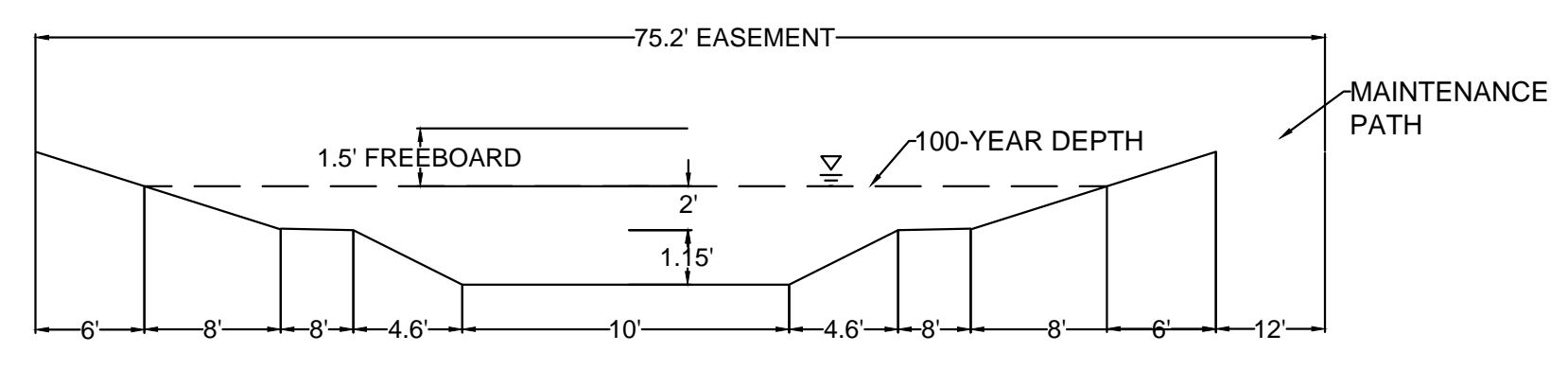


N:\PROJECTS\SSR\BENCH\ENGINEERING\DRAINAGE\FINAL\DRAINAGE STUDIES\DRAINAGE MAPS\FINAL OVERALL DRAINAGE MAP.DWG, A5E\INDX, 4/10/2018 8:23 AM

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



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

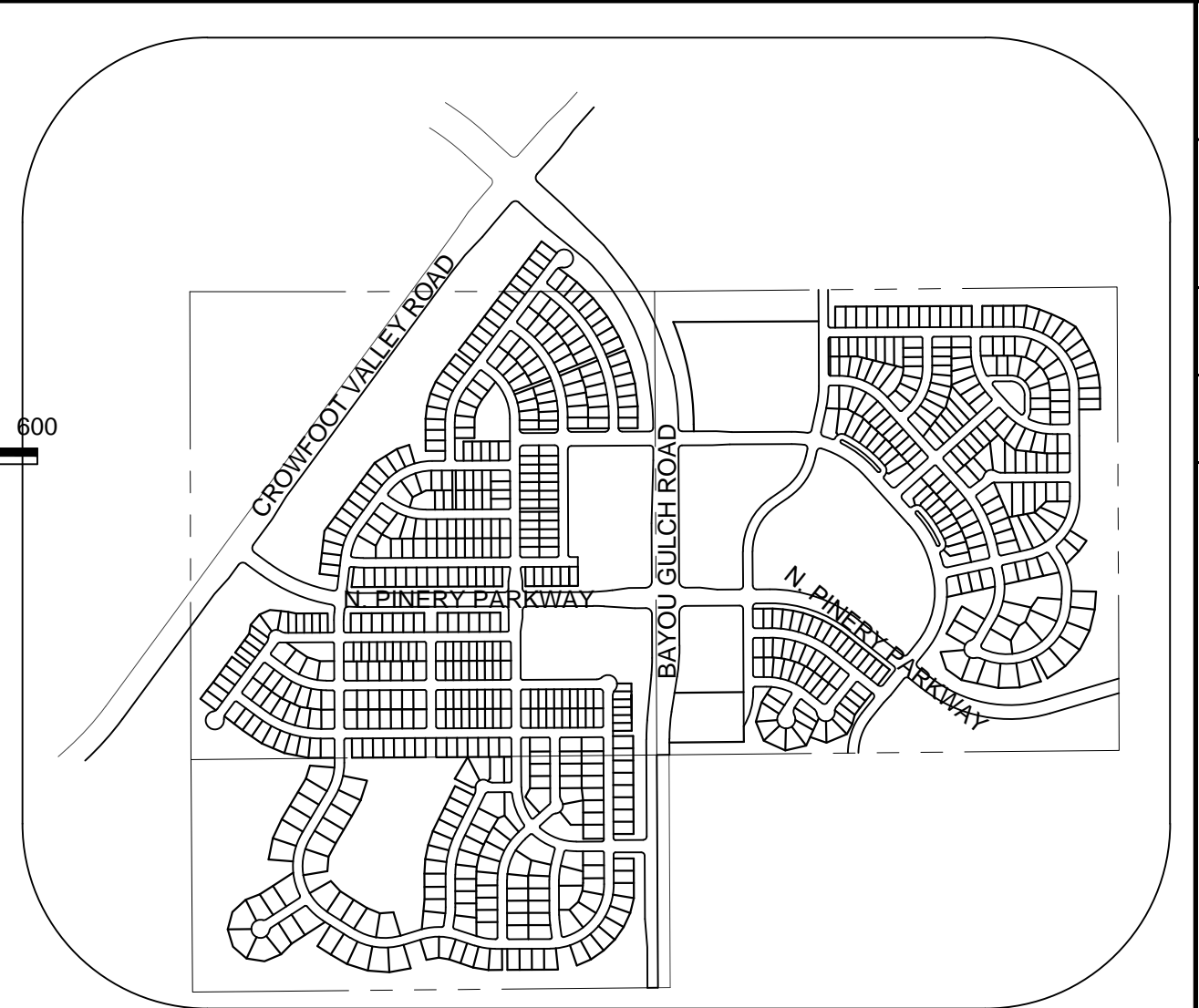


CHANNEL SECTION A-A
NO TO SCALE

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.

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



KEYMAP
N.T.S.

LEGEND

	DESIGN POINT
	XX = BASIN ID A= AREA
	R2= 2 YR RUNOFF CO-EFF R100= 100 YR RUNOFF CO-EFF
	CHANNEL DROP STRUCTURE
	BASIN LINE
	MAJOR BASIN LINE
	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
	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.

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.

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 _____

PREPARED UNDER THE SUPERVISION OF

MARK SCHEURER
COLORADO P.E. 48988

SHEET NUMBER	DRAWN BY: AYK	CHECKED BY: JJ	DATE: MAY 2017	SCALE:	AS SHOWN	FILE NO:	8130283701												
				TOWN OF PARKER, PUBLIC WORKS DIRECTOR	DATE	TOWN OF PARKER, PUBLIC WORKS MANAGER - STORMWATER	DATE	TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION	DATE										
				TRAILS AT CROWFOOT FINAL DRAINAGE MAP OVERALL DRAINAGE MAP															
				ESX MANAGEMENT 7253 South Alton Way CENTENNIAL, CO 80112															
				10333 E. Dry Creek Rd. Suite 210 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9548															
				<table border="1"> <tr> <th>No.</th> <th>Revisions</th> <th>Date</th> <th>Init.</th> <th>Appr.</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>				No.	Revisions	Date	Init.	Appr.	Date						
No.	Revisions	Date	Init.	Appr.	Date														

Note:
1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
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	49.08	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 (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
B1	21.00	23.33	8.48	62.92	Local	7.00
B2	3.13	51.76	3.62	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	3.68	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 (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
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	5.68	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 (AC)	Imperviousness %	Q2 (CFS)	Q100 (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	1.80	51.97	2.08	8.65	Local	2.00
E16	1.57	73.60	2.68	8.89	Local	6.00
E17	1.55	73.60	2.64	8.78	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 %	Q2 (CFS)	Q100 (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	Q2 (CFS)	Q100 (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 Relavant for 100 year)	
4	19.35	41.99	

CUMULATIVE FLOW			
Design Point ID	Q2 (CFS)	Q100 (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 Relavant for 100 year)	
7	7.40	(Not Relavant for 100 year)	
9	19.80	84.75	
10	32.55	84.62	

CUMULATIVE FLOW			
Design Point ID	Q2 (CFS)	Q100 (CFS)	
3A	8.95	54.35	

CUMULATIVE FLOW			
Design Point ID	Q2 (CFS)	Q100 (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 ID	Q2 (CFS)	Q100 (CFS)	
14	32.04	124.18	
15	36.95	142.09	
5A	14.28	56.31	
5B	9.56	77.69	
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	Q2 (CFS)	Q100 (CFS)	
6A	21.41	56.88	
6B	8.28	23.93	
6C	9.45	44.87	
6D	4.56	18.47	
6E	29.25	58.80	
6F	13.68	59.19	
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	

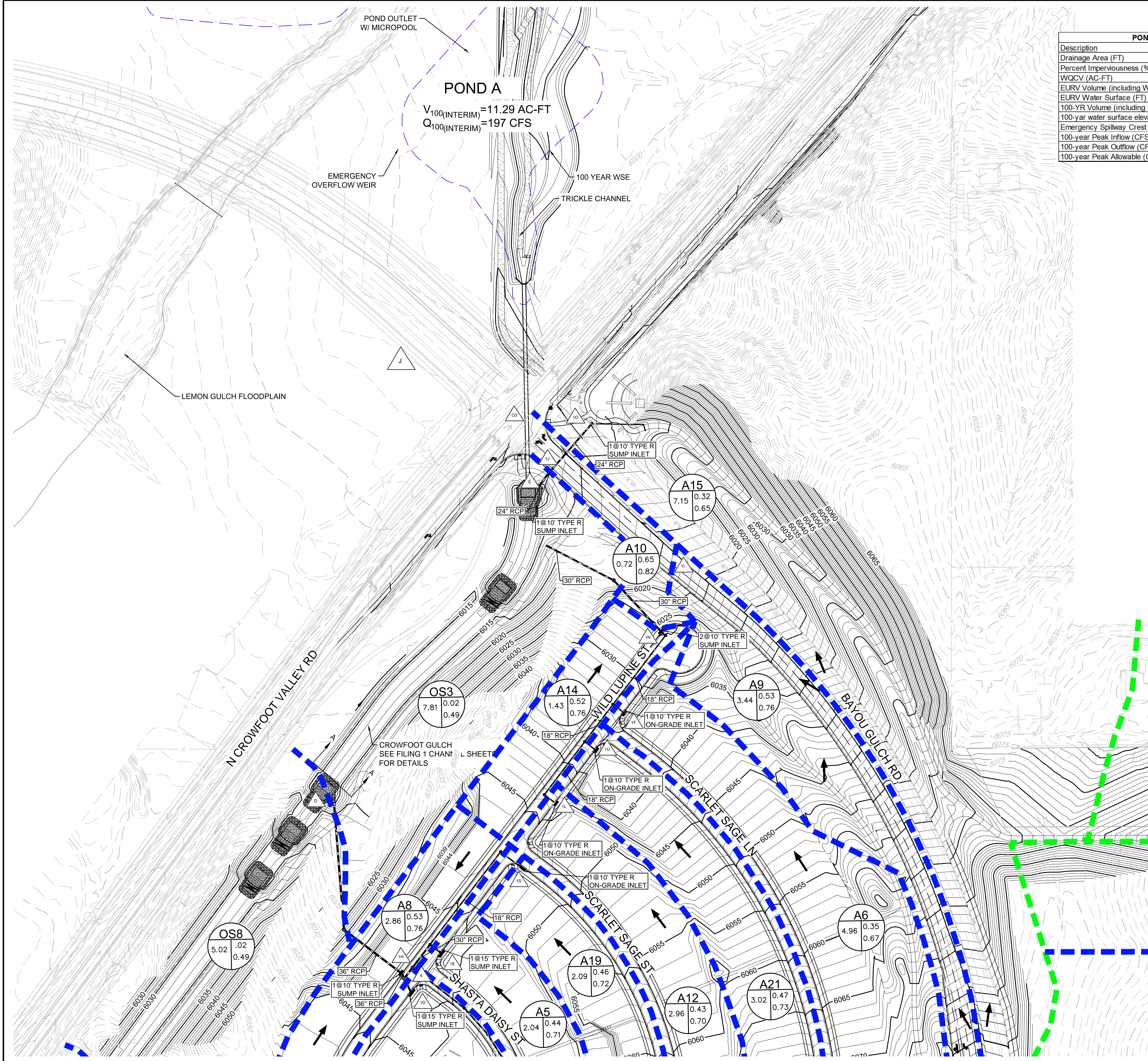
CHANNEL DESIGN POINT SUMMARY			
Design Point ID	Q5 (CFS)	Q100 (CFS)	
A	25.55	76.45	
B	49.11	150.81	
C	58.29	188.03	
D	73.01	240.76	
E	83.23	280.45	

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

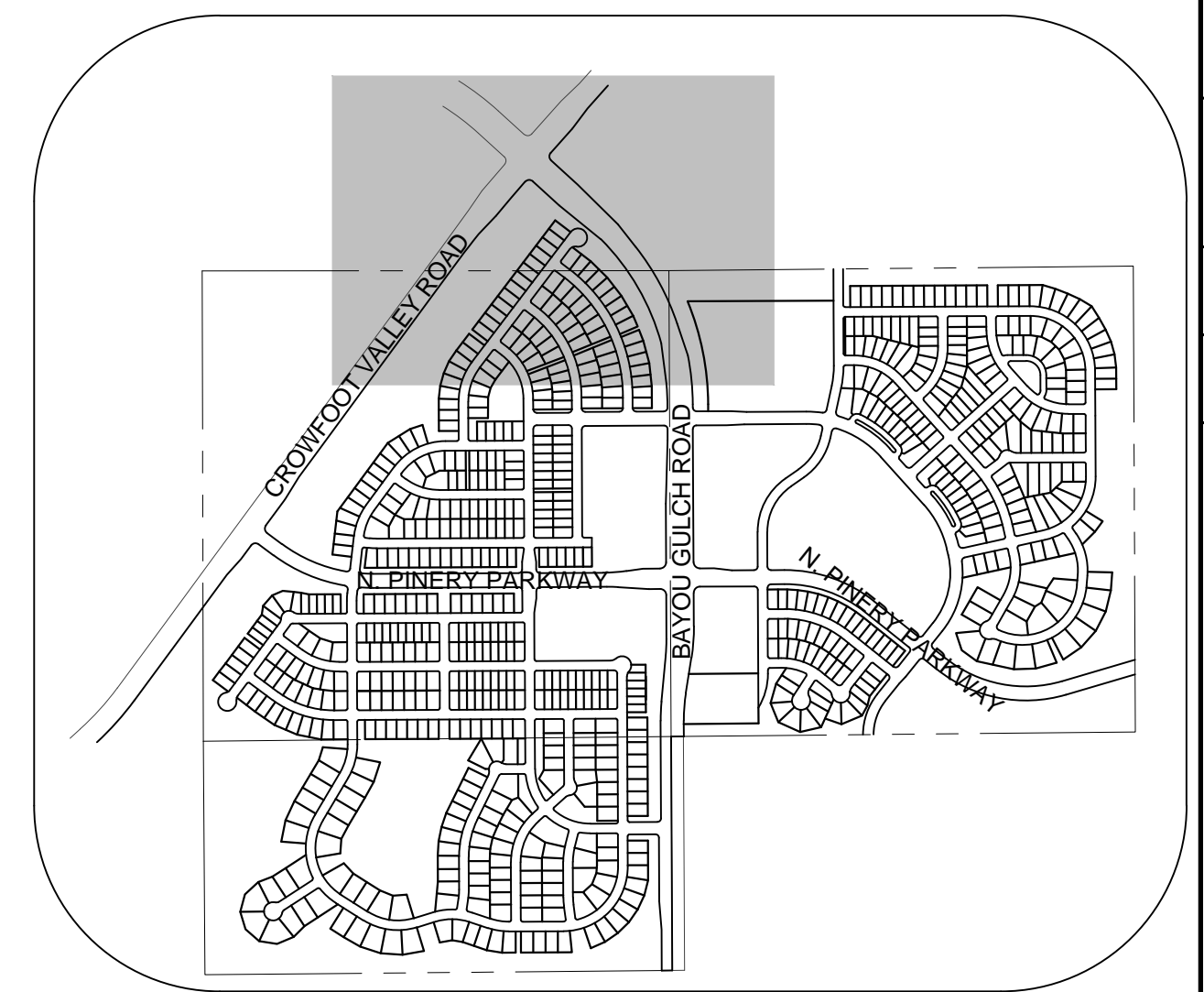
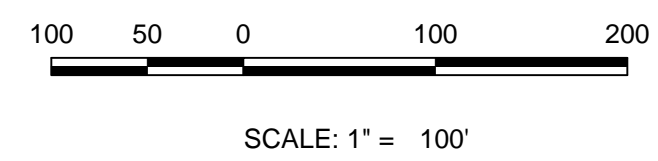
SWMM BASIN SUMMARY			
Design Point ID	Q5 (CFS)	Q100 (CFS)	
A-1	11.86	32.59	
A-2	19.60	53.08	
A-3	7.60	21.76	
A-4	5.01	16.11	
B-1	20.87	66.84	
B-2	26.81	74.30	
C-1	14.00	39.86	
OS-1	1.82	9.80	
OS-2	1.62	8.90	
OS-3	1.02	5.59	
OS-4	0.31	1.87	
OS-5	1.55	7.82	

POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.55
WQCV (AC-FT)	2.314
EURV Volume (including WQVC) (AC-FT)	6.12
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yr 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)	0.36
EURV Volume (including WQVC) (AC-FT)	1.05
EURV Water Surface (FT)	6092.88
100-YR Volume (including EURV) (AC-FT)	1.83
100-	



POND A	
Description	
Drainage Area (FT)	174.49
Percent Imperviousness (%)	37.55
WQCV (AC-FT)	2.314
EURV Volume (including WQVC) (AC-FT)	6.12
EURV Water Surface (FT)	5995.39
100-YR Volume (including EURV) (AC-FT)	11.29
100-yr 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



KEYMAP
N.T.S.

Note:

1) 0% slope indicates sump inlet.

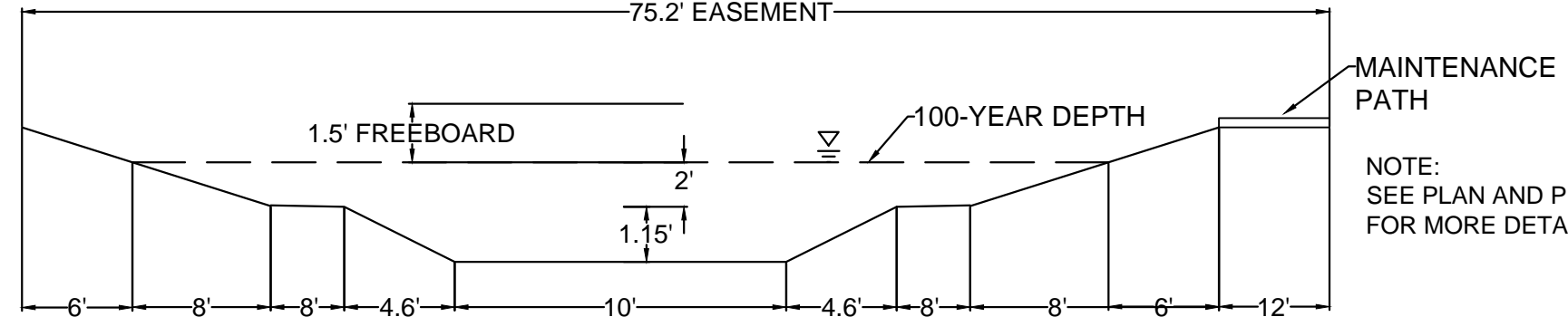
BASIN ID	AREA (AC)	Imperviousness %	DIRECT FLOW		Street Type	Slope %
			Q2 (CFS)	Q100 (CFS)		
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	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

Design Point ID	CUMULATIVE FLOW	
	Q2 (CFS)	Q100 (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 Relevant for 100 year)
4	19.35	41.99

- NOTE:
- 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.
 - POND ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET.

LEGEND

	DESIGN POINT
	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
	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW



CHANNEL SECTION A-A
NO TO SCALE

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.

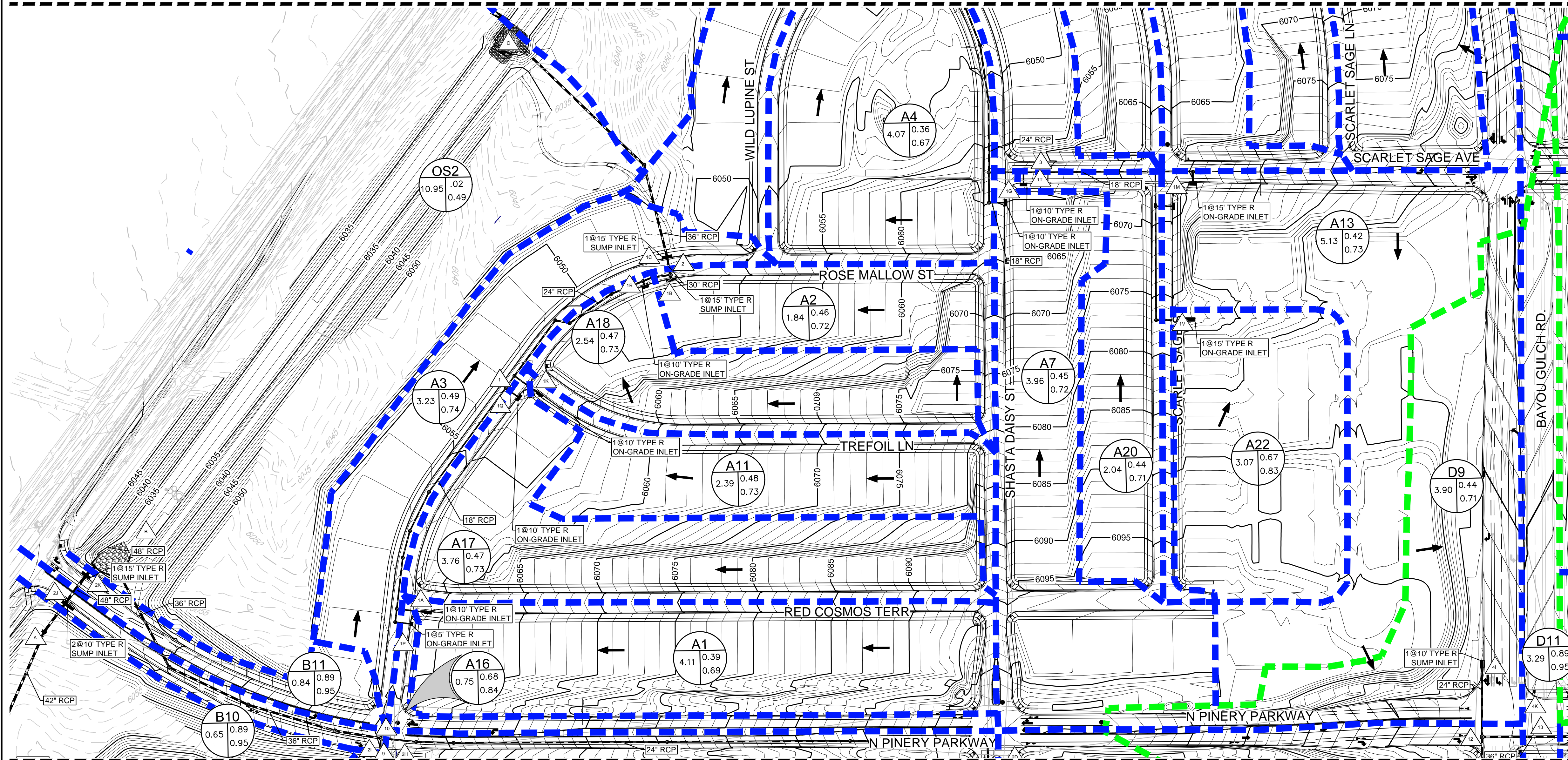
CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCCC 1-800-922-1987

PREPARED UNDER THE SUPERVISION OF

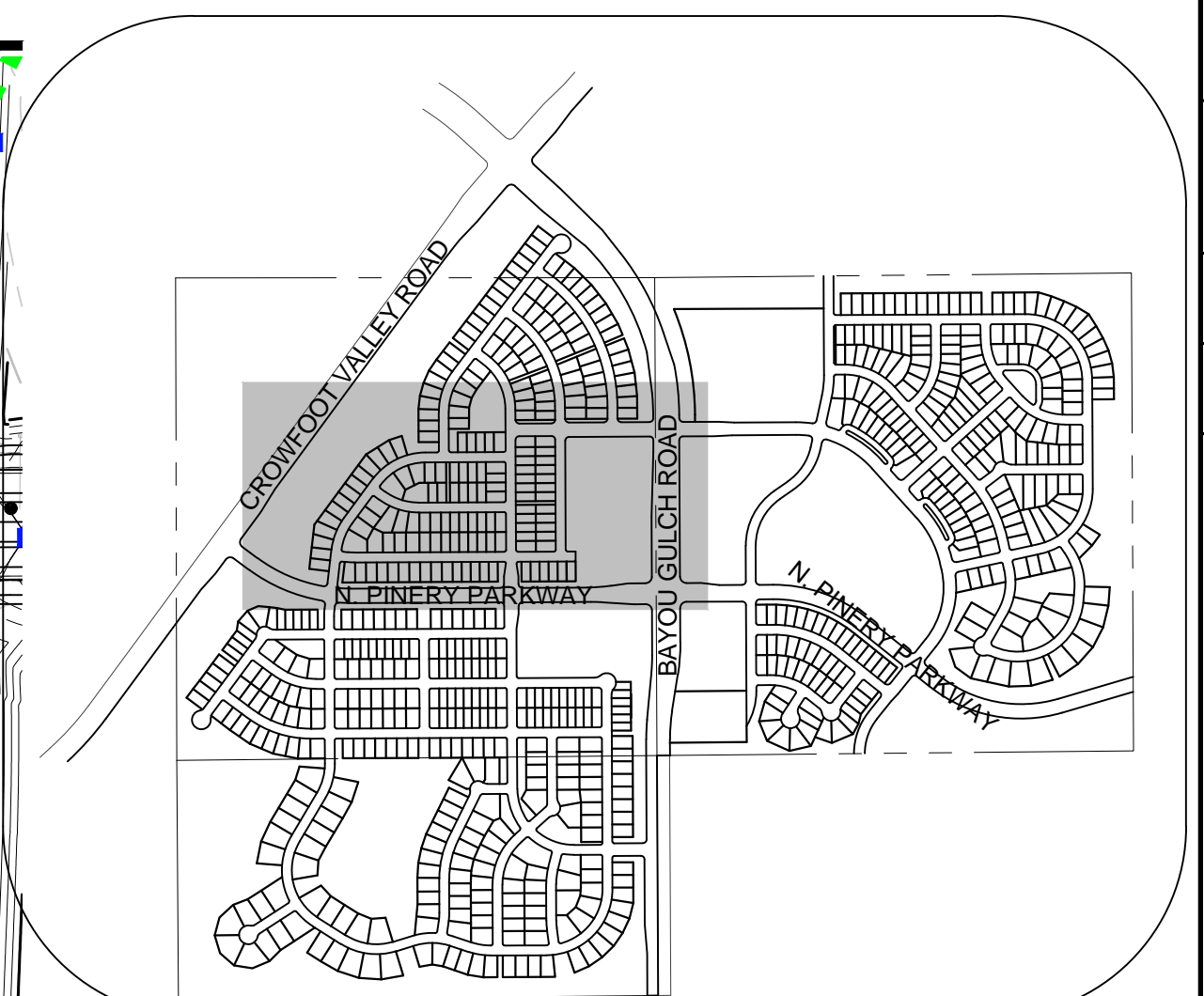
MARK SCHEURER
COLORADO P.E. 48988

10333 E. Dry Creek Rd. Suite 240 Englewood, CO 80152 Tel: (720) 482-9526 Fax: (720) 482-9546	CVL CONSULTANTS	ESX MANAGEMENT 7253 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: JJ	DATE: MAY 2017	SHEET NUMBER 2	DATE APPR. INIT. NO. REVISIONS

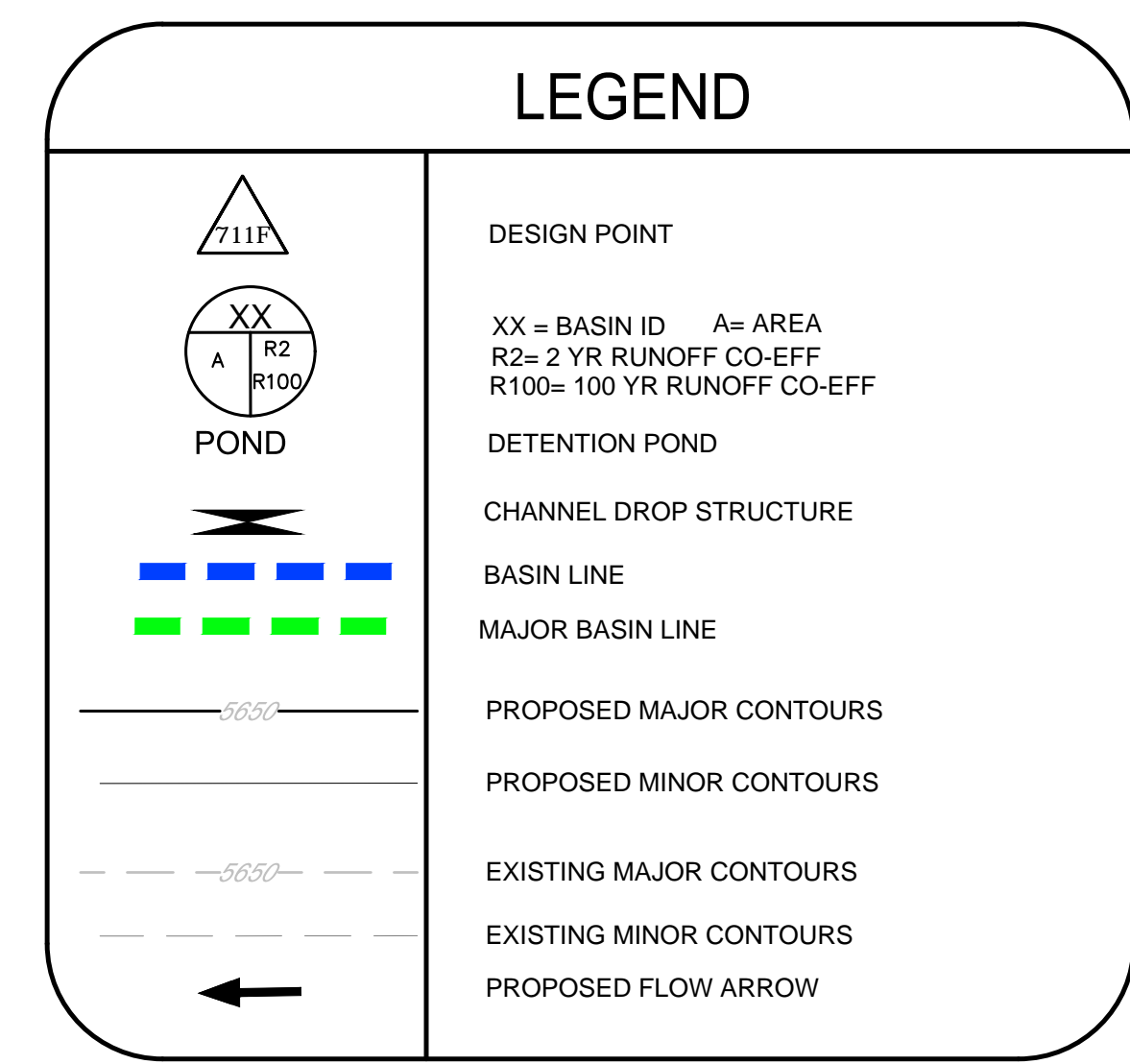
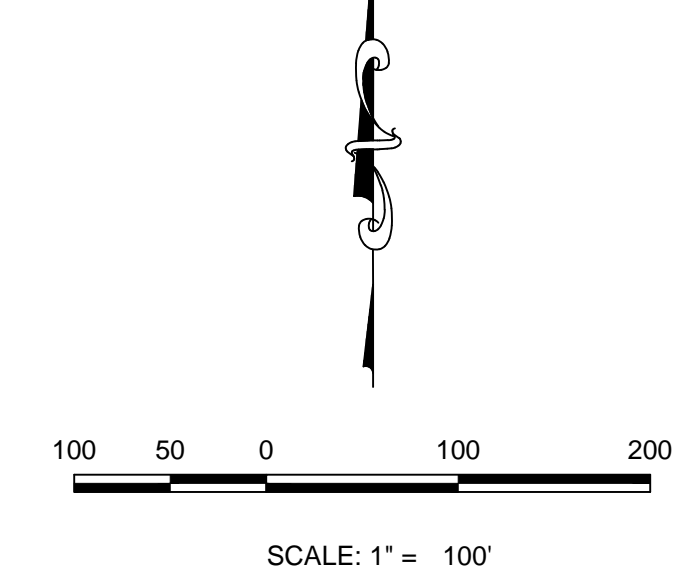
MATCHLINE - SHEET 2



MATCHLINE - SHEET 4



KEYMAP
N.T.S.



- 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.

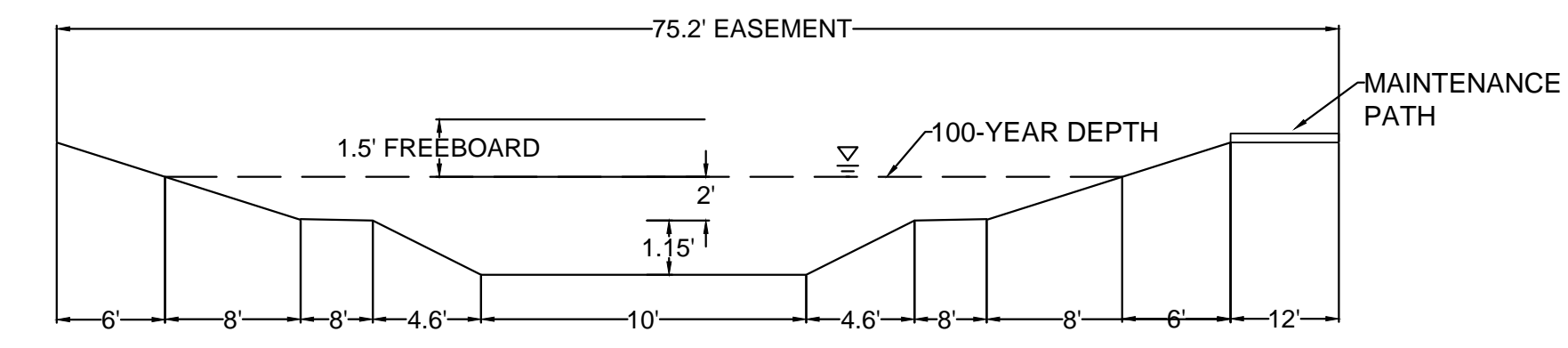
DIRECT FLOW						
BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
A1	4.11	43.77	3.84	17.73	Local	2.00
A2	1.84	52.16	2.22	9.10	Local	0.00
A3	3.23	48.80	3.16	13.54	Local	0.00
A4	4.07	34.03	2.78	15.39	Local	0.00
A5	2.04	49.08	2.27	9.70	Local	0.00
A6	4.96	35.28	3.58	19.32	Local	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 (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
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 ID	Q2 (CFS)	Q100 (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 Retained for 100 year)
4	19.35	41.99

CUMULATIVE FLOW		
Design Point ID	Q2 (CFS)	Q100 (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

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-3/4" 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
UNCC 1-800-922-1987

PREPARED UNDER THE SUPERVISION OF
MARK SCHEURER
COLORADO P.E. 48988

10333 E. Dry Creek Rd., Suite 240
Englewood, CO 80152
Tel: (720) 482-9526
Fax: (720) 482-9546

CVL CONSULTANTS

ESX MANAGEMENT
7353 South Alton Way
CENTENNIAL, CO 80112

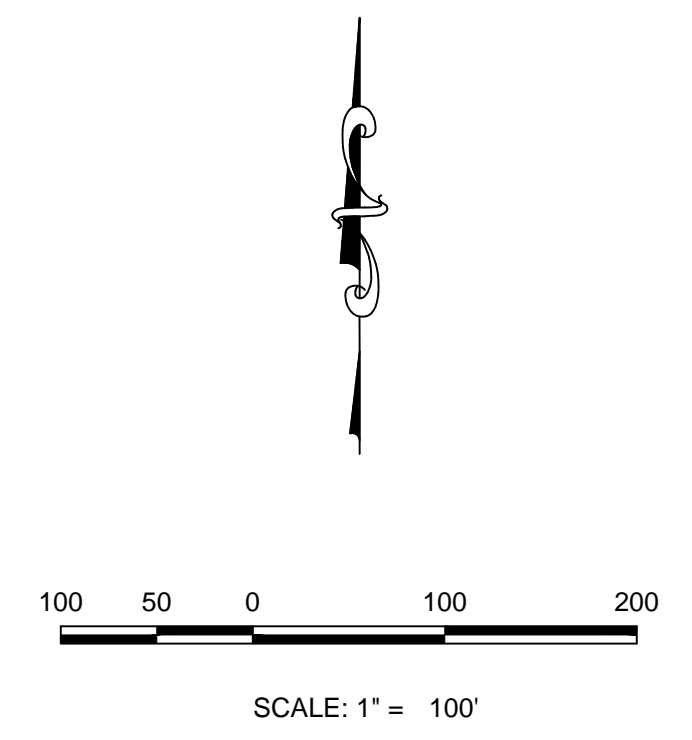
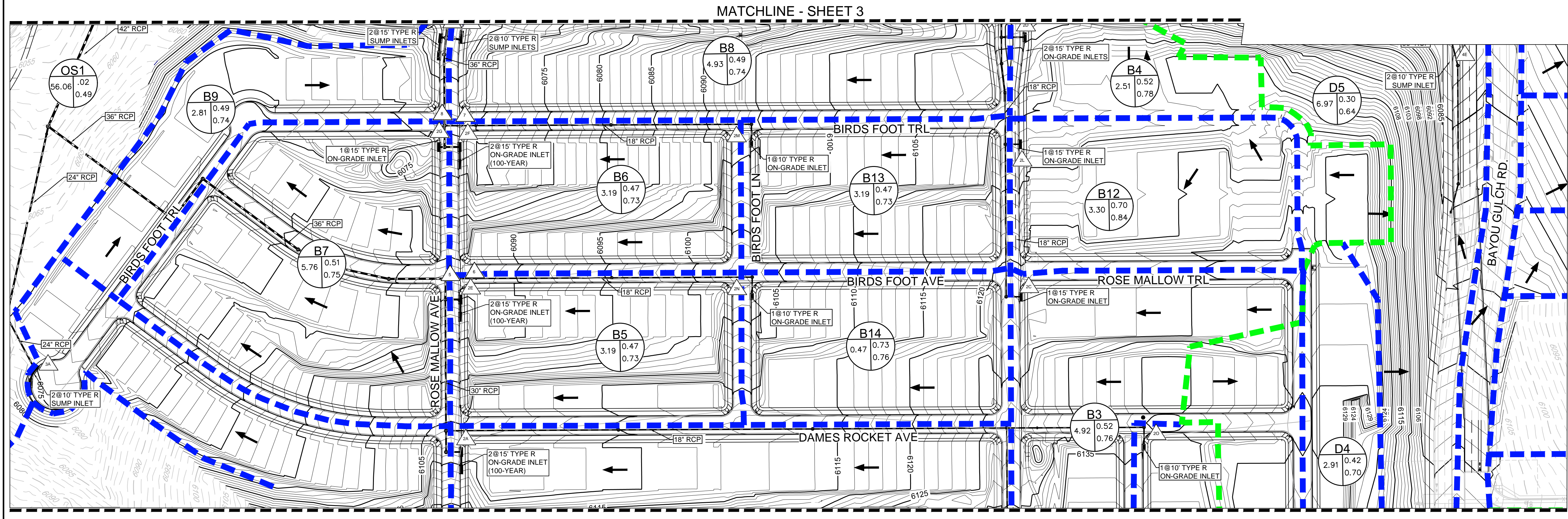
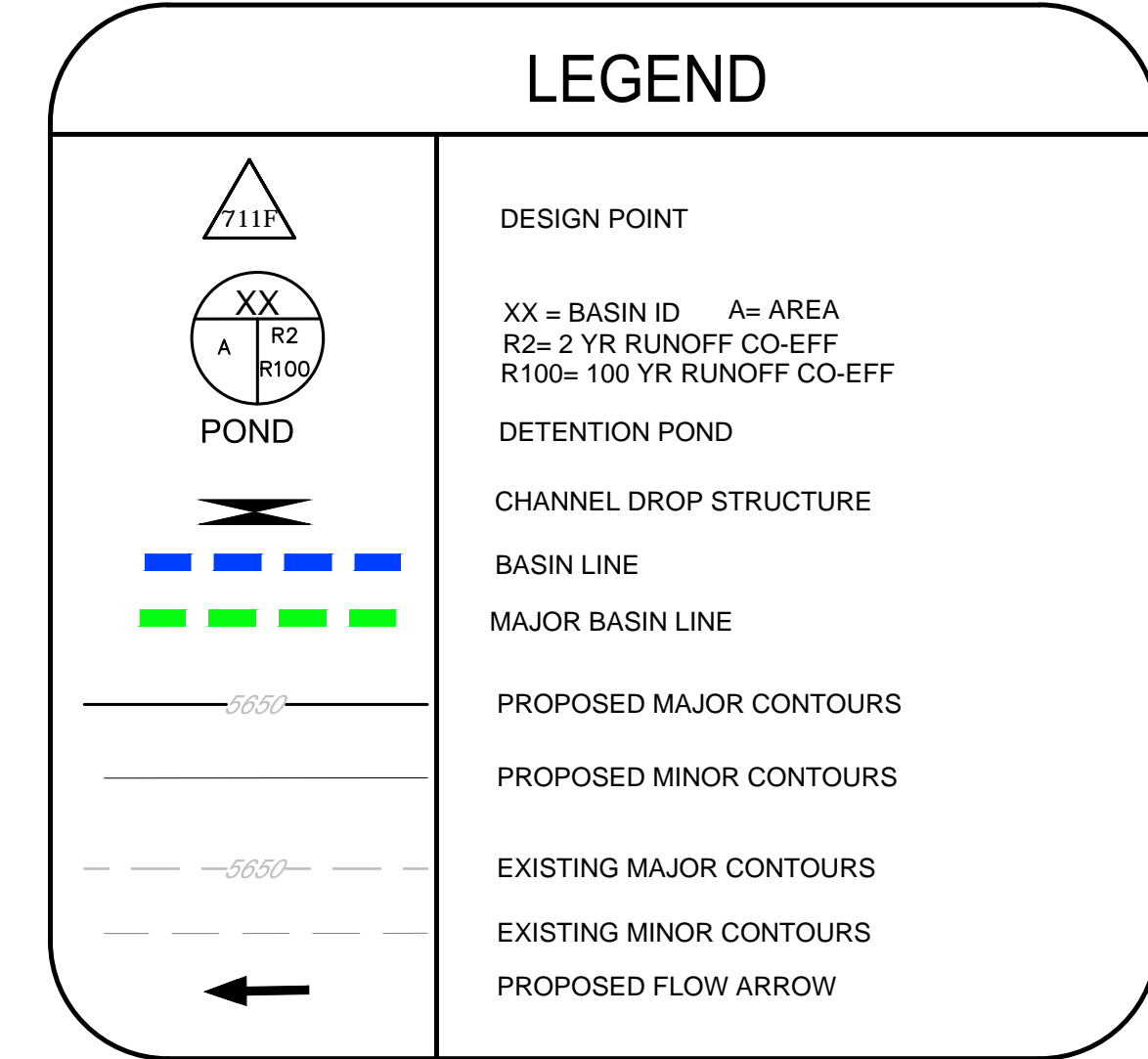
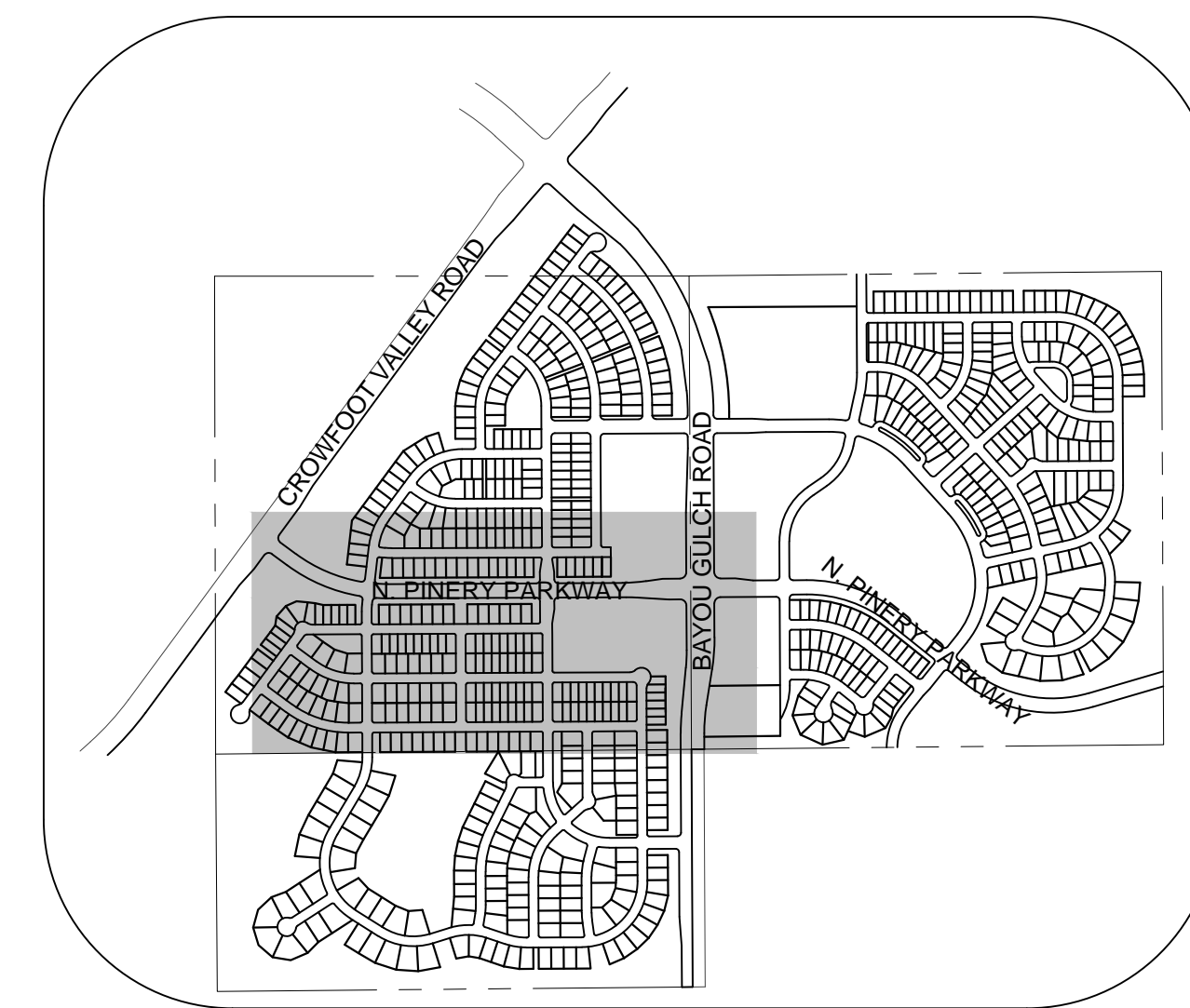
TRAILS AT CROWFOOT FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701

DRAWN BY: AVK
CHECKED BY: JJJ
DATE: MAY 2017

SHEET NUMBER **3**

No.	Revisions	Date	Init.	Appr.	Date



MATCHLINE - SHEET 3

MATCHLINE - SHEET 5

Note: 1) 0% slope indicates sump inlet.

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

Note: 1) 0% slope indicates sump inlet.

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

Design Point	CUMULATIVE FLOW	
	Q2 (CFS)	Q100 (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 Relavant for 100 year)
7	7.40	(Not Relavant for 100 year)
9	19.80	84.75
10	32.55	84.62

Design Point	CUMULATIVE FLOW	
	Q2 (CFS)	Q100 (CFS)
3A	8.95	54.35
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

- NOTE:
- 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS
 - DROP STRUCTURE DETAILS ARE PROVIDED IN CHANNEL PLAN AND PROFILE SHEET .

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987

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

10333 E. Dry Creek Rd.
Suite 240
Englewood, CO 80152
Tel: (720) 482-9526
Fax: (720) 482-9546

CVL CONSULTANTS

ESX MANAGEMENT
7253 South Alton Way
CENTENNIAL, CO 80112

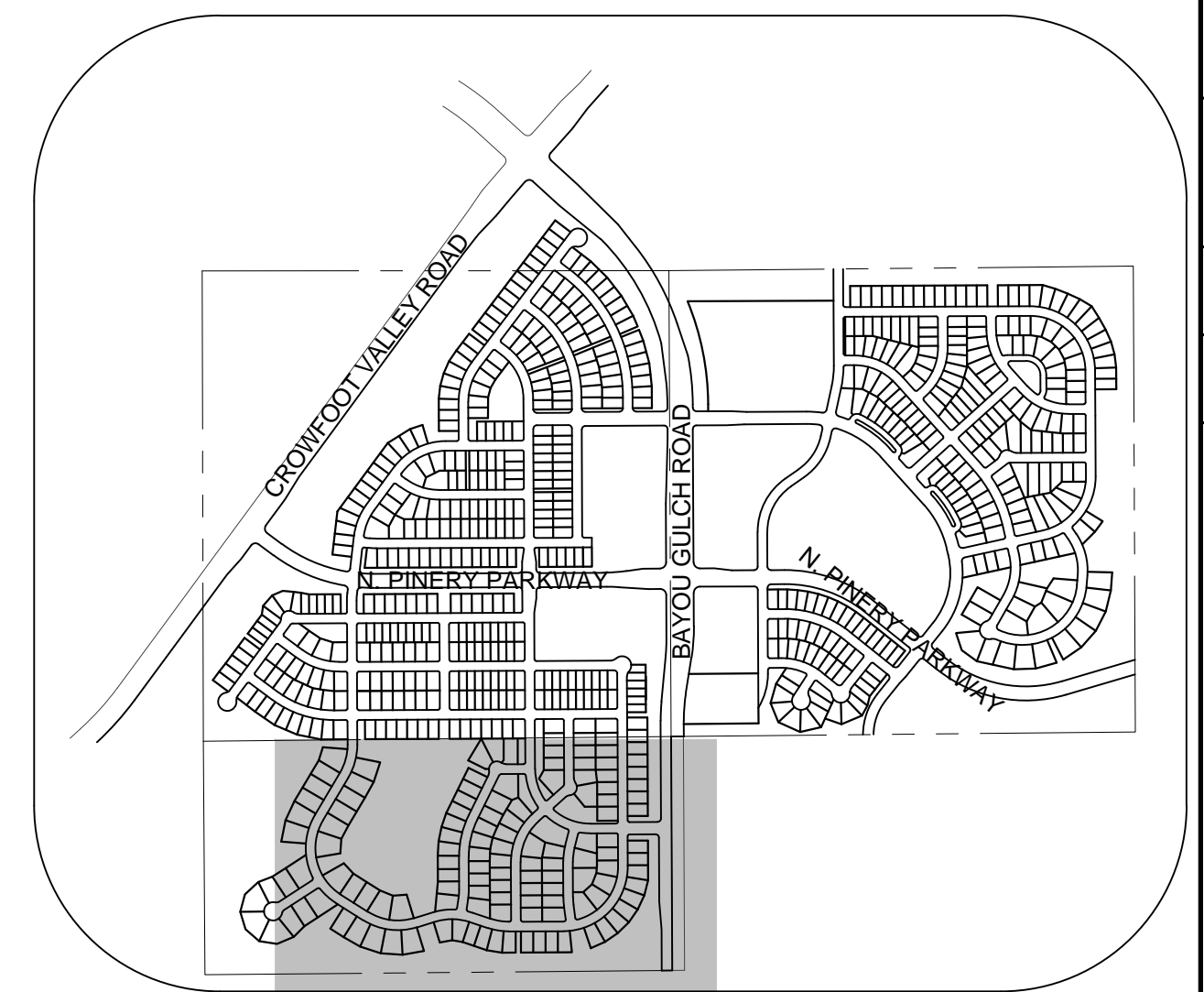
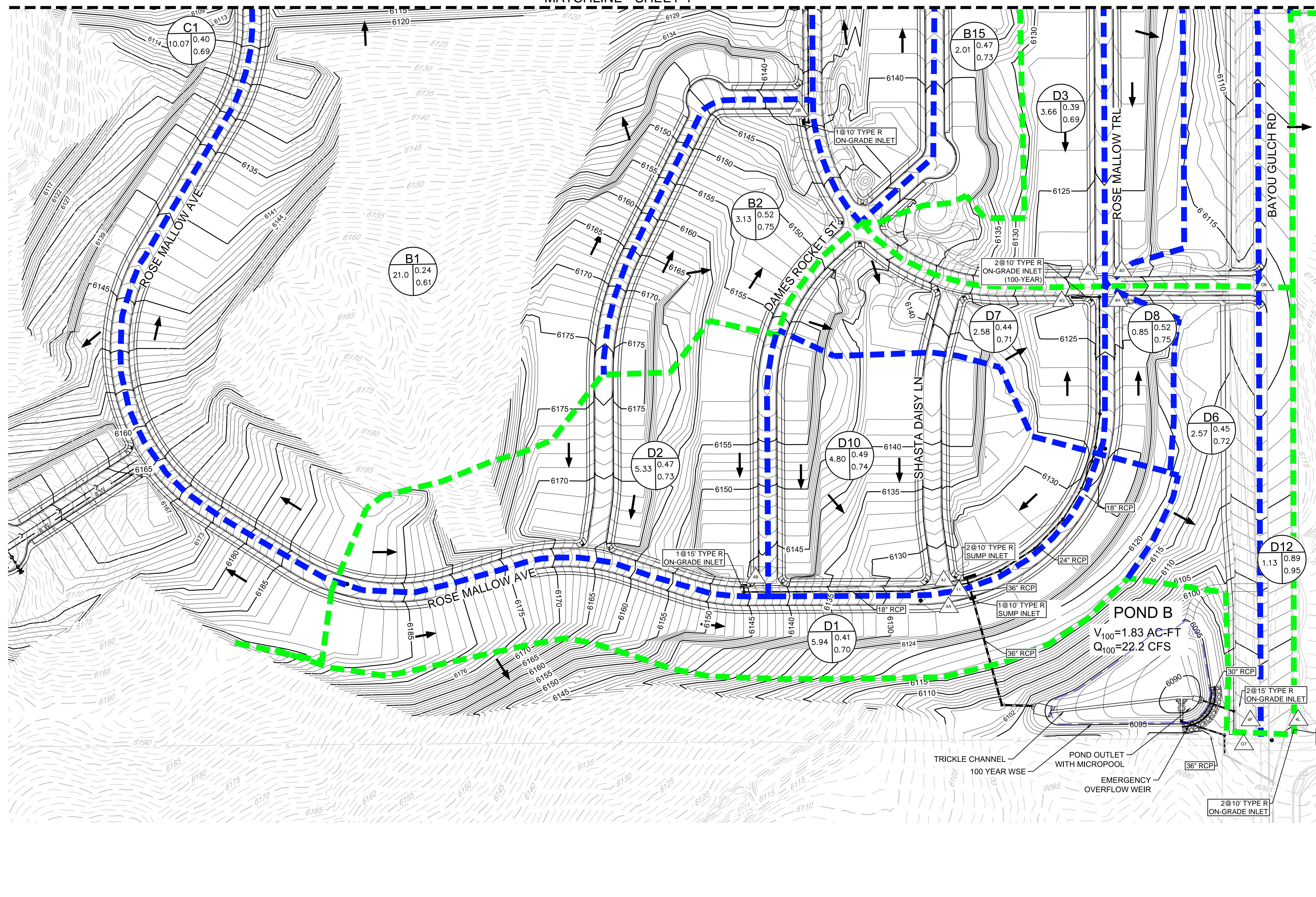
TRAILS AT CROWFOOT
FINAL DRAINAGE MAP
DRAINAGE MAP

SCALE: AS SHOWN
FILE NO: 8130283701

DRAWN BY: AVK
CHECKED BY: JJ
DATE: MAY 2017

SHEET NUMBER: 4

Revisions: No. Date Init. Appr. Date



KEYMAP
N.T.S.

- 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.

LEGEND

	DESIGN POINT 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
	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW

Note: 1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
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 (AC)	Imperviousness %	Q2 (CFS)	Q100 (CFS)	Street Type	Slope %
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 (CFS)	Q100 (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	3.98	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
3	18.73	76.25
6	7.44	(Not Retained for 100 year)
7	7.40	(Not Retained for 100 year)
9	19.80	84.75
10	32.55	84.62

CUMULATIVE FLOW

Design Point	Q2 (CFS)	Q100 (CFS)
3A	8.95	54.35
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

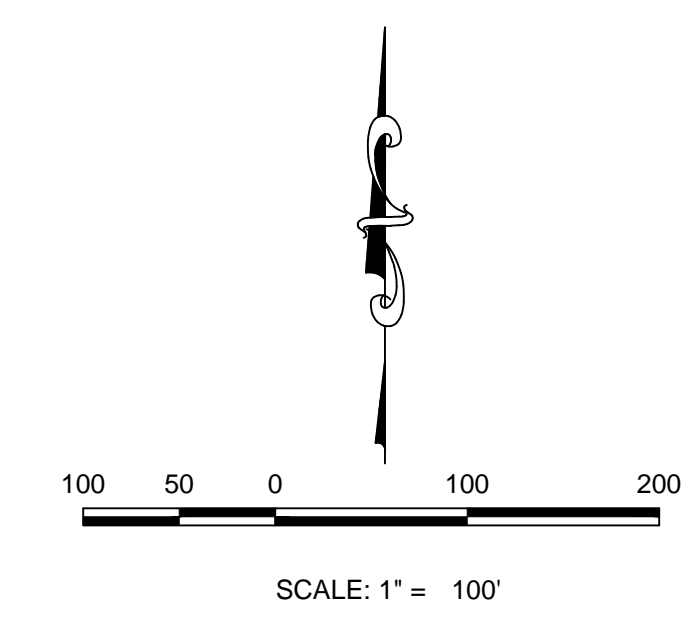
POND B

Description	Value
Drainage Area (FT)	23.2
Percent Imperviousness (%)	47.36
WQCV (AC-FT)	0.36
EURV Volume (including WQVC) (AC-FT)	1.05
EURV Water Surface (FT)	6092.88
100-YR Volume (including EURV) (AC-FT)	1.83
100-year water surface elevation (FT)	6093.98
Emergency Spillway Crest Elevation (FT)	6094.38
100-year Peak Inflow (CFS)	39.83
100-year Peak Outflow (CFS)	22.20
100-year Peak Allowable (CFS)	31.53

BENCHMARK
DOUGLAS COUNTY CONTROL POINT KNOWN AS 1.060032, BEING A 3-3/4" 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.

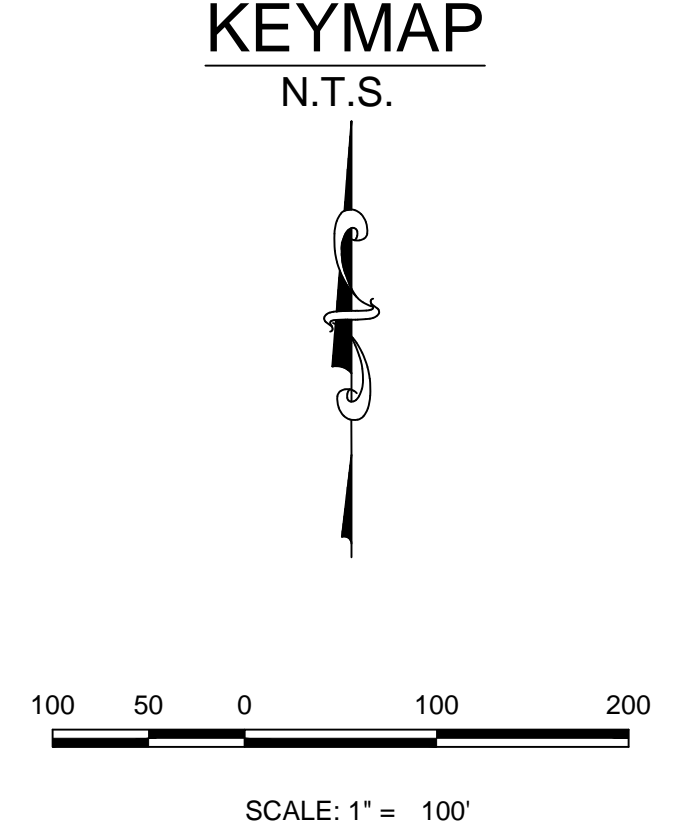
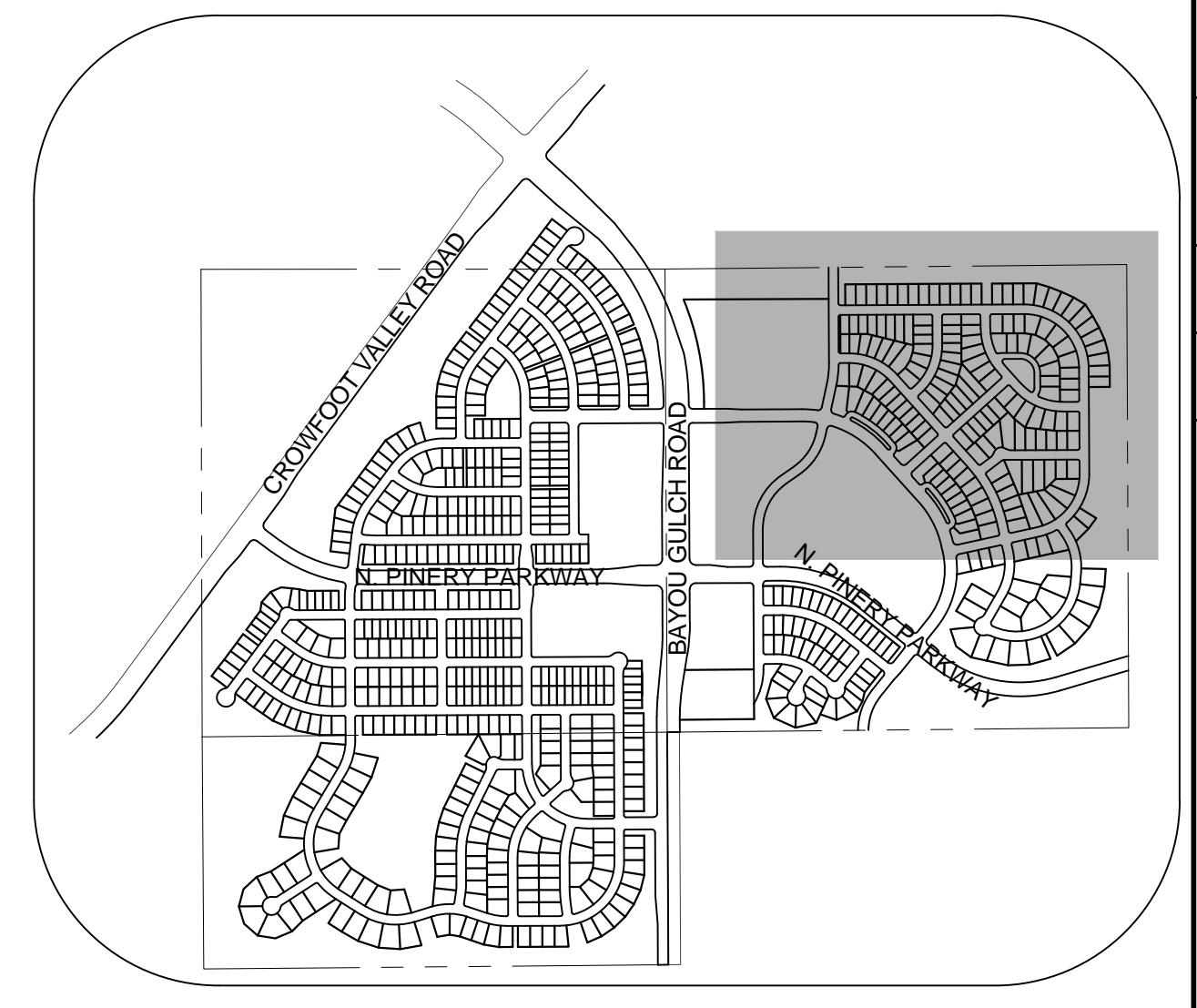
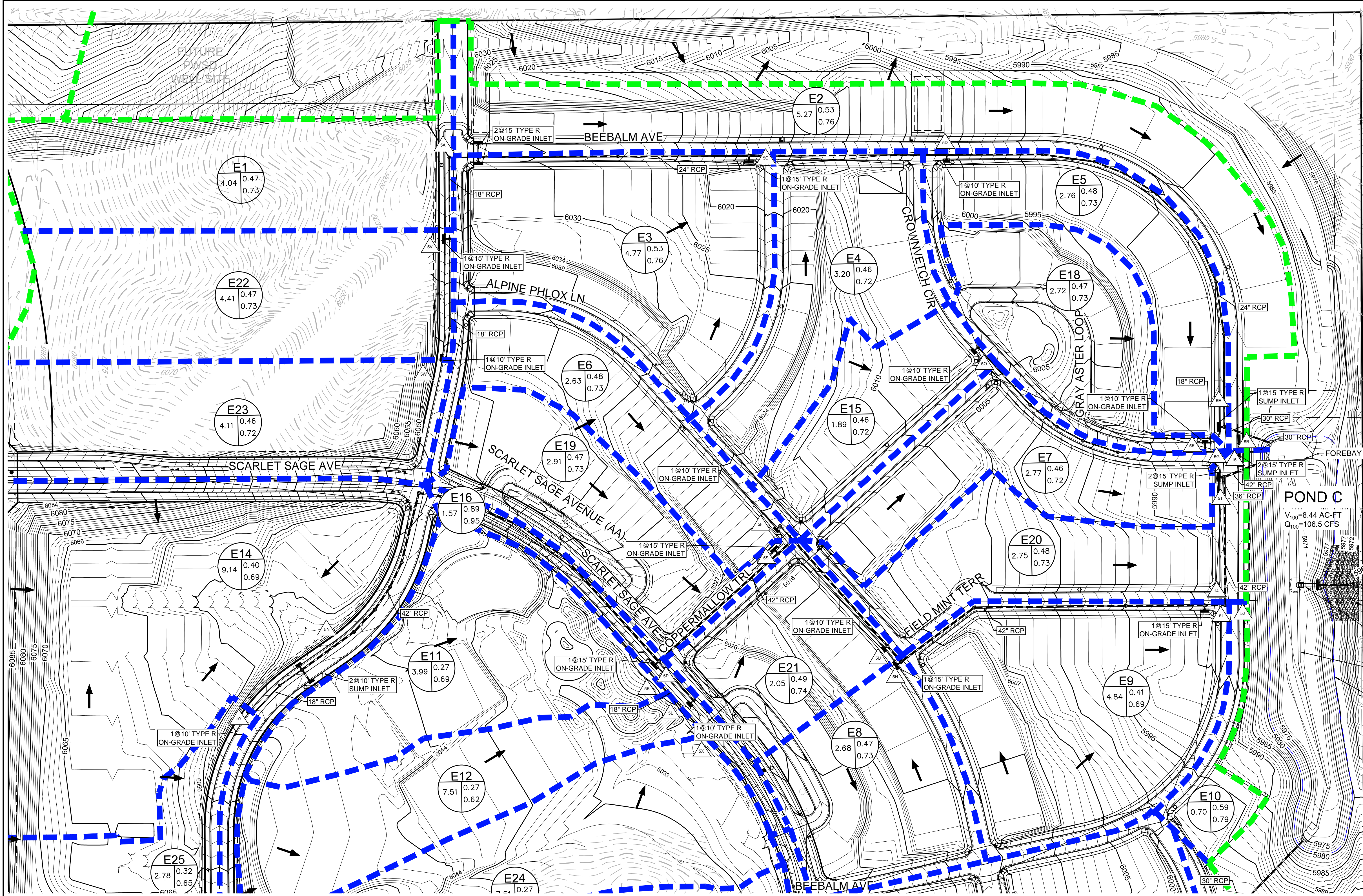
BASIS OF BEARINGS:
THE EAST LINE OF THE NORTHEAST QUARTER OF SAID SECTION 9 BEING MONUMENTED AT THE NORTHEAST CORNER OF SAID SECTION 9 BY A 3-1/4" ALUMINUM CAP STAMPED LS 23053 AND AT THE EAST QUARTER CORNER OF SAID SECTION 9 BY A 2-1/2" ALUMINUM CAP STAMPED LS 6935 BEING CONSIDERED TO BEAR SOUTH 00°15'06"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

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987

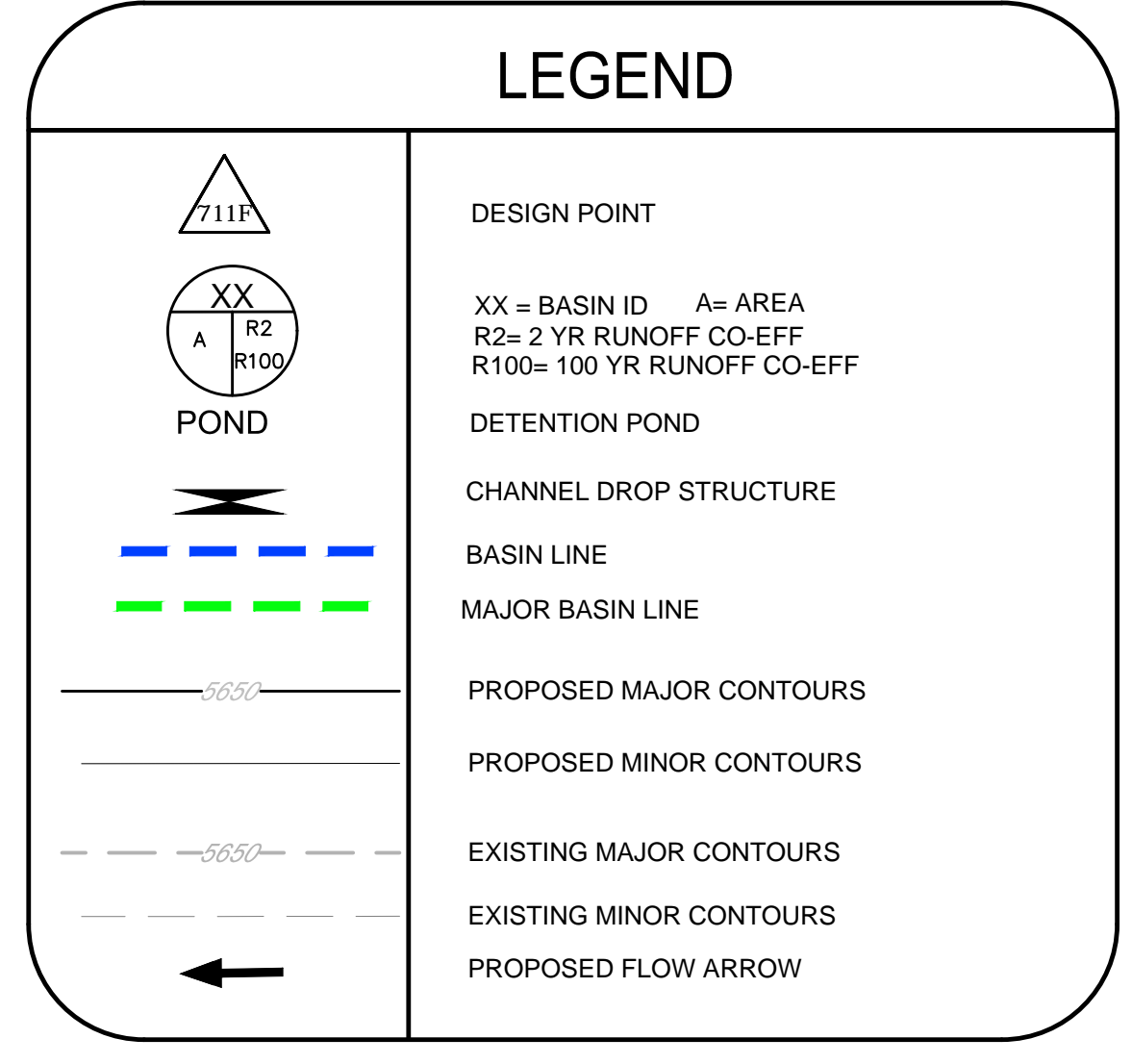


PREPARED UNDER THE SUPERVISION OF
MARK SCHEURER
COLORADO P.E. 48988

SCALE: AS SHOWN	FILE NO: 8130283701
CHECKED BY: AVK	DATE: MAY 2017
DRAWN BY: AVK	
SHEET NUMBER: 5	
TRAILS AT CROWFOOT FINAL DRAINAGE MAP DRAINAGE MAP	
ESX MANAGEMENT 7353 South Alton Way CENTENNIAL, CO 80112	
CVL CONSULTANTS	
10333 E. Dry Creek Rd. Suite 240 Englewood, CO 80152 Tel: (720) 482-9526 Fax: (720) 482-9546	
No. Revisions	Date
Init.	Date
Appr.	Date



EMERGENCY OVERFLOW WEIR
POND OUTLET W/ MICROPOL
TRICKLE CHANNEL
100 YEAR WSE



MATCHLINE - SHEET 7

BASIN ID	AREA (AC)	DIRECT FLOW				Street Type	Slope %
		Imperviousness %	Q2 (CFS)	Q100 (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	

Design Point ID	CUMULATIVE FLOW (CFS)	
	Q2	Q100
14	32.04	124.18
15	36.95	142.09
5A	14.28	56.31
5B	9.56	77.69
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
WQVC (AC-FT)	1.50
EURV Volume (including WQVC) (AC-FT)	4.26
EURV Water Surface (FT)	5975.55
100-YR Volume (including EURV) (AC-FT)	8.44
100-yr water surface elevation (FT)	5977.94
Emergency Spillway Crest Elevation (FT)	5978.15
100-year Peak Inflow (CFS)	204.80
100-year Peak Outflow (CFS)	106.50
100-year Peak Allowable (CFS)	111.36

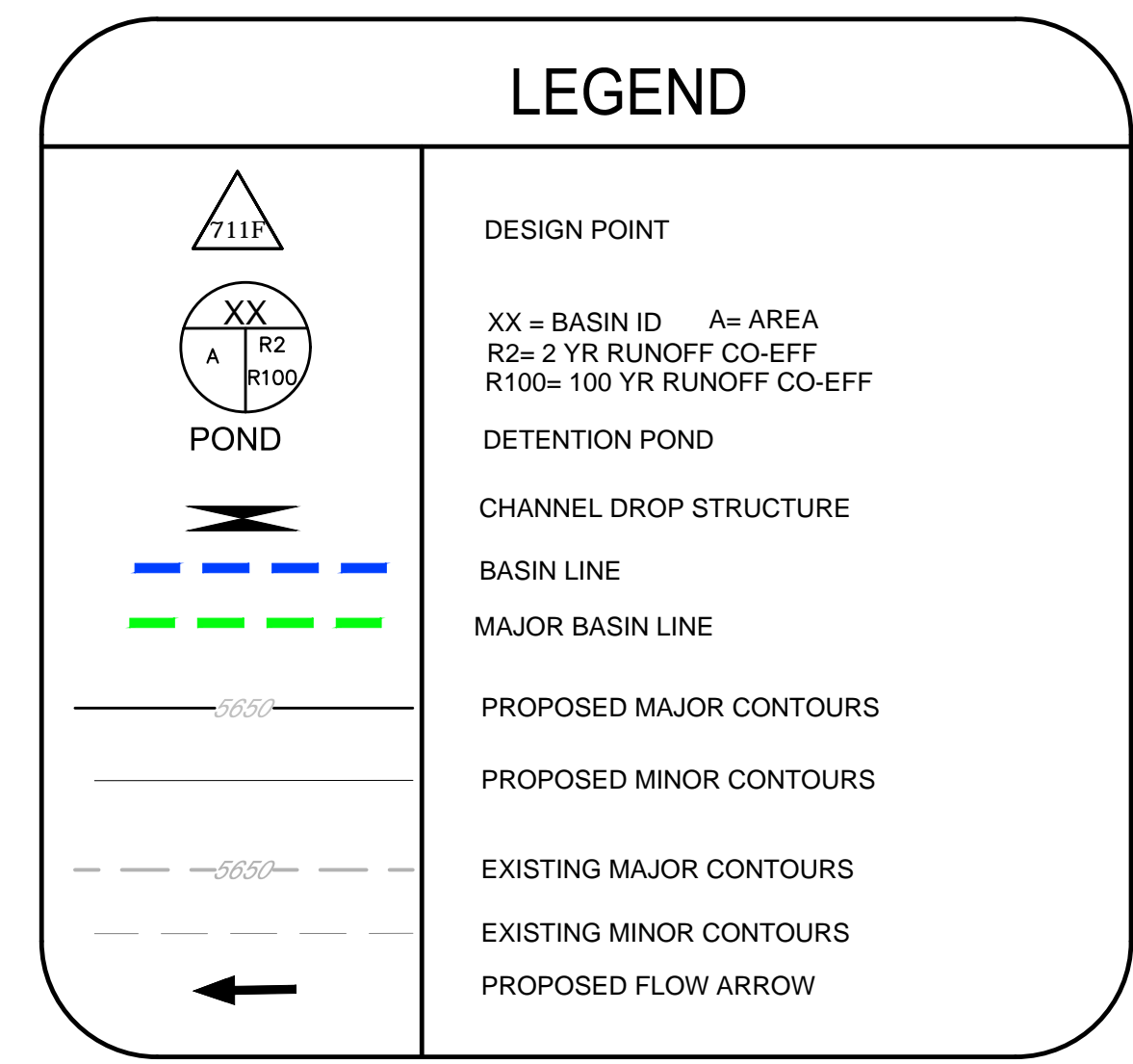
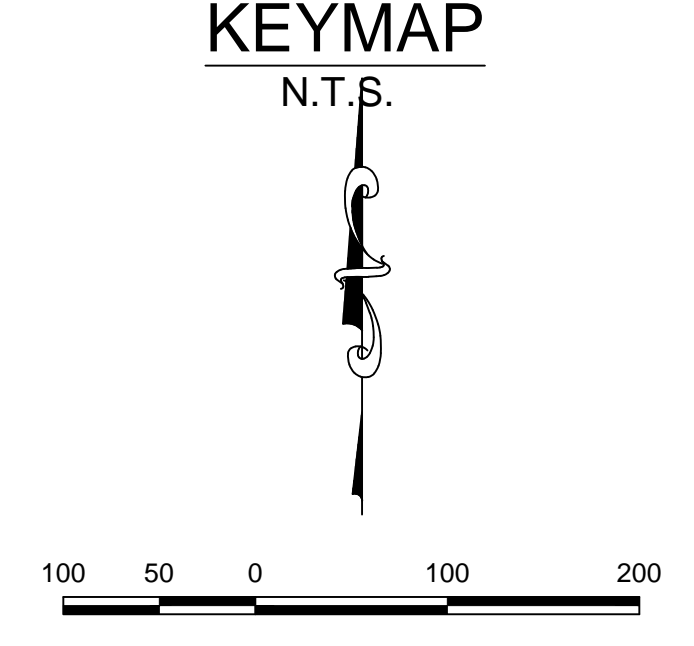
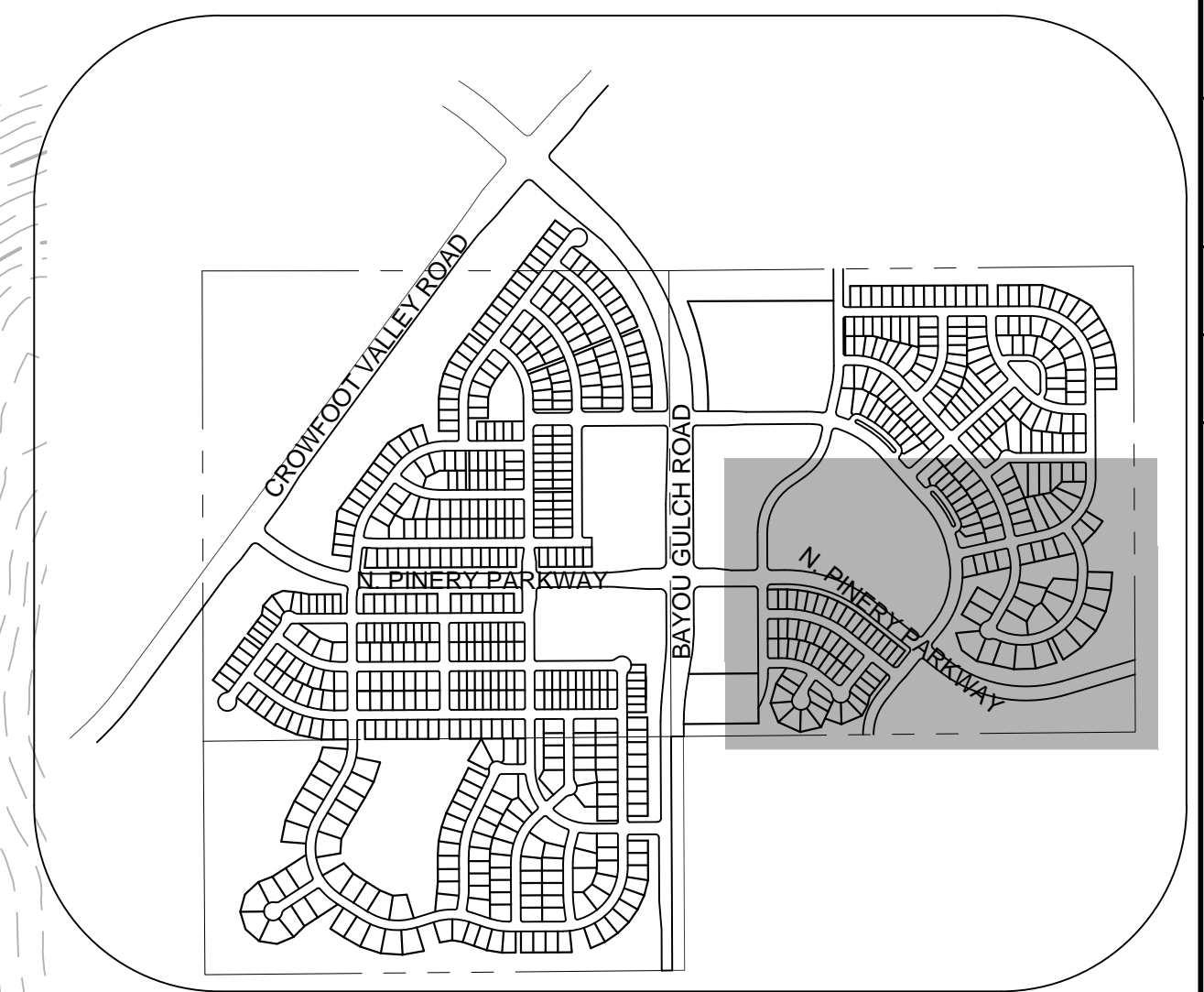
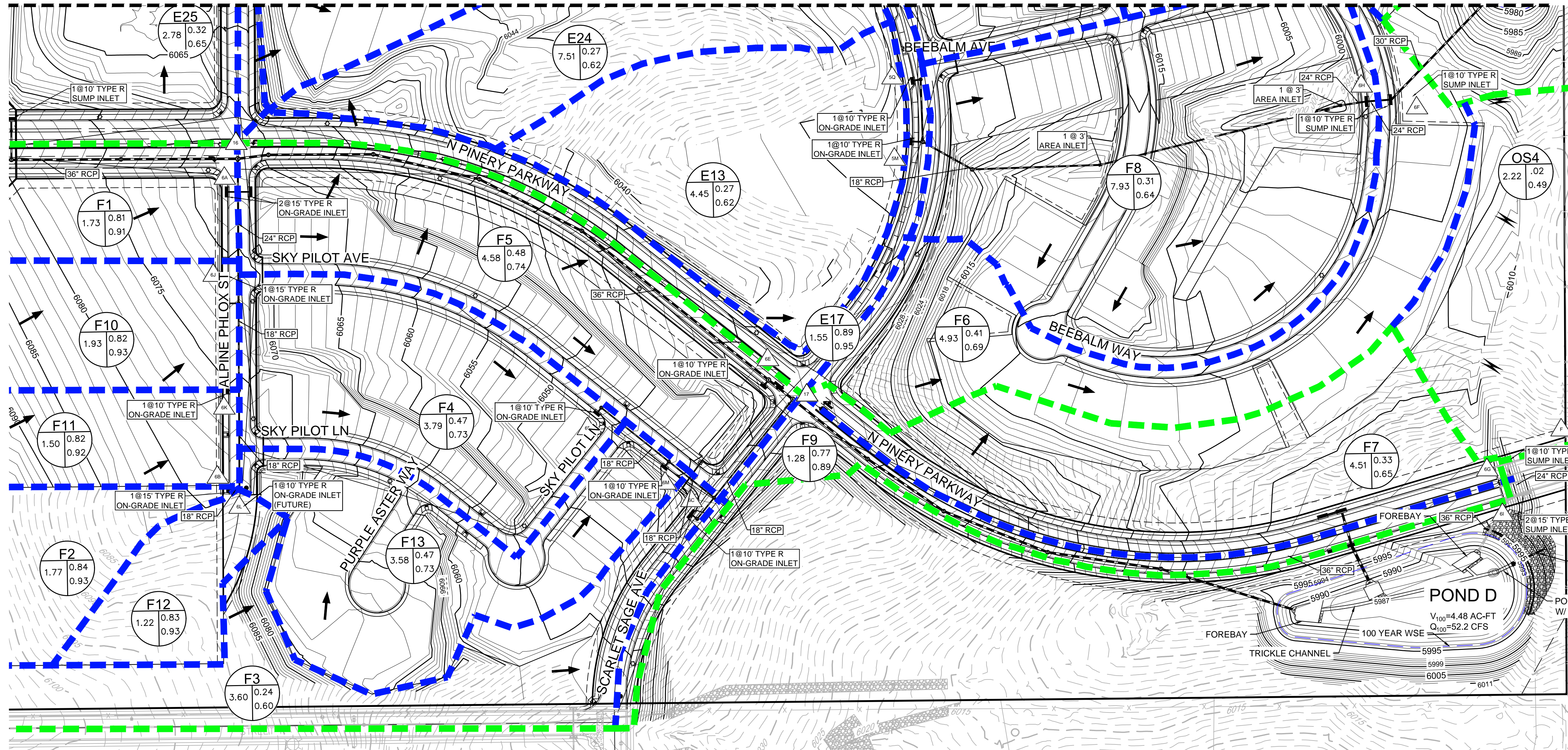
- NOTE:
- THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - 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.

CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987

10333 E. Dry Creek Rd. Suite 210 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
	No.			
ESX MANAGEMENT 7253 South Alton Way CENTENNIAL, CO 80112	TRAILS AT CROWFOOT FINAL DRAINAGE MAP DRAINAGE MAP			
SCALE: AS SHOWN DRAWN BY: AYK CHECKED BY: JJJ DATE: MAY 2017	FILE NO: 8130283701			
SHEET NUMBER: 6	PREPARED UNDER THE SUPERVISION OF MARK SCHEURER COLORADO P.E. 48988			



Note: 1) 0% slope indicates sump inlet.

DIRECT FLOW						
BASIN ID	AREA (AC)	Imperviousness (%)	Q2 (CFS)	Q100 (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 (%)	Q2 (CFS)	Q100 (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	Q2 (CFS)	Q100 (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	Q2 (CFS)	Q100 (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	Value
Drainage Area (FT)	50.18
Percent Imperviousness (%)	51.42
WQCV (AC-FT)	0.81
EURV Volume (including WQCV) (AC-FT)	2.45
EURV Water Surface (FT)	5991.2
100-YR Volume (including EURV) (AC-FT)	4.48
100-yr water surface elevation (FT)	5993.16
Emergency Spillway Crest Elevation (FT)	5993.48
100-year Peak Inflow (CFS)	97.30
100-year Peak Outflow (CFS)	52.20
100-year Peak Allowable (CFS)	55.28

- NOTE:
- 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.
 - PONDS ARE MAINTAINED BY METRO DISTRICT.
 - OUTLET STRUCTURE AND OVERFLOW WEIR DETAILS ARE PROVIDED WITH CIVIL PLANS.
 - 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.

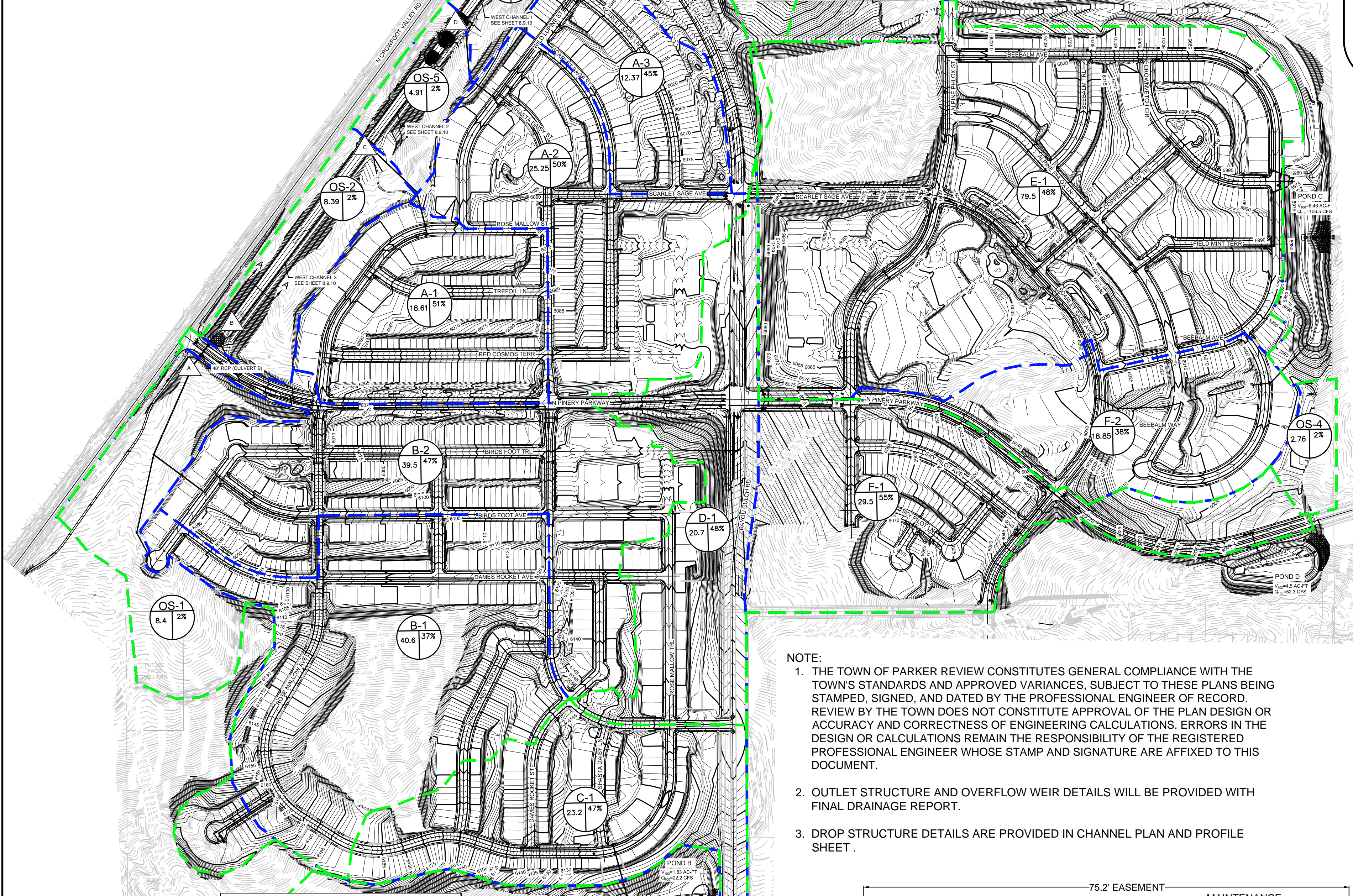
N:\PROJECTS\BENCHMARCH\ENGINEERING\DRAINAGE\DRAINAGE MAP DS.DWG, A5EINDK, 4/10/2018 8:26 AM

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

10333 E. Dry Creek Rd. Suite 210 Englewood, CO 80150 Tel: (720) 482-9526 Fax: (720) 482-9546	Revisions	Date	Appr.	Date
	No.			
ESX MANAGEMENT 7253 South Alton Way CENTENNIAL, CO 80112	TRAILS AT CROWFOOT FINAL DRAINAGE MAP DRAINAGE MAP	SCALE: AS SHOWN DRAWN BY: AVK CHECKED BY: JJU DATE: MAY 2017	FILE NO: 8130283701	SHEET NUMBER: 7
PREPARED UNDER THE SUPERVISION OF MARK SCHEURER COLORADO P.E. 48988				

POND A		POND C	
Description		Description	
Drainage Area (ACRES)	174.49	Drainage Area (ACRES)	101.09
Percent Impervious (%)	37.55	Percent Impervious (%)	44.49
WQCV Volume (AC-FT)	2,314	WQCV Volume (AC-FT)	1,495
EURV Volume (including WQCV) (AC-FT)	6.12	EURV Volume (including WQCV) (AC-FT)	4.262
EURV water surface (FT)	5995.39	EURV water surface (FT)	5975.55
100-YR Volume (including EURV) (AC-FT)	11,287	100-YR Volume (including EURV) (AC-FT)	8,444
100-YR water surface (FT)	5997.19	100-YR water surface (FT)	5977.94
Emergency Spillway Elevation (FT)	5997.19	Emergency Spillway Elevation (FT)	5978.15
100-YR Peak Inflow (CFS)	278.8	100-YR Peak Inflow (CFS)	204.8
100-YR Peak Outflow (CFS)	197	100-YR Peak Outflow (CFS)	106.5
100-YR Peak Allowable (CFS)	204.47	100-YR Peak Allowable (CFS)	111.36

POND B		POND D	
Description		Description	
Drainage Area (ACRES)	23.2	Drainage Area (ACRES)	50.18
Percent Impervious (%)	47.36	Percent Impervious (%)	51.42
WQCV Volume (AC-FT)	0.361	WQCV Volume (AC-FT)	0.805
EURV Volume (including WQCV) (AC-FT)	1.051	EURV Volume (including WQCV) (AC-FT)	2.447
EURV water surface (FT)	6092.88	EURV water surface (FT)	5991.2
100-YR Volume (including EURV) (AC-FT)	1.832	100-YR Volume (including EURV) (AC-FT)	4.475
100-YR water surface (FT)	6093.98	100-YR water surface (FT)	5993.16
Emergency Spillway Elevation (FT)	6094.38	Emergency Spillway Elevation (FT)	5993.48
100-YR Peak Inflow (CFS)	39.8	100-YR Peak Inflow (CFS)	97.3
100-YR Peak Outflow (CFS)	22.2	100-YR Peak Outflow (CFS)	52.2
100-YR Peak Allowable (CFS)	31.53	100-YR Peak Allowable (CFS)	55.28



- 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. 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.

CHANNEL DESIGN POINT SUMMARY

Design Point	Q5 (CFS)	Q100 (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	Q5 (CFS)	Q100 (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	68.84
B-2	26.81	74.30
C-1	14.00	39.86
OS-1	1.82	9.80
OS-2	1.82	8.90
OS-3	1.02	5.59
OS-4	0.31	1.87
OS-5	1.55	7.82

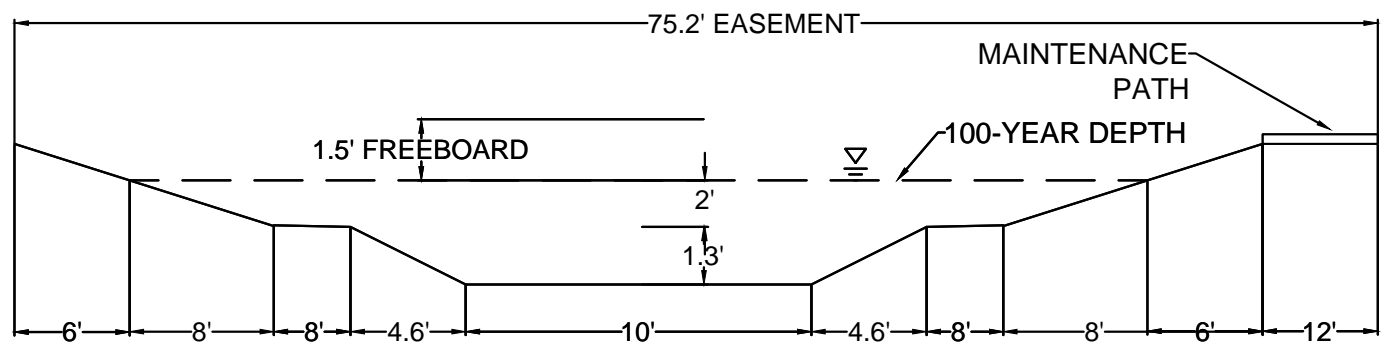
THE TOWN OF PARKER REVIEW CONSTITUTES GENERAL COMPLIANCE WITH THE TOWN'S STANDARDS AND APPROVED VARIANCES, SUBJECT TO THESE PLANS BEING STAMPED, SIGNED, AND DATED BY THE PROFESSIONAL ENGINEER OF RECORD. REVIEW BY THE TOWN DOES NOT CONSTITUTE APPROVAL OF THE PLAN DESIGN OR ACCURACY AND CORRECTNESS OF 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.

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 _____

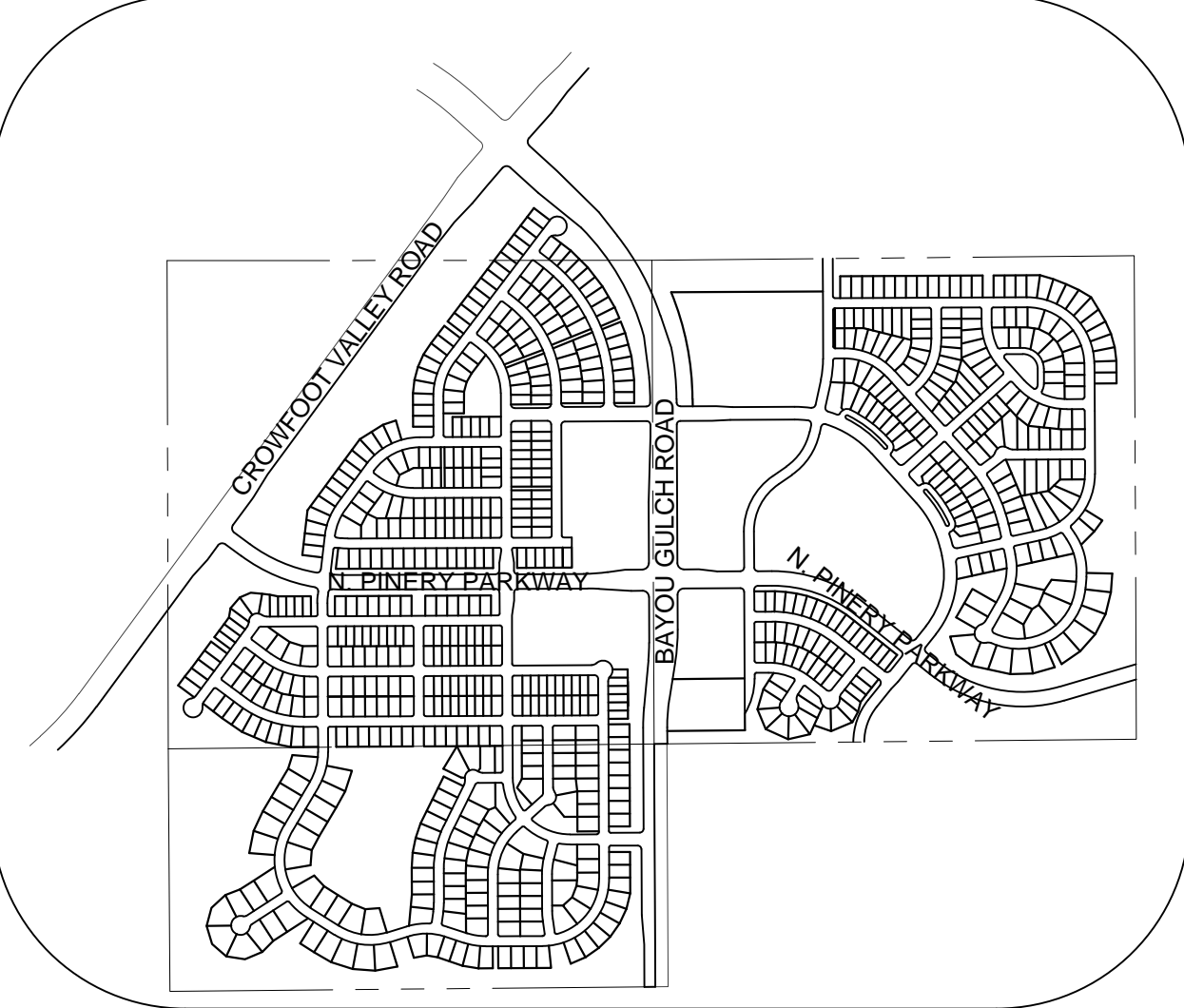
TOWN OF PARKER, PUBLIC WORKS MANAGER - TRANSPORTATION _____ DATE _____



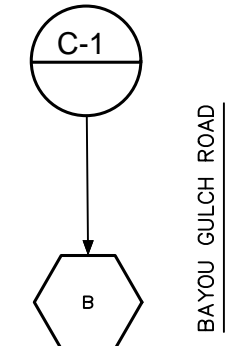
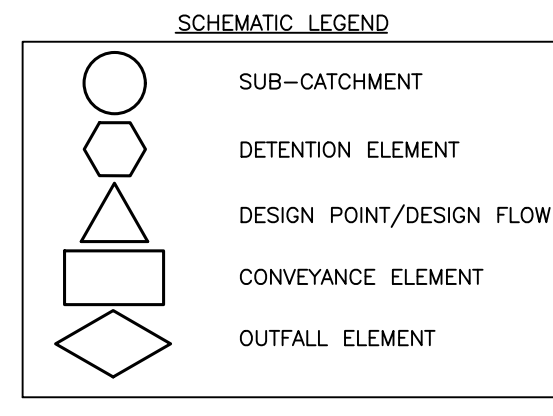
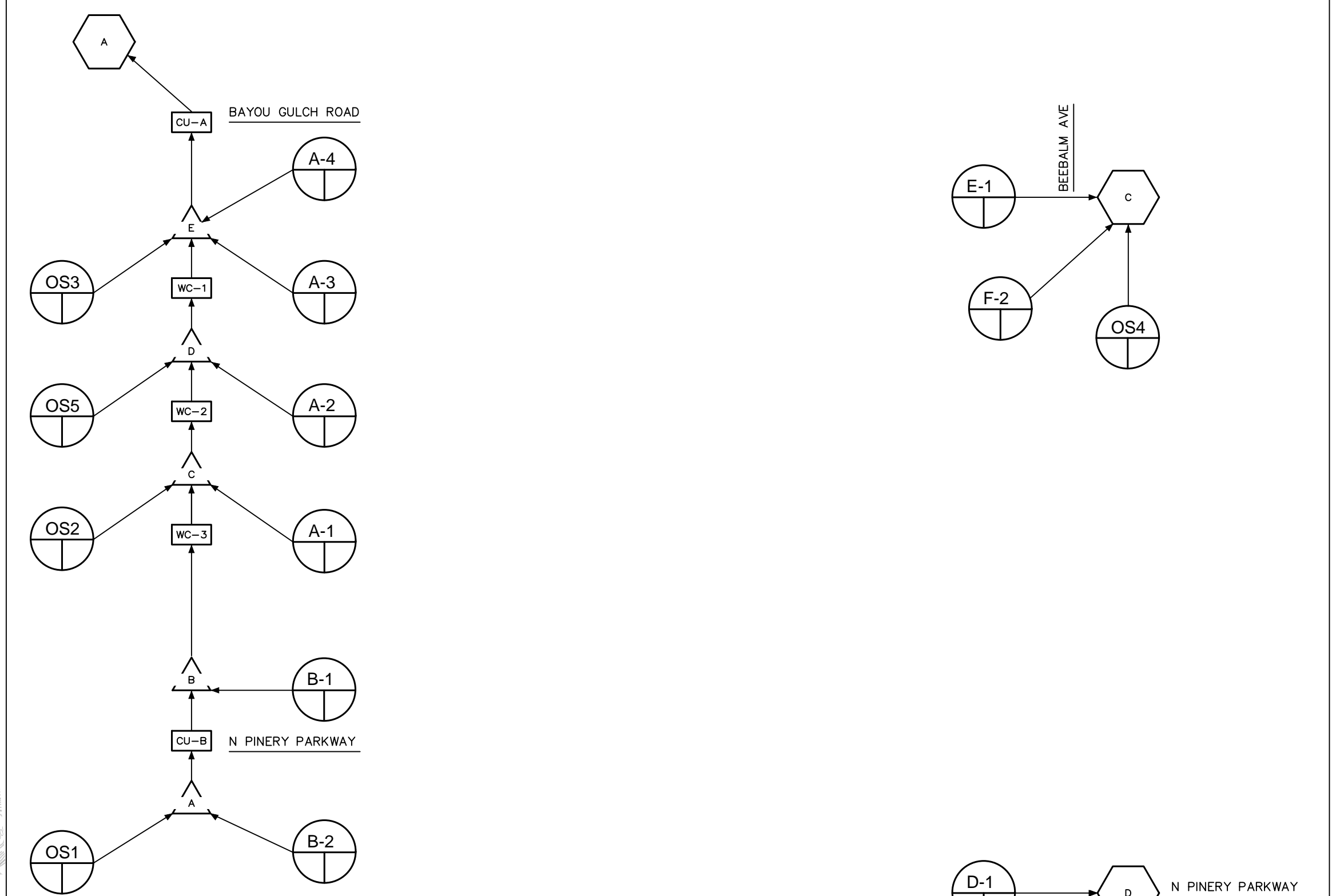
CHANNEL SECTION A-A
NO TO SCALE

LEGEND

	DESIGN POINT
	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
	PROPOSED MAJOR CONTOURS
	PROPOSED MINOR CONTOURS
	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	PROPOSED FLOW ARROW



KEYMAP
N.T.S.



CALL 811
TWO WORKING DAYS
BEFORE YOU DIG
UNCC 1-800-922-1987

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

10333 E. Dry Creek Rd. Suite 240 Englewood, CO 80152 Tel: (720) 482-9526 Fax: (720) 482-9546	CVL CONSULTANTS	ESX MANAGEMENT 7353 South Alton Way CENTENNIAL, CO 80112	TRAILS AT CROWFOOT FINAL DRAINAGE MAP SWMM DRAINAGE MAP	SCALE: AS SHOWN DRAWN BY: AYK CHECKED BY: JLU DATE: MAY 2017	FILE NO: 8130283701	SHEET NUMBER: 8	Revisions No. Date Appr. Date
--	---------------------------	--	---	---	---------------------	-----------------	----------------------------------