max Velocity through Grate 1 (fps) =	N/A	N/A	0.02	0.3	0.6	1.3	1.7	2.4	2.4
Max Velocity through Grate 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) =	38	50	58	55	51	45	41	37	21
Time to Drain 99% of Inflow Volume (hours) =	40	54	62	62	60	57	55	53	44
Maximum Ponding Depth (ft) =	3.32	4.27	4.80	6.22	7.11	8.35	9.02	9.96	10.83
Area at Maximum Ponding Depth (acres) =	0.87	1.01	1.06	1.17	1.25	1.35	1.41	1.49	1.58
Maximum Volume Stored (acre-ft) =	1.288	2.178	2.724	4.310	5.376	7.001	7.928	9.278	10.635

Stormwater Detention and Infiltration Design Data Sheet

Worksheet Protected

Watershed Slope =	0.034	ft/ft
Watershed Length =	1580	ft
Watershed Area =	224.34	acres
Watershed Imperviousness =	10.3%	percent
percentage Hydrologic Soil Group A =		percent
percentage Hydrologic Soil Group B =	100.0%	percent
percentage Hydrologic Soil Groups C/D =		percent

User Input

WQCV Treatment Method = Extended Detention ▼

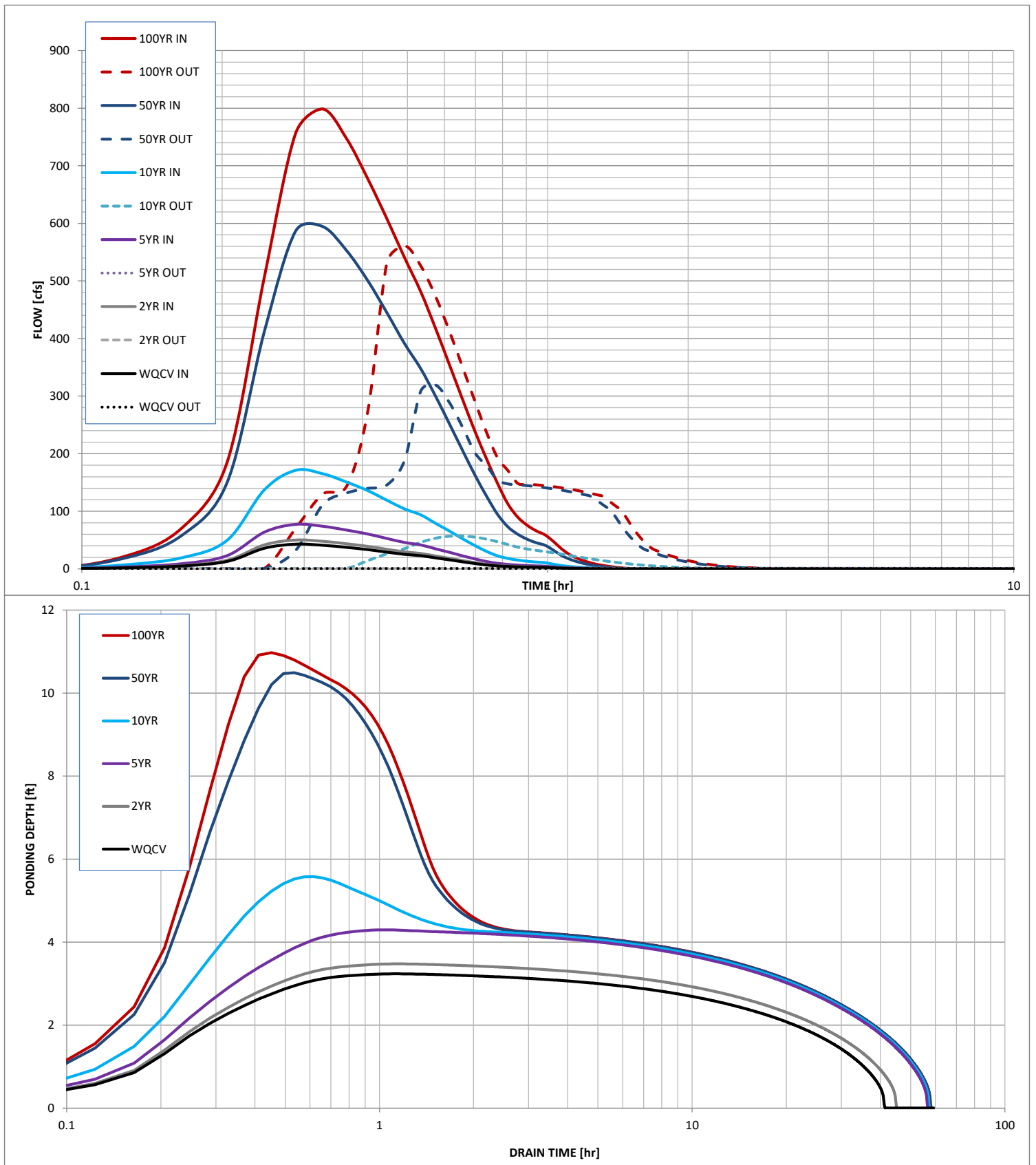
[illegible]

After completing and printing this worksheet to a pdf, go to:
<https://maperture.digitaldataservices.com/gvh/?viewer=cswdif>
 create a new stormwater facility, and
 attach the pdf of this worksheet to that record.

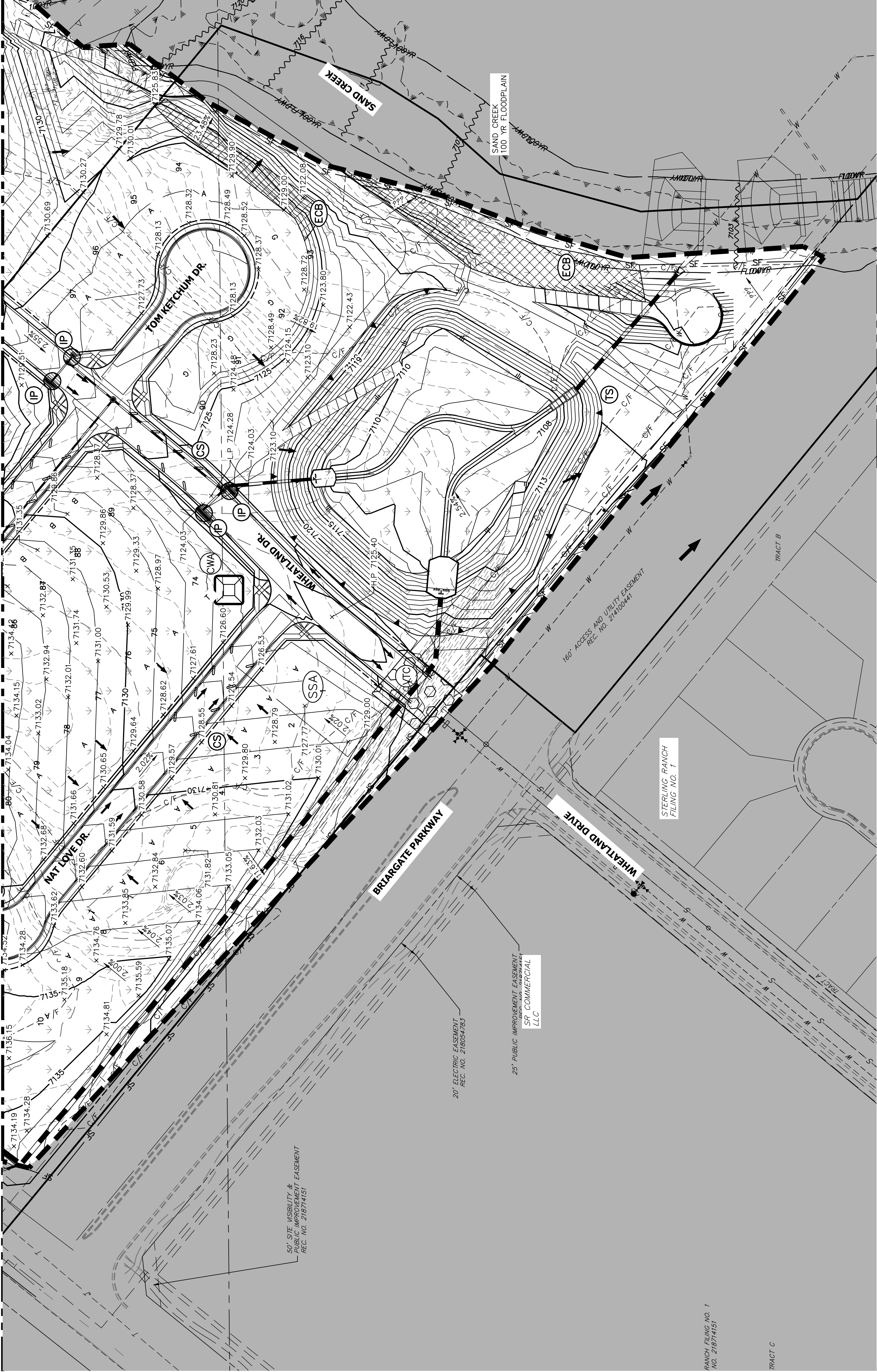
WQCV	2 Year	5 Year	10 Year	50 Year	100 Year
0.53	1.19	1.50	1.75	2.25	2.52
1.285	1.501	2.330	5.238	18.960	25.857
1.284	1.501	2.330	5.231	18.959	25.854
37.4	40.7	50.4	46.0	32.4	27.4
39.7	43.3	54.1	52.5	45.1	42.3
3.24	3.47	4.30	5.58	10.49	10.97
0.87	0.90	1.01	1.12	1.55	1.60
1.230	1.442	2.224	3.596	10.141	10.911

in
acre-ft
acre-ft
acre-ft
hours
hours
ft
acres
acre-ft

Stormwater Detention and Infiltration Design Data Sheet



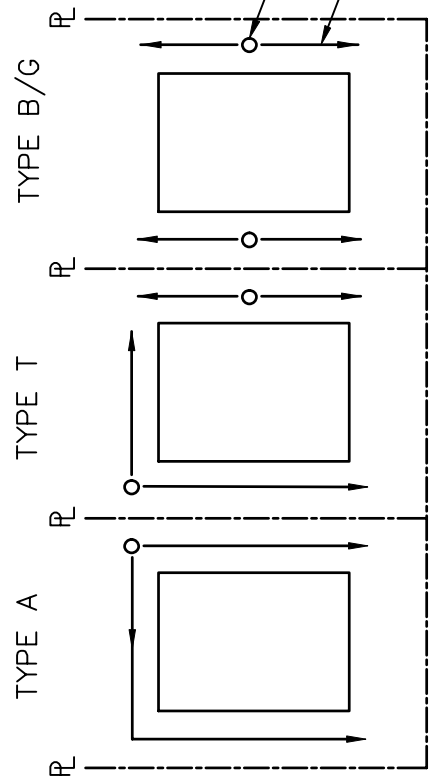
SEE SHEET 3



CONSTRUCTION NOTES:

NO WETLANDS ARE TO BE PERMANENTLY DISTURBED PER THIS GRADING PLAN.
NO EARLY GRADING IS TO OCCUR WITHIN THE 100 YEAR FLOODPLAIN.

ADDITIONAL NOTES:
EXISTING VEGETATION: AN AERIAL SURVEY WAS USED TO DETERMINE A 30% COVER OF NATIVE GRASSES.
STAGING AREA & STOCKPILE LOCATION TO BE DETERMINED BY CONTRACTOR IN THE FIELD. THE LOCATIONS SHALL BE DELINEATED ON THIS PLAN BY THE CONTRACTOR.
THE EROSION CONTROL DELINEATED ON THIS PLAN SHALL BE REGULARLY UPDATED BY THE CONTRACTOR.



LOT DRAINAGE TYPES AND SWALE DIRECTION
NOT TO SCALE

LEGEND

EXISTING STORM SEWER	INLET	LOW POINT/HIGH POINT	CS	CURB SOCK
STORM SEWER PROPOSED	LP/H.P. (2.0%)	FLOW DIRECTION & SLOPE		
PROPOSED R.O.W.		FLOW DIRECTION ARROW		
PROPOSED SIDEWALK		EXISTING FLOW DIRECTION ARROW		
EXISTING PROPERTY LINE		EMERGENCY OVERFLOW DIRECTION		
ROW EXISTING		CONCRETE WASHOUT AREA	CWA	
FL EXISTING		INLET PROTECTION	IP	
SIDEWALK EXISTING		TEMPORARY SEDIMENT BASIN	SB	
DRAINAGE ACCESS & MAINTENANCE EASEMENT		SILT FENCE	SF	
SILT FENCE	SF	VEHICLE TRACKING CONTROL	VTC	
LIMITS OF CONSTRUCTION / DISTURBANCE		STAGE STABILIZED AREA	SSA	
EXISTING WETLAND BOUNDARY		TEMPORARY SEEDING	TS	
BREAK POINT ELEV. (TYP) EXISTING 100 YEAR FLOODPLAIN		EROSION CONTROL BLANKET	ECB	
CUT / FILL				
TEMPORARY DITCH				
EXISTING				
71.00				
CHECK DAM				

SEE SHEET 4

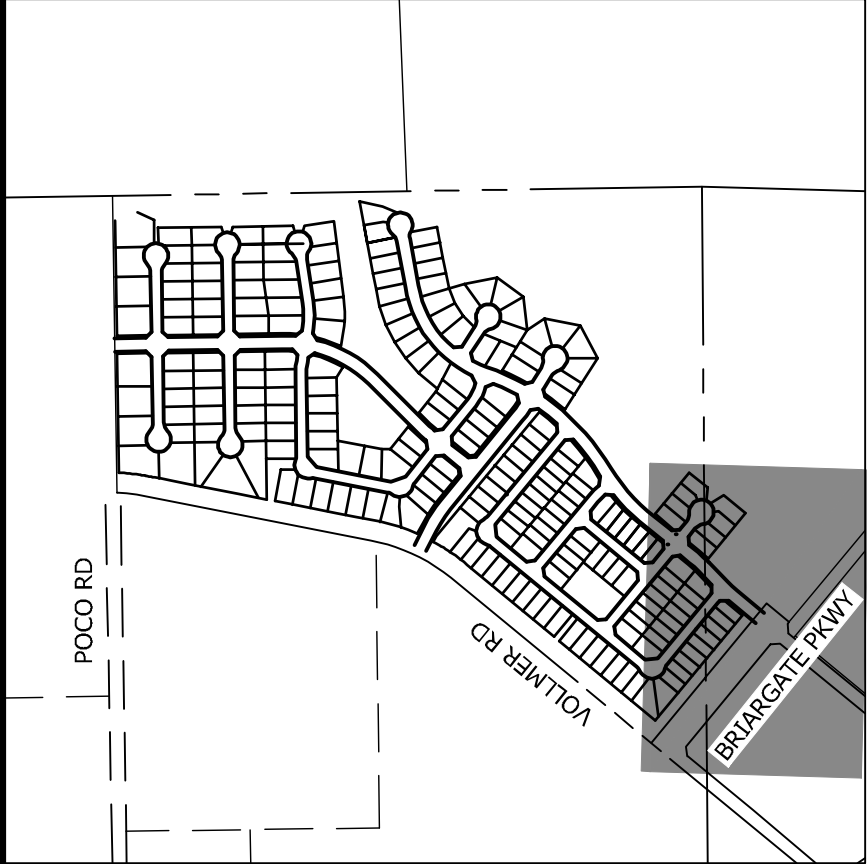
HOMESTEAD NORTH AT STERLING RANCH FILING NO. 1		H-SCALE 1"=60'	Nd.	REVISION	BY	DATE
GRADING & EROSION CONTROL PLAN		V-SCALE N/A	11/16/21	DESIGNED BY	BA8	
		DRAWN BY	ARJ	CHECKED BY		
JOB NO. 25188.00		SHEET 2 OF	#			

ENGINEER'S STATEMENT

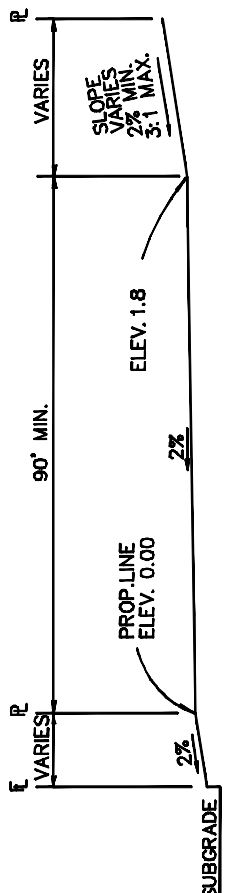
PREPARED UNDER MY DIRECT SUPERVISION AND ON BEHALF OF JR

ENGINEERING
MIKE A. BRAMLETT, P.E.
COLORADO P.E. 32314
FOR AND ON BEHALF OF JR ENGINEERING, LLC
DATE 8/23/24
MADE AND SIGNED IN COLORADO
PROFESSIONAL SEAL

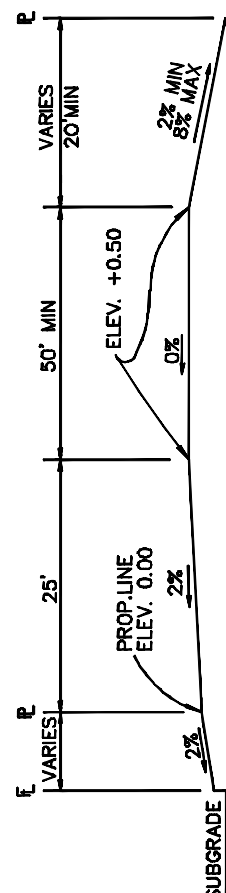
J-R ENGINEERING A Westman Company Central 303-740-9988 • Colorado Springs 719-593-2593 Fort Collins 970-491-9888 • www.jrengineering.com		SR LAND, LLC 20 BOULDER CRESCENT SUITE 201 COLORADO SPRINGS, CO 80903 JAMES F. MORLEY (719) 471-1742 PREPARED FOR		UNTIL SUCH TIME AS THESE DRAWINGS ARE APPROVED BY THE APPROPRIATE ENGINEERING AGENCIES, JR ENGINEERING APPROVES THEIR USE ONLY FOR THE PURPOSES AUTHORIZATION.	
---	--	---	--	--	--



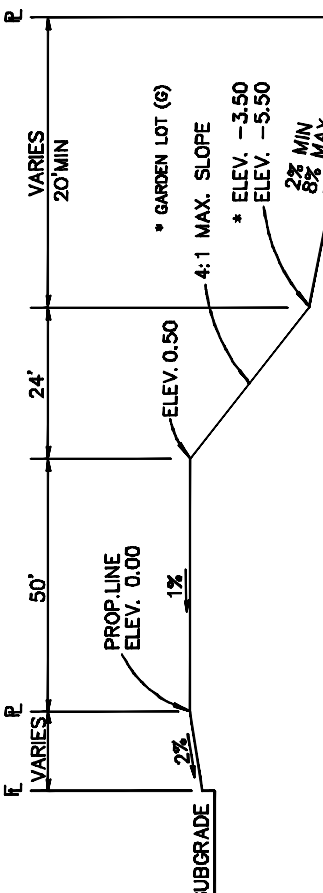
KEY MAP
SCALE NTS



TYPICAL A LOT
NOT TO SCALE



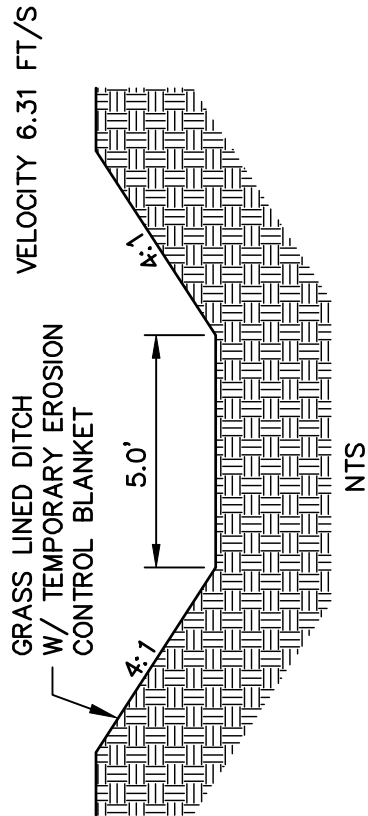
TYPICAL B LOT
NOT TO SCALE



TYPICAL WALKOUT LOT (W/O) OR GARDEN (G)
NOT TO SCALE

NOTE:
"T" LOTS OR "TRANSITION" LOTS OCCUR IN PLACES WHERE BOTH PROPERTY LINES CANNOT BE GRADED AS THE TYPICAL STANDARD LOT TEMPLATES SHOWN. THESE LOTS WILL STILL BE GRADED TO CREATE POSITIVE DRAINAGE AWAY FROM THE STRUCTURE.

NOTE:
SIDE LOT SWALES WILL BE PROVIDED WHEN APPROPRIATE.



NTS

