Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220 • GallowayUS.com

October 16, 2024

Brady Shyrock, on Behalf of Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920

RE: Constitution Storage Development; Full Spectrum Detention Pond Certification

Private?

Dear Natasha Grimaldo,

Please accept this letter as formal documentation of conformance of the Full Spectrum Detention Pond (Pr. FSD-1) for stormwater quality and detention at the Constitution Storage Development. The Constitution Storage Development (Site) is located at 2460 Canada Drive, Colorado Springs within El Paso County, Colorado. The project site is located south of Constitution Avenue, west of Canada Drive, & east of Peterson Road. The site is located in a portion of Section 05, Township 14 South, Range 65 West of the 6th Principal Meridian, County of El Paso, State of Colorado.

Full Spectrum

Survey data detailing the ~~Water Quality~~ Detention Pond at the site was provided to Galloway & Company, Inc. on October 03, 2024 and updated October 14, 2024 by R & R Engineers-Surveyors, Inc., dated 09/18/2024. The pond was constructed based on the pond design prepared by Galloway, Inc. in the approved Constitution Storage Development Final Drainage Report dated July 21, 2023; Revised November 10, 2023.

WQCV Design

The WQCV has a volume of 0.074-acre feet and a depth of 2.50 feet. The WQCV has a 99% drain time of 39 hours which is slightly out of conformance with MHFD Criteria and City of Colorado Springs Criteria.

EURV, 5-Year, & 100-Year Design

Per the approved FDR, the EURV and 100-year volumes will be conveyed via the Modified CDOT Type C Outlet structure to the proposed chase outfall (S-40) located at the southeast corner of the site at the Canada Drive ROW (curb & gutter). The proposed development does not increase runoff being discharged from the site, therefore the pond release flows can sufficiently be handled by the proposed conveyance system as designed. Treated / detained runoff is then directed to the existing western curb & gutter within the Canada Drive. Storm events larger than the 100-year storm will overtop the emergency overflow weir and free release into the proposed access drive and southeasterly towards Canada Drive.

Development is no longer proposed. Development did increase runoff, which is why the pond was installed. Consider rewording to clarify.

The water quality volume release will be controlled with an orifice plate that will release over a period of 39 hours. The full spectrum detention pond will release treated flows into the proposed chase outfall (S-40) within the Constitution Storage Development to the proposed chase outfall (S-40) located at the southeast corner of the site at the Canada Drive ROW (curb & gutter).

Total area which will not be treated via the on-site facility is less than 1.0 acre and less than 20%, which of the total site, as required.

Miscellaneous

As-builts were also conducted to verify the construction of the overall pond volume / capacity. The required overall pond volume is 0.416 ac-ft. The as-built pond volume is 0.453 ac-ft, therefore it stands in substantial conformance with the approved plans.

One item to note as an exclusion to this overall pond certification, there are two portions of the concrete trickle channel that were constructed below the minimum slope of 0.40% per the County DCM as reflected on the R & R Engineers-Surveyors, Inc. as-built survey (attached) shown in blue arrows. These two areas still have positive drainage and could be attributed to construction tolerances.

Conclusion

In summary I, Brady Shyrock, a registered professional engineer in the State of Colorado, do hereby affirm, to the best of my knowledge, based on the as-built survey provided by R & R Engineers-Surveyors, Inc. and information provided to date by the general contractor, the Full Spectrum Detention Pond for Constitution Storage Development and associated drainage facilities were constructed in accordance with the design intent of the approved drainage report and construction drawings, and in accordance with local standards and specifications, regional jurisdictional design criteria and state statutes.

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 improvements, site grading and paving) meet or exceed the minimum design requirements.

The facilities outlined in this certification letter provide the required WQCV, EURV, 5-Year, & 100-Year detention volumes and will meet the required release rates (as documented by the attached MHFD design form), the stage areas, elevations, and outlet dimensions.

Should you have any further questions, or require additional information, please do not hesitate to contact me at (719) 900-7220.

GALLOWAY

Please sign

Brady Shyrock, PE
Project Manager
BradyShyrock@GallowayUS.com

cc: John Radcliffe, PE
Principal & Regional Office Manager
JohnRadcliffe@GallowayUS.com

Attached Documents:

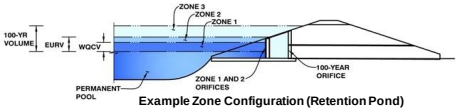
- MHFD WQ Detention Pond Calculations
- Approved FDR Drainage Map
- R & R Engineers-Surveyors, Inc. As-Built Survey
- As-Built Drawings

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.05 (January 2022)

Project: 6855 Constitution Ave Self Storage

Basin ID: FSD-1



Example Zone Configuration (Retention Pond)

Watershed Information

Selected BMP Type =	EDB	
Watershed Area =	3.03	acres
Watershed Length =	520	ft
Watershed Length to Centroid =	225	ft
Watershed Slope =	0.020	ft/ft
Watershed Imperviousness =	73.70%	percent
Percentage Hydrologic Soil Group A =	100.0%	percent
Percentage Hydrologic Soil Group B =	0.0%	percent
Percentage Hydrologic Soil Groups C/D =	0.0%	percent
Target WQCV Drain Time =	40.0	hours
Location for 1-hr Rainfall Depths =	User Input	

After providing required inputs above including 1-hour rainfall depths, click 'Run CUHP' to generate runoff hydrographs using the embedded Colorado Urban Hydrograph Procedure.

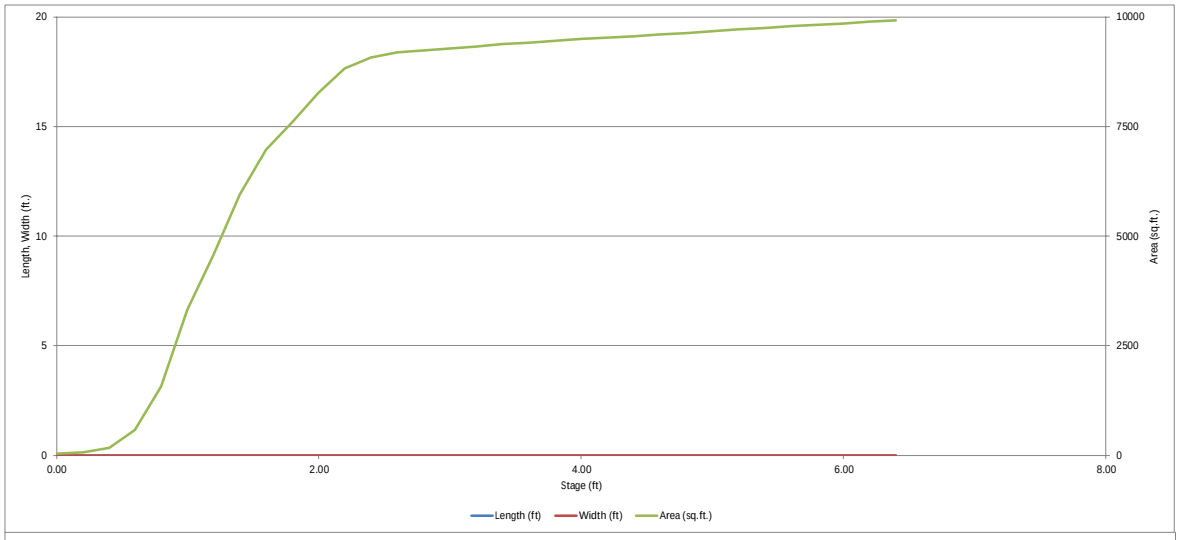
			Optional User Overrides	
Water Quality Capture Volume (WQCV) =	0.074	acre-feet		acre-feet
Excess Urban Runoff Volume (EURV) =	0.287	acre-feet		acre-feet
2-yr Runoff Volume (P1 = 1.19 in.) =	0.197	acre-feet	1.19	inches
5-yr Runoff Volume (P1 = 1.5 in.) =	0.256	acre-feet	1.50	inches
10-yr Runoff Volume (P1 = 1.75 in.) =	0.304	acre-feet	1.75	inches
25-yr Runoff Volume (P1 = 2 in.) =	0.362	acre-feet	2.00	inches
50-yr Runoff Volume (P1 = 2.25 in.) =	0.419	acre-feet	2.25	inches
100-yr Runoff Volume (P1 = 2.52 in.) =	0.487	acre-feet	2.52	inches
500-yr Runoff Volume (P1 = 3 in.) =	0.601	acre-feet	3.00	inches
Approximate 2-yr Detention Volume =	0.188	acre-feet		
Approximate 5-yr Detention Volume =	0.245	acre-feet		
Approximate 10-yr Detention Volume =	0.293	acre-feet		
Approximate 25-yr Detention Volume =	0.350	acre-feet		
Approximate 50-yr Detention Volume =	0.384	acre-feet		
Approximate 100-yr Detention Volume =	0.416	acre-feet		

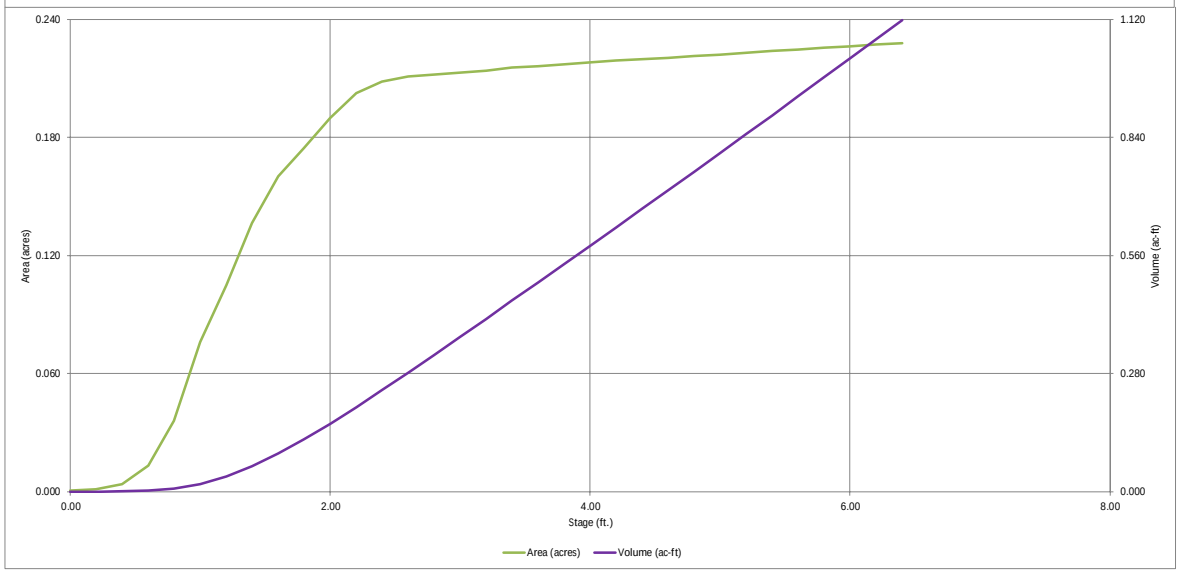
Define Zones and Basin Geometry

Zone 1 Volume (WQCV) =	0.074	acre-feet
Zone 2 Volume (EURV - Zone 1) =	0.213	acre-feet
Zone 3 Volume (100-year - Zones 1 & 2) =	0.129	acre-feet
Total Detention Basin Volume =	0.416	acre-feet
Initial Surcharge Volume (ISV) =	user	ft^3
Initial Surcharge Depth (ISD) =	user	ft
Total Available Detention Depth (H_{total}) =	user	ft
Depth of Trickle Channel (H_{TC}) =	user	ft
Slope of Trickle Channel (S_{TC}) =	user	ft/ft
Slopes of Main Basin Sides (S_{main}) =	user	H:V
Basin Length-to-Width Ratio ($R_{L/W}$) =	user	
Initial Surcharge Area (A_{ISV}) =	user	ft^2
Surcharge Volume Length (L_{ISV}) =	user	ft
Surcharge Volume Width (W_{ISV}) =	user	ft
Depth of Basin Floor (H_{FLOOR}) =	user	ft
Length of Basin Floor (L_{FLOOR}) =	user	ft
Width of Basin Floor (W_{FLOOR}) =	user	ft
Area of Basin Floor (A_{FLOOR}) =	user	ft^2
Volume of Basin Floor (V_{FLOOR}) =	user	ft^3
Depth of Main Basin (H_{MAIN}) =	user	ft
Length of Main Basin (L_{MAIN}) =	user	ft
Width of Main Basin (W_{MAIN}) =	user	ft
Area of Main Basin (A_{MAIN}) =	user	ft^2
Volume of Main Basin (V_{MAIN}) =	user	ft^3
Calculated Total Basin Volume (V_{total}) =	user	acre-feet

Depth Increment = 0.20 ft

Stage - Storage Description	Stage (ft)	Optional Override Stage (ft)	Length (ft)	Width (ft)	Area (ft^2)	Optional Override Area (ft^2)	Area (acre)	Volume (ft^3)	Volume (ac-ft)
Top of Micropool	--	0.00	--	--	--	36	0.001		
6499.6	--	0.20	--	--	--	58	0.001	9	0.000
	--	0.40	--	--	--	164	0.004	32	0.001
6500	--	0.60	--	--	--	578	0.013	106	0.002
	--	0.80	--	--	--	1,566	0.036	320	0.007
	--	1.00	--	--	--	3,318	0.076	808	0.019
	--	1.20	--	--	--	4,580	0.105	1,598	0.037
	--	1.40	--	--	--	5,949	0.137	2,651	0.061
6501	--	1.60	--	--	--	6,976	0.160	3,944	0.091
	--	1.80	--	--	--	7,598	0.174	5,401	0.124
	--	2.00	--	--	--	8,272	0.190	6,988	0.160
	--	2.20	--	--	--	8,824	0.203	8,697	0.200
	--	2.40	--	--	--	9,071	0.208	10,487	0.241
6502	--	2.60	--	--	--	9,189	0.211	12,313	0.283
	--	2.80	--	--	--	9,236	0.212	14,155	0.325
	--	3.00	--	--	--	9,281	0.213	16,007	0.367
	--	3.20	--	--	--	9,323	0.214	17,867	0.410
	--	3.40	--	--	--	9,383	0.215	19,738	0.453
6503	--	3.60	--	--	--	9,420	0.216	21,618	0.496
	--	3.80	--	--	--	9,458	0.217	23,506	0.540
	--	4.00	--	--	--	9,498	0.218	25,402	0.583
	--	4.20	--	--	--	9,538	0.219	27,305	0.627
	--	4.40	--	--	--	9,567	0.220	29,216	0.671
6504	--	4.60	--	--	--	9,604	0.220	31,133	0.715
	--	4.80	--	--	--	9,639	0.221	33,057	0.759
	--	5.00	--	--	--	9,677	0.222	34,989	0.803
	--	5.20	--	--	--	9,719	0.223	36,928	0.848
	--	5.40	--	--	--	9,753	0.224	38,875	0.892
6505	--	5.60	--	--	--	9,788	0.225	40,830	0.937
	--	5.80	--	--	--	9,825	0.226	42,791	0.982
	--	6.00	--	--	--	9,850	0.226	44,758	1.028
	--	6.20	--	--	--	9,899	0.227	46,733	1.073
	--	6.40	--	--	--	9,934	0.228	48,717	1.118
6506	--		--	--	--				


20
15
10
5
0
10000
7500
5000
2500
0
0.00
2.00
4.00
6.00
8.00
Length, Width (ft.)
Area (sq.ft.)
Stage (ft)
Length (ft)
Width (ft)
Area (sq.ft.)


0.240
0.180
0.120
0.060
0.000
1.120
0.840
0.560
0.280
0.000
0.00
2.00
4.00
6.00
8.00
Area (acres)
Volume (ac-ft)
Stage (ft.)
Area (acres)
Volume (ac-ft)

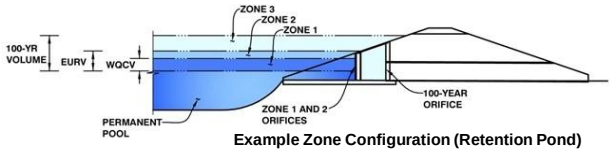
DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.05 (January 2022)

these numbers changed

Project: 6855 Constitution Ave Self Storage

Basin ID: FSD-1



Example Zone Configuration (Retention Pond)

	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WQCV)	1.50	0.074	Orifice Plate
Zone 2 (EURV)	2.63	0.213	Orifice Plate
Zone 3 (100-year)	3.23	0.129	Weir&Pipe (Restrict)
Total (all zones)		0.416	

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 Area =	N/A	ft^2
Underdrain Orifice Diameter =	N/A	inches	Underdrain Orifice Centroid =	N/A	feet

Calculated Parameters for Underdrain

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 =	0.00	ft (relative to basin bottom at Stage = 0 ft)	WQ Orifice Area per Row =	N/A	ft^2
Depth at top of Zone using Orifice Plate =	2.72	ft (relative to basin bottom at Stage = 0 ft)	Elliptical Half-Width =	N/A	feet
Orifice Plate: Orifice Vertical Spacing =	N/A	inches	Elliptical Slot Centroid =	N/A	feet
Orifice Plate: Orifice Area per Row =	N/A	sq. inches	Elliptical Slot Area =	N/A	ft^2

these numbers didnt change

Calculated Parameters for Plate

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	0.91	1.58	2.45				
Orifice Area (sq. inches)	0.44	0.60	0.79	0.44				

	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)

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

Calculated Parameters for Vertical Orif

	Not Selected	Not Selected
Vertical Orifice Area =	N/A	N/A
Vertical Orifice Centroid =	N/A	N/A

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

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	3.44	N/A	ft (relative to basin bottom at Stage = 0 ft)
Overflow Weir Front Edge Length =	2.92	N/A	feet
Overflow Weir Grate Slope =	0.00	N/A	H:V
Horiz. Length of Weir Sides =	2.92	N/A	feet
Overflow Grate Type =	Type C Grate	N/A	
Debris Clogging % =	50%	N/A	%

Calculated Parameters for Overflow W

	Zone 3 Weir	Not Selected
Height of Grate Upper Edge, H_t =	3.44	N/A
Overflow Weir Slope Length =	2.92	N/A
Grate Open Area / 100-yr Orifice Area =	36.57	N/A
Overflow Grate Open Area w/o Debris =	5.93	N/A
Overflow Grate Open Area w/ Debris =	2.97	N/A

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

	Zone 3 Restrictor	Not Selected	
Depth to Invert of Outlet Pipe =	0.00	N/A	ft (distance below basin bottom at Stage = 0 ft)
Outlet Pipe Diameter =	12.00	N/A	inches
Restrictor Plate Height Above Pipe Invert =	3.12		inches

PPR2343 called for an 8" pipe. Please confirm

Calculated Parameters for Outlet Pipe w/ Flow Restriction Pla

	Zone 3 Restrictor	Not Selected
Outlet Orifice Area =	0.16	N/A
Outlet Orifice Centroid =	0.15	N/A
Half-Central Angle of Restrictor Plate on Pipe =	1.07	N/A

User Input: Emergency Spillway (Rectangular or Trapezoidal)

Spillway Invert Stage=	3.68	ft (relative to basin bottom at Stage = 0 ft)
Spillway Crest Length =	20.00	feet
Spillway End Slopes =	0.00	H:V
Freeboard above Max Water Surface =	1.00	feet

Calculated Parameters for Spillway

Spillway Design Flow Depth=	0.29	feet
Stage at Top of Freeboard =	4.97	feet
Basin Area at Top of Freeboard =	0.22	acres
Basin Volume at Top of Freeboard =	0.80	acre-ft

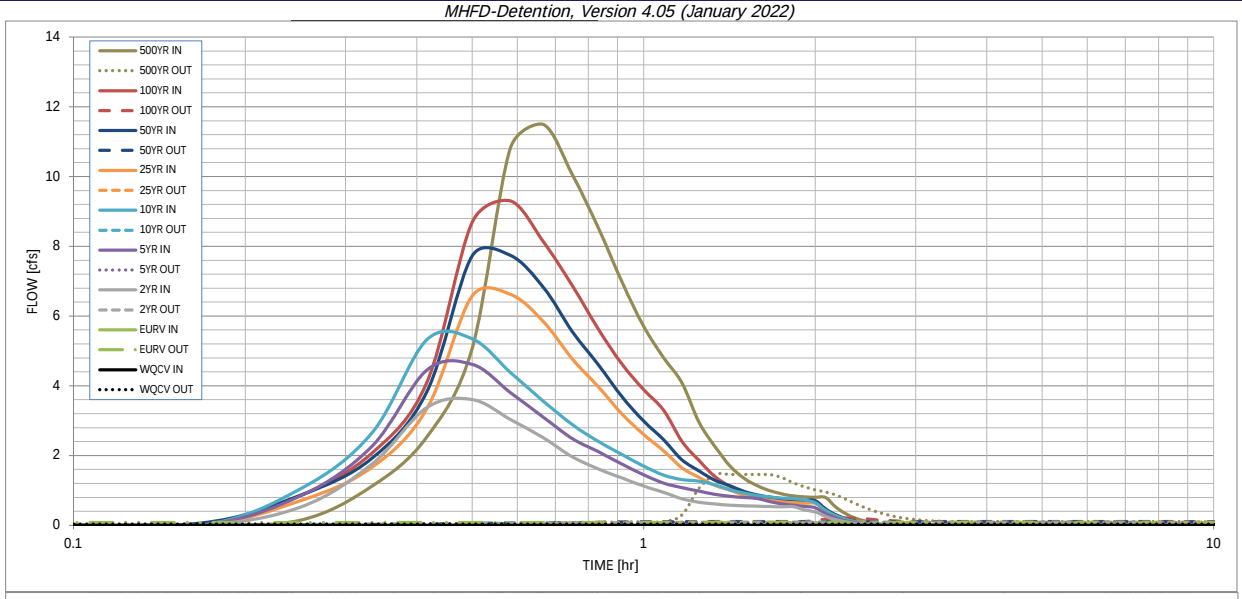
Routed Hydrograph Results

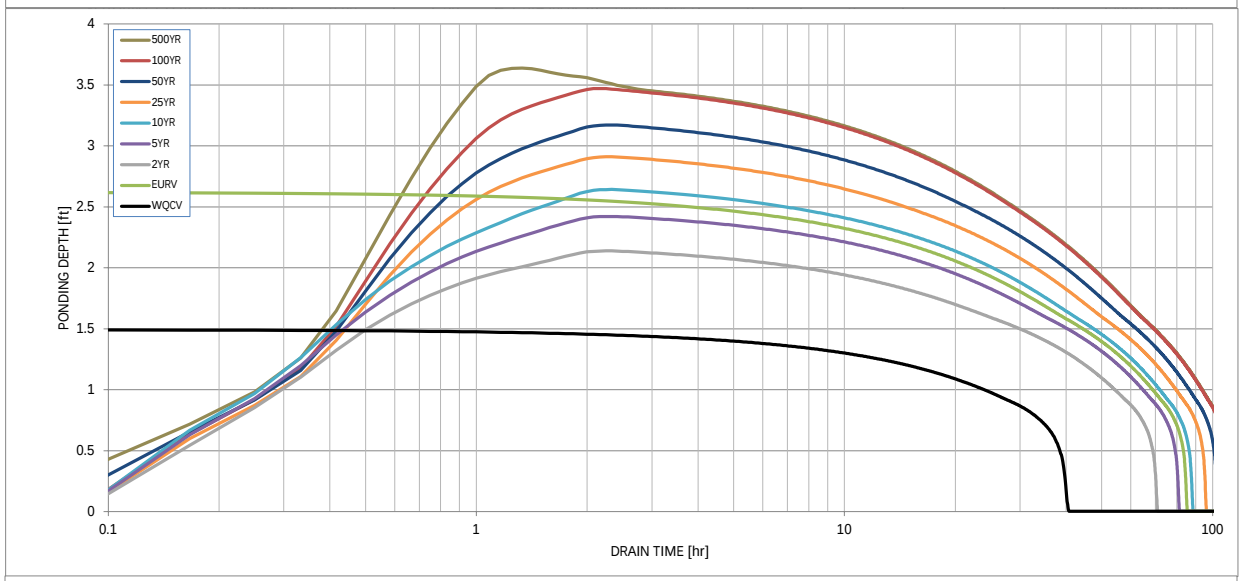
The user can override the default CUHP hydrographs and runoff volumes by entering new values in the Inflow Hydrographs table (Columns W through A

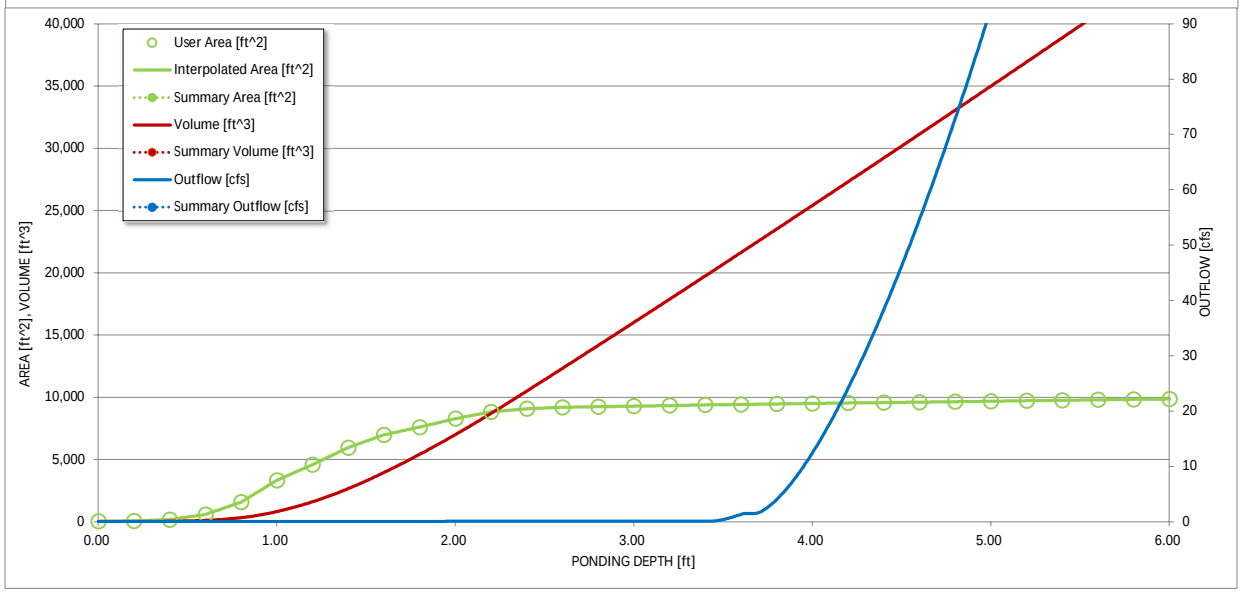
Design Storm Return Period =	WQCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
One-Hour Rainfall Depth (in) =	N/A	N/A	1.19	1.50	1.75	2.00	2.25	2.52
CUHP Runoff Volume (acre-ft) =	0.074	0.287	0.197	0.256	0.304	0.362	0.419	0.487
Inflow Hydrograph Volume (acre-ft) =	N/A	N/A	0.197	0.256	0.304	0.362	0.419	0.487
CUHP Predevelopment Peak Q (cfs) =	N/A	N/A	0.0	0.0	0.1	0.6	1.2	2.0
OPTIONAL Override Predevelopment Peak Q (cfs) =	N/A	N/A						
Predevelopment Unit Peak Flow, q (cfs/acre) =	N/A	N/A	0.01	0.016	0.022	0.20	0.40	0.65
Peak Inflow Q (cfs) =	N/A	N/A	3.6	4.6	5.3	6.6	7.7	9.3
Peak Outflow Q (cfs) =	0.033	0.083	0.063	0.072	0.084	0.094	0.102	0.209
Ratio Peak Outflow to Predevelopment Q =	N/A	N/A	N/A	1.5	1.3	0.2	0.1	0.1
Structure Controlling Flow =	Plate	Plate	Plate	Plate	Plate	Plate	Plate	Overflow Weir 1
Max Velocity through Grate 1 (fps) =	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0
Max Velocity through Grate 2 (fps) =	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	76	64	73	79	85	91	96
Time to Drain 99% of Inflow Volume (hours) =	39	82	68	78	85	92	98	105
Maximum Ponding Depth (ft) =	1.50	2.63	2.14	2.42	2.64	2.91	3.17	3.47
Area at Maximum Ponding Depth (acres) =	0.15	0.21	0.20	0.21	0.21	0.21	0.21	0.22
Maximum Volume Stored (acre-ft) =	0.075	0.289	0.186	0.245	0.291	0.346	0.404	0.468

DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD-Detention, Version 4.05 (January 2022)







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

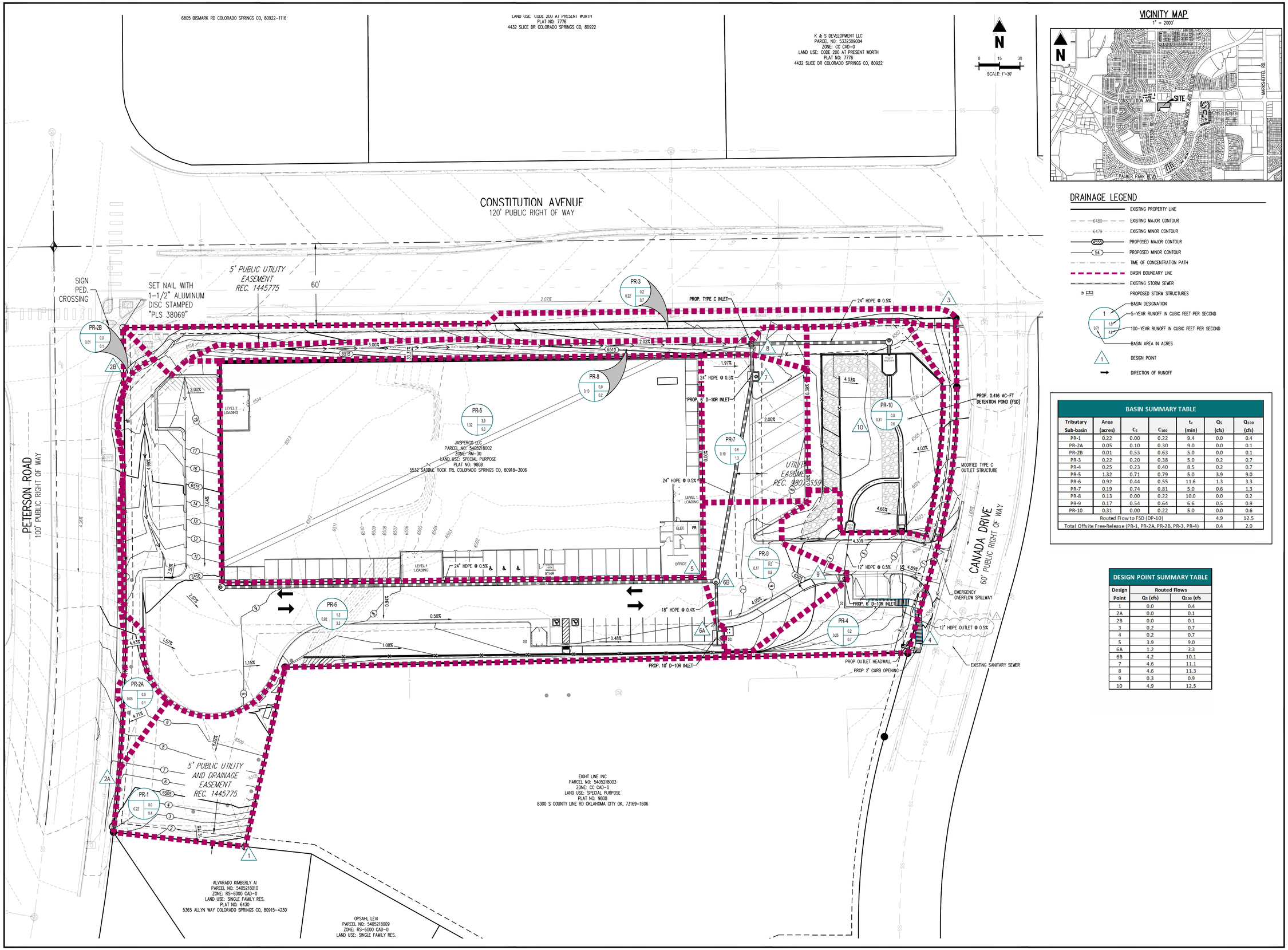
DETENTION BASIN OUTLET STRUCTURE DESIGN

Outflow Hydrograph Workbook Filename:

Inflow Hydrographs

The user can override the calculated inflow hydrographs from this workbook with inflow hydrographs developed in a separate program.

	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
Time Interval	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.01	0.15
	0:15:00	0.00	0.00	0.52	0.85	1.05	0.70	0.86	0.85	1.11
	0:20:00	0.00	0.00	1.75	2.26	2.64	1.65	1.91	2.07	2.53
	0:25:00	0.00	0.00	3.37	4.45	5.32	3.34	3.82	4.09	5.07
	0:30:00	0.00	0.00	3.61	4.62	5.35	6.57	7.72	8.69	10.80
	0:35:00	0.00	0.00	3.03	3.81	4.39	6.62	7.74	9.30	11.49
	0:40:00	0.00	0.00	2.51	3.10	3.56	5.84	6.83	8.13	10.06
	0:45:00	0.00	0.00	1.96	2.48	2.88	4.76	5.55	6.87	8.51
	0:50:00	0.00	0.00	1.61	2.11	2.40	3.96	4.60	5.61	6.96
	0:55:00	0.00	0.00	1.35	1.75	2.02	3.18	3.68	4.61	5.70
	1:00:00	0.00	0.00	1.12	1.45	1.70	2.60	2.99	3.89	4.81
	1:05:00	0.00	0.00	0.95	1.21	1.44	2.14	2.45	3.30	4.09
	1:10:00	0.00	0.00	0.76	1.08	1.31	1.65	1.88	2.41	2.96
	1:15:00	0.00	0.00	0.66	0.98	1.27	1.37	1.56	1.86	2.27
	1:20:00	0.00	0.00	0.61	0.89	1.16	1.14	1.29	1.40	1.70
	1:25:00	0.00	0.00	0.58	0.83	1.02	1.00	1.13	1.11	1.34
	1:30:00	0.00	0.00	0.56	0.79	0.92	0.86	0.97	0.94	1.13
	1:35:00	0.00	0.00	0.55	0.77	0.86	0.77	0.87	0.83	0.99
	1:40:00	0.00	0.00	0.54	0.68	0.81	0.71	0.80	0.75	0.90
	1:45:00	0.00	0.00	0.53	0.61	0.78	0.67	0.76	0.70	0.84
	1:50:00	0.00	0.00	0.53	0.57	0.76	0.65	0.73	0.68	0.81
	1:55:00	0.00	0.00	0.44	0.54	0.72	0.63	0.71	0.67	0.80
	2:00:00	0.00	0.00	0.38	0.50	0.65	0.63	0.71	0.67	0.80
	2:05:00	0.00	0.00	0.25	0.34	0.43	0.42	0.47	0.45	0.54
	2:10:00	0.00	0.00	0.17	0.22	0.28	0.28	0.31	0.30	0.35
	2:15:00	0.00	0.00	0.11	0.14	0.18	0.18	0.20	0.19	0.23
	2:20:00	0.00	0.00	0.06	0.09	0.11	0.11	0.12	0.12	0.14
	2:25:00	0.00	0.00	0.04	0.05	0.07	0.07	0.08	0.07	0.09
	2:30:00	0.00	0.00	0.02	0.03	0.04	0.04	0.04	0.04	0.05
	2:35:00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	0.02	0.02
	2:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:10:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:15:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:20:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:25:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:30:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:35:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:40:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:45:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:50:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	5:55:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



VICINITY MAP

1" = 2000'

DRAINAGE LEGEND

- EXISTING PROPERTY LINE
- 6480 EXISTING MAJOR CONTOUR
- 6479 EXISTING MINOR CONTOUR
- 6555 PROPOSED MAJOR CONTOUR
- 54 PROPOSED MINOR CONTOUR
- TIME OF CONCENTRATION PATH
- BASIN BOUNDARY LINE
- EXISTING STORM SEWER
- PROPOSED STORM STRUCTURES
- 1 BASIN DESIGNATION
- 1.8 5-YEAR RUNOFF IN CUBIC FEET PER SECOND
- 4.8 100-YEAR RUNOFF IN CUBIC FEET PER SECOND
- 0.71 BASIN AREA IN ACRES
- 1 DESIGN POINT
- DIRECTION OF RUNOFF

BASIN SUMMARY TABLE

Tributary Sub-basin	Area (acres)	C_5	C_{100}	t_c (min)	Q_5 (cfs)	Q_{100} (cfs)
PR-1	0.22	0.00	0.22	9.4	0.0	0.4
PR-2A	0.05	0.10	0.30	9.0	0.0	0.1
PR-2B	0.01	0.53	0.63	5.0	0.0	0.1
PR-3	0.22	0.20	0.38	5.0	0.2	0.7
PR-4	0.25	0.23	0.40	8.5	0.2	0.7
PR-5	1.32	0.71	0.79	5.0	3.9	9.0
PR-6	0.92	0.44	0.55	11.6	1.3	3.3
PR-7	0.19	0.74	0.81	5.0	0.6	1.3
PR-8	0.13	0.00	0.22	10.0	0.0	0.2
PR-9	0.17	0.54	0.64	6.6	0.5	0.9
PR-10	0.31	0.00	0.22	5.0	0.0	0.6
Routed Flow to FSD (DP-10)					4.9	12.5
Total Offsite Free-Release (PR-1, PR-2A, PR-2B, PR-3, PR-4)					0.4	2.0

DESIGN POINT SUMMARY TABLE

Design Point	Routed Flows Q_5 (cfs)	Routed Flows Q_{100} (cfs
1	0.0	0.4
2A	0.0	0.1
2B	0.0	0.1
3	0.2	0.7
4	0.2	0.7
5	3.9	9.0
6A	1.2	3.3
6B	4.2	10.1
7	4.6	11.1
8	4.6	11.3
9	0.3	0.9
10	4.9	12.5

Galloway
6162 S. Willow Drive, Suite 320
Greenwood Village, CO 80111
303.770.8884
GallowayUS.com

PRELIMINARY
NOT FOR BIDDING
NOT FOR CONSTRUCTION

CONSTITUTION STORAGE COMMERCIAL DEVELOPMENT DRAINAGE MAP FOR JOHNSON DEVELOPMENT ASSOCIATES

LOT 1 OF THE EIGHT LINE SUBDIVISION
COLORADO SPRINGS, CO 80915

#	Date	Issue / Description	Init.
1	11/10/23	GRAD & DRNG UPDATES	DDJ

Project No:	JDA02.20
Drawn By:	DDJ
Checked By:	SMB
Date:	10.06.2023

PROPOSED DRAINAGE MAP

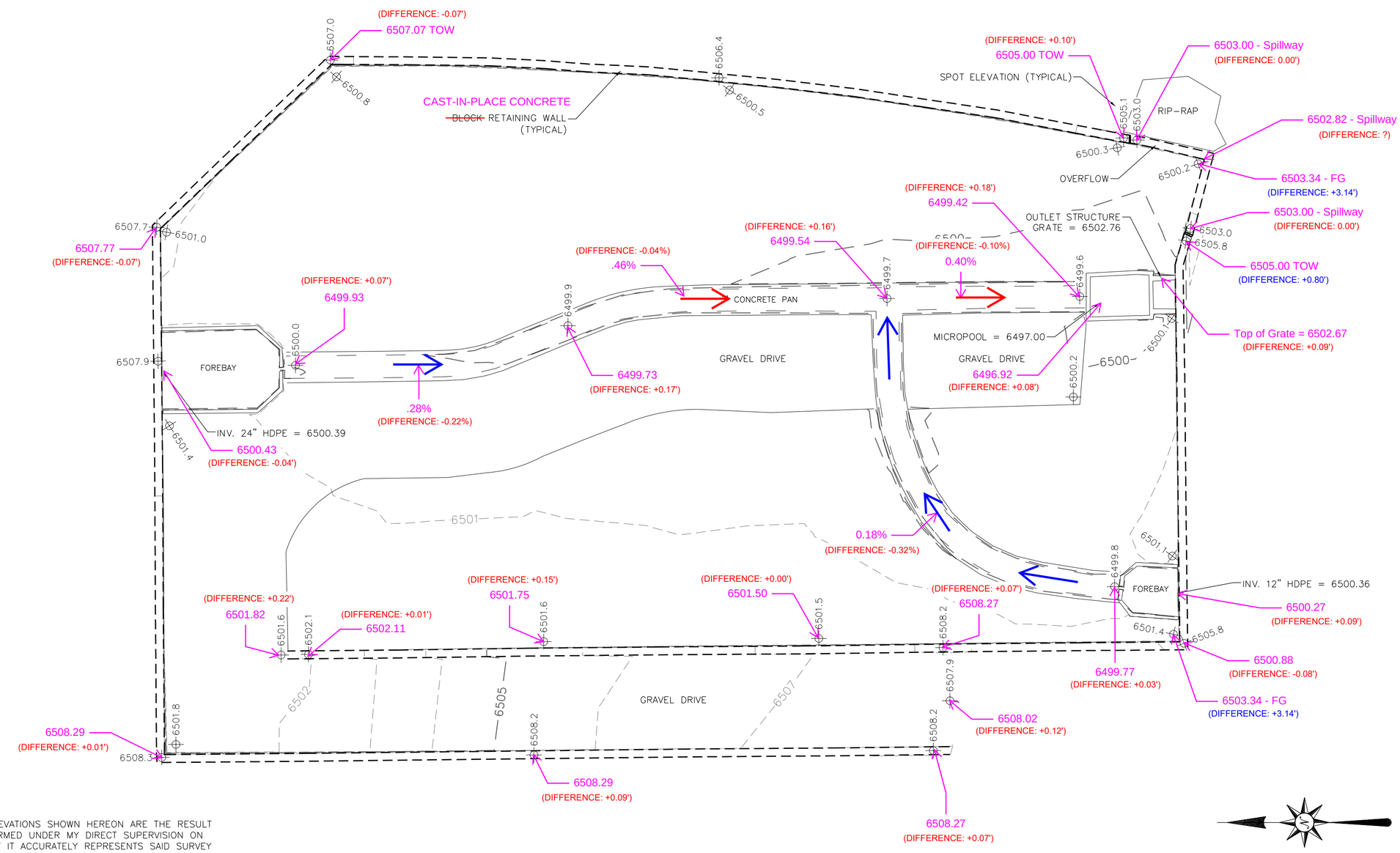
DR-2

DETENTION POND - GRADING EXHIBIT

CONSTITUTION STORAGE - 2460 CANADA DRIVE

LOCATED IN THE NW1/4 OF SECTION 5, T.14S, R.65W, 6TH P.M.
CITY OF COLORADO SPRINGS, EL PASO COUNTY, COLORADO

LEGEND
- DESIGN ELEVATION
- ELEVATION DIFFERENCE < 0.50'
- ELEVATION DIFFERENCE >= 0.50'
- ADEQUATE SLOPE
- INADEQUATE SLOPE



0 10 20 30

SCALE: 1" = 10'

SURVEY CERTIFICATION

I HEREBY CERTIFY THAT THE ELEVATIONS SHOWN HEREON ARE THE RESULT OF SURVEY FIELD WORK PERFORMED UNDER MY DIRECT SUPERVISION ON SEPTEMBER 12, 2024 AND THAT IT ACCURATELY REPRESENTS SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF, AND IS IN ACCORDANCE WITH THE APPLICABLE STANDARDS OF PRACTICE. THIS CERTIFICATION IS NOT A GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED.

COLORADO REGISTERED PROFESSIONAL LAND SURVEYOR JEFFREY D. WEYGANDT 09/18/2024 PLS 38872

JEFFREY WEYGANDT, P.L.S.
COLORADO REG. NO. 38872
FOR, AND ON BEHALF OF:
R&R ENGINEERS-SURVEYORS, INC.

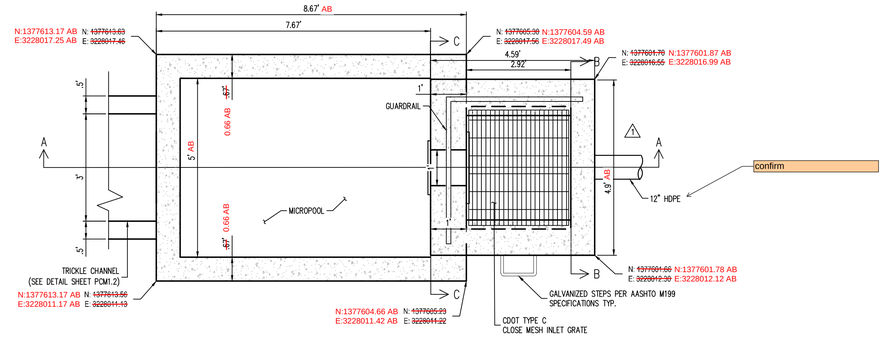
NOTES

1. BENCHMARK: COLORADO SPRINGS FACILITY INFORMATION MANAGEMENT SYSTEM (FIMS) MONUMENT #SR07. ELEVATION = 6534.61 FEET (NAVD88 DATUM)

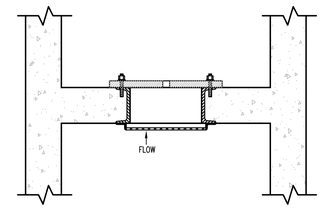
2. POND VOLUMES:
   18,900 CU.FT. TO ELEVATION 6502.75 (GRATE) — Total Pond Detention Volume = 18120.93 Cu Ft = .416 Ac Ft
   21,650 CU.FT. TO ELEVATION 6503.00 (OVERFLOW) — 100 Year Volume = 21213.69 Cu Ft = .487 Ac Ft

R&R ENGINEERS-SURVEYORS, INC.
1635 W. 13TH AVENUE, SUITE 310
DENVER, COLORADO 80204
PH: 303-753-6730
WWW.RRENGINEERS.COM

REVISIONS	
	File No. DC23140 POND
	Date Drawn 9/18/24
	Drawn By TPF
	Checked By JDW
	Job No. DC23140



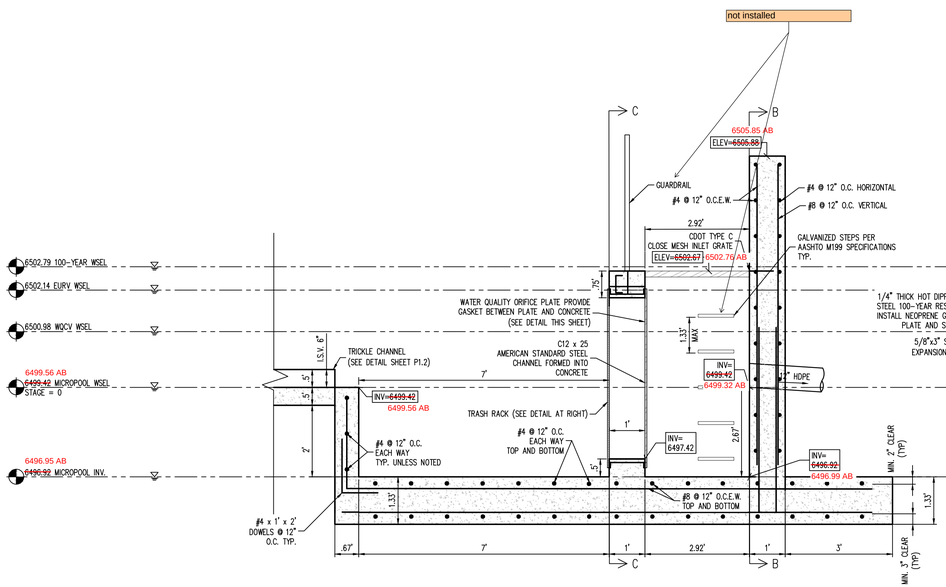
POND OUTLET CONTROL STRUCTURE – PLAN DETAIL



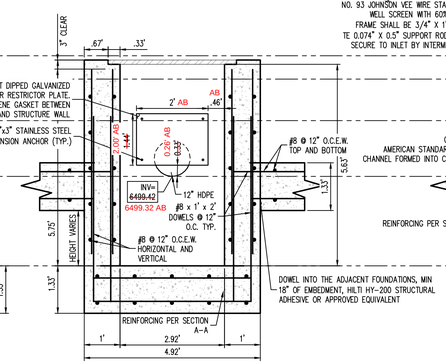
SECTION D–D
NOT TO SCALE

R VALUE = (NET OPEN AREA)/(GROSS RACK AREA)
= 0.60

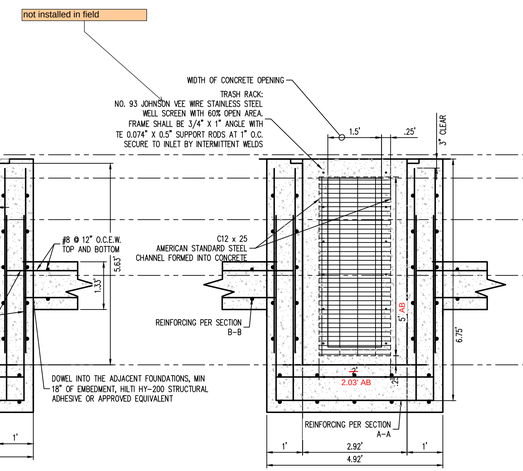
TRASH RACK SECTION
SCALE: 1" = 1'



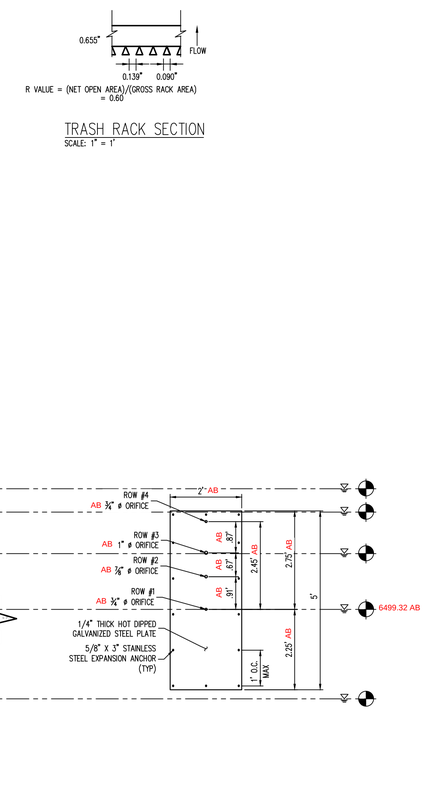
POND OUTLET CONTROL STRUCTURE – SECTION A–A



SECTION B–B

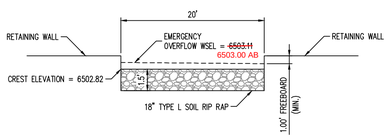


TRASH RACK – SECTION C–C

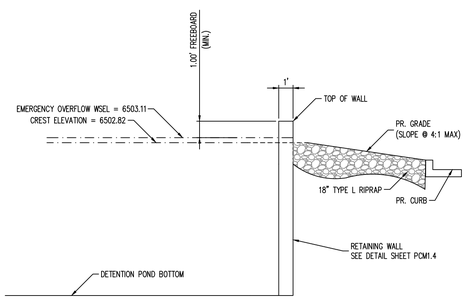


WQCV ORIFICE PLATE DETAIL

1 POND OUTLET STRUCTURE
SCALE: 1" = 2'



2 POND 100–YEAR OVERFLOW – CROSS SECTION
NOT TO SCALE



3 POND 100–YEAR OVERFLOW – PROFILE
NOT TO SCALE

CERTIFICATION
I, JEFFREY D. WEYGANDT, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF COLORADO, DO HEREBY CERTIFY THAT THE AS-BUILT DIMENSIONS AS SHOWN, MARKED AB, ARE BASED UPON AN ACTUAL SURVEY MADE ON THE GROUND AND THAT IT ACCURATELY REPRESENTS SAID SURVEY TO THE BEST OF MY KNOWLEDGE AND BELIEF AND IS IN ACCORDANCE WITH THE APPLICABLE STANDARDS OF PRACTICE. THE FIELD WORK WAS PERFORMED UNDER MY DIRECT SUPERVISION BETWEEN SEPTEMBER 13, 2024 AND OCTOBER 11, 2024.
THIS CERTIFICATION IS NOT A GUARANTY OR WARRANTY, EITHER EXPRESSED OR IMPLIED.

COLORADO LICENSED
Jeffrey D Weygandt
10/11/2024
38872
PROFESSIONAL LAND SURVEYOR

JEFFREY D. WEYGANDT, PLS
COLORADO REG. NO. 38872
FOR, AND ON BEHALF OF:
R&R ENGINEERS-SURVEYORS, INC.
1635 W. 13TH AVENUE, #310
DENVER, CO 80204
(303) 753-6730

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE

JOHNSON DEVELOPMENT ASSOCIATES

2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM
2	01/31/2024	GRADING LABEL UPDATES	CRD

Project No:	JDA02
Drawn By:	ASA/MRK
Checked By:	BAS
Date:	JULY 2023

MICROPOOL & OUTLET STRUCTURE DETAILS

PCM1.3
Sheet 5 of 6

JOHNSON DEVELOPMENT ASSOCIATES

CONSTITUTION STORAGE

LOT 1, EIGHT LINE SUBDIVISION LOCATED IN THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO

PERMANENT CONTROL MEASURE PLAN

ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS

PROJECT CONTACTS

PROPERTY OWNER
JASPERCO, LLC.
5532 SADDLE ROCK TRAIL
COLORADO SPRINGS, CO 80918
ATTN: TONY COLON
EMAIL: TONY@COLONFAM.COM

APPLICANT
JOHNSON DEVELOPMENT ASSOCIATES, INC.
100 DUNBAR STREET, SUITE 400
SPARTANBURG, SC 29306
TELE: (864) 529-1297
ATTN: BRIAN KEARNEY
EMAIL: BKEARNEY@JOHNSONDEVELOPMENT.NET

CIVIL ENGINEER
GALLOWAY & CO., INC.
1155 KELLY JOHNSON BLVD., SUITE 305
COLORADO SPRINGS, CO 80920
TELE: (719) 900-7220
ATTN: BRADY SHYROCK, P.E.
EMAIL: BRADYSHYROCK@GALLOWAYUS.COM

GEOTECHNICAL ENGINEER
ROCKY MOUNTAIN GEOTECHNICAL, INC.
555 E. PIKES PEAK AVE, SUITE 107
COLORADO SPRINGS, CO 80903
TELE: (303) 634-1999
ATTN: KENNETH L. MEYERS, PE

TRAFFIC ENGINEER
GALLOWAY & CO., INC.
5500 GREENWOOD PLAZA BLVD, SUITE 200
GREENWOOD VILLAGE, CO 80111
TELE: (303) 770-8884
ATTN: BRIAN HORAN, P.E.
EMAIL: BRIANHORAN@GALLOWAYUS.COM

SURVEYOR
GALLOWAY & CO., INC.
1155 KELLY JOHNSON BLVD., SUITE 305
COLORADO SPRINGS, CO 80920
TELE: (719) 337-1262
ATTN: BRIAN DENNIS
EMAIL: BRIANDENNIS@GALLOWAYUS.COM

UTILITY CONTACTS

WATER & WASTEWATER
CHEROKEE METROPOLITAN DISTRICT
6250 PALMER PARK BLVD.
COLORADO SPRINGS, CO 80915
TELE: (719) 597-5080
ATTN: KEVIN BROWN
EMAIL: KBROWN@CHEROKEEMETROPOLITAN.ORG

ELECTRIC
MOUNTAIN VIEW ELECTRIC
11140 E WOODMEN RD
FALCON, CO 80831
TELE: (719) 495-2283
CATHY HANSEN-LEE
EMAIL: CATHY.H@MVEA.COOP

NATURAL GAS
COLORADO SPRINGS UTILITIES (CSU)
7710 DURANT DRIVE, P.O. BOX 1103, MAIL CODE 2150
COLORADO SPRINGS, CO 80947-2150
TELE: (719) 668-5573
AARON CASSIO
EMAIL: ACASSIO@CSU.ORG

FIRE
CIMARRON HILLS FIRE PROTECTION DISTRICT
1835 TUSKEGEE PL
COLORADO SPRINGS, CO 80915
TELE: (719) 591-0960
EMAIL: JMCLEOD@CIMARRON

VICINITY MAP
0 100 200 400
SCALE: 1"=400'

SHEET INDEX

SHEET DESCRIPTION	SHEET TITLE	SHEET NUMBER
PCM0.0	COVER SHEET	1
PCM1.0	OVERALL PCM PLAN	2
PCM1.1	POND PLAN	3
PCM1.2	FOREBAY DETAILS	4
PCM1.3	MICROPOOL & OUTLET STRUCTURE DETAILS	5
PCM1.4	RETAINING WALL DETAILS	6

LEGAL DESCRIPTION
LOT 1, EIGHT LINE SUBDIVISION LOCATED IN THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST OF THE 6TH PRINCIPAL MERIDIAN, COUNTY OF EL PASO, STATE OF COLORADO.

BASIS OF BEARINGS
BASIS OF BEARING: ALL BEARINGS ARE GRID BEARINGS OF THE COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983. THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST BEARS N89°20'41"E, MONUMENTED BY THE NORTHWEST CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 4842 1985" IN RANGE BOX, AND BY THE NORTH QUARTER CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 30829 2003", AS SHOWN HEREON.

BENCHMARK
COLORADO SPRINGS UTILITIES FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS) BENCHMARK SR07 BEING A 2" ALUMINUM CAP STAMPED "CSU FIMS CONTROL SR07" AT THE SOUTHEAST CORNER OF THE CONCRETE BASE FOR AN ELECTRIC VAULT ON THE WEST SIDE OF PETERSON ROAD, ABOUT 360' SOUTH OF THE CENTER LINE OF LEOTI DRIVE.

FIMS DATUM ELEVATION = 6534.61

DESCRIPTION OF CONSTRUCTION ACTIVITIES
ALL DATES ARE SUBJECT TO CHANGE. CONSTRUCTION IS ANTICIPATED TO COMMENCE IN NOVEMBER OF 2021 AND BE COMPLETED BY MARCH OF 2022. FINAL STABILIZATION IS EXPECTED TO BE COMPLETED BY JULY OF 2022.

RECEIVING WATERS
INDIAN HILLS VILLAGE IS LOCATED WITHIN THE MESA DRAINAGE BASIN AS DESCRIBED IN THE "MASTER PLAN FOR MESA DRAINAGE BASIN," PREPARED BY GILBERT, MEYER & SAMS, INC. DATED AUGUST 10,1989.

PROJECT DATA

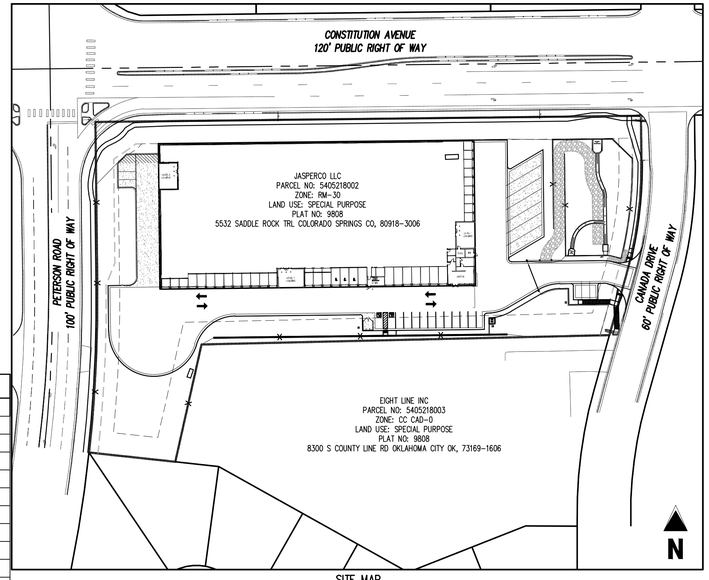
PARCEL NUMBER	
BMP CALCULATIONS	FINAL DRAINAGE REPORT CONSTITUTION STORAGE DEVELOPMENT
GRADING, EROSION & STORMWATER QUALITY CONTROL PLAN	GRADING & EROSION CONTROL PLANS IN PROGRESS
FUNCTIONAL MAINTENANCE OF THE PCM STRUCTURES WILL BE COMPLETED BY:	JOHNSON DEVELOPMENT ASSOCIATES, INC.
AESTHETIC MAINTENANCE OF THE PCM WILL BE COMPLETED BY:	JOHNSON DEVELOPMENT ASSOCIATES, INC.
100-YEAR WATER SURFACE ELEVATION	6502.79
EURV WATER SURFACE ELEVATION	6502.14
WQCV WATER SURFACE ELEVATION	6500.98
SOIL DATA	SOIL DATA FOR CONSTITUTION STORAGE WAS OBTAINED FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE (NRCS) WEB SOIL SURVEY. SOILS WITHIN THE SITE ARE PREDOMINATELY TRUCKTON SANDY LOAM, SOIL CLASSIFICATION A. GEOTECH PER KUMAR & ASSOCIATES, INC., REPORT AND AMMENDUM #21-2-272
VEGETATION	SITE DEVELOPMENT PLAN IN PROGRESS
FEMA FLOOD INSURANCE RATE MAP	ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAP (FIRM NUMBER 08041C0753G), EFFECTIVE DATE DECEMBER 7, 2018, THE PROJECT SITE LIES OUTSIDE OF THE 100-YEAR AND 500-YEAR FLOODPLANS. THE PROJECT SITE IS LOCATED IN ZONE X DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

STANDARD PCM NOTES

1. NO CLEARING, GRADING, EXCAVATION, FILLING, OR OTHER LAND DISTURBING ACTIVITIES SHALL BE PERMITTED PRIOR TO APPROVAL OF THE SITE GRADING AND EROSION CONTROL (GEC) PLAN. REFERENCE THE CITY OF COLORADO SPRINGS DRAINAGE CRITERIA MANUAL (DCM) VOLUME 2, CHAPTER 7 FOR MORE INFORMATION.
2. ANY LAND DISTURBANCE BY ANY OWNER, DEVELOPER, BUILDER, CONTRACTOR, OR OTHER PERSON SHALL COMPLY WITH THE POLICIES AND PROCEDURES OUTLINED IN THE CITY DCM, AND THE APPROVED GEC PLAN.
3. THIS PERMANENT BMP PLAN WILL BE SUBJECT TO RE-REVIEW AND RE-ACCEPTANCE BY THE CITY OF COLORADO SPRINGS IF WORK ON THE PERMANENT BMP DOES NOT COMMENCE WITHIN 12 MONTHS OF PLAN APPROVAL, OR SHOULD ANY OF THE FOLLOWING OCCUR: A CHANGE IN OWNERSHIP, A CHANGE IN THE PROPOSED DEVELOPMENT, OR CHANGES TO THE DESIGN OF THE BMP.
4. CONTACT CITY GEC INSPECTIONS, 719-385-5918, AND THE CITY ENGINEERING INSPECTIONS, 719-385-5977, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
5. ACCEPTANCE OF THIS PLAN DOES NOT CONSTITUTE APPROVAL TO GRADE OR CAUSE ANY DISTURBANCE WITHIN ANY UTILITY EASEMENT OR RIGHT-OF-WAY. APPROVALS TO WORK WITHIN UTILITY EASEMENTS MUST BE OBTAINED FROM THE APPROPRIATE UTILITY COMPANY. IT IS NOT PERMISSIBLE FOR ANY PERSON TO MODIFY THE GRADE OF THE EARTH ON ANY UTILITY EASEMENT OF RIGHT-OF-WAY WITHOUT THE APPROPRIATE WRITTEN APPROVAL. THE PLAN SHALL NOT INCREASE OR DIVERT WATER TOWARDS UTILITY FACILITIES. ANY CHANGES TO EXISTING UTILITY FACILITIES TO ACCOMMODATE THE PLAN MUST BE APPROVED BY THE AFFECTED UTILITY OWNER PRIOR TO IMPLEMENTING THE PLAN. THE APPLICANT IS RESPONSIBLE FOR THE COST TO RELOCATE OR PROTECT EXISTING UTILITIES OR TO PROVIDE INTERIM ACCESS.
6. A PROFESSIONAL ENGINEER (PE) CERTIFICATION THAT THE BMP HAS BEEN INSTALLED AND CONSTRUCTED IN GENERAL CONFORMANCE WITH THESE PLANS WILL BE REQUIRED ONCE THE BMP IS FULLY CONSTRUCTED. AN AS-CONSTRUCTED SURVEY MUST BE COMPLETED TO VERIFY FACILITY VOLUMES AND ELEVATIONS. THE AS-BUILT DRAWINGS MUST BE SUBMITTED ALONG WITH THE PE CERTIFICATION. A PE CERTIFICATION REQUIRES PERIODIC ON-SITE OBSERVATIONS BY THE ENGINEER OF RECORD OR A PERSON UNDER THEIR RESPONSIBLE CHARGE. COORDINATION WITH THE ENGINEER OF RECORD TO ENSURE THAT THE NECESSARY ON-SITE OBSERVATIONS ARE COMPLETED IS THE RESPONSIBILITY OF THE APPLICANT.
7. THE CONTRACTOR SHOULD CONTACT THE ENGINEER OF RECORD AND GEC INSPECTOR IMMEDIATELY SHOULD CONSTRUCTION OF THE BMP VARY IN ANY WAY FROM THE PLANS.
8. RETAINING WALLS WILL BE DESIGNED FOR ADDITIONAL LOADING SUCH AS FOOTINGS BELOW EURV, ETC.

POND COST ESTIMATE

	ITEM	JOB TOTAL	UNIT	UNIT PRICE	TOTAL
1	SOIL RIP RAP TRICKLE CHANNEL	158	LF	$306.00	$48,350.00
2	FOREBAY W/ T-BAFFLE	2	EA	$15,000.00	$30,000.00
3	OUTLET STRUCTURE	1	EA	$20,000.00	$20,000.00
4	MICROPOOL	1	EA	$5,000.00	$5,000.00
5	POND ACCESS ROAD (GRAVEL)	299	SY	$57.87	$17,300.00
6	GRADING (NOT PART OF GEC)	0.24	AC	$12,283.00	$2,950.00
7	SPILLWAY	30.5	LF	$526.00	$16,043.00
8	PERMANENT SEEDING	1	LS	$3,000.00	$3,000.00
	SUBTOTAL =				$142,643.00
	CONTINGENCY (10%)				$14,264.30
	GRAND TOTAL =				$156,907.30



SITE MAP
0 40 80
SCALE: 1"=80'

ENGINEER'S STATEMENT
THIS PERMANENT CONTROL MEASURE (PCM) PLAN WAS PREPARED UNDER MY DIRECTION AND SUPERVISION, WAS DESIGNED IN ACCORDANCE WITH THE CITY OF COLORADO SPRINGS DRAINAGE CRITERIA MANUAL (MAY 2014), AND IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. I ACCEPT RESPONSIBILITY FOR ANY LIABILITY CAUSED BY ANY NEGLIGENT ACTS, ERRORS OR OMISSIONS ON MY PART IN PREPARATION OF THIS PERMANENT BMP PLAN.

SIGNATURE: _____ DATE: 11/14/2023

PRINTED NAME: BRADY A. SHYROCK, P.E. # 38164 SEAL

DEVELOPER'S/OWNER'S STATEMENT
JOHNSON DEVELOPMENT ASSOCIATES HEREBY CERTIFIES THAT THE PCM FOR CONSTITUTION STORAGE SHALL BE CONSTRUCTED ACCORDING TO THE DESIGN PRESENTED IN THIS PLAN. I UNDERSTAND THAT EL PASO COUNTY DOES NOT AND WILL NOT ASSUME LIABILITY FOR THE DRAINAGE FACILITIES DESIGNED AND/OR CERTIFIED BY MY ENGINEER AND THAT ARE SUBMITTED TO EL PASO COUNTY; AND CANNOT, ON BEHALF OF JOHNSON DEVELOPMENT ASSOCIATES, GUARANTEE THAT THE FINAL DRAINAGE DESIGN REVIEW WILL ABSOLVE JOHNSON DEVELOPMENT ASSOCIATES AND/OR THEIR SUCCESSORS AND/OR ASSIGNS OF FUTURE LIABILITY FOR IMPROPER DESIGN.

DEVELOPER/OWNER SIGNATURE: Jacob Sherman
Digitally signed by Jacob Sherman
DN: C=US, E=jasherman@johnsondevelopment.net, O=Johnson Development Associates, OU="Development - Self Storage ", CN=Jacob Sherman
Date: 2023.11.10 17:02:02-07'00'

NAME OF DEVELOPER/OWNER: JSF Constitution, LLC DATE: 11/10/2023

DBA: JOHNSON DEVELOPMENT ASSOCIATES, INC. PHONE: 303-656-6387

TITLE: Development Associate EMAIL: JaSherman@JohnsonDevelopment.net

ADDRESS: 100 Saint Paul Street, Suite 310, Denver, CO FAX: _____

CAUTION – NOTICE TO CONTRACTOR
1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIESTO THE ENGINEER PRIOR TO CONSTRUCTION.

811 Know what's below. Call before you dig.

2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

COLORADO REGISTERED PROFESSIONAL ENGINEER 38164 11/14/2023

PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE

JOHNSON DEVELOPMENT ASSOCIATES

2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

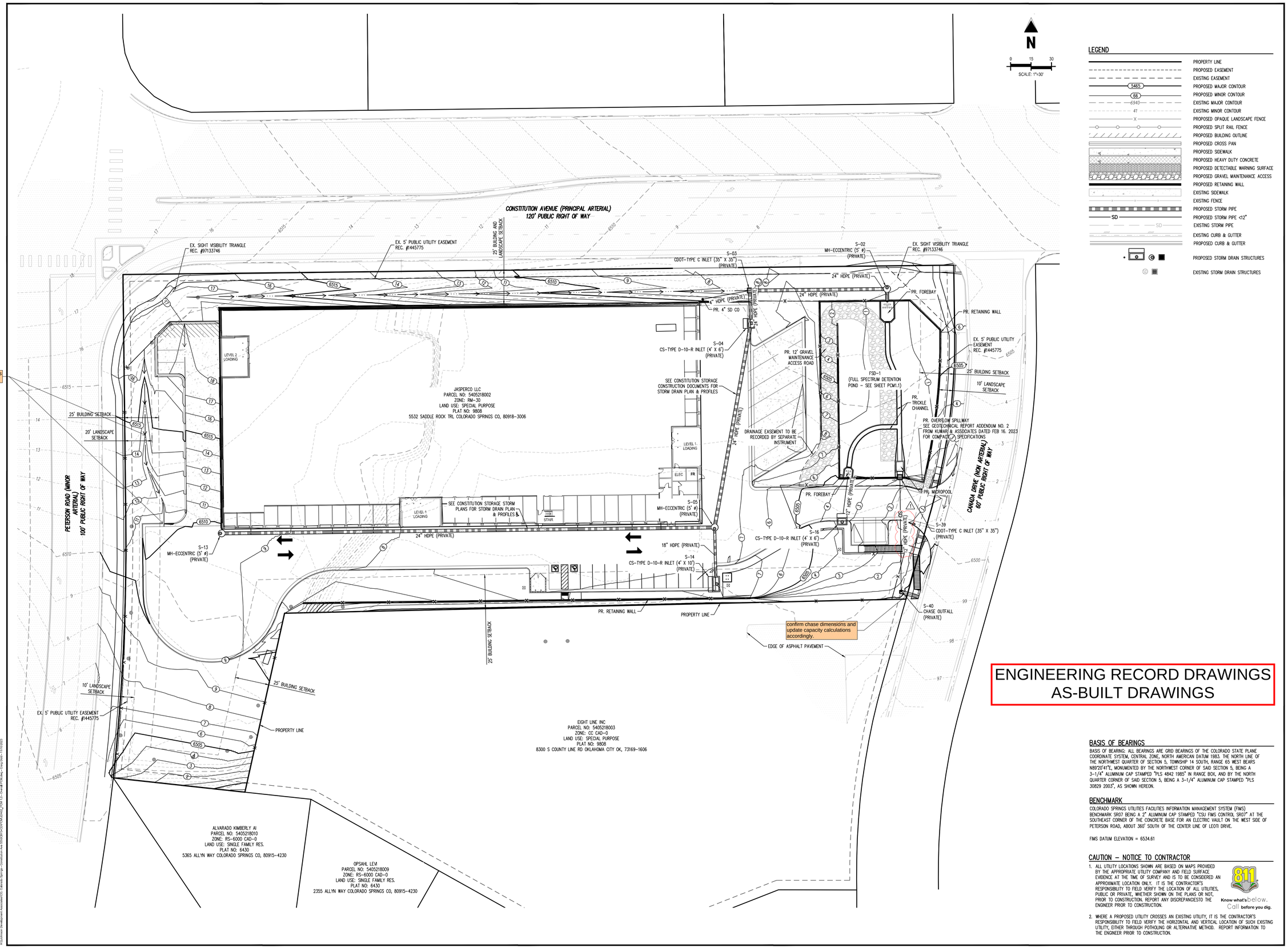
#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM

Project No:	JDA02
Drawn By:	ASA/MRK
Checked By:	BAS
Date:	10/15/2024

COVER SHEET

PCM0.0

Sheet 1 of 6



LEGEND

	PROPERTY LINE
	PROPOSED EASEMENT
	EXISTING EASEMENT
5465	PROPOSED MAJOR CONTOUR
66	PROPOSED MINOR CONTOUR
6940	EXISTING MAJOR CONTOUR
41	EXISTING MINOR CONTOUR
X	PROPOSED OPAQUE LANDSCAPE FENCE
	PROPOSED SPLIT RAIL FENCE
	PROPOSED BUILDING OUTLINE
	PROPOSED CROSS PAN
	PROPOSED SIDEWALK
	PROPOSED HEAVY DUTY CONCRETE
	PROPOSED DETECTABLE WARNING SURFACE
	PROPOSED GRAVEL MAINTENANCE ACCESS
	PROPOSED RETAINING WALL
	EXISTING SIDEWALK
	EXISTING FENCE
SD	PROPOSED STORM PIPE
SD	PROPOSED STORM PIPE <12"
SD	EXISTING STORM PIPE
	EXISTING CURB & GUTTER
	PROPOSED CURB & GUTTER
	PROPOSED STORM DRAIN STRUCTURES
	EXISTING STORM DRAIN STRUCTURES

ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS

BASIS OF BEARINGS

BASIS OF BEARING: ALL BEARINGS ARE GRID BEARINGS OF THE COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983. THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST BEARS N89°20'41"E, MONUMENTED BY THE NORTHWEST CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 4842 1985" IN RANGE BOX, AND BY THE NORTH QUARTER CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 30829 2003", AS SHOWN HEREON.

BENCHMARK

COLORADO SPRINGS UTILITIES FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS) BENCHMARK SR07 BEING A 2" ALUMINUM CAP STAMPED "CSU FIMS CONTROL SR07" AT THE SOUTHEAST CORNER OF THE CONCRETE BASE FOR AN ELECTRIC VAULT ON THE WEST SIDE OF PETERSON ROAD, ABOUT 360' SOUTH OF THE CENTER LINE OF LEOTI DRIVE.

FIMS DATUM ELEVATION = 6534.61

CAUTION – NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIESTO THE ENGINEER PRIOR TO CONSTRUCTION.

Know what's below. Call before you dig.

2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

COLORADO REGISTERED PROFESSIONAL ENGINEER 38164
10/10/2023

PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE

JOHNSON DEVELOPMENT ASSOCIATES

2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

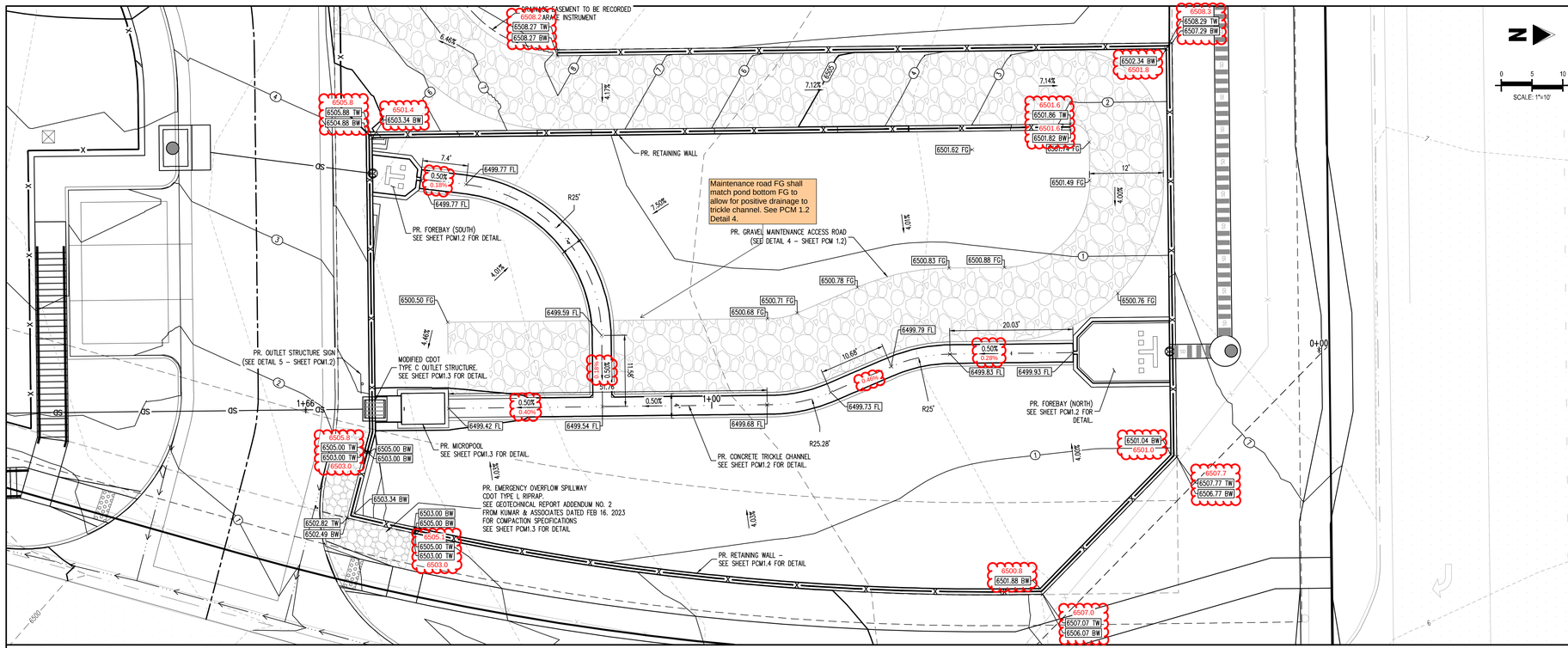
#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM

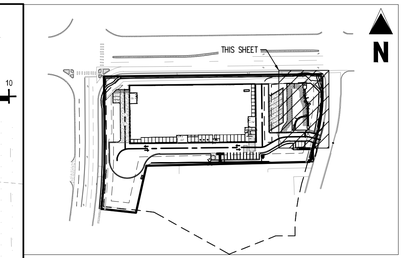
Project No:	JDA02
Drawn By:	ASA/MRK
Checked By:	BAS
Date:	10/15/2024

OVERALL PCM PLAN

PCM1.0

Sheet 2 of 6



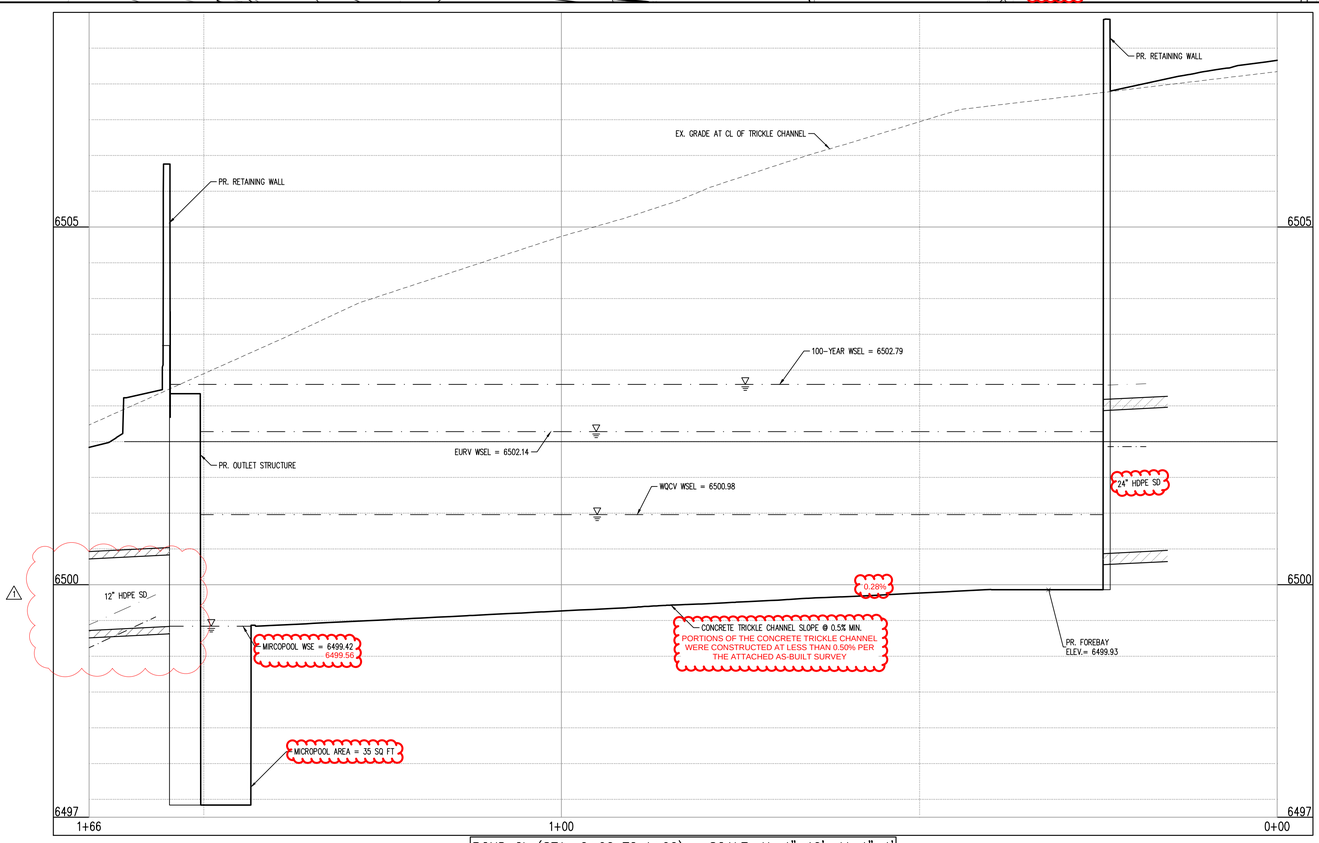


KEY MAP

LEGEND

- PROPERTY LINE
- PROPOSED EASEMENT
- EXISTING EASEMENT
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED OPAQUE LANDSCAPE FENCE
- PROPOSED SPLIT RAIL FENCE
- PROPOSED BUILDING OUTLINE
- PROPOSED CROSS PAN
- PROPOSED SIDEWALK
- PROPOSED HEAVY DUTY CONCRETE
- PROPOSED DETECTABLE WARNING SURFACE
- PROPOSED GRAVEL MAINTENANCE ACCESS
- PROPOSED RETAINING WALL
- EXISTING SIDEWALK
- EXISTING FENCE
- PROPOSED STORM PIPE
- PROPOSED STORM PIPE <12"
- EXISTING STORM PIPE
- EXISTING CURB & GUTTER
- PROPOSED CURB & GUTTER
- PROPOSED STORM DRAIN STRUCTURES
- EXISTING STORM DRAIN STRUCTURES

ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS



POND CL (STA: 0+00 TO 1+66) – SCALE: H: 1"=10' V: 1"=1'

NOTE: SEE APPROVED DEVELOPMENT PLAN FOR THE PROPOSED LANDSCAPING PLANS FOR LANDSCAPING WITHIN THE PERMANENT BMP AREA.

NOTE: CONTRACTOR SHALL PROTECT ALL EXISTING SURVEY MONUMENTATION. CONTRACTOR SHALL HAVE LICENSED SURVEYOR REPLACE ANY DAMAGED OR DISTURBED MONUMENTATION AT THEIR COST.

NOTE: CONTRACTOR RESPONSIBLE FOR AS-BUILT DRAWINGS, TESTS, REPORTS, AND/OR ANY OTHER CERTIFICATES OF INFORMATION AS REQUIRED FOR ACCEPTANCE OF WORK FROM CITY, UTILITY DISTRICTS OR ANY OTHER GOVERNING AGENCY.

NOTES:

1. REFER TO CONSTITUTION STORAGE PRIVATE IMPROVEMENT PLANS FOR ALL STORM PIPE, INLET, MANHOLE AND APPURTENANCE INFORMATION.
2. ALL STORM PIPE SHALL BE RCP CLASS 3 MINIMUM OR HDPE IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS, UNLESS OTHERWISE NOTED. TRENCH BEDDING SHALL BE IN ACCORDANCE WITH CITY SPECIFICATIONS.
3. ALL STORMWATER FACILITIES SHOWN ON THESE PLANS ARE ASSUMED PRIVATE UNLESS OTHERWISE NOTED.
4. WALLS EXCEEDING 4' (MEASURED FROM BOTTOM OF FOOTING TO TOP OF WALL) MAY REQUIRE A BUILDING PERMIT.
5. EXISTING VEGETATION CONSISTS OF NATURAL GRASSES AND SHRUBS.
6. SOILS WITHIN THE SITE ARE TRUCKTON SANDY LOAM.
7. BOTTOM OF POND TO HAVE A MINIMUM SLOPE OF 3% TO THE TRICKLE CHANNEL AND MICROPOOL.

BASIS OF BEARINGS

BASIS OF BEARING: ALL BEARINGS ARE GRID BEARINGS OF THE COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983. THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST BEARS N89°20'41"E, MONUMENTED BY THE NORTHWEST CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 4842 1985" IN RANGE BOX, AND BY THE NORTH QUARTER CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 30829 2003", AS SHOWN HEREON.

BENCHMARK

COLORADO SPRINGS UTILITIES FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS) BENCHMARK SR07 BEING A 2" ALUMINUM CAP STAMPED "CSU FIMS CONTROL SR07" AT THE SOUTHEAST CORNER OF THE CONCRETE BASE FOR AN ELECTRIC VAULT ON THE WEST SIDE OF PETERSON ROAD, ABOUT 360' SOUTH OF THE CENTER LINE OF LEOTI DRIVE.

FIMS DATUM ELEVATION = 6534.61

CAUTION – NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIESTO THE ENGINEER PRIOR TO CONSTRUCTION.

811 Know what's below. Call before you dig.

2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

COLORADO REGISTERED PROFESSIONAL ENGINEER 38164 11/10/2023

PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE

JOHNSON DEVELOPMENT ASSOCIATES

2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

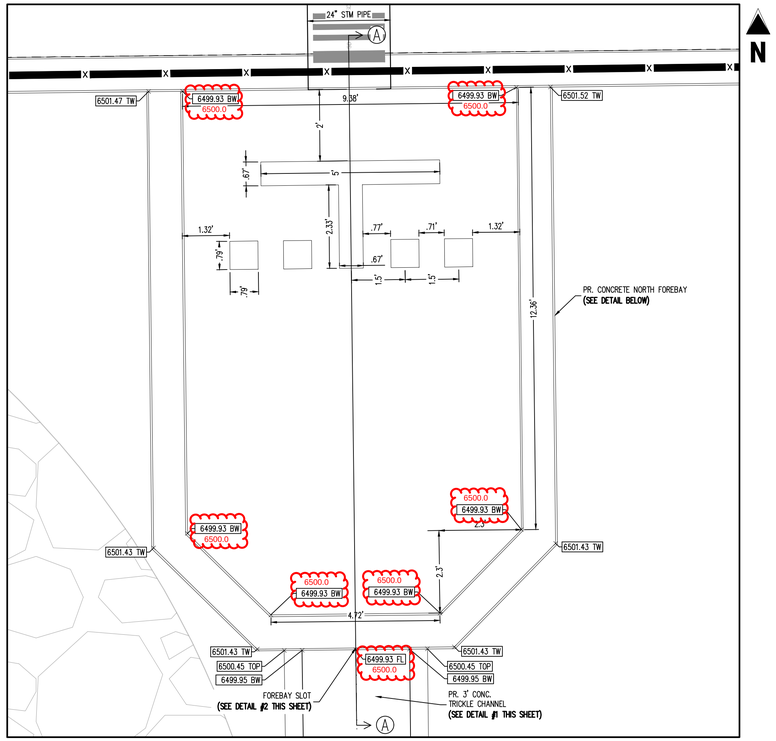
#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM

Project No:	JDA02
Drawn By:	ASA/MRK
Checked By:	RLS
Date:	10/15/2024

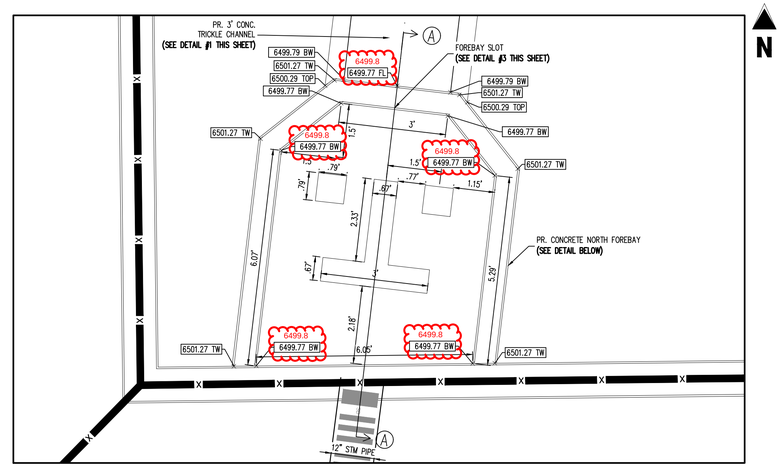
POND PLAN

PCM1.1

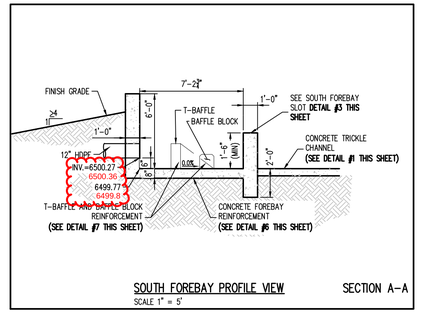
Sheet 3 of 6



NORTH FOREBAY GRADING PLAN
SCALE 1" = 2'

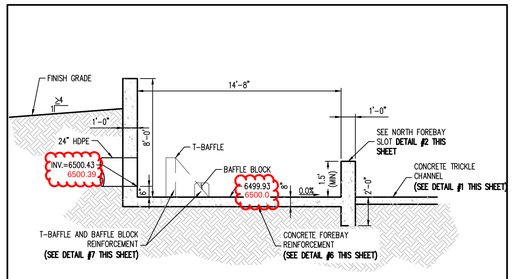


SOUTH FOREBAY GRADING PLAN
SCALE 1" = 2'

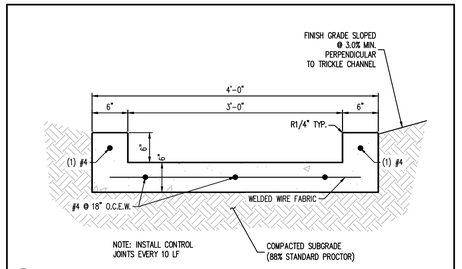


SOUTH FOREBAY PROFILE VIEW SECTION A-A
SCALE 1" = 5'

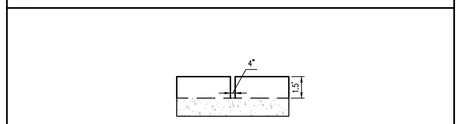
ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS



NORTH FOREBAY PROFILE VIEW SECTION A-A
SCALE 1" = 5'

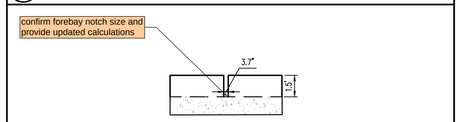


1 TRICKLE CHANNEL DETAIL
NOT TO SCALE

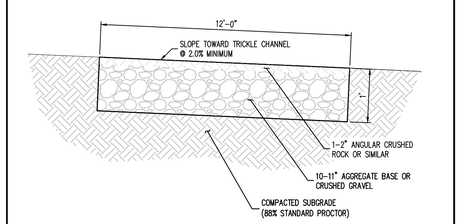


2 NORTH FOREBAY SLOT DETAIL
SCALE: 1"=5'

confirm forebay notch size and provide updated calculations



3 SOUTH FOREBAY SLOT DETAIL
SCALE: 1"=5'



4 MAINTENANCE ACCESS DETAIL
NOT TO SCALE

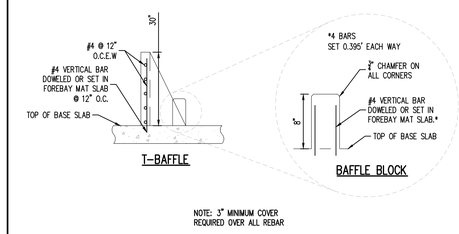
WARNING

UNAUTHORIZED MODIFICATION OF THIS OUTLET IS A KNOWING VIOLATION OF SECTION 309 OF THE CLEAN WATER ACT.

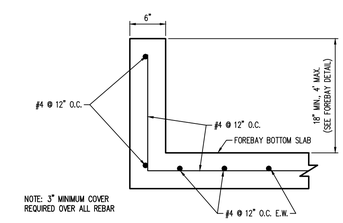
PUNISHMENT: FINE AND/OR IMPRISONMENT: 3-6 YEARS

NOTES:
- ONE (1) SIGN SHALL BE POSTED ON OR NEAR THE OUTLET STRUCTURE WITH THE ABOVE MESSAGE.
- SIGN SHOULD BE A MINIMUM OF 0.75 SQUARE FEET
- SIGNS SHALL BE DURABLE MATERIALS, SUCH AS METAL OR PLASTIC, USING RED LETTERING ON A WHITE BACKGROUND.

5 OUTLET STRUCTURE SIGN DETAIL
NOT TO SCALE



7 FOREBAY - T-BAFFLES & BAFFLE BLOCKS REINFORCING DETAIL
NOT TO SCALE



6 FOREBAY REINFORCING DETAIL
NOT TO SCALE

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

COLORADO REGISTERED PROFESSIONAL ENGINEER 38164 11/10/2023

PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE

JOHNSON DEVELOPMENT ASSOCIATES

2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

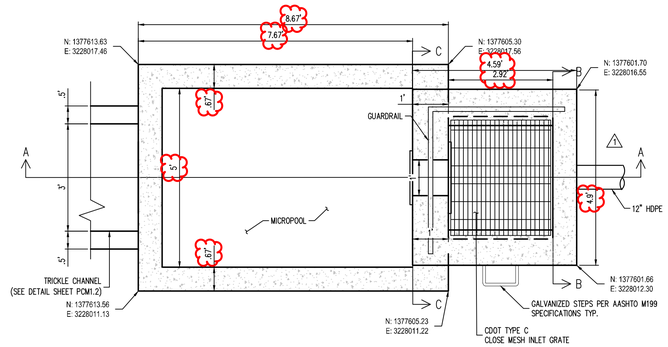
#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM

Project No:	JDA02
Drawn By:	ASA/MRK
Checked By:	BAS
Date:	10/15/2024

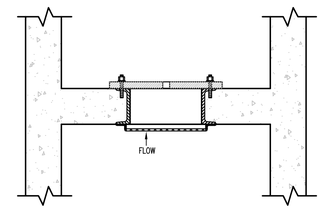
FOREBAY DETAILS

PCM1.2

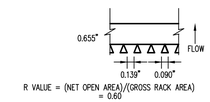
Sheet 4 of 6



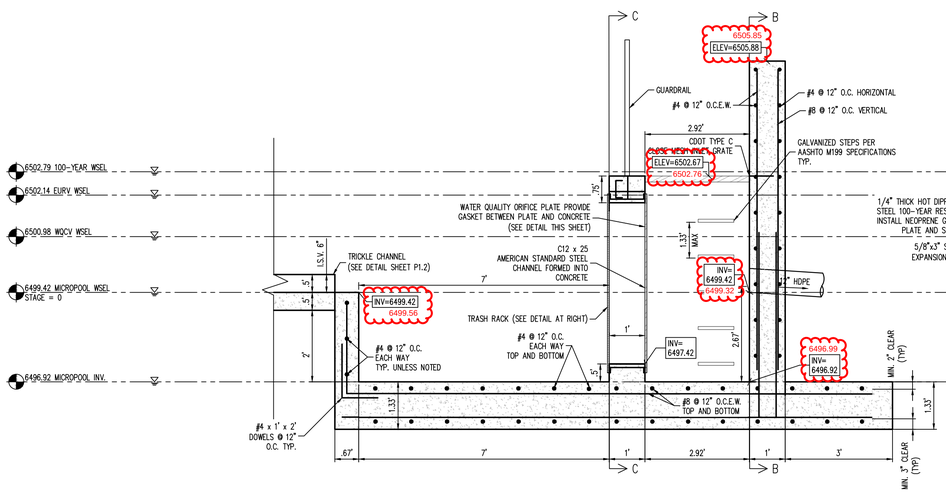
POND OUTLET CONTROL STRUCTURE – PLAN DETAIL



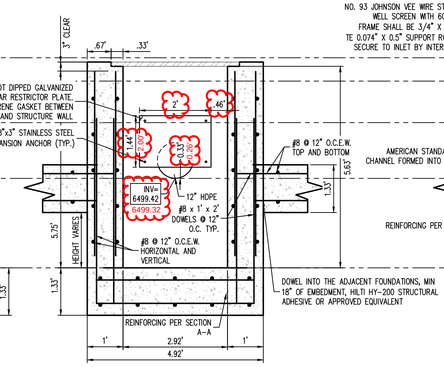
SECTION D–D
NOT TO SCALE



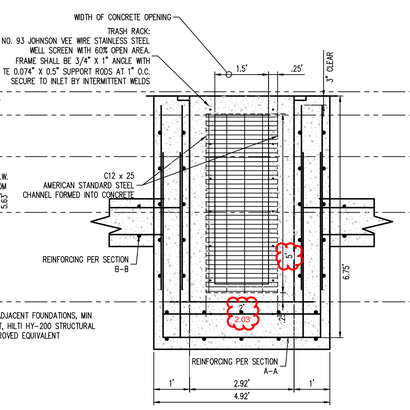
TRASH RACK SECTION
SCALE: 1" = 1'



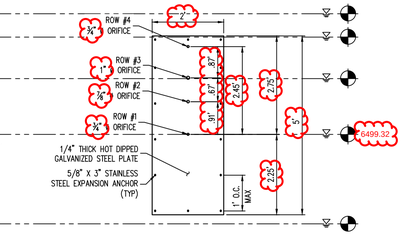
POND OUTLET CONTROL STRUCTURE – SECTION A–A



SECTION B–B

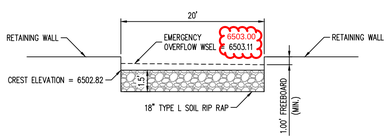


TRASH RACK – SECTION C–C

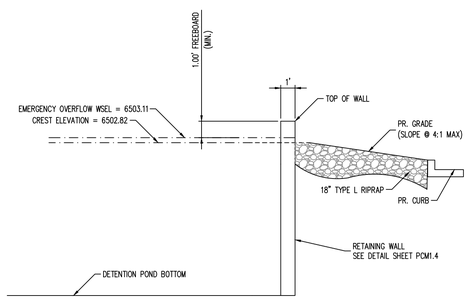


WQCV ORIFICE PLATE DETAIL

1 POND OUTLET STRUCTURE
SCALE: 1" = 2'



2 POND 100-YEAR OVERFLOW – CROSS SECTION
NOT TO SCALE



3 POND 100-YEAR OVERFLOW – PROFILE
NOT TO SCALE

ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE
JOHNSON DEVELOPMENT ASSOCIATES
2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

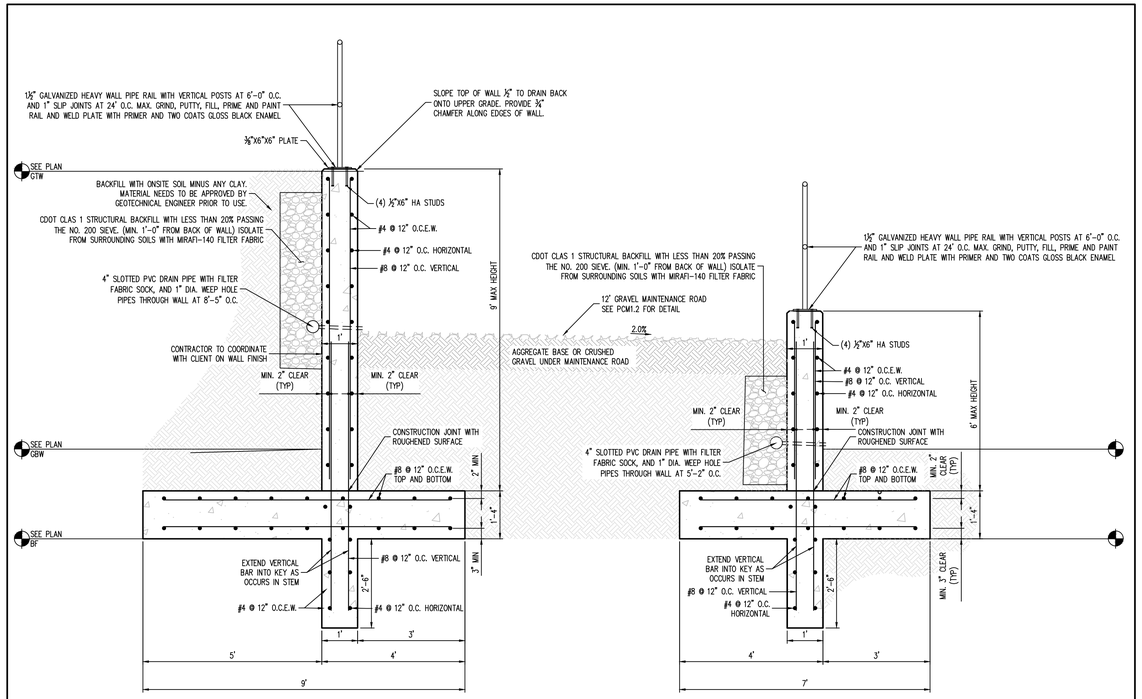
#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM
2	01/31/2024	GRADING LABEL UPDATES	CRD

Project No:	JDA02
Drawn By:	ASA/MRK
Checked By:	BAS
Date:	10/15/2024

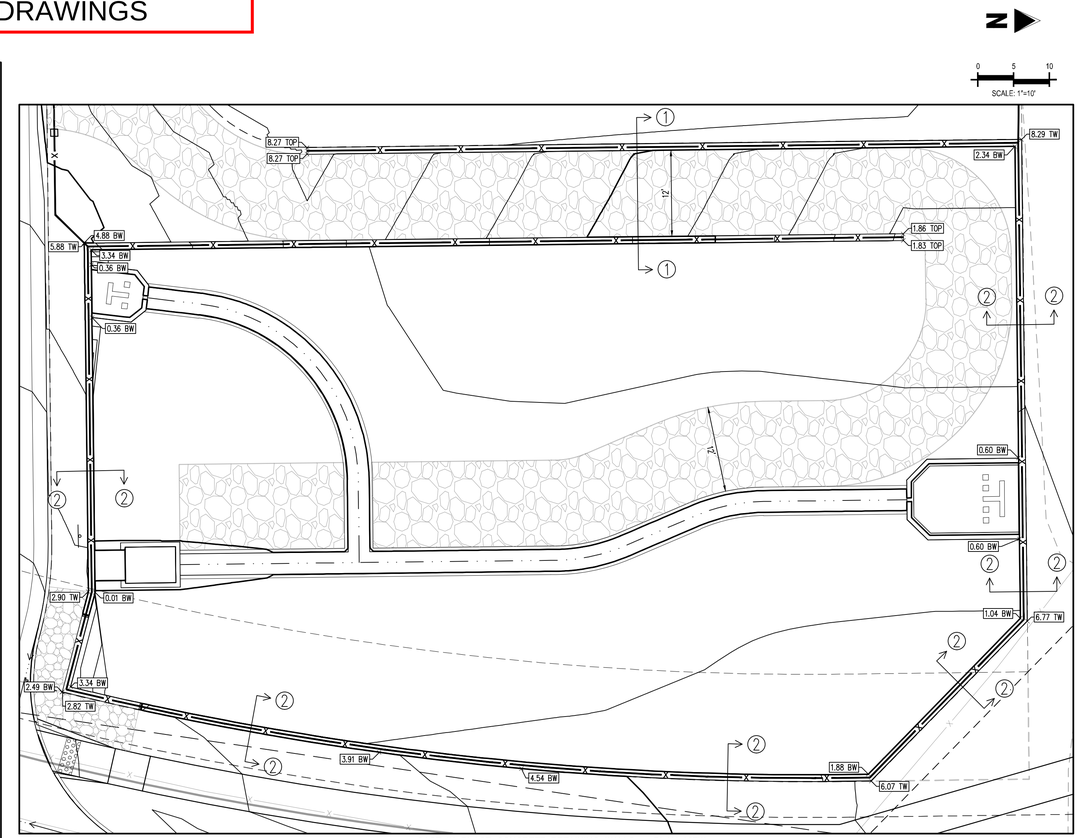
MICROPOOL & OUTLET STRUCTURE DETAILS

PCM1.3

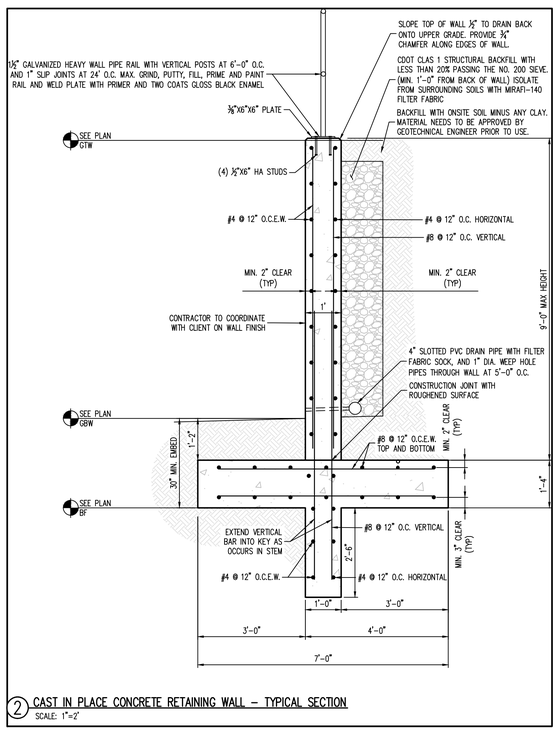
ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS



1 CAST IN PLACE CONCRETE RETAINING WALL – TYPICAL SECTION
SCALE: 1"=2'



CAST IN PLACE CONCRETE RETAINING WALLS – PLAN VIEW



2 CAST IN PLACE CONCRETE RETAINING WALL – TYPICAL SECTION
SCALE: 1"=2'

GENERAL STRUCTURAL NOTES

GENERAL REQUIREMENTS

GOVERNING CODE: THE DESIGN AND CONSTRUCTION OF THIS PROJECT IS GOVERNED BY THE "NORTH CAROLINA BUILDING CODE", 2015 EDITION, HEREAFTER REFERRED TO AS THE NCBC, AS ADOPTED BY CITY OF COLORADO SPRINGS CONSTRUCTION STANDARDS DIVISION UNDERSTOOD TO BE THE AUTHORITY HAVING JURISDICTION (AHJ).

TEMPORARY SHORING, BRACING: THE CONTRACTOR IS RESPONSIBLE FOR THE STRENGTH AND STABILITY OF THE STRUCTURE DURING CONSTRUCTION AND SHALL PROVIDE TEMPORARY SHORING, BRACING AND OTHER ELEMENTS REQUIRED TO MAINTAIN STABILITY UNTIL THE STRUCTURE IS COMPLETE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE FAMILIAR WITH THE WORK REQUIRED IN THE CONSTRUCTION DOCUMENTS AND THE REQUIREMENTS FOR EXECUTING IT PROPERLY.

SITE VERIFICATION: THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS AT THE SITE. CONFLICTS BETWEEN THE DRAWINGS AND ACTUAL SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ENGINEER BEFORE PROCEEDING WITH THE WORK.

ADJACENT UTILITIES: THE CONTRACTOR SHALL DETERMINE THE LOCATION OF ALL ADJACENT UNDERGROUND UTILITIES PRIOR TO EARTHWORK, FOUNDATIONS, SHORING, AND EXCAVATION. ANY UTILITY INFORMATION SHOWN ON THE DRAWINGS AND DETAILS IS APPROXIMATE AND NOT NECESSARILY COMPLETE.

SPECIAL INSPECTIONS AND TESTING

INSPECTIONS: SPECIAL INSPECTIONS AND TESTING SHALL BE IN ACCORDANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS PER RBC SECTION 109.7 AND IBC SECTIONS 1704, 1705, AS APPLICABLE.

SPECIAL INSPECTORS: SPECIAL INSPECTORS SHALL BE EMPLOYED BY THE OWNER. SPECIAL INSPECTORS SHALL BE QUALIFIED PERSONS WHO ARE REGISTERED WITH AN APPROVED AGENCY.

INSPECTION SUBMITTALS: SPECIAL INSPECTION REPORTS SHALL BE PROVIDED ON A WEEKLY BASIS. FINAL SPECIAL INSPECTION REPORTS WILL BE REQUIRED BY EACH SPECIAL INSPECTION FIRM PER IBC 1704.1.2. SUBMIT COPIES OF ALL INSPECTION AND TESTING REPORTS TO THE ARCHITECT/ENGINEER AND THE AUTHORITY HAVING JURISDICTION FOR REVIEW AS SOON AS THEY ARE AVAILABLE.

SCHEDULE OF SPECIAL INSPECTIONS

	DESCRIPTION OF SPECIAL INSPECTION	PERIODIC	CONTINUOUS
SOILS	FOOTING SOIL BEARING SURFACES	X	
	EXCAVATION DEPTH AND BEARING LAYER	X	
	COMPACTED FILL MATERIAL; PHYSICAL PROPERTIES	X	
	SUBGRADE PREPARATION PRIOR TO BACKFILL	X	
	BACKFILLING OPERATIONS IN ACCORDANCE WITH GEOTECHNICAL REPORT RECOMMENDATIONS INCLUDING LIFT THICKNESS, DENSITY TESTING, MOISTURE CONTENT, MATERIAL PROPERTIES		X
CONCRETE CONSTRUCTION	SIZE & PLACEMENT OF ALL REINFORCING STEEL	X	
	PLACEMENT CLEARANCES AROUND REINFORCING STEEL AT EMBEDDED CONDUIT	X	
	SHAPE, LOCATION & DIMENSIONS OF MEMBERS FORMED	X	
	USE OF THE REQUIRED DESIGN CONCRETE MIX	X	
	MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES	X	
	VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS	X	
	PLACING & SIZE OF CAST-IN-PLACE ANCHOR BOLTS AND EMBEDDED FABRICATIONS PRIOR TO THE POUR	X	
	PLACING OF CONCRETE AROUND CAST-IN-PLACE BOLTS AND EMBEDS		X
	SAMPLING OF FRESH CONCRETE		X
	DETERMINATIONS OF SLUMP, AIR CONTENT, AND TEMPERATURE		X
	GROUTING OPERATION OF REBAR DOWELS		X

SOILS AND FOUNDATIONS

1. FOUNDATIONS FOR ALL STRUCTURES SHALL BE DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED FOR THIS SITE.
2. THE CONTRACTOR MUST FULLY REVIEW THIS REPORT PRIOR TO CONSTRUCTION.
3. INFORMATION IN THE GEOTECHNICAL REPORT SUPERSEDES ANY CONFLICTING INFORMATION CONTAINED IN THE CDS.

	PREPARED BY:	REPORT NO.	REPORT DATE
GEOTECHNICAL REPORT	KUMAR & ASSOCIATES, INC.	REPORT - 21-2-272 ADDENDUM - 21-1-272 ADDENDUM - 21-2-272.A	FEBRUARY 3, 2022 MARCH 22, 2022 FEBRUARY 16, 2023
DESIGN CRITERIA	NET ALLOWABLE SOIL BEARING PRESSURE D+L	1500 PSF	
	MINIMUM EMBEDMENT (BELOW EXT. GRADE OR SLAB SUBGRADE)	30 INCHES	
	EQUIVALENT FLUID PRESSURE, ACTIVE	45 PSF	
	EQUIVALENT FLUID PRESSURE, PASSIVE	180 PSF	

NOTE: PER GOETECHNICAL ADDENDUM 21-2-272.A IT IS REQUIRED THAT CARE TO BE TAKEN NOT TO OVERCOMPACT THE BACKFILL. REFERENCE GEOTECHNICAL REPORT AND ADDENDUMS AND REPORT FOR ADDITIONAL INFORMATION.

SUBGRADE PREPARATION AND COMPACTION FOR ALL ITEMS ARE TO BE PREPARED IN SAME MANNER AS 2022 REPORT 21-2-272. OVEREXCAVATION AND REPLACEMENT OF ALL EXISTING FILL WILL BE REQUIRED WHERE PRESENT BELOW THE BEARING ELEVATION. ADDITIONALLY, OVEREXCAVATION AND REPLACEMENT OF THE CLAY SOILS WILL BE REQUIRED WHERE ENCOUNTERED WITHIN 3 FEET OF BEARING ELEVATION. REFERENCE GEOTECHNICAL REPORT AND ADDENDUMS AND REPORT FOR ADDITIONAL INFORMATION.

CAST-IN-PLACE CONCRETE

REFERENCE STANDARDS:
1. ACI 301-10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
2. ACI 305.1-10 "SPECIFICATIONS FOR HOT WEATHER CONCRETING"
3. ACI 306.1-10 "SPECIFICATION FOR COLD WEATHER CONCRETING"
4. ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
5. ACI 117-10 "SPECIFICATION FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS"

SUBMITTALS
PROVIDE ALL SUBMITTALS REQUIRED BY ACI 301 SECTION 4.1.2. SUBMIT MIX DESIGNS FOR EACH MIX IN THE TABLE BELOW. SUBSTANTIATING STRENGTH RESULTS FROM PAST TESTS SHALL NOT BE OLDER THAN 12 MONTHS PER ACI 318 SECTION 5.3.

CONCRETE MIX DESIGN REQUIREMENTS

	STRENGTH F'c (PSI)	TEST AGE	AGGREGATE, MAX. (IN.)	EXPOSURE CLASS	W/CM RATIO	AIR CONTENT (+/-1.5%)	SLUMP, MAX. (IN.)
SPREAD FOOTING	4500	28	1	F2/S0/W0/C1	0.45	6.0	4
FOUNDATION WALLS	3500	28	1	F1/S0/W0/C1	0.55	4.5	4

CONCRETE REINFORCEMENT

MATERIALS	REINFORCING BARS ASTM	A615 GRADE 60 DEFORMED BARS

PLACING: CONFORM TO ACI 301 SECTION 3.3.2 "PLACEMENT." PLACING TOLERANCES SHALL CONFORM TO ACI 117.

CONCRETE COVER: CONFORM TO THE FOLLOWING COVER REQUIREMENTS UNLESS NOTED OTHERWISE IN THE DRAWINGS:	CONCRETE CAST AGAINST EARTH	3"
	CONCRETE EXPOSED TO EARTH OR WEATHER	2"
	TIES IN COLUMNS AND BEAMS	1-1/2"
	BARS IN SLABS	3/4"
	BARS IN WALLS	3/4"
	EXTERIOR BARS IN TILT-UP PANELS	1"

SPLICES: CONFORM TO ACI 301 SECTION 3.3.2.7. "SPLICES". REFER TO "TYPICAL LAP SPLICE AND DEVELOPMENT LENGTH SCHEDULE" FOR TYPICAL REINFORCEMENT SPLICES.

SITE LEGEND

- PROPERTY BOUNDARY LINE
- ADJACENT PROPERTY BOUNDARY LINE
- RIGHT OF WAY BOUNDARY LINE
- ROAD CENTERLINE
- EXISTING EASEMENT LINE
- PROPOSED EASEMENT LINE
- PROPOSED SWALE FLOWLINE
- PROPOSED RETAINING WALL

PAVING LEGEND

- STANDARD DUTY CONCRETE
- HEAVY DUTY CONCRETE
- STANDARD DUTY ASPHALT

CONTRACTOR RESPONSIBLE FOR AS-BUILT DRAWINGS, TESTS, REPORTS AND/OR ANY OTHER CERTIFICATES OR INFORMATION AS REQUIRED FOR ACCEPTANCE OF WORK FROM CITY, UTILITY DISTRICTS OR ANY OTHER GOVERNING AGENCY.

SURVEYOR TO OBTAIN AUTOCAD FILE FROM ENGINEER AND VERIFY ALL HORIZONTAL CONTROL DIMENSIONING PRIOR TO CONSTRUCTION STAKING. SURVEYOR MUST VERIFY ALL BENCHMARK, BASIS OF BEARING AND DATUM INFORMATION TO ENSURE IMPROVEMENTS WILL BE AT THE SAME HORIZONTAL AND VERTICAL LOCATIONS SHOWN ON THE DESIGN CONSTRUCTION DRAWINGS. PRIOR TO CONSTRUCTION STAKING ANY DISCREPANCY MUST BE REPORTED TO OWNER AND ENGINEER PRIOR TO CONTINUATION OF ANY FURTHER STAKING OR CONSTRUCTION WORK.

BASIS OF BEARINGS

BASIS OF BEARING: ALL BEARINGS ARE GRID BEARINGS OF THE COLORADO STATE PLANE COORDINATE SYSTEM, CENTRAL ZONE, NORTH AMERICAN DATUM 1983. THE NORTH LINE OF THE NORTHWEST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 65 WEST BEARS N89°20'41"E, MONUMENTED BY THE NORTHWEST CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 4842 1985" IN RANGE BOX, AND BY THE NORTH QUARTER CORNER OF SAID SECTION 5, BEING A 3-1/4" ALUMINUM CAP STAMPED "PLS 30829 2003", AS SHOWN HEREON.

BENCHMARK

COLORADO SPRINGS UTILITIES FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS) BENCHMARK SR07 BEING A 2" ALUMINUM CAP STAMPED "CSU FIMS CONTROL SR07" AT THE SOUTHEAST CORNER OF THE CONCRETE BASE FOR AN ELECTRIC VAULT ON THE WEST SIDE OF PETERSON ROAD, ABOUT 360' SOUTH OF THE CENTER LINE OF LEOTI DRIVE.

FIMS DATUM ELEVATION = 6534.61

CAUTION – NOTICE TO CONTRACTOR

1. ALL UTILITY LOCATIONS SHOWN ARE BASED ON MAPS PROVIDED BY THE APPROPRIATE UTILITY COMPANY AND FIELD SURFACE EVIDENCE AT THE TIME OF SURVEY AND IS TO BE CONSIDERED AN APPROXIMATE LOCATION ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE LOCATION OF ALL UTILITIES, PUBLIC OR PRIVATE, WHETHER SHOWN ON THE PLANS OR NOT, PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIESTO THE ENGINEER PRIOR TO CONSTRUCTION.
2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POTHOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

811 Know what's below. Call before you dig.

Galloway
1155 Kelly Johnson Blvd., Suite 305
Colorado Springs, CO 80920
719.900.7220
GallowayUS.com

COLORADO LICENSED PROFESSIONAL ENGINEER 49178 11-13-2023

PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE
JOHNSON DEVELOPMENT ASSOCIATES
2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM

Project No:	JDA02
Drawn By:	ASA/MRK
Checked By:	BAS
Date:	10/15/2024

RETAINING WALL DETAILS

PCM1.4
Sheet 6 of 6