OUTLET STRUCTURE #1

(N.T.S. - DIMENSIONS SHOWN REFLECT AS-BUILT CONDITION)

Elevation-Area-Storage Volume

Elev.	Vol yd3	Cum yd3	Volume ft3	Storm Year	Acre-ft
553.40	0.00	0.00	0.00		0
553.50	0.01	0.01	0.27		0
553.60	0.04	0.05	1.35		0
553.70	0.10	0.15	4.05		0
553.80	0.19	0.34	9.18		0
553.90	0.33	0.67	18.09		0
554.00	0.51	1.18	31.86		0
554.10	0.72	1.90	51.30		0.001
554.20	1.15	3.05	82.35		0.001
554.30	2.41	5.46	147.42		0.003
554.40	4.34	9.80	264.60		0.006
554.50	5.87	15.67	423.09		0.009
554.60	7.34	23.01	621.27		0.014
554.70	9.37	32.38	874.26		0.02
554.80	11.24	43.62	1177.74		0.027
554.90	12.39	56.01	1512.27		0.034
555.00	13.01	69.02	1863.54		0.042
555.10	13.43	82.45	2226.15		0.051
555.20	13.85	96.30	2600.10		0.059
555.30	14.26	110.56	2985.12		0.068
555.40	14.67	125.23	3381.21		0.077
555.50	15.10	140.33	3788.91		0.086
555.60	15.52	155.85	4207.95		0.096
555.70	15.94	171.79	4638.33		0.106
555.80	16.38	188.17	5080.59		0.116
555.90	16.81	204.98	5534.46		0.127
556.00	17.25	222.23	6000.21		0.137
556.10	17.70	239.93	6478.11		0.148
556.20	18.13	258.06	6967.62		0.159
556.30	18.59	276.65	7469.55		0.171
556.40	19.04	295.69	7983.63		0.183
556.50	19.49	315.18	8509.86	5-yr (8,709=556.54)	0.195
556.60	19.96	335.14	9048.78	10-yr (9,236=556.63)	0.207
556.70	20.42	355.56	9600.12		0.22
556.80	20.89	376.45	10164.15		0.233
556.90	21.35	397.80	10740.60		0.246
557.00	21.84	419.64	11330.28		0.26
557.10	22.32	441.96	11932.92	25-yr (11,969=557.11)	0.273
557.20	22.80	464.76	12548.52		0.288
557.30	23.30	488.06	13177.62	50-yr (13,277=557.32)	0.302
557.40	23.80	511.86	13820.22	100-yr (14,317=557.48)	0.317
557.50	24.30	536.16	14476.32		0.332

SWBC ROCKWALL PHASE II POND A-1 OUTLET STRUCTURE - AS-BUILT VERIFICATION

Year	Ex. Q (cfs)	Ult. Q (cfs)	Pond. Elev. (ft.)	Outlet Elev. (ft.)	Height (ft.)	Storage (c.f.)	Qout allow (cfs)	Qout actual (c.f.)
5	3.80	8.00	556.54	553.35	3.19	8,709	2.20	1.94
10	4.60	9.30	556.63	553.35	3.28	9,236	2.70	2.05
25	5.20	10.90	557.11	553.35	3.76	11,969	2.90	2.52
50	5.90	11.80	557.32	553.35	3.97	13,277	3.40	2.70
100	6.50	12.90	557.48	553.35	4.13	14,317	3.80	2.82

C = Orifice Coefficient	C =	0.61		
A = Area	A =	L * H		
r = Orifice Radius	r, low =	0.175 ft	r, hi =	0.2
hu = Upstream Head	A, low =	0.123 ft²	A, hi =	0.3
hd = Downstream Head	Qorif =	C * A * (2gh)^0.5		
hc = Centroid Head				
ha = Upstream Head over Centroid				
hz = Downstream Head over Centroid				
hn = Net Head over Centroid				
Cw = Weir Coefficient	Cw =	3.33		
L = Crest Length	L =	0.75		
H = Weir Head	Qweir = Cw * L * H^1.5			

5-YR Storm

low		hi					
hu =	3.19	hu =	0.64				
hd =	0.60	hd =	0.00				
hc =	0.18	hc =	0.20				
ha =	3.01	ha =	0.44				
hz =	0.43	hz =	0.00				
hn =	2.59	hn =	0.44	Qorif, low =	0.965		
H =	0.64			Qorif, hi =	0.974		
				Qtotal =	1.939	≤	2.20

10-YR Storm

low		hi					
hu =	3.28	hu =	0.73				
hd =	0.62	hd =	0.00				
hc =	0.18	hc =	0.20				
ha =	3.10	ha =	0.53				
hz =	0.45	hz =	0.00				
hn =	2.66	hn =	0.53	Qorif, low =	0.978		
H =	0.73			Qorif, hi =	1.069		
				Qtotal =	2.047	≤	2.70

25-YR Storm

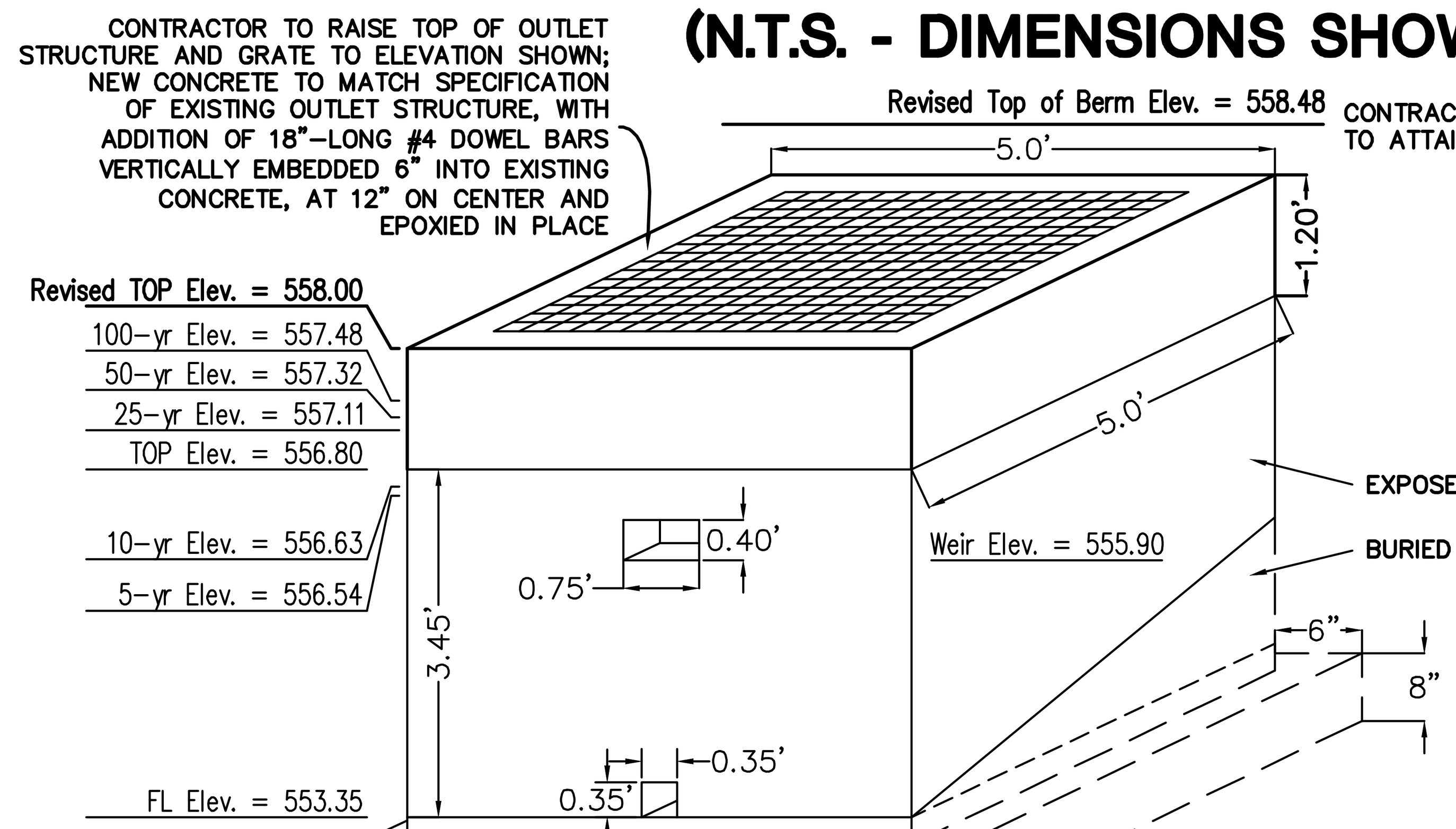
low		hi					
hu =	3.76	hu =	1.21				
hd =	0.71	hd =	0.00				
hc =	0.18	hc =	0.20				
ha =	3.58	ha =	1.01				
hz =	0.53	hz =	0.00				
hn =	3.05	hn =	1.01	Qorif, low =	1.047		
H =	1.21			Qorif, hi =	1.476		
				Qtotal =	2.523	≤	2.90

50-YR Storm

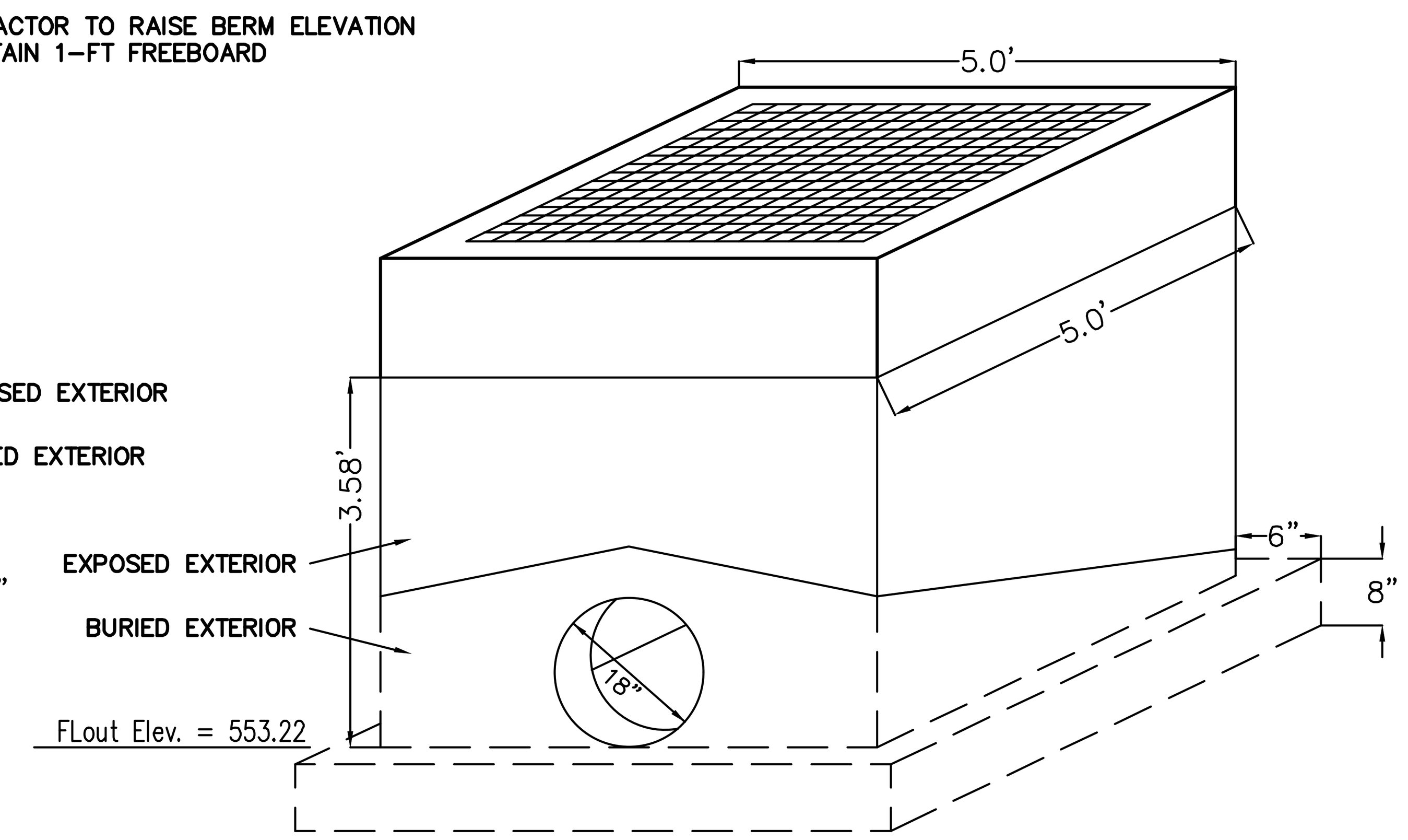
low		hi					
hu =	3.97	hu =	1.42				
hd =	0.75	hd =	0.00				
hc =	0.18	hc =	0.20				
ha =	3.80	ha =	1.22				
hz =	0.58	hz =	0.00				
hn =	3.22	hn =	1.22	Qorif, low =	1.076		
H =	1.42			Qorif, hi =	1.622		
				Qtotal =	2.698	≤	3.40

100-YR Storm

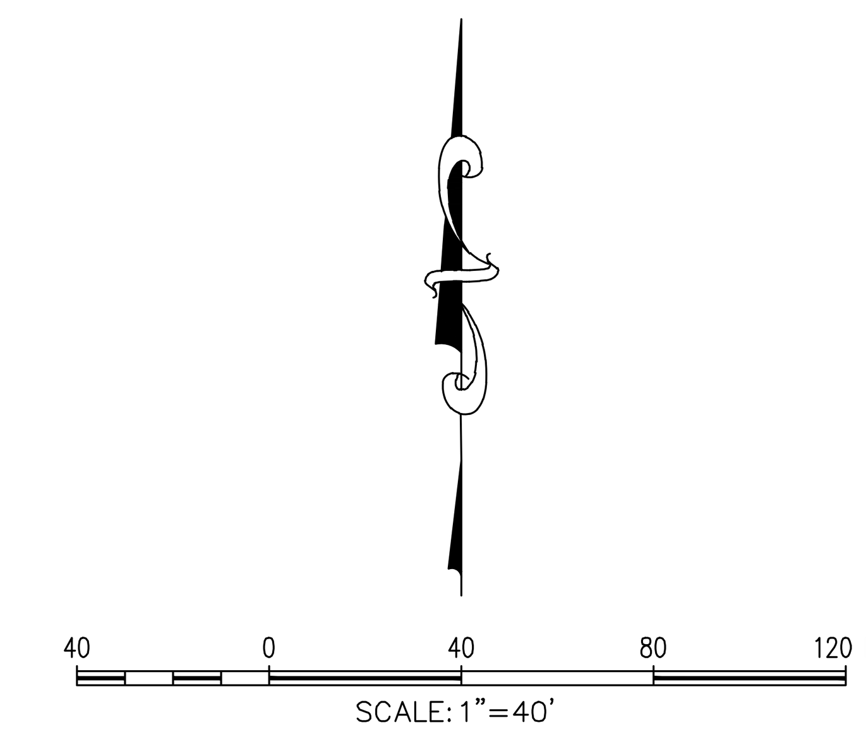
low		hi					
hu =	4.13	hu =	1.58				
hd =	0.77	hd =	0.00				
hc =	0.18	hc =	0.20				
ha =	3.96	ha =	1.38				
hz =	0.59	hz =	0.00				
hn =	3.36	hn =	1.38	Qorif, low =	1.099		
H =	1.58			Qorif, hi =	1.725		
				Qtotal =	2.824	≤	3.80



FRONT



BACK



TBM: "X" CUT ON CURB INLET ALONG NORTHSIDE OF DISCOVERY BLVD. APPROXIMATELY 85' WEST OF THE SOUTHWEST CORNER OF SUBJECT PROPERTY LINE. ELEV.= 564.92

BM: CITY OF ROCKWALL CONTROL MONUMENT " N1495". CALLED ELEV.= 566.71. MEASURED ELEV. = 566.83

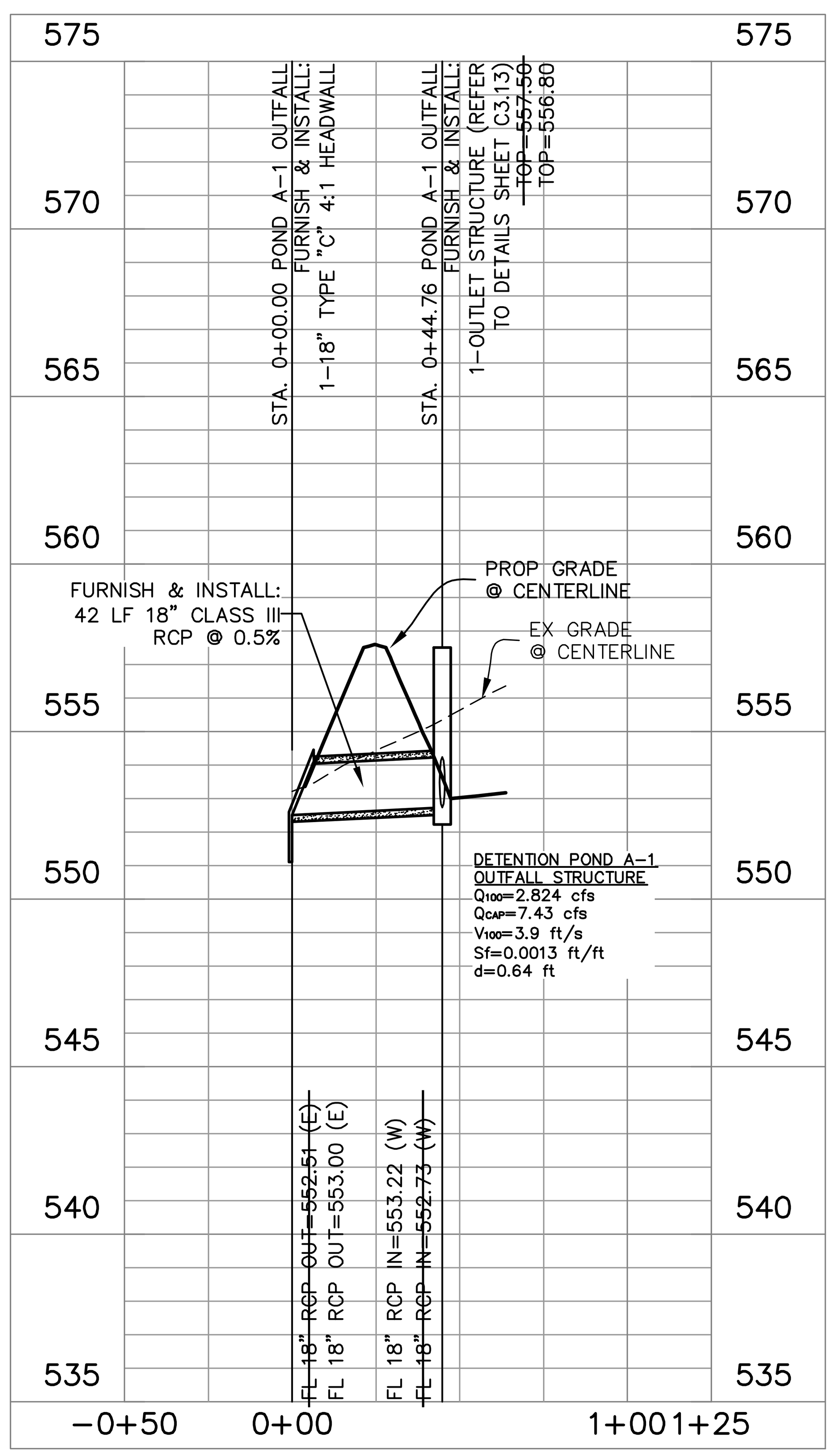
NOTE:
Detention Outlet Structure to be 6" thick, 3600 psi concrete with #4 bars @ 12" O.C.E.W. for all faces.

Top of structure to be fitted with grate.

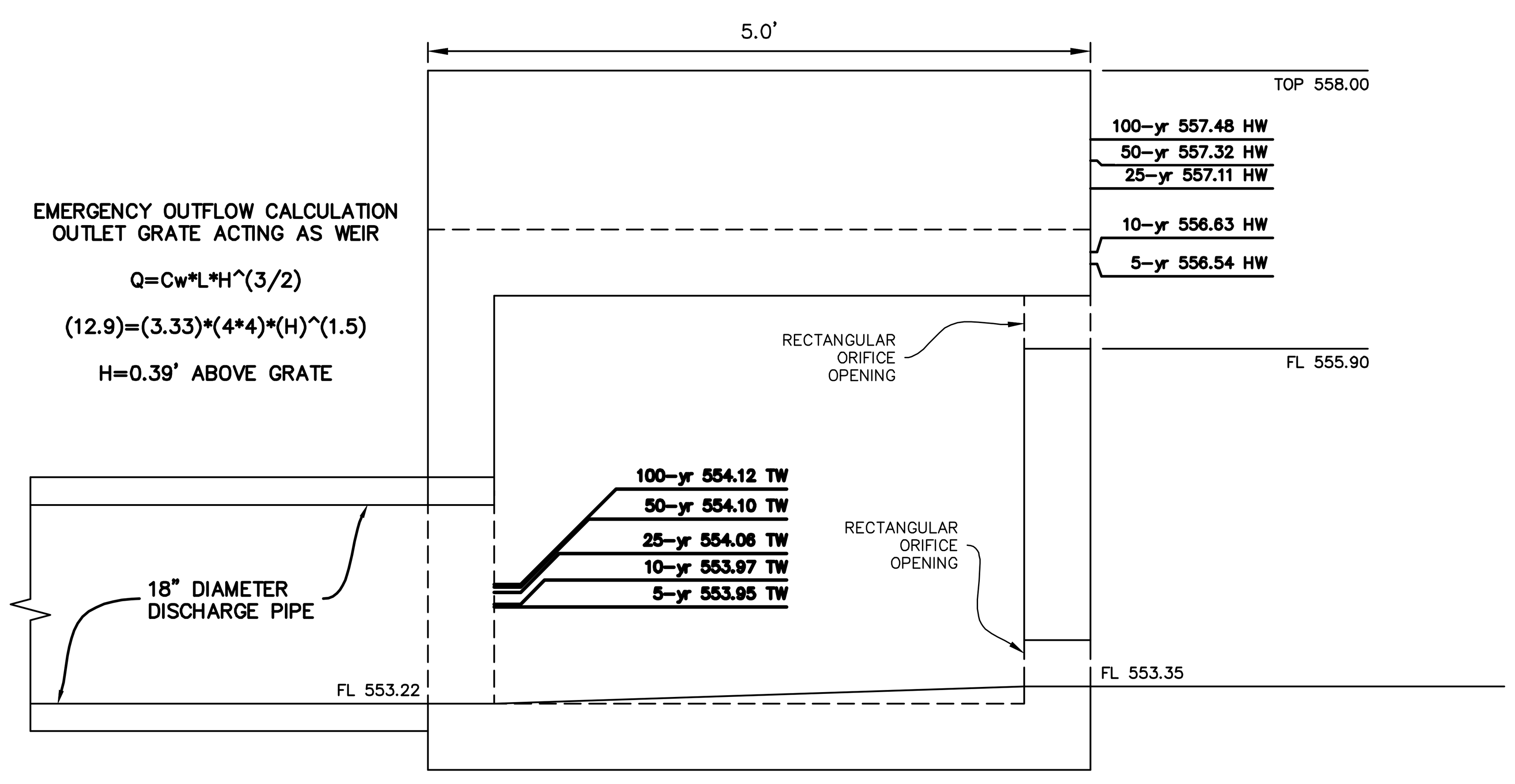
Bottom to be 8" thick.

Contractor to grout the bottom of the Outlet Structure, from the Flow Line into box from the Detention Pond to the Flow Line out of the box into the connected RCP

GRADING NOTE:
Fill for raising the top of berm elevation shall not be taken from within the Detention Pond limits



STORM SEWER POND A-1 OUTFALL



OUTLET STRUCTURE PROFILE

N.T.S.

AS-BUILT RECORD DRAWING

THE INFORMATION ON THESE PLANS HAS BEEN REVISED TO REFLECT CHANGES TO PUBLIC IMPROVEMENTS MADE DURING CONSTRUCTION. UNLESS OTHERWISE NOTED, THE CONSTRUCTION OF THE PUBLIC IMPROVEMENTS IS IN GENERAL CONFORMANCE WITH THESE PLANS, BASED UPON INFORMATION PROVIDED BY THE CONTRACTOR AND FIELD VERIFICATIONS. THE RESPONSIBILITY FOR ACCURACY AND COMPLETENESS BELONGS TO THE CONTRACTOR.

Matthew G. St. Marie
THE JOHN R MCADAMS COMPANY, INC.
Date: 09/25/2023

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LICENSED PROFESSIONAL ENGINEER

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MCADAMS

SWBC ROCKWALL PHASE II

SWBC ROCKWALL PHASE II
Lot 1, Block A
SWBC ROCKWALL ADDITION, PHASE II
21.275 Acres
in the
J.M. ALLEN SURVEY, ABSTRACT NO. NO. 2
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

DETENTION POND A-1
OUTFALL CALCULATIONS

MCADAMS
TBPE: 19762

Drawn By: CMK
Date: 12/30/2020
Scale: H 1"=40'; V 1"=4'
Revisions:
02/11/2021
03/11/2021
05/07/2021
07/12/2021
A 09/25/2023 – AS-BUILTS

WBC20000

C3.13