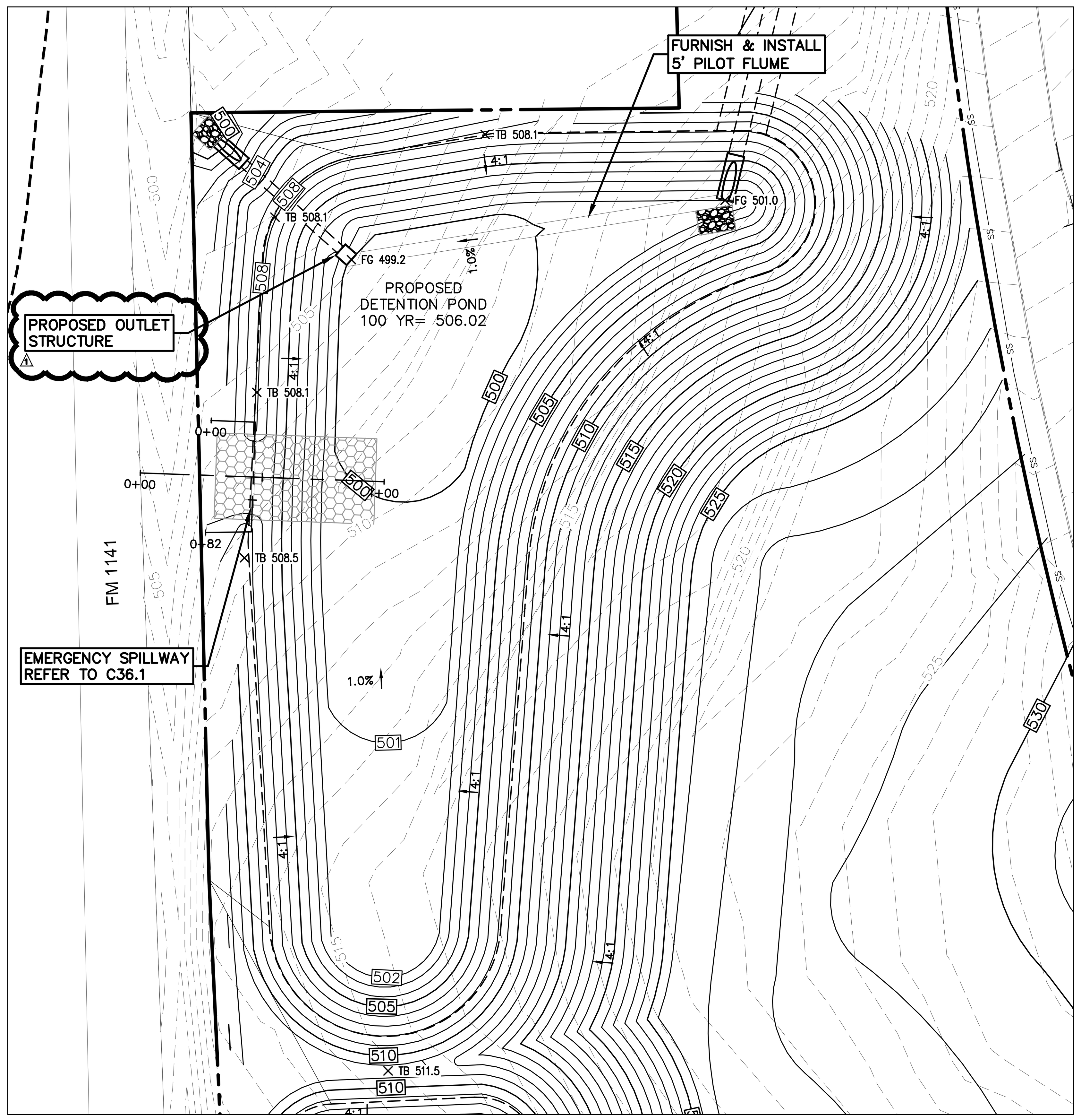


NORTH REGIONAL DETENTION POND

Detention Computations for 5 yr Proposed Development								
City of Rockwall								
		Undeveloped		Developed			Bypass	
Area	A=	14.320	AC	13.120	AC		2.780	
Runoff Coeficient	C=	0.35		0.80			0.80	
Time of Concentration	Tc=	20.0	MIN	10.0	MIN		10.0	
Rainfall Intensity	I5=	4.90	IN/HR	6.10	IN/HR		6.10	
Peak Rate of Runoff	Q5=	24.6	CFS	64.0	CFS		13.6	
Allowable Outflow	Q5=			11.0	CFS			
Tc	**I5**	**Q5**	**Inflow**	**Outflow**	**Storage**		**Required**	
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT	
5	7.00	73.5	22,042	4,947	17,095	0.392		
10	6.10	64.0	38,415	6,595	31,820	0.730		
15	5.50	57.7	51,955	8,244	43,711	1.003		
20	4.90	51.4	61,716	9,893	51,823	1.190		
30	4.10	43.0	77,460	13,191	64,270	1.475		
40	3.40	35.7	85,647	16,489	69,159	1.588		
50	2.80	29.4	88,166	19,786	68,380	1.570		
60	2.60	27.3	98,243	23,084	75,159	1.725		
90	2.10	22.0	119,025	32,977	86,047	1.975	1.975	
100	1.90	19.9	119,654	36,275	83,379	1.914		
110	1.80	18.9	124,692	39,573	85,120	1.954		
120	1.60	16.8	120,914	42,870	78,044	1.792		

Detention Computations for 10 yr Proposed Development								
City of Rockwall								
		Undeveloped		Developed			Bypass	
Area	A=	14.320	AC	13.120	AC		2.780	
Runoff Coeficient	C=	0.35		0.80			0.80	
Time of Concentration	Tc=	20.0	MIN	10.0	MIN		10.0	
Rainfall Intensity	I10=	5.90	IN/HR	7.10	IN/HR		7.10	
Peak Rate of Runoff	Q10=	29.6	CFS	74.5	CFS		15.8	
Allowable Outflow	Q10=			13.8	CFS			
Tc	**I10**	**Q10**	**Inflow**	**Outflow**	**Storage**		**Required**	
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT	
5	8.30	87.1	26,135	6,201	19,934	0.458		
10	7.10	74.5	44,713	8,268	36,445	0.837		
15	6.50	68.2	61,402	10,335	51,066	1.172		
20	5.90	61.9	74,312	12,402	61,909	1.421		
30	4.80	50.4	90,685	16,536	74,149	1.702		
40	4.00	42.0	100,762	20,671	80,091	1.839		
50	3.50	36.7	110,208	24,805	85,403	1.961		
60	3.00	31.5	113,357	28,939	84,418	1.938		
90	2.50	26.2	141,696	41,341	100,355	2.304		
100	2.40	25.2	151,142	45,475	105,667	2.426		
110	2.30	24.1	159,329	49,609	109,720	2.519	2.519	
120	1.70	17.8	128,471	53,744	74,727	1.716		

Detention Computations for 25 yr Proposed Development								
City of Rockwall								
		Undeveloped		Developed			Bypass	
Area	A=	14.320	AC	13.120	AC		2.780	
Runoff Coeficient	C=	0.35		0.80			0.80	
Time of Concentration	Tc=	20.0	MIN	10.0	MIN		10.0	
Rainfall Intensity	I25=	6.60	IN/HR	8.30	IN/HR		8.30	
Peak Rate of Runoff	Q25=	33.1	CFS	87.1	CFS		18.5	
Allowable Outflow	Q25=			14.6	CFS			
Tc	**I25**	**Q25**	**Inflow**	**Outflow**	**Storage**		**Required**	
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT	
5	9.30	97.6	29,284	6,579	22,705	0.521		
10	8.30	87.1	52,270	8,772	43,498	0.999		
15	7.50	78.7	70,848	10,965	59,883	1.375		
20	6.60	69.3	83,128	13,158	69,970	1.606		
30	5.50	57.7	103,910	17,544	86,366	1.983		
40	4.60	48.3	115,876	21,930	93,946	2.157		
50	4.00	42.0	125,952	26,316	99,636	2.287		
60	3.50	36.7	132,250	30,702	101,548	2.331		
90	2.90	30.4	164,367	43,860	120,507	2.766		
100	2.70	28.3	170,035	48,246	121,789	2.796	2.796	
110	2.50	26.2	173,184	52,632	120,552	2.767		
120	2.20	23.1	166,257	57,018	109,239	2.508		

Detention Computations for 50 yr Proposed Development								
City of Rockwall								
		Undeveloped		Developed			Bypass	
Area	A=	14.320	AC	13.120	AC		2.780	
Runoff Coeficient	C=	0.35		0.80			0.80	
Time of Concentration	Tc=	20.0	MIN	10.0	MIN		10.0	
Rainfall Intensity	I50=	7.50	IN/HR	9.00	IN/HR		9.00	
Peak Rate of Runoff	Q50=	37.6	CFS	94.5	CFS		20.0	
Allowable Outflow	Q50=			17.6	CFS			
Tc	**I50**	**Q50**	**Inflow**	**Outflow**	**Storage**		**Required**	
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT	
5	10.00	105.0	31,488	7,908	23,580	0.541		
10	9.00	94.5	56,678	10,544	46,134	1.059		
15	8.10	85.0	76,516	13,181	63,335	1.454		
20	7.50	78.7	94,464	15,817	78,647	1.805		
30	6.10	64.0	115,246	21,089	94,157	2.162		
40	5.20	54.6	130,990	26,361	104,629	2.402		
50	4.50	47.2	141,696	31,633	110,063	2.527		
60	3.90	40.9	147,364	36,905	110,458	2.536		
90	3.30	34.6	187,039	52,722	134,317	3.083		
100	3.00	31.5	188,928	57,994	130,934	3.006		
110	2.90	30.4	200,893	63,266	137,627	3.159	3.159	
120	2.40	25.2	181,371	68,539	112,832	2.590		

Detention Computations for 100 yr Proposed Development								
City of Rockwall								
		Undeveloped		Developed			Bypass	
Area	A=	14.320	AC	13.120	AC		2.780	
Runoff Coeficient	C=	0.35		0.80			0.80	
Time of Concentration	Tc=	20.0	MIN	10.0	MIN		10.0	
Rainfall Intensity	I100=	8.30	IN/HR	9.80	IN/HR		9.80	
Peak Rate of Runoff	Q100=	41.6	CFS	102.9	CFS		21.8	
Allowable Outflow	Q100=			19.8	CFS			
Tc	**I100**	**Q100**	**Inflow**	**Outflow**	**Storage**		**Required**	
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT	
5	10.70	112.3	33,692	8,912	24,780	0.569		
10	9.80	102.9	61,716	11,883	49,834	1.144		
15	9.00	94.5	85,018	14,853	70,164	1.611		
20	8.30	87.1	104,540	17,824	86,716	1.991		
30	6.90	72.4	130,360	23,765	106,595	2.447		
40	5.80	60.9	146,104	29,707	116,398	2.672		
50	5.00	52.5	157,440	35,648	121,792	2.796		
60	4.50	47.2	170,035	41,589	128,446	2.949		
90	3.50	36.7	198,374	59,413	138,961	3.190		
100	3.40	35.7	214,118	65,355	148,764	3.415		
110	3.20	33.6	221,676	71,296	150,380	3.452	3.452	
120	2.70	28.3	204,042	77,237	126,805	2.911		

Rockwall, Texas

Overall Detention Computations for Ladera RW North Pond				17191
		Undeveloped	Developed	Bypass
Area	A(ac)=	14.320	13.120	2.780
Runoff Coeficient	C=	0.350	0.800	0.800
Time of Concentration	Tc(min)=	20.0	10.0	10.0

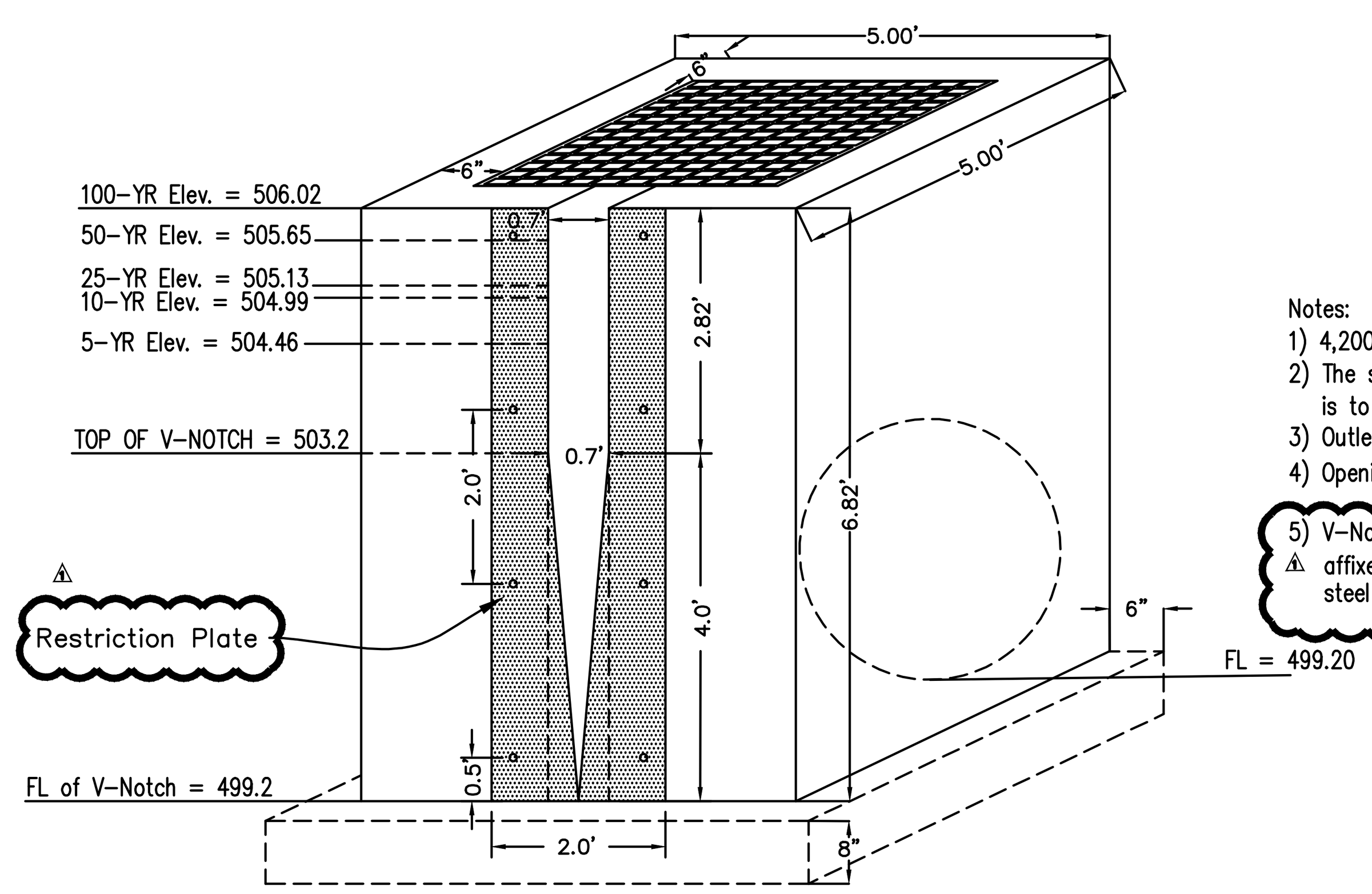
STORM	I	Qundev	I	Qin	Qbypass	Qout	REQUIRED	REQUIRED
YEAR	IN/HR	CFS	IN/HR	CFS	CFS	CFS	AC-FT	CF
5	4.90	24.6	6.10	64.0	13.6	11.0	1.9754	86047.44
10	5.90	29.6	7.10	74.5	15.8	13.8	2.5188	109719.84
25	6.60	33.1	8.30	87.1	18.5	14.6	2.7959	121789.20
50	7.50	37.6	9.00	94.5	20.0	17.6	3.1595	137627.04
100	8.30	41.6	9.80	102.9	21.8	19.8	3.4522	150379.68

* THE UNDEVELOPED ACREAGE IS BASED ON EXISTING DRAINAGE AREAS A1 & D1, REFER TO SHEET C32

** THE DEVELOPED ACREAGE BASED ON THE PROPOSED DRAINAGE AREAS A1–A12 WITH THE BYPASS ACREAGE BASED ON E1 & E6 REFER TO SHEET C33

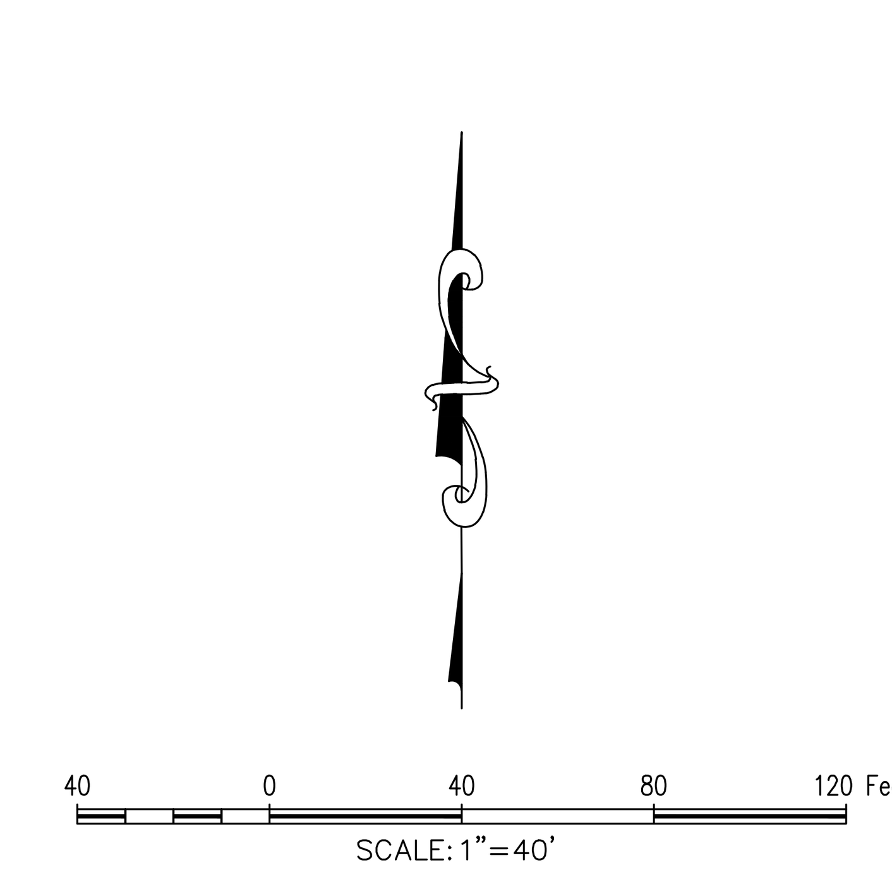
North Pond Storage Summary

Year	Ex. Q** (cfs)	Allowed Q* (cfs)	Pond. Elev. (ft.)	Outlet Elev. (ft.)	Q Released (cfs.)	Storage (cf.)
5	24.60	11.00	504.46	499.20	11.00	99,835
10	29.60	13.80	504.99	499.20	13.80	117,545
25	33.10	14.60	505.13	499.20	14.60	122,405
50	37.60	17.60	505.65	499.20	17.60	141,115
100	41.60	19.80	506.02	499.20	19.80	155,060



Detail of Proposed North Detention Pond Structure (N.T.S.)

Notes:
1) 4,200 psi conc. w/ #4 bars 12" O.C.E.W, min 7.0 sack mix
2) The sides and front of the outlet structure is to be clad in stone.
3) Outlet pipe to be a 36" RCP FL=499.20
4) Openings are to be field cored or factory furnished
5) V-Notch Restriction Plate to be 1/2" thick steel plate, affixed to the outlet structure with 1/2" stainless steel bolts drilled & epoxied into place.

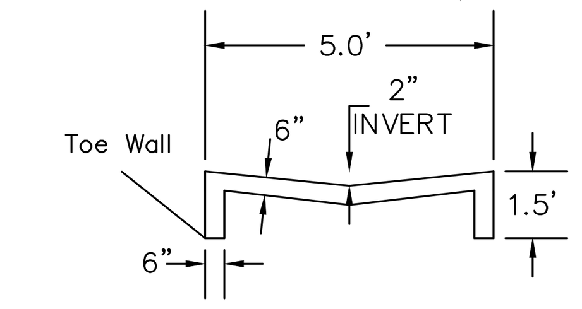


BM: CITY OF ROCKWALL CONTROL MONUMENT "COR-1" CALLED ELEV. 523.27. MEASURED ELEV. = 523.56

BM: CITY OF ROCKWALL CONTROL MONUMENT "COR-2" CALLED ELEV. 529.10. MEASURED ELEV. = 529.37

GENERAL NOTES

1. ALL RESPONSIBILITIES FOR ADEQUACY OF DESIGN REMAINS WITH THE DESIGN ENGINEER. THE CITY OF ROCKWALL, IN REVIEWING AND RELEASING PLANS FOR CONSTRUCTION, ASSUMES NO RESPONSIBILITY FOR ADEQUACY OR ACCURACY OF DESIGN.
2. REGIONAL DETENTION PONDS SIZED FOR RESIDENTIAL DEVELOPMENT, WILL NEED TO BE RESIZED FOR FUTURE COMMERCIAL DEVELOPMENT.
3. FOR MORE INFORMATION ON THE CROSS SECTIONS FOR THE ULTIMATE 100 YR FLOODPLAIN REFER TO "HYDROLOGIC AND HYDRAULIC STUDY IN SUPPORT OF LADERA ROCKWALL DEVELOPMENT" PREPARED BY JEA–HYDROTECH ENGINEERING, INC.



5' PILOT FLUME DETAIL (N.T.S)

LENGTH = 155 FT
WIDTH = 5 FT

6" 3000 PSI CONCRETE (6.5 SACK MIX) W/ #3 REBAR 18" O.C.E.W. & 12" TOE WALLS

AS-BUILT
RECORD DRAWING

TO THE BEST OF OUR KNOWLEDGE, THE JOHN R. MCADAMS COMPANY, INC. HEREBY STATES THAT THIS PLAN IS AS-BUILT. THIS INFORMATION PROVIDED IS BASED ON SURVEYING AT THE SITE AND INFORMATION PROVIDED BY THE CONTRACTOR.

MCADAMS,

Date: 5/21/2020

STATE OF TEXAS — MICHAEL D. DUVAL — 133095 — LICENSED PROFESSIONAL ENGINEER

OWNER/DEVELOPER
RW LADERA, LLC.
361 W. BYRON NELSON BLVD. STE. 104
ROANOKE, TX 76262
Ph. 817.430.3318
Contact: John Delin

The John R. McAdams Company, Inc.
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Lewisville, Texas 75057
972. 436. 9712
201 Country View Drive
Roanoke, Texas 76262
940. 240. 1012
TBPE: 19762 TBPLS: 10194440
www.mcadamsco.com

MCADAMS

LADERA ROCKWALL PHASE 1

LADERA ROCKWALL PHASE 1
Lot 1, Block A & Lot 1, Block B
LADERA ROCKWALL
47.694 Acres
in the
M. JONES SURVEY, ABSTRACT NO. 122
CITY OF ROCKWALL
ROCKWALL COUNTY, TEXAS

DETENTION CALCULATIONS

MCADAMS
TBPE: 19762

Drawn By: MD
Date: 02/23/2018
Scale: 1"=40'
Revisions:
04/23/2018
07/16/2018
09/06/2018
01/28/2019
02/11/2019
03/11/2019 Signed
04/17/2019

17191

C35