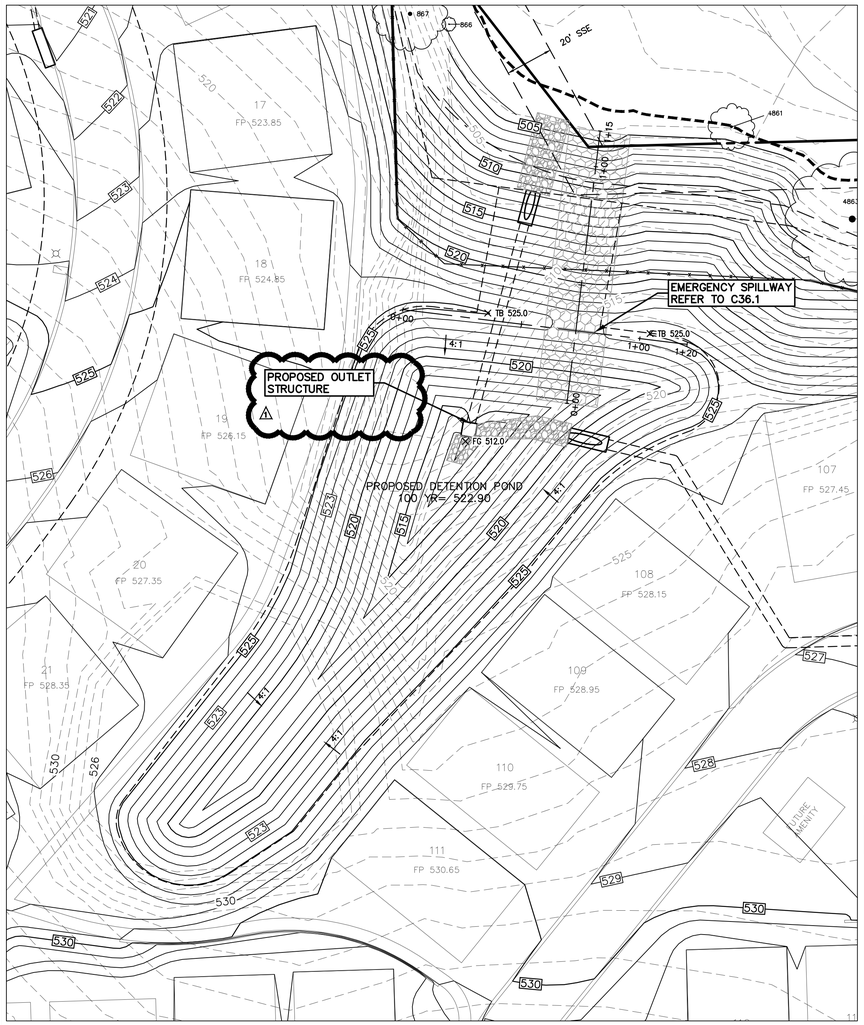


EAST DETENTION POND

Detention Computations for 5 yr Proposed Development
City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	10.970	AC	8.280	AC	1.390
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=	*18.8*	CFS	*40.4*	CFS	6.8
Allowable Outflow	Q5=			*12.0*	CFS	

Tc	I5	Q5	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	7.00	46.4	13,910	5,414	8,497	0.195	
10	6.10	40.4	24,244	7,218	17,026	0.391	
15	5.50	36.4	32,789	9,023	23,766	0.546	
20	4.90	32.5	38,949	10,827	28,122	0.646	
30	4.10	27.2	48,885	14,436	34,449	0.791	
40	3.40	22.5	54,052	18,046	36,006	0.827	
50	2.80	18.5	55,642	21,655	33,987	0.780	
60	2.60	17.2	62,001	25,264	36,737	0.843	
90	2.10	13.9	75,116	36,091	39,025	0.896	**0.896**
100	1.90	12.6	75,514	39,700	35,813	0.822	
110	1.80	11.9	78,693	43,309	35,384	0.812	
120	1.60	10.6	76,308	46,918	29,390	0.675	

Detention Computations for 10 yr Proposed Development
City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	10.970	AC	8.280	AC	1.390
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=	*22.7*	CFS	*47.0*	CFS	7.9
Allowable Outflow	Q10=			*14.8*	CFS	

Tc	I10	Q10	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	8.30	55.0	16,494	6,641	9,853	0.226	
10	7.10	47.0	28,218	8,855	19,364	0.445	
15	6.50	43.1	38,750	11,068	27,682	0.635	
20	5.90	39.1	46,898	13,282	33,616	0.772	
30	4.80	31.8	57,231	17,709	39,522	0.907	
40	4.00	26.5	63,590	22,137	41,454	0.952	
50	3.50	23.2	69,552	26,564	42,988	0.987	
60	3.00	19.9	71,539	30,991	40,548	0.931	
90	2.50	16.6	89,424	44,274	45,150	1.037	
100	2.40	15.9	95,386	48,701	46,685	1.072	
110	2.30	15.2	100,552	53,128	47,424	1.089	**1.089**
120	1.70	11.3	81,078	57,556	23,522	0.540	

Detention Computations for 25 yr Proposed Development
City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	10.970	AC	8.280	AC	1.390
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=	*25.3*	CFS	*55.0*	CFS	9.2
Allowable Outflow	Q25=			*16.1*	CFS	

Tc	I25	Q25	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	9.30	61.6	18,481	7,250	11,231	0.258	
10	8.30	55.0	32,988	9,667	23,321	0.535	
15	7.50	49.7	44,712	12,083	32,629	0.749	
20	6.60	43.7	52,462	14,500	37,962	0.871	
30	5.50	36.4	65,578	19,333	46,244	1.062	
40	4.60	30.5	73,129	24,167	48,962	1.124	
50	4.00	26.5	79,488	29,000	50,488	1.159	
60	3.50	23.2	83,462	33,833	49,629	1.139	
90	2.90	19.2	103,732	48,333	55,399	1.272	**1.272**
100	2.70	17.9	107,309	53,167	54,142	1.243	
110	2.50	16.6	109,296	58,000	51,296	1.178	
120	2.20	14.6	104,924	62,833	42,091	0.966	

Detention Computations for 50 yr Proposed Development
City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	10.970	AC	8.280	AC	1.390
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=	*28.8*	CFS	*59.6*	CFS	10.0
Allowable Outflow	Q50=			*18.8*	CFS	

Tc	I50	Q50	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	10.00	66.2	19,872	8,455	11,417	0.262	
10	9.00	59.6	35,770	11,273	24,497	0.562	
15	8.10	53.7	48,289	14,091	34,198	0.785	
20	7.50	49.7	59,616	16,909	42,707	0.980	
30	6.10	40.4	72,732	22,546	50,186	1.152	
40	5.20	34.4	82,668	28,182	54,485	1.251	
50	4.50	29.8	89,424	33,819	55,605	1.277	
60	3.90	25.8	93,001	39,455	53,546	1.229	
90	3.30	21.9	118,040	56,365	61,675	1.416	**1.416**
100	3.00	19.9	119,232	62,001	57,231	1.314	
110	2.90	19.2	126,783	67,638	59,146	1.358	
120	2.40	15.9	114,463	73,274	41,189	0.946	

Detention Computations for 100 yr Proposed Development
City of Rockwall

		Undeveloped		Developed		Bypass
Area	A=	10.970	AC	8.280	AC	1.390
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=	*31.9*	CFS	*64.9*	CFS	10.9
Allowable Outflow	Q100=			*21.0*	CFS	

Tc	I100	Q100	Inflow	Outflow	Storage		Required
MIN	IN/HR	CFS	CF	CF	CF	AC-FT	AC-FT
5	10.70	70.9	21,263	9,437	11,826	0.271	
10	9.80	64.9	38,949	12,582	26,367	0.605	
15	9.00	59.6	53,654	15,728	37,927	0.871	
20	8.30	55.0	65,975	18,873	47,102	1.081	
30	6.90	45.7	82,270	25,164	57,106	1.311	
40	5.80	38.4	92,206	31,455	60,751	1.395	
50	5.00	33.1	99,360	37,746	61,614	1.414	
60	4.50	29.8	107,309	44,038	63,271	1.453	
90	3.50	23.2	125,194	62,911	62,283	1.430	
100	3.40	22.5	135,130	69,202	65,928	1.513	**1.513**
110	3.20	21.2	139,899	75,493	64,406	1.479	
120	2.70	17.9	128,771	81,784	46,987	1.079	

Rockwall, Texas

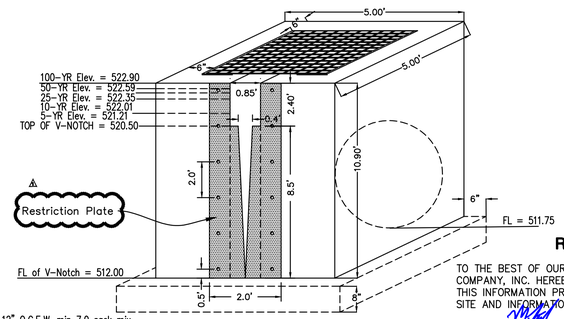
Overall Detention Computations for Ladera RW East Pond 17191

		Undeveloped	Developed	Bypass
Area	A(ac)=	10.970	8.280	1.390
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	18.8	*6.10*	*40.4*	6.8	*12.0*	**0.8959**	**39025.11**
10	5.90	22.7	*7.10*	*47.0*	7.9	*14.8*	**1.0887**	**47424.06**
25	6.60	25.3	*8.30*	*55.0*	9.2	*16.1*	**1.2718**	**55398.54**
50	7.50	28.8	*9.00*	*59.6*	10.0	*18.8*	**1.4159**	**61674.93**
100	8.30	31.9	*9.80*	*64.9*	10.9	*21.0*	**1.5135**	**65927.78**

* THE UNDEVELOPED ACREAGE IS BASED ON EXISTING DRAINAGE AREAS A2 & C, REFER TO SHEET C32

** THE DEVELOPED ACREAGE BASED ON THE PROPOSED DRAINAGE AREAS C1–C5 WITH THE BYPASS ACREAGE BASED ON E2 REFER TO SHEET C33



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= 511.75
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.

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

East Pond Storage Summary

Year	Ex. Q** (cfs)	Allowed Q* (cfs)	Pond. Elev. (ft.)	Q Released (cfs.)	Storage (cf.)
5	18.80	12.00	521.21	12.0	40,315
10	22.70	14.80	522.01	14.8	52,025
25	25.30	16.10	522.35	16.1	57,710
50	28.80	18.80	522.59	18.8	61,705
100	31.90	21.00	522.90	21.0	66,865

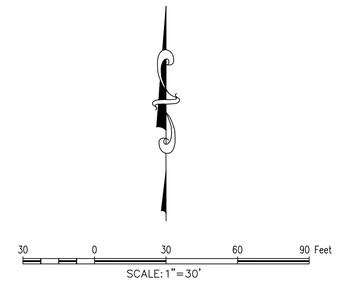
AS-BUILT RECORD DRAWING

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

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



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. 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.

The John R. McAdams Company, Inc.
111 Highway Drive
Lewisville, Texas 75057
972. 436. 9712

201 Country View Drive
Roanoke, Texas 76262
940. 240. 5173

TBPE: 1-800-232-1018
940. 240. 5173 / 1-800-232-1018
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

STATE OF TEXAS
MICHAEL D. DUVAL
133095
LICENSED PROFESSIONAL ENGINEER

MCADAMS
TBPE: 19762

Drawn By: MD
Date: 02/23/2018
Scale: 1"=30'
Revisions:
04/23/2018
07/16/2018
09/06/2018
01/28/2019
02/11/2019
03/11/2019 Signed
04/17/2019

17191

C37

File: Z:\2017\1719\Drawings\EP & Const Plans\Sheets\1719 POND
Plotted: 5/21/2020 12:01 AM, by Plotter, Saved: 5/20/2020 11:29 PM, by akng