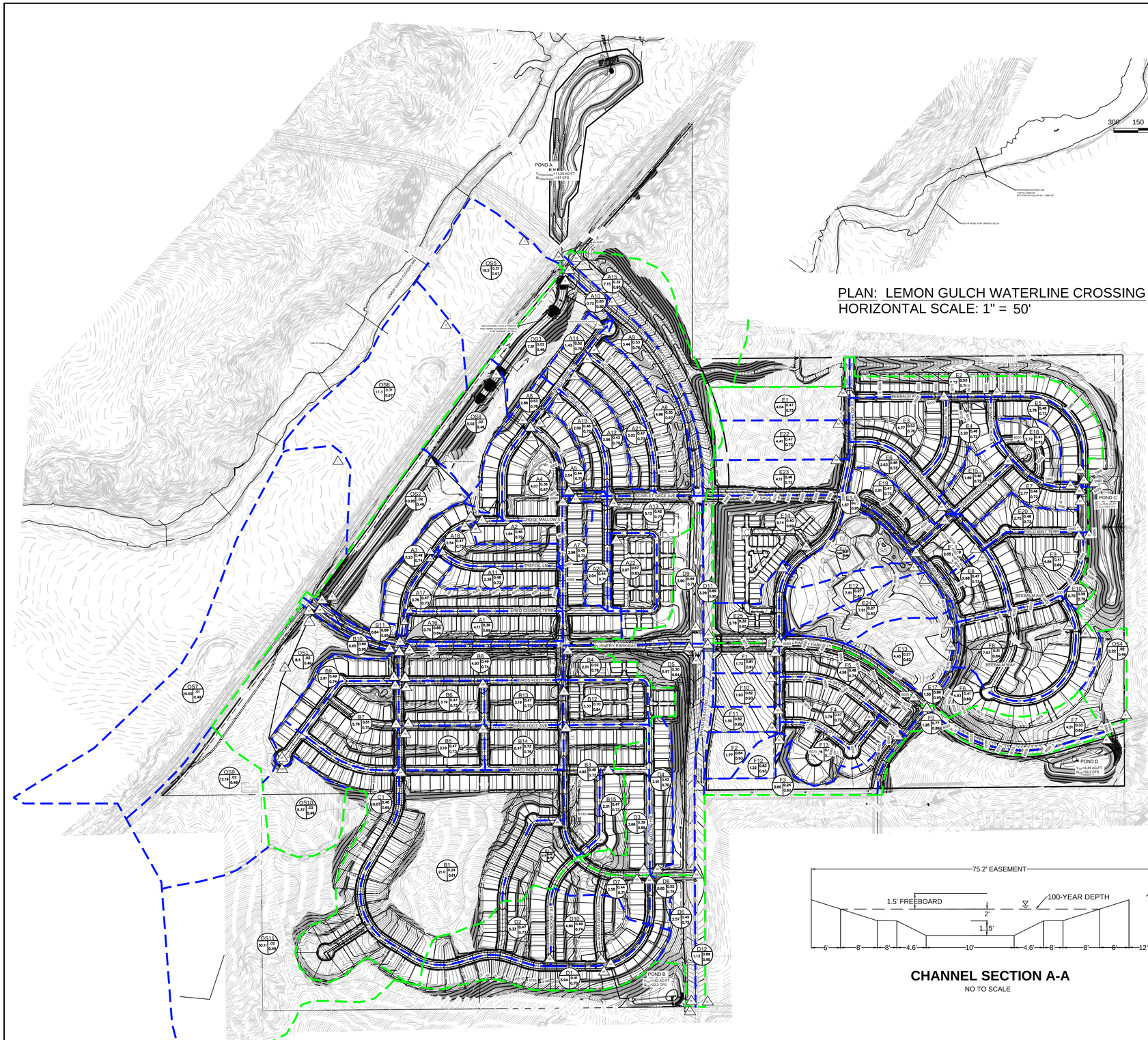
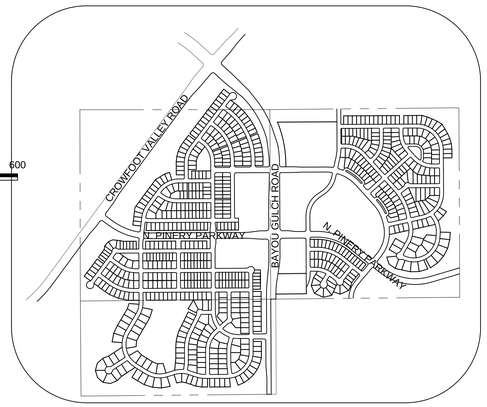


PLAN: LEMON GULCH WATERLINE CROSSING
HORIZONTAL SCALE: 1" = 50'

PLAN: OVERALL DRAINAGE MAP
HORIZONTAL SCALE: 1" = 50'



KEYMAP
N.T.S.

LEGEND

711P	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND A	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

NOTE:

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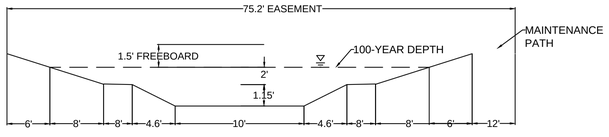

CHANNEL SECTION A-A
NO TO SCALE

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TOWN OF PARKER, PUBLIC WORKS DIRECTOR DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - STORMWATER DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION DATE

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
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CALL 811
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UNCC
UTILITY NOTIFICATION CENTER OF COLORADO

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

CVL CONSULTANTS
10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
Tel: (720) 482-9526
Fax: (720) 482-9946

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
OVERALL DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 1A

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\FINAL OVERALL DRAINAGE MAP.DWG, ASFUNDK, 2/1/2018 1:11 PM

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	1.50
A7	3.96	50.41	4.44	18.62	Local	4.00
A8	2.86	52.68	3.45	14.07	Local	0.00
A9	3.44	50.33	3.75	15.73	Arterial	2.00
A10	0.72	61.44	1.12	4.14	Arterial	0.00
A11	2.39	53.79	2.92	11.75	Local	2.00
A12	2.96	48.02	3.22	13.95	Local	1.50
A13	5.13	47.44	5.03	21.94	Local	5.00
A14	1.43	54.86	1.94	7.68	Local	0.00
A15	7.15	26.55	3.58	23.96	Arterial	0.00
A16	0.75	76.70	1.39	4.52	Local	2.00
A17	3.76	52.91	4.19	17.02	Local	2.00
A18	2.54	52.87	2.95	11.99	Local	2.00
A19	2.09	51.95	2.51	10.32	Local	4.00
A20	2.04	49.09	2.28	9.72	Local	2.00
A21	3.02	52.59	3.69	15.04	Local	1.50
A22	3.07	74.76	6.17	20.24	Local	2.50

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
B1	21.00	23.33	8.48	62.92	Local	7.00
B2	3.13	51.76	3.82	15.75	Local	3.00
B3	4.92	50.31	5.58	23.45	Local	3.00
B4	2.51	58.47	3.16	12.02	Local	5.00
B5	3.19	53.20	3.88	15.72	Local	6.00
B6	3.19	53.20	3.88	15.72	Local	6.00
B7	5.76	49.66	5.79	24.54	Local	6.00
B8	4.93	46.94	4.95	21.81	Res. Blvd	0.00
B9	2.81	49.17	2.94	12.55	Local	0.00
B10	0.65	76.70	1.28	4.14	Res. Blvd	0.00
B11	0.84	76.70	1.59	5.15	Res. Blvd	0.00
B12	3.30	75.52	6.18	20.16	Local	3.00
B13	3.19	53.20	3.88	15.72	Local	2.00
B14	3.19	53.20	3.88	15.72	Local	2.00
B15	2.01	53.11	2.50	10.13	Local	1.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
E1	4.04	52.65	4.95	20.19	Local	2.70
E2	5.27	52.02	4.71	19.36	Local	0.00
E3	4.77	52.31	5.64	23.07	Local	3.00
E4	3.20	52.07	3.78	14.69	Local	4.00
E5	2.76	53.77	3.09	12.43	Local	0.00
E6	2.63	53.59	3.06	12.34	Local	1.00
E7	2.77	51.99	3.21	13.17	Local	0.00
E8	2.68	53.33	3.13	12.64	Local	2.00
E9	4.84	39.52	3.92	19.46	Local	2.00
E10	0.70	56.03	0.85	3.31	Local	1.00
E11	3.99	30.00	2.48	14.96	Local	1.00
E12	3.28	30.00	2.04	12.33	Local	6.00
E13	4.45	30.00	2.76	16.67	Local	1.00
E14	9.14	44.35	8.62	39.37	Local	0.00
E15	1.89	51.97	2.08	8.55	Local	2.00
E16	1.57	73.60	2.68	8.89	Local	6.00
E17	1.55	73.60	2.64	8.76	Local	1.00
E18	2.72	52.96	3.45	14.00	Local	1.50
E19	2.91	53.40	3.58	14.46	Local	1.20
E20	2.75	53.49	3.12	12.57	Local	2.00
E21	2.05	54.72	2.56	10.18	Local	2.00
E22	4.41	53.09	5.39	21.86	Local	2.70
E23	4.11	51.69	4.81	19.86	Local	2.70
E24	4.23	30.00	2.63	15.87	Local	2.00
E25	2.78	35.90	2.16	11.51	Local	2.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
F1	1.71	90.64	4.59	13.55	Local	2.50
F2	1.77	93.50	4.96	14.53	Local	2.50
F3	3.60	19.77	1.47	12.47	Local	1.00
F4	3.79	53.06	4.56	18.47	Local	4.00
F5	4.58	46.86	4.46	19.66	Res. Blvd	4.00
F6	4.93	38.37	3.70	18.75	Local	0.00
F7	4.51	18.05	1.68	15.41	Res. Blvd	0.00
F8	7.93	34.99	5.57	30.18	Local	0.00
F9	1.28	66.27	1.75	6.18	Res. Blvd	0.00
F10	1.93	92.20	5.30	15.64	Local	2.50
F11	1.50	91.79	4.07	12.03	Local	2.50
F12	1.22	93.17	3.39	9.95	Local	2.50
F13	3.58	52.91	4.36	17.70	Local	4.00

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
1A	3.84	17.73
1B	5.04	60.61
1C	18.94	72.95
1D	22.01	88.25
1E	4.69	74.09
1F	9.74	45.15
1G	4.44	61.21
1H	24.90	99.54
1I	3.75	15.73
1J	7.60	40.45
1K	2.92	11.75
1L	3.22	13.95
1M	9.77	37.49
1N	11.20	49.77
1O	3.58	23.96
1P	5.05	21.53
1Q	6.90	27.93
1R	2.95	11.99
1S	2.51	10.32
1T	6.64	44.92
1U	6.71	27.72
1	11.54	45.92
2	15.83	42.02
3	15.88	(Not Relavent for 100 year)
4	19.35	41.99

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
2A	13.11	74.41
2B	6.15	15.75
2C	5.58	33.21
2D	13.83	60.55
2E	3.88	76.36
2F	3.88	29.09
2G	5.79	24.54
2H	4.95	21.81
2I	2.94	35.69
2J	26.73	169.56
2K	27.76	172.83
2L	10.97	50.07
2M	3.88	15.72
2N	3.88	15.72
2O	2.50	10.13
5	18.73	76.25
6	7.44	(Not Relavent for 100 year)
7	7.40	(Not Relavent for 100 year)
9	19.80	84.75
10	32.55	84.62

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
3A	8.95	54.35

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.18
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
14	32.04	124.18
15	36.95	142.09
5A	14.28	56.31
5B	9.56	40.76
5C	18.85	70.87
5D	21.89	79.97
5E	23.45	83.44
5F	3.06	12.34
5G	6.16	142.25
5H	29.48	81.28
5I	3.92	19.46
5J	0.85	3.31
5K	2.48	14.96
5L	4.60	27.74
5M	2.76	16.67
5N	10.74	49.99
5O	2.08	8.55
5P	19.53	49.94
5Q	5.06	23.96
5R	4.86	14.00
5S	24.94	67.90
5T	3.12	12.57
5U	2.56	10.18
5V	9.85	39.52
5W	4.81	19.86
5X	2.63	15.87
5Y	2.16	11.51

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
6A	21.41	56.86
6B	8.28	23.93
6C	9.45	44.87
6D	4.56	18.47
6E	29.25	58.80
6F	13.68	69.19
6G	3.39	22.24
6H	10.08	42.10
6I	1.75	36.44
6Ia	-	78.50
6J	17.19	46.79
6K	12.18	34.01
6L	3.39	9.95
6M	8.80	35.37
16	27.15	55.27
17	36.01	97.22

CHANNEL DESIGN POINT SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A	25.55	76.45
B	49.11	150.81
C	58.29	188.03
D	73.01	240.76
E	83.23	280.45

NOTE: Flows are from SWMM analysis. See drainage report for more details

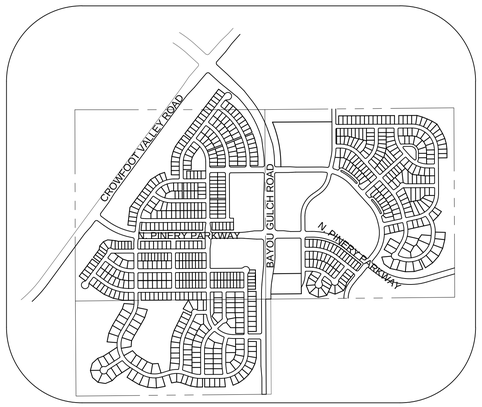
SWMM BASIN SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A-1	11.86	32.59
A-2	19.60	53.08
A-3	7.60	21.76
A-4	5.01	16.11
B-1	20.87	66.84
B-2	26.81	74.30
C-1	14.00	39.86
OS-1	1.82	9.80
OS-2	1.62	8.90
OS-3	1.02	5.59
OS-4	0.31	1.87
OS-5	1.55	7.82

POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.56
WQCV (AC-FT)	2.52
EURV Volume (including WQVC) (AC-FT)	6.45
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yar water surface elevation (FT)	5997.19
Emergency Spillway Crest Elevation (FT)	5997.19
100-year Peak Inflow (CFS)	278.84
100-year Peak Outflow (CFS)	197.00
100-year Peak Allowable (CFS)	204.47

POND B	
Description	
Drainage Area (FT)	23.2
Percent Imperviousness (%)	47.36
WQCV (AC-FT)	0.39
EURV Volume (including WQVC) (AC-FT)	1.10
EURV Water Surface (FT)	6092.90
100-YR Volume (including EURV) (AC-FT)	1.83
100-yar water surface elevation (FT)	6094.01
Emergency Spillway Crest Elevation (FT)	6094.01
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53

POND C	
Description	
Drainage Area (FT)	101.09
Percent Imperviousness (%)	44.49
WQCV (AC-FT)	1.61
EURV Volume (including WQVC) (AC-FT)	4.49
EURV Water Surface (FT)	5973.29
100-YR Volume (including EURV) (AC-FT)	8.46
100-yar water surface elevation (FT)	5978.14
Emergency Spillway Crest Elevation (FT)	5978.14
100-year Peak Inflow (CFS)	204.00
100-year Peak Outflow (CFS)	106.53
100-year Peak Allowable (CFS)	111.36

POND D	
Description	
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.88
EURV Volume (including WQVC) (AC-FT)	2.61
EURV Water Surface (FT)	5991.65
100-YR Volume (including EURV) (AC-FT)	4.49
100-yar water surface elevation (FT)	5993.55
Emergency Spillway Crest Elevation (FT)	5993.55
100-year Peak Inflow (CFS)	184.40
100-year Peak Outflow (CFS)	52.28
100-year Peak Allowable (CFS)	55.28



KEYMAP
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TOWN OF PARKER, PUBLIC WORKS DIRECTOR DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - STORMWATER DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION DATE

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

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CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
OS 10	5.37	2.00	0.30	16.40	N/A	5.00

No.	Revisions	Date	Init.	Appr.	Date

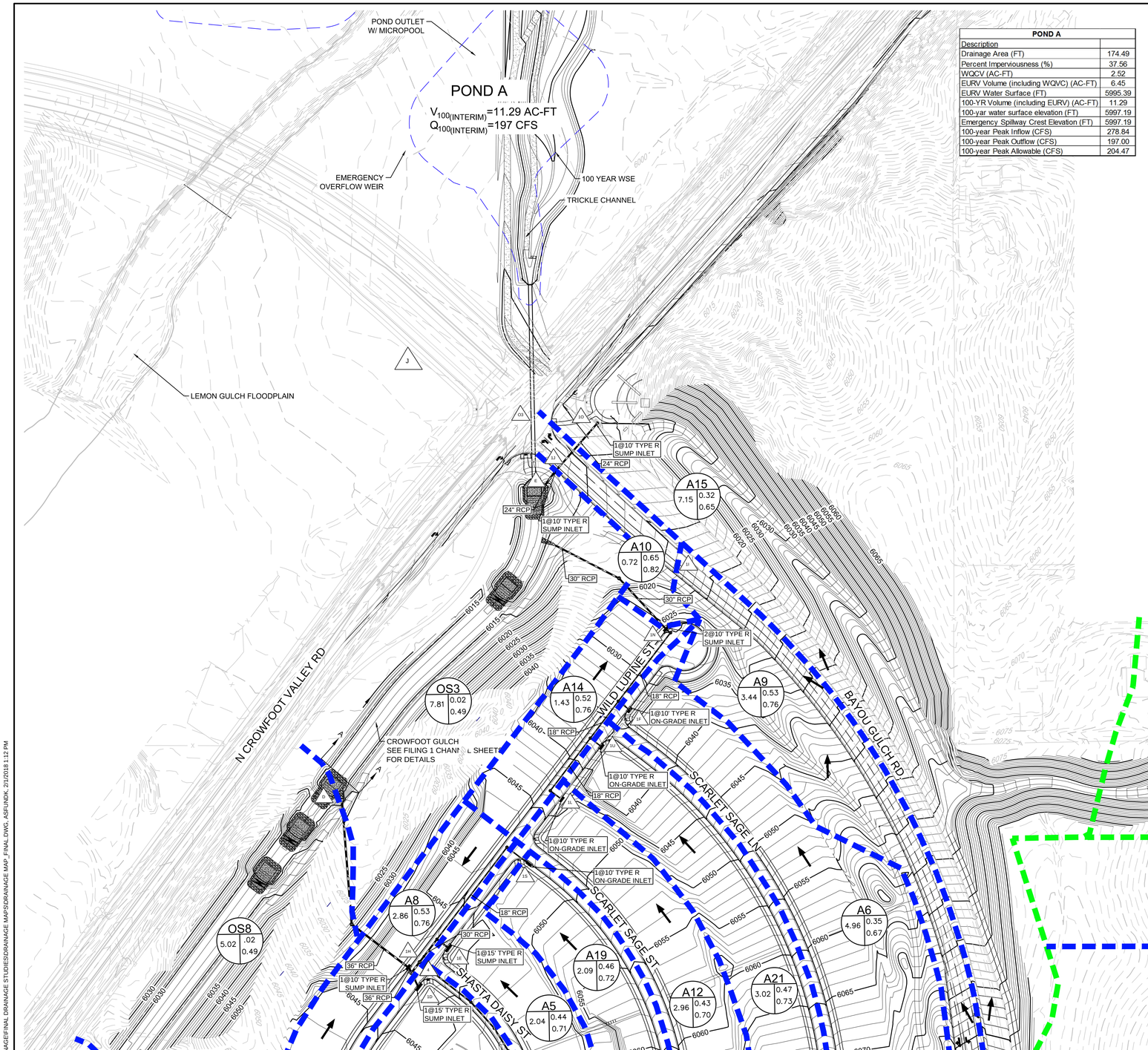
CVL CONSULTANTS
10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
Tel: (720) 482-9526
Fax: (720) 482-9546

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
OVERALL DRAINAGE MAP - TABLES

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 1B

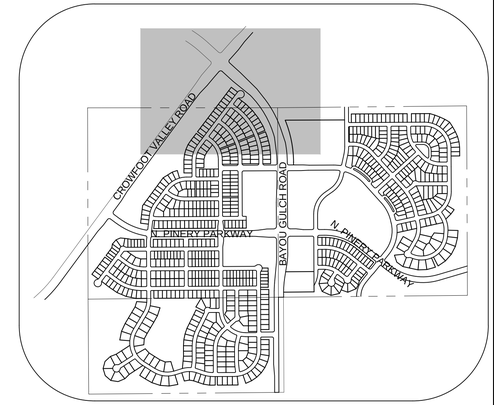
N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\FINAL OVERALL DRAINAGE MAP.DWG, ASFUNDX, 2/1/2018 1:11 PM



POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.56
WQCV (AC-FT)	2.52
EURV Volume (including WQVC) (AC-FT)	6.45
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yar water surface elevation (FT)	5997.19
Emergency Spillway Crest Elevation (FT)	5997.19
100-year Peak Inflow (CFS)	278.84
100-year Peak Outflow (CFS)	197.00
100-year Peak Allowable (CFS)	204.47

100 50 0 100 200

SCALE: 1" = 100'



KEYMAP
N.T.S.

Note:
1) 0% slope indicates sump inlet.

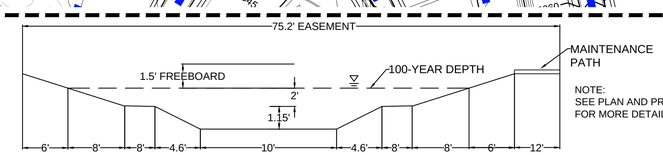
DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q2	Q100	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	1.50
A7	3.96	50.41	4.44	18.62	Local	4.00
A8	2.86	52.68	3.45	14.07	Local	0.00
A9	3.44	50.33	3.75	15.73	Arterial	2.00
A10	0.72	61.44	1.12	4.14	Arterial	0.00
A11	2.39	53.79	2.92	11.75	Local	2.00
A12	2.96	48.02	3.22	13.95	Local	1.50
A13	5.13	47.44	5.03	21.94	Local	5.00
A14	1.43	54.86	1.94	7.68	Local	0.00
A15	7.15	26.55	3.58	23.96	Arterial	0.00
A16	0.75	76.70	1.39	4.52	Local	2.00
A17	3.76	52.91	4.19	17.02	Local	2.00
A18	2.54	52.87	2.95	11.99	Local	2.00
A19	2.09	51.95	2.51	10.32	Local	4.00
A20	2.04	49.09	2.28	9.72	Local	2.00
A21	3.02	52.59	3.69	15.04	Local	1.50
A22	3.07	74.76	6.17	20.24	Local	2.50

CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
1A	3.84	17.73
1B	5.04	60.61
1C	18.94	72.95
1D	22.01	88.25
1E	4.69	74.09
1F	9.74	45.15
1G	4.44	61.21
1H	24.90	99.54
1I	3.75	15.73
1J	7.60	40.45
1K	2.92	11.75
1L	3.22	13.95
1M	9.77	37.49
1N	11.20	49.77
1O	3.58	23.96
1P	5.05	21.53
1Q	6.90	27.93
1R	2.95	11.99
1S	2.51	10.32
1T	6.64	44.92
1U	6.71	27.72
1	11.54	45.92
2	15.83	42.02
3	15.88	(Not Relavent for 100 year)
4	19.35	41.99

NOTE:
1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS HEREIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. POND ARE MAINTAINED BY METRO DISTRICT.
3. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

LEGEND

711P	DESIGN POINT
XX / A / R2 / R100 / POND	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5950	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5950	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW



NOTE:
SEE PLAN AND PROFILE SHEETS FOR MORE DETAIL. (SHEET 62,63,64)

CHANNEL SECTION A-A

NO TO SCALE

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
Tel: (720) 482-9526
Fax: (720) 482-9946
CVL CONSULTANTS

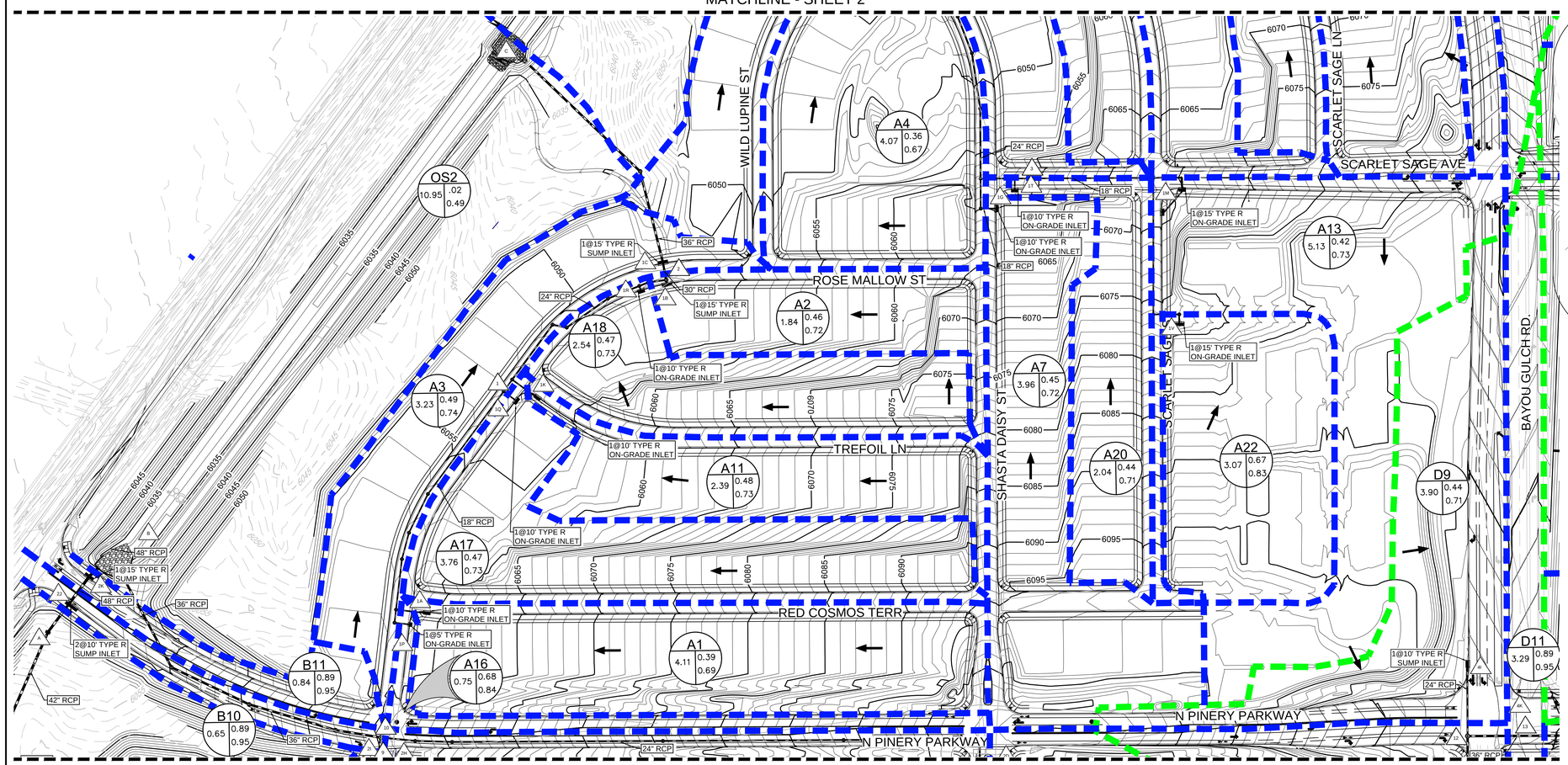
E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

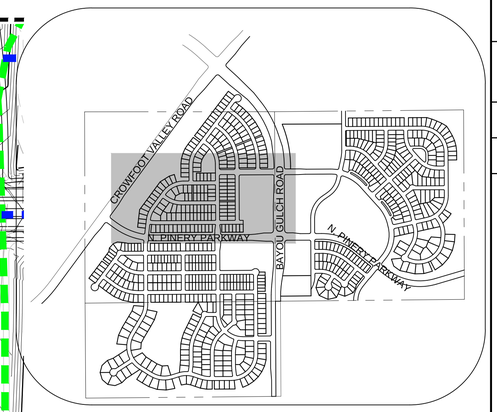
SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 2

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\DRAINAGE MAP_FINAL.DWG, ASFUNDK, 2/1/2018 1:12 PM

MATCHLINE - SHEET 2



MATCHLINE - SHEET 4



KEYMAP

N.T.S.

SCALE: 1" = 100'

LEGEND

711P	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

NOTE:

1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. PONDS ARE MAINTAINED BY METRO DISTRICT.
3. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

Note:
1) 0% slope indicates sump inlet.

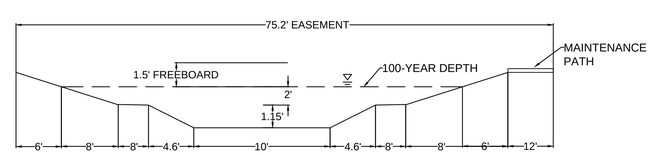
DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q2	Q100	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	1.50
A7	3.96	50.41	4.44	18.62	Local	4.00
A8	2.86	52.68	3.45	14.07	Local	0.00
A9	3.44	50.33	3.75	15.73	Arterial	2.00
A10	0.72	61.44	1.12	4.14	Arterial	0.00
A11	2.39	53.79	2.92	11.75	Local	2.00
A12	2.96	48.02	3.22	13.95	Local	1.50
A13	5.13	47.44	5.03	21.94	Local	5.00
A14	1.43	54.86	1.94	7.68	Local	0.00
A15	7.15	26.55	3.58	23.96	Arterial	0.00
A16	0.75	76.70	1.39	4.52	Local	2.00
A17	3.76	52.91	4.19	17.02	Local	2.00
A18	2.54	52.87	2.95	11.99	Local	2.00
A19	2.09	51.95	2.51	10.32	Local	4.00
A20	2.04	49.09	2.28	9.72	Local	2.00
A21	3.02	52.59	3.69	15.04	Local	1.50
A22	3.07	74.76	6.17	20.24	Local	2.50

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q2	Q100	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
1A	3.84	17.73
1B	5.04	60.61
1C	18.94	72.95
1D	22.01	88.25
1E	4.69	74.09
1F	9.74	45.15
1G	4.44	61.21
1H	24.90	99.54
1I	3.75	15.73
1J	7.60	40.45
1K	2.92	11.75
1L	3.22	13.95
1M	9.77	37.49
1N	11.20	49.77
1O	3.58	23.96
1P	5.05	21.53
1Q	6.90	27.93
1R	2.95	11.99
1S	2.51	10.32
1T	6.64	44.92
1U	6.71	27.72
1	11.54	45.92
2	15.83	42.02
3	15.88	(Not Relavent for 100 year)
4	19.35	41.99

CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.18
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43



CHANNEL SECTION A-A

NO TO SCALE

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987
UTILITY NOTIFICATION CENTER OF COLORADO

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

CVL CONSULTANTS
10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
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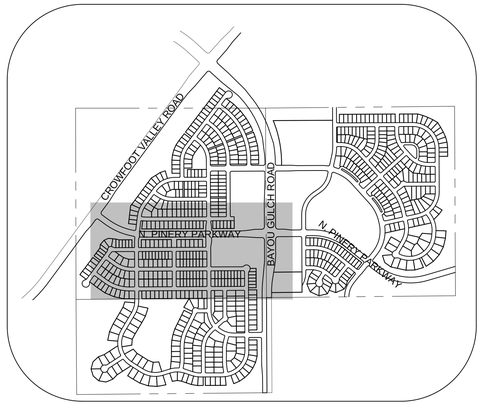
E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 3

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\DRAINAGE MAP_FINAL.DWG, ASFUNDK, 2/1/2018 1:12 PM

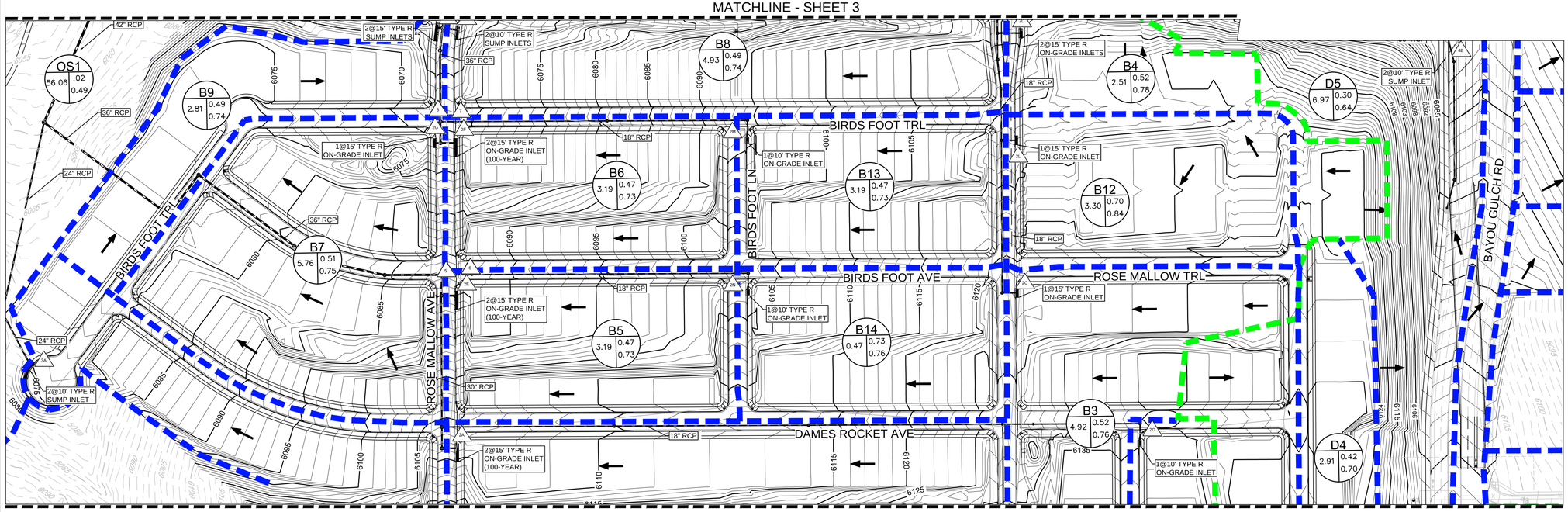


KEYMAP
N.T.S.

LEGEND

711P	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

MATCHLINE - SHEET 3



MATCHLINE - SHEET 5

100 50 0 100 200
SCALE: 1" = 100'

NOTE:

1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. PONDS ARE MAINTAINED BY METRO DISTRICT.
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4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q2	Q100	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
B1	21.00	23.33	8.48	62.92	Local	7.00
B2	3.13	51.76	3.82	15.75	Local	3.00
B3	4.92	50.31	5.58	23.45	Local	3.00
B4	2.51	58.47	3.16	12.02	Local	5.00
B5	3.19	53.20	3.88	15.72	Local	6.00
B6	3.19	53.20	3.88	15.72	Local	6.00
B7	5.76	49.66	5.79	24.54	Local	6.00
B8	4.93	46.94	4.95	21.81	Res. Blvd	0.00
B9	2.81	49.17	2.94	12.55	Local	0.00
B10	0.65	76.70	1.28	4.14	Res. Blvd	0.00
B11	0.84	76.70	1.59	5.15	Res. Blvd	0.00
B12	3.30	75.52	6.18	20.16	Local	3.00
B13	3.19	53.20	3.88	15.72	Local	2.00
B14	3.19	53.20	3.88	15.72	Local	2.00
B15	2.01	53.11	2.50	10.13	Local	1.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q2	Q100	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
2A	13.11	74.41
2B	6.15	15.75
2C	5.58	33.21
2D	13.83	60.55
2E	3.88	76.36
2F	3.88	29.09
2G	5.79	24.54
2H	4.95	21.81
2I	2.94	35.69
2J	26.73	169.56
2K	27.76	172.83
2L	10.97	50.07
2M	3.88	15.72
2N	3.88	15.72
2O	2.50	10.13
5	18.73	76.25
6	7.44	(Not Relavent for 100 year)
7	7.40	(Not Relavent for 100 year)
9	19.80	84.75
10	32.55	84.62

CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
3A	8.95	54.35
CUMULATIVE FLOW		
Design Point	Q2	Q100
ID	(CFS)	(CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.18
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
1-800-922-1987
UNCC UTILITY NOTIFICATION CENTER OF COLORADO

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

CVL CONSULTANTS
10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80112
Tel: (720) 482-9526
Fax: (720) 482-9546

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 4

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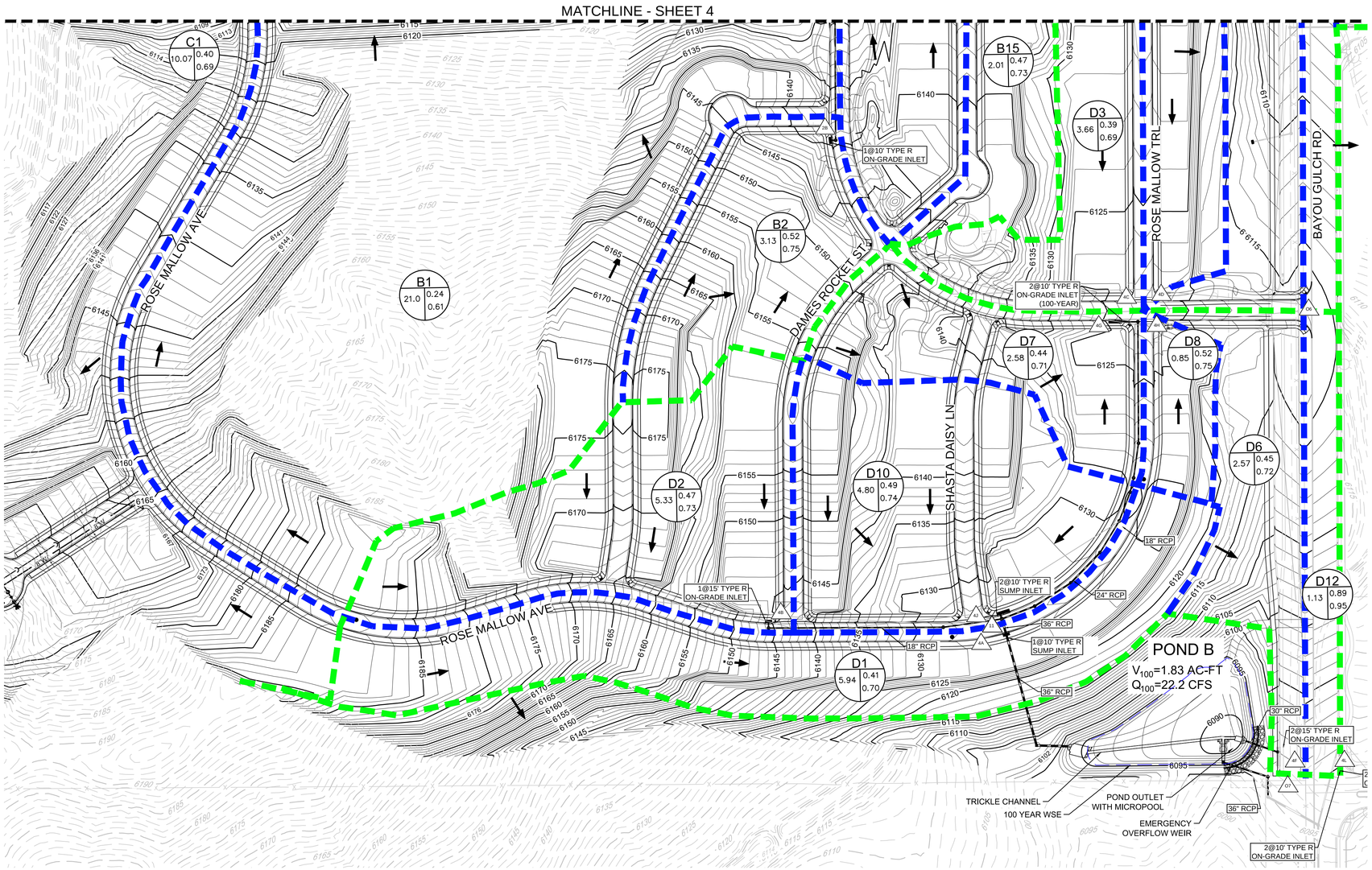

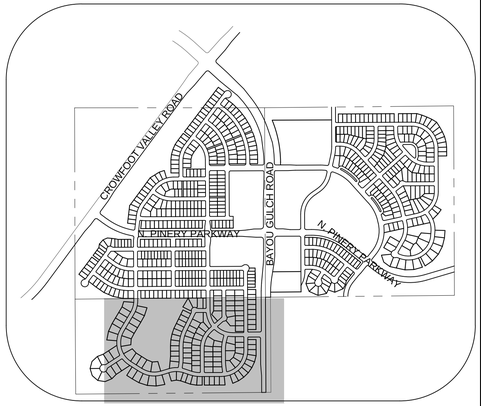

KEYMAP
N.T.S.

NOTE:

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2. PONDS ARE MAINTAINED BY METRO DISTRICT.
3. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

LEGEND

711F	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
6650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
6650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
B1	21.00	23.33	8.48	62.92	Local	7.00
B2	3.13	51.76	3.82	15.75	Local	3.00
B3	4.92	50.31	5.58	23.45	Local	3.00
B4	2.51	58.47	3.16	12.02	Local	5.00
B5	3.19	53.20	3.88	15.72	Local	6.00
B6	3.19	53.20	3.88	15.72	Local	6.00
B7	5.76	49.66	5.79	24.54	Local	6.00
B8	4.93	46.94	4.95	21.81	Res. Blvd	0.00
B9	2.81	49.17	2.94	12.55	Local	0.00
B10	0.65	76.70	1.28	4.14	Res. Blvd	0.00
B11	0.84	76.70	1.59	5.15	Res. Blvd	0.00
B12	3.30	75.52	6.18	20.16	Local	3.00
B13	3.19	53.20	3.88	15.72	Local	2.00
B14	3.19	53.20	3.88	15.72	Local	2.00
B15	2.01	53.11	2.50	10.13	Local	1.00

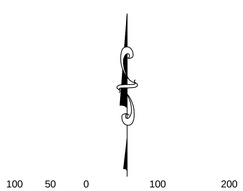
Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
C1	10.07	45.10	8.72	39.44	Local	0.00
D1	5.94	42.41	5.34	25.23	Local	0.00
D2	5.33	46.14	5.58	24.83	Local	5.00
D3	3.66	43.82	3.28	15.11	Local	5.00
D4	2.91	42.33	2.45	11.57	Local	3.00
D5	6.97	33.88	4.29	23.81	Arterial	0.00
D6	2.57	42.99	2.30	10.74	Arterial	6.00
D7	2.58	42.09	2.48	11.76	Local	4.00
D8	0.85	51.73	1.06	4.38	Local	5.00
D9	3.90	49.27	4.06	17.30	Arterial	0.00
D10	4.80	50.52	5.60	23.45	Local	0.00
D11	3.29	84.30	6.19	19.00	Arterial	0.00
D12	1.13	84.30	2.13	6.53	Arterial	1.50

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
2A	13.11	74.41
2B	6.15	15.75
2C	5.58	33.21
2D	13.83	60.55
2E	3.88	76.36
2F	3.88	29.09
2G	5.79	24.54
2H	4.95	21.81
2I	2.94	35.69
2J	26.73	169.56
2K	27.76	172.83
2L	10.97	50.07
2M	3.88	15.72
2N	3.88	15.72
2O	2.50	10.13
5	18.73	76.25
6	7.44	(Not Relavent for 100 year)
7	7.40	(Not Relavent for 100 year)
9	19.80	84.75
10	32.55	84.62

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
3A	8.95	54.35
CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
4A	18.01	80.94
4B	5.58	24.83
4C	3.28	15.11
4D	5.63	26.26
4E	8.32	42.18
4F	5.19	24.34
4G	2.48	11.76
4H	1.06	4.38
4I	4.06	17.30
4J	10.66	45.70
4K	6.19	19.00
4L	2.94	10.02
11	12.69	56.80
12	11.38	55.22
13	15.66	68.43

POND B	
Description	
Drainage Area (FT)	23.2
Percent Imperviousness (%)	47.36
WQCV (AC-FT)	0.39
EURV Volume (including WQVC) (AC-FT)	1.10
EURV Water Surface (FT)	6092.90
100-YR Volume (including EURV) (AC-FT)	1.83
100-yar water surface elevation (FT)	6094.01
Emergency Spillway Crest Elevation (FT)	6094.01
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53



SCALE: 1" = 100'

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BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

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PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

No.	Revisions	Date	Init.	Appr.	Date

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TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 5

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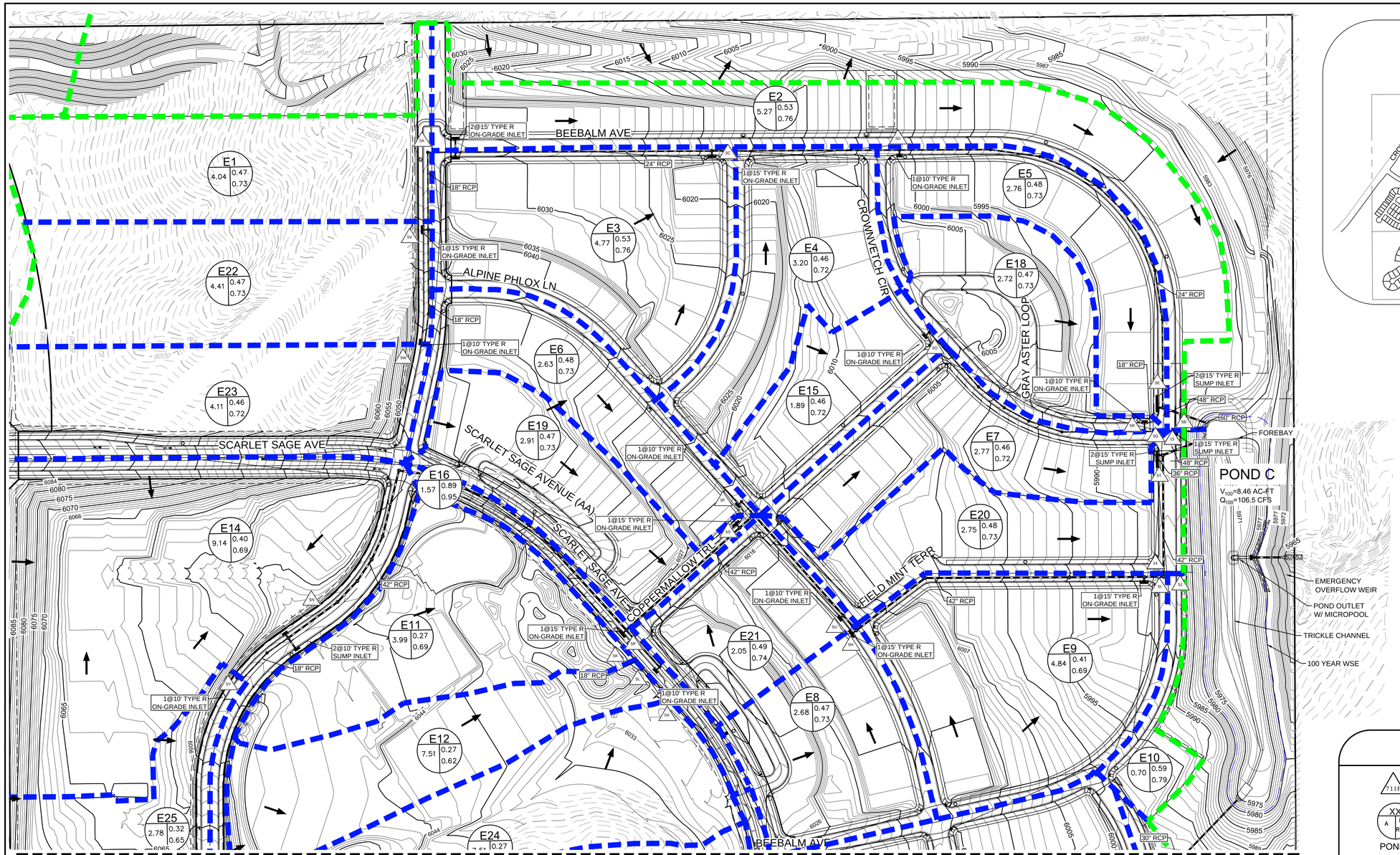
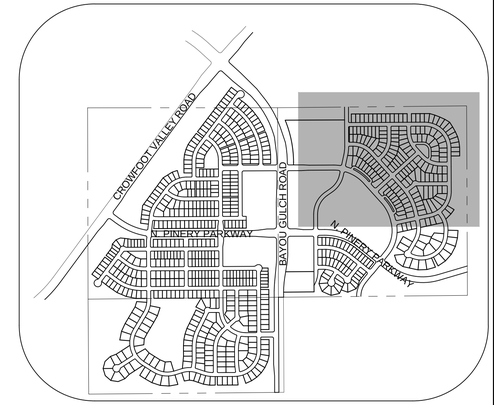


MATCHLINE - SHEET 7



KEYMAP
N.T.S.

SCALE: 1" = 100'

LEGEND

711F	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5850	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5850	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

DIRECT FLOW						
BASIN ID	AREA	Imperviousness	Q_2	Q_{100}	Street Type	Slope
	(AC)	%	(CFS)	(CFS)		%
E1	4.04	52.65	4.95	20.19	Local	2.70
E2	5.27	52.02	4.71	19.36	Local	0.00
E3	4.77	52.31	5.64	23.07	Local	3.00
E4	3.20	52.07	3.78	14.69	Local	4.00
E5	2.76	53.77	3.09	12.43	Local	0.00
E6	2.63	53.59	3.06	12.34	Local	1.00
E7	2.77	51.99	3.21	13.17	Local	0.00
E8	2.68	53.33	3.13	12.64	Local	2.00
E9	4.84	39.52	3.92	19.46	Local	2.00
E10	0.70	56.03	0.85	3.31	Local	1.00
E11	3.99	30.00	2.48	14.96	Local	1.00
E12	3.28	30.00	2.04	12.33	Local	6.00
E13	4.45	30.00	2.76	16.67	Local	1.00
E14	9.14	44.35	8.62	39.37	Local	0.00
E15	1.89	51.97	2.08	8.55	Local	2.00
E16	1.57	73.60	2.68	8.89	Local	6.00
E17	1.55	73.60	2.64	8.76	Local	1.00
E18	2.72	52.96	3.45	14.00	Local	1.50
E19	2.91	53.40	3.58	14.46	Local	1.20
E20	2.75	53.49	3.12	12.57	Local	2.00
E21	2.05	54.72	2.56	10.18	Local	2.00
E22	4.41	53.09	5.39	21.86	Local	2.70
E23	4.11	51.69	4.81	19.86	Local	2.70
E24	4.23	30.00	2.63	15.87	Local	2.00
E25	2.78	35.90	2.16	11.51	Local	2.00

CUMULATIVE FLOW		
Design Point	Q_2	Q_{100}
ID	(CFS)	(CFS)
14	32.04	124.18
15	36.95	142.09
5A	14.28	56.31
5B	9.56	40.76
5C	18.85	70.87
5D	21.89	79.97
5E	23.45	83.44
5F	3.06	12.34
5G	6.16	142.25
5H	29.48	81.28
5I	3.92	19.46
5J	0.85	3.31
5K	2.48	14.96
5L	4.60	27.74
5M	2.76	16.67
5N	10.74	49.99
5O	2.08	8.55
5P	19.53	49.94
5Q	5.06	23.96
5R	4.86	14.00
5S	24.94	67.90
5T	3.12	12.57
5U	2.56	10.18
5V	9.85	39.52
5W	4.81	19.86
5X	2.63	15.87
5Y	2.16	11.51

POND C	
Description	
Drainage Area (FT)	101.09
Percent Imperviousness (%)	44.49
WQCV (AC-FT)	1.61
EURV Volume (including WQVC) (AC-FT)	4.49
EURV Water Surface (FT)	5973.29
100-YR Volume (including EURV) (AC-FT)	8.46
100-yar water surface elevation (FT)	5978.14
Emergency Spillway Crest Elevation (FT)	5978.14
100-year Peak Inflow (CFS)	204.00
100-year Peak Outflow (CFS)	106.53
100-year Peak Allowable (CFS)	111.36

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Slope indicates sump inlet

PREPARED UNDER THE SUPERVISION OF

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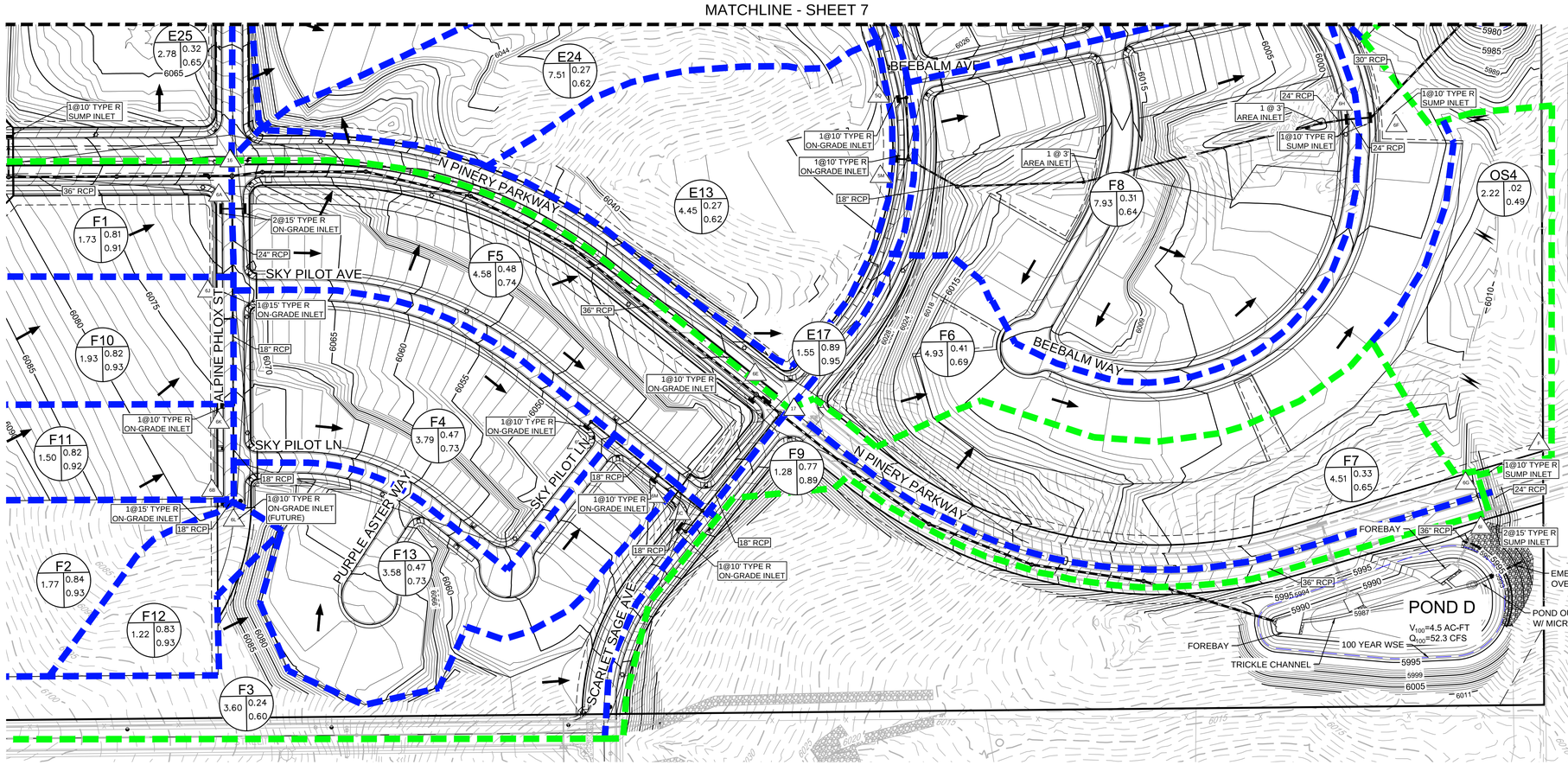
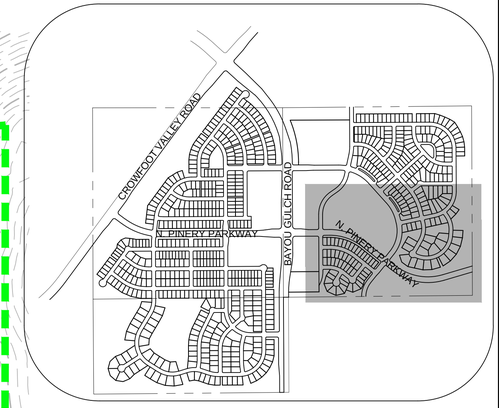
TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 6

N:\PROJECTS\HESS RANCH\DOCS\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\FINAL DRAINAGE MAP D6-07.DWG, ASFUNDK, 2/1/2018 1:14 PM





KEYMAP
N.T.S.

SCALE: 1" = 100'

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA (AC)	Imperviousness %	Q_2 (CFS)	Q_{100} (CFS)	Street Type	Slope %
E1	4.04	52.65	4.95	20.19	Local	2.70
E2	5.27	52.02	4.71	19.36	Local	0.00
E3	4.77	52.31	5.64	23.07	Local	3.00
E4	3.20	52.07	3.78	14.69	Local	4.00
E5	2.76	53.77	3.09	12.43	Local	0.00
E6	2.63	53.59	3.06	12.34	Local	1.00
E7	2.77	51.99	3.21	13.17	Local	0.00
E8	2.68	53.33	3.13	12.64	Local	2.00
E9	4.84	39.52	3.92	19.46	Local	2.00
E10	0.70	56.03	0.85	3.31	Local	1.00
E11	3.99	30.00	2.48	14.96	Local	1.00
E12	3.28	30.00	2.04	12.33	Local	6.00
E13	4.45	30.00	2.76	16.67	Local	1.00
E14	9.14	44.35	8.62	39.37	Local	0.00
E15	1.89	51.97	2.08	8.55	Local	2.00
E16	1.57	73.60	2.68	8.89	Local	6.00
E17	1.55	73.60	2.64	8.76	Local	1.00
E18	2.72	52.96	3.45	14.00	Local	1.50
E19	2.91	53.40	3.58	14.46	Local	1.20
E20	2.75	53.49	3.12	12.57	Local	2.00
E21	2.05	54.72	2.56	10.18	Local	2.00
E22	4.41	53.09	5.39	21.86	Local	2.70
E23	4.11	51.69	4.81	19.86	Local	2.70
E24	4.23	30.00	2.63	15.87	Local	2.00
E25	2.78	35.90	2.16	11.51	Local	2.00

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA (AC)	Imperviousness %	Q_2 (CFS)	Q_{100} (CFS)	Street Type	Slope %
F1	1.71	90.64	4.59	13.55	Local	2.50
F2	1.77	93.50	4.96	14.53	Local	2.50
F3	3.60	19.77	1.47	12.47	Local	1.00
F4	3.79	53.06	4.56	18.47	Local	4.00
F5	4.58	46.86	4.46	19.66	Res. Blvd	4.00
F6	4.93	38.37	3.70	18.75	Local	0.00
F7	4.51	18.05	1.68	15.41	Res. Blvd	0.00
F8	7.93	34.99	5.57	30.18	Local	0.00
F9	1.28	66.27	1.75	6.18	Res. Blvd	0.00
F10	1.93	92.20	5.30	15.64	Local	2.50
F11	1.50	91.79	4.07	12.03	Local	2.50
F12	1.22	93.17	3.39	9.95	Local	2.50
F13	3.58	52.91	4.36	17.70	Local	4.00

CUMULATIVE FLOW		
Design Point ID	Q_2 (CFS)	Q_{100} (CFS)
14	32.04	124.18
15	36.95	142.09
5A	14.28	56.31
5B	9.56	40.76
5C	18.85	70.87
5D	21.89	79.97
5E	23.45	83.44
5F	3.06	12.34
5G	6.16	142.25
5H	29.48	81.28
5I	3.92	19.46
5J	0.85	3.31
5K	2.48	14.96
5L	4.60	27.74
5M	2.76	16.67
5N	10.74	49.99
5O	2.08	8.55
5P	19.53	49.94
5Q	5.06	23.96
5R	4.86	14.00
5S	24.94	67.90
5T	3.12	12.57
5U	2.56	10.18
5V	9.85	39.52
5W	4.81	19.86
5X	2.63	15.87
5Y	2.16	11.51

CUMULATIVE FLOW		
Design Point ID	Q_2 (CFS)	Q_{100} (CFS)
6A	21.41	56.86
6B	8.28	23.93
6C	9.45	44.87
6D	4.56	18.47
6E	29.25	58.80
6F	13.68	69.19
6G	3.39	22.24
6H	10.08	42.10
6I	1.75	36.44
6Ia	-	78.50
6J	17.19	46.79
6K	12.18	34.01
6L	3.39	9.95
6M	8.80	35.37
16	27.15	55.27
17	36.01	97.22

POND D	
Description	
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.88
EURV Volume (including WQVC) (AC-FT)	2.61
EURV Water Surface (FT)	5991.65
100-YR Volume (including EURV) (AC-FT)	4.49
100-yar water surface elevation (FT)	5993.55
Emergency Spillway Crest Elevation (FT)	5993.55
100-year Peak Inflow (CFS)	184.40
100-year Peak Outflow (CFS)	52.28
100-year Peak Allowable (CFS)	55.28

LEGEND

711F	DESIGN POINT
XX A R2 R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

NOTE:
1. THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF ENGINEERING CALCULATIONS. ERRORS IN THE DESIGN OR CALCULATIONS REMAIN THE RESPONSIBILITY OF THE REGISTERED PROFESSIONAL ENGINEER WHOSE STAMP AND SIGNATURE ARE AFFIXED TO THIS DOCUMENT.
2. PONDS ARE MAINTAINED BY METRO DISTRICT.
3. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
4. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-1/4" ALUMINUM CAP, BEING LOCATED IN THE SOUTHWEST QUARTER OF SECTION 33, TOWNSHIP 6 SOUTH, RANGE 66 WEST OF THE SIXTH PRINCIPAL MERIDIAN, HAVING A PUBLISHED ELEVATION OF 1799.2870 METERS (5903.13 FEET) NAVD '88 DATUM.

BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06" EAST, 2648.70 FEET.

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

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UNCC UTILITY NOTIFICATION CENTER OF COLORADO

No.	Revisions	Date	Init.	Appr.	Date

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10333 E. Dry Creek Rd.
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Fax: (720) 482-9546

E5X MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701
DRAWN BY: AYK
CHECKED BY: JJJ
DATE: MAY 2017
SHEET NUMBER 7

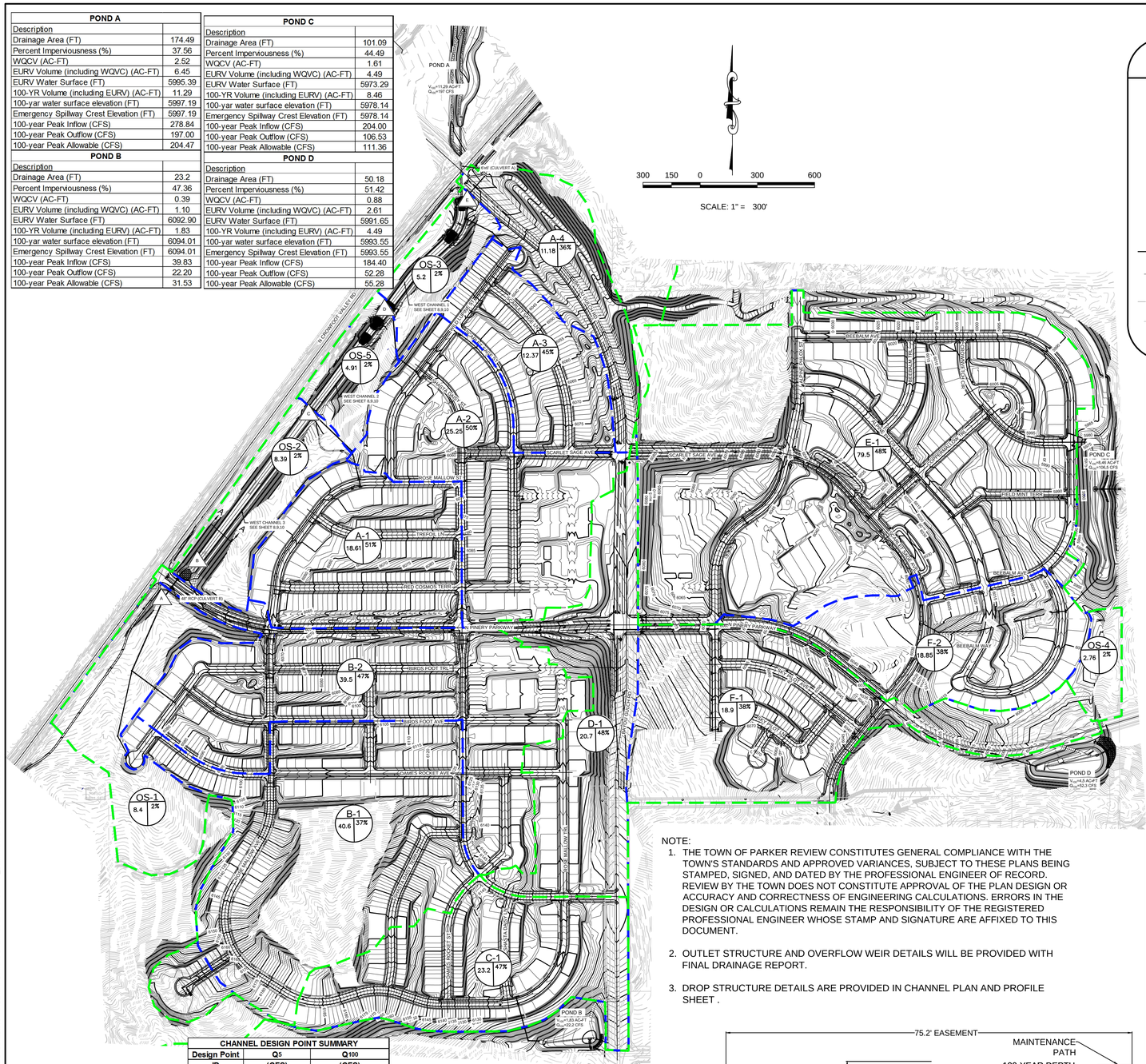
N:\PROJECTS\HESS RANCH\DOC\ENGINEERING\DRAINAGE\FINAL DRAINAGE STUDIES\DRAINAGE MAPS\FINAL DRAINAGE MAP 06-07.DWG, ASFUNDK, 2/1/2018 1:14 PM

POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.56
WQCV (AC-FT)	2.52
EURV Volume (including WQVC) (AC-FT)	6.45
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yar water surface elevation (FT)	5997.19
Emergency Spillway Crest Elevation (FT)	5997.19
100-year Peak Inflow (CFS)	278.84
100-year Peak Outflow (CFS)	197.00
100-year Peak Allowable (CFS)	204.47

POND B	
Description	
Drainage Area (FT)	23.2
Percent Imperviousness (%)	47.36
WQCV (AC-FT)	0.39
EURV Volume (including WQVC) (AC-FT)	1.10
EURV Water Surface (FT)	6092.90
100-YR Volume (including EURV) (AC-FT)	1.83
100-yar water surface elevation (FT)	6094.01
Emergency Spillway Crest Elevation (FT)	6094.01
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53

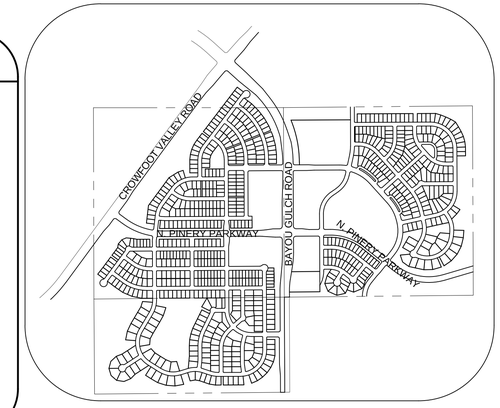
POND C	
Description	
Drainage Area (FT)	101.09
Percent Imperviousness (%)	44.49
WQCV (AC-FT)	1.61
EURV Volume (including WQVC) (AC-FT)	4.49
EURV Water Surface (FT)	5973.29
100-YR Volume (including EURV) (AC-FT)	8.46
100-yar water surface elevation (FT)	5978.14
Emergency Spillway Crest Elevation (FT)	5978.14
100-year Peak Inflow (CFS)	204.00
100-year Peak Outflow (CFS)	106.53
100-year Peak Allowable (CFS)	111.36

POND D	
Description	
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.88
EURV Volume (including WQVC) (AC-FT)	2.61
EURV Water Surface (FT)	5991.65
100-YR Volume (including EURV) (AC-FT)	4.49
100-yar water surface elevation (FT)	5993.55
Emergency Spillway Crest Elevation (FT)	5993.55
100-year Peak Inflow (CFS)	184.40
100-year Peak Outflow (CFS)	52.28
100-year Peak Allowable (CFS)	55.28



LEGEND

711P	DESIGN POINT
XX / A / R2 / R100	XX = BASIN ID A= AREA R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
POND A	DETENTION POND
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
5650	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
5650	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW



KEYMAP
N.T.S.

NOTE:
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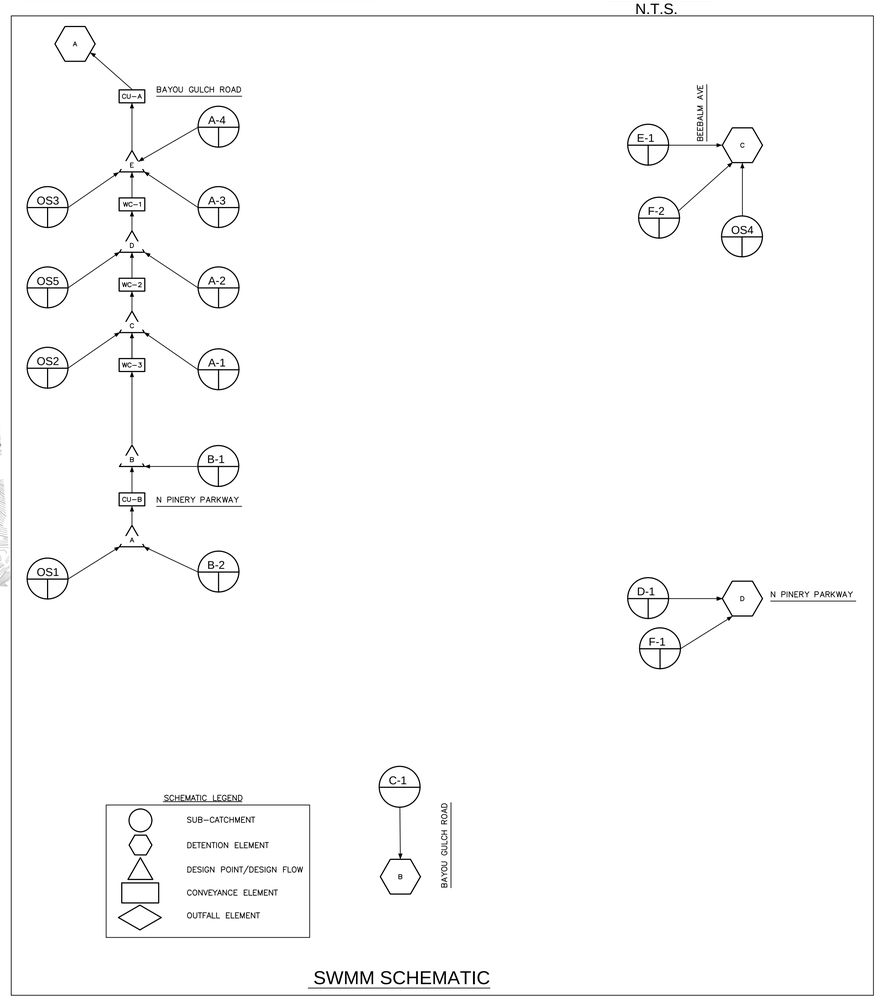
2. OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS WILL BE PROVIDED WITH FINAL DRAINAGE REPORT.
3. DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

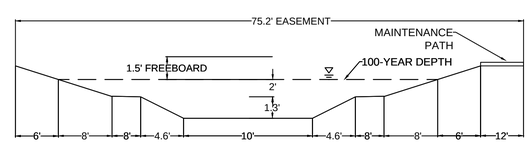


SWMM SCHEMATIC

CHANNEL DESIGN POINT SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A	25.55	76.45
B	49.11	150.81
C	58.29	188.03
D	73.01	240.76
E	83.23	280.45

NOTE: Flows are from SWMM analysis. See drainage report for more details

SWMM BASIN SUMMARY		
Design Point	Q_5	Q_{100}
ID	(CFS)	(CFS)
A-1	11.86	32.59
A-2	19.60	53.08
A-3	7.60	21.76
A-4	5.01	16.11
B-1	20.87	66.84
B-2	26.81	74.30
C-1	14.00	39.86
OS-1	1.82	9.80
OS-2	1.62	8.90
OS-3	1.02	5.59
OS-4	0.31	1.87
OS-5	1.55	7.82



CHANNEL SECTION A-A
NO TO SCALE

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THIS REVIEW DOES NOT CONSTITUTE APPROVAL OF ANY PRIVATE ON-SITE IMPROVEMENTS WHICH MAY BE SHOWN. CONSTRUCTION CANNOT COMMENCE UNTIL ALL REQUIRED DRAINAGE/TRAFFIC REPORT(S), FINAL DEVELOPMENT PLAN(S), SPECIAL REVIEW(S), GRADING PERMIT, AND/OR OTHER PERMITS ARE COMPLETE, APPROVED, AND ON FILE WITH THE TOWN OF PARKER.

TOWN OF PARKER, PUBLIC WORKS DIRECTOR DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - STORMWATER DATE

TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION DATE

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