

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,

NOT PRIVATE, PR STOOD FOR PROPOSED;
REMOVED THE "PR FOR 2ND SUBMITTAL"

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 REVISED AS NOTED

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.

THIS SENTENCE HAS BEEN
REMOVED & REVISED TO REFLECT
CONSTRUCTED CONDITION



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.

Constitution Storage Development
Full Spectrum Detention Pond Certification
October 16, 2024

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

GALLOWAY

Please sign SIGNED AS REQUESTED

Brady Shyrock, PE
Project Manager
BradyShyrock@GallowayUS.com

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

Attached Documents:

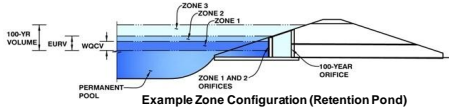
- MHFD WQ Detention Pond Calculations
- Approved FDR Drainage Map
- R & R Engineers-Surveyors, Inc. As-Built Survey
- As-Built Drawings

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.05 (January 2022)

Project: 6855 Constitution Ave Self Storage

Basin ID: FSD-1



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 =	73.709% 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 WQC 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 (WOCV) =	0.074 acre-feet	
Excess Urban Runoff Volume (EURV) =	0.287 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	

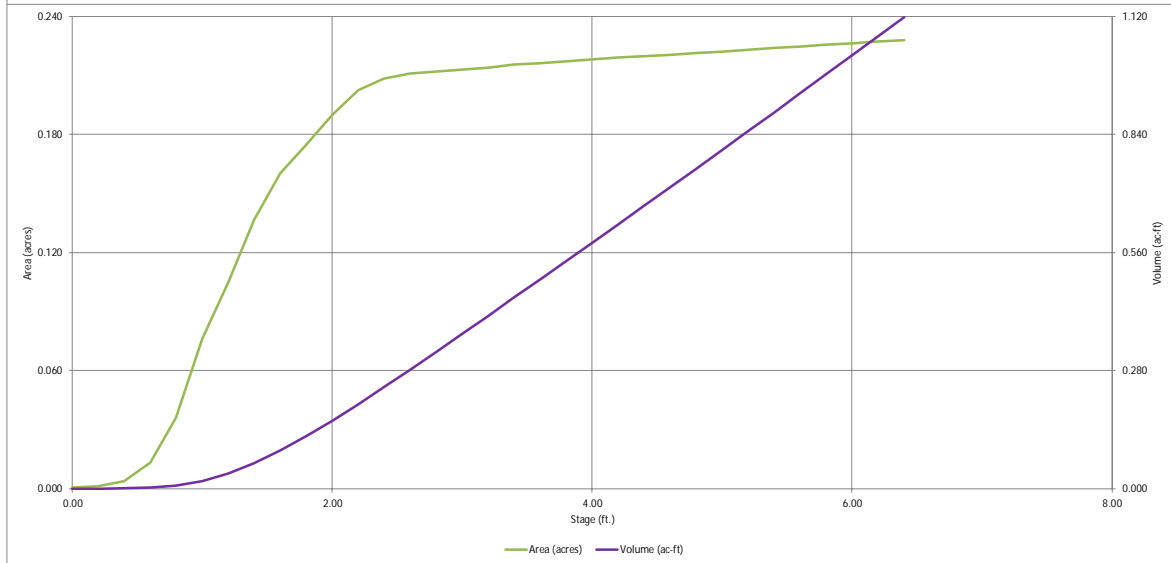
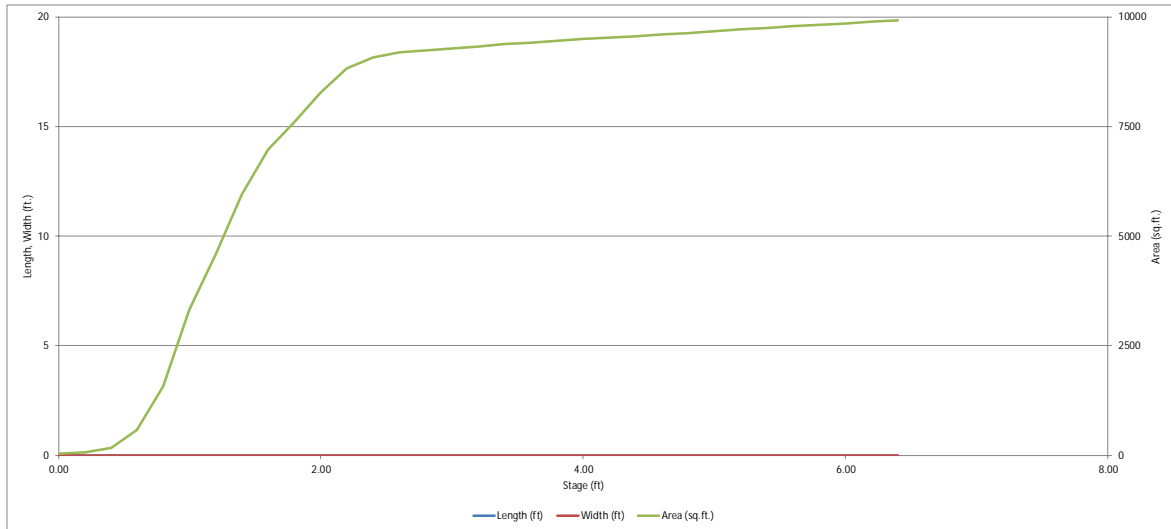
Define Zones and Basin Geometry

Zone 1 Volume (WOCV) =	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

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
6506	--	6.40	--	--	--	9,934	0.228	48,717	1.118

DETENTION BASIN STAGE-STORAGE TABLE BUILDER

MHFD-Detention, Version 4.05 (January 2022)

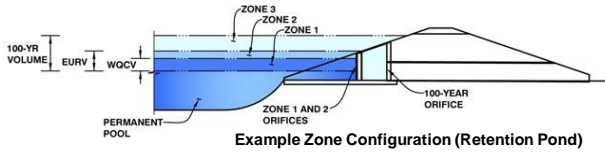


DETENTION BASIN OUTLET STRUCTURE DESIGN

MHFD- Detention, Version 4.05 (January 2022)

Project: 6855 Constitution Ave Self Storage
Basin ID: FSD-1

these numbers changed
CORRECT



	Estimated Stage (ft)	Estimated Volume (ac-ft)	Outlet Type
Zone 1 (WOCV)	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 WOCV 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 WOCV and/or EURV in a sedimentation BMP)

Centroid of Lowest Orifice = 0.00 ft (relative to basin bottom at Stage = 0 ft)
Depth at top of Zone using Orifice Plate = 2.72 ft (relative to basin bottom at Stage = 0 ft)
Orifice Plate: Orifice Vertical Spacing = N/A inches
Orifice Plate: Orifice Area per Row = N/A sq. inches

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

these numbers didn't change
CORRECT

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)								

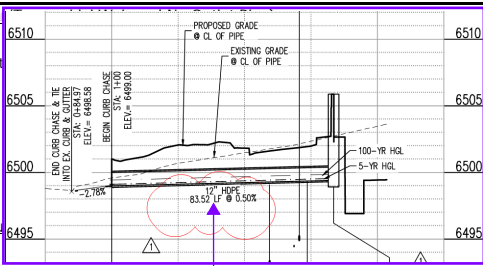
User Input: Vertical Orifice (Circular or Rectangular)

	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
Vertical Orifice Area = Not Selected
Vertical Orifice Centroid = Not Selected

User Input: Overflow Weir (Dropbox with Flat or Sloped Gate and Outlet Pipe OR Rectangular)

	Zone 3 Weir	Not Selected	
Overflow Weir Front Edge Height, Ho =	3.44	N/A	ft (relat)
Overflow Weir Front Edge Length =	2.92	N/A	feet
Overflow Weir Gate Slope =	0.00	N/A	H:V
Horiz. Length of Weir Sides =	2.92	N/A	feet
Overflow Gate Type =	Type C Gate	N/A	
Debris Clogging % =	50%	N/A	%



Calculated Parameters for Overflow W

	Zone 3 Weir	Not Selected
Overflow Weir Front Edge Height, Ho =	3.44	N/A
Overflow Weir Front Edge Length =	2.92	N/A
Overflow Weir Gate Slope =	0.00	N/A
Horiz. Length of Weir Sides =	2.92	N/A
Overflow Gate Type =	Type C Gate	N/A
Debris Clogging % =	50%	N/A

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

	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	N/A	inches

Calculated Parameters for Outlet Pipe w/ Flow Restriction Pl
Outlet Orifice Area = 0.16
Outlet Orifice Centroid = 0.15
Half-Central Angle of Restrictor Plate on Pipe = 1.07

PPR2343 called for an 8" pipe.
Please confirm **APPROVED PLANS SHOW 12" HDPE PIPE**

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

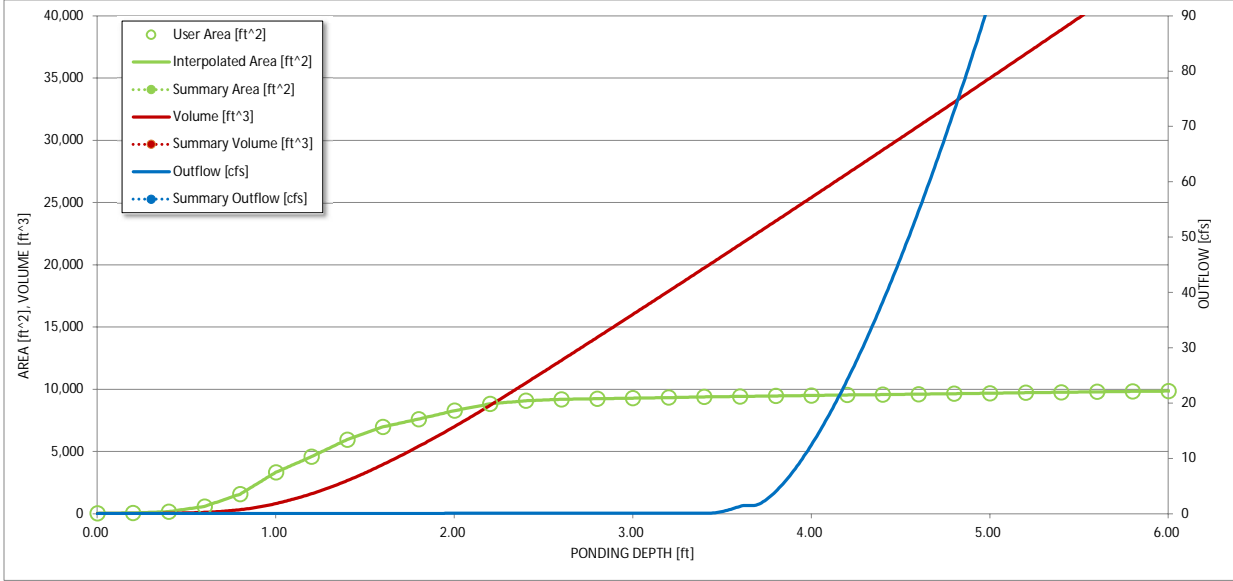
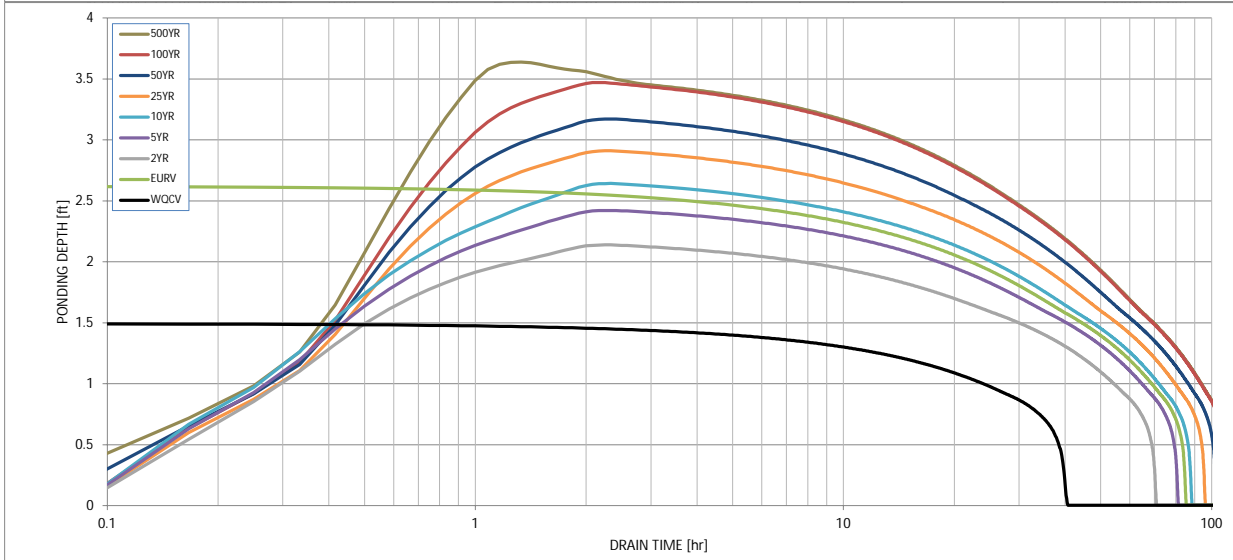
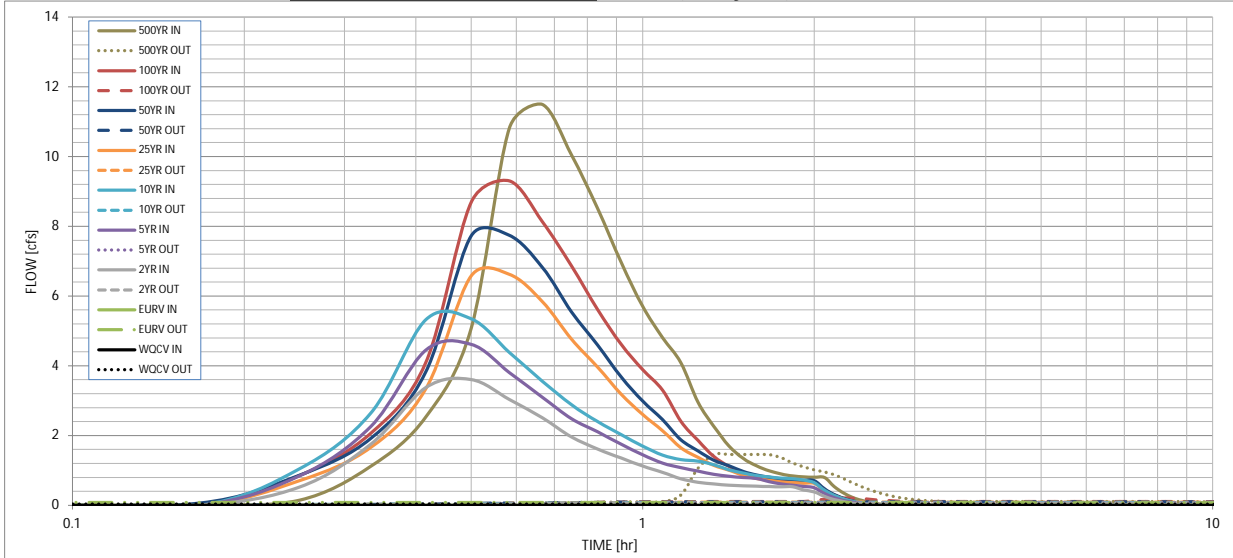
Routed Hydrograph Results

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

	WOCV	EURV	2 Year	5 Year	10 Year	25 Year	50 Year	100 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
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 Gate 1 (fps)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.0
Max Velocity through Gate 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.

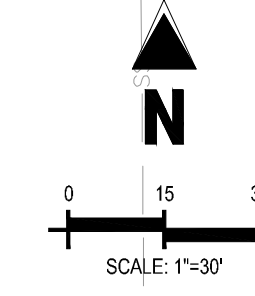
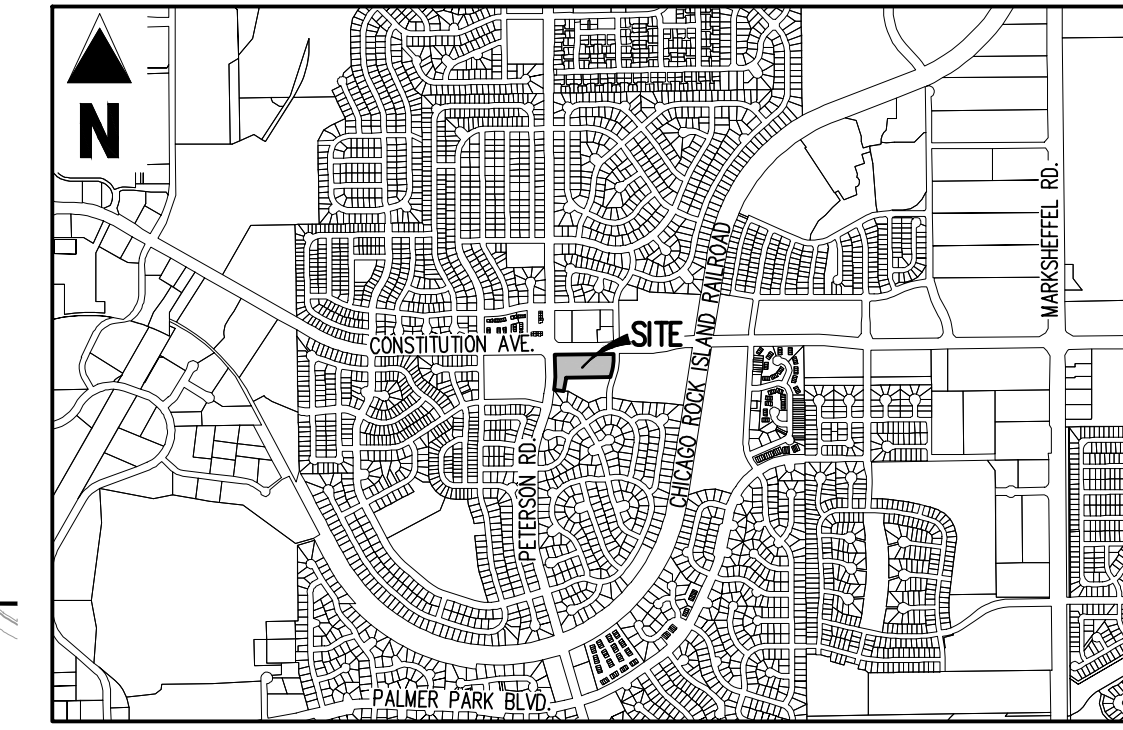
Time Interval	SOURCE	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP	CUHP
	TIME	WQCV [cfs]	EURV [cfs]	2 Year [cfs]	5 Year [cfs]	10 Year [cfs]	25 Year [cfs]	50 Year [cfs]	100 Year [cfs]	500 Year [cfs]
5.00 min	0:00:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	0:05:00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	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	

6805 BISMARK RD COLORADO SPRINGS CO, 80922-1116

LAND USE: COMM 200 AT PRESENT WORTH
PLAT NO: 7776
4432 SLUCE DR COLORADO SPRINGS CO, 80922

K & S DEVELOPMENT LLC
PARCEL NO: 5332399004
ZONE: CC CAD-0
LAND USE: CODE 200 AT PRESENT WORTH
PLAT NO: 7776
4432 SLUCE DR COLORADO SPRINGS CO, 80922

VICINITY MAP
1" = 200'



Galloway

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

PRELIMINARY
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NOT FOR CONSTRUCTION

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CONSTITUTION AVENUE
120' PUBLIC RIGHT OF WAY

DRAINAGE LEGEND

- - - - - EXISTING PROPERTY LINE
- - - - - EXISTING MAJOR CONTOUR
- - - - - EXISTING MINOR CONTOUR
- ⊙ (550) PROPOSED MAJOR CONTOUR
- ⊙ (54) PROPOSED MINOR CONTOUR
- - - - - TIME OF CONCENTRATION PATH
- - - - - BASIN BOUNDARY LINE
- - - - - EXISTING STORM SEWER
- ⊙ PROPOSED STORM STRUCTURES
- BASIN DESIGNATION
- 1 5-YEAR RUNOFF IN CUBIC FEET PER SECOND
- 0.1 100-YEAR RUNOFF IN CUBIC FEET PER SECOND
- BASIN AREA IN ACRES
- 1 DESIGN POINT
- DIRECTION OF RUNOFF

BASIN SUMMARY TABLE

Tributary Sub-basin	Area (acres)	Cs	C100	tc (min)	Qs (cfs)	Q100 (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	
	Qs (cfs)	Q100 (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

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

EIGHT LINE INC.
PARCEL NO: 5405218003
ZONE: CC CAD-0
LAND USE: SPECIAL PURPOSE
PLAT NO: 9808
8300 S COUNTY LINE RD OKLAHOMA CITY OK, 73169-1606

ALVARADO KIMBERLY AI
PARCEL NO: 5405218010
ZONE: RS-6000 CAD-0
LAND USE: SINGLE FAMILY RES.
PLAT NO: 6430
5365 ALLYN WAY COLORADO SPRINGS CO, 80915-4230

OPSAHL LEV
PARCEL NO: 5405218009
ZONE: RS-6000 CAD-0
LAND USE: SINGLE FAMILY RES.

JASPERCO LLC
PARCEL NO: 5405218002
ZONE: RM-30
LAND USE: SPECIAL PURPOSE
PLAT NO: 9808
5532 SANDIE ROCK TRL COLORADO SPRINGS CO, 80918-3006

5' PUBLIC UTILITY
EASEMENT
REC. 1445775

UTILITY
EASEMENT
REC. 9808

SET NAIL WITH
1-1/2" ALUMINUM
DISC STAMPED
"PLS 38069"

SIGN
PED.
CROSSING

PETERSON ROAD
100' PUBLIC RIGHT OF WAY

CANADA DRIVE
60' PUBLIC RIGHT OF WAY

C:\Users\jgalloway\OneDrive\Documents\Projects\DR-2\DR-2.dwg

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

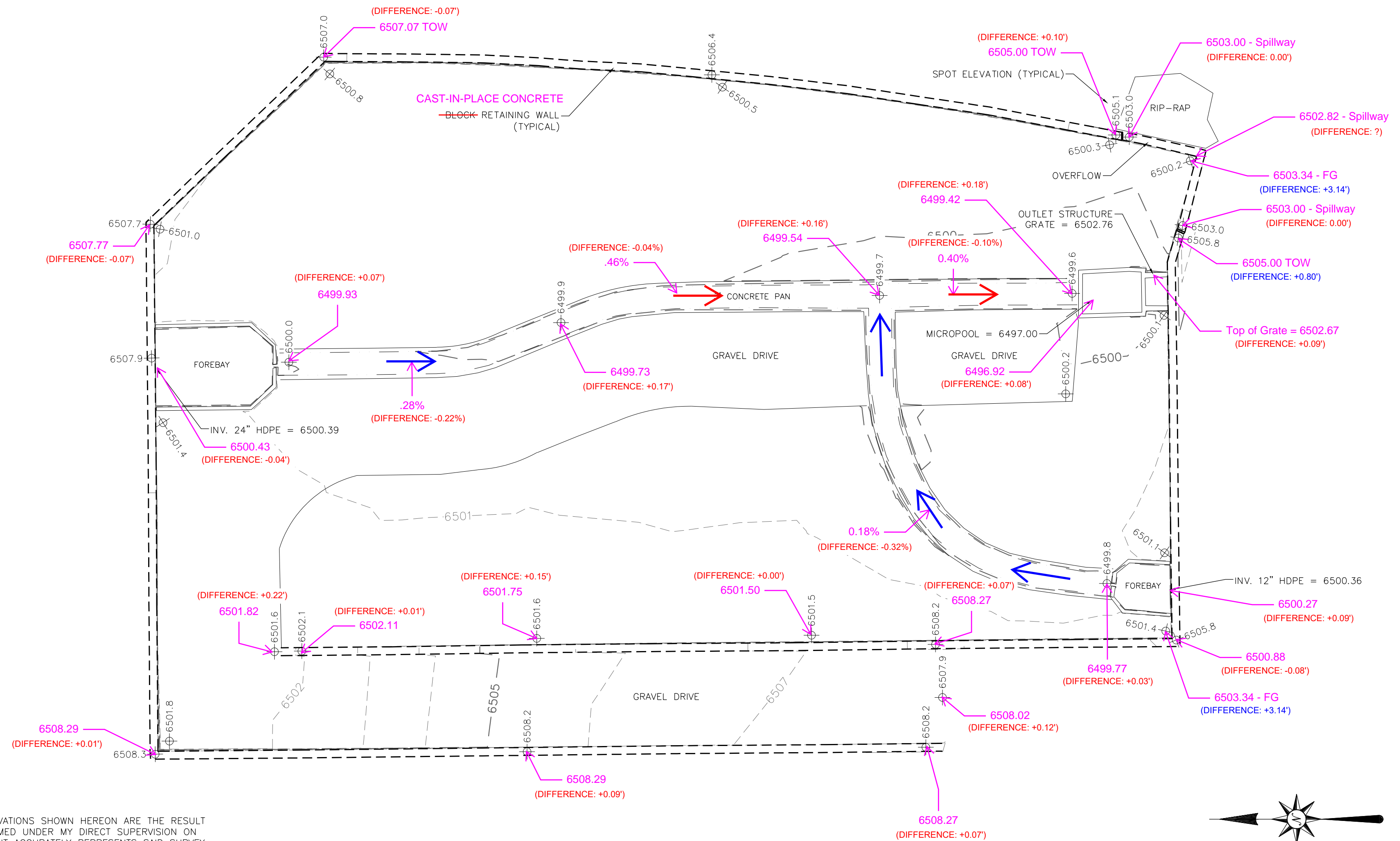
DESIGN ELEVATION

ELEVATION DIFFERENCE < 0.50'

ELEVATION DIFFERENCE >= 0.50'

ADEQUATE SLOPE →

INADEQUATE SLOPE →



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.

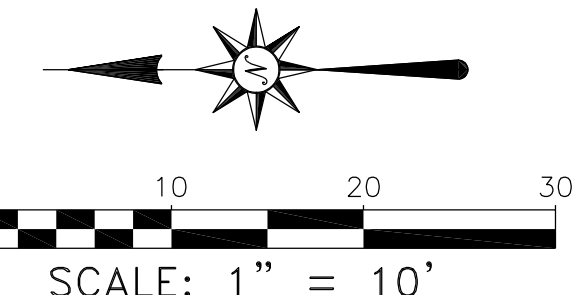


JEFFREY WEYGANDT, P.L.S.
COLORADO REG. NO. 38872
FOR, AND ON BEHALF OF:
R&R ENGINEERS-SURVEYORS, INC.

NOTES

- BENCHMARK: COLORADO SPRINGS FACILITY INFORMATION MANAGEMENT SYSTEM (FIMS) MONUMENT #SR07. ELEVATION = 6534.61 FEET (NAVD88 DATUM)
- POND VOLUMES:
18,900 CU.FT. TO ELEVATION 6502.75 (GRATE)
21,650 CU.FT. TO ELEVATION 6503.00 (OVERFLOW)

Total Pond Detention Volume = 18120.93 Cu Ft = .416 Ac Ft
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

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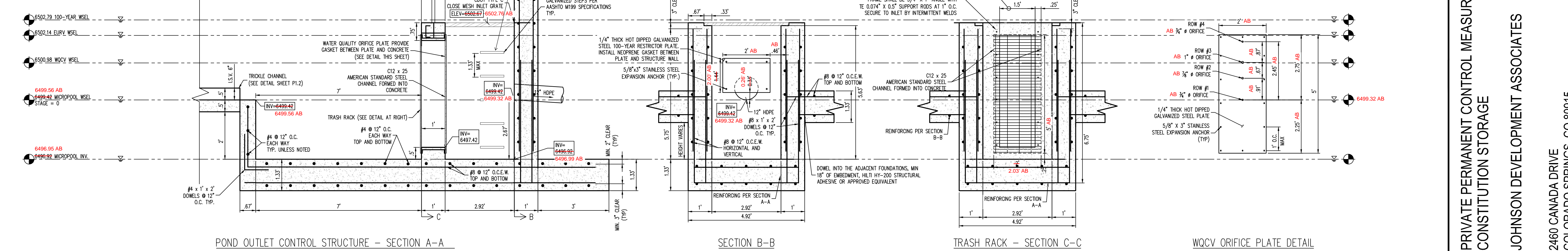
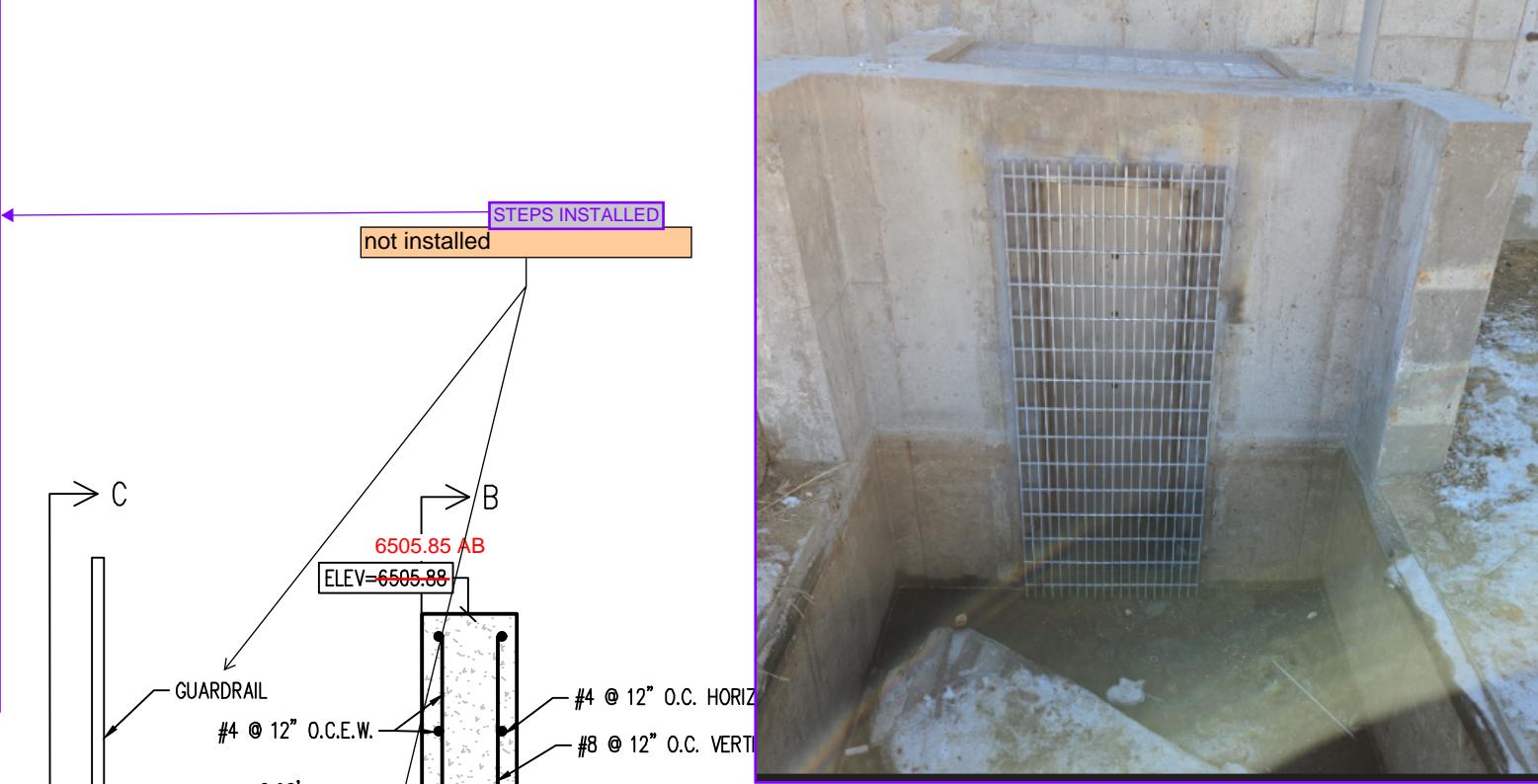
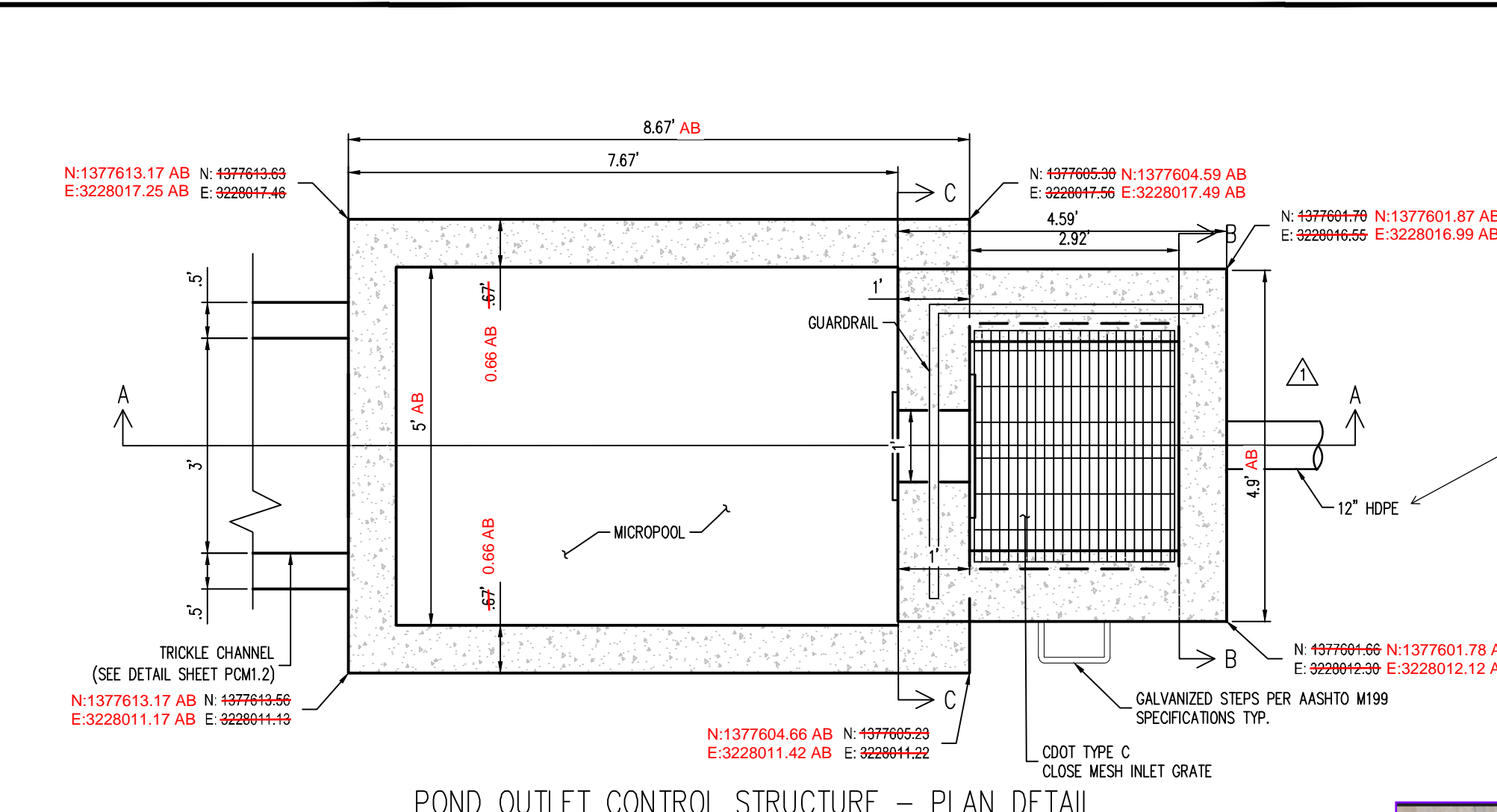
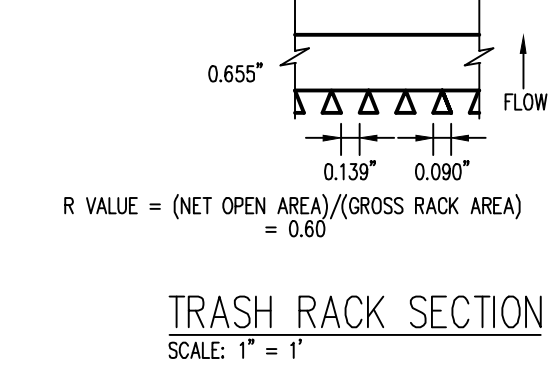
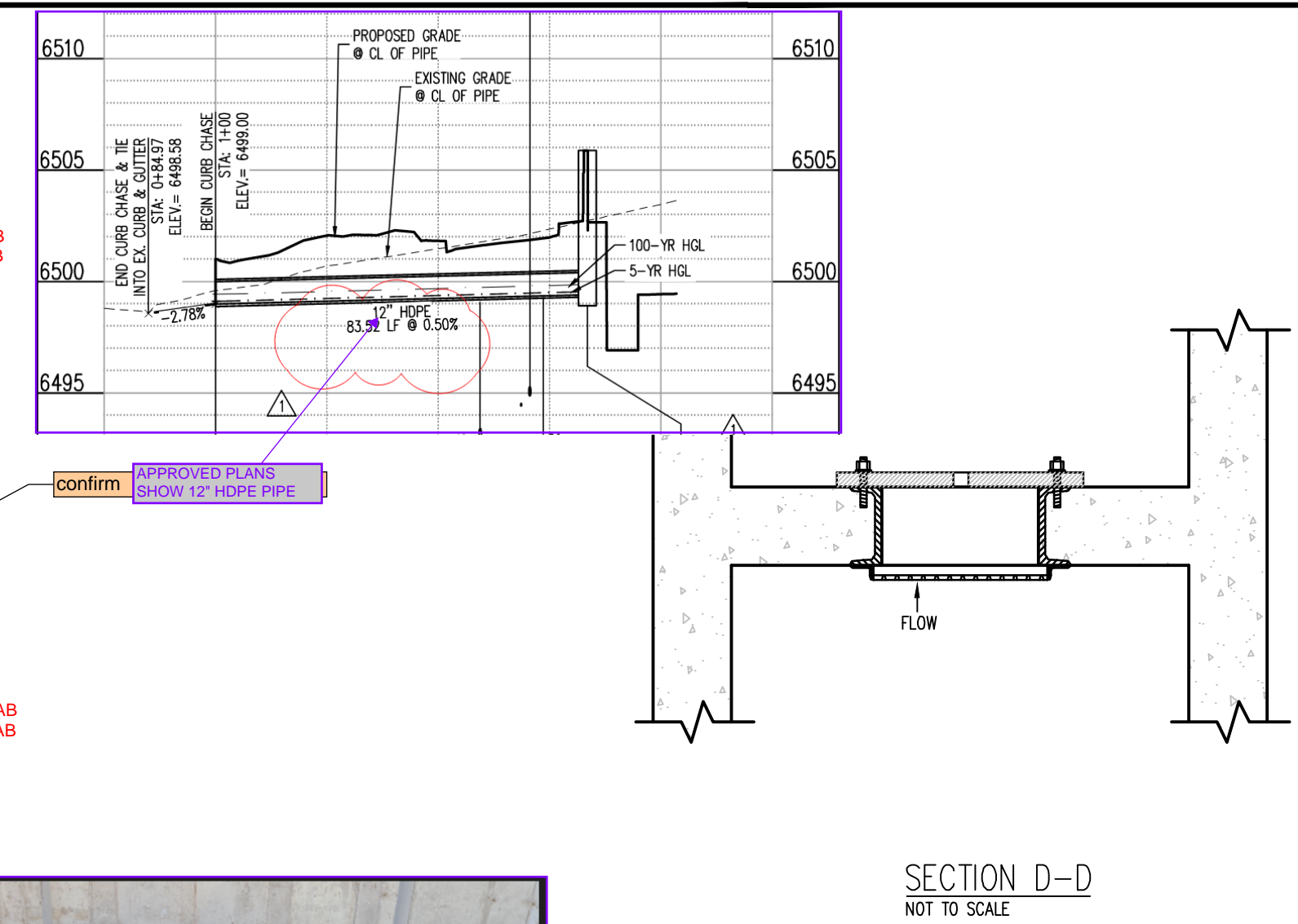


PRIVATE PERMANENT CONTROL MEASURE PLAN
 CONSTITUTION STORAGE
 JOHNSON DEVELOPMENT ASSOCIATES
 2460 CANADA DRIVE
 COLORADO SPRINGS, CO 80915

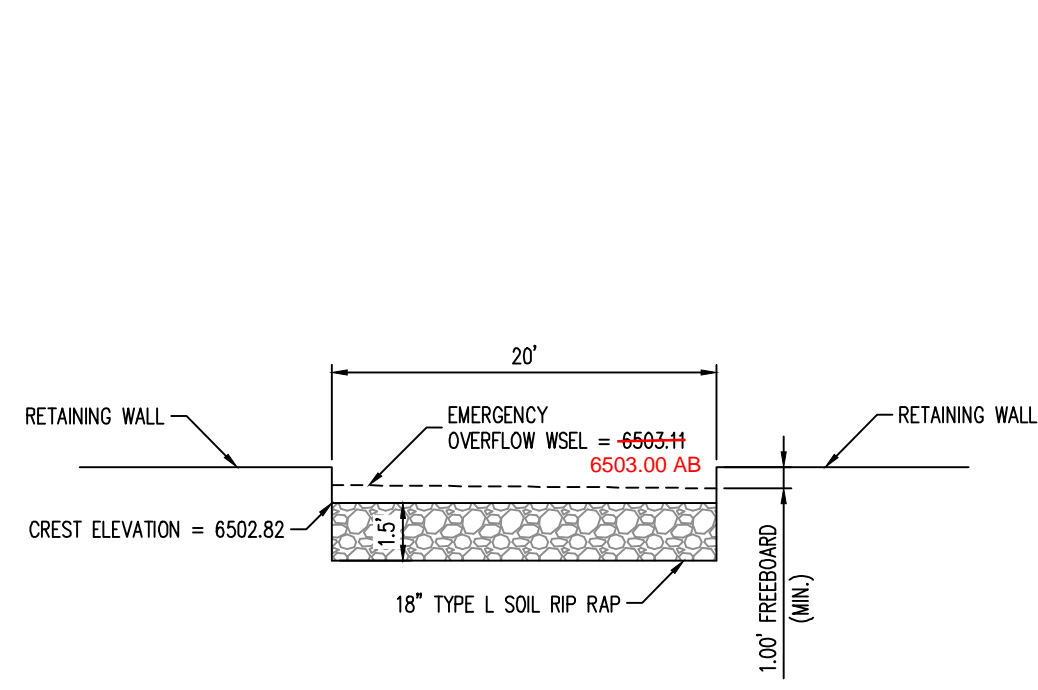
#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM
2	01/31/2024	GRADING LABEL UPDATES	CRD

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

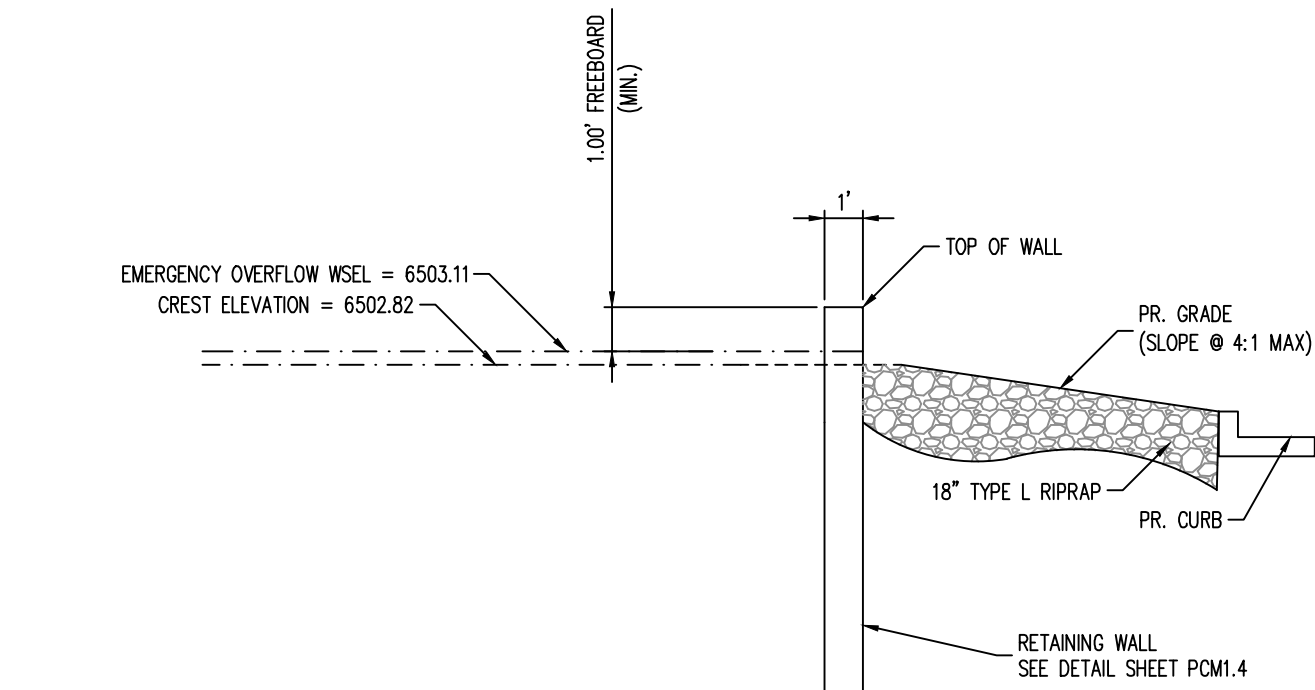
MICROPOOL & OUTLET
 STRUCTURE DETAILS



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.



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

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 PICES PEAK AVE, SUITE 107
COLORADO SPRINGS, CO 80903
TELE: (303) 634-1999
ATTN: KENNETH L. MEYERS, PE

TRAFFIC ENGINEER
GALLOWAY & CO., INC.
5550 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 DOWNS
EMAIL: BRIANDOWNS@GALLOWAYUS.COM

STANDARD PCM NOTES

- 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.
- ANY LAND DISTURBANCE BY ANY OWNER, DEVELOPER, BUILDER, CONTRACTOR, OR OTHER PERSON SHALL COMPLY WITH THE POLICES AND PROCEDURES OUTLINED IN THE CITY DCM, AND THE APPROVED GEC PLAN.
- 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.
- CONTACT CITY GEC INSPECTIONS, 719-385-5918, AND THE CITY ENGINEERING INSPECTIONS, 719-385-5977, AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
- 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 OR 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.
- 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.
- THE CONTRACTOR SHOULD CONTACT THE ENGINEER OF RECORD AND GEC INSPECTOR IMMEDIATELY SHOULD CONSTRUCTION OF THE BMP VARY IN ANY WAY FROM THE PLANS.
- RETAINING WALLS WILL BE DESIGNED FOR ADDITIONAL LOADING SUCH AS FOOTINGS BELOW ELEV. ETC.

UTILITY CONTACTS

WATER & WASTEWATER
CHEROKEE METROPOLITAN DISTRICT
6250 PALMER PARK BLVD.
COLORADO SPRINGS, CO 80915
TELE: (719) 597-5280
ATTN: KEVIN BROWN
EMAIL: KBROWN@CHEROKEEMETROPOLITAN.ORG

ELECTRIC
MOUNTAIN VIEW ELECTRIC
1140 E WOODMEN RD
FALCON, CO 80831
TELE: (719) 495-2283
CATHY HANSEN-LEE
EMAIL: CATHY.HANSEN@MVEA.COOP

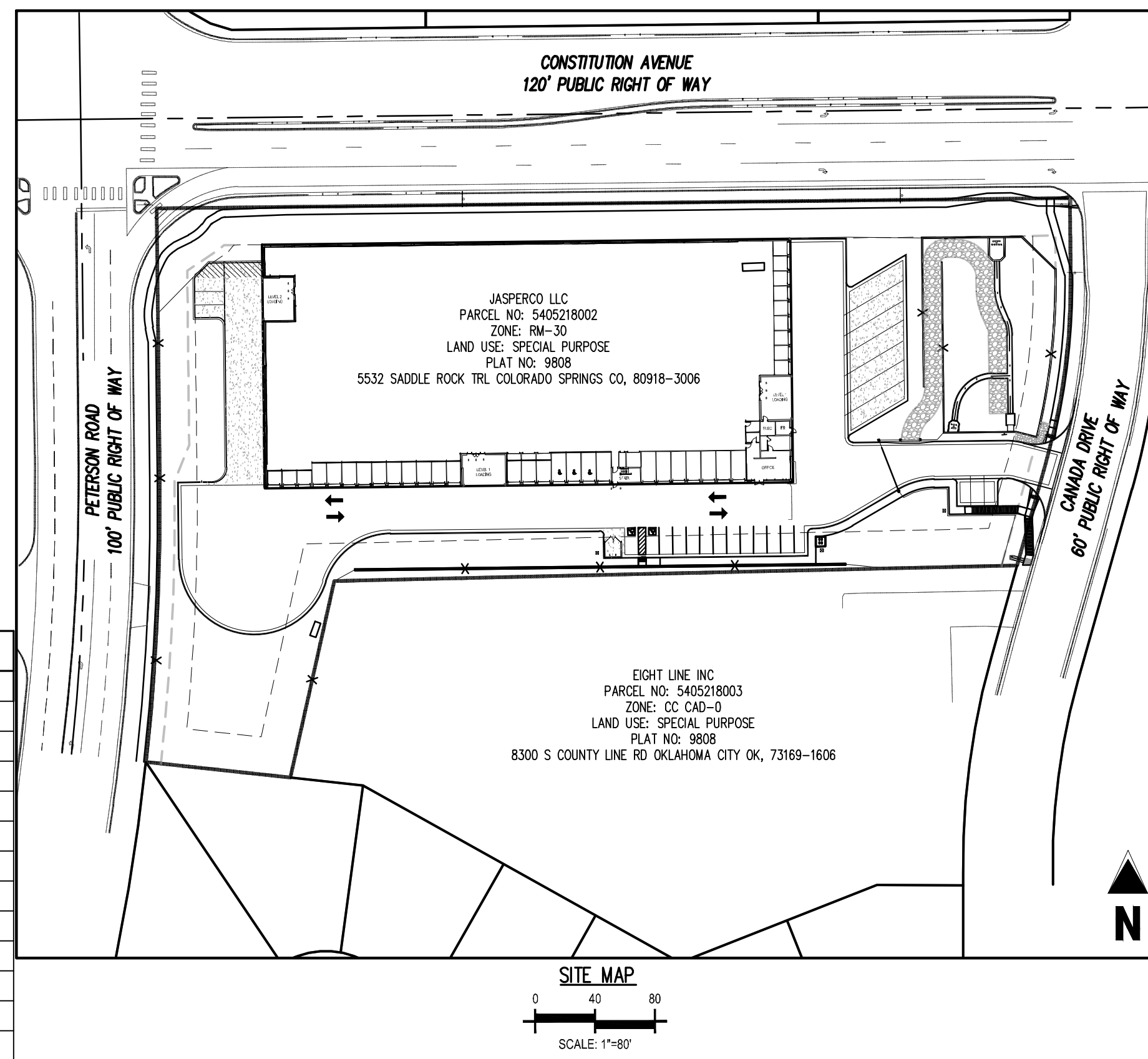
NATURAL GAS
COLORADO SPRINGS UTILITIES (CSU)
7710 DURANT DRIVE, P.O. BOX 1103, MAIL CODE 2150
COLORADO SPRINGS, CO 80947-2150
TELE: (719) 668-5573
AARON CASSIO
EMAIL: ACASSIO@CSU.ORG

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



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
EURY WATER SURFACE ELEVATION	6502.14
WQCY 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 AMENDMENT #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 080410752G), 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.

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-BATTLE	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	\$7.87	\$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



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 BEARINGS: 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 S707 BEING A 2" ALUMINUM CAP STAMPED "CSU FIMS CONTROL S707" 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 LEOTH 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.

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: *Brady A. Shyrock* 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 RESOLVE JOHNSON DEVELOPMENT ASSOCIATES AND/OR THEIR SUCCESSORS AND/OR ASSIGNS OF FUTURE LIABILITY FOR IMPROPER DESIGN.

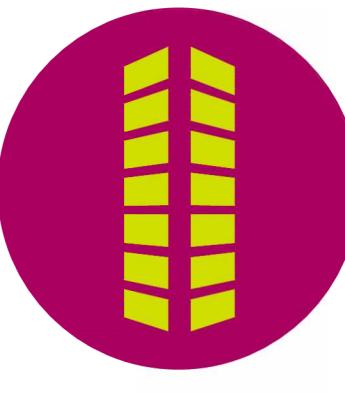
DEVELOPER/OWNER SIGNATURE: *Jacob Sherman* DATE: 11/10/2023
NAME OF DEVELOPER/OWNER: JSF Constitution, LLC
DBA: JOHNSON DEVELOPMENT ASSOCIATES, INC. PHONE: 303-656-6387
TITLE: Development Associate EMAIL: JASherman@JohnsonDevelopment.net
ADDRESS: 100 Saint Paul Street, Suite 310, Denver, CO FAX:

CAUTION - NOTICE TO CONTRACTOR

- 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 DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- 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 POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



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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



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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

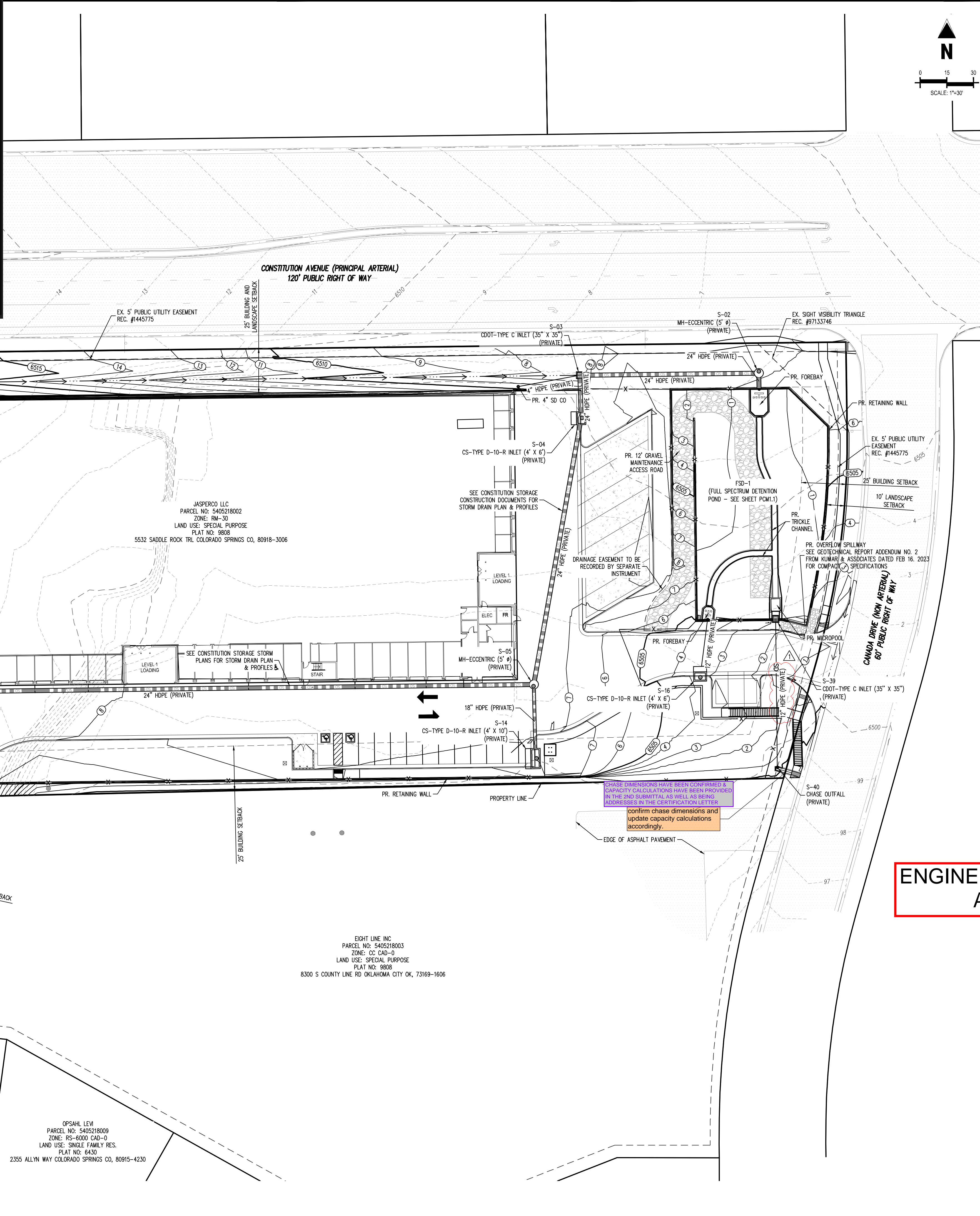
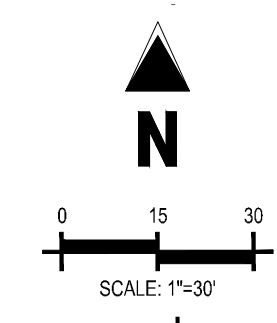
Project No: JDA02
Drawn By: ASA/MRK
Checked By: [Signature]
Date: 10/15/2024

OVERALL PCM PLAN

PCM1.0
Sheet 2 of 6

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



SWALE ELEVATIONS HAVE BEEN REVISED BY THE GENERAL CONTRACTOR (GG&C) & CURB CUT HAS BEEN INSTALLED.
confirm swale elevations and curb cut installation

CHASE DIMENSIONS HAVE BEEN CONFIRMED & CAPACITY CALCULATIONS HAVE BEEN PROVIDED IN THE 2ND SUBMITTAL, AS WELL AS BEING ADDRESSED IN THE CERTIFICATION LETTER.
confirm chase dimensions and update capacity calculations accordingly.

**ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS**

BASIS OF BEARINGS
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BENCHMARK
COLORADO SPRINGS UTILITIES FACILITIES INFORMATION MANAGEMENT SYSTEM (FIMS) BENCHMARK SHOT BEING A 2" ALUMINUM CAP STAMPED "CSU FIMS CONTROL SHOT" 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

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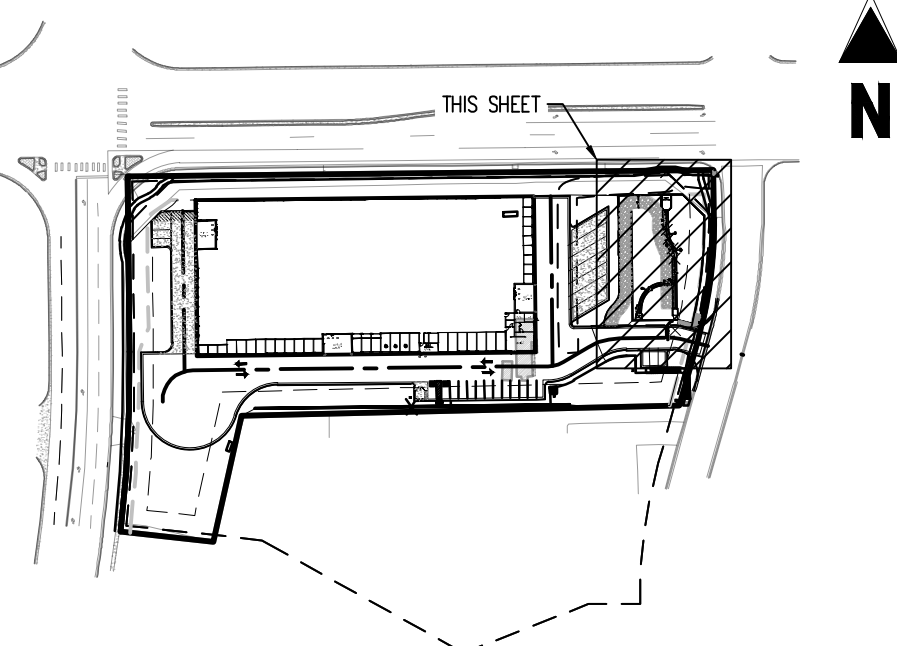


PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE
JOHNSON DEVELOPMENT ASSOCIATES
2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

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

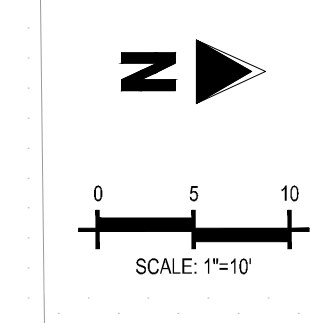
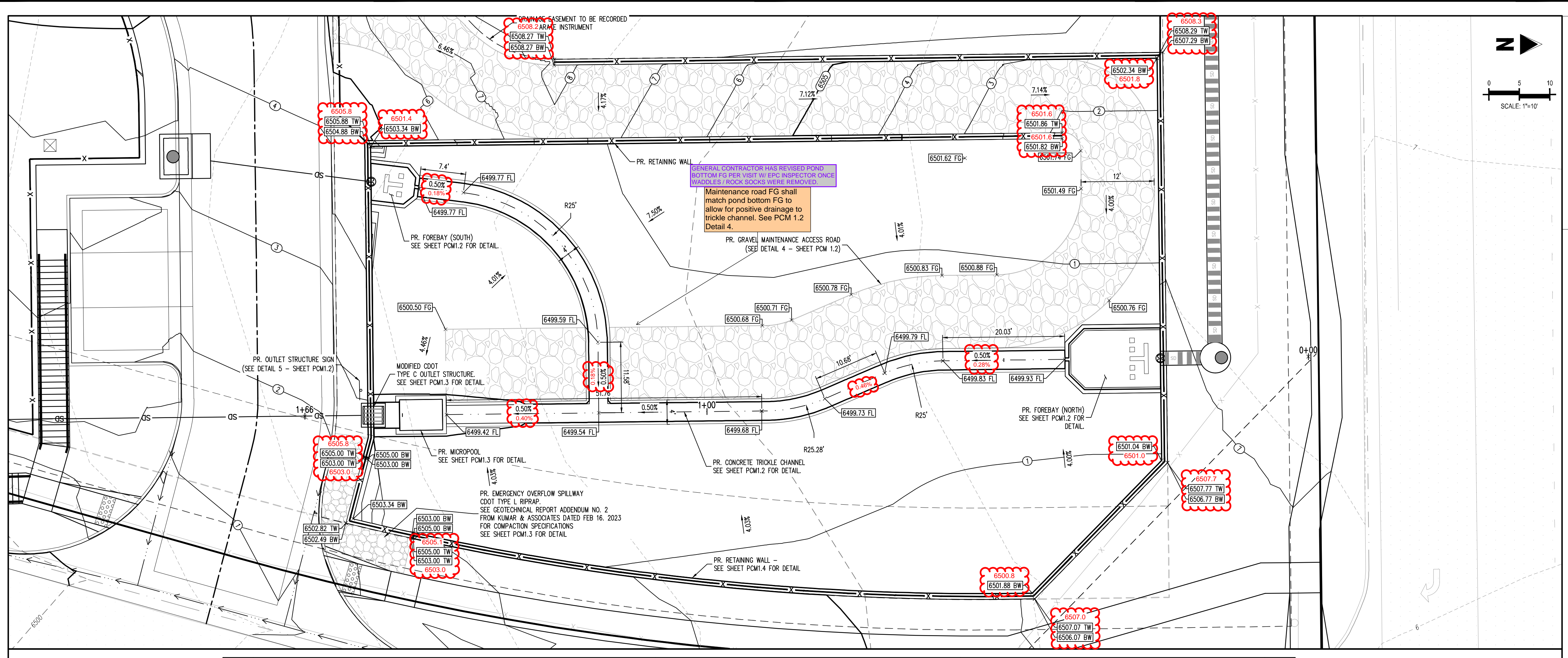
Project No: JDA02
Drawn By: ASA/MLK
Checked By: BAS
Date: 10/15/2024

POND PLAN

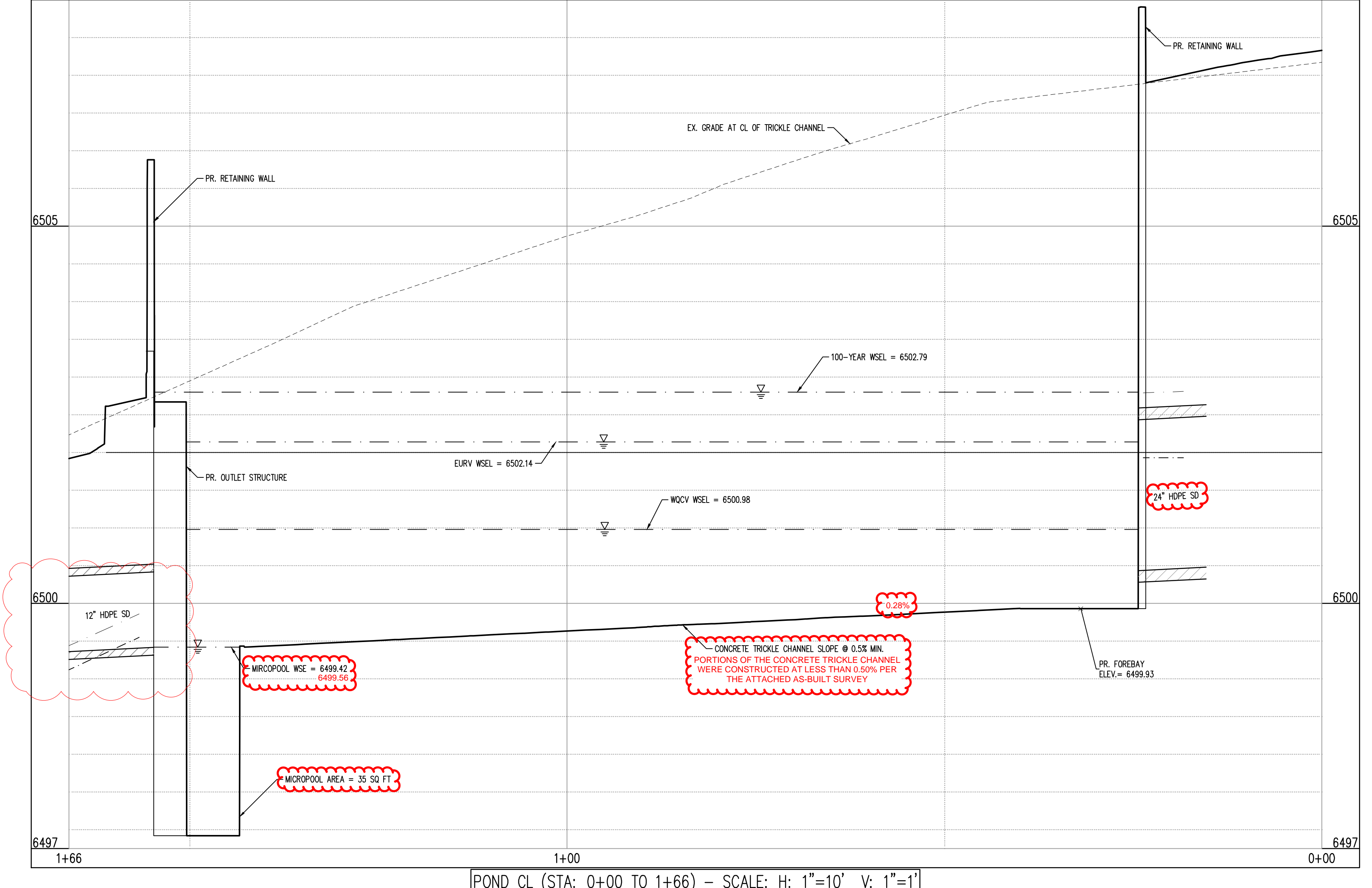


LEGEND

---	PROPERTY LINE
- - - -	PROPOSED EASEMENT
---	EXISTING EASEMENT
---(S)---	PROPOSED MAJOR CONTOUR
---(M)---	PROPOSED MINOR CONTOUR
---(X)---	EXISTING MAJOR CONTOUR
---(x)---	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
---	EXISTING STORM PIPE
---	EXISTING 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



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:

- REFER TO CONSTITUTION STORAGE PRIVATE IMPROVEMENT PLANS FOR ALL STORM PIPE, INLET, MANHOLE AND APPURTENANCE INFORMATION.
- 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.
- ALL STORMWATER FACILITIES SHOWN ON THESE PLANS ARE ASSUMED PRIVATE UNLESS OTHERWISE NOTED.
- WALLS EXCEEDING 4' (MEASURED FROM BOTTOM OF FOOTING TO TOP OF WALL) MAY REQUIRE A BUILDING PERMIT.
- EXISTING VEGETATION CONSISTS OF NATURAL GRASSES AND SHRUBS.
- SOILS WITHIN THE SITE ARE TRUCKTON SANDY LOAM.
- BOTTOM OF POND TO HAVE A MINIMUM SLOPE OF 3% TO THE TRICKLE CHANNEL AND MICROPOOL.

BASIS OF BEARINGS

BASIS OF BEARINGS: 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.

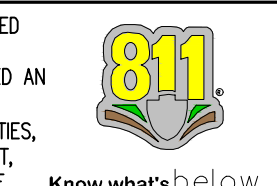
BENCHMARK

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.

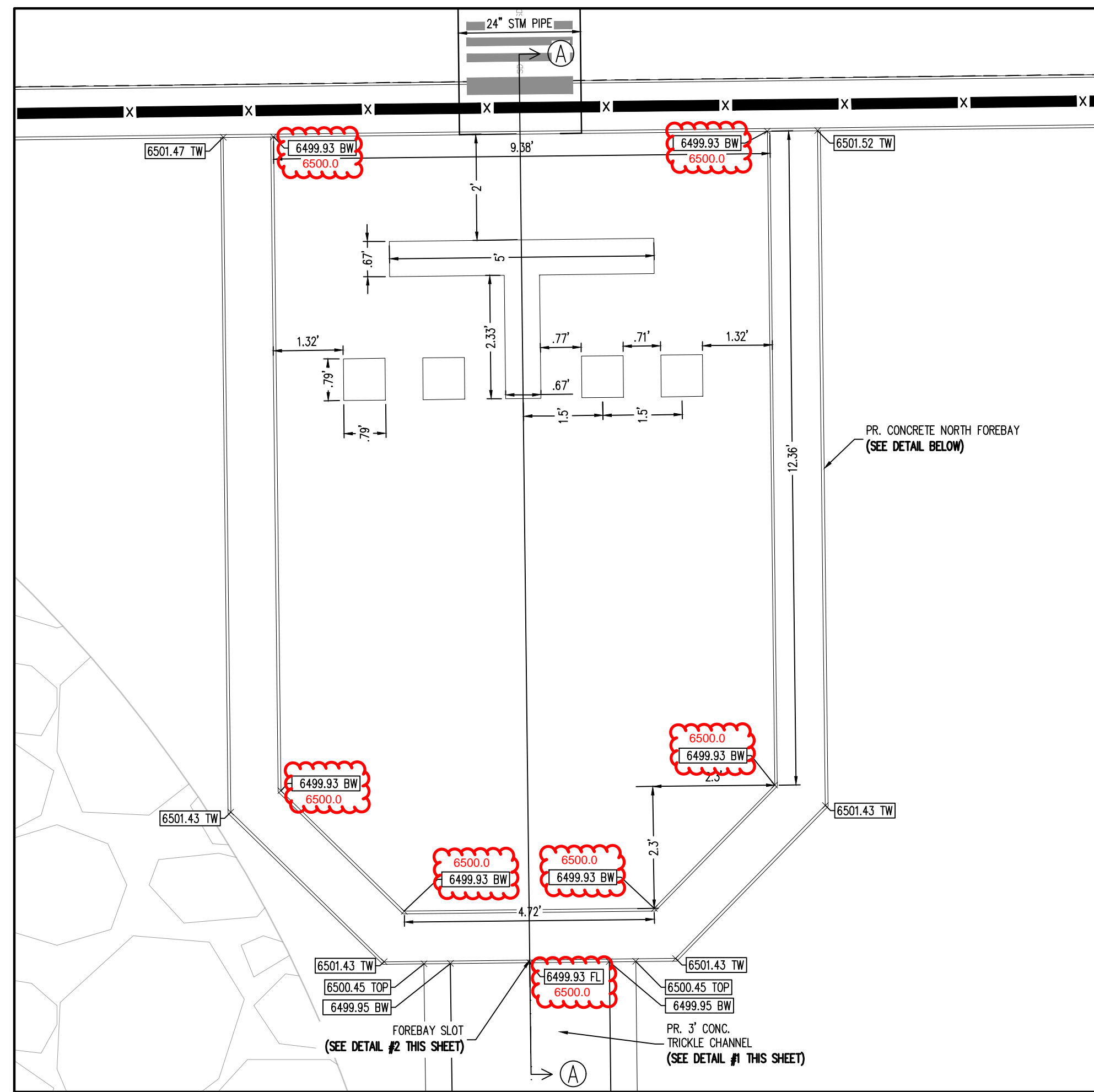
FIMS DATUM ELEVATION = 6534.61

CAUTION - NOTICE TO CONTRACTOR

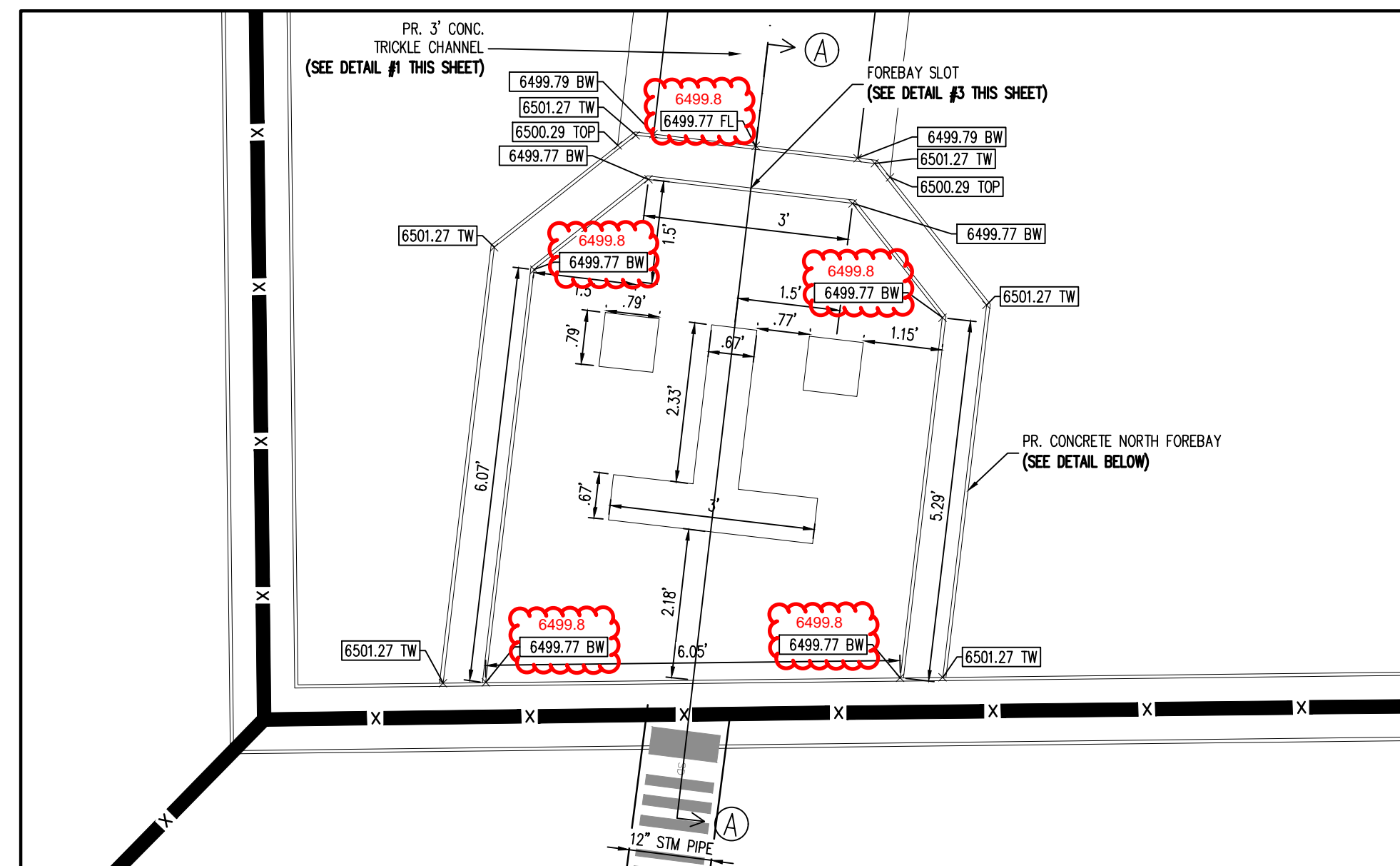
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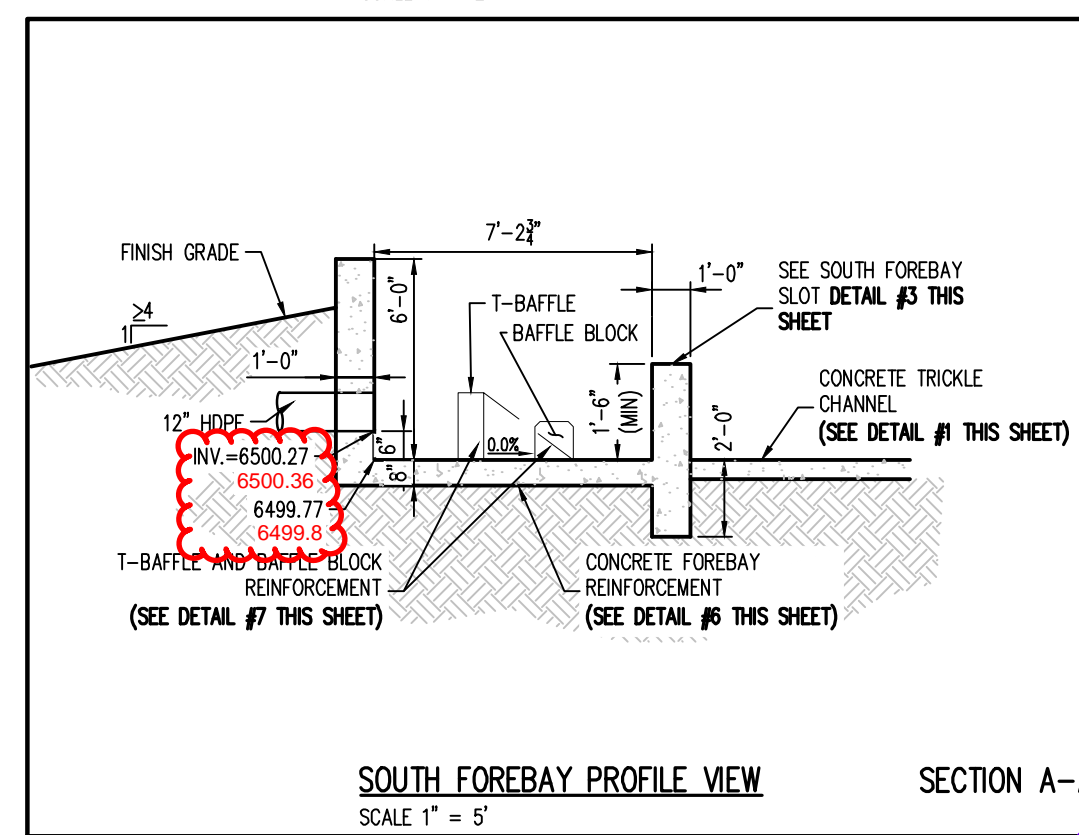
2. WHERE A PROPOSED UTILITY CROSSES AN EXISTING UTILITY, IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF SUCH EXISTING UTILITY, EITHER THROUGH POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.



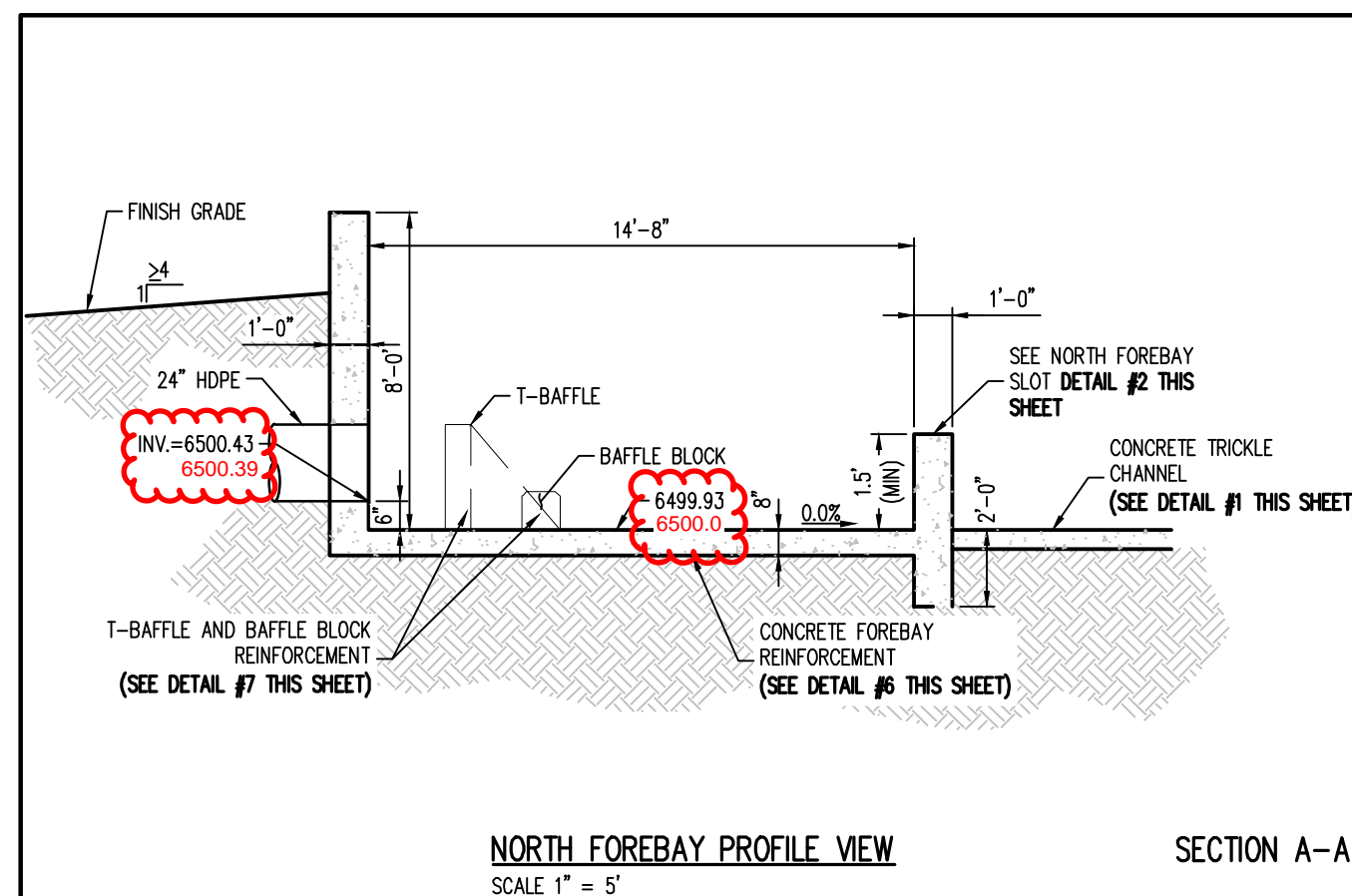
NORTH FOREBAY GRADING PLAN
SCALE 1" = 2'



SOUTH FOREBAY GRADING PLAN
SCALE 1" = 2'



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



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

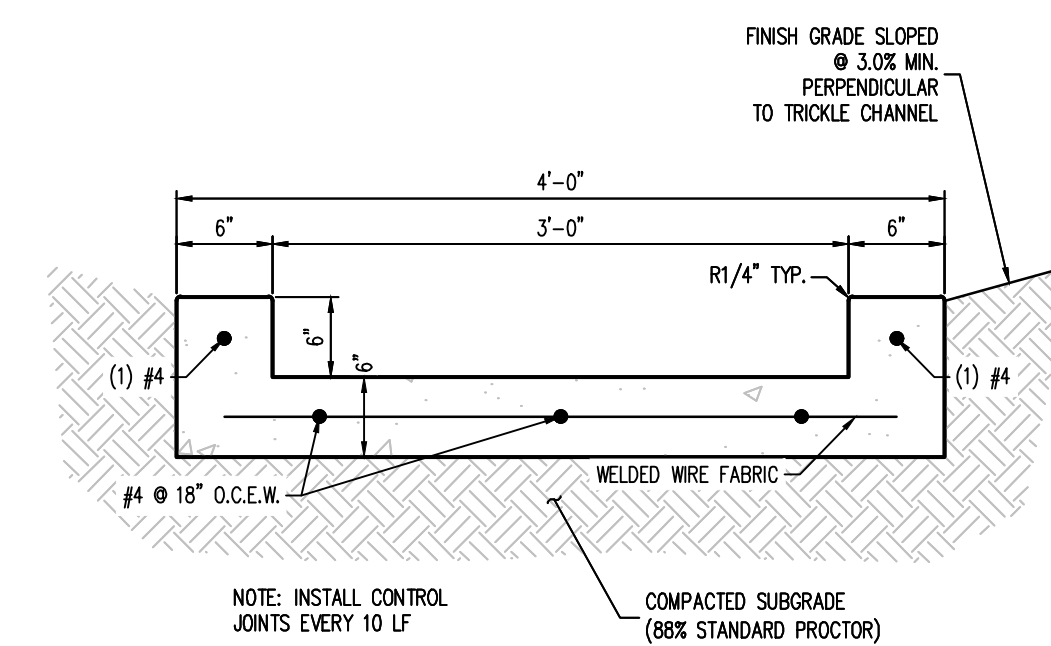
ENGINEERING RECORD DRAWINGS AS-BUILT DRAWINGS



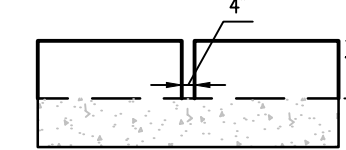
SOUTH FOREBAY SLOT SIZING APPEARS TO MEET DESIGN (1.7' DESIGN vs. 3.75' AS-BUILT)

confirm forebay notch size and provide updated calculations

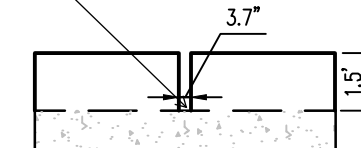
1 TRICKLE CHANNEL DETAIL
NOT TO SCALE



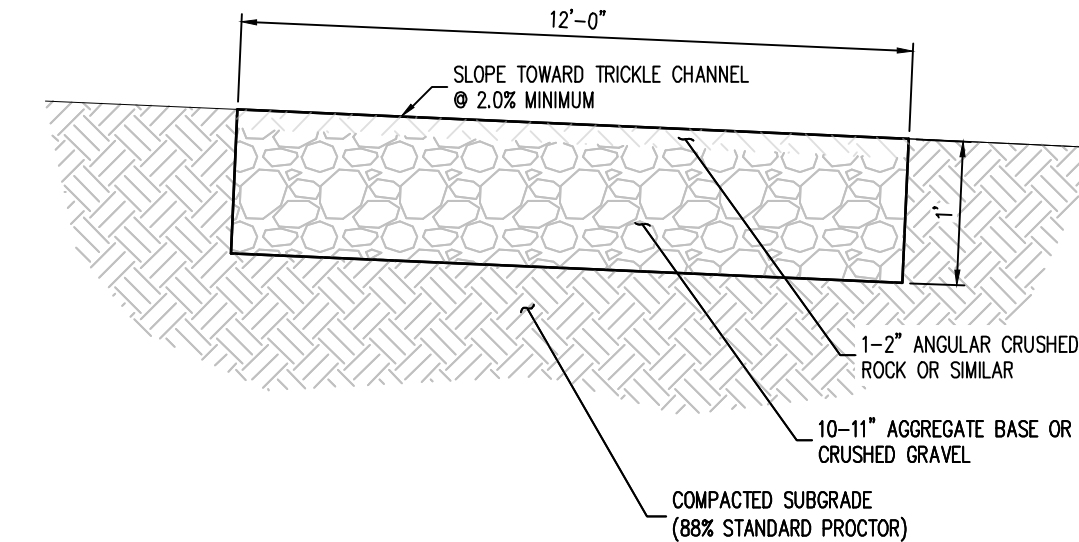
2 NORTH FOREBAY SLOT DETAIL
SCALE: 1"=5'



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



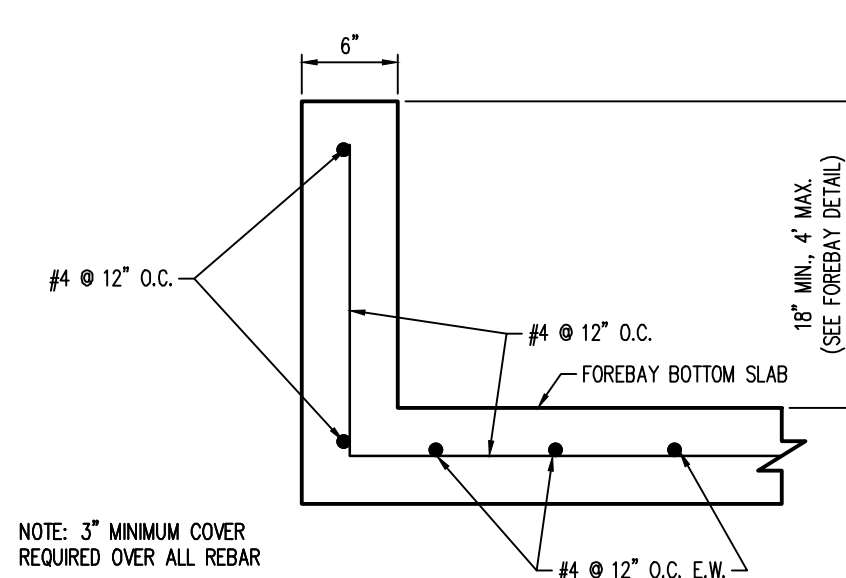
4 MAINTENANCE ACCESS DETAIL
NOT TO SCALE



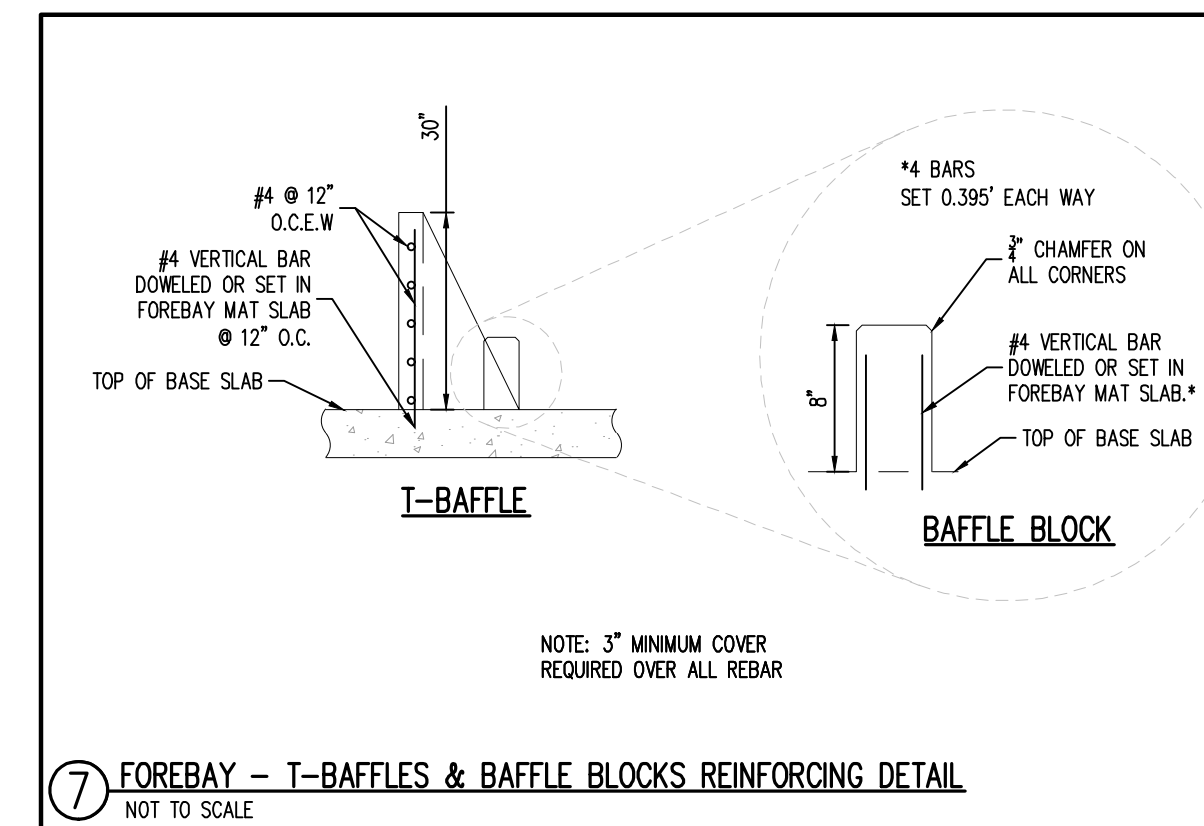
WARNING
UNAUTHORIZED MODIFICATION OF THIS OUTLET IS A KNOWING VIOLATION OF SECTION 309 OF THE CLEAN WATER ACT.
PUNISHMENT: FINE AND/OR IMPRISONMENT: 3-6 YEARS

- 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



6 FOREBAY REINFORCING DETAIL
NOT TO SCALE



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



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PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE

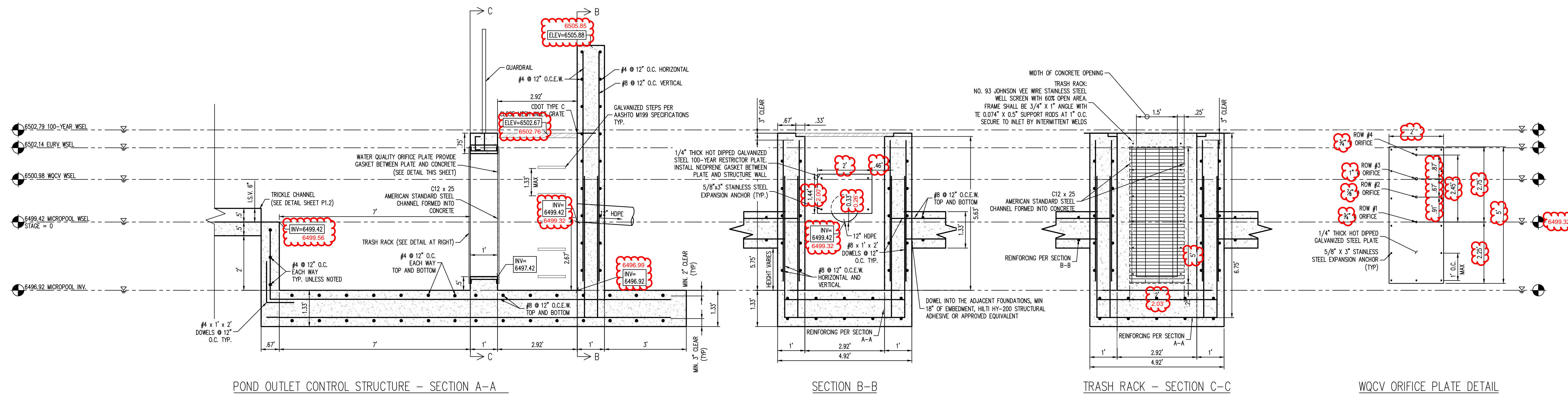
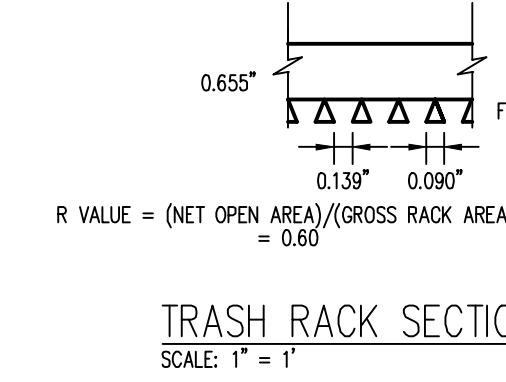
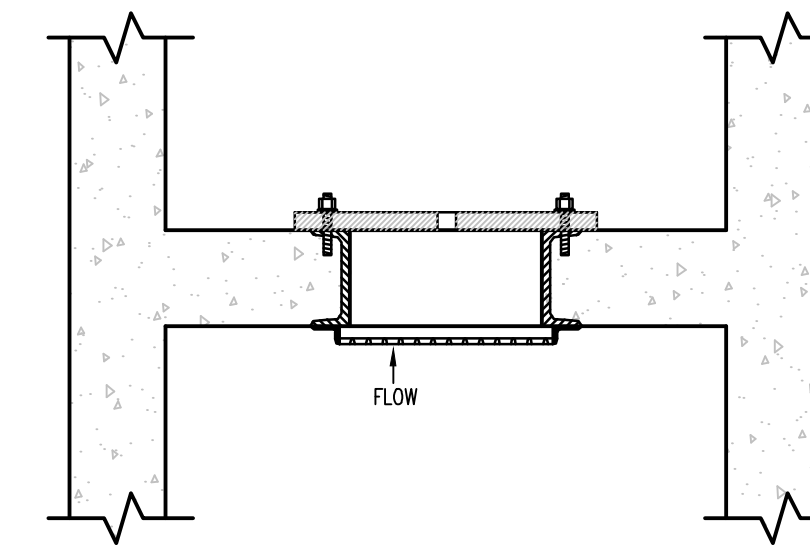
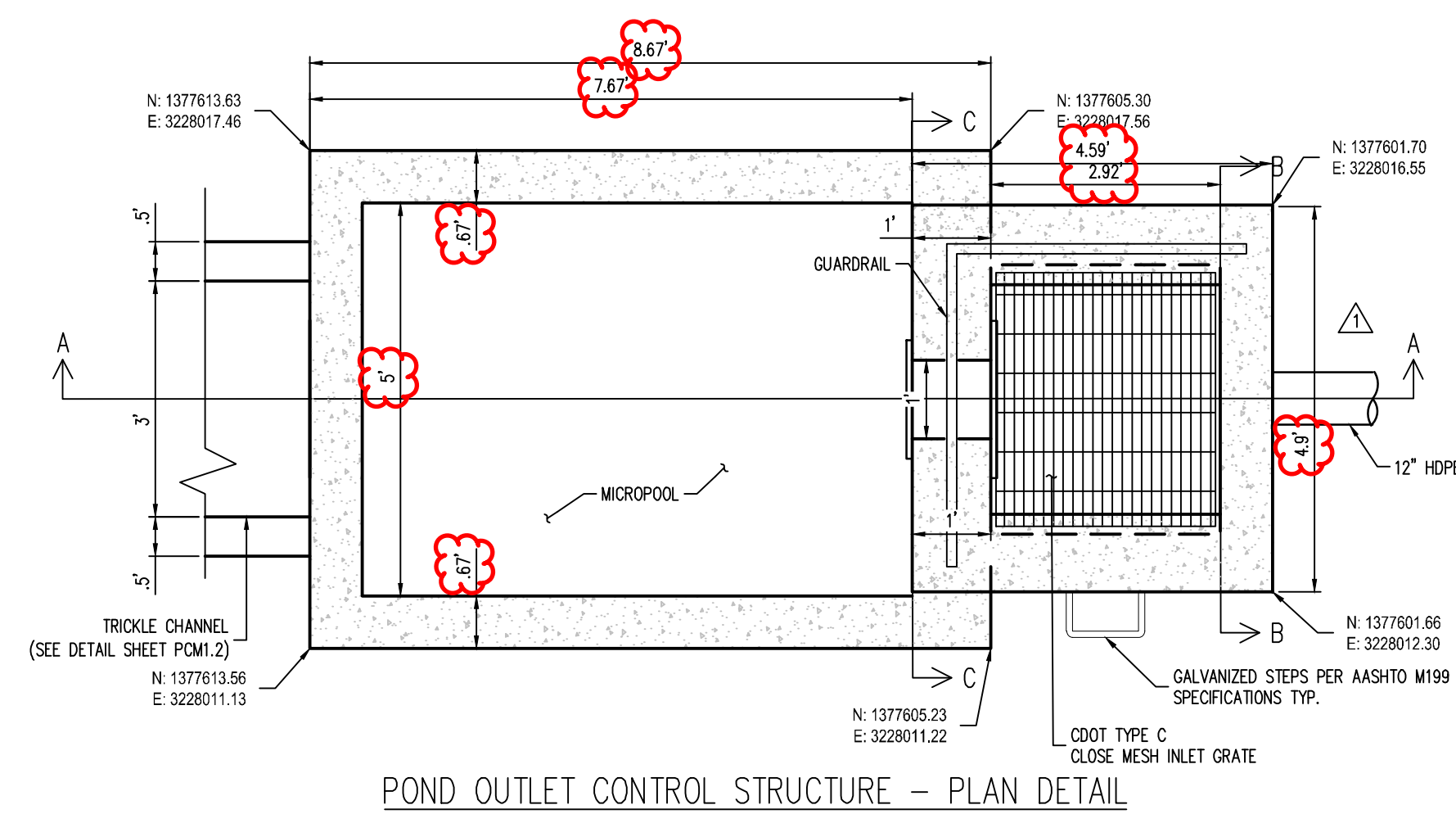
JOHNSON DEVELOPMENT ASSOCIATES

2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

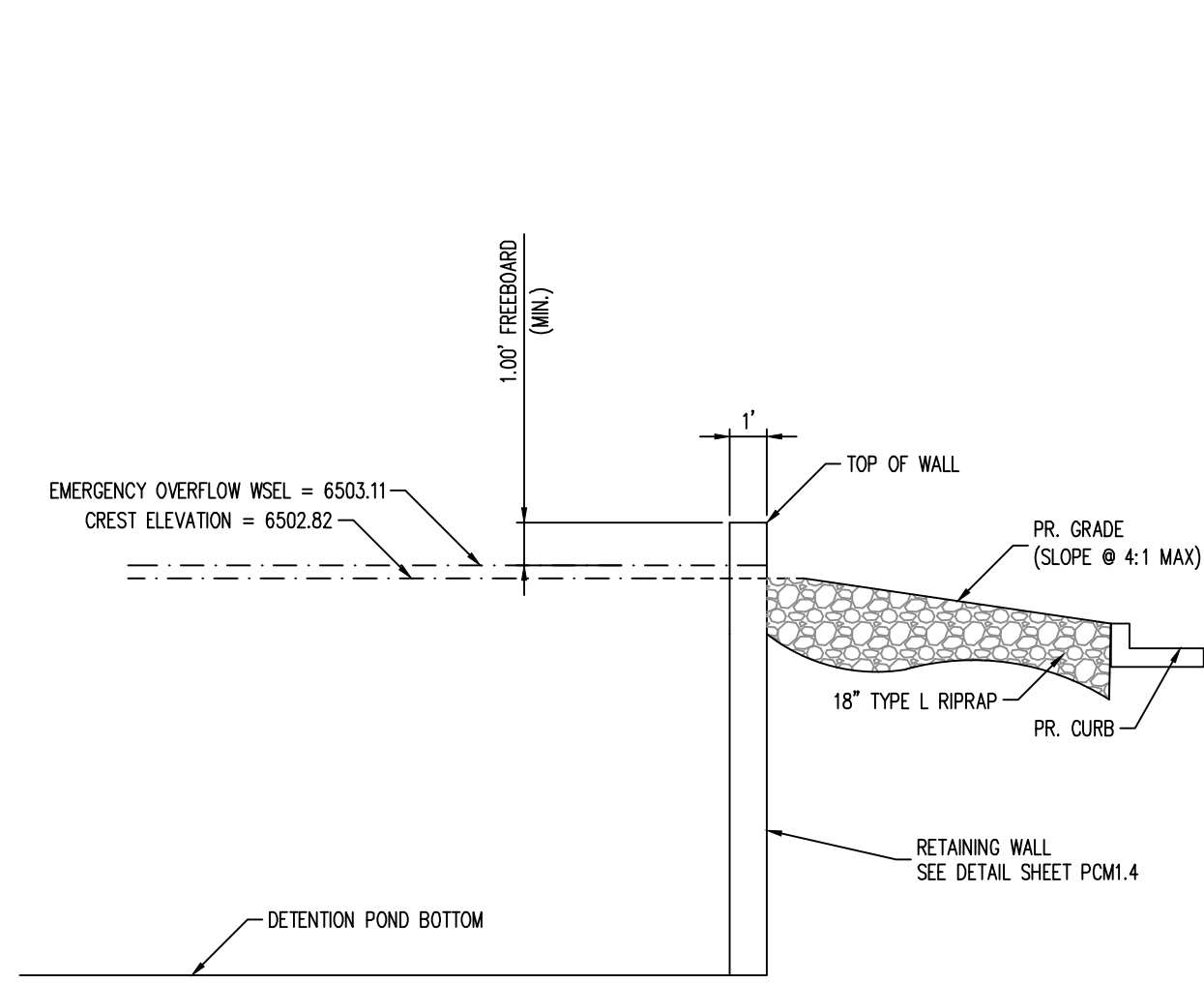
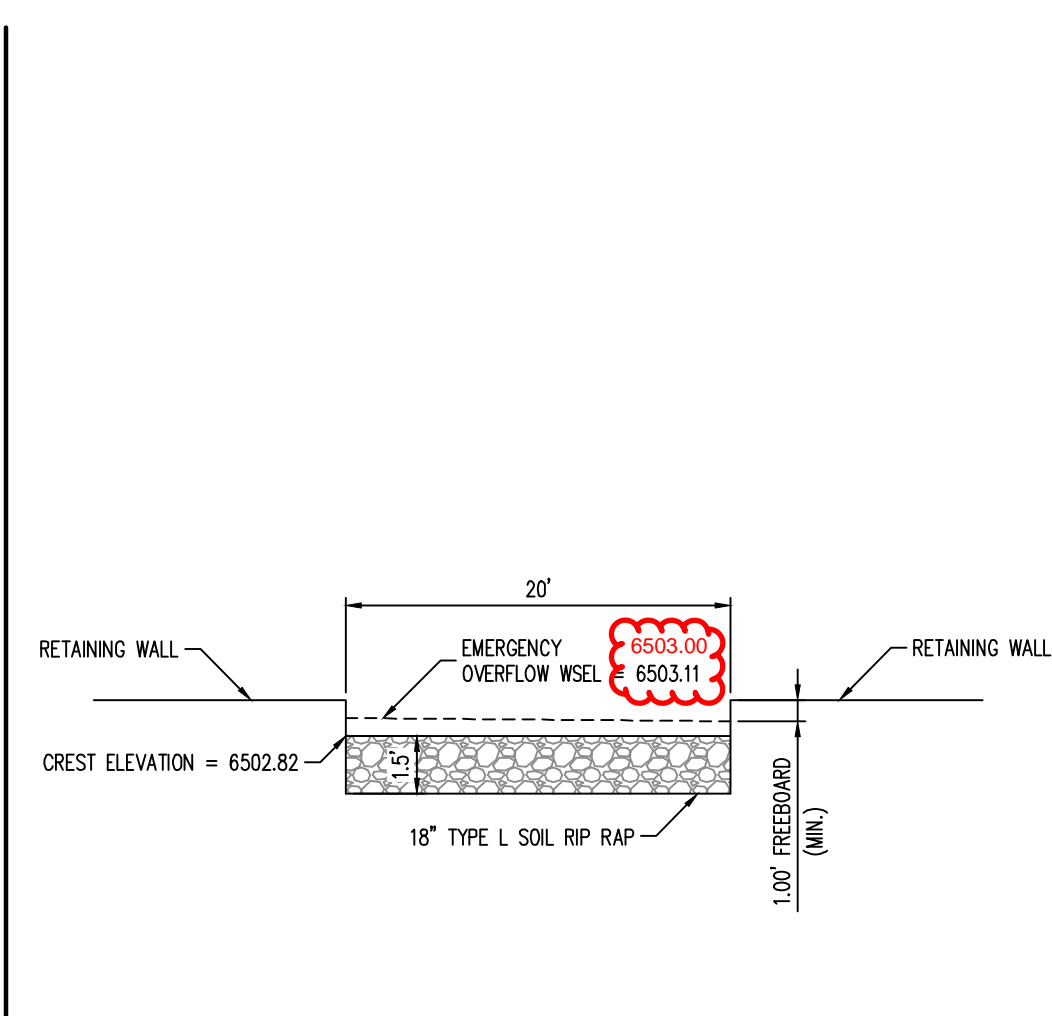
#	Date	Issue / Description	Init.
1	11/10/2023	GRADING & DRAINAGE UPDATES	JDM

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

FOREBAY DETAILS



1 POND OUTLET STRUCTURE
SCALE: 1" = 2'



**ENGINEERING RECORD DRAWINGS
AS-BUILT DRAWINGS**



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ENFORCED AND PROSECUTED.



**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**

ENGINEERING RECORD DRAWINGS AS-BUILT DRAWINGS



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PRIVATE PERMANENT CONTROL MEASURE PLAN
CONSTITUTION STORAGE

JOHNSON DEVELOPMENT ASSOCIATES

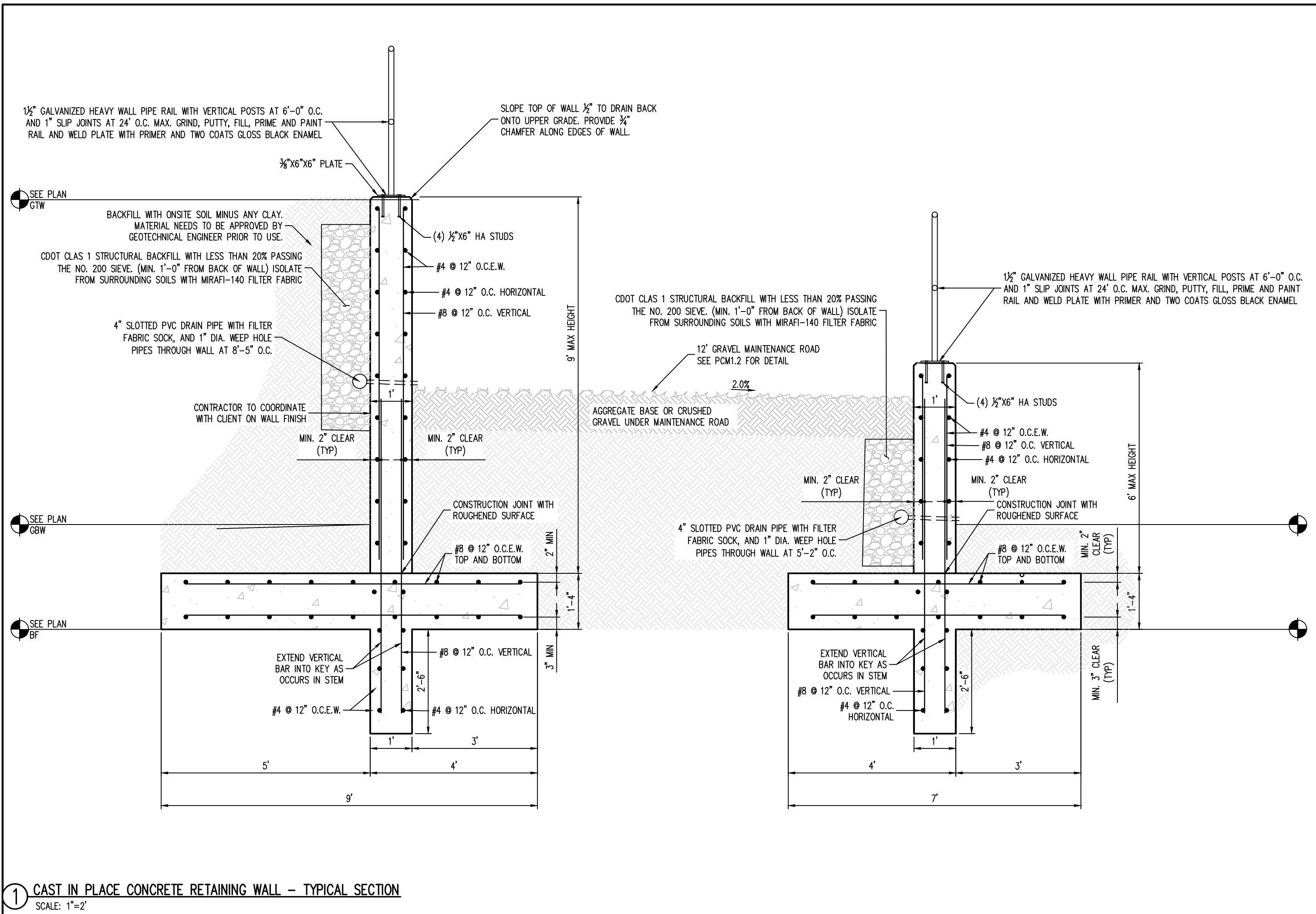
2460 CANADA DRIVE
COLORADO SPRINGS, CO 80915

#	Date	Issue / Description	Init.
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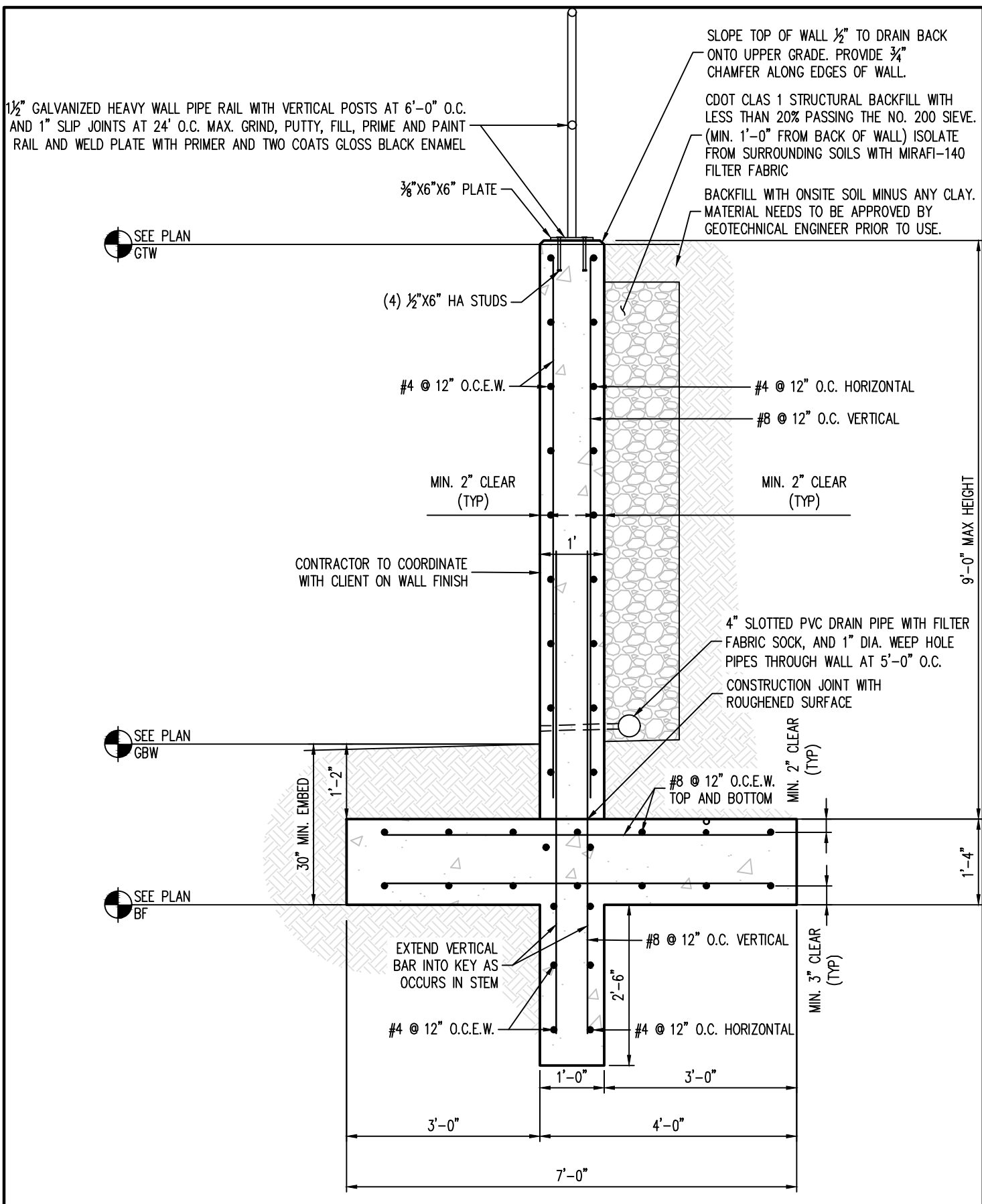
Project No: JDA02
Drawn By: ASA/MRK
Checked By: BAS
Date: 10/15/2024

RETAINING WALL DETAILS

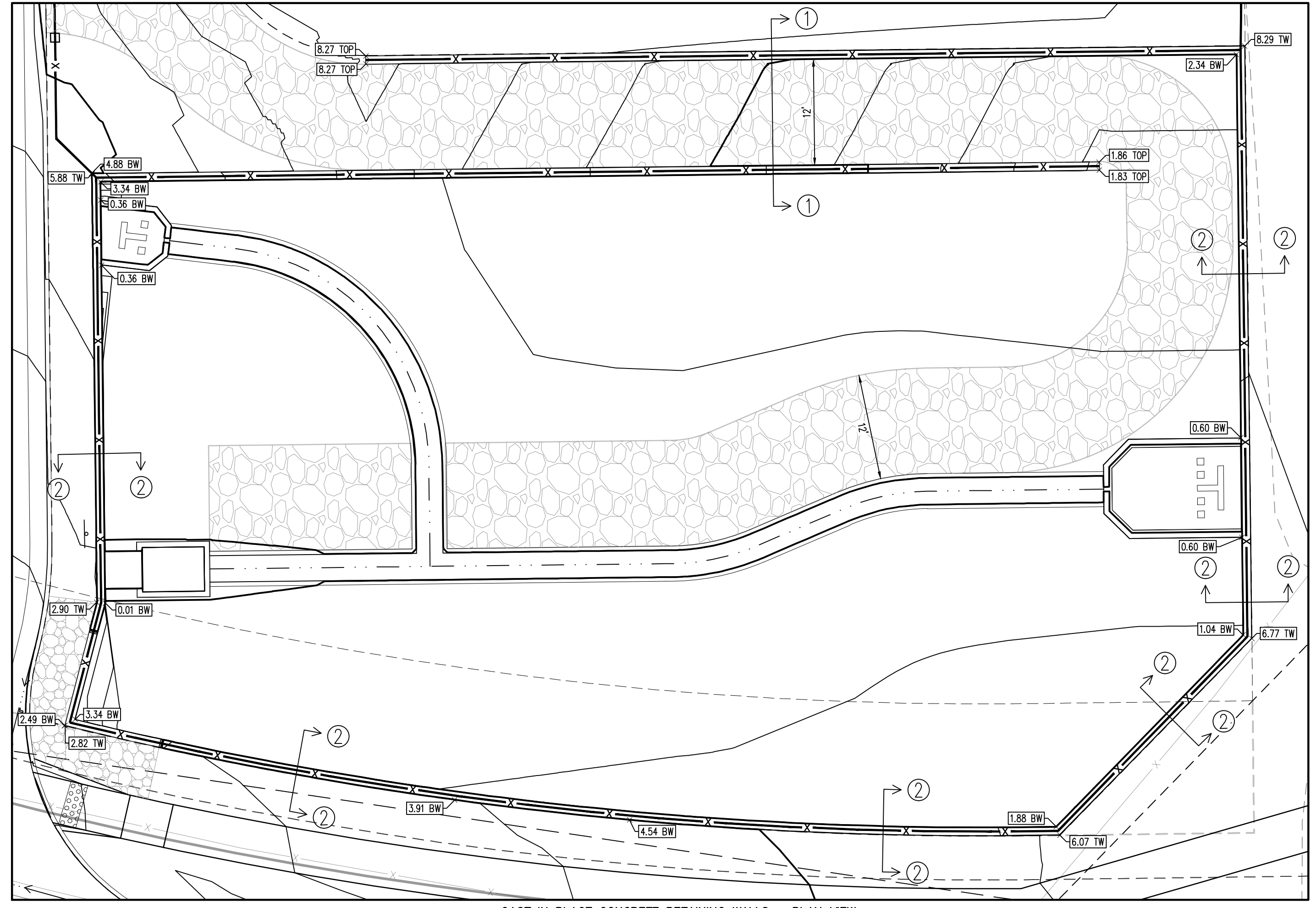
PCM1.4



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



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



CAST IN PLACE CONCRETE RETAINING WALLS - PLAN VIEW

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

SOILS	DESCRIPTION OF SPECIAL INSPECTION	PERIODIC		CONTINUOUS
		EXCAVATION	FOUNDATIONS	
SOILS	FOOTING SOIL BEARING SURFACES	X	X	
	EXCAVATION DEPTH AND BEARING LAYER	X	X	
	COMPACTED FILL MATERIAL - PHYSICAL PROPERTIES	X	X	
	SUBGRADE PREPARATION PRIOR TO BACKFILL	X	X	
	BACKFILLING OPERATIONS IN ACCORDANCE WITH GEOTECHNICAL REPORT RECOMMENDATIONS INCLUDING LEFT 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.

REPORT NO.	REPORT DATE
REPORT - 21-2-272	FEBRUARY 3, 2022
ADDENDUM - 21-1-272	MARCH 22, 2022
ADDENDUM - 21-2-272.A	FEBRUARY 16, 2023

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

NOTE: PER GEOTECHNICAL ADDENDUM 21-2-272.A IT IS REQUIRED THAT CARE 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:

- ACI 301-10 "SPECIFICATIONS FOR STRUCTURAL CONCRETE"
- ACI 308.1-10 "SPECIFICATIONS FOR HOT WEATHER CONCRETING"
- ACI 308.1-10 "SPECIFICATION FOR COLD WEATHER CONCRETING"
- ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
- 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/C RATIO	AIR CONTENT (%) (+/-1.5%)	SLUMP, MAX. (IN.)
SPREAD FOOTING	4500	28	1	F2/SO/WO/C1	0.45	6.0	4
FOUNDATION WALLS	3500	28	1	F1/SO/WO/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:	CONCRETE CAST AGAINST EARTH	CONCRETE EXPOSED TO EARTH OR WEATHER
CONFORM TO THE FOLLOWING COVER REQUIREMENTS UNLESS NOTED OTHERWISE IN THE DRAWINGS:	3"	2"
	TIES IN COLUMNS AND BEAMS	1-1/2"
	REINFORCEMENT BARS IN SLABS	3/4"
	REINFORCEMENT BARS IN WALLS	3/4"
	REINFORCEMENT BARS IN TILT-UP PANELS	1"

SPICES: CONFORM TO ACI 301 SECTION 3.3.2.7. "SPICES"; REFER TO "TYPICAL LAP SPICE AND DEVELOPMENT LENGTH SCHEDULE" FOR TYPICAL REINFORCEMENT SPICES.

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 SOUTHWEST 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

- 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 DISCREPANCIES TO THE ENGINEER PRIOR TO CONSTRUCTION.
- 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 POT-HOLING OR ALTERNATIVE METHOD. REPORT INFORMATION TO THE ENGINEER PRIOR TO CONSTRUCTION.

