PARKER RIDGE SUBDIVISION

REDFORD PLACE DRIVE
Rolesville, NC, 27571

DRAINAGE AND EROSION CONTROL CALCULATIONS

PREPARED FOR:

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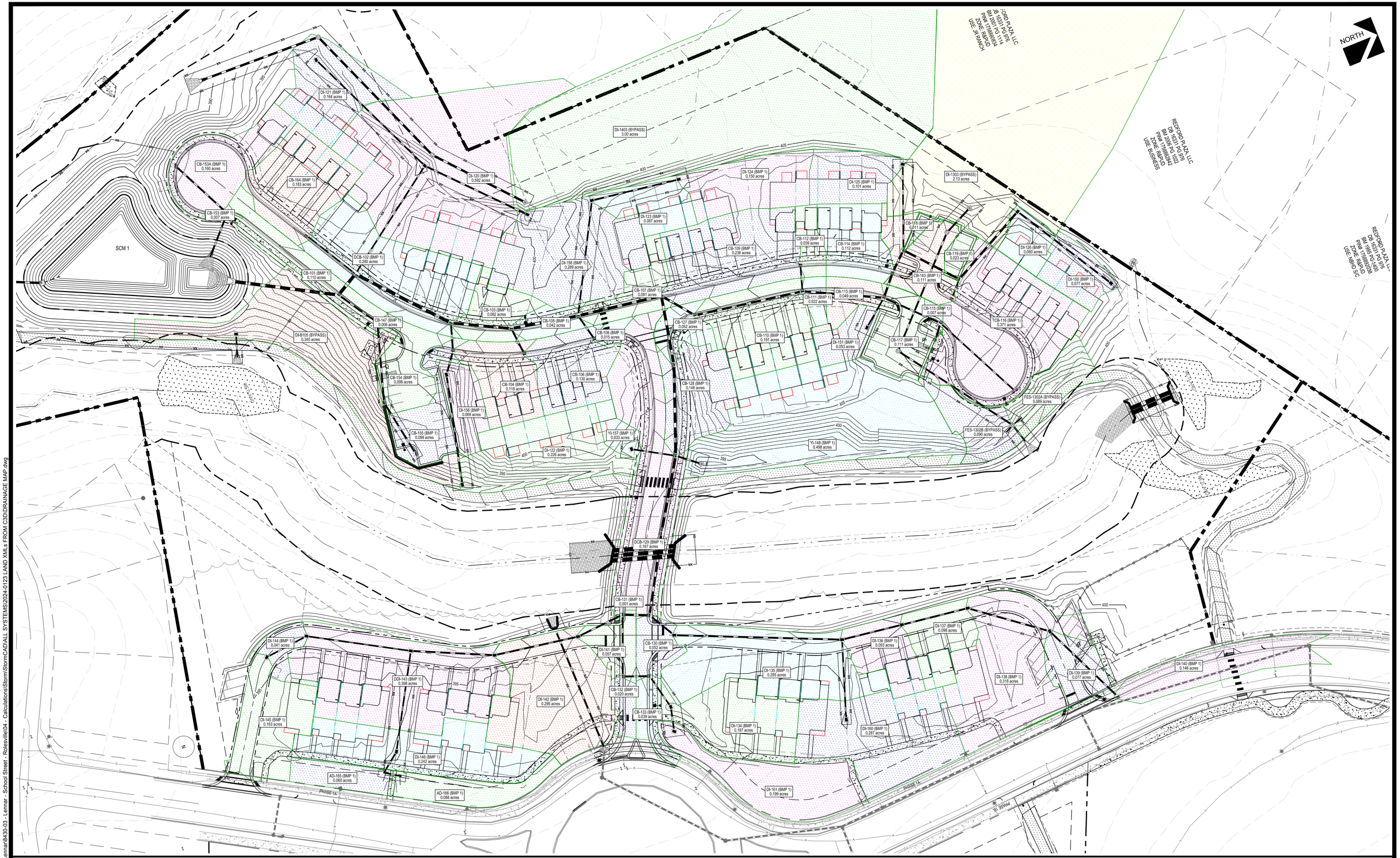
ATTACHMENT 1: DRAINAGE AREA MAPS – SCM 1



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SCM 1 DRAINAGE AREAS

DATE: 3/4/2024

0 40' 80' 120'
SCALE: 1" = 40'

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BGE INC. SHALL BE WITHOUT LIABILITY TO BGE INC.

SCM 1 - 10 YR STORM

SCM 1 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
YI-157 (BMP 1)	0.033	0.000	True	0.12	0.084	0.500
DI-142 (BMP 1)	0.267	0.000	True	0.96	0.084	0.500
DI-158 (BMP 1)	0.289	0.000	True	1.04	0.084	0.500
DI-150 (BMP 1)	0.077	0.000	True	0.31	0.084	0.550
DI-135 (BMP 1)	0.285	0.000	True	1.13	0.084	0.550
DI-126 (BMP 1)	0.060	0.000	True	0.26	0.084	0.600
DI-125 (BMP 1)	0.101	0.000	True	0.44	0.084	0.600
DI-151 (BMP 1)	0.053	0.000	True	0.23	0.084	0.600
CB-103 (BMP 1)	0.082	0.000	True	0.35	0.084	0.600
DI-156 (BMP 1)	0.069	0.000	True	0.30	0.084	0.600
CB-127 (BMP 1)	0.052	0.000	True	0.24	0.084	0.650
CB-104 (BMP 1)	0.118	0.000	True	0.56	0.084	0.650
DI-160 (BMP 1)	0.208	0.287	False	1.35	0.084	0.650
DI-139 (BMP 1)	0.077	0.000	True	0.36	0.084	0.650
CB-130 (BMP 1)	0.052	0.000	True	0.25	0.084	0.650
DI-121 (BMP 1)	0.164	0.000	True	0.77	0.084	0.650

SCM 1 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
TCB-116 (BMP 1)	0.371	0.000	True	1.88	0.084	0.700
CB-109 (BMP 1)	0.236	0.000	True	1.20	0.084	0.700
DI-124 (BMP 1)	0.150	0.000	True	0.76	0.084	0.700
YI-148 (BMP 1)	0.498	0.000	True	2.52	0.084	0.700
DI-122 (BMP 1)	0.226	0.000	True	1.14	0.084	0.700
DI-134 (BMP 1)	0.187	0.000	True	0.95	0.084	0.700
DI-146 (BMP 1)	0.242	0.388	False	1.97	0.084	0.700
DI-120 (BMP 1)	0.592	0.000	True	3.00	0.084	0.700
CB-128 (BMP 1)	0.146	0.000	True	0.76	0.084	0.720
CB-114 (BMP 1)	0.112	0.000	True	0.61	0.084	0.750
CB-110 (BMP 1)	0.191	0.000	True	1.04	0.084	0.750
CB-106 (BMP 1)	0.130	0.000	True	0.71	0.084	0.750
DI-123 (BMP 1)	0.087	0.000	True	0.47	0.084	0.750
CB-107 (BMP 1)	0.081	0.000	True	0.44	0.084	0.750
DI-138 (BMP 1)	0.287	0.000	True	1.56	0.084	0.750
DI-137 (BMP 1)	0.098	0.000	True	0.53	0.084	0.750

SCM 1 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DDI-143 (BMP 1)	0.398	0.000	True	2.16	0.084	0.750
DCB-102 (BMP 1)	0.280	0.000	True	1.52	0.084	0.750
DI-136 (BMP 1)	0.093	0.000	True	0.51	0.084	0.760
CB-153A (BMP 1)	0.160	0.000	True	0.89	0.084	0.770
CB-111 (BMP 1)	0.022	0.000	True	0.13	0.084	0.790
CB-112 (BMP 1)	0.039	0.000	True	0.22	0.084	0.790
CB-113 (BMP 1)	0.049	0.000	True	0.29	0.084	0.800
DI-145 (BMP 1)	0.155	0.000	True	0.90	0.084	0.800
CB-101 (BMP 1)	0.110	0.000	True	0.63	0.084	0.800
DI-144 (BMP 1)	0.041	0.000	True	0.24	0.084	0.810
TCB-129 (BMP 1)	0.167	0.000	True	1.02	0.084	0.840
CB-108 (BMP 1)	0.015	0.000	True	0.09	0.084	0.850
CB-105 (BMP 1)	0.042	0.000	True	0.26	0.084	0.850
DI-141 (BMP 1)	0.057	0.000	True	0.35	0.084	0.850
CB-119 (BMP 1)	0.023	0.000	True	0.16	0.084	0.950
CB-115 (BMP 1)	0.007	0.000	True	0.05	0.084	0.950

SCM 1 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-117 (BMP 1)	0.111	0.000	True	0.76	0.084	0.950
CB-131 (BMP 1)	0.001	0.000	True	0.01	0.084	0.950
CB-132 (BMP 1)	0.020	0.000	True	0.14	0.084	0.950
CB-133 (BMP 1)	0.039	0.000	True	0.27	0.084	0.950
CB-153 (BMP 1)	0.007	0.000	True	0.05	0.084	0.950
CB-147 (BMP 1)	0.006	0.000	True	0.04	0.084	0.950
CB-154 (BMP 1)	0.098	0.000	True	0.67	0.084	0.950
CB-155 (BMP 1)	0.098	0.000	True	0.67	0.084	0.950

SCM 1 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-114 TO CB-118 (BMP 1)	24.0	0.005	3.21	3.32	1.72	16.00	392.73	392.60
CB-118 TO DI-125 (BMP 1)	15.0	0.016	2.37	3.51	0.41	8.25	399.69	398.22
CB-118 TO CB-119 (BMP 1)	24.0	0.006	2.96	3.25	1.28	17.52	393.25	392.85
CB-111 TO CB-112 (BMP 1)	15.0	0.019	2.02	3.06	0.22	8.85	400.73	400.18
CB-111 TO CB-113 (BMP 1)	24.0	0.006	4.36	4.71	5.04	16.96	391.01	390.51
CB-110 TO CB-111 (BMP 1)	24.0	0.006	4.43	4.86	5.29	17.38	390.47	389.77
CB-113 TO CB-114 (BMP 1)	24.0	0.005	3.44	2.88	2.21	16.00	391.08	391.01
CB-113 TO CB-115 (BMP 1)	18.0	0.007	3.82	4.37	2.56	8.94	394.83	394.32
CB-113 TO DI-151 (BMP 1)	15.0	0.029	2.03	3.61	0.23	11.03	400.32	399.25
CB-119 TO DI-126 (BMP 1)	24.0	0.005	2.36	2.37	0.54	16.00	398.76	398.31
CB-115 TO CB-117 (BMP 1)	18.0	0.007	2.61	2.87	0.66	8.53	399.87	399.73
CB-115 TO DCB-116 (BMP 1)	15.0	0.012	3.65	4.94	1.88	7.21	398.30	396.92
DI-139 TO DI-140 (BMP 1)	18.0	0.005	2.74	2.75	0.80	7.40	393.88	393.41
DI-123 TO DI-124 (BMP 1)	15.0	0.036	2.68	5.32	0.65	12.32	395.35	391.97
CB-109 TO CB-110 (BMP 1)	24.0	0.005	4.59	4.76	5.95	16.18	389.67	389.45
DI-126 TO DI-150 (BMP 1)	18.0	0.005	2.07	2.13	0.31	7.43	399.51	398.91
CB-107 TO CB-109 (BMP 1)	30.0	0.006	7.04	6.73	25.18	32.22	387.19	386.73
CB-109 TO CB-127 (BMP 1)	30.0	0.005	6.24	6.01	18.62	28.94	387.49	387.19
CB-107 TO DI-123 (BMP 1)	15.0	0.005	3.10	3.12	1.08	4.73	391.98	391.35
DI-138 TO DI-139 (BMP 1)	15.0	0.005	3.09	2.53	1.13	4.58	393.40	393.04
CB-107 TO CB-108 (BMP 1)	18.0	0.019	2.07	3.24	0.28	14.66	392.70	392.08
CB-105 TO CB-107 (BMP 1)	30.0	0.005	6.73	6.99	26.68	29.00	386.73	386.32
CB-127 TO CB-128 (BMP 1)	30.0	0.005	6.24	6.27	18.61	29.00	388.05	387.59
DI-137 TO DI-138 (BMP 1)	15.0	0.009	3.83	4.48	2.18	5.96	393.04	392.39
DI-136 TO DI-160 (BMP 1)	15.0	0.042	3.30	2.12	1.35	13.29	394.87	391.64
DI-136 TO DI-137 (BMP 1)	15.0	0.012	4.22	5.55	2.91	7.20	392.46	391.55
CB-105 TO CB-106 (BMP 1)	18.0	0.005	2.56	2.57	0.63	7.43	392.80	392.65
DI-135 TO DI-136 (BMP 1)	18.0	0.006	4.63	4.67	4.73	7.81	391.64	390.71
CB-103 TO CB-105 (BMP 1)	30.0	0.005	6.77	7.29	27.29	29.00	386.32	385.89

SCM 1 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-131 TO DI-141 (BMP 1)	18.0	0.005	4.77	4.99	6.58	7.43	389.38	389.09
CB-131 TO CB-132 (BMP 1)	18.0	0.034	3.58	2.80	2.05	19.25	391.07	389.09
CB-130 TO CB-131 (BMP 1)	24.0	0.005	4.56	4.06	8.52	16.00	389.09	389.07
CB-132 TO CB-133 (BMP 1)	18.0	0.010	3.51	4.50	1.92	10.50	391.52	391.17
CB-133 TO DI-134 (BMP 1)	15.0	0.020	3.51	5.63	1.66	9.08	392.45	391.56
CB-128 TO DCB-129 (BMP 1)	30.0	0.005	5.89	5.79	15.81	29.00	388.42	388.05
CB-128 TO YI-157 (BMP 1)	15.0	0.052	1.72	3.65	0.12	14.78	392.48	390.08
CB-128 TO YI-148 (BMP 1)	18.0	0.018	3.81	5.86	2.52	14.24	389.35	388.69
DI-134 TO DI-161 (BMP 1)	15.0	0.020	2.76	4.43	0.72	9.13	392.97	392.38
CB-130 TO DI-135 (BMP 1)	18.0	0.008	4.93	5.61	5.47	9.67	390.67	390.31
DCB-129 TO CB-130 (BMP 1)	24.0	0.005	5.73	6.25	14.19	15.93	389.07	388.54
TCB-102 TO CB-103 (BMP 1)	36.0	0.005	6.80	7.16	28.91	48.48	385.75	385.11
CB-103 TO CB-104 (BMP 1)	18.0	0.005	3.39	3.40	1.71	7.40	385.91	385.77
DI-120 TO DI-158 (BMP 1)	18.0	0.021	2.95	1.05	1.04	15.11	389.38	387.46
CB-104 TO DI-156 (BMP 1)	18.0	0.009	3.04	3.75	1.16	9.90	386.14	385.87
FES-152 TO CB-153 (BMP 1)	18.0	0.011	2.74	3.60	0.80	10.91	385.33	384.78
CB-153 TO CB-153A (BMP 1)	18.0	0.040	2.70	5.60	0.75	20.94	388.32	385.40
CB-101 TO CB-147 (BMP 1)	15.0	0.030	3.24	6.07	1.27	11.25	387.62	386.01
CB-147 TO CB-154 (BMP 1)	18.0	0.005	3.06	3.12	1.18	7.57	388.21	387.78
DI-141 TO DI-142 (BMP 1)	18.0	0.005	4.70	5.00	6.19	7.43	389.87	389.38
CB-101 TO TCB-102 (BMP 1)	36.0	0.005	7.28	7.29	34.55	47.16	385.15	385.01
TCB-102 TO DI-120 (BMP 1)	15.0	0.005	4.31	5.07	4.65	4.64	387.46	386.64
FES-100 TO CB-101 (BMP 1)	36.0	0.005	7.35	7.41	36.09	47.16	384.97	384.39
DDI-143 TO DI-146 (BMP 1)	15.0	0.013	3.94	3.08	2.37	7.26	391.47	390.31
DI-120 TO DI-121 (BMP 1)	15.0	0.006	2.81	0.90	0.77	4.94	387.88	387.46
DI-144 TO DI-145 (BMP 1)	15.0	0.012	2.78	3.70	0.74	6.99	390.94	390.36
DDI-143 TO DI-144 (BMP 1)	15.0	0.005	3.05	1.25	1.11	4.53	390.40	390.31
DI-142 TO DDI-143 (BMP 1)	18.0	0.005	4.68	4.71	5.52	7.57	390.31	389.87

SCM 1 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-154 TO CB-155 (BMP 1)	18.0	0.007	2.54	2.81	0.60	8.65	388.70	388.27
DI-156 TO DI-122 (BMP 1)	18.0	0.005	2.82	2.84	0.89	7.47	386.85	386.29

SCM 1 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-118 (BMP 1)	0.07	0.00	1.72	100.0	392.73	392.73	3.0	3.25	3.21
CB-112 (BMP 1)	0.22	0.00	0.22	99.8	400.73	400.73	3.0	2.02	2.02
CB-111 (BMP 1)	0.13	0.00	5.29	100.0	390.47	390.47	3.0	4.71	4.43
CB-113 (BMP 1)	0.28	0.00	5.04	98.9	391.01	391.01	3.0	2.88	4.36
CB-114 (BMP 1)	0.55	0.06	2.21	90.7	391.08	391.08	3.0	3.32	3.44
CB-119 (BMP 1)	0.16	0.00	1.28	100.0	393.25	393.25	3.0	2.37	2.96
DI-125 (BMP 1)	0.41	0.02	0.41	94.3	399.69	399.69	2.0	2.37	2.37
CB-117 (BMP 1)	0.66	0.10	0.66	87.1	399.87	399.87	3.0	2.61	2.61
CB-115 (BMP 1)	0.05	0.00	2.56	100.0	394.83	394.83	3.0	4.94	3.82
DI-151 (BMP 1)	0.23	0.00	0.23	99.7	400.32	400.32	2.0	2.03	2.03
DI-140 (BMP 1)	0.80	0.20	0.80	80.2	393.88	393.88	2.0	2.74	2.74
DI-124 (BMP 1)	0.65	0.11	0.65	85.4	395.35	395.35	2.0	2.68	2.68
CB-110 (BMP 1)	0.85	0.19	5.95	81.7	389.67	389.67	3.0	4.86	4.59
DI-126 (BMP 1)	0.26	0.00	0.54	100.0	398.76	398.76	2.0	2.13	2.36
CB-109 (BMP 1)	0.95	0.25	25.18	79.1	387.19	387.19	3.0	6.01	7.04
TCB-116 (BMP 1)	1.88	0.00	1.88	100.0	398.30	398.30	6.0	3.65	3.65

SCM 1 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-150 (BMP 1)	0.31	0.00	0.31	100.0	399.51	399.51	2.0	2.07	2.07
DI-123 (BMP 1)	0.44	0.03	1.08	93.3	391.98	391.98	2.0	5.32	3.10
DI-139 (BMP 1)	0.35	0.01	1.13	96.7	393.40	393.40	2.0	2.75	3.09
CB-108 (BMP 1)	0.28	0.00	0.28	99.0	392.70	392.70	3.0	2.07	2.07
CB-107 (BMP 1)	0.61	0.08	26.68	88.8	386.73	386.73	3.0	6.73	6.73
CB-127 (BMP 1)	0.24	0.00	18.62	99.6	387.49	387.49	3.0	6.27	6.24
DI-138 (BMP 1)	1.12	0.45	2.18	71.3	393.04	393.04	2.0	2.53	3.83
DI-160 (BMP 1)	1.35	0.00	1.35	100.0	394.87	394.87	2.0	3.30	3.30
DI-137 (BMP 1)	0.79	0.19	2.91	80.5	392.46	392.46	2.0	4.48	4.22
CB-106 (BMP 1)	0.63	0.08	0.63	88.3	392.80	392.80	3.0	2.56	2.56
DI-136 (BMP 1)	0.61	0.09	4.73	86.8	391.64	391.64	2.0	5.55	4.63
CB-105 (BMP 1)	0.33	0.01	27.29	97.8	386.32	386.32	3.0	6.99	6.77
CB-131 (BMP 1)	0.05	0.00	8.52	100.0	389.09	389.09	3.0	2.80	4.56
CB-133 (BMP 1)	0.27	0.00	1.92	99.2	391.52	391.52	3.0	5.63	3.51
CB-132 (BMP 1)	0.14	0.00	2.05	100.0	391.07	391.07	3.0	4.50	3.58
CB-128 (BMP 1)	0.66	0.10	18.61	87.2	388.05	388.05	3.0	5.79	6.24

SCM 1 10-YR

Inlets - Time: 0.00 hours

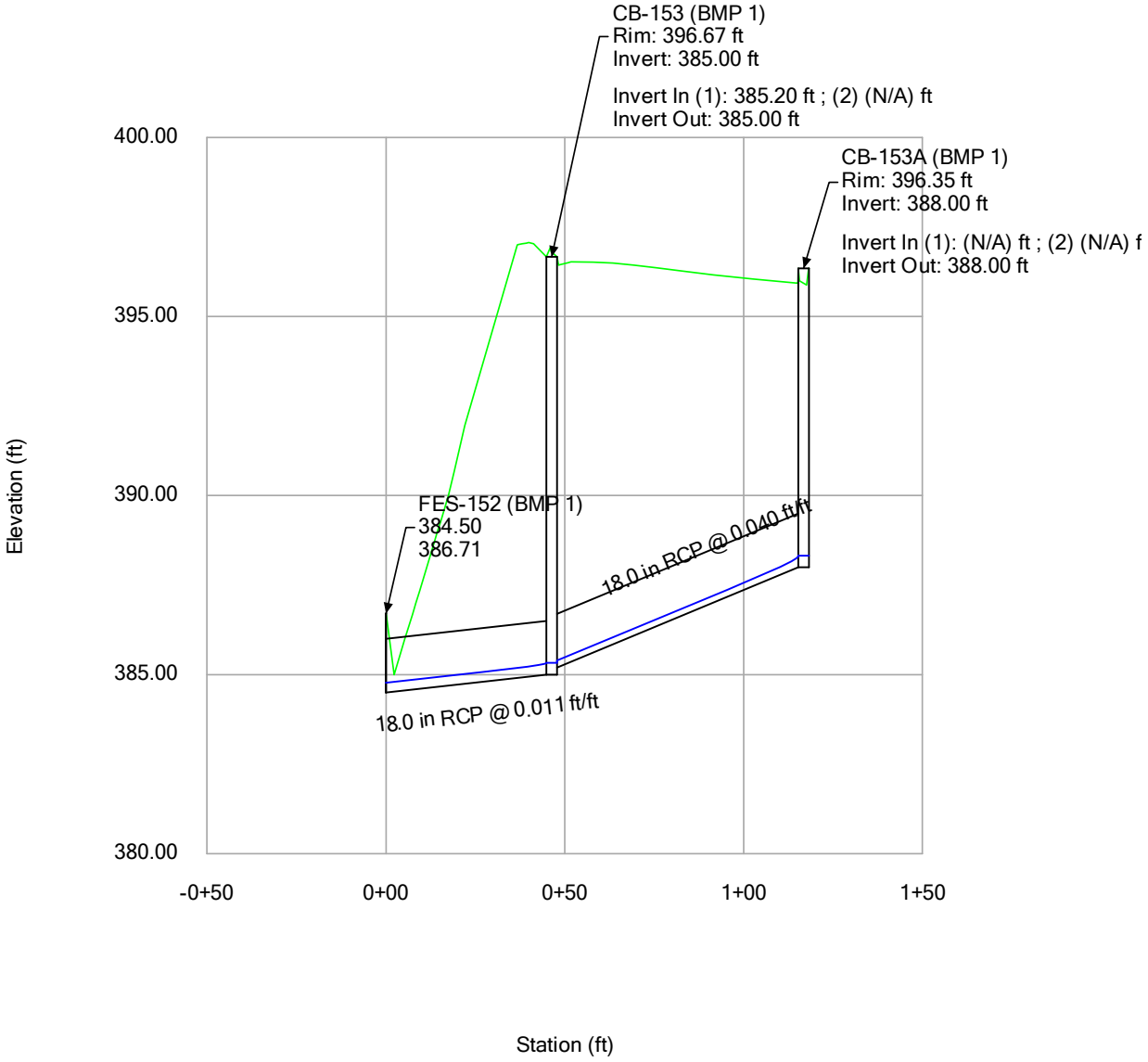
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-134 (BMP 1)	0.95	0.00	1.66	100.0	392.45	392.45	2.0	4.43	3.51
CB-130 (BMP 1)	0.50	0.04	14.19	92.4	389.07	389.07	3.0	4.06	5.73
CB-103 (BMP 1)	0.35	0.01	28.91	97.2	385.75	385.75	3.0	3.40	6.80
DI-135 (BMP 1)	0.93	0.29	5.47	76.2	390.67	390.67	2.0	4.67	4.93
DI-158 (BMP 1)	1.04	0.00	1.04	100.0	389.38	389.38	2.0	2.95	2.95
TCB-129 (BMP 1)	1.96	0.00	15.81	100.0	388.42	388.42	9.0	6.25	5.89
DI-161 (BMP 1)	0.72	0.00	0.72	100.0	392.97	392.97	2.0	2.76	2.76
CB-104 (BMP 1)	0.57	0.06	1.71	89.9	385.91	385.91	3.0	3.75	3.39
YI-157 (BMP 1)	0.12	0.00	0.12	100.0	392.48	392.48	0.0	1.72	1.72
CB-153 (BMP 1)	0.05	0.00	0.80	100.0	385.33	385.33	3.0	5.60	2.74
CB-153A (BMP 1)	0.75	0.14	0.75	84.4	388.32	388.32	3.0	2.70	2.70
CB-147 (BMP 1)	0.11	0.00	1.27	100.0	387.62	387.62	3.0	3.12	3.24
DI-141 (BMP 1)	0.49	0.05	6.58	91.5	389.38	389.38	2.0	5.00	4.77
DCB-102 (BMP 1)	1.53	0.00	34.55	100.0	385.15	385.15	6.0	7.16	7.28
CB-101 (BMP 1)	0.63	0.00	36.09	100.0	384.97	384.97	3.0	7.29	7.35
DI-146 (BMP 1)	1.97	0.00	2.37	100.0	391.47	391.47	2.0	0.89	3.94

SCM 1 10-YR

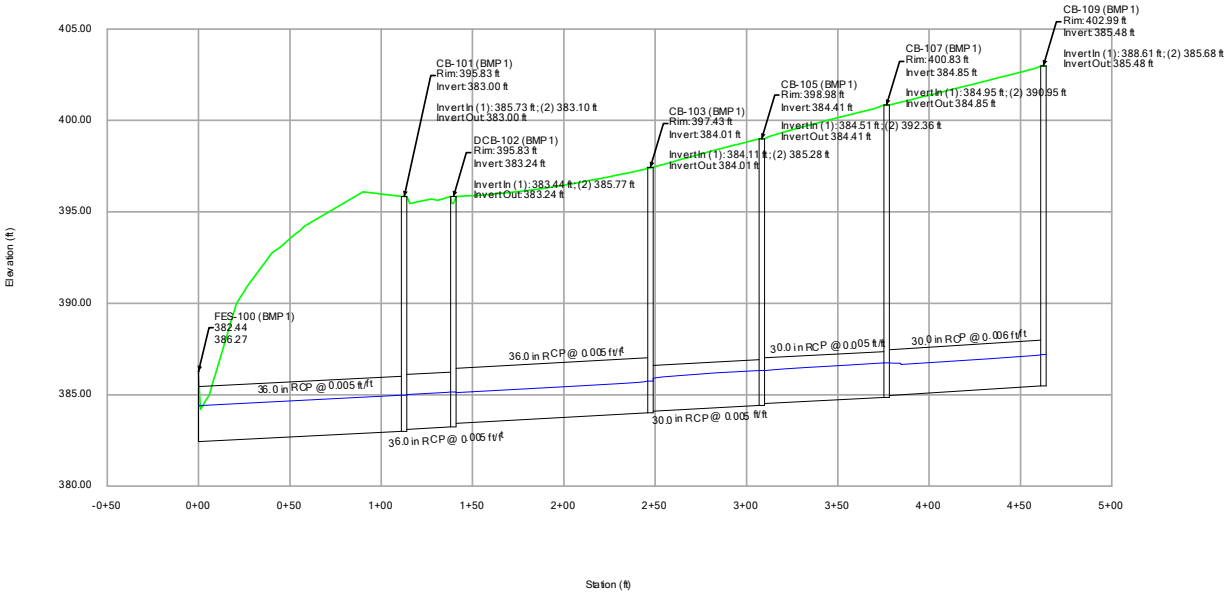
Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-121 (BMP 1)	0.77	0.00	0.77	100.0	387.88	387.88	2.0	2.81	2.81
DI-120 (BMP 1)	3.00	0.00	4.65	100.0	387.46	387.46	2.0	0.90	4.31
DI-145 (BMP 1)	0.74	0.16	0.74	82.3	390.94	390.94	2.0	2.78	2.78
DI-144 (BMP 1)	0.38	0.02	1.11	95.6	390.40	390.40	2.0	3.70	3.05
DI-142 (BMP 1)	0.78	0.18	6.19	80.9	389.87	389.87	2.0	4.71	4.70
CB-154 (BMP 1)	0.60	0.07	1.18	89.1	388.21	388.21	3.0	2.81	3.06
YI-148 (BMP 1)	2.52	0.00	2.52	100.0	389.35	389.35	0.0	3.81	3.81
DI-156 (BMP 1)	0.30	0.00	1.16	100.0	386.14	386.14	2.0	2.84	3.04
DDI-143 (BMP 1)	2.18	0.00	5.52	100.0	390.31	390.31	2.0	1.25	4.68
CB-155 (BMP 1)	0.60	0.07	0.60	89.1	388.70	388.70	3.0	2.54	2.54
DI-122 (BMP 1)	0.89	0.26	0.89	77.6	386.85	386.85	2.0	2.82	2.82

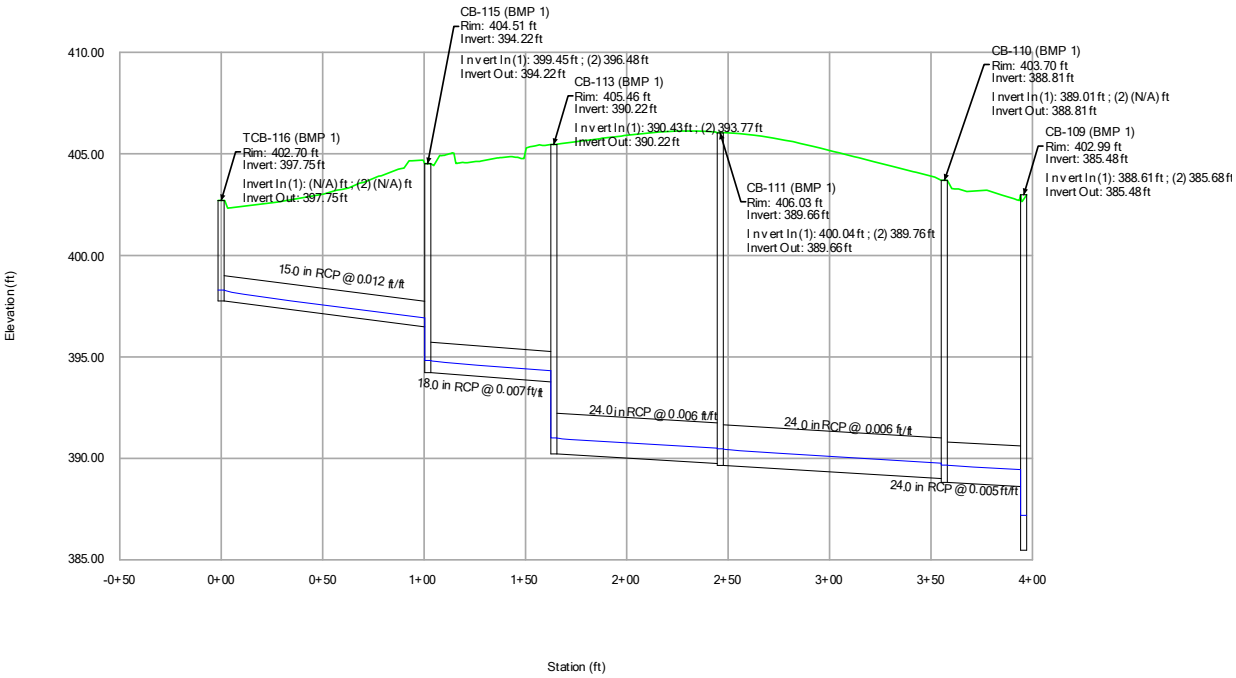
SCM 1 10-YR


CB-153 (BMP 1)
Rim: 396.67 ft
Invert: 385.00 ft
Invert In (1): 385.20 ft ; (2) (N/A) ft
Invert Out: 385.00 ft
CB-153A (BMP 1)
Rim: 396.35 ft
Invert: 388.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 388.00 ft
FES-152 (BMP 1)
384.50
386.71
18.0 in RCP @ 0.040 ft/ft
18.0 in RCP @ 0.011 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

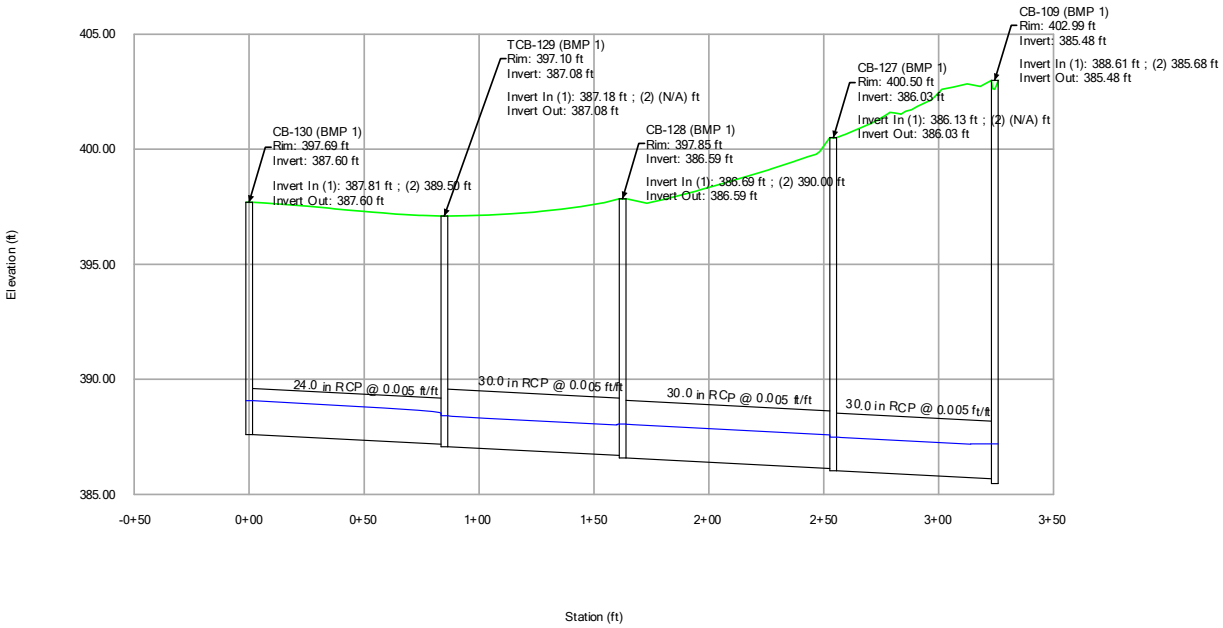
SCM 1 10-YR


CB-109 (BMP 1)
Rim: 402.99 ft
Invert: 385.48 ft
InvertIn (1): 388.61 ft; (2) 385.68 ft
InvertOut: 385.48 ft
CB-107 (BMP 1)
Rim: 400.83 ft
Invert: 384.85 ft
InvertIn (1): 384.95 ft; (2) 390.95 ft
InvertOut: 384.85 ft
CB-105 (BMP 1)
Rim: 398.98 ft
Invert: 384.41 ft
InvertIn (1): 384.51 ft; (2) 392.36 ft
InvertOut: 384.41 ft
CB-103 (BMP 1)
Rim: 397.43 ft
Invert: 384.01 ft
InvertIn (1): 384.11 ft; (2) 385.28 ft
InvertOut: 384.01 ft
CB-101 (BMP 1)
Rim: 395.83 ft
Invert: 383.00 ft
InvertIn (1): 385.73 ft; (2) 383.10 ft
InvertOut: 383.00 ft
DCB-102 (BMP 1)
Rim: 395.83 ft
Invert: 383.24 ft
InvertIn (1): 383.44 ft; (2) 385.77 ft
InvertOut: 383.24 ft
FES-100 (BMP 1)
382.44
386.27
36.0 in RCP @ 0.005 ft/ft
36.0 in RCP @ 0.005 ft/ft
36.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.006 ft/ft
405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

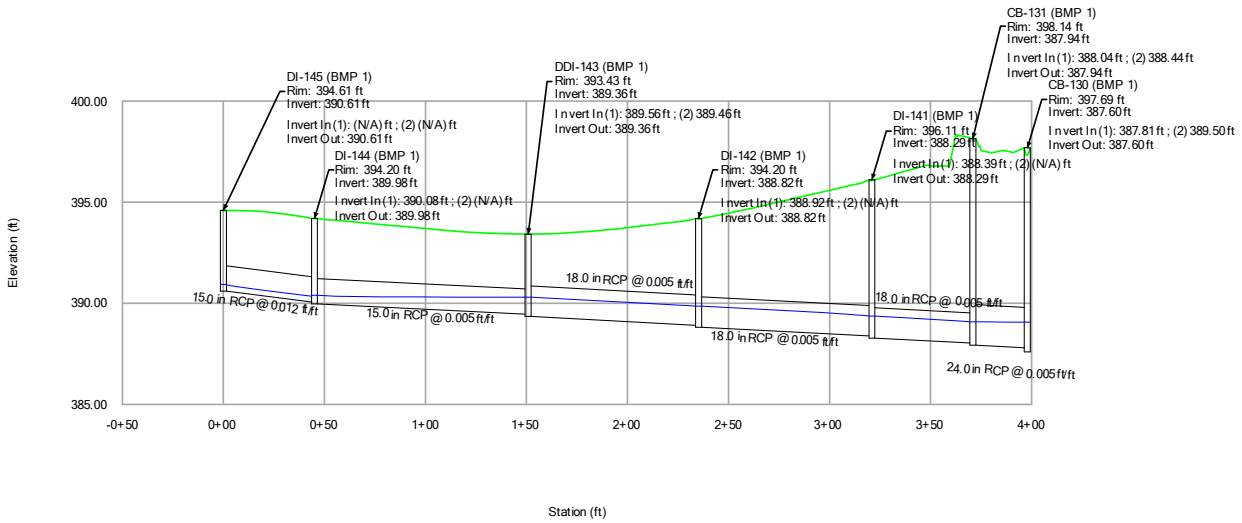
SCM 1 10-YR


CB-115 (BMP 1)
Rim: 404.51 ft
Invert: 394.22 ft
Invert In (1): 399.45 ft ; (2) 396.48 ft
Invert Out: 394.22 ft
CB-113 (BMP 1)
Rim: 405.46 ft
Invert: 390.22 ft
Invert In (1): 390.43 ft ; (2) 393.77 ft
Invert Out: 390.22 ft
CB-110 (BMP 1)
Rim: 403.70 ft
Invert: 388.81 ft
Invert In (1): 389.01 ft ; (2) (N/A) ft
Invert Out: 388.81 ft
TCB-116 (BMP 1)
Rim: 402.70 ft
Invert: 397.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.75 ft
CB-109 (BMP 1)
Rim: 402.99 ft
Invert: 385.48 ft
Invert In (1): 388.61 ft ; (2) 385.68 ft
Invert Out: 385.48 ft
CB-111 (BMP 1)
Rim: 406.03 ft
Invert: 389.66 ft
Invert In (1): 400.04 ft ; (2) 389.76 ft
Invert Out: 389.66 ft
15.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.007 ft/ft
24.0 in RCP @ 0.006 ft/ft
24.0 in RCP @ 0.006 ft/ft
24.0 in RCP @ 0.005 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

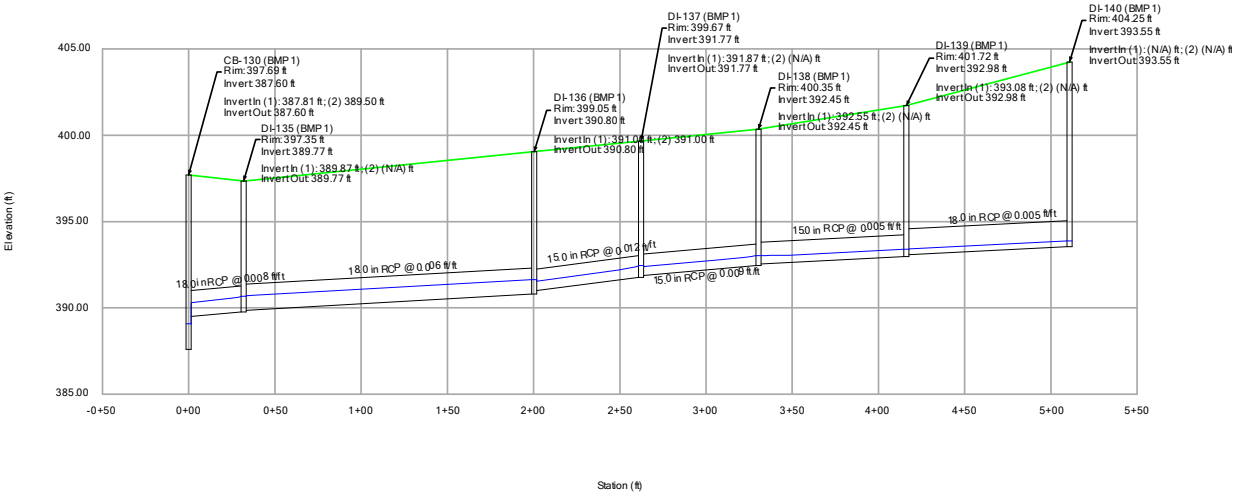
SCM 1 10-YR


CB-109 (BMP 1)
Rim: 402.99 ft
Invert: 385.48 ft
Invert In (1): 388.61 ft ; (2) 385.68 ft
Invert Out: 385.48 ft
TCB-129 (BMP 1)
Rim: 397.10 ft
Invert: 387.08 ft
Invert In (1): 387.18 ft ; (2) (N/A) ft
Invert Out: 387.08 ft
CB-127 (BMP 1)
Rim: 400.50 ft
Invert: 386.03 ft
Invert In (1): 386.13 ft ; (2) (N/A) ft
Invert Out: 386.03 ft
CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft ; (2) 389.50 ft
Invert Out: 387.60 ft
CB-128 (BMP 1)
Rim: 397.85 ft
Invert: 386.59 ft
Invert In (1): 386.69 ft ; (2) 390.00 ft
Invert Out: 386.59 ft
24.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

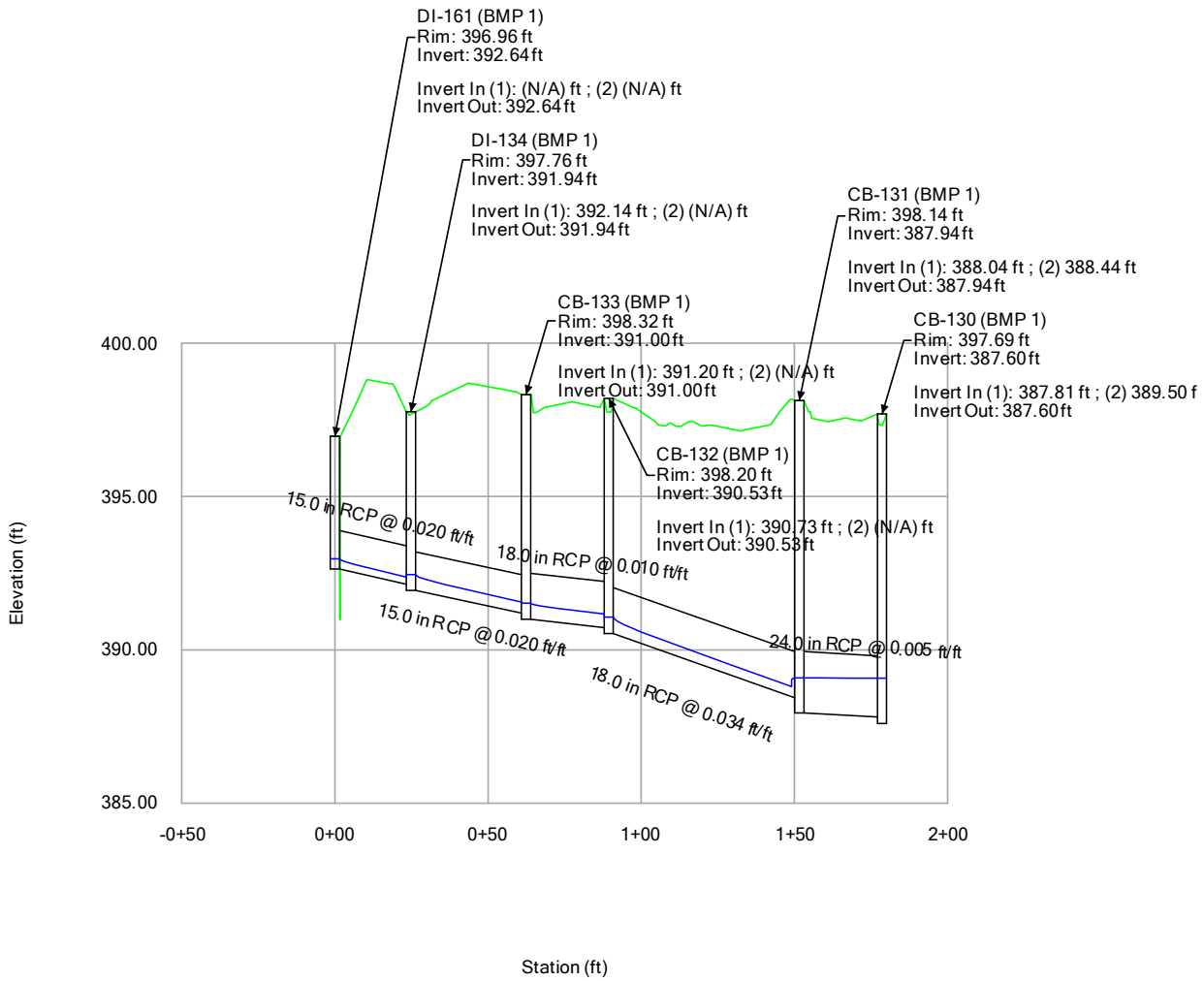
SCM 1 10-YR


CB-131 (BMP 1)
Rim: 398.14 ft
Invert: 387.94 ft
Invert In (1): 388.04 ft ; (2) 388.44 ft
Invert Out: 387.94 ft
CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft ; (2) 389.50 ft
Invert Out: 387.60 ft
DI-145 (BMP 1)
Rim: 394.61 ft
Invert: 390.61 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.61 ft
DDI-143 (BMP 1)
Rim: 393.43 ft
Invert: 389.36 ft
Invert In (1): 389.56 ft ; (2) 389.46 ft
Invert Out: 389.36 ft
DI-141 (BMP 1)
Rim: 396.11 ft
Invert: 388.29 ft
Invert In (1): 388.39 ft ; (2) (N/A) ft
Invert Out: 388.29 ft
DI-144 (BMP 1)
Rim: 394.20 ft
Invert: 389.98 ft
Invert In (1): 390.08 ft ; (2) (N/A) ft
Invert Out: 389.98 ft
DI-142 (BMP 1)
Rim: 394.20 ft
Invert: 388.82 ft
Invert In (1): 388.92 ft ; (2) (N/A) ft
Invert Out: 388.82 ft
18.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.012 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

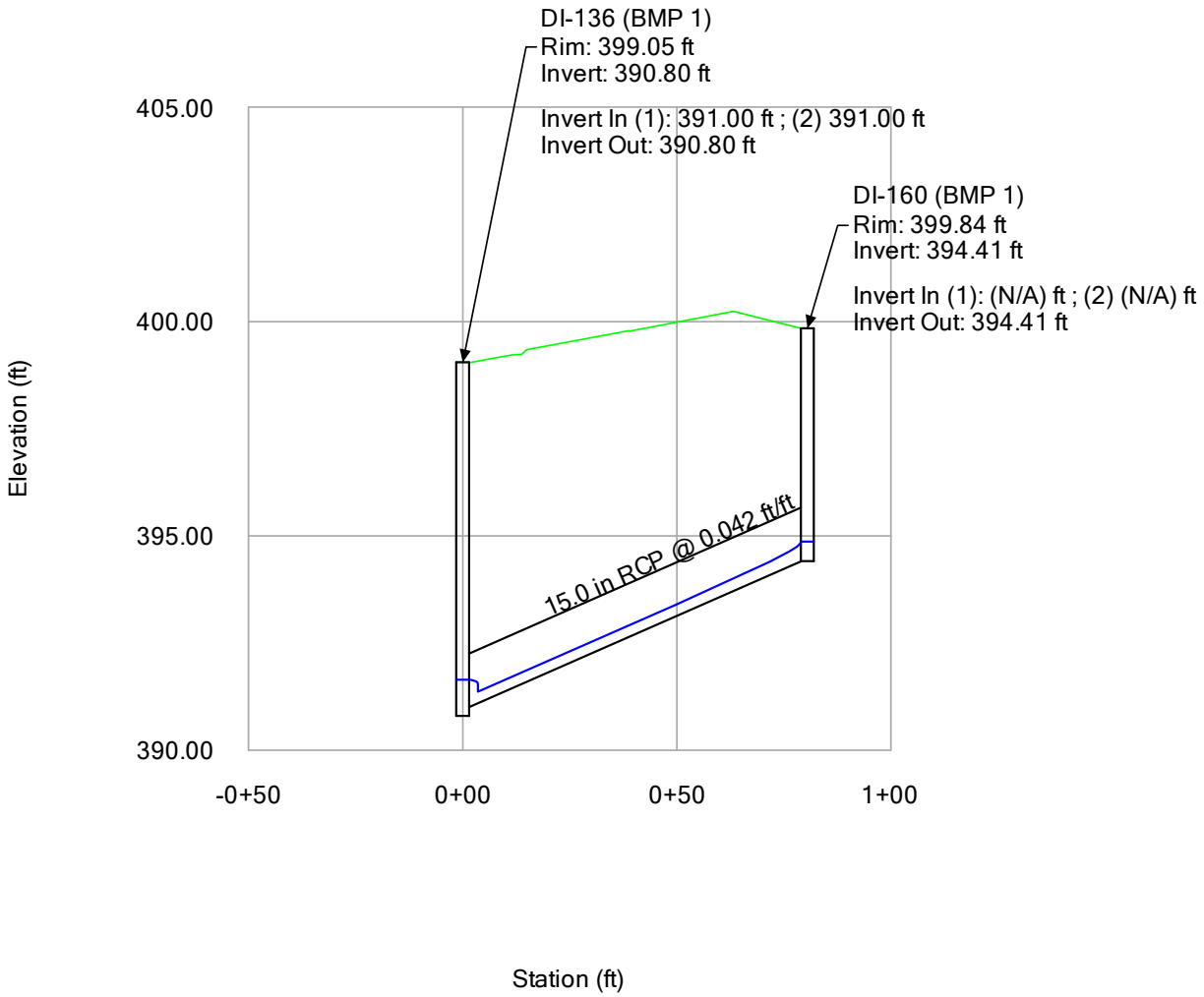
SCM 1 10-YR


CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft; (2) 389.50 ft
Invert Out: 387.60 ft
DI-135 (BMP 1)
Rim: 397.35 ft
Invert: 389.77 ft
Invert In (1): 389.87 ft; (2) (N/A) ft
Invert Out: 389.77 ft
DI-136 (BMP 1)
Rim: 399.05 ft
Invert: 390.80 ft
Invert In (1): 391.04 ft; (2) 391.00 ft
Invert Out: 390.80 ft
DI-137 (BMP 1)
Rim: 399.67 ft
Invert: 391.77 ft
Invert In (1): 391.87 ft; (2) (N/A) ft
Invert Out: 391.77 ft
DI-138 (BMP 1)
Rim: 400.35 ft
Invert: 392.45 ft
Invert In (1): 392.55 ft; (2) (N/A) ft
Invert Out: 392.45 ft
DI-139 (BMP 1)
Rim: 401.72 ft
Invert: 392.98 ft
Invert In (1): 393.08 ft; (2) (N/A) ft
Invert Out: 392.98 ft
DI-140 (BMP 1)
Rim: 404.25 ft
Invert: 393.55 ft
Invert In (1): (N/A) ft; (2) (N/A) ft
Invert Out: 393.55 ft
18.0 in RCP @ 0.008 ft/ft
18.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.012 ft/ft
15.0 in RCP @ 0.009 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
Elevation (ft)
Station (ft)
405.00
400.00
395.00
390.00
385.00
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50

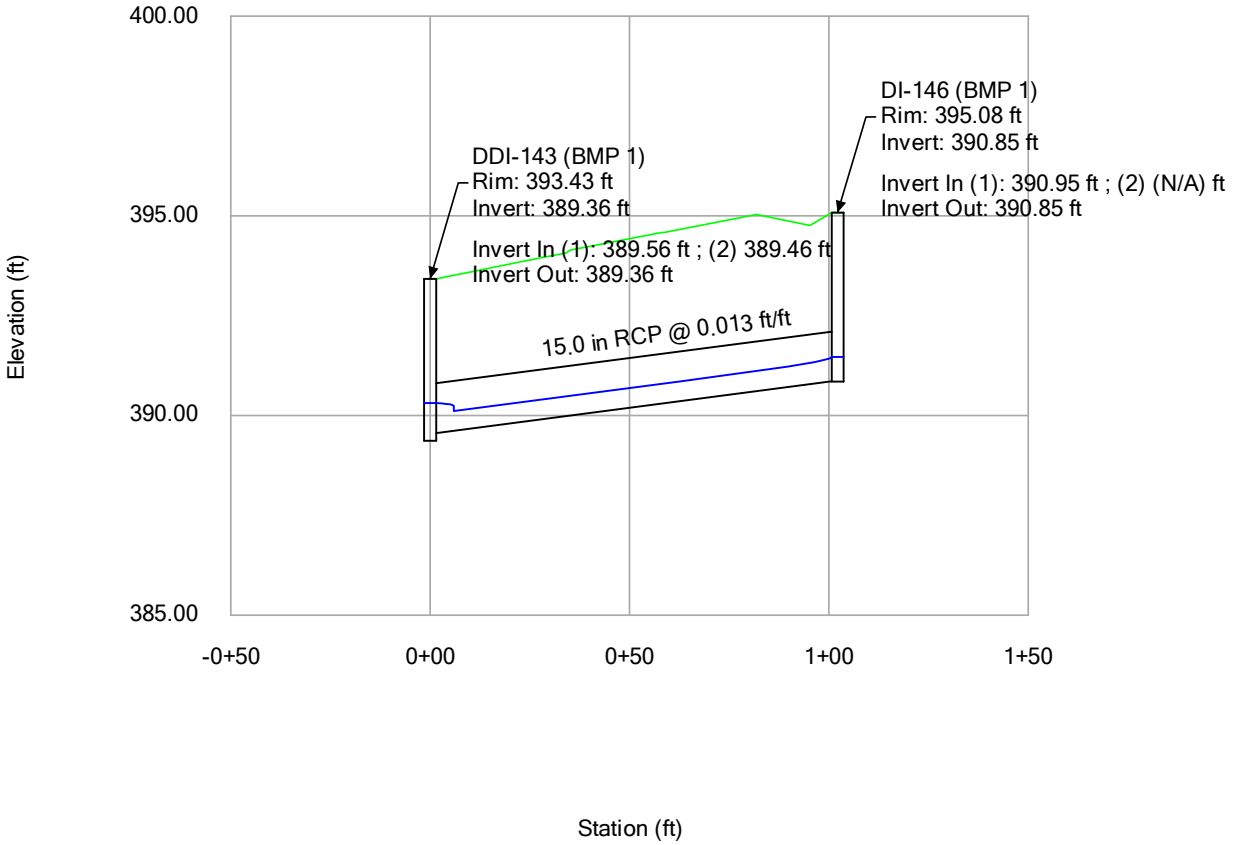
SCM 1 10-YR


DI-161 (BMP 1)
Rim: 396.96 ft
Invert: 392.64 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.64 ft
DI-134 (BMP 1)
Rim: 397.76 ft
Invert: 391.94 ft
Invert In (1): 392.14 ft ; (2) (N/A) ft
Invert Out: 391.94 ft
CB-131 (BMP 1)
Rim: 398.14 ft
Invert: 387.94 ft
Invert In (1): 388.04 ft ; (2) 388.44 ft
Invert Out: 387.94 ft
CB-133 (BMP 1)
Rim: 398.32 ft
Invert: 391.00 ft
Invert In (1): 391.20 ft ; (2) (N/A) ft
Invert Out: 391.00 ft
CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft ; (2) 389.50 f
Invert Out: 387.60 ft
CB-132 (BMP 1)
Rim: 398.20 ft
Invert: 390.53 ft
Invert In (1): 390.73 ft ; (2) (N/A) ft
Invert Out: 390.53 ft
15.0 in RCP @ 0.020 ft/ft
18.0 in RCP @ 0.010 ft/ft
15.0 in RCP @ 0.020 ft/ft
18.0 in RCP @ 0.034 ft/ft
24.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

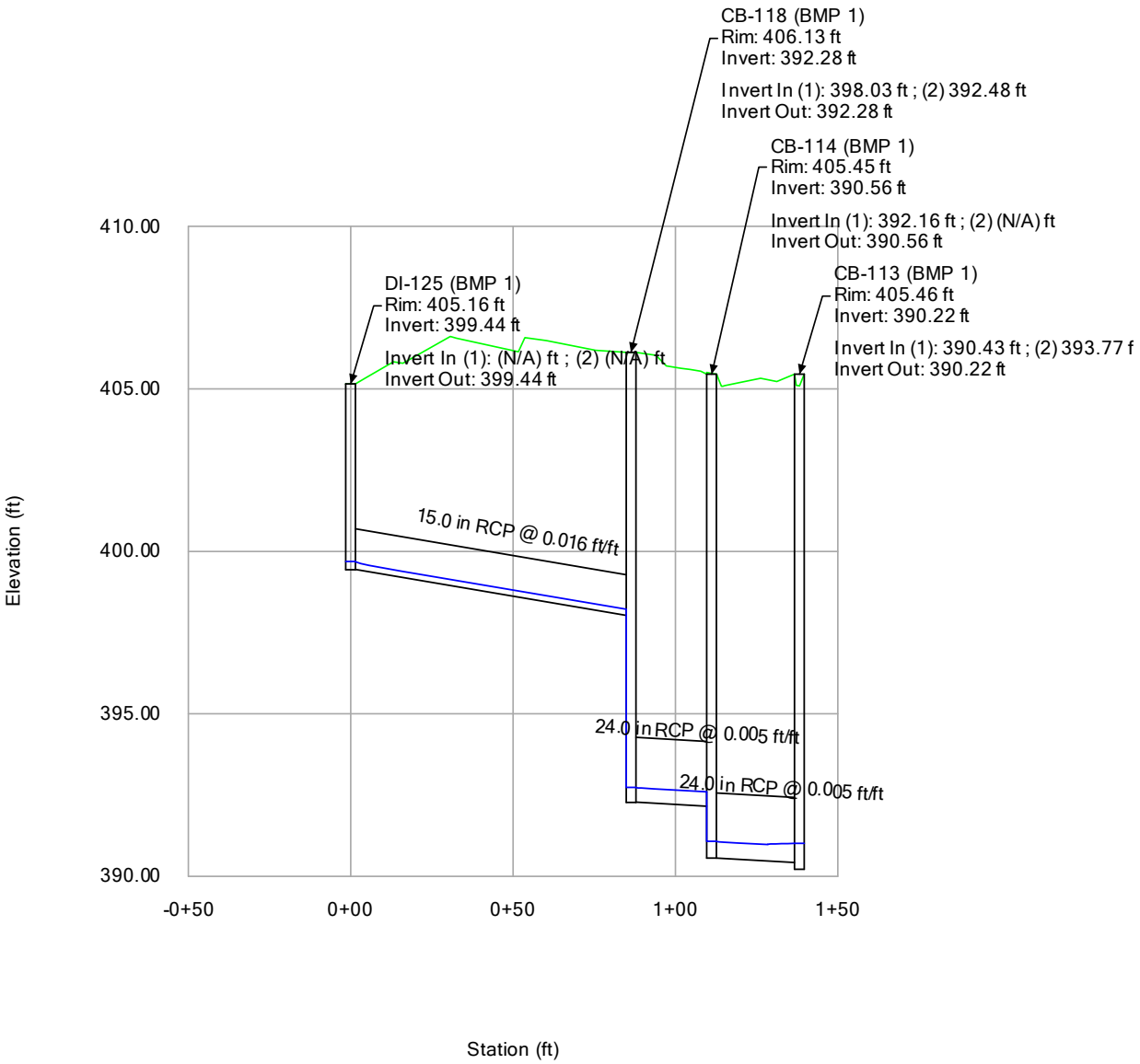
SCM 1 10-YR


DI-136 (BMP 1)
Rim: 399.05 ft
Invert: 390.80 ft
Invert In (1): 391.00 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
DI-160 (BMP 1)
Rim: 399.84 ft
Invert: 394.41 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 394.41 ft
15.0 in RCP @ 0.042 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
Station (ft)

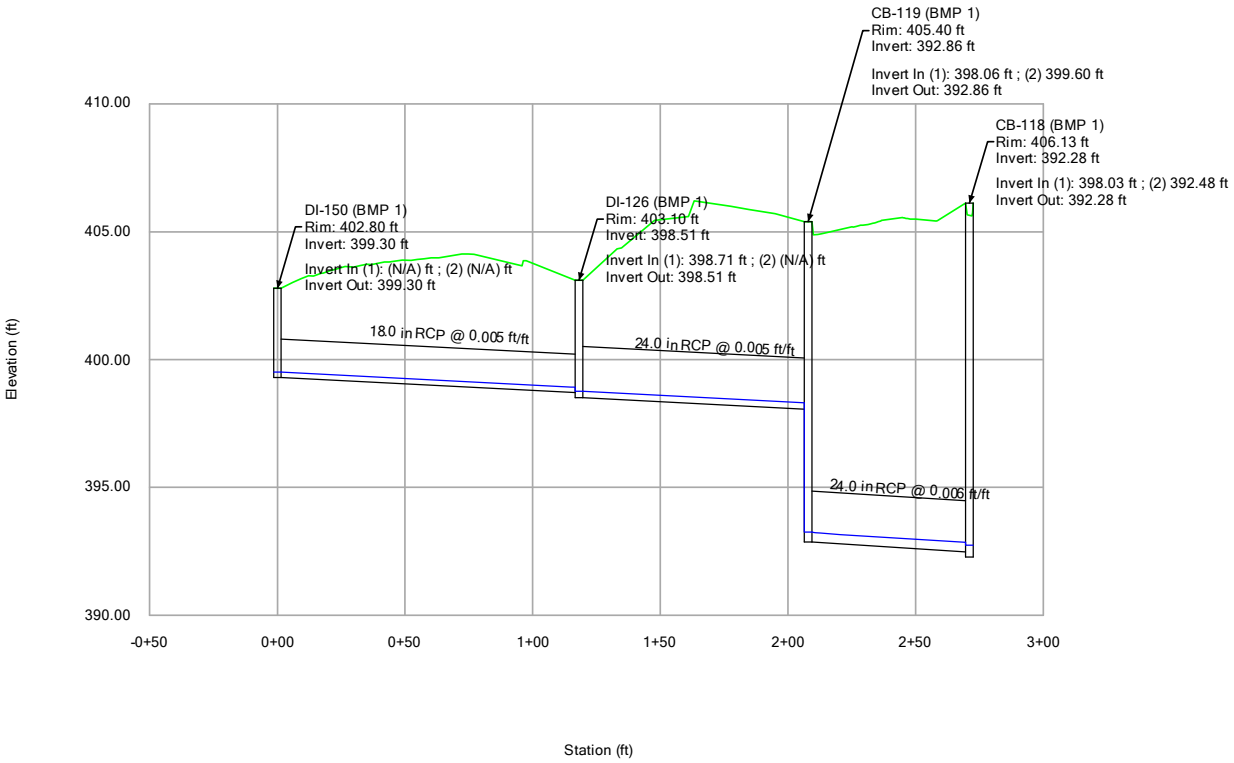
SCM 1 10-YR


400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)
DDI-143 (BMP 1)
Rim: 393.43 ft
Invert: 389.36 ft
Invert In (1): 389.56 ft ; (2) 389.46 ft
Invert Out: 389.36 ft
DI-146 (BMP 1)
Rim: 395.08 ft
Invert: 390.85 ft
Invert In (1): 390.95 ft ; (2) (N/A) ft
Invert Out: 390.85 ft
15.0 in RCP @ 0.013 ft/ft

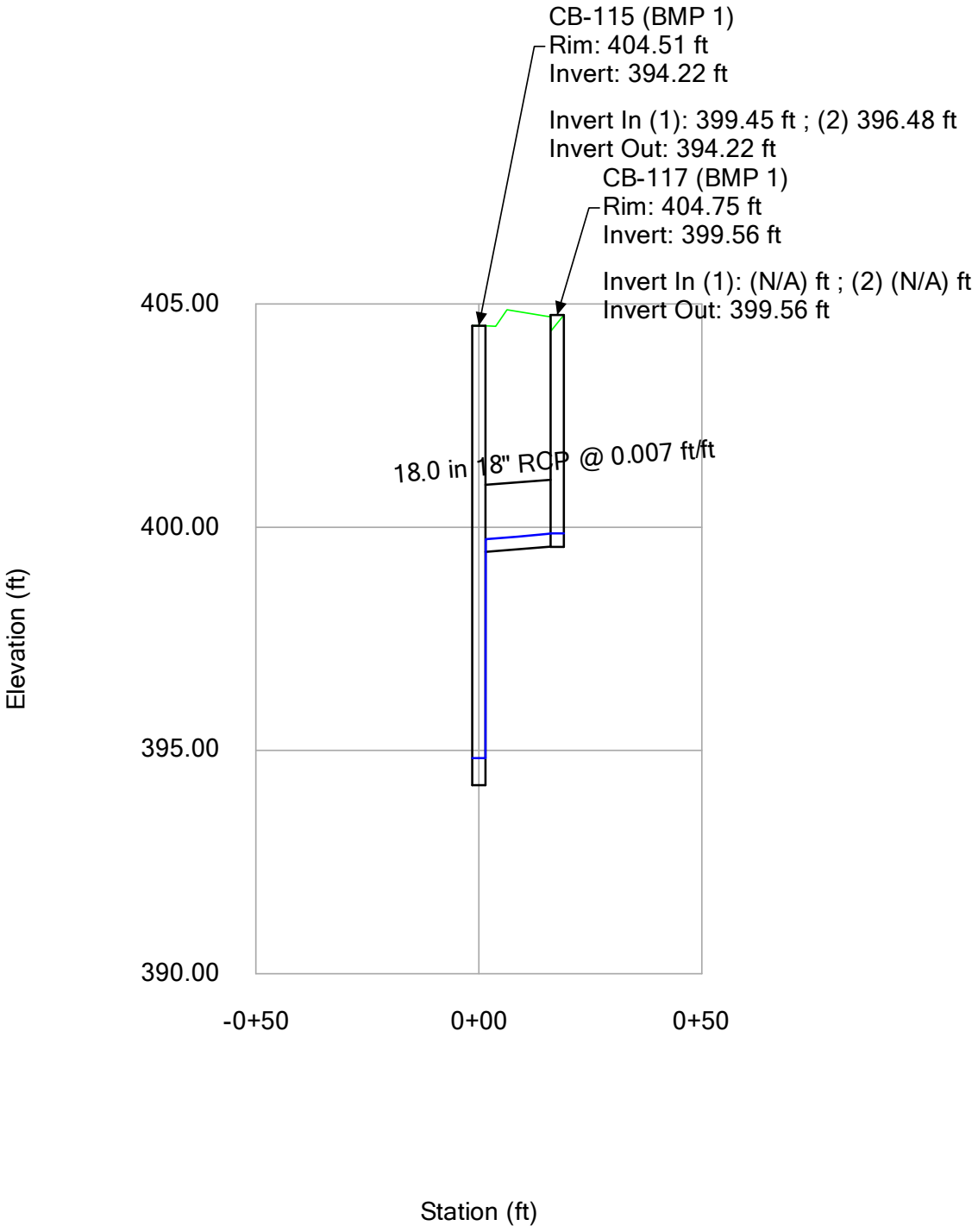
SCM 1 10-YR


CB-118 (BMP 1)
Rim: 406.13 ft
Invert: 392.28 ft
Invert In (1): 398.03 ft ; (2) 392.48 ft
Invert Out: 392.28 ft
CB-114 (BMP 1)
Rim: 405.45 ft
Invert: 390.56 ft
Invert In (1): 392.16 ft ; (2) (N/A) ft
Invert Out: 390.56 ft
CB-113 (BMP 1)
Rim: 405.46 ft
Invert: 390.22 ft
Invert In (1): 390.43 ft ; (2) 393.77 f
Invert Out: 390.22 ft
DI-125 (BMP 1)
Rim: 405.16 ft
Invert: 399.44 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.44 ft
15.0 in RCP @ 0.016 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

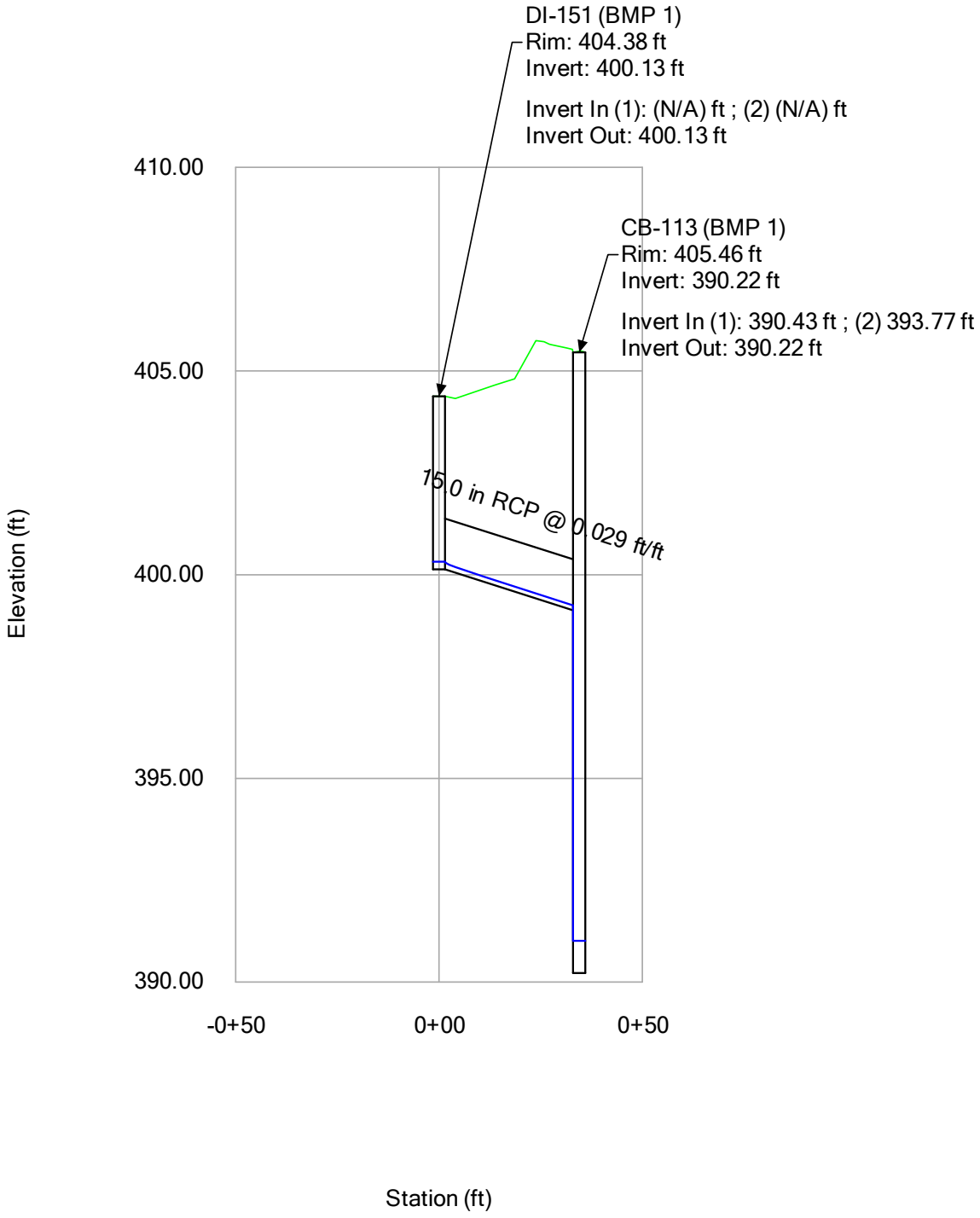
SCM 1 10-YR


CB-119 (BMP 1)
Rim: 405.40 ft
Invert: 392.86 ft
Invert In (1): 398.06 ft ; (2) 399.60 ft
Invert Out: 392.86 ft
CB-118 (BMP 1)
Rim: 406.13 ft
Invert: 392.28 ft
Invert In (1): 398.03 ft ; (2) 392.48 ft
Invert Out: 392.28 ft
DI-150 (BMP 1)
Rim: 402.80 ft
Invert: 399.30 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.30 ft
DI-126 (BMP 1)
Rim: 403.10 ft
Invert: 398.51 ft
Invert In (1): 398.71 ft ; (2) (N/A) ft
Invert Out: 398.51 ft
18.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.006 ft/ft
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

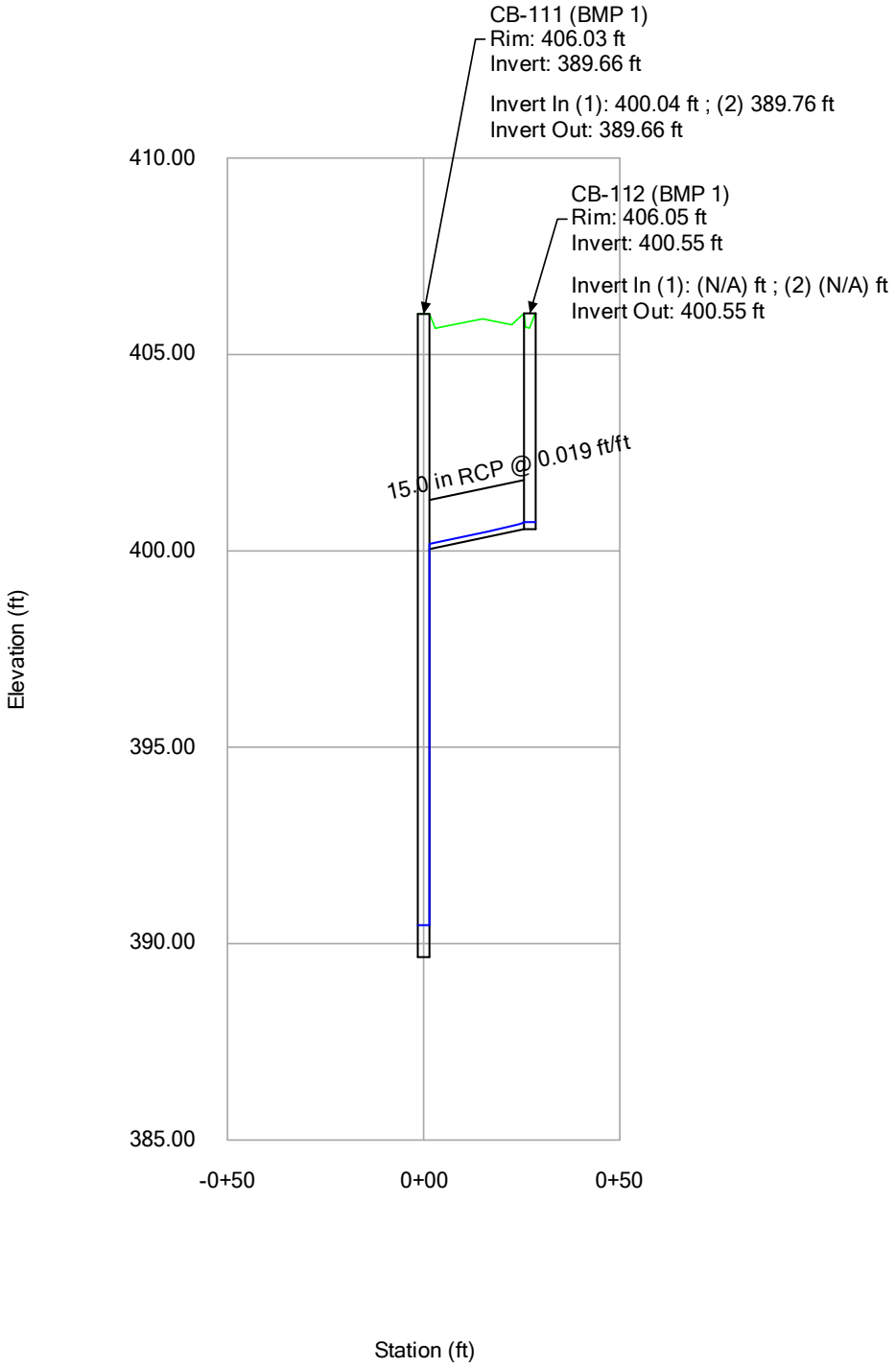
SCM 1 10-YR


CB-115 (BMP 1)
Rim: 404.51 ft
Invert: 394.22 ft
Invert In (1): 399.45 ft ; (2) 396.48 ft
Invert Out: 394.22 ft
CB-117 (BMP 1)
Rim: 404.75 ft
Invert: 399.56 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.56 ft
18.0 in 18" RCP @ 0.007 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

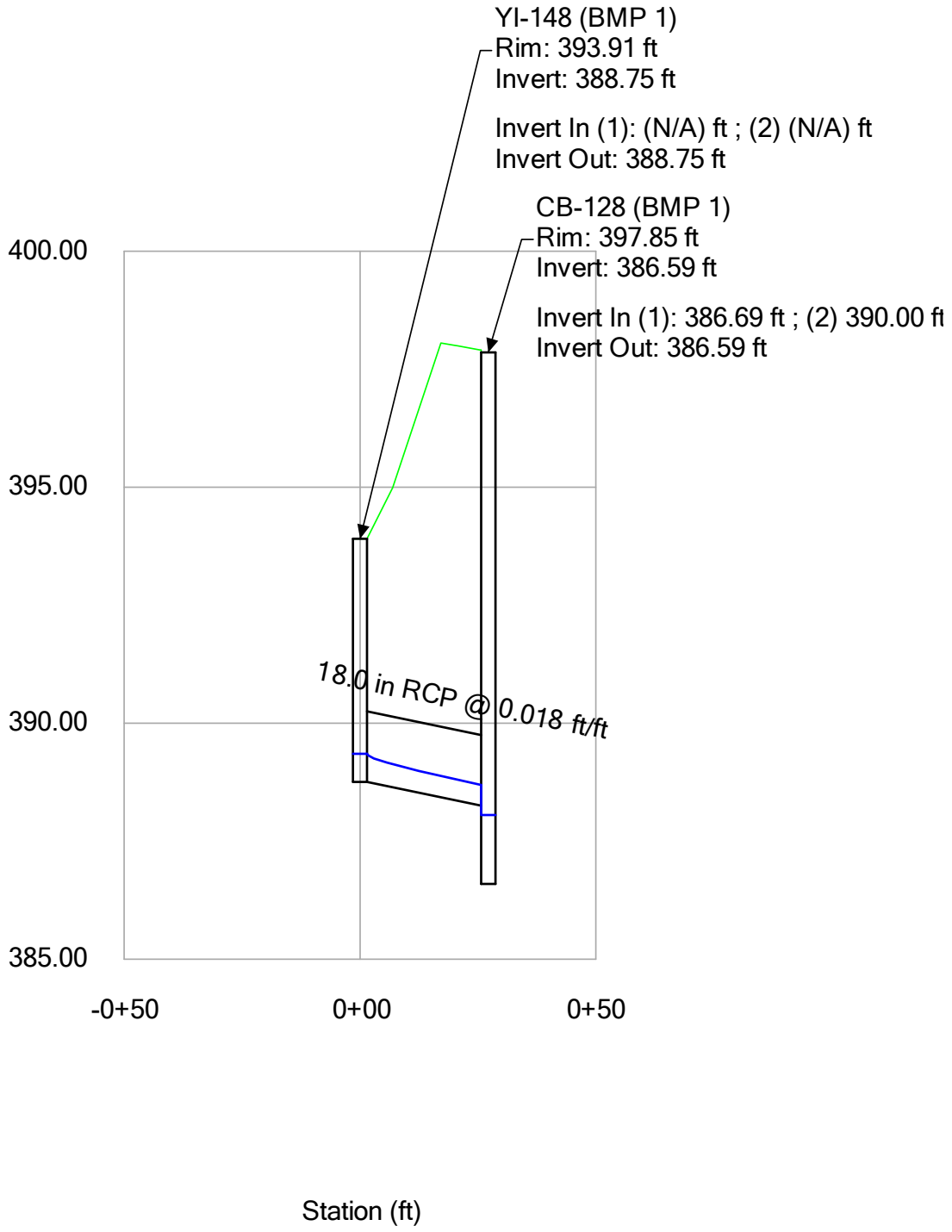
SCM 1 10-YR


DI-151 (BMP 1)
Rim: 404.38 ft
Invert: 400.13 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.13 ft
CB-113 (BMP 1)
Rim: 405.46 ft
Invert: 390.22 ft
Invert In (1): 390.43 ft ; (2) 393.77 ft
Invert Out: 390.22 ft
15.0 in RCP @ 0.029 ft/ft
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

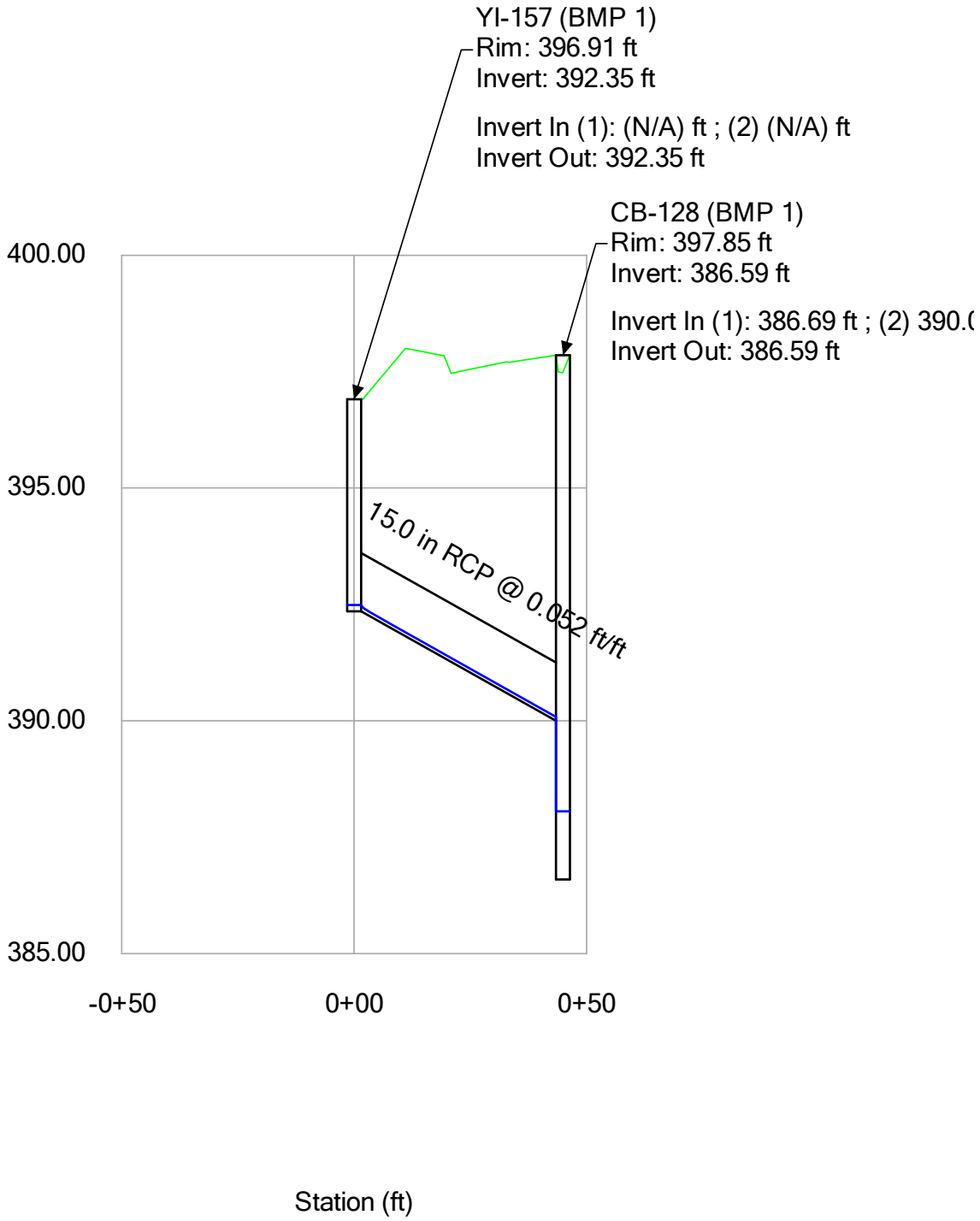
SCM 1 10-YR


CB-111 (BMP 1)
Rim: 406.03 ft
Invert: 389.66 ft
Invert In (1): 400.04 ft ; (2) 389.76 ft
Invert Out: 389.66 ft
CB-112 (BMP 1)
Rim: 406.05 ft
Invert: 400.55 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.55 ft
15.0 in RCP @ 0.019 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

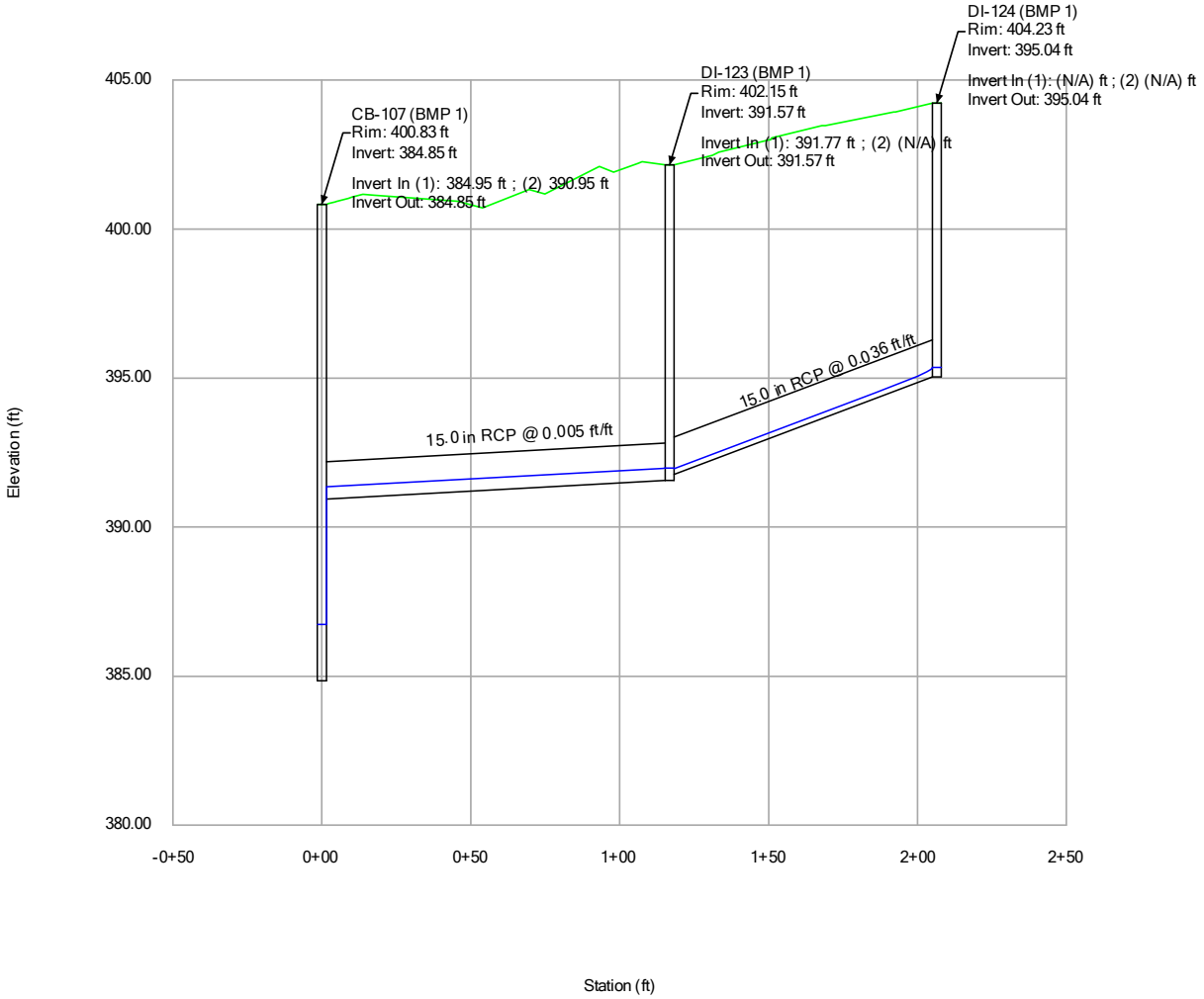
SCM 1 10-YR


YI-148 (BMP 1)
Rim: 393.91 ft
Invert: 388.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.75 ft
CB-128 (BMP 1)
Rim: 397.85 ft
Invert: 386.59 ft
Invert In (1): 386.69 ft ; (2) 390.00 ft
Invert Out: 386.59 ft
400.00
395.00
390.00
385.00
18.0 in RCP @ 0.018 ft/ft
-0+50
0+00
0+50
Station (ft)

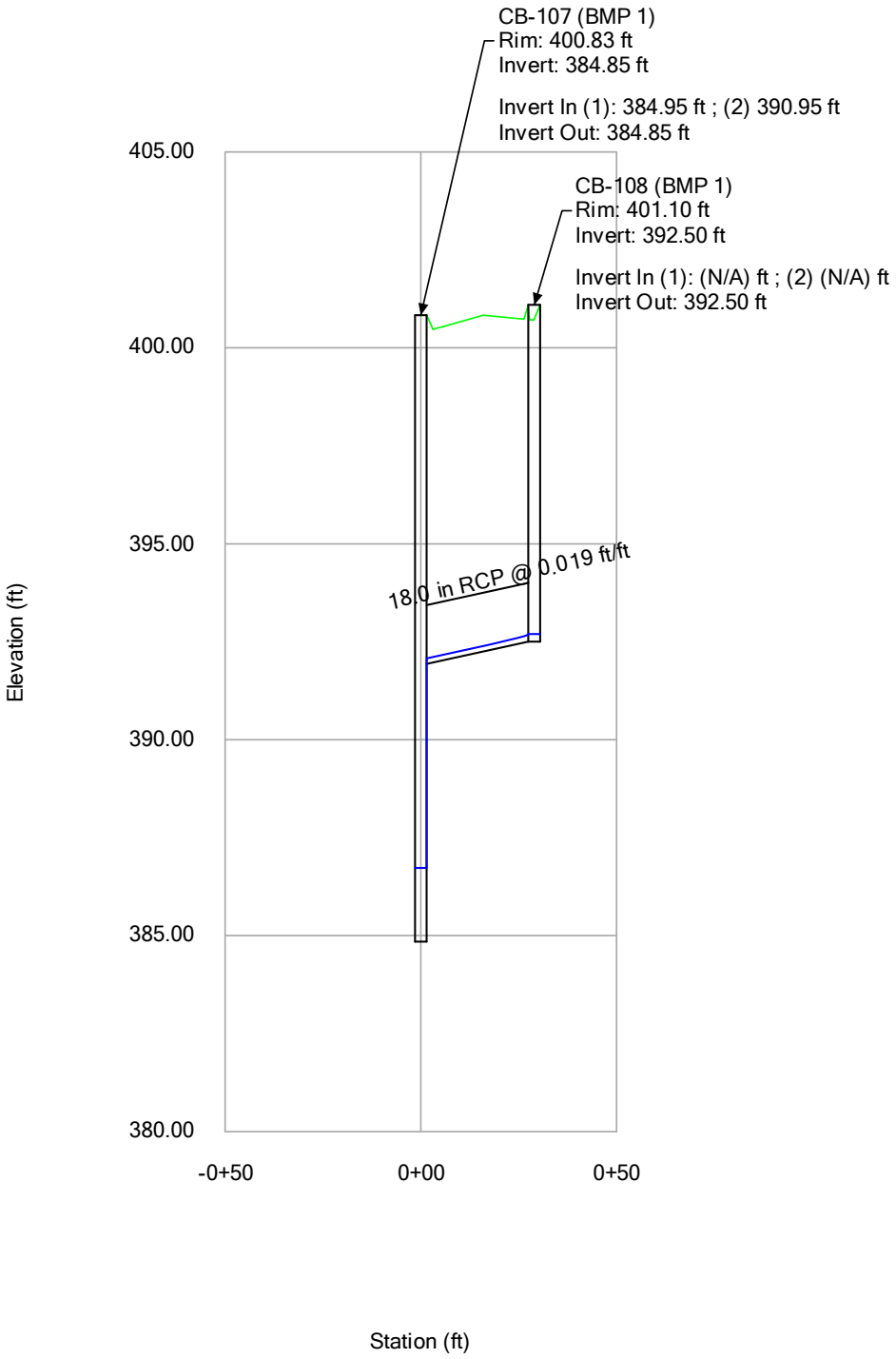
SCM 1 10-YR


YI-157 (BMP 1)
Rim: 396.91 ft
Invert: 392.35 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.35 ft
CB-128 (BMP 1)
Rim: 397.85 ft
Invert: 386.59 ft
Invert In (1): 386.69 ft ; (2) 390.(
Invert Out: 386.59 ft
400.00
395.00
390.00
385.00
15.0 in RCP @ 0.052 ft/ft
-0+50
0+00
0+50
Station (ft)

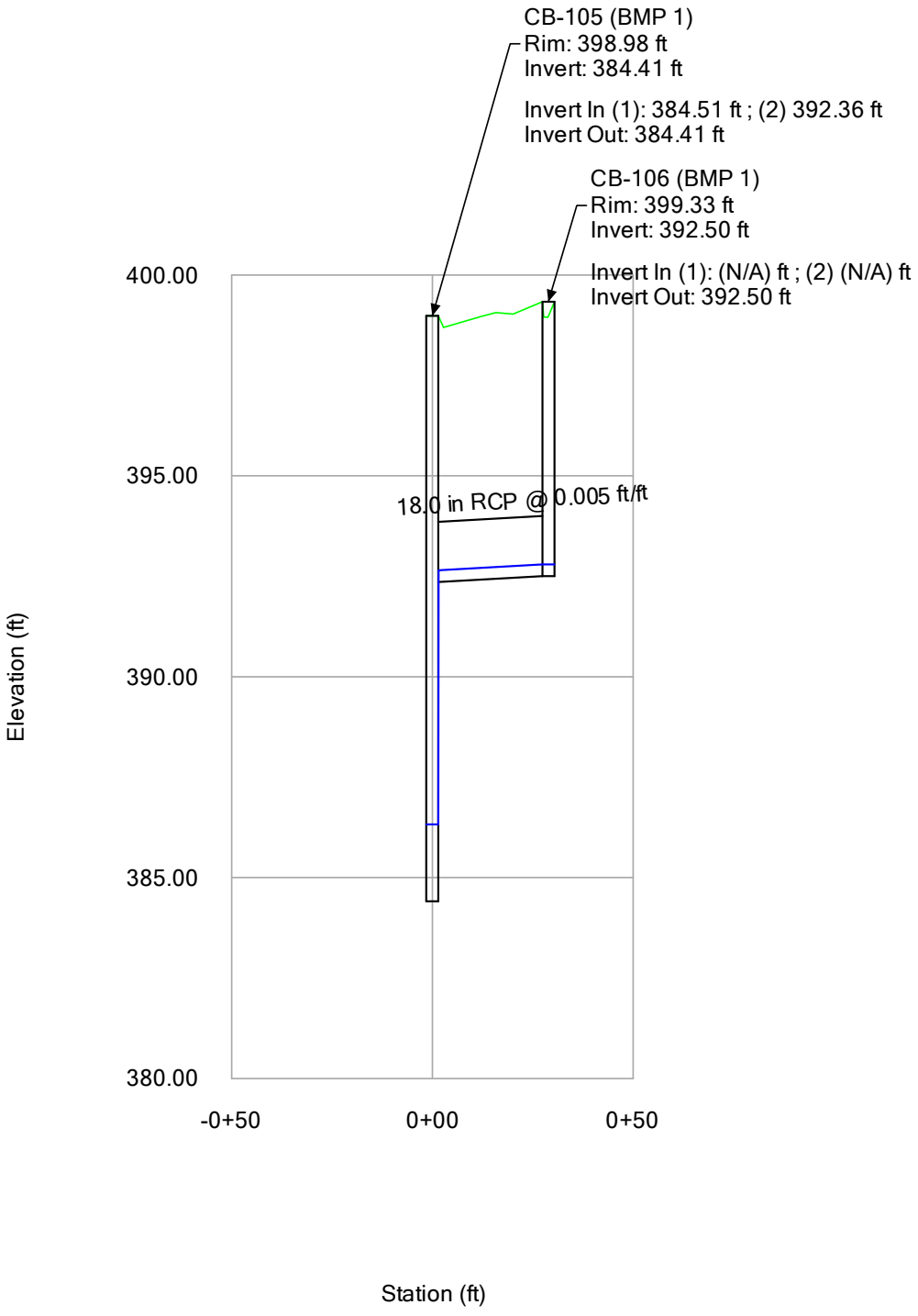
SCM 1 10-YR


DI-124 (BMP 1)
Rim: 404.23 ft
Invert: 395.04 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 395.04 ft
DI-123 (BMP 1)
Rim: 402.15 ft
Invert: 391.57 ft
Invert In (1): 391.77 ft ; (2) (N/A) ft
Invert Out: 391.57 ft
CB-107 (BMP 1)
Rim: 400.83 ft
Invert: 384.85 ft
Invert In (1): 384.95 ft ; (2) 390.95 ft
Invert Out: 384.85 ft
15.0 in RCP @ 0.036 ft/ft
15.0 in RCP @ 0.005 ft/ft
405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)

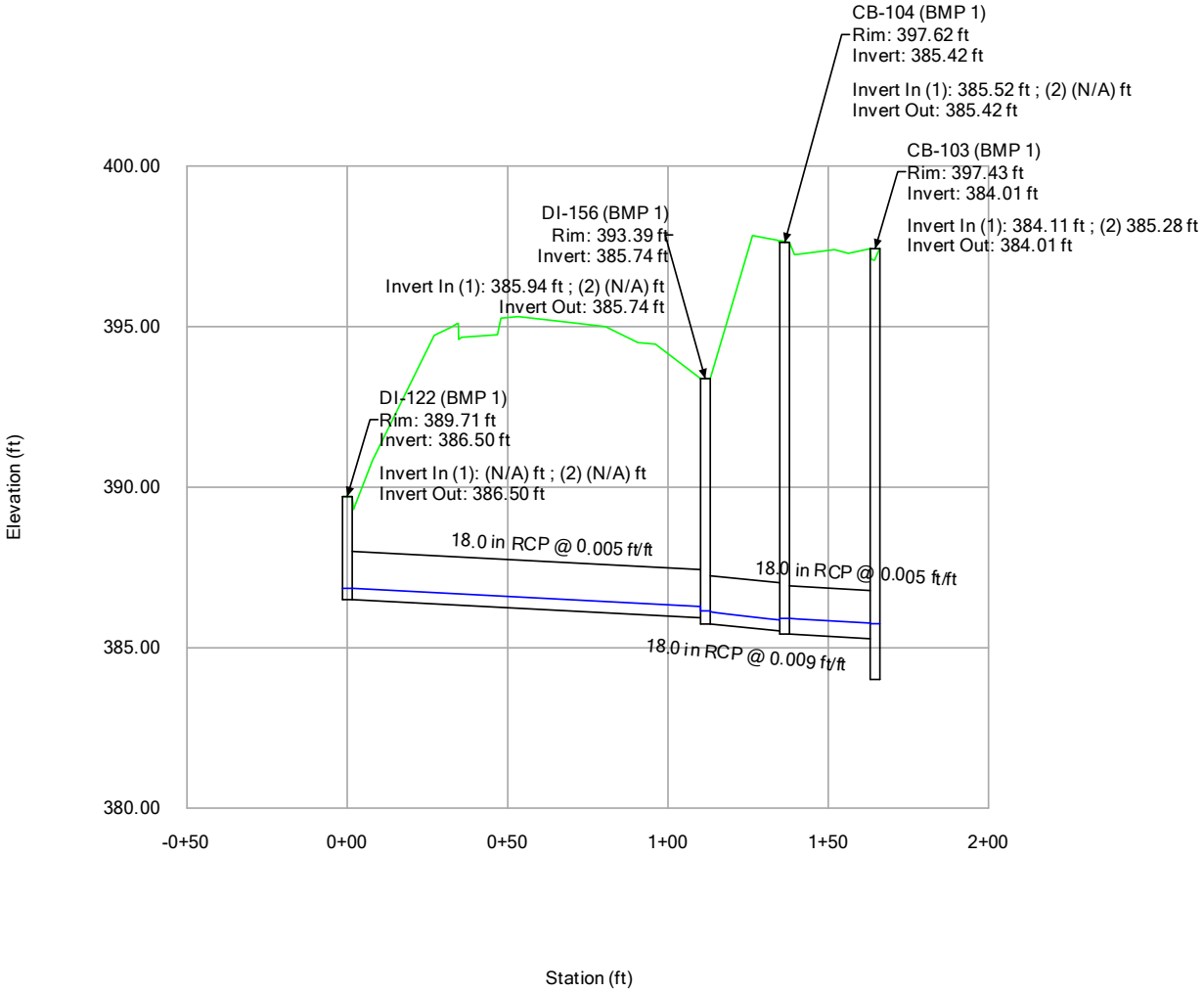
SCM 1 10-YR


CB-107 (BMP 1)
Rim: 400.83 ft
Invert: 384.85 ft
Invert In (1): 384.95 ft ; (2) 390.95 ft
Invert Out: 384.85 ft
CB-108 (BMP 1)
Rim: 401.10 ft
Invert: 392.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.50 ft
18.0 in RCP @ 0.019 ft/ft
405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

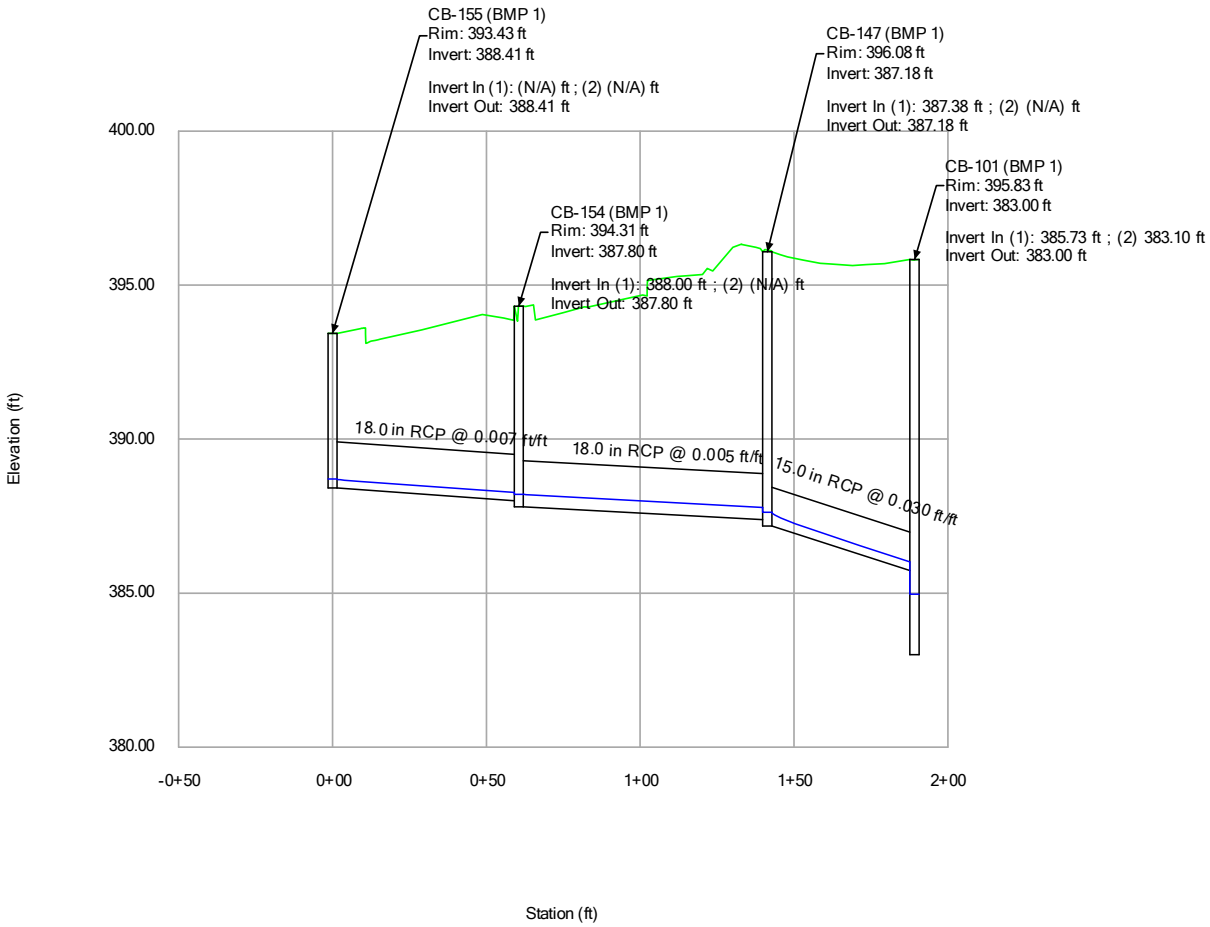
SCM 1 10-YR


CB-105 (BMP 1)
Rim: 398.98 ft
Invert: 384.41 ft
Invert In (1): 384.51 ft ; (2) 392.36 ft
Invert Out: 384.41 ft
CB-106 (BMP 1)
Rim: 399.33 ft
Invert: 392.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.50 ft
18.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

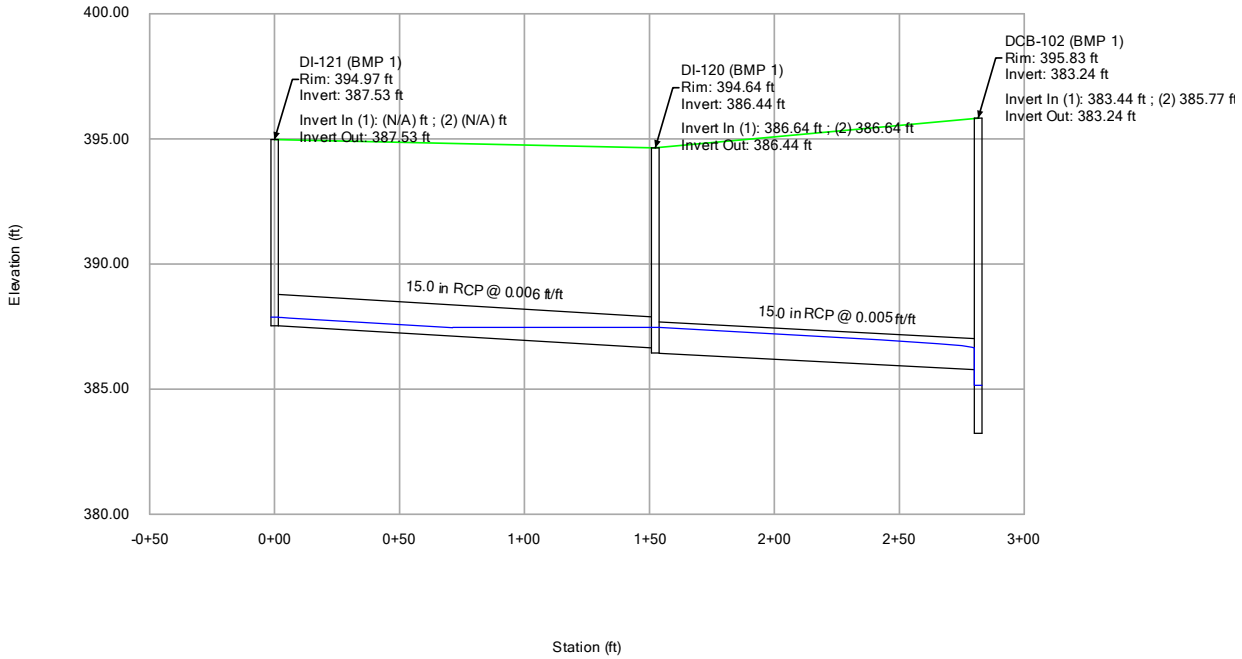
SCM 1 10-YR


CB-104 (BMP 1)
Rim: 397.62 ft
Invert: 385.42 ft
Invert In (1): 385.52 ft ; (2) (N/A) ft
Invert Out: 385.42 ft
CB-103 (BMP 1)
Rim: 397.43 ft
Invert: 384.01 ft
Invert In (1): 384.11 ft ; (2) 385.28 ft
Invert Out: 384.01 ft
DI-156 (BMP 1)
Rim: 393.39 ft
Invert: 385.74 ft
Invert In (1): 385.94 ft ; (2) (N/A) ft
Invert Out: 385.74 ft
DI-122 (BMP 1)
Rim: 389.71 ft
Invert: 386.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 386.50 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.009 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

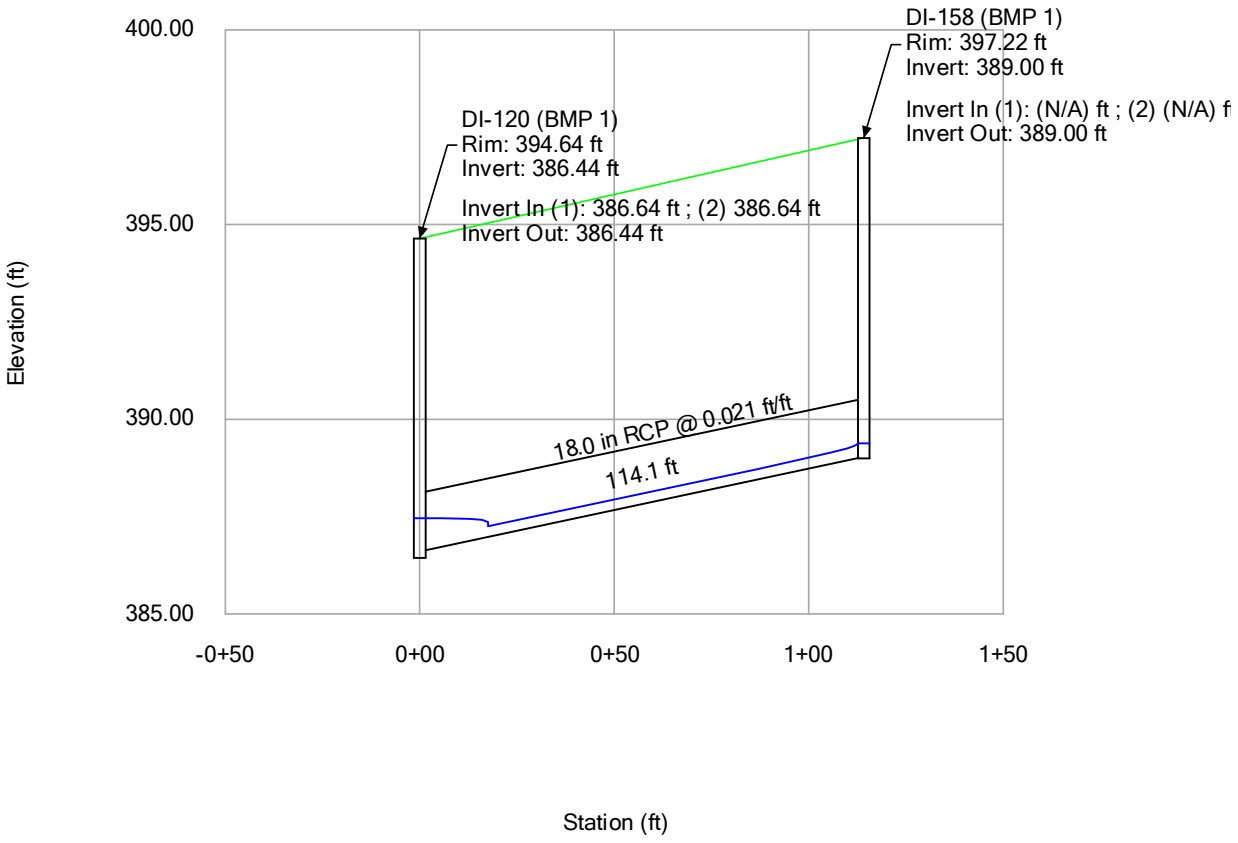
SCM 1 10-YR


CB-155 (BMP 1)
Rim: 393.43 ft
Invert: 388.41 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.41 ft
CB-147 (BMP 1)
Rim: 396.08 ft
Invert: 387.18 ft
Invert In (1): 387.38 ft ; (2) (N/A) ft
Invert Out: 387.18 ft
CB-101 (BMP 1)
Rim: 395.83 ft
Invert: 383.00 ft
Invert In (1): 385.73 ft ; (2) 383.10 ft
Invert Out: 383.00 ft
CB-154 (BMP 1)
Rim: 394.31 ft
Invert: 387.80 ft
Invert In (1): 388.00 ft ; (2) (N/A) ft
Invert Out: 387.80 ft
18.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.030 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

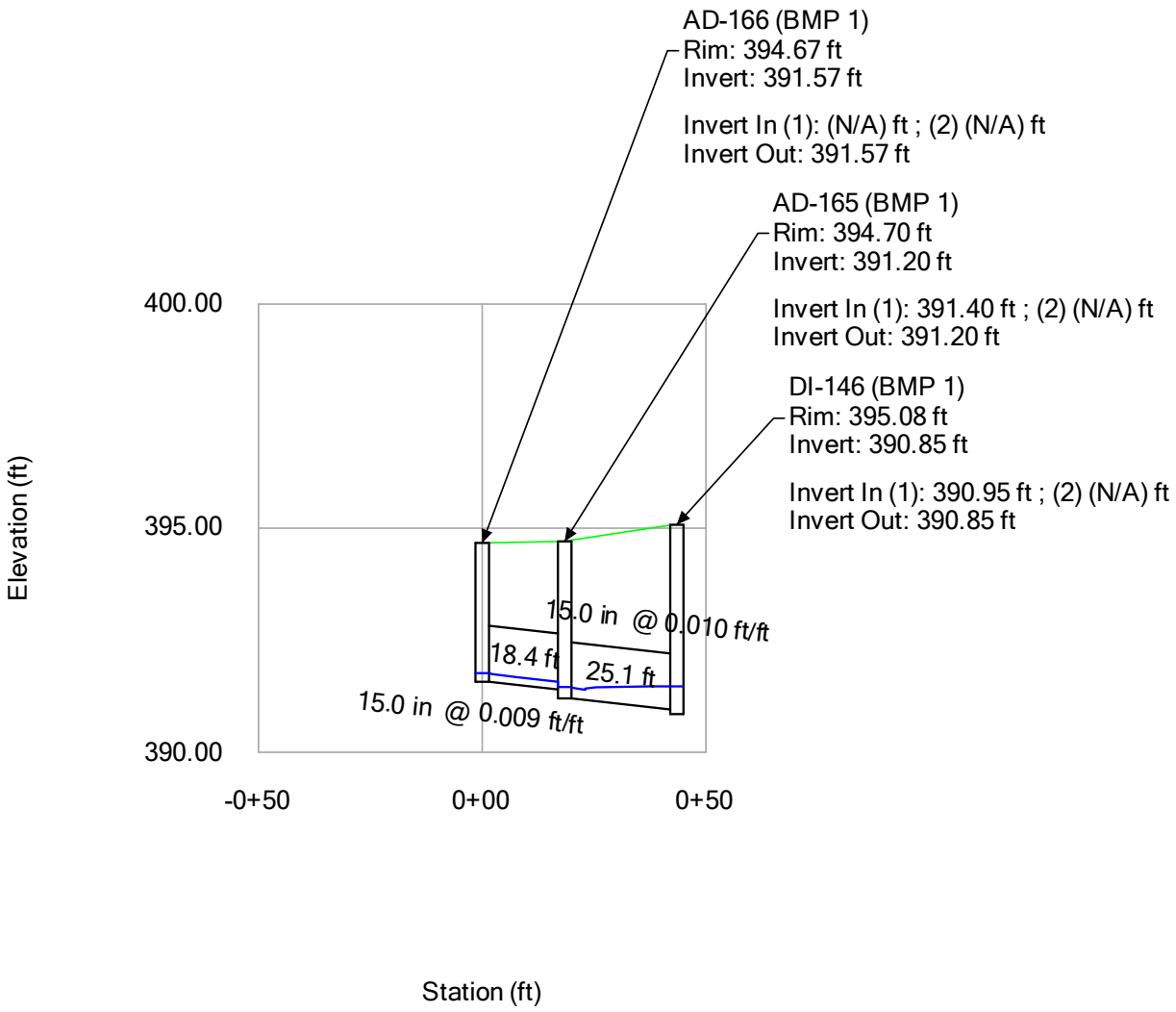
SCM 1 10-YR


400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)
DI-121 (BMP 1)
Rim: 394.97 ft
Invert: 387.53 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 387.53 ft
DI-120 (BMP 1)
Rim: 394.64 ft
Invert: 386.44 ft
Invert In (1): 386.64 ft ; (2) 386.64 ft
Invert Out: 386.44 ft
DCB-102 (BMP 1)
Rim: 395.83 ft
Invert: 383.24 ft
Invert In (1): 383.44 ft ; (2) 385.77 ft
Invert Out: 383.24 ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.005 ft/ft

SCM 1 10-YR


DI-158 (BMP 1)
Rim: 397.22 ft
Invert: 389.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 389.00 ft
DI-120 (BMP 1)
Rim: 394.64 ft
Invert: 386.44 ft
Invert In (1): 386.64 ft ; (2) 386.64 ft
Invert Out: 386.44 ft
18.0 in RCP @ 0.021 ft/ft
114.1 ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

SCM 1 10-YR


AD-166 (BMP 1)
Rim: 394.67 ft
Invert: 391.57 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 391.57 ft
AD-165 (BMP 1)
Rim: 394.70 ft
Invert: 391.20 ft
Invert In (1): 391.40 ft ; (2) (N/A) ft
Invert Out: 391.20 ft
DI-146 (BMP 1)
Rim: 395.08 ft
Invert: 390.85 ft
Invert In (1): 390.95 ft ; (2) (N/A) ft
Invert Out: 390.85 ft
400.00
395.00
390.00
Elevation (ft)
15.0 in @ 0.010 ft/ft
18.4 ft
25.1 ft
15.0 in @ 0.009 ft/ft
-0+50
0+00
0+50
Station (ft)

SCM 1 - 25 YR STORM

SCM 1 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
YI-157 (BMP 1)	0.033	0.000	True	0.13	0.084	0.500
DI-142 (BMP 1)	0.267	0.000	True	1.07	0.084	0.500
DI-158 (BMP 1)	0.289	0.000	True	1.16	0.084	0.500
DI-150 (BMP 1)	0.077	0.000	True	0.34	0.084	0.550
DI-135 (BMP 1)	0.285	0.000	True	1.26	0.084	0.550
DI-126 (BMP 1)	0.060	0.000	True	0.29	0.084	0.600
DI-125 (BMP 1)	0.101	0.000	True	0.49	0.084	0.600
DI-151 (BMP 1)	0.053	0.000	True	0.26	0.084	0.600
CB-103 (BMP 1)	0.082	0.000	True	0.39	0.084	0.600
DI-156 (BMP 1)	0.069	0.000	True	0.33	0.084	0.600
CB-127 (BMP 1)	0.052	0.000	True	0.27	0.084	0.650
CB-104 (BMP 1)	0.118	0.000	True	0.62	0.084	0.650
DI-160 (BMP 1)	0.208	0.287	False	1.50	0.084	0.650
DI-139 (BMP 1)	0.077	0.000	True	0.40	0.084	0.650
CB-130 (BMP 1)	0.052	0.000	True	0.27	0.084	0.650
DI-121 (BMP 1)	0.164	0.000	True	0.86	0.084	0.650

SCM 1 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
TCB-116 (BMP 1)	0.371	0.000	True	2.08	0.084	0.700
CB-109 (BMP 1)	0.236	0.000	True	1.33	0.084	0.700
DI-124 (BMP 1)	0.150	0.000	True	0.84	0.084	0.700
YI-148 (BMP 1)	0.498	0.000	True	2.80	0.084	0.700
DI-122 (BMP 1)	0.226	0.000	True	1.27	0.084	0.700
DI-134 (BMP 1)	0.187	0.000	True	1.05	0.084	0.700
DI-146 (BMP 1)	0.242	0.388	False	2.18	0.084	0.700
DI-120 (BMP 1)	0.592	0.000	True	3.33	0.084	0.700
CB-128 (BMP 1)	0.146	0.000	True	0.84	0.084	0.720
CB-114 (BMP 1)	0.112	0.000	True	0.68	0.084	0.750
CB-110 (BMP 1)	0.191	0.000	True	1.15	0.084	0.750
CB-106 (BMP 1)	0.130	0.000	True	0.78	0.084	0.750
DI-123 (BMP 1)	0.087	0.000	True	0.52	0.084	0.750
CB-107 (BMP 1)	0.081	0.000	True	0.49	0.084	0.750
DI-138 (BMP 1)	0.287	0.000	True	1.73	0.084	0.750
DI-137 (BMP 1)	0.098	0.000	True	0.59	0.084	0.750

SCM 1 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DDI-143 (BMP 1)	0.398	0.000	True	2.40	0.084	0.750
DCB-102 (BMP 1)	0.280	0.000	True	1.68	0.084	0.750
DI-136 (BMP 1)	0.093	0.000	True	0.57	0.084	0.760
CB-153A (BMP 1)	0.160	0.000	True	0.99	0.084	0.770
CB-111 (BMP 1)	0.022	0.000	True	0.14	0.084	0.790
CB-112 (BMP 1)	0.039	0.000	True	0.25	0.084	0.790
CB-113 (BMP 1)	0.049	0.000	True	0.32	0.084	0.800
DI-145 (BMP 1)	0.155	0.000	True	1.00	0.084	0.800
CB-101 (BMP 1)	0.110	0.000	True	0.70	0.084	0.800
DI-144 (BMP 1)	0.041	0.000	True	0.27	0.084	0.810
TCB-129 (BMP 1)	0.167	0.000	True	1.13	0.084	0.840
CB-108 (BMP 1)	0.015	0.000	True	0.10	0.084	0.850
CB-105 (BMP 1)	0.042	0.000	True	0.29	0.084	0.850
DI-141 (BMP 1)	0.057	0.000	True	0.39	0.084	0.850
CB-119 (BMP 1)	0.023	0.000	True	0.18	0.084	0.950
CB-115 (BMP 1)	0.007	0.000	True	0.06	0.084	0.950

SCM 1 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-117 (BMP 1)	0.111	0.000	True	0.85	0.084	0.950
CB-131 (BMP 1)	0.001	0.000	True	0.01	0.084	0.950
CB-132 (BMP 1)	0.020	0.000	True	0.15	0.084	0.950
CB-133 (BMP 1)	0.039	0.000	True	0.30	0.084	0.950
CB-153 (BMP 1)	0.007	0.000	True	0.05	0.084	0.950
CB-147 (BMP 1)	0.006	0.000	True	0.05	0.084	0.950
CB-154 (BMP 1)	0.098	0.000	True	0.75	0.084	0.950
CB-155 (BMP 1)	0.098	0.000	True	0.75	0.084	0.950

SCM 1 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-114 TO CB-118 (BMP 1)	24.0	0.005	3.30	3.42	1.90	16.00	392.76	392.62
CB-118 TO DI-125 (BMP 1)	15.0	0.016	2.43	3.60	0.45	8.25	399.70	398.23
CB-118 TO CB-119 (BMP 1)	24.0	0.006	3.05	3.36	1.42	17.52	393.27	392.87
CB-111 TO CB-112 (BMP 1)	15.0	0.019	2.07	3.16	0.25	8.85	400.74	400.19
CB-111 TO CB-113 (BMP 1)	24.0	0.006	4.50	4.84	5.57	16.96	391.05	390.55
CB-110 TO CB-111 (BMP 1)	24.0	0.006	4.57	4.99	5.85	17.38	390.52	389.81
CB-113 TO CB-114 (BMP 1)	24.0	0.005	3.53	2.89	2.44	16.00	391.10	391.05
CB-113 TO CB-115 (BMP 1)	18.0	0.007	3.95	4.49	2.83	8.94	394.86	394.35
CB-113 TO DI-151 (BMP 1)	15.0	0.029	2.08	3.72	0.25	11.03	400.33	399.26
CB-119 TO DI-126 (BMP 1)	24.0	0.005	2.43	2.44	0.60	16.00	398.78	398.33
CB-115 TO CB-117 (BMP 1)	18.0	0.007	2.67	2.94	0.72	8.53	399.88	399.74
CB-115 TO DCB-116 (BMP 1)	15.0	0.012	3.77	5.08	2.08	7.21	398.33	396.94
DI-139 TO DI-140 (BMP 1)	18.0	0.005	2.81	2.81	0.87	7.40	393.90	393.43
DI-123 TO DI-124 (BMP 1)	15.0	0.036	2.74	5.45	0.70	12.32	395.37	391.97
CB-109 TO CB-110 (BMP 1)	24.0	0.005	4.73	4.88	6.57	16.18	389.72	389.50
DI-126 TO DI-150 (BMP 1)	18.0	0.005	2.13	2.18	0.34	7.43	399.52	398.92
CB-107 TO CB-109 (BMP 1)	30.0	0.006	7.37	6.79	27.89	32.22	387.28	386.90
CB-109 TO CB-127 (BMP 1)	30.0	0.005	6.41	6.23	20.67	28.94	387.59	387.28
CB-107 TO DI-123 (BMP 1)	15.0	0.005	3.17	3.20	1.17	4.73	392.00	391.37
DI-138 TO DI-139 (BMP 1)	15.0	0.005	3.16	2.57	1.23	4.58	393.42	393.06
CB-107 TO CB-108 (BMP 1)	18.0	0.019	2.16	3.39	0.33	14.66	392.71	392.09
CB-105 TO CB-107 (BMP 1)	30.0	0.005	6.86	7.11	29.55	29.00	386.90	386.48
CB-127 TO CB-128 (BMP 1)	30.0	0.005	6.42	6.49	20.65	29.00	388.15	387.68
DI-137 TO DI-138 (BMP 1)	15.0	0.009	3.93	3.91	2.36	5.96	393.06	392.49
DI-136 TO DI-160 (BMP 1)	15.0	0.042	3.41	2.13	1.50	13.29	394.89	391.70
DI-136 TO DI-137 (BMP 1)	15.0	0.012	4.35	5.68	3.17	7.20	392.49	391.58
CB-105 TO CB-106 (BMP 1)	18.0	0.005	2.62	2.63	0.68	7.43	392.81	392.66
DI-135 TO DI-136 (BMP 1)	18.0	0.006	4.73	4.84	5.21	7.81	391.70	390.75
CB-103 TO CB-105 (BMP 1)	30.0	0.005	6.95	7.66	30.23	29.00	386.48	385.98

SCM 1 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-131 TO DI-141 (BMP 1)	18.0	0.005	4.82	4.88	7.29	7.43	389.49	389.22
CB-131 TO CB-132 (BMP 1)	18.0	0.034	3.69	2.43	2.27	19.25	391.10	389.22
CB-130 TO CB-131 (BMP 1)	24.0	0.005	4.44	4.05	9.46	16.00	389.22	389.20
CB-132 TO CB-133 (BMP 1)	18.0	0.010	3.62	4.62	2.13	10.50	391.55	391.19
CB-133 TO DI-134 (BMP 1)	15.0	0.020	3.63	5.80	1.84	9.08	392.48	391.58
CB-128 TO DCB-129 (BMP 1)	30.0	0.005	6.11	5.91	17.55	29.00	388.50	388.15
CB-128 TO YI-157 (BMP 1)	15.0	0.052	1.76	3.76	0.13	14.78	392.49	390.09
CB-128 TO YI-148 (BMP 1)	18.0	0.018	3.93	6.01	2.80	14.24	389.38	388.71
DI-134 TO DI-161 (BMP 1)	15.0	0.020	2.84	4.58	0.80	9.13	392.99	392.39
CB-130 TO DI-135 (BMP 1)	18.0	0.008	5.11	5.74	6.01	9.67	390.72	390.36
DCB-129 TO CB-130 (BMP 1)	24.0	0.005	5.85	6.54	15.72	15.93	389.20	388.61
TCB-102 TO CB-103 (BMP 1)	36.0	0.005	7.06	7.01	32.00	48.48	385.85	385.29
CB-103 TO CB-104 (BMP 1)	18.0	0.005	3.48	3.07	1.87	7.40	385.94	385.85
DI-120 TO DI-158 (BMP 1)	18.0	0.021	3.04	0.97	1.16	15.11	389.40	387.60
CB-104 TO DI-156 (BMP 1)	18.0	0.009	3.11	3.84	1.26	9.90	386.16	385.88
FES-152 TO CB-153 (BMP 1)	18.0	0.011	2.80	3.69	0.87	10.91	385.35	384.79
CB-153 TO CB-153A (BMP 1)	18.0	0.040	2.76	5.74	0.82	20.94	388.34	385.40
CB-101 TO CB-147 (BMP 1)	15.0	0.030	3.34	6.24	1.40	11.25	387.65	386.03
CB-147 TO CB-154 (BMP 1)	18.0	0.005	3.13	3.20	1.29	7.57	388.23	387.80
DI-141 TO DI-142 (BMP 1)	18.0	0.005	4.78	4.95	6.86	7.43	389.95	389.49
CB-101 TO TCB-102 (BMP 1)	36.0	0.005	7.43	7.56	38.27	47.16	385.29	385.12
TCB-102 TO DI-120 (BMP 1)	15.0	0.005	4.35	5.32	5.16	4.64	387.60	386.69
FES-100 TO CB-101 (BMP 1)	36.0	0.005	7.49	7.73	39.97	47.16	385.12	384.50
DDI-143 TO DI-146 (BMP 1)	15.0	0.013	4.08	3.07	2.63	7.26	391.50	390.38
DI-120 TO DI-121 (BMP 1)	15.0	0.006	2.90	0.85	0.86	4.94	387.90	387.60
DI-144 TO DI-145 (BMP 1)	15.0	0.012	2.84	2.83	0.80	6.99	390.96	390.43
DDI-143 TO DI-144 (BMP 1)	15.0	0.005	3.06	1.26	1.22	4.53	390.43	390.38
DI-142 TO DDI-143 (BMP 1)	18.0	0.005	4.77	4.72	6.12	7.57	390.38	389.95

SCM 1 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-154 TO CB-155 (BMP 1)	18.0	0.007	2.60	2.88	0.65	8.65	388.71	388.28
DI-156 TO DI-122 (BMP 1)	18.0	0.005	2.88	2.91	0.96	7.47	386.87	386.30

SCM 1 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-118 (BMP 1)	0.08	0.00	1.90	100.0	392.76	392.76	3.0	3.36	3.30
CB-112 (BMP 1)	0.25	0.00	0.25	99.5	400.74	400.74	3.0	2.07	2.07
CB-111 (BMP 1)	0.14	0.00	5.85	100.0	390.52	390.52	3.0	4.84	4.57
CB-113 (BMP 1)	0.31	0.01	5.57	98.2	391.05	391.05	3.0	2.89	4.50
CB-114 (BMP 1)	0.60	0.07	2.44	89.1	391.10	391.10	3.0	3.42	3.53
CB-119 (BMP 1)	0.18	0.00	1.42	100.0	393.27	393.27	3.0	2.44	3.05
DI-125 (BMP 1)	0.45	0.03	0.45	92.9	399.70	399.70	2.0	2.43	2.43
CB-117 (BMP 1)	0.72	0.12	0.72	85.3	399.88	399.88	3.0	2.67	2.67
CB-115 (BMP 1)	0.06	0.00	2.83	100.0	394.86	394.86	3.0	5.08	3.95
DI-151 (BMP 1)	0.25	0.00	0.25	99.3	400.33	400.33	2.0	2.08	2.08
DI-140 (BMP 1)	0.87	0.24	0.87	78.1	393.90	393.90	2.0	2.81	2.81
DI-124 (BMP 1)	0.70	0.14	0.70	83.5	395.37	395.37	2.0	2.74	2.74
CB-110 (BMP 1)	0.92	0.23	6.57	79.8	389.72	389.72	3.0	4.99	4.73
DI-126 (BMP 1)	0.29	0.00	0.60	100.0	398.78	398.78	2.0	2.18	2.43
CB-109 (BMP 1)	1.03	0.30	27.89	77.1	387.28	387.28	3.0	6.23	7.37
TCB-116 (BMP 1)	2.08	0.00	2.08	100.0	398.33	398.33	6.0	3.77	3.77

SCM 1 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-150 (BMP 1)	0.34	0.00	0.34	100.0	399.52	399.52	2.0	2.13	2.13
DI-123 (BMP 1)	0.48	0.04	1.17	91.8	392.00	392.00	2.0	5.45	3.17
DI-139 (BMP 1)	0.38	0.02	1.23	95.5	393.42	393.42	2.0	2.81	3.16
CB-108 (BMP 1)	0.33	0.01	0.33	97.8	392.71	392.71	3.0	2.16	2.16
CB-107 (BMP 1)	0.68	0.11	29.55	86.5	386.90	386.90	3.0	6.79	6.86
CB-127 (BMP 1)	0.27	0.00	20.67	99.2	387.59	387.59	3.0	6.49	6.41
DI-138 (BMP 1)	1.21	0.54	2.36	69.2	393.06	393.06	2.0	2.57	3.93
DI-160 (BMP 1)	1.50	0.00	1.50	100.0	394.89	394.89	2.0	3.41	3.41
DI-137 (BMP 1)	0.88	0.25	3.17	77.8	392.49	392.49	2.0	3.91	4.35
CB-106 (BMP 1)	0.68	0.11	0.68	86.4	392.81	392.81	3.0	2.62	2.62
DI-136 (BMP 1)	0.69	0.13	5.21	84.0	391.70	391.70	2.0	5.68	4.73
CB-105 (BMP 1)	0.38	0.01	30.23	96.3	386.48	386.48	3.0	7.11	6.95
CB-131 (BMP 1)	0.07	0.00	9.46	100.0	389.22	389.22	3.0	2.43	4.44
CB-133 (BMP 1)	0.30	0.00	2.13	98.6	391.55	391.55	3.0	5.80	3.62
CB-132 (BMP 1)	0.15	0.00	2.27	100.0	391.10	391.10	3.0	4.62	3.69
CB-128 (BMP 1)	0.72	0.12	20.65	85.4	388.15	388.15	3.0	5.91	6.42

SCM 1 25-YR

Inlets - Time: 0.00 hours

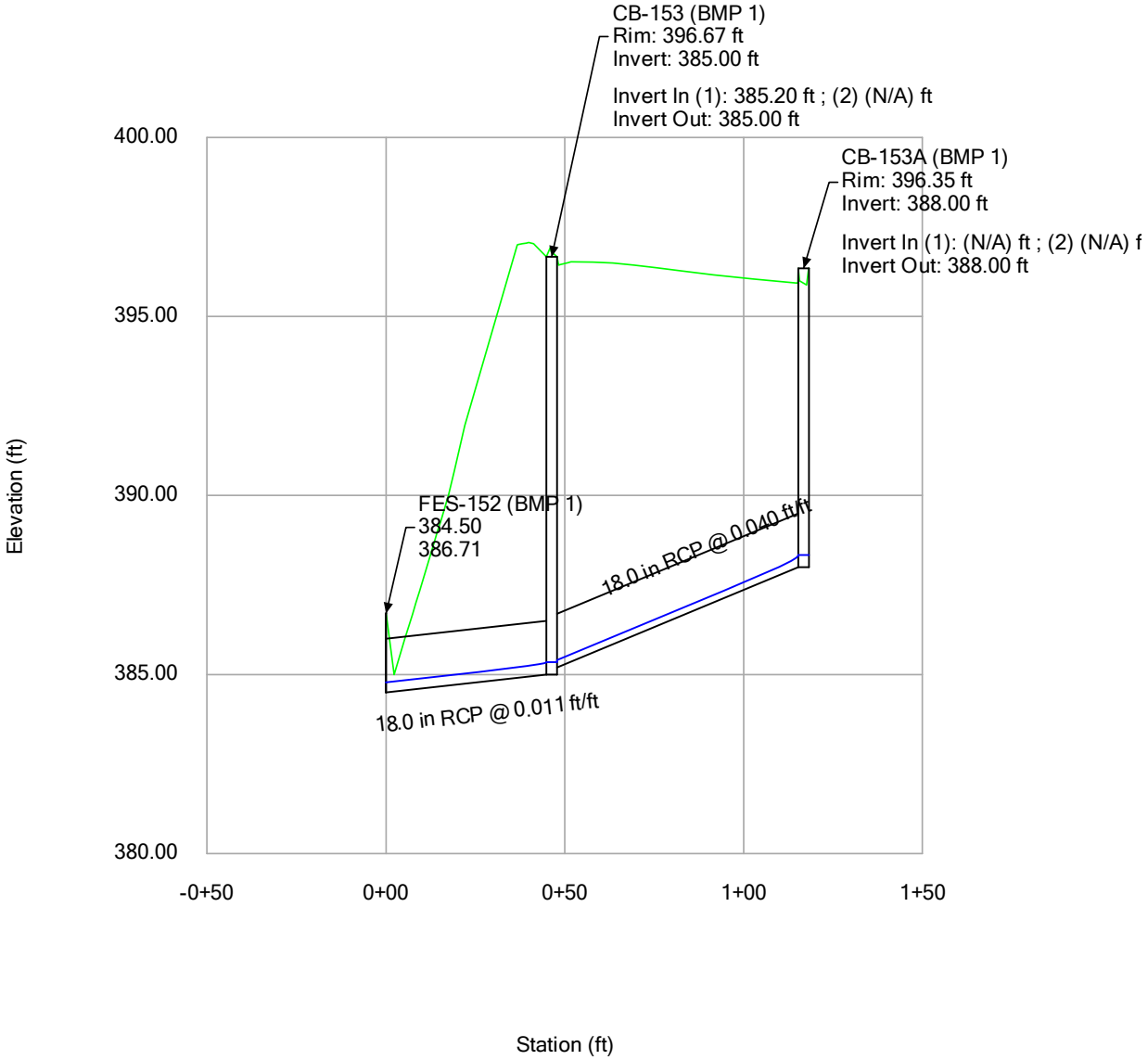
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-134 (BMP 1)	1.05	0.00	1.84	100.0	392.48	392.48	2.0	4.58	3.63
CB-130 (BMP 1)	0.58	0.07	15.72	89.9	389.20	389.20	3.0	4.05	5.85
CB-103 (BMP 1)	0.39	0.02	32.00	96.0	385.85	385.85	3.0	3.07	7.06
DI-135 (BMP 1)	1.02	0.36	6.01	73.7	390.72	390.72	2.0	4.84	5.11
DI-158 (BMP 1)	1.16	0.00	1.16	100.0	389.40	389.40	2.0	3.04	3.04
TCB-129 (BMP 1)	2.21	0.00	17.55	100.0	388.50	388.50	9.0	6.54	6.11
DI-161 (BMP 1)	0.80	0.00	0.80	100.0	392.99	392.99	2.0	2.84	2.84
CB-104 (BMP 1)	0.64	0.09	1.87	87.9	385.94	385.94	3.0	3.84	3.48
YI-157 (BMP 1)	0.13	0.00	0.13	100.0	392.49	392.49	0.0	1.76	1.76
CB-153 (BMP 1)	0.05	0.00	0.87	100.0	385.35	385.35	3.0	5.74	2.80
CB-153A (BMP 1)	0.82	0.17	0.82	82.5	388.34	388.34	3.0	2.76	2.76
CB-147 (BMP 1)	0.13	0.00	1.40	100.0	387.65	387.65	3.0	3.20	3.34
DI-141 (BMP 1)	0.55	0.07	7.29	89.2	389.49	389.49	2.0	4.95	4.82
DCB-102 (BMP 1)	1.70	0.00	38.27	100.0	385.29	385.29	6.0	7.01	7.43
CB-101 (BMP 1)	0.70	0.00	39.97	100.0	385.12	385.12	3.0	7.56	7.49
DI-146 (BMP 1)	2.18	0.00	2.63	100.0	391.50	391.50	2.0	0.91	4.08

SCM 1 25-YR

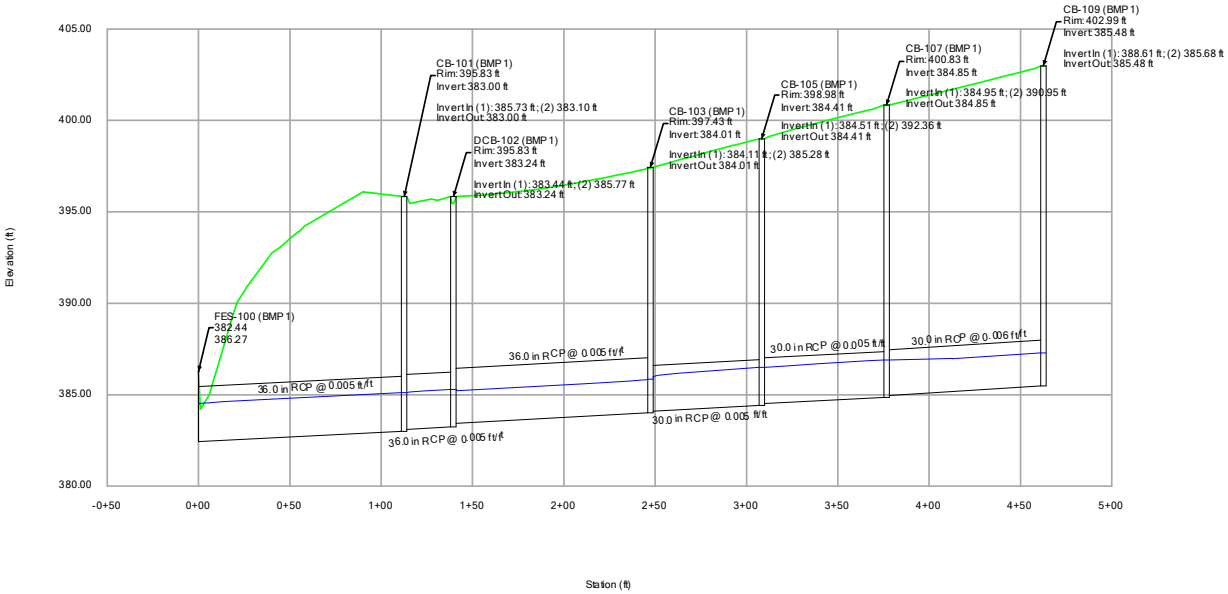
Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-121 (BMP 1)	0.86	0.00	0.86	100.0	387.90	387.90	2.0	2.90	2.90
DI-120 (BMP 1)	3.33	0.00	5.16	100.0	387.60	387.60	2.0	0.85	4.35
DI-145 (BMP 1)	0.80	0.20	0.80	80.3	390.96	390.96	2.0	2.84	2.84
DI-144 (BMP 1)	0.43	0.03	1.22	93.7	390.43	390.43	2.0	2.83	3.06
DI-142 (BMP 1)	0.84	0.23	6.86	78.9	389.95	389.95	2.0	4.72	4.78
CB-154 (BMP 1)	0.65	0.09	1.29	87.4	388.23	388.23	3.0	2.88	3.13
YI-148 (BMP 1)	2.80	0.00	2.80	100.0	389.38	389.38	0.0	3.93	3.93
DI-156 (BMP 1)	0.33	0.00	1.26	100.0	386.16	386.16	2.0	2.91	3.11
DDI-143 (BMP 1)	2.43	0.00	6.12	100.0	390.38	390.38	2.0	1.26	4.77
CB-155 (BMP 1)	0.65	0.09	0.65	87.4	388.71	388.71	3.0	2.60	2.60
DI-122 (BMP 1)	0.96	0.31	0.96	75.5	386.87	386.87	2.0	2.88	2.88

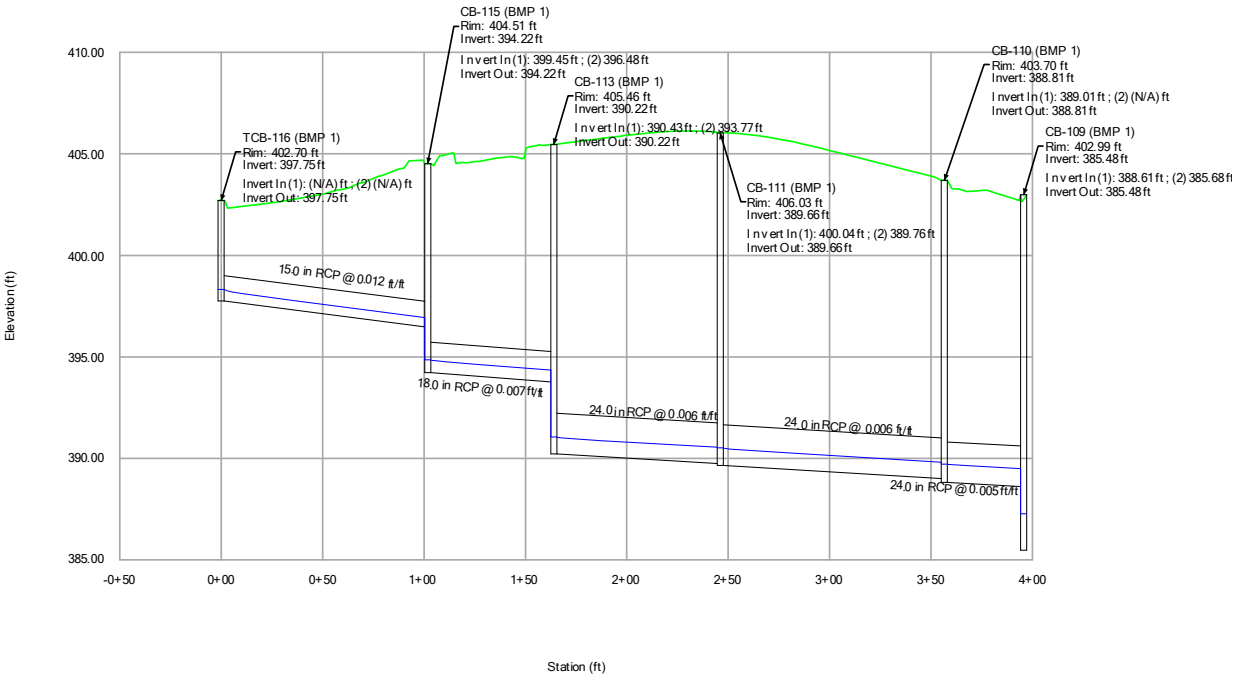
SCM 1 25-YR


CB-153 (BMP 1)
Rim: 396.67 ft
Invert: 385.00 ft
Invert In (1): 385.20 ft ; (2) (N/A) ft
Invert Out: 385.00 ft
CB-153A (BMP 1)
Rim: 396.35 ft
Invert: 388.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 388.00 ft
FES-152 (BMP 1)
384.50
386.71
18.0 in RCP @ 0.040 ft/ft
18.0 in RCP @ 0.011 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

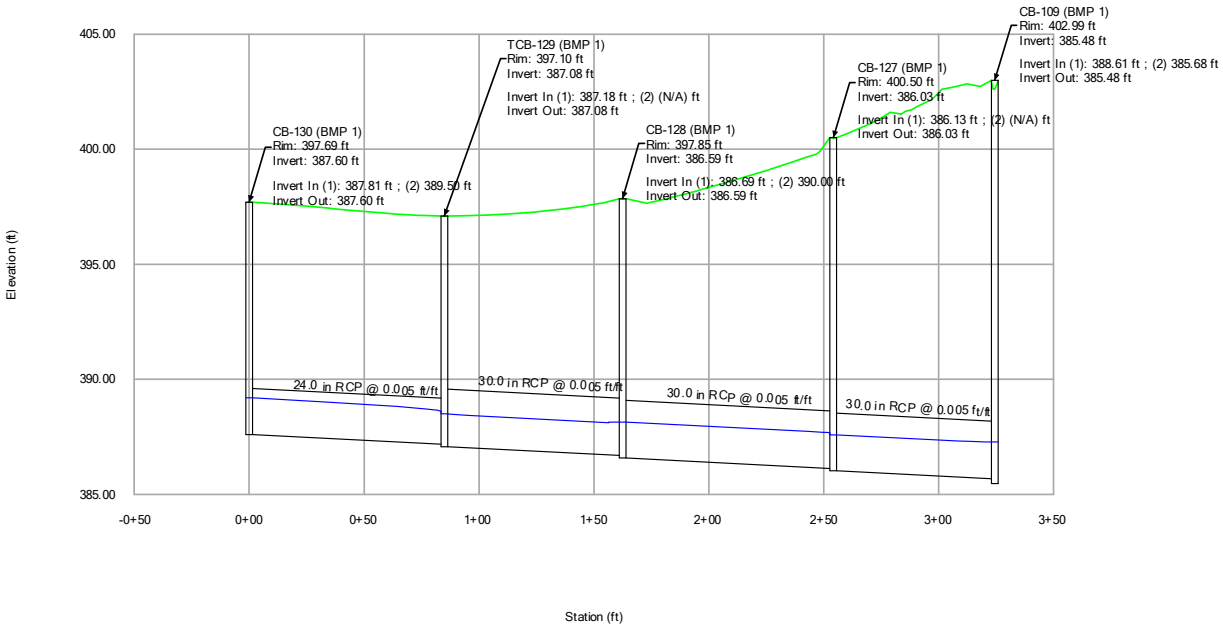
SCM 1 25-YR


CB-109 (BMP 1)
Rim: 402.99 ft
Invert: 385.48 ft
InvertIn (1): 388.61 ft; (2) 385.68 ft
InvertOut: 385.48 ft
CB-107 (BMP 1)
Rim: 400.83 ft
Invert: 384.85 ft
InvertIn (1): 384.95 ft; (2) 390.95 ft
InvertOut: 384.85 ft
CB-105 (BMP 1)
Rim: 398.98 ft
Invert: 384.41 ft
InvertIn (1): 384.51 ft; (2) 392.36 ft
InvertOut: 384.41 ft
CB-103 (BMP 1)
Rim: 397.43 ft
Invert: 384.01 ft
InvertIn (1): 384.11 ft; (2) 385.28 ft
InvertOut: 384.01 ft
CB-101 (BMP 1)
Rim: 395.83 ft
Invert: 383.00 ft
InvertIn (1): 385.73 ft; (2) 383.10 ft
InvertOut: 383.00 ft
DCB-102 (BMP 1)
Rim: 395.83 ft
Invert: 383.24 ft
InvertIn (1): 383.44 ft; (2) 385.77 ft
InvertOut: 383.24 ft
FES-100 (BMP 1)
382.44
386.27
36.0 in RCP @ 0.005 ft/ft
36.0 in RCP @ 0.005 ft/ft
36.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.006 ft/ft
405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

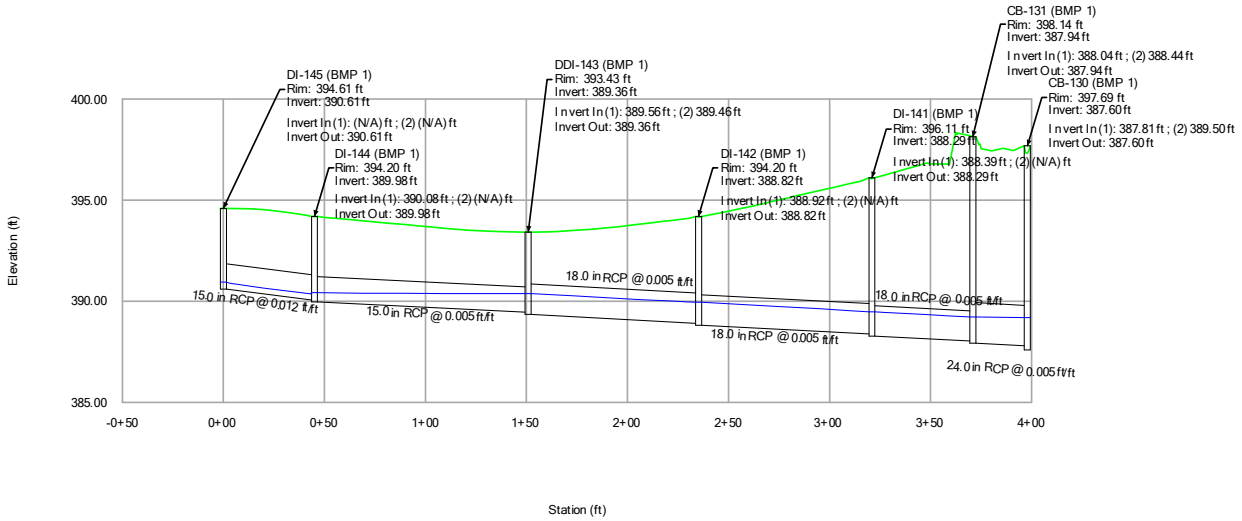
SCM 1 25-YR


CB-115 (BMP 1)
Rim: 404.51 ft
Invert: 394.22 ft
Invert In (1): 399.45 ft ; (2) 396.48 ft
Invert Out: 394.22 ft
CB-113 (BMP 1)
Rim: 405.46 ft
Invert: 390.22 ft
Invert In (1): 390.43 ft ; (2) 393.77 ft
Invert Out: 390.22 ft
CB-110 (BMP 1)
Rim: 403.70 ft
Invert: 388.81 ft
Invert In (1): 389.01 ft ; (2) (N/A) ft
Invert Out: 388.81 ft
TCB-116 (BMP 1)
Rim: 402.70 ft
Invert: 397.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.75 ft
CB-109 (BMP 1)
Rim: 402.99 ft
Invert: 385.48 ft
Invert In (1): 388.61 ft ; (2) 385.68 ft
Invert Out: 385.48 ft
CB-111 (BMP 1)
Rim: 406.03 ft
Invert: 389.66 ft
Invert In (1): 400.04 ft ; (2) 389.76 ft
Invert Out: 389.66 ft
15.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.007 ft/ft
24.0 in RCP @ 0.006 ft/ft
24.0 in RCP @ 0.006 ft/ft
24.0 in RCP @ 0.005 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

SCM 1 25-YR


CB-109 (BMP 1)
Rim: 402.99 ft
Invert: 385.48 ft
Invert In (1): 388.61 ft ; (2) 385.68 ft
Invert Out: 385.48 ft
TCB-129 (BMP 1)
Rim: 397.10 ft
Invert: 387.08 ft
Invert In (1): 387.18 ft ; (2) (N/A) ft
Invert Out: 387.08 ft
CB-127 (BMP 1)
Rim: 400.50 ft
Invert: 386.03 ft
Invert In (1): 386.13 ft ; (2) (N/A) ft
Invert Out: 386.03 ft
CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft ; (2) 389.50 ft
Invert Out: 387.60 ft
CB-128 (BMP 1)
Rim: 397.85 ft
Invert: 386.59 ft
Invert In (1): 386.69 ft ; (2) 390.00 ft
Invert Out: 386.59 ft
24.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

SCM 1 25-YR


CB-131 (BMP 1)
Rim: 398.14 ft
Invert: 387.94 ft
Invert In (1): 388.04 ft ; (2) 388.44 ft
Invert Out: 387.94 ft
CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft ; (2) 389.50 ft
Invert Out: 387.60 ft
DI-145 (BMP 1)
Rim: 394.61 ft
Invert: 390.61 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.61 ft
DDI-143 (BMP 1)
Rim: 393.43 ft
Invert: 389.36 ft
Invert In (1): 389.56 ft ; (2) 389.46 ft
Invert Out: 389.36 ft
DI-141 (BMP 1)
Rim: 396.11 ft
Invert: 388.29 ft
Invert In (1): 388.39 ft ; (2) (N/A) ft
Invert Out: 388.29 ft
DI-144 (BMP 1)
Rim: 394.20 ft
Invert: 389.98 ft
Invert In (1): 390.08 ft ; (2) (N/A) ft
Invert Out: 389.98 ft
DI-142 (BMP 1)
Rim: 394.20 ft
Invert: 388.82 ft
Invert In (1): 388.92 ft ; (2) (N/A) ft
Invert Out: 388.82 ft
18.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.012 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
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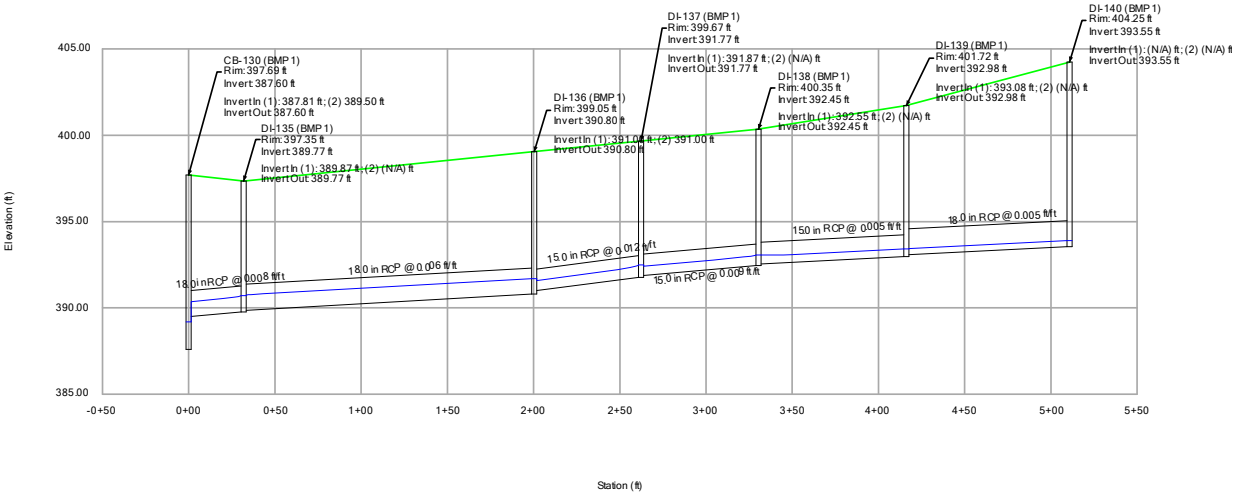
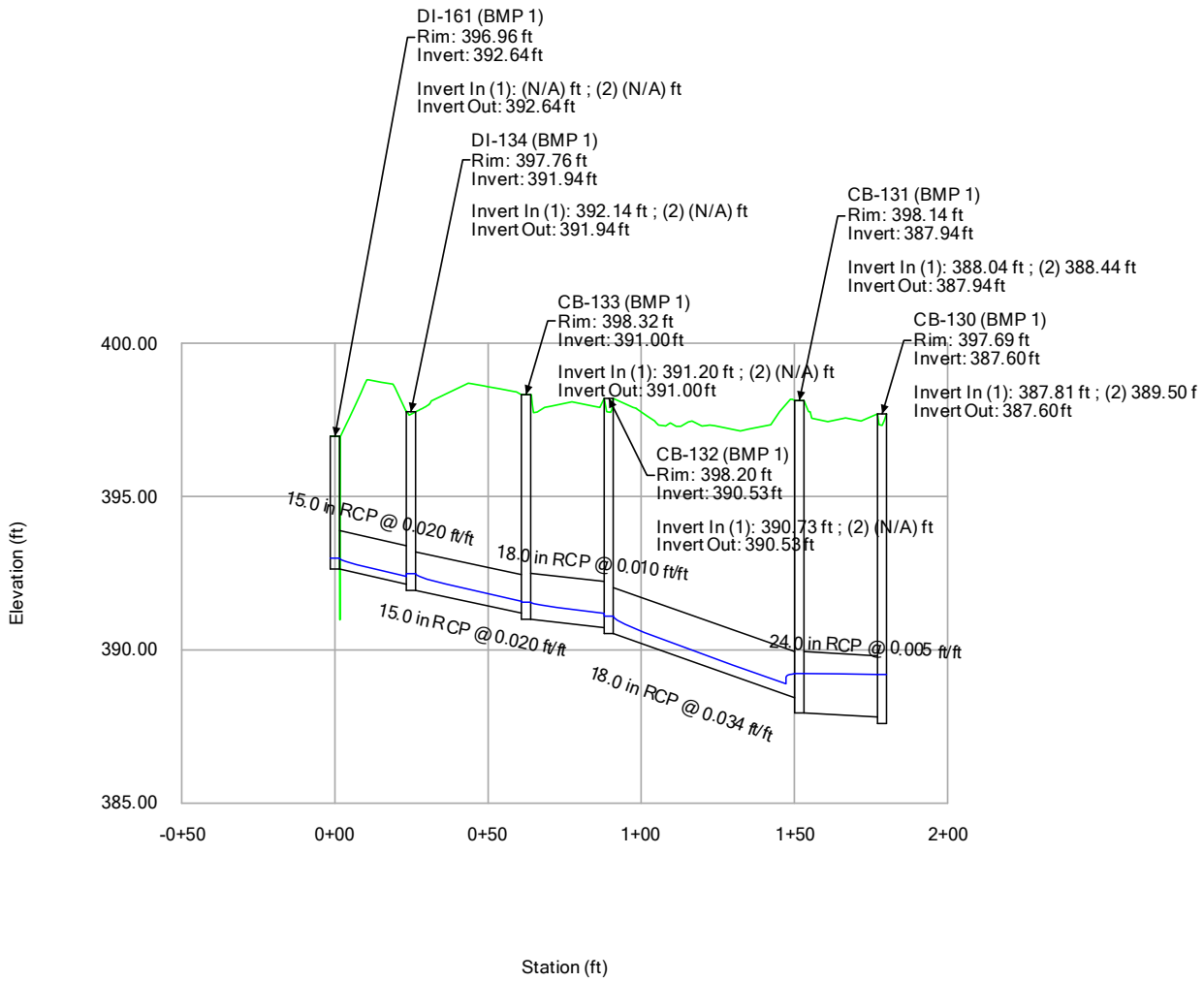
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

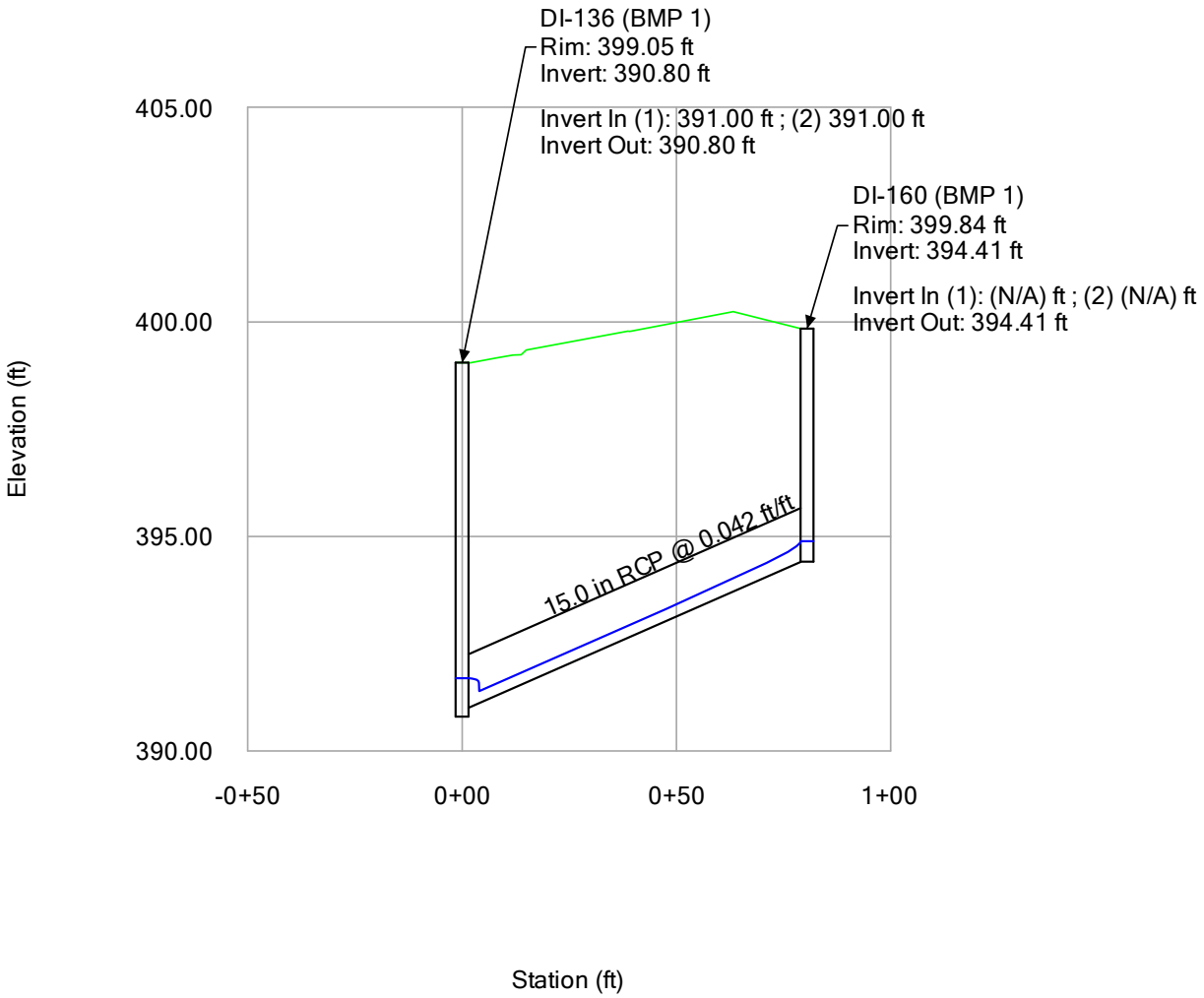
SCM 1 25-YR


CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft; (2) 389.50 ft
Invert Out: 387.60 ft
DI-135 (BMP 1)
Rim: 397.35 ft
Invert: 389.77 ft
Invert In (1): 389.87 ft; (2) (N/A) ft
Invert Out: 389.77 ft
DI-136 (BMP 1)
Rim: 399.05 ft
Invert: 390.80 ft
Invert In (1): 391.04 ft; (2) 391.00 ft
Invert Out: 390.80 ft
DI-137 (BMP 1)
Rim: 399.67 ft
Invert: 391.77 ft
Invert In (1): 391.87 ft; (2) (N/A) ft
Invert Out: 391.77 ft
DI-138 (BMP 1)
Rim: 400.35 ft
Invert: 392.45 ft
Invert In (1): 392.55 ft; (2) (N/A) ft
Invert Out: 392.45 ft
DI-139 (BMP 1)
Rim: 401.72 ft
Invert: 392.98 ft
Invert In (1): 393.08 ft; (2) (N/A) ft
Invert Out: 392.98 ft
DI-140 (BMP 1)
Rim: 404.25 ft
Invert: 393.55 ft
Invert In (1): (N/A) ft; (2) (N/A) ft
Invert Out: 393.55 ft
18.0 in RCP @ 0.008 ft/ft
18.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.012 ft/ft
15.0 in RCP @ 0.009 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
Elevation (ft)
405.00
400.00
395.00
390.00
385.00
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
Station (ft)

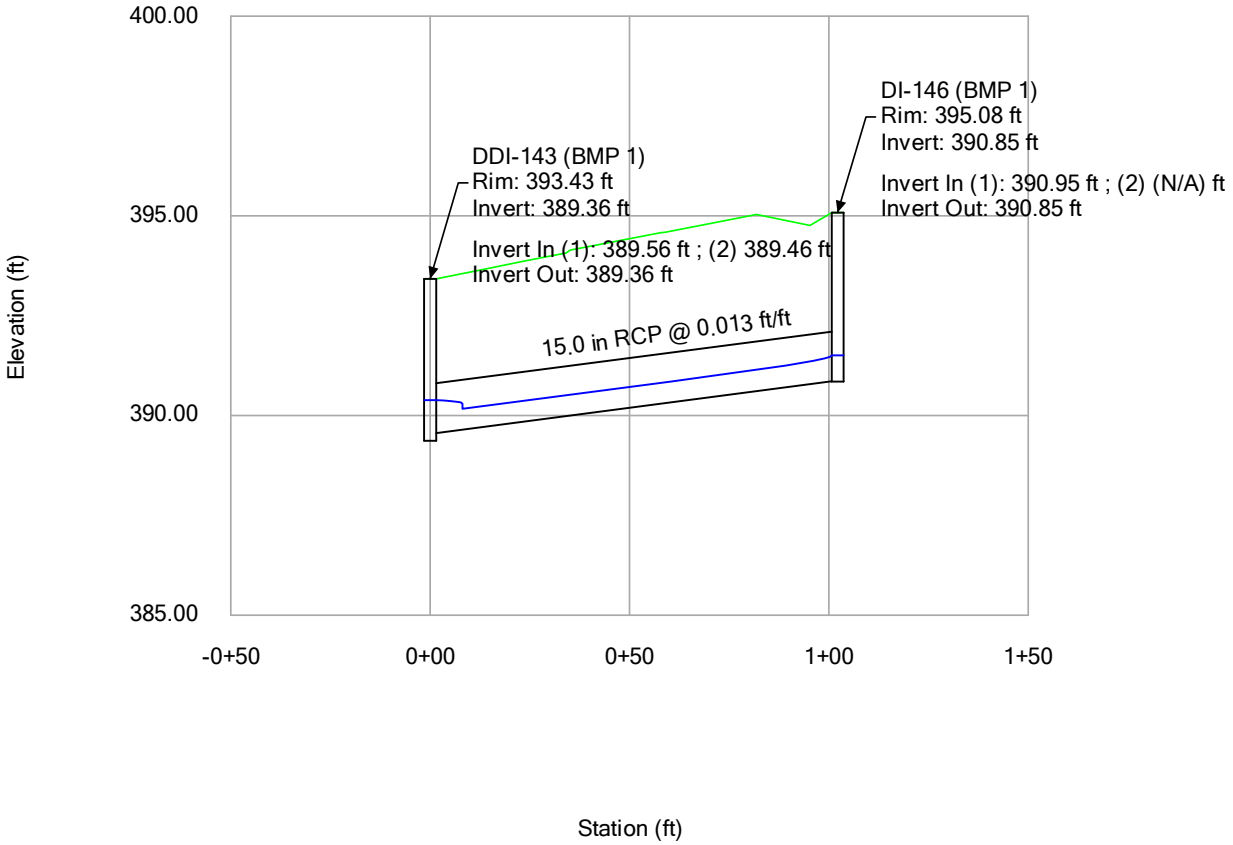
SCM 1 25-YR


DI-161 (BMP 1)
Rim: 396.96 ft
Invert: 392.64 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.64 ft
DI-134 (BMP 1)
Rim: 397.76 ft
Invert: 391.94 ft
Invert In (1): 392.14 ft ; (2) (N/A) ft
Invert Out: 391.94 ft
CB-131 (BMP 1)
Rim: 398.14 ft
Invert: 387.94 ft
Invert In (1): 388.04 ft ; (2) 388.44 ft
Invert Out: 387.94 ft
CB-133 (BMP 1)
Rim: 398.32 ft
Invert: 391.00 ft
Invert In (1): 391.20 ft ; (2) (N/A) ft
Invert Out: 391.00 ft
CB-130 (BMP 1)
Rim: 397.69 ft
Invert: 387.60 ft
Invert In (1): 387.81 ft ; (2) 389.50 f
Invert Out: 387.60 ft
CB-132 (BMP 1)
Rim: 398.20 ft
Invert: 390.53 ft
Invert In (1): 390.73 ft ; (2) (N/A) ft
Invert Out: 390.53 ft
15.0 in RCP @ 0.020 ft/ft
18.0 in RCP @ 0.010 ft/ft
15.0 in RCP @ 0.020 ft/ft
18.0 in RCP @ 0.034 ft/ft
24.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

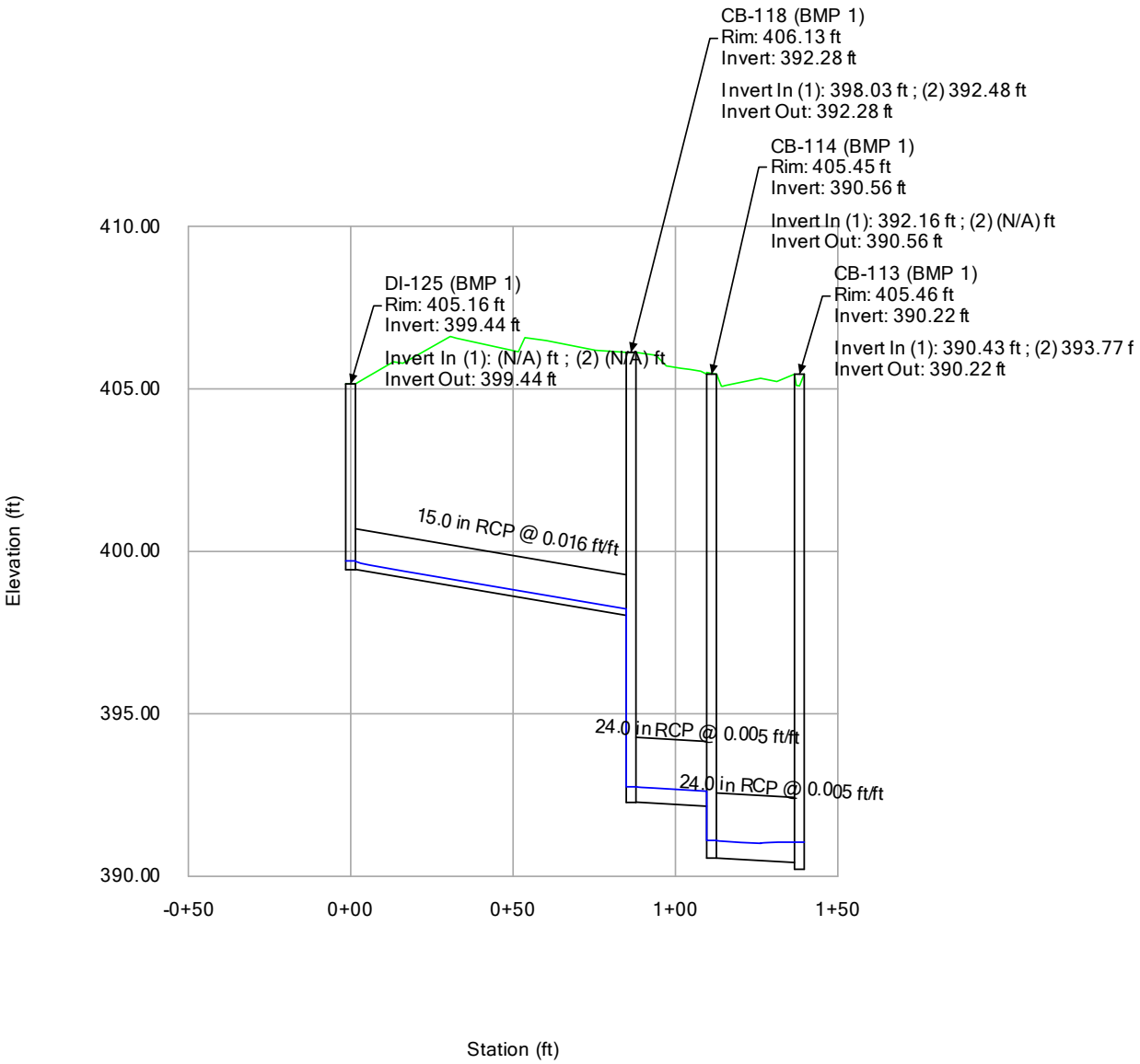
SCM 1 25-YR


DI-136 (BMP 1)
Rim: 399.05 ft
Invert: 390.80 ft
Invert In (1): 391.00 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
DI-160 (BMP 1)
Rim: 399.84 ft
Invert: 394.41 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 394.41 ft
15.0 in RCP @ 0.042 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
Station (ft)

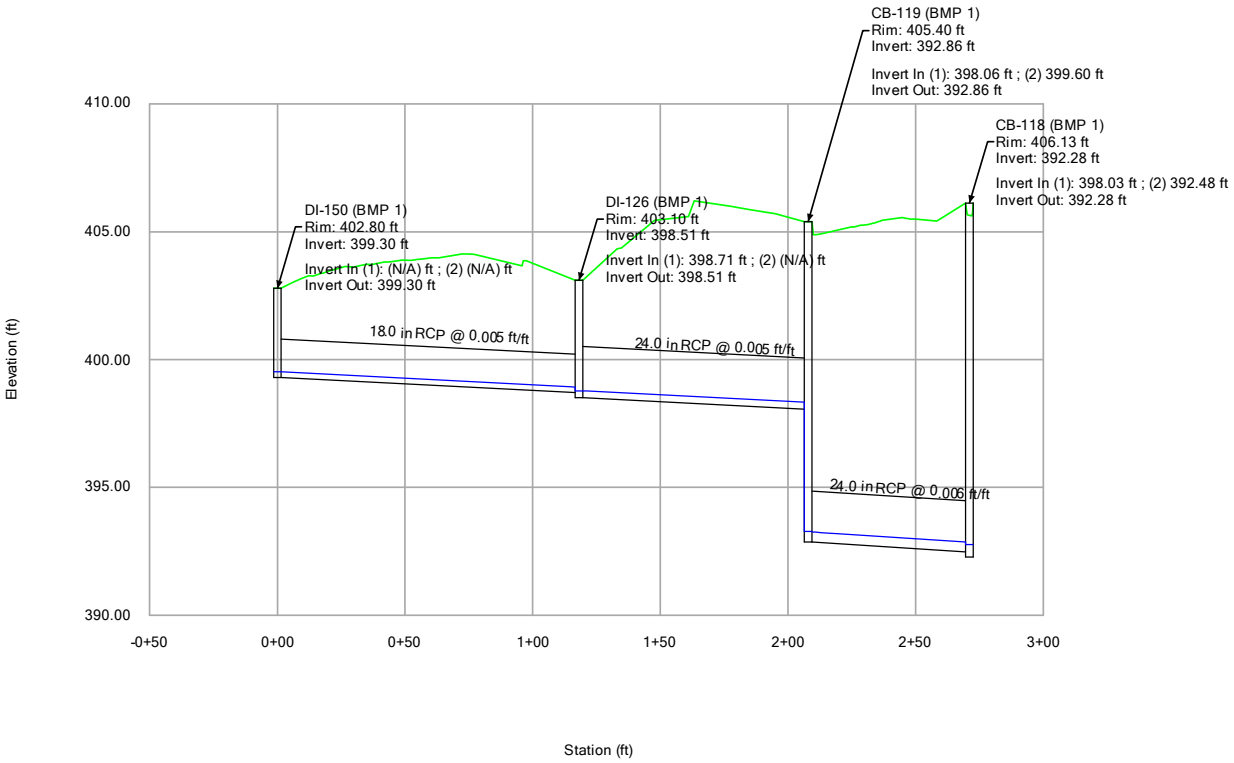
SCM 1 25-YR


400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)
DDI-143 (BMP 1)
Rim: 393.43 ft
Invert: 389.36 ft
Invert In (1): 389.56 ft ; (2) 389.46 ft
Invert Out: 389.36 ft
DI-146 (BMP 1)
Rim: 395.08 ft
Invert: 390.85 ft
Invert In (1): 390.95 ft ; (2) (N/A) ft
Invert Out: 390.85 ft
15.0 in RCP @ 0.013 ft/ft

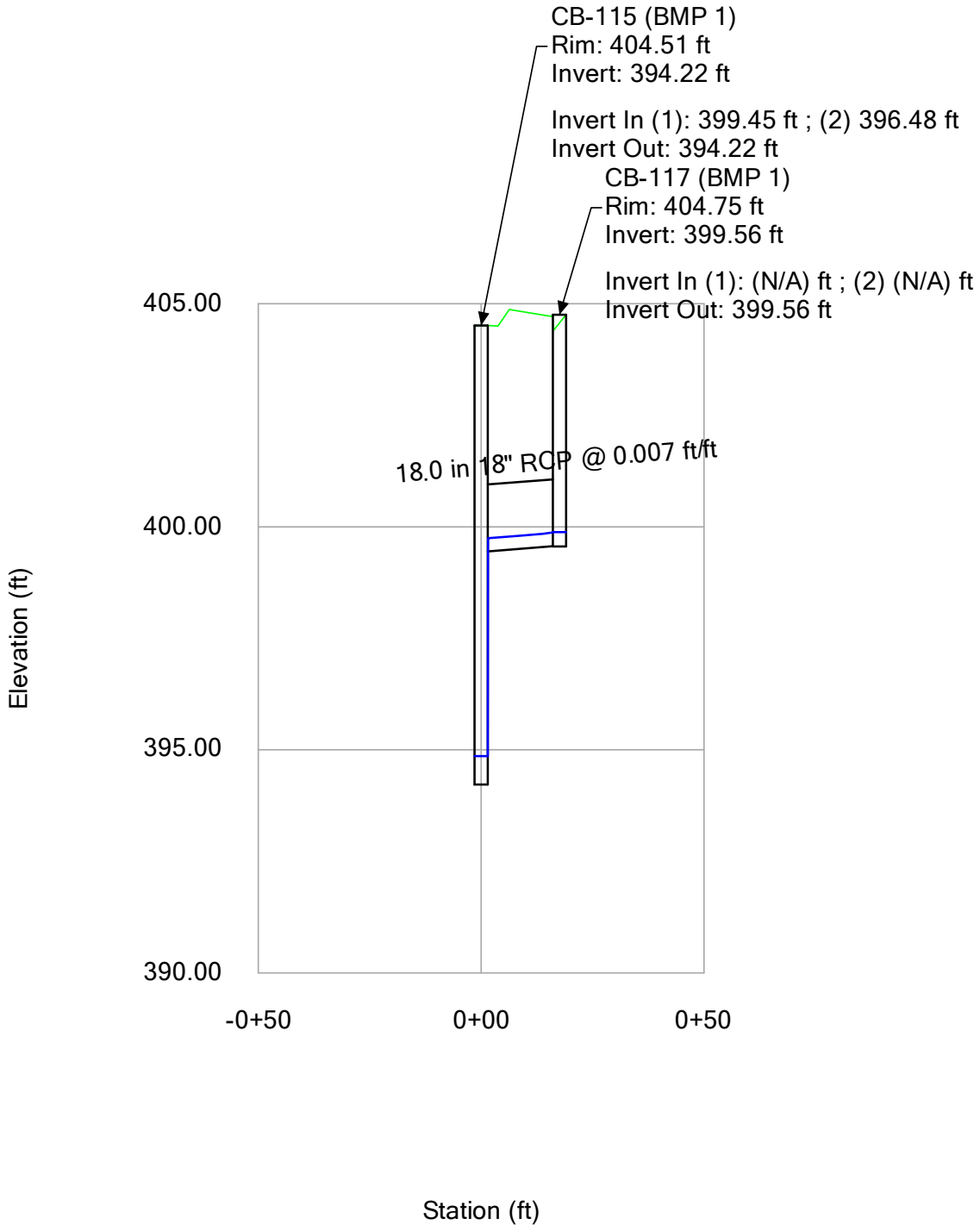
SCM 1 25-YR


CB-118 (BMP 1)
Rim: 406.13 ft
Invert: 392.28 ft
Invert In (1): 398.03 ft ; (2) 392.48 ft
Invert Out: 392.28 ft
CB-114 (BMP 1)
Rim: 405.45 ft
Invert: 390.56 ft
Invert In (1): 392.16 ft ; (2) (N/A) ft
Invert Out: 390.56 ft
CB-113 (BMP 1)
Rim: 405.46 ft
Invert: 390.22 ft
Invert In (1): 390.43 ft ; (2) 393.77 f
Invert Out: 390.22 ft
DI-125 (BMP 1)
Rim: 405.16 ft
Invert: 399.44 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.44 ft
15.0 in RCP @ 0.016 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

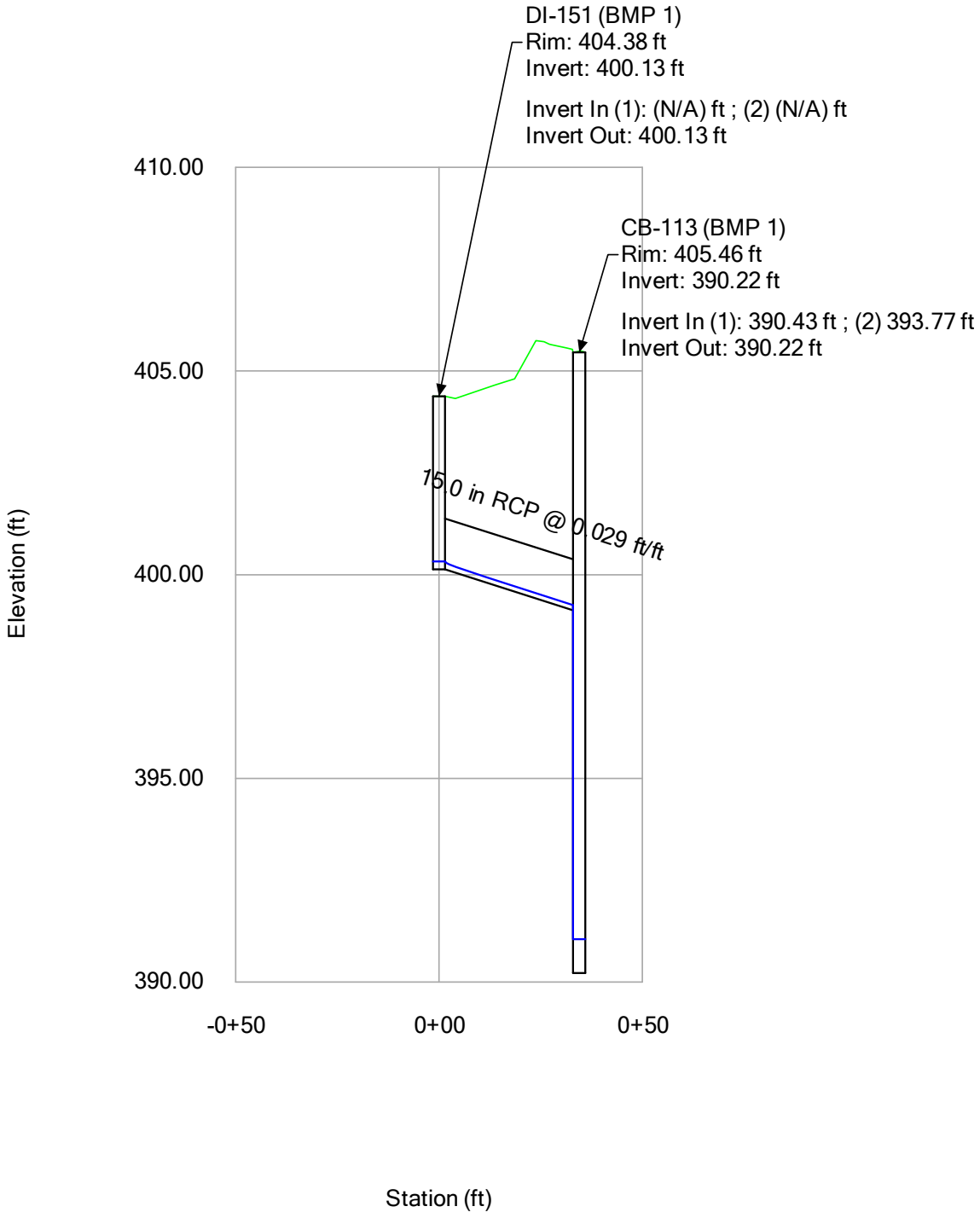
SCM 1 25-YR


CB-119 (BMP 1)
Rim: 405.40 ft
Invert: 392.86 ft
Invert In (1): 398.06 ft ; (2) 399.60 ft
Invert Out: 392.86 ft
CB-118 (BMP 1)
Rim: 406.13 ft
Invert: 392.28 ft
Invert In (1): 398.03 ft ; (2) 392.48 ft
Invert Out: 392.28 ft
DI-150 (BMP 1)
Rim: 402.80 ft
Invert: 399.30 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.30 ft
DI-126 (BMP 1)
Rim: 403.10 ft
Invert: 398.51 ft
Invert In (1): 398.71 ft ; (2) (N/A) ft
Invert Out: 398.51 ft
18.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.006 ft/ft
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

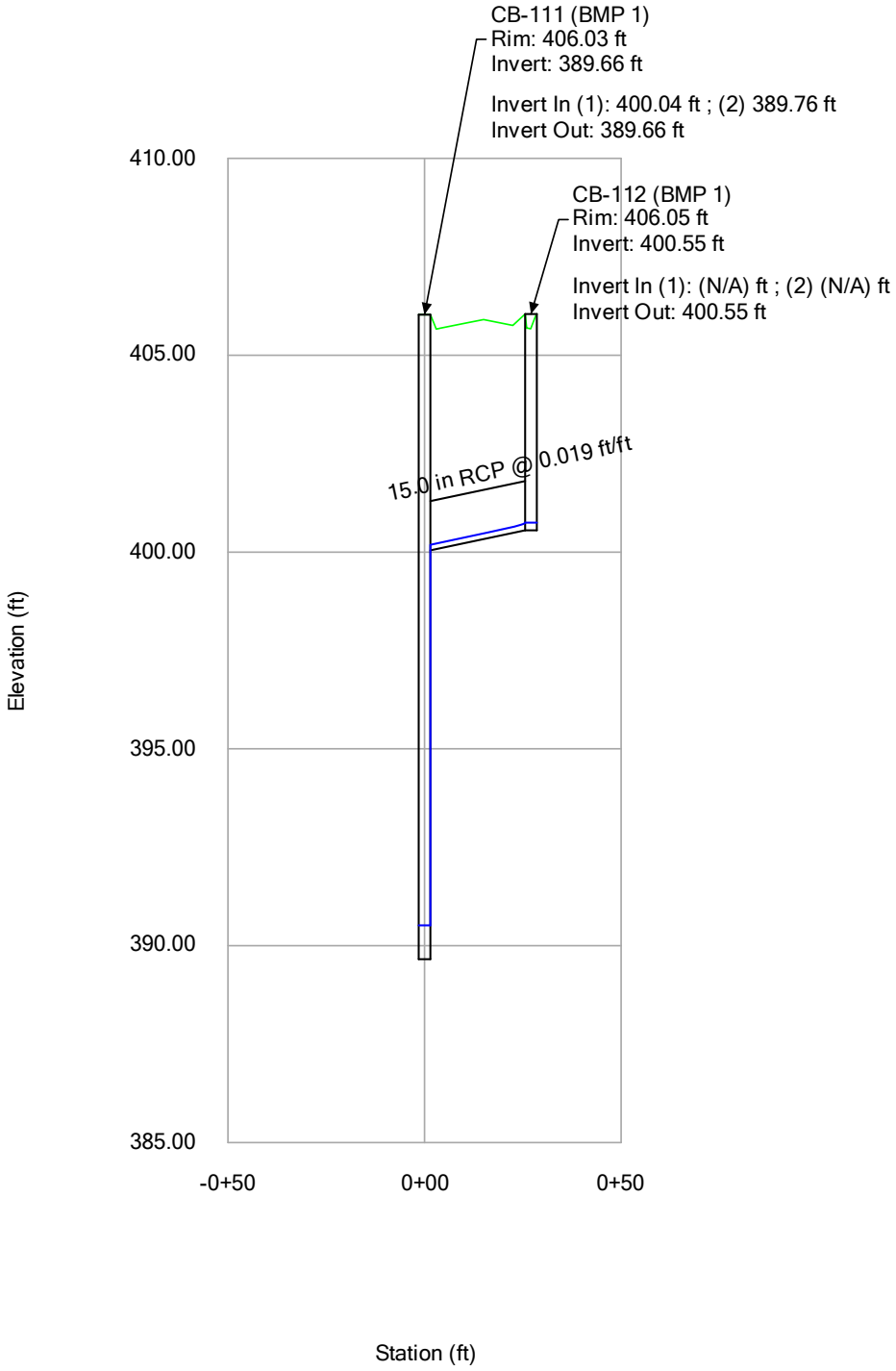
SCM 1 25-YR


CB-115 (BMP 1)
Rim: 404.51 ft
Invert: 394.22 ft
Invert In (1): 399.45 ft ; (2) 396.48 ft
Invert Out: 394.22 ft
CB-117 (BMP 1)
Rim: 404.75 ft
Invert: 399.56 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.56 ft
18.0 in 18" RCP @ 0.007 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

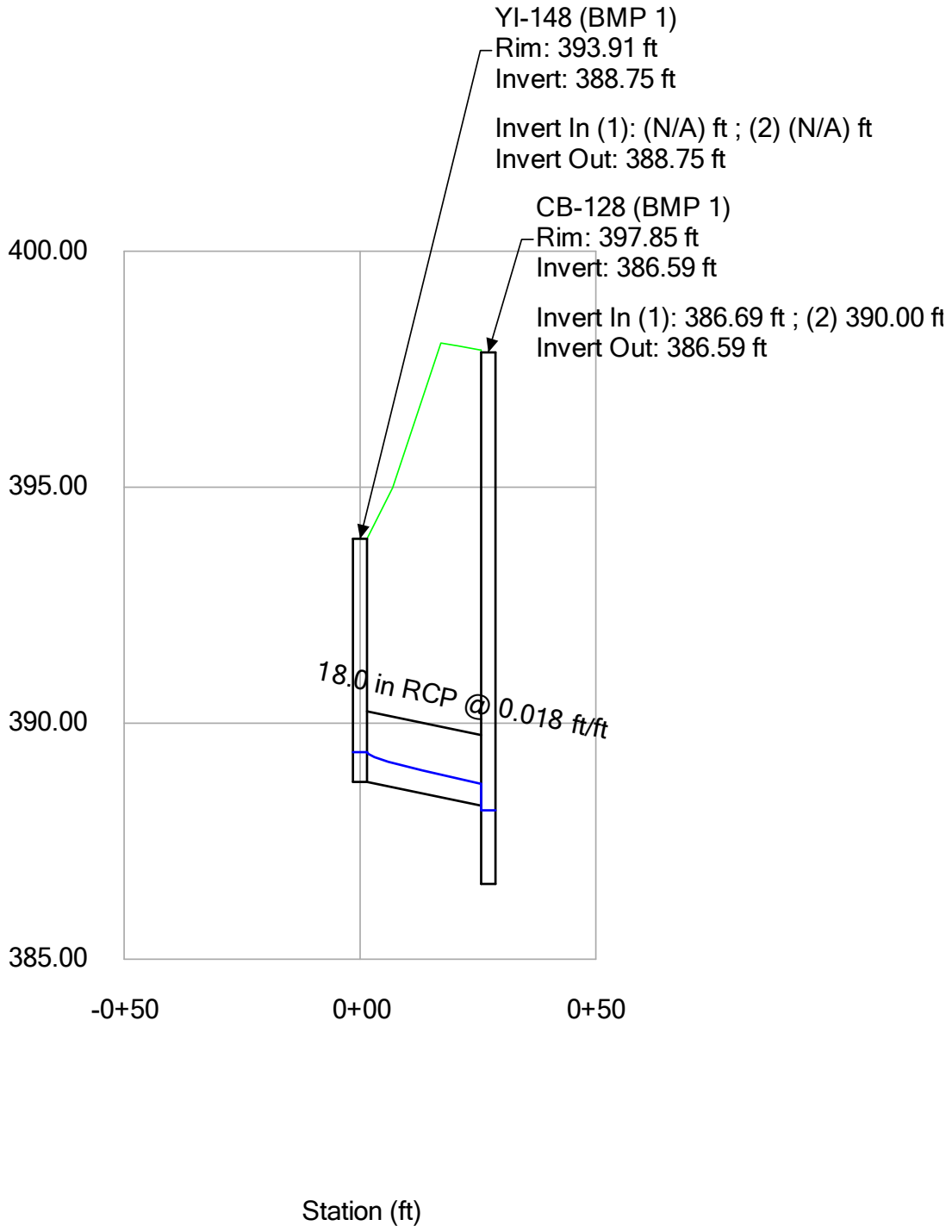
SCM 1 25-YR


DI-151 (BMP 1)
Rim: 404.38 ft
Invert: 400.13 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.13 ft
CB-113 (BMP 1)
Rim: 405.46 ft
Invert: 390.22 ft
Invert In (1): 390.43 ft ; (2) 393.77 ft
Invert Out: 390.22 ft
15.0 in RCP @ 0.029 ft/ft
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

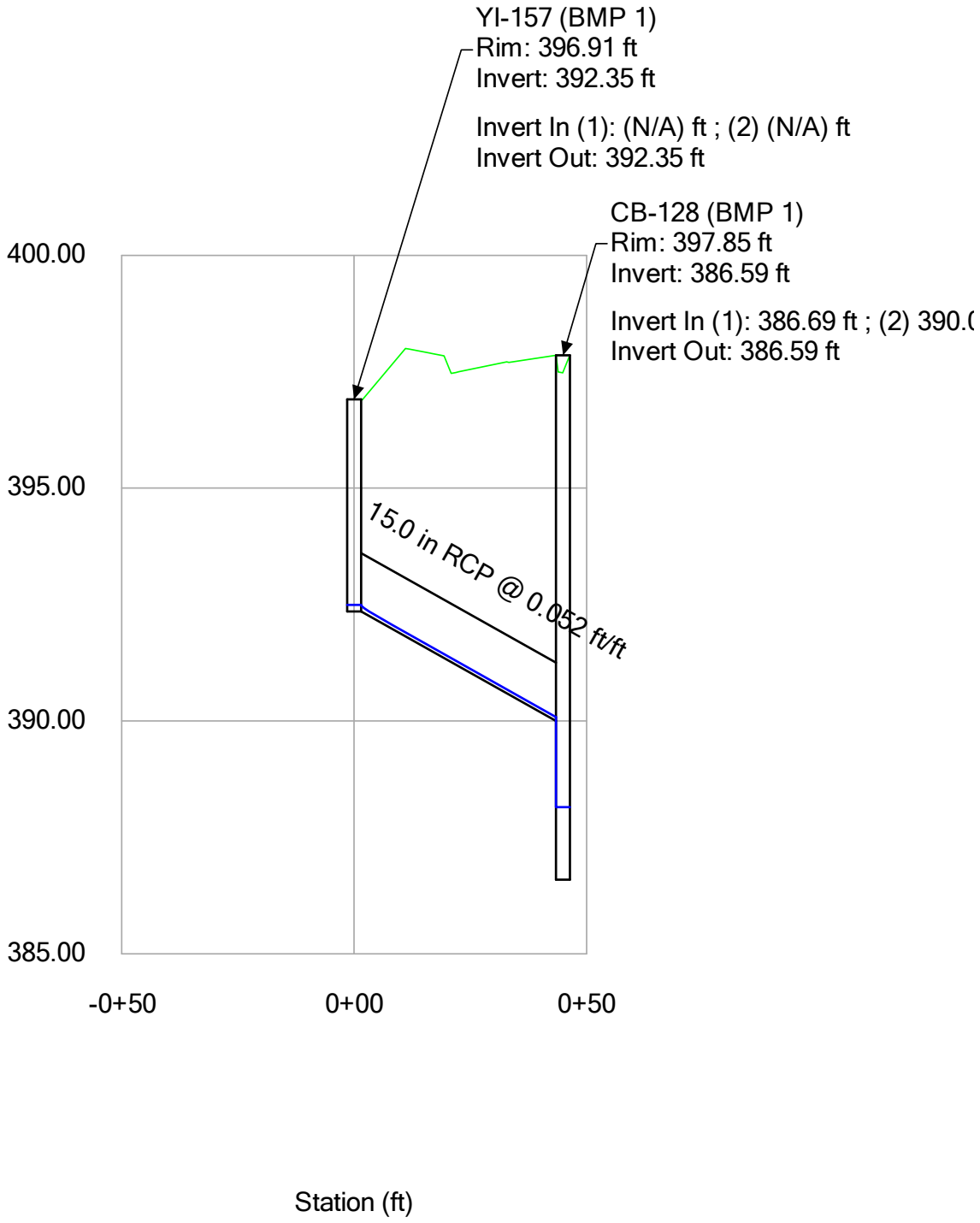
SCM 1 25-YR


CB-111 (BMP 1)
Rim: 406.03 ft
Invert: 389.66 ft
Invert In (1): 400.04 ft ; (2) 389.76 ft
Invert Out: 389.66 ft
CB-112 (BMP 1)
Rim: 406.05 ft
Invert: 400.55 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.55 ft
15.0 in RCP @ 0.019 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

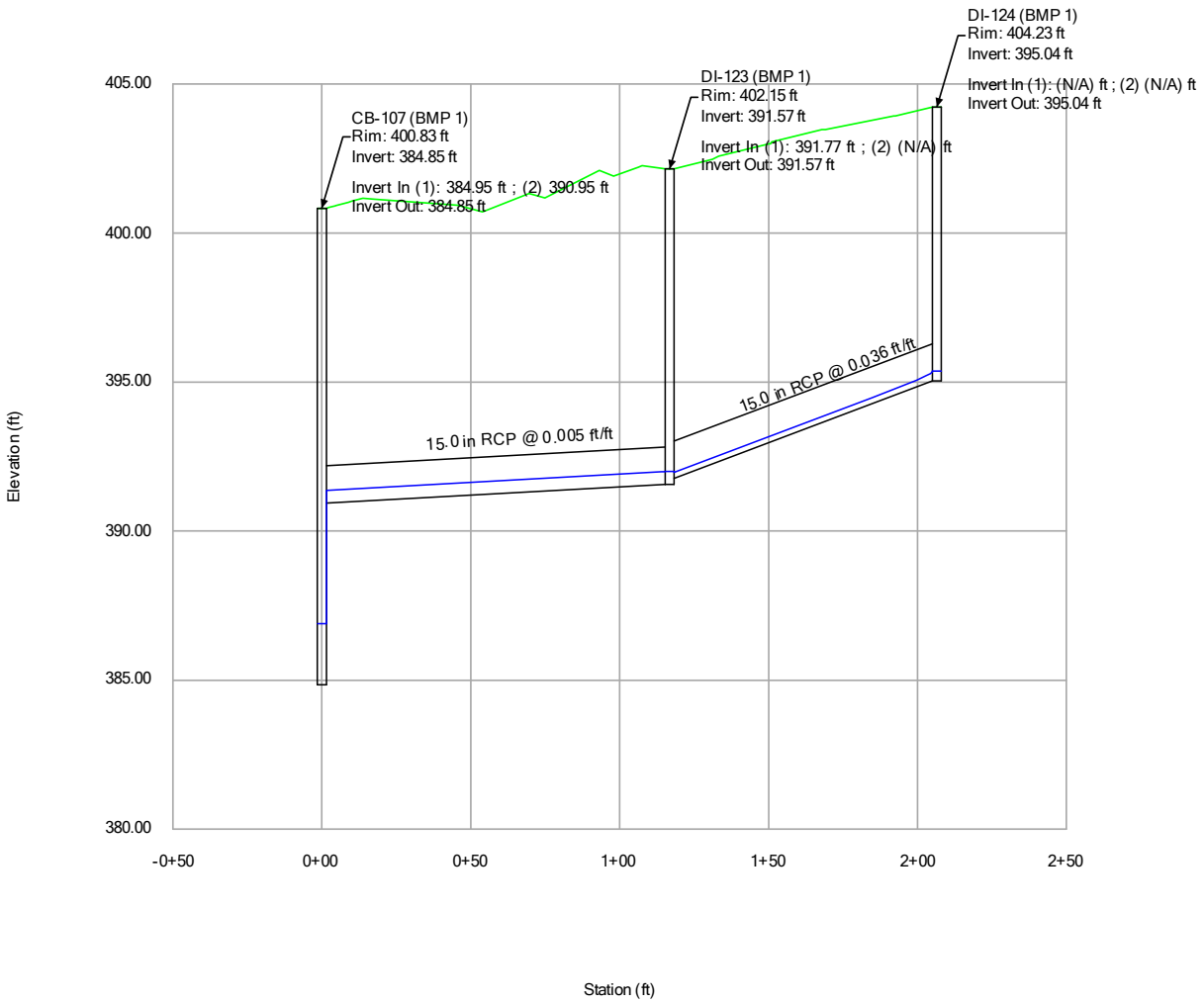
SCM 1 25-YR


YI-148 (BMP 1)
Rim: 393.91 ft
Invert: 388.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.75 ft
CB-128 (BMP 1)
Rim: 397.85 ft
Invert: 386.59 ft
Invert In (1): 386.69 ft ; (2) 390.00 ft
Invert Out: 386.59 ft
400.00
395.00
390.00
385.00
18.0 in RCP @ 0.018 ft/ft
-0+50
0+00
0+50
Station (ft)

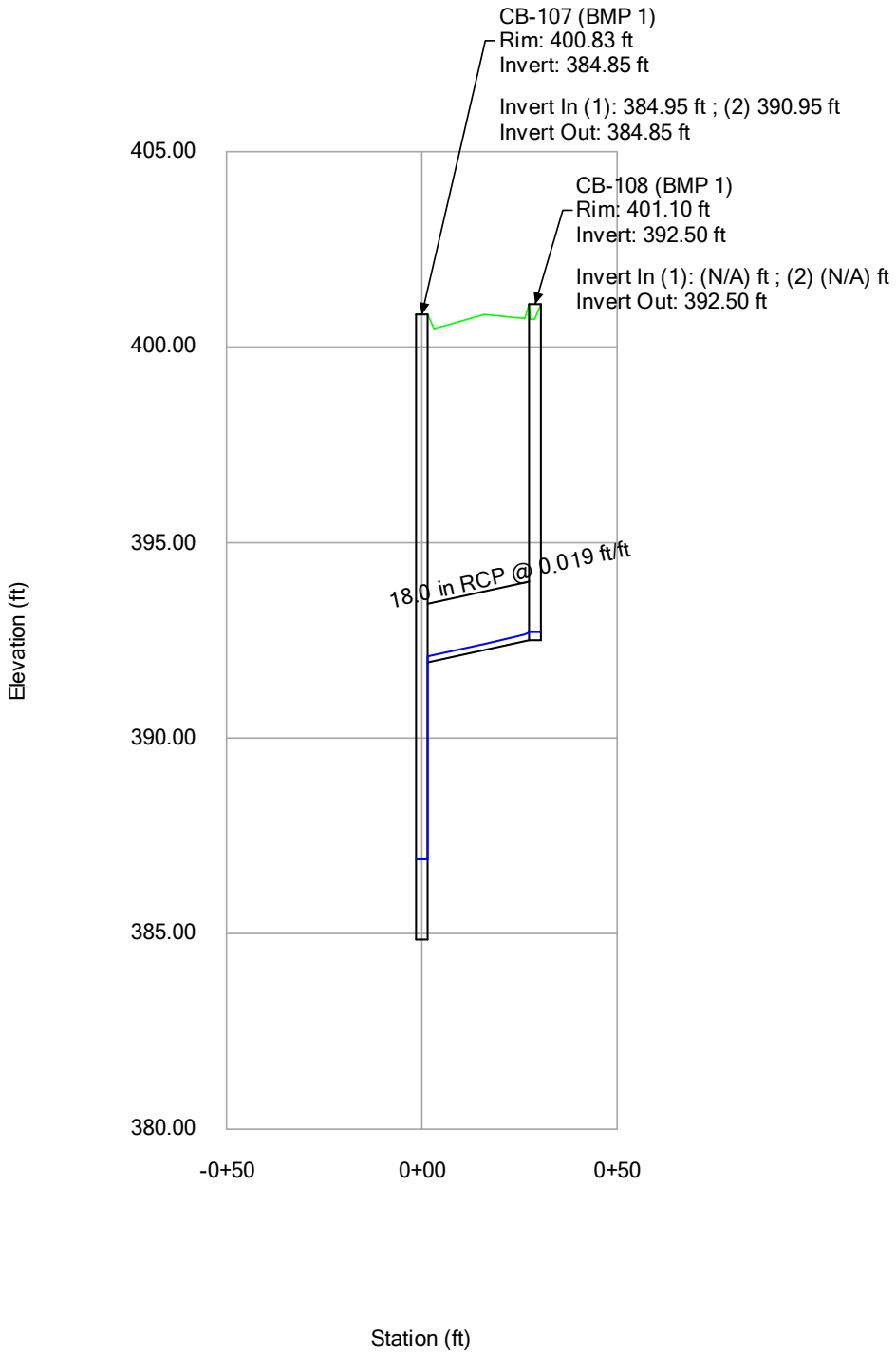
SCM 1 25-YR


YI-157 (BMP 1)
Rim: 396.91 ft
Invert: 392.35 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.35 ft
CB-128 (BMP 1)
Rim: 397.85 ft
Invert: 386.59 ft
Invert In (1): 386.69 ft ; (2) 390.(
Invert Out: 386.59 ft
400.00
395.00
390.00
385.00
15.0 in RCP @ 0.052 ft/ft
-0+50
0+00
0+50
Station (ft)

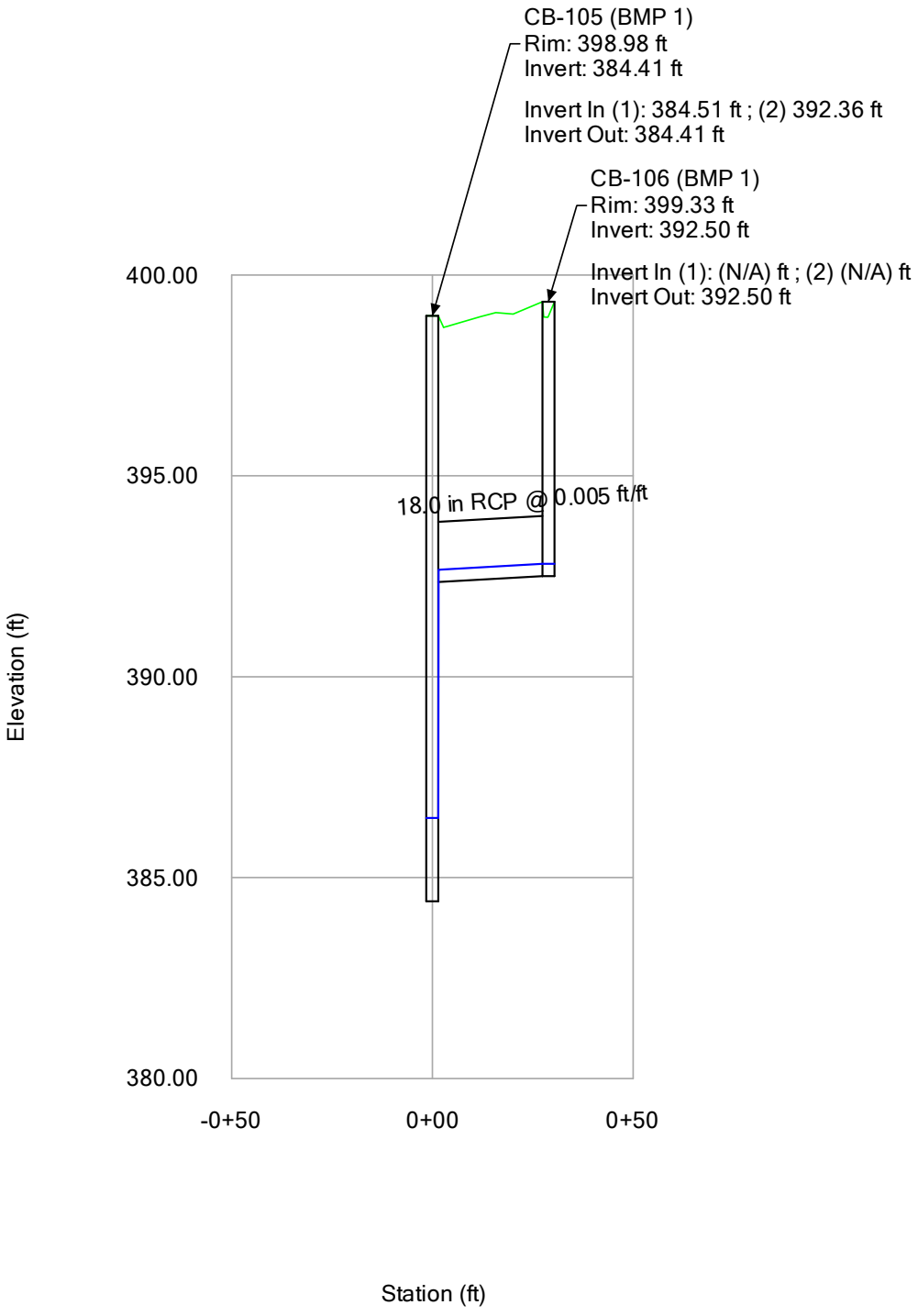
SCM 1 25-YR


DI-124 (BMP 1)
Rim: 404.23 ft
Invert: 395.04 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 395.04 ft
DI-123 (BMP 1)
Rim: 402.15 ft
Invert: 391.57 ft
Invert In (1): 391.77 ft ; (2) (N/A) ft
Invert Out: 391.57 ft
CB-107 (BMP 1)
Rim: 400.83 ft
Invert: 384.85 ft
Invert In (1): 384.95 ft ; (2) 390.95 ft
Invert Out: 384.85 ft
15.0 in RCP @ 0.036 ft/ft
15.0 in RCP @ 0.005 ft/ft
405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)

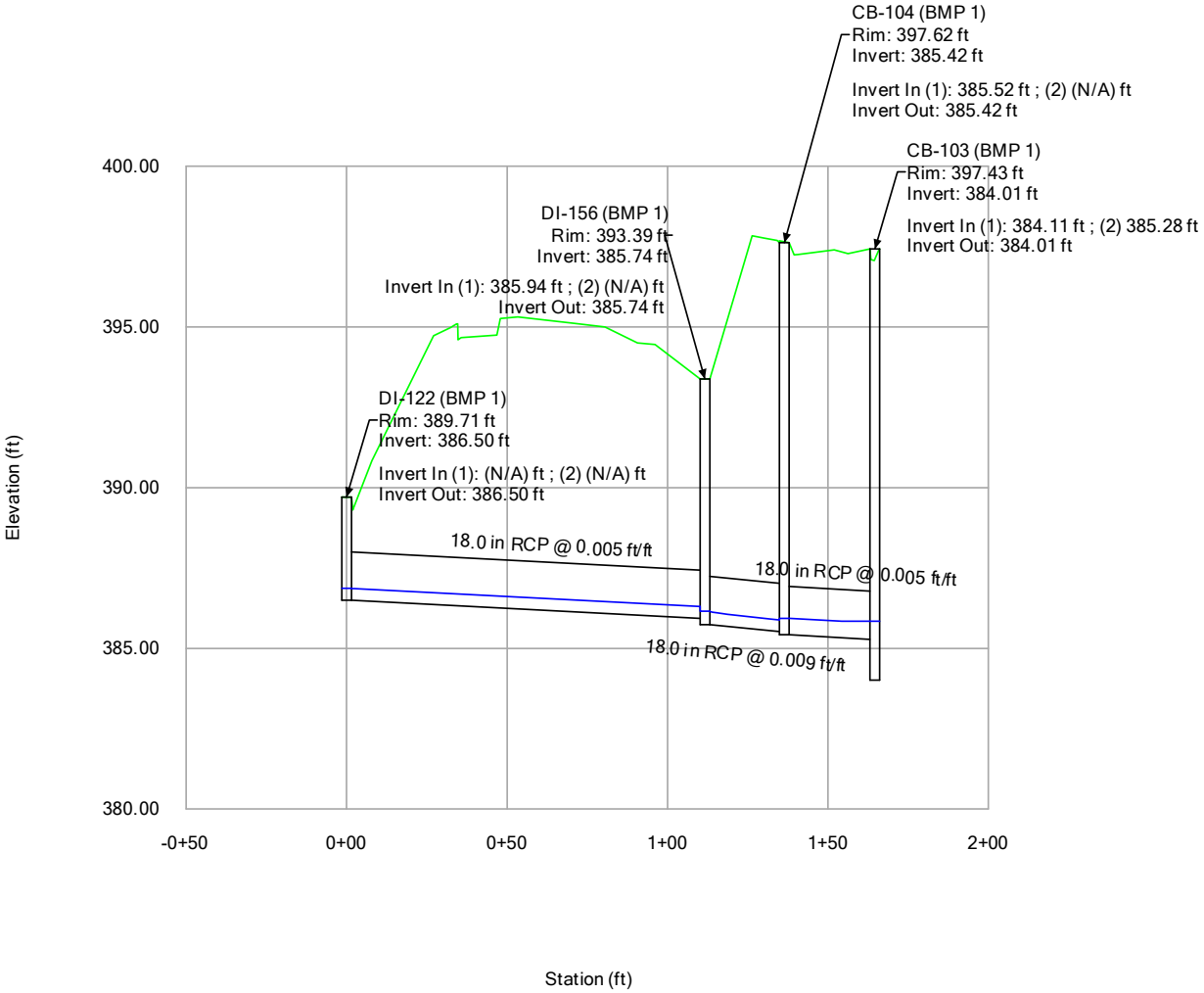
SCM 1 25-YR


CB-107 (BMP 1)
Rim: 400.83 ft
Invert: 384.85 ft
Invert In (1): 384.95 ft ; (2) 390.95 ft
Invert Out: 384.85 ft
CB-108 (BMP 1)
Rim: 401.10 ft
Invert: 392.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.50 ft
18.0 in RCP @ 0.019 ft/ft
405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

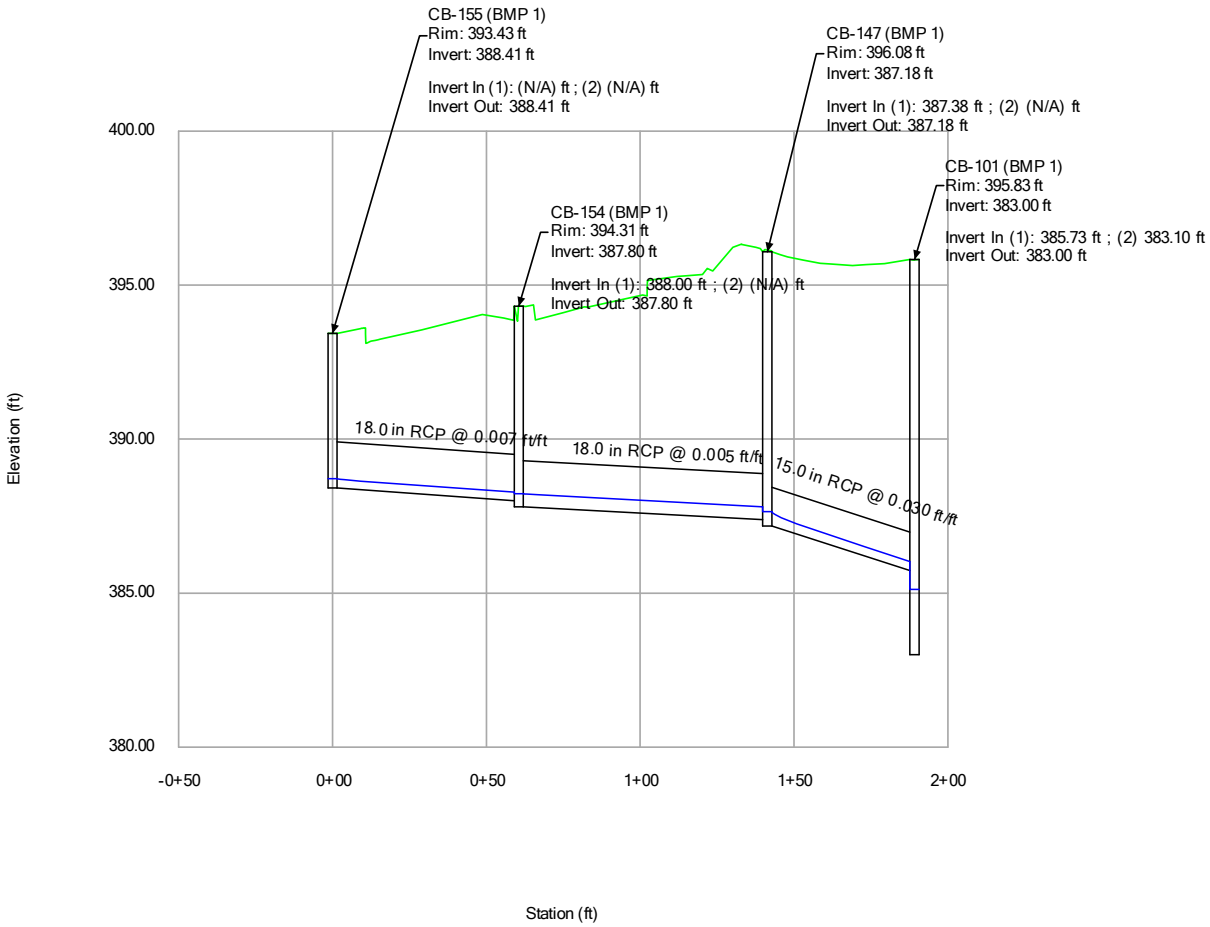
SCM 1 25-YR


CB-105 (BMP 1)
Rim: 398.98 ft
Invert: 384.41 ft
Invert In (1): 384.51 ft ; (2) 392.36 ft
Invert Out: 384.41 ft
CB-106 (BMP 1)
Rim: 399.33 ft
Invert: 392.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.50 ft
18.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

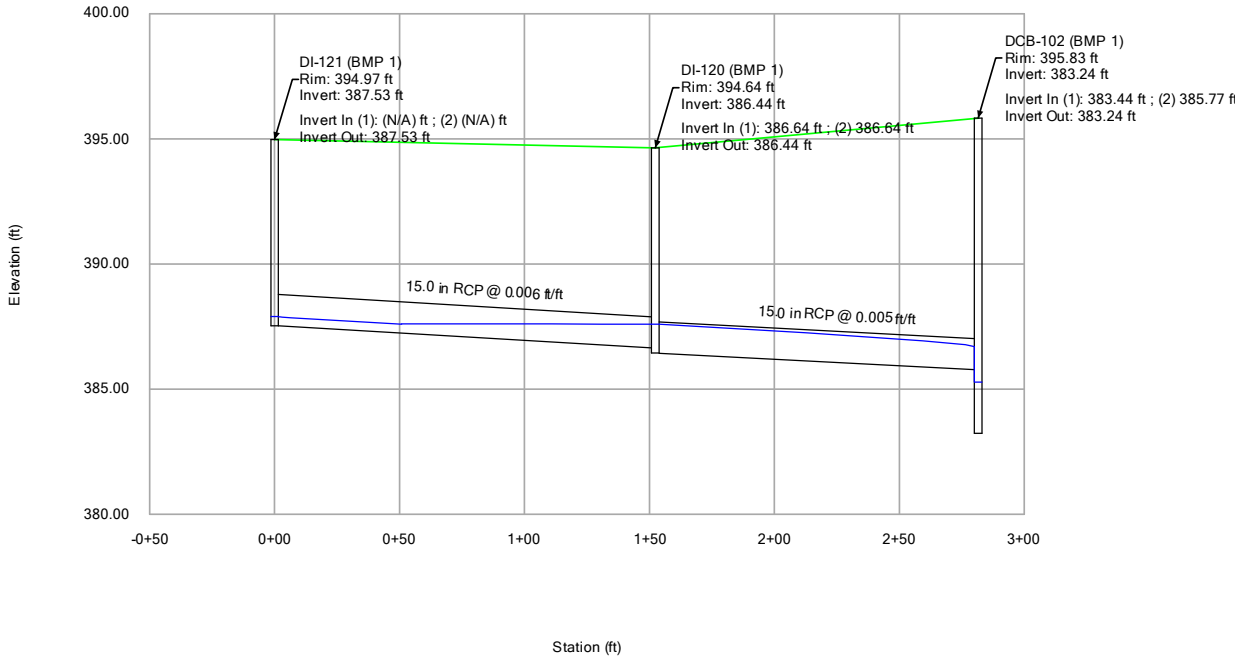
SCM 1 25-YR


CB-104 (BMP 1)
Rim: 397.62 ft
Invert: 385.42 ft
Invert In (1): 385.52 ft ; (2) (N/A) ft
Invert Out: 385.42 ft
CB-103 (BMP 1)
Rim: 397.43 ft
Invert: 384.01 ft
Invert In (1): 384.11 ft ; (2) 385.28 ft
Invert Out: 384.01 ft
DI-156 (BMP 1)
Rim: 393.39 ft
Invert: 385.74 ft
Invert In (1): 385.94 ft ; (2) (N/A) ft
Invert Out: 385.74 ft
DI-122 (BMP 1)
Rim: 389.71 ft
Invert: 386.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 386.50 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.009 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

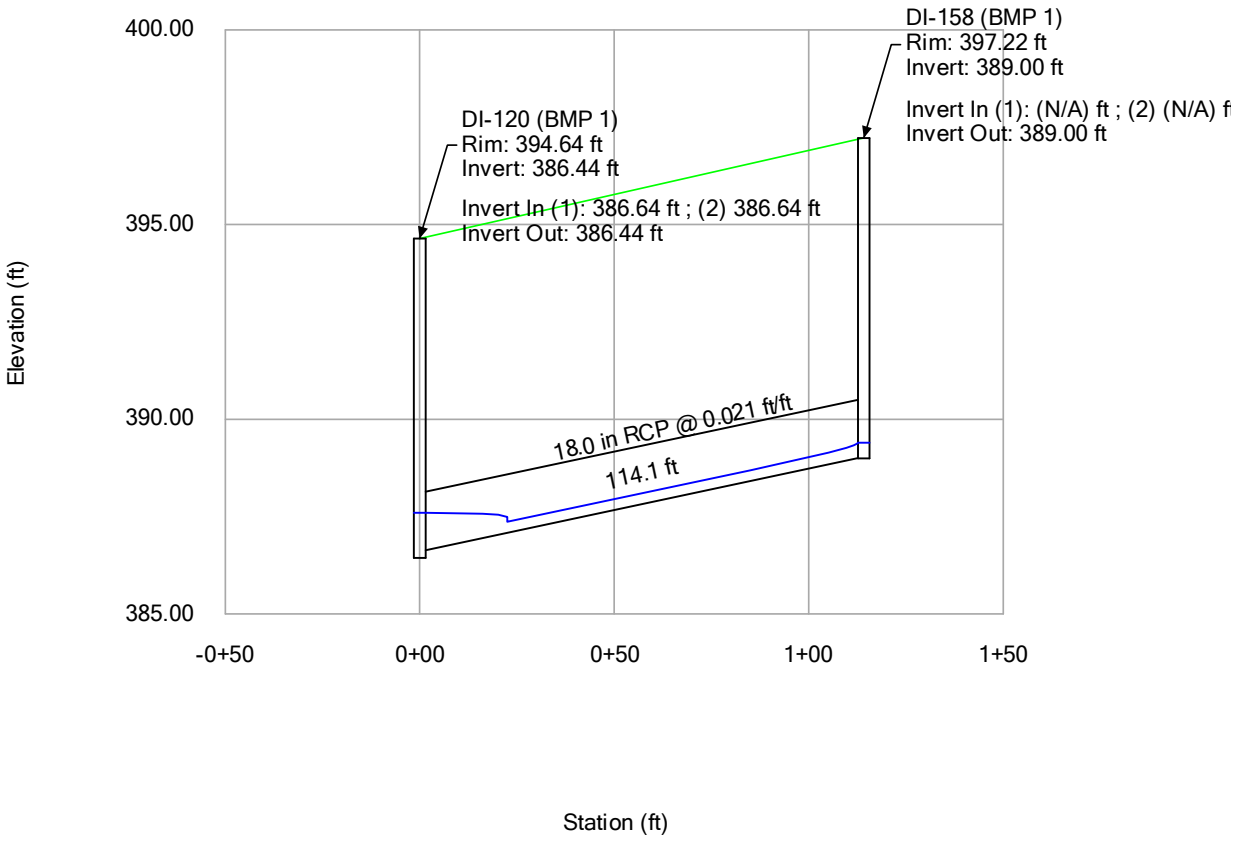
SCM 1 25-YR


CB-155 (BMP 1)
Rim: 393.43 ft
Invert: 388.41 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.41 ft
CB-147 (BMP 1)
Rim: 396.08 ft
Invert: 387.18 ft
Invert In (1): 387.38 ft ; (2) (N/A) ft
Invert Out: 387.18 ft
CB-101 (BMP 1)
Rim: 395.83 ft
Invert: 383.00 ft
Invert In (1): 385.73 ft ; (2) 383.10 ft
Invert Out: 383.00 ft
CB-154 (BMP 1)
Rim: 394.31 ft
Invert: 387.80 ft
Invert In (1): 388.00 ft ; (2) (N/A) ft
Invert Out: 387.80 ft
18.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.030 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

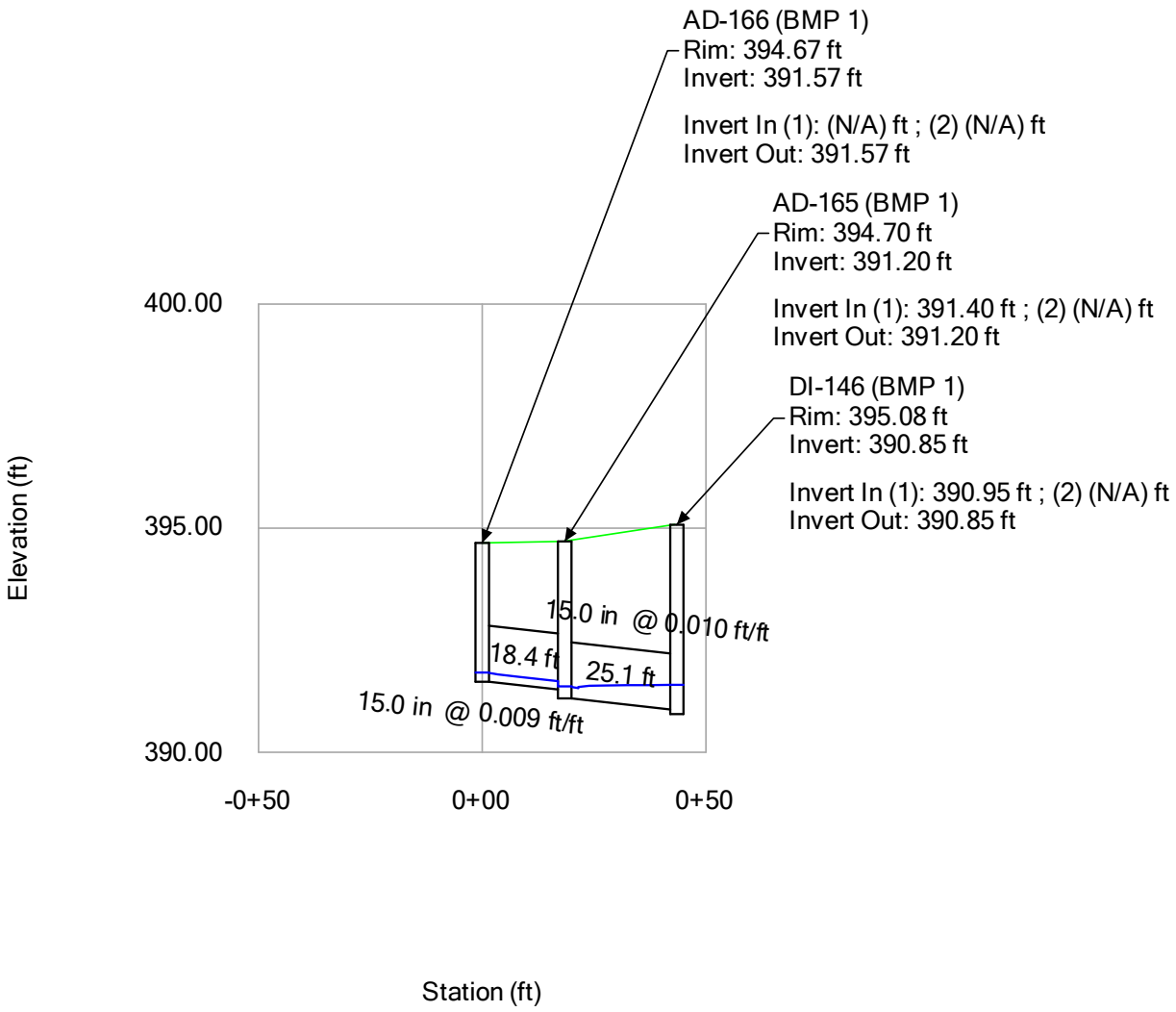
SCM 1 25-YR


400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)
DI-121 (BMP 1)
Rim: 394.97 ft
Invert: 387.53 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 387.53 ft
DI-120 (BMP 1)
Rim: 394.64 ft
Invert: 386.44 ft
Invert In (1): 386.64 ft ; (2) 386.64 ft
Invert Out: 386.44 ft
DCB-102 (BMP 1)
Rim: 395.83 ft
Invert: 383.24 ft
Invert In (1): 383.44 ft ; (2) 385.77 ft
Invert Out: 383.24 ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.005 ft/ft

SCM 1 25-YR


DI-158 (BMP 1)
Rim: 397.22 ft
Invert: 389.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 389.00 ft
DI-120 (BMP 1)
Rim: 394.64 ft
Invert: 386.44 ft
Invert In (1): 386.64 ft ; (2) 386.64 ft
Invert Out: 386.44 ft
18.0 in RCP @ 0.021 ft/ft
114.1 ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

SCM 1 25-YR


AD-166 (BMP 1)
Rim: 394.67 ft
Invert: 391.57 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 391.57 ft
AD-165 (BMP 1)
Rim: 394.70 ft
Invert: 391.20 ft
Invert In (1): 391.40 ft ; (2) (N/A) ft
Invert Out: 391.20 ft
DI-146 (BMP 1)
Rim: 395.08 ft
Invert: 390.85 ft
Invert In (1): 390.95 ft ; (2) (N/A) ft
Invert Out: 390.85 ft
400.00
395.00
390.00
Elevation (ft)
15.0 in @ 0.010 ft/ft
18.4 ft
25.1 ft
15.0 in @ 0.009 ft/ft
-0+50
0+00
0+50
Station (ft)

SCM 1 – INLET SPREAD

SCM 1 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

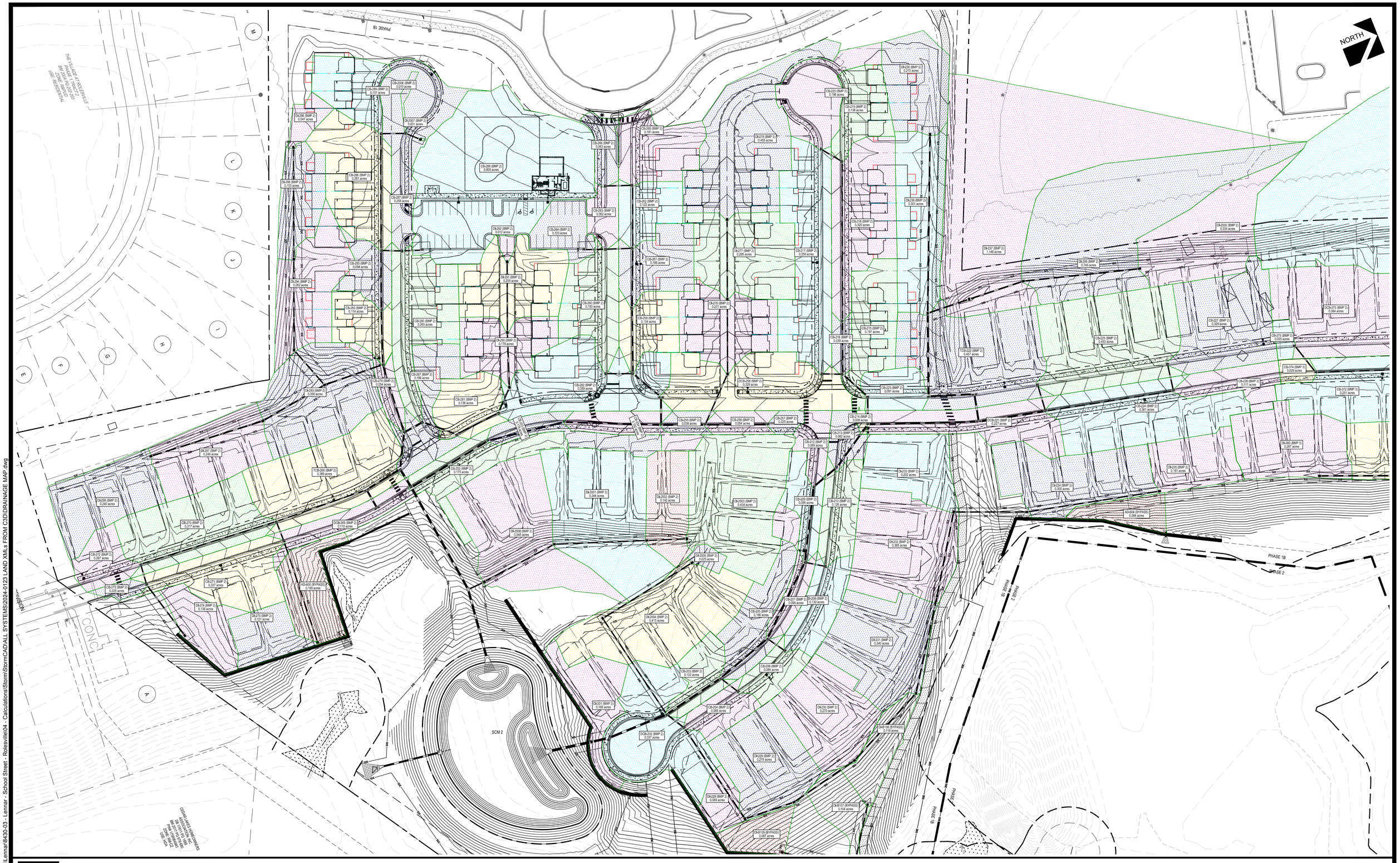
Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
TCB-116 (BMP 1)	0.371	0.259	1.47	0.00	1.47	6.5	3.0
TCB-129 (BMP 1)	0.316	0.263	1.49	0.00	12.29	5.9	2.9
DCB-102 (BMP 1)	0.280	0.210	1.19	0.00	26.89	5.7	2.8
CB-109 (BMP 1)	0.236	0.138	0.78	0.15	19.66	5.1	1.7
CB-101 (BMP 1)	0.110	0.088	0.50	0.00	28.09	4.9	1.7
CB-110 (BMP 1)	0.191	0.123	0.70	0.11	4.68	4.8	1.6
CB-153A (BMP 1)	0.160	0.109	0.62	0.08	0.62	4.5	1.6
CB-128 (BMP 1)	0.146	0.095	0.54	0.05	14.47	4.1	1.5
CB-106 (BMP 1)	0.130	0.090	0.51	0.04	0.51	4.0	1.4
CB-107 (BMP 1)	0.081	0.082	0.46	0.03	20.79	3.8	1.4
CB-104 (BMP 1)	0.118	0.080	0.45	0.03	1.37	3.7	1.4
CB-114 (BMP 1)	0.112	0.079	0.45	0.03	1.74	3.7	1.4
CB-130 (BMP 1)	0.052	0.062	0.35	0.01	11.08	3.2	1.2
CB-103 (BMP 1)	0.082	0.049	0.27	0.00	22.53	2.7	1.1
CB-105 (BMP 1)	0.042	0.041	0.23	0.00	21.25	2.4	1.1
CB-113 (BMP 1)	0.049	0.039	0.22	0.00	3.96	2.3	1.0

SCM 1 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
CB-108 (BMP 1)	0.015	0.033	0.18	0.00	0.18	2.0	1.0
CB-133 (BMP 1)	0.039	0.037	0.21	0.00	1.50	2.2	1.0
CB-127 (BMP 1)	0.052	0.034	0.19	0.00	14.47	2.1	1.0
CB-112 (BMP 1)	0.039	0.031	0.18	0.00	0.18	2.0	1.0
CB-132 (BMP 1)	0.020	0.019	0.11	0.00	1.60	1.6	0.8
CB-111 (BMP 1)	0.022	0.017	0.10	0.00	4.15	1.6	0.8
CB-115 (BMP 1)	0.007	0.007	0.04	0.00	2.02	1.1	0.5
CB-131 (BMP 1)	0.001	0.004	0.02	0.00	6.63	0.9	0.4
CB-153 (BMP 1)	0.007	0.007	0.04	0.00	0.65	1.1	0.5

ATTACHMENT 2: DRAINAGE AREA MAPS – SCM 2



G:\NCA\Projects\Lennar\84300-03 - Lennar - School Street - Rolesville\04 - Calculations\Storm\Storm\CAD\ALL SYSTEMS\2024-0123 LAND XMLs FROM C3D\DRAINAGE MAP.dwg

BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
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NC LICENSE #C-4397

SCM 2 DRAINAGE AREAS

DATE: 3/4/2024

0 50' 100' 150'
SCALE: 1" = 50'

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BGE INC. SHALL BE WITHOUT LIABILITY TO BGE INC.

SCM 2 – 10 YR STORM

SCM 2 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-228 (BMP 2)	0.069	0.000	True	0.18	0.084	0.350
DI-2005 (BMP 2)	0.025	0.000	True	0.06	0.084	0.350
CB-289 (BMP 2)	0.151	0.000	True	0.38	0.084	0.350
DI-237 (BMP 2)	1.148	0.000	True	3.74	0.084	0.450
DI-299 (BMP 2)	0.745	0.000	True	2.43	0.084	0.450
DI-2000 (BMP 2)	0.334	0.000	True	1.09	0.084	0.450
DI-236 (BMP 2)	0.301	0.000	True	1.09	0.084	0.500
DI-233 (BMP 2)	0.202	0.000	True	0.73	0.084	0.500
DI-231 (BMP 2)	0.340	0.000	True	1.23	0.084	0.500
DI-230 (BMP 2)	0.270	0.000	True	0.98	0.084	0.500
DI-201 (BMP 2)	0.168	0.000	True	0.61	0.084	0.500
DI-2004 (BMP 2)	0.415	0.000	True	1.50	0.084	0.500
CB-287 (BMP 2)	0.258	0.000	True	0.93	0.084	0.500
DI-238 (BMP 2)	0.210	0.000	True	0.84	0.084	0.550
CB-227 (BMP 2)	0.329	0.000	True	1.31	0.084	0.550
CB-204 (BMP 2)	0.085	0.000	True	0.34	0.084	0.550

SCM 2 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DCB-202 (BMP 2)	0.337	0.000	True	1.34	0.084	0.550
DI-2003 (BMP 2)	0.434	0.000	True	1.73	0.084	0.550
CB-205 (BMP 2)	0.166	0.000	True	0.66	0.084	0.550
CB-207 (BMP 2)	0.095	0.000	True	0.38	0.084	0.550
CB-288 (BMP 2)	0.805	0.000	True	3.20	0.084	0.550
TCB-268 (BMP 2)	0.389	0.000	True	1.55	0.084	0.550
DI-275 (BMP 2)	0.121	0.000	True	0.48	0.084	0.550
CB-270 (BMP 2)	0.317	0.000	True	1.26	0.084	0.550
DI-297 (BMP 2)	0.249	0.000	True	0.99	0.084	0.550
DI-2002 (BMP 2)	0.142	0.000	True	0.57	0.084	0.550
DI-2007 (BMP 2)	0.001	0.000	True	0.00	0.084	0.550
CB-226 (BMP 2)	0.111	0.000	True	0.48	0.084	0.600
CB-225 (BMP 2)	0.453	0.000	True	1.97	0.084	0.600
CB-224 (BMP 2)	0.361	0.000	True	1.57	0.084	0.600
CB-203 (BMP 2)	0.102	0.000	True	0.44	0.084	0.600
CB-206 (BMP 2)	0.084	0.000	True	0.37	0.084	0.600

SCM 2 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-209 (BMP 2)	0.095	0.000	True	0.41	0.084	0.600
CB-210 (BMP 2)	0.126	0.000	True	0.55	0.084	0.600
TCB-222 (BMP 2)	0.457	0.000	True	1.98	0.084	0.600
DI-235 (BMP 2)	0.161	0.000	True	0.76	0.084	0.650
DI-234 (BMP 2)	0.300	0.000	True	1.41	0.084	0.650
DI-229 (BMP 2)	0.278	0.000	True	1.31	0.084	0.650
DI-278 (BMP 2)	0.455	0.000	True	2.14	0.084	0.650
DI-293 (BMP 2)	0.356	0.000	True	1.68	0.084	0.650
CB-272 (BMP 2)	0.097	0.000	True	0.46	0.084	0.650
DI-298 (BMP 2)	0.240	0.000	True	1.13	0.084	0.650
CB-271 (BMP 2)	0.227	0.000	True	1.07	0.084	0.650
CB-252 (BMP 2)	0.175	0.000	True	0.86	0.084	0.680
CB-285 (BMP 2)	0.094	0.000	True	0.46	0.084	0.680
DI-274 (BMP 2)	0.138	0.000	True	0.68	0.084	0.680
CB-208 (BMP 2)	0.130	0.000	True	0.66	0.084	0.700
CB-212 (BMP 2)	0.069	0.000	True	0.35	0.084	0.700

SCM 2 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-265 (BMP 2)	0.181	0.000	True	0.92	0.084	0.700
CB-262 (BMP 2)	0.122	0.000	True	0.62	0.084	0.700
CB-286 (BMP 2)	0.281	0.000	True	1.42	0.084	0.700
DI-296 (BMP 2)	0.047	0.000	True	0.24	0.084	0.700
DI-295 (BMP 2)	0.153	0.000	True	0.78	0.084	0.700
DI-294 (BMP 2)	0.262	0.000	True	1.33	0.084	0.700
DI-2001 (BMP 2)	0.344	0.000	True	1.74	0.084	0.700
DI-232 (BMP 2)	0.365	0.000	True	1.87	0.084	0.710
CB-219 (BMP 2)	0.138	0.000	True	0.75	0.084	0.750
CB-217 (BMP 2)	0.359	0.000	True	1.95	0.084	0.750
CB-215 (BMP 2)	0.197	0.000	True	1.07	0.084	0.750
CB-218 (BMP 2)	0.320	0.000	True	1.73	0.084	0.750
DI-277 (BMP 2)	0.295	0.000	True	1.60	0.084	0.750
DI-276 (BMP 2)	0.231	0.000	True	1.26	0.084	0.750
CB-259 (BMP 2)	0.134	0.000	True	0.73	0.084	0.750
CB-260 (BMP 2)	0.193	0.000	True	1.05	0.084	0.750

SCM 2 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-282 (BMP 2)	0.339	0.000	True	1.84	0.084	0.750
DI-291 (BMP 2)	0.259	0.000	True	1.40	0.084	0.750
DI-290 (BMP 2)	0.178	0.000	True	0.97	0.084	0.750
CB-281 (BMP 2)	0.136	0.000	True	0.74	0.084	0.750
CB-280 (BMP 2)	0.265	0.000	True	1.44	0.084	0.750
CB-283 (BMP 2)	0.114	0.000	True	0.62	0.084	0.750
DCB-221 (BMP 2)	0.227	0.000	True	1.27	0.084	0.770
DCB-258 (BMP 2)	0.329	0.000	True	1.83	0.084	0.770
CB-261 (BMP 2)	0.166	0.000	True	0.92	0.084	0.770
DCB-269 (BMP 2)	0.110	0.000	True	0.62	0.084	0.770
CB-223 (BMP 2)	0.091	0.000	True	0.53	0.084	0.800
CB-220 (BMP 2)	0.196	0.000	True	1.13	0.084	0.800
CB-255 (BMP 2)	0.038	0.000	True	0.22	0.084	0.800
CB-266 (BMP 2)	0.063	0.000	True	0.37	0.084	0.800
CB-279 (BMP 2)	0.054	0.000	True	0.32	0.084	0.800
CB-267 (BMP 2)	0.166	0.000	True	0.96	0.084	0.800

SCM 2 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-213 (BMP 2)	0.062	0.000	True	0.37	0.084	0.820
CB-216 (BMP 2)	0.039	0.000	True	0.24	0.084	0.850
CB-263 (BMP 2)	0.062	0.000	True	0.38	0.084	0.850
CB-214 (BMP 2)	0.008	0.000	True	0.05	0.084	0.950
CB-257 (BMP 2)	0.025	0.000	True	0.17	0.084	0.950
CB-256 (BMP 2)	0.054	0.000	True	0.37	0.084	0.950
CB-264 (BMP 2)	0.103	0.000	True	0.71	0.084	0.950
DI-292 (BMP 2)	0.012	0.000	True	0.09	0.084	0.950
CB-273 (BMP 2)	0.025	0.000	True	0.17	0.084	0.950
CB-2006 (BMP 2)	0.010	0.000	True	0.07	0.084	0.950

SCM 2 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-236 TO DI-238 (BMP 2)	18.0	0.030	2.64	4.95	0.70	18.13	398.81	391.98
CB-219 TO CB-220 (BMP 2)	15.0	0.005	2.95	2.99	0.91	4.76	396.78	396.61
DI-299 TO DI-2000 (BMP 2)	18.0	0.039	2.79	2.48	0.85	20.87	397.85	392.08
CB-218 TO CB-219 (BMP 2)	15.0	0.018	3.44	5.37	1.55	8.75	396.53	392.73
CB-226 TO CB-227 (BMP 2)	15.0	0.005	2.99	3.04	1.01	4.57	397.15	396.97
CB-224 TO CB-226 (BMP 2)	15.0	0.034	3.38	6.56	1.45	11.85	396.85	391.20
DI-297 TO DI-298 (BMP 2)	18.0	0.023	2.81	4.84	0.88	15.96	385.47	381.94
DI-277 TO DI-278 (BMP 2)	15.0	0.021	3.34	2.51	1.39	9.47	394.57	392.53
DI-234 TO DI-235 (BMP 2)	15.0	0.044	2.68	5.68	0.65	13.58	393.35	385.77
CB-262 TO CB-265 (BMP 2)	15.0	0.007	3.12	3.54	1.12	5.55	393.64	393.02
CB-265 TO CB-266 (BMP 2)	15.0	0.008	2.28	2.61	0.36	5.78	393.93	393.63
DI-236 TO DI-237 (BMP 2)	18.0	0.005	4.36	4.52	4.30	7.43	390.99	390.68
CB-223 TO DI-236 (BMP 2)	24.0	0.005	4.54	4.68	5.76	16.04	390.53	389.99
CB-261 TO CB-262 (BMP 2)	18.0	0.030	3.90	7.44	2.73	18.32	392.88	390.35
CB-262 TO CB-263 (BMP 2)	15.0	0.008	3.03	2.70	1.00	5.78	393.12	392.88
CB-263 TO CB-264 (BMP 2)	15.0	0.008	2.66	3.08	0.63	5.78	393.35	393.11
CB-286 TO CB-289 (BMP 2)	15.0	0.015	2.39	1.06	0.43	7.91	390.41	388.41
CB-289 TO CB-2006 (BMP 2)	15.0	0.005	1.37	1.49	0.07	4.57	390.62	390.45
DI-295 TO DI-296 (BMP 2)	15.0	0.032	2.05	1.25	0.24	11.51	392.73	388.35
CB-216 TO CB-218 (BMP 2)	18.0	0.017	3.92	3.83	2.77	13.59	392.75	391.64
CB-2006 TO DI-2007 (BMP 2)	15.0	0.038	0.62	0.94	0.00	12.56	392.52	391.76
DI-276 TO DI-277 (BMP 2)	15.0	0.034	4.19	7.94	2.85	11.87	392.53	389.10
DI-237 TO DI-299 (BMP 2)	18.0	0.006	3.72	3.86	2.34	7.81	392.08	391.66
CB-216 TO CB-217 (BMP 2)	15.0	0.006	3.39	2.32	1.47	5.15	391.65	391.64
CB-215 TO CB-216 (BMP 2)	18.0	0.023	4.70	7.67	4.81	16.07	391.64	390.38
CB-214 TO CB-215 (BMP 2)	18.0	0.011	4.98	6.24	5.62	11.24	388.62	388.06
DI-291 TO DI-292 (BMP 2)	15.0	0.042	1.57	0.62	0.09	13.31	390.86	387.19
CB-213 TO CB-214 (BMP 2)	24.0	0.012	7.31	8.59	19.57	24.65	388.14	387.12

SCM 2 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-214 TO DCB-221 (BMP 2)	24.0	0.010	6.27	6.13	14.29	22.42	389.45	388.14
CB-259 TO CB-261 (BMP 2)	18.0	0.041	4.23	8.93	3.53	21.32	390.58	386.88
CB-224 TO CB-225 (BMP 2)	15.0	0.005	3.36	3.42	1.52	4.59	390.75	390.56
DCB-221 TO CB-224 (BMP 2)	24.0	0.008	4.09	2.21	4.06	20.25	389.71	389.45
DCB-222 TO CB-223 (BMP 2)	24.0	0.005	4.67	4.78	6.28	16.00	389.85	389.54
CB-286 TO CB-287 (BMP 2)	15.0	0.006	4.04	4.12	2.72	4.81	388.77	388.61
CB-285 TO CB-286 (BMP 2)	18.0	0.028	4.41	8.09	4.01	17.69	388.41	386.03
CB-287 TO CB-288 (BMP 2)	15.0	0.038	3.69	3.55	1.94	12.64	389.71	388.77
DCB-221 TO DCB-222 (BMP 2)	24.0	0.005	5.23	4.68	8.87	16.22	389.53	389.45
CB-256 TO CB-257 (BMP 2)	18.0	0.027	1.82	0.83	0.17	17.26	387.69	385.67
CB-256 TO DI-276 (BMP 2)	15.0	0.026	4.84	8.02	4.18	10.42	389.31	387.21
CB-212 TO CB-213 (BMP 2)	24.0	0.013	7.35	8.75	19.79	26.19	387.26	386.49
DI-233 TO DI-234 (BMP 2)	15.0	0.039	3.51	7.19	1.65	12.82	385.89	382.05
DI-294 TO DI-295 (BMP 2)	15.0	0.024	2.92	2.80	0.88	10.00	388.35	385.62
CB-283 TO CB-285 (BMP 2)	18.0	0.034	4.64	9.02	4.64	19.44	386.27	383.57
CB-209 TO CB-212 (BMP 2)	24.0	0.025	7.40	11.36	20.04	35.76	386.65	383.76
CB-255 TO CB-256 (BMP 2)	24.0	0.010	4.26	2.63	4.67	22.16	385.67	385.48
CB-272 TO CB-273 (BMP 2)	15.0	0.005	2.74	2.79	0.75	4.57	379.24	379.10
CB-273 TO DI-274 (BMP 2)	15.0	0.005	2.57	2.62	0.59	4.57	381.31	380.91
CB-270 TO CB-272 (BMP 2)	15.0	0.005	3.11	2.33	1.16	4.57	379.00	378.21
CB-259 TO CB-260 (BMP 2)	15.0	0.016	2.90	1.30	0.86	8.10	387.39	387.14
DCB-258 TO CB-259 (BMP 2)	18.0	0.014	4.79	6.51	5.08	12.23	387.14	386.33
DI-290 TO DI-291 (BMP 2)	15.0	0.047	3.11	6.81	1.10	14.04	387.19	383.77
CB-254 TO CB-255 (BMP 2)	24.0	0.022	5.70	9.52	11.26	33.78	385.48	383.21
CB-255 TO DCB-258 (BMP 2)	24.0	0.009	4.72	5.78	6.49	20.94	386.05	385.62

SCM 2 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-279 TO CB-283 (BMP 2)	24.0	0.009	5.53	6.72	10.40	21.22	380.81	379.85
CB-283 TO DI-293 (BMP 2)	18.0	0.005	4.58	4.49	5.33	7.46	381.18	380.81
CB-209 TO CB-210 (BMP 2)	15.0	0.011	2.51	0.91	0.51	6.85	384.09	384.09
CB-207 TO CB-209 (BMP 2)	24.0	0.035	7.56	13.09	20.76	42.44	384.09	379.71
DI-293 TO DI-294 (BMP 2)	15.0	0.076	3.81	9.79	2.14	17.82	385.62	380.89
CB-282 TO DI-290 (BMP 2)	15.0	0.069	3.76	9.30	2.06	16.92	383.90	381.24
CB-281 TO CB-282 (BMP 2)	15.0	0.018	4.59	6.76	3.65	8.67	381.51	380.24
CB-280 TO CB-281 (BMP 2)	18.0	0.008	4.69	5.40	4.78	9.54	380.31	379.85
CB-279 TO CB-280 (BMP 2)	24.0	0.011	4.57	2.70	5.87	23.84	375.36	375.51
CB-267 TO CB-279 (BMP 2)	24.0	0.006	6.41	6.65	16.30	17.76	375.51	375.16
DI-232 TO DI-233 (BMP 2)	18.0	0.056	3.68	2.95	2.25	24.83	382.07	376.17
CB-252 TO CB-253 (BMP 2)	24.0	0.021	5.67	9.41	11.12	32.70	380.40	377.59
TCB-268 TO CB-270 (BMP 2)	15.0	0.010	4.41	5.33	3.28	6.54	378.21	376.88
CB-270 TO CB-271 (BMP 2)	15.0	0.010	3.25	2.59	1.28	6.46	378.40	378.21
CB-271 TO DI-275 (BMP 2)	15.0	0.014	2.42	3.39	0.45	7.61	380.26	378.36
CB-207 TO CB-208 (BMP 2)	15.0	0.005	2.62	2.65	0.62	4.62	381.23	381.09
CB-205 TO CB-207 (BMP 2)	24.0	0.043	7.73	13.69	21.54	47.05	380.26	376.27
DI-2004 TO DI-2005 (BMP 2)	15.0	0.037	1.45	0.29	0.06	12.46	380.87	376.14
DI-293 TO DI-297 (BMP 2)	18.0	0.012	3.35	1.90	1.64	11.42	381.98	381.18
DI-2002 TO DI-2003 (BMP 2)	15.0	0.039	3.19	6.55	1.20	12.82	380.62	378.46
CB-252 TO CB-267 (BMP 2)	30.0	0.008	6.75	6.07	22.78	37.00	375.13	375.07
CB-267 TO TCB-268 (BMP 2)	24.0	0.005	3.26	2.58	5.94	16.75	375.13	375.13
TCB-268 TO DCB-269 (BMP 2)	24.0	0.009	1.02	0.67	0.95	21.74	375.12	375.13
CB-205 TO CB-206 (BMP 2)	15.0	0.015	2.38	3.42	0.42	7.90	379.75	379.27
CB-203 TO CB-205 (BMP 2)	24.0	0.051	7.92	14.76	22.38	51.15	376.86	371.97
DI-2001 TO DI-2002 (BMP 2)	15.0	0.053	3.54	8.08	1.70	14.91	378.52	372.09

SCM 2 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-231 TO DI-232 (BMP 2)	18.0	0.039	4.42	9.10	4.03	20.76	376.17	370.95
CB-204 TO DI-228 (BMP 2)	18.0	0.010	5.28	6.26	6.53	10.50	368.28	366.78
CB-203 TO CB-204 (BMP 2)	18.0	0.010	5.36	6.21	6.74	10.50	366.83	366.42
DCB-202 TO CB-203 (BMP 2)	30.0	0.010	7.73	8.98	30.78	40.55	366.43	365.42
CB-203 TO DI-2004 (BMP 2)	15.0	0.006	3.42	3.48	1.51	4.84	376.14	375.32
DI-201 TO DCB-202 (BMP 2)	30.0	0.020	7.86	10.02	31.82	58.00	365.59	364.76
DI-228 TO DI-229 (BMP 2)	18.0	0.010	5.25	6.24	6.41	10.50	369.12	368.34
FES-200 TO DI-201 (BMP 2)	36.0	0.008	7.09	8.45	32.32	60.26	353.85	353.10
DI-230 TO DI-231 (BMP 2)	18.0	0.010	4.73	5.84	4.89	10.50	371.25	369.98
DI-229 TO DI-230 (BMP 2)	18.0	0.010	4.96	6.03	5.56	10.50	370.07	369.02
DMH-251 TO CB-252 (BMP 2)	30.0	0.075	8.16	19.92	34.13	112.60	375.07	362.95
DI-2008 TO DI-2001 (BMP 2)	15.0	0.057	4.20	9.63	2.87	15.45	372.28	366.25
DMH-251 TO DI-2008 (BMP 2)	15.0	0.053	4.99	8.48	4.49	14.94	366.54	365.56
FES-250 TO DMH-251 (BMP 2)	30.0	0.036	8.71	14.63	38.10	77.61	357.09	352.81

SCM 2 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-238 (BMP 2)	0.70	0.14	0.70	83.7	398.81	398.81	2.0	2.64	2.64
CB-220 (BMP 2)	0.91	0.23	0.91	80.1	396.78	396.78	3.0	2.95	2.95
DI-2000 (BMP 2)	0.85	0.23	0.85	78.6	397.85	397.85	2.0	2.79	2.79
CB-219 (BMP 2)	0.65	0.09	1.55	87.4	396.53	396.53	3.0	2.99	3.44
CB-226 (BMP 2)	0.45	0.03	1.45	94.0	396.85	396.85	3.0	3.04	3.38
CB-227 (BMP 2)	1.01	0.30	1.01	77.4	397.15	397.15	3.0	2.99	2.99
DI-298 (BMP 2)	0.88	0.25	0.88	77.8	385.47	385.47	2.0	2.81	2.81
DI-278 (BMP 2)	1.39	0.74	1.39	65.2	394.57	394.57	2.0	3.34	3.34
DI-235 (BMP 2)	0.65	0.11	0.65	85.5	393.35	393.35	2.0	2.68	2.68
CB-265 (BMP 2)	0.77	0.15	1.12	83.9	393.64	393.64	3.0	2.61	3.12
CB-266 (BMP 2)	0.36	0.01	0.36	97.0	393.93	393.93	3.0	2.28	2.28
DI-236 (BMP 2)	0.86	0.23	5.76	78.5	390.53	390.53	2.0	4.52	4.54
CB-262 (BMP 2)	0.67	0.10	2.73	87.0	392.88	392.88	3.0	2.70	3.90
CB-263 (BMP 2)	0.38	0.01	1.00	96.3	393.12	393.12	3.0	3.08	3.03
CB-289 (BMP 2)	0.37	0.01	0.43	96.6	390.41	390.41	3.0	1.49	2.39
DI-296 (BMP 2)	0.24	0.00	0.24	99.6	392.73	392.73	2.0	2.05	2.05

SCM 2 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-218 (BMP 2)	1.30	0.53	2.77	71.1	392.75	392.75	3.0	5.37	3.92
CB-264 (BMP 2)	0.63	0.08	0.63	88.2	393.35	393.35	3.0	2.66	2.66
DI-2007 (BMP 2)	0.00	0.00	0.00	100.0	392.52	392.52	2.0	0.62	0.62
CB-2006 (BMP 2)	0.07	0.00	0.07	100.0	390.62	390.62	3.0	0.94	1.37
DI-277 (BMP 2)	1.49	0.86	2.85	63.5	392.53	392.53	2.0	2.51	4.19
DI-299 (BMP 2)	1.52	0.90	2.34	62.8	392.08	392.08	2.0	2.48	3.72
CB-216 (BMP 2)	0.67	0.10	4.81	86.9	391.64	391.64	3.0	3.83	4.70
CB-217 (BMP 2)	1.47	0.70	1.47	67.9	391.65	391.65	3.0	3.39	3.39
DI-237 (BMP 2)	2.05	1.69	4.30	54.9	390.99	390.99	2.0	3.86	4.36
CB-215 (BMP 2)	0.87	0.20	5.62	81.1	388.62	388.62	3.0	7.67	4.98
DI-292 (BMP 2)	0.09	0.00	0.09	100.0	390.86	390.86	2.0	1.57	1.57
CB-214 (BMP 2)	0.05	0.00	19.57	100.0	388.14	388.14	3.0	6.24	7.31
CB-261 (BMP 2)	0.84	0.19	3.53	81.9	390.58	390.58	3.0	7.44	4.23
CB-224 (BMP 2)	1.18	0.42	4.06	73.7	389.71	389.71	3.0	3.42	4.09
CB-225 (BMP 2)	1.52	0.74	1.52	67.1	390.75	390.75	3.0	3.36	3.36
CB-223 (BMP 2)	0.64	0.09	6.28	87.8	389.85	389.85	3.0	4.68	4.67

SCM 2 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-286 (BMP 2)	1.09	0.35	4.01	75.6	388.41	388.41	3.0	1.06	4.41
CB-287 (BMP 2)	0.78	0.15	2.72	83.6	388.77	388.77	3.0	3.55	4.04
TCB-222 (BMP 2)	2.82	0.00	8.87	100.0	389.53	389.53	9.0	4.78	5.23
DCB-221 (BMP 2)	1.69	0.00	14.29	100.0	389.45	389.45	6.0	4.68	6.27
CB-257 (BMP 2)	0.17	0.00	0.17	100.0	387.69	387.69	3.0	1.82	1.82
DI-276 (BMP 2)	1.38	0.73	4.18	65.5	389.31	389.31	2.0	7.94	4.84
CB-288 (BMP 2)	1.94	1.26	1.94	60.7	389.71	389.71	3.0	3.69	3.69
CB-213 (BMP 2)	0.36	0.01	19.79	97.0	387.26	387.26	3.0	8.59	7.35
DI-234 (BMP 2)	1.03	0.37	1.65	73.4	385.89	385.89	2.0	5.68	3.51
DI-295 (BMP 2)	0.66	0.12	0.88	85.1	388.35	388.35	2.0	1.25	2.92
CB-285 (BMP 2)	0.70	0.11	4.64	86.0	386.27	386.27	3.0	8.09	4.64
CB-212 (BMP 2)	0.34	0.01	20.04	97.5	386.65	386.65	3.0	8.75	7.40
CB-256 (BMP 2)	0.36	0.01	4.67	96.9	385.67	385.67	3.0	0.83	4.26
CB-273 (BMP 2)	0.17	0.00	0.75	100.0	379.24	379.24	3.0	2.62	2.74
CB-272 (BMP 2)	0.43	0.02	1.16	94.7	379.00	379.00	3.0	2.79	3.11
CB-260 (BMP 2)	0.86	0.20	0.86	81.2	387.39	387.39	3.0	2.90	2.90

SCM 2 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-259 (BMP 2)	0.77	0.15	5.08	84.0	387.14	387.14	3.0	8.93	4.79
DI-291 (BMP 2)	1.03	0.37	1.10	73.5	387.19	387.19	2.0	0.62	3.11
CB-255 (BMP 2)	0.23	0.00	11.26	99.8	385.48	385.48	3.0	2.63	5.70
DCB-258 (BMP 2)	1.50	0.34	6.49	81.6	386.05	386.05	6.0	6.51	4.72
CB-283 (BMP 2)	0.64	0.09	10.40	87.8	380.81	380.81	3.0	4.49	5.53
CB-254 (BMP 2)	0.00	0.00	11.19	100.0	383.50	383.50	3.0	9.52	5.68
CB-210 (BMP 2)	0.51	0.05	0.51	91.9	384.09	384.09	3.0	2.51	2.51
CB-209 (BMP 2)	0.40	0.02	20.76	95.6	384.09	384.09	3.0	11.36	7.56
DI-294 (BMP 2)	1.33	0.00	2.14	100.0	385.62	385.62	2.0	2.80	3.81
DI-290 (BMP 2)	1.00	0.34	2.06	74.4	383.90	383.90	2.0	6.81	3.76
CB-282 (BMP 2)	1.64	0.88	3.65	65.1	381.51	381.51	3.0	9.30	4.59
CB-280 (BMP 2)	1.17	0.42	5.87	73.7	375.36	375.36	3.0	5.40	4.57
CB-279 (BMP 2)	0.39	0.02	16.30	96.0	375.51	375.51	3.0	2.70	6.41
DI-233 (BMP 2)	0.63	0.10	2.25	86.2	382.07	382.07	2.0	7.19	3.68
CB-253 (BMP 2)	0.00	0.00	11.12	100.0	380.40	380.40	3.0	10.91	5.67
CB-270 (BMP 2)	1.00	0.29	3.28	77.7	378.21	378.21	3.0	2.33	4.41

SCM 2 10-YR

Inlets - Time: 0.00 hours

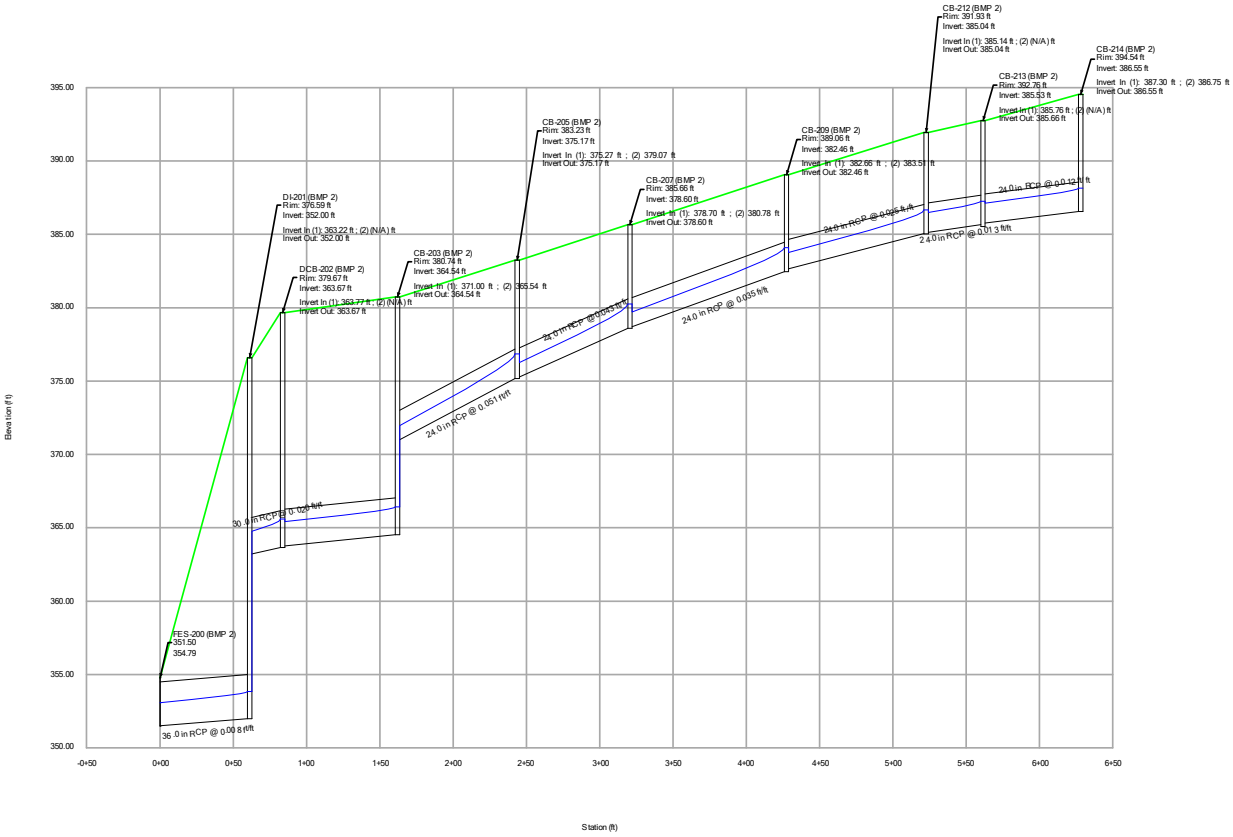
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-281 (BMP 2)	1.19	0.43	4.78	73.4	380.31	380.31	3.0	6.76	4.69
CB-271 (BMP 2)	0.87	0.20	1.28	81.1	378.40	378.40	3.0	3.39	3.25
CB-208 (BMP 2)	0.62	0.08	0.62	88.4	381.23	381.23	3.0	2.62	2.62
CB-207 (BMP 2)	0.38	0.01	21.54	96.2	380.26	380.26	3.0	13.09	7.73
DI-274 (BMP 2)	0.59	0.08	0.59	87.5	381.31	381.31	2.0	2.57	2.57
DI-2005 (BMP 2)	0.06	0.00	0.06	100.0	380.87	380.87	2.0	1.45	1.45
DI-297 (BMP 2)	0.80	0.19	1.64	80.4	381.98	381.98	2.0	4.84	3.35
DI-2003 (BMP 2)	1.20	0.53	1.20	69.4	380.62	380.62	2.0	3.19	3.19
CB-252 (BMP 2)	0.73	0.13	34.13	85.0	375.07	375.07	3.0	6.07	8.16
CB-267 (BMP 2)	0.81	0.17	22.78	82.8	375.13	375.13	3.0	2.58	6.75
DI-275 (BMP 2)	0.45	0.03	0.45	93.1	380.26	380.26	2.0	2.42	2.42
DCB-269 (BMP 2)	0.95	0.00	0.95	100.0	375.12	375.12	6.0	1.02	1.02
TCB-268 (BMP 2)	2.00	0.00	5.94	100.0	375.13	375.13	9.0	0.67	3.26
DI-293 (BMP 2)	1.68	0.00	5.33	100.0	381.18	381.18	2.0	9.79	4.58
CB-206 (BMP 2)	0.42	0.02	0.42	94.9	379.75	379.75	3.0	2.38	2.38
CB-205 (BMP 2)	0.60	0.07	22.38	89.0	376.86	376.86	3.0	13.69	7.92

SCM 2 10-YR

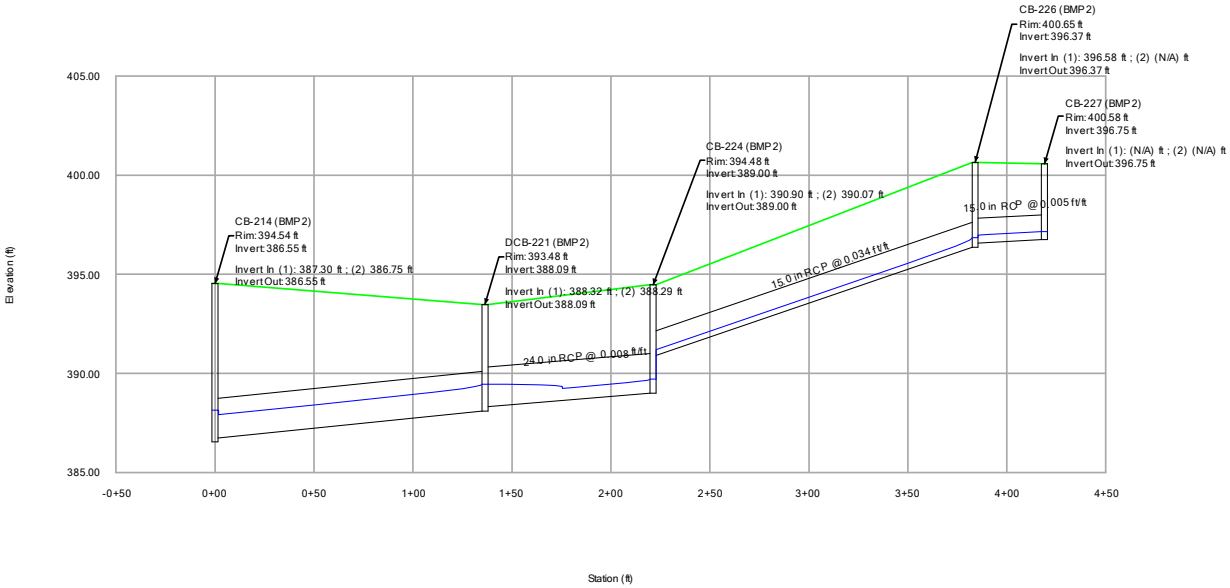
Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-2002 (BMP 2)	0.51	0.05	1.70	90.6	378.52	378.52	2.0	6.55	3.54
DI-232 (BMP 2)	1.87	0.00	4.03	100.0	376.17	376.17	2.0	2.95	4.42
CB-204 (BMP 2)	0.35	0.01	6.74	97.2	366.83	366.83	3.0	6.26	5.36
CB-203 (BMP 2)	0.48	0.04	30.78	93.1	366.43	366.43	3.0	6.21	7.73
DCB-202 (BMP 2)	1.39	0.00	31.82	100.0	365.59	365.59	6.0	8.98	7.86
DI-2004 (BMP 2)	1.50	0.00	1.51	100.0	376.14	376.14	2.0	0.29	3.42
DI-228 (BMP 2)	0.18	0.00	6.53	100.0	368.28	368.28	2.0	6.24	5.28
DI-2001 (BMP 2)	1.21	0.54	2.87	69.2	372.28	372.28	2.0	8.08	4.20
DI-201 (BMP 2)	0.61	0.00	32.32	100.0	353.85	353.85	2.0	10.02	7.09
DI-231 (BMP 2)	0.94	0.29	4.89	76.1	371.25	371.25	2.0	9.10	4.73
DI-230 (BMP 2)	0.79	0.19	5.56	80.7	370.07	370.07	2.0	5.84	4.96
DI-229 (BMP 2)	0.98	0.33	6.41	75.0	369.12	369.12	2.0	6.03	5.25
DI-2008 (BMP 2)	1.67	1.09	4.49	60.4	366.54	366.54	2.0	9.63	4.99

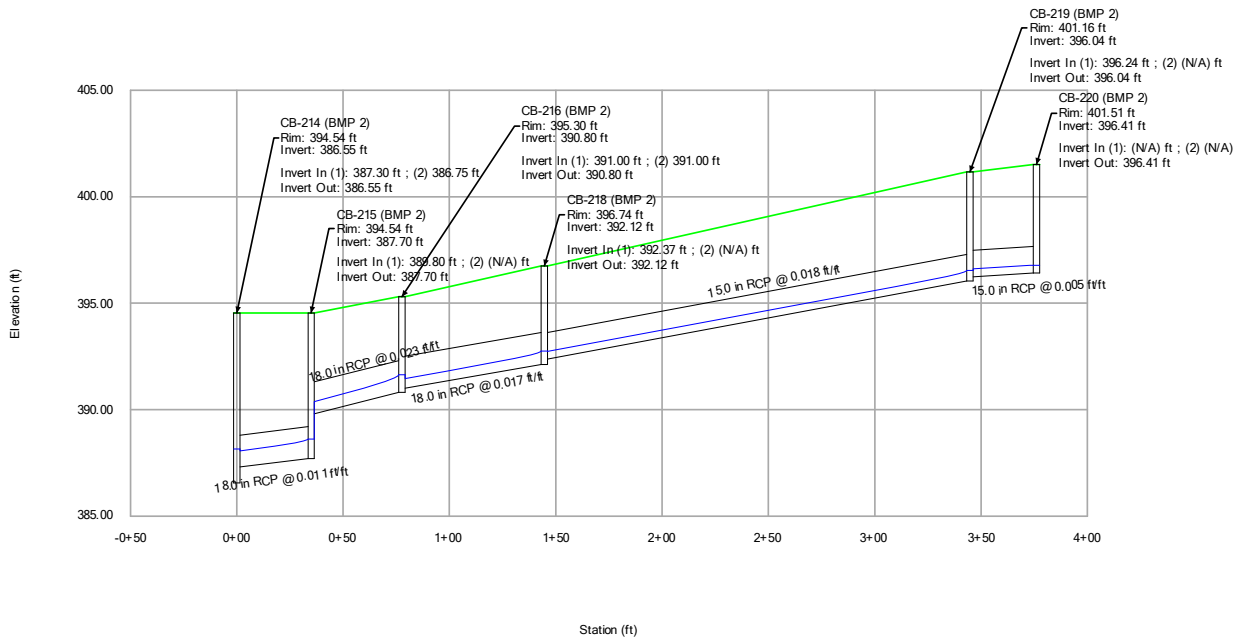
SCM 2 10-YR


CB-212 (BMP 2)
Rim: 391.93 ft
Invert: 385.04 ft
Invert In (1): 385.14 ft ; (2) (N/A) ft
Invert Out: 385.04 ft
CB-214 (BMP 2)
Rim: 394.54 ft
Invert: 386.55 ft
Invert In (1): 387.30 ft ; (2) 386.75 ft
Invert Out: 386.55 ft
CB-213 (BMP 2)
Rim: 392.76 ft
Invert: 385.53 ft
Invert In (1): 385.76 ft ; (2) (N/A) ft
Invert Out: 385.66 ft
CB-205 (BMP 2)
Rim: 383.23 ft
Invert: 375.17 ft
Invert In (1): 375.27 ft ; (2) 379.07 ft
Invert Out: 375.17 ft
CB-209 (BMP 2)
Rim: 389.06 ft
Invert: 382.46 ft
Invert In (1): 382.66 ft ; (2) 383.51 ft
Invert Out: 382.46 ft
CB-207 (BMP 2)
Rim: 385.66 ft
Invert: 378.60 ft
Invert In (1): 378.70 ft ; (2) 380.78 ft
Invert Out: 378.60 ft
DI-201 (BMP 2)
Rim: 376.59 ft
Invert: 352.00 ft
Invert In (1): 363.22 ft ; (2) (N/A) ft
Invert Out: 352.00 ft
DCB-202 (BMP 2)
Rim: 379.67 ft
Invert: 363.67 ft
Invert In (1): 363.77 ft ; (2) (N/A) ft
Invert Out: 363.67 ft
CB-203 (BMP 2)
Rim: 380.78 ft
Invert: 364.54 ft
Invert In (1): 371.00 ft ; (2) 365.54 ft
Invert Out: 364.54 ft
FES-200 (BMP 2)
351.50
354.79
24.0 in RCP @ 0.012 ft/ft
24.0 in RCP @ 0.025 ft/ft
24.0 in RCP @ 0.035 ft/ft
24.0 in RCP @ 0.051 ft/ft
30.0 in RCP @ 0.020 ft/ft
36.0 in RCP @ 0.008 ft/ft
Elevation (ft)
Station (ft)

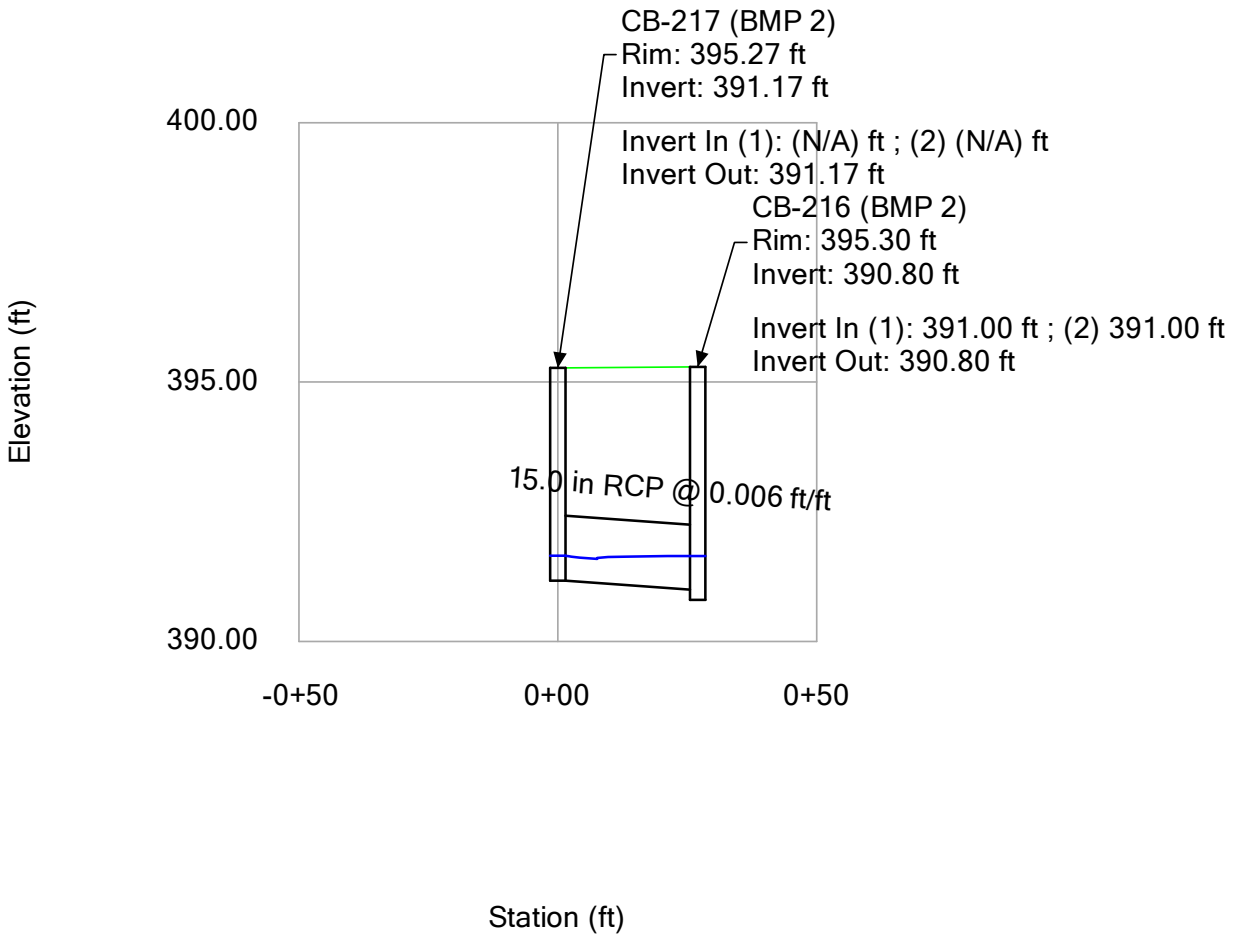
SCM 2 10-YR


CB-226 (BMP2)
Rim: 400.65 ft
Invert: 396.37 ft
Invert In (1): 396.58 ft ; (2) (N/A) ft
Invert Out: 396.37 ft
CB-227 (BMP2)
Rim: 400.58 ft
Invert: 396.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 396.75 ft
CB-224 (BMP2)
Rim: 394.48 ft
Invert: 389.00 ft
Invert In (1): 390.90 ft ; (2) 390.07 ft
Invert Out: 389.00 ft
CB-214 (BMP2)
Rim: 394.54 ft
Invert: 386.55 ft
Invert In (1): 387.30 ft ; (2) 386.75 ft
Invert Out: 386.55 ft
DCB-221 (BMP2)
Rim: 393.48 ft
Invert: 388.09 ft
Invert In (1): 388.32 ft ; (2) 388.29 ft
Invert Out: 388.09 ft
15.0 in RCP @ 0.034 ft/ft
15.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.008 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

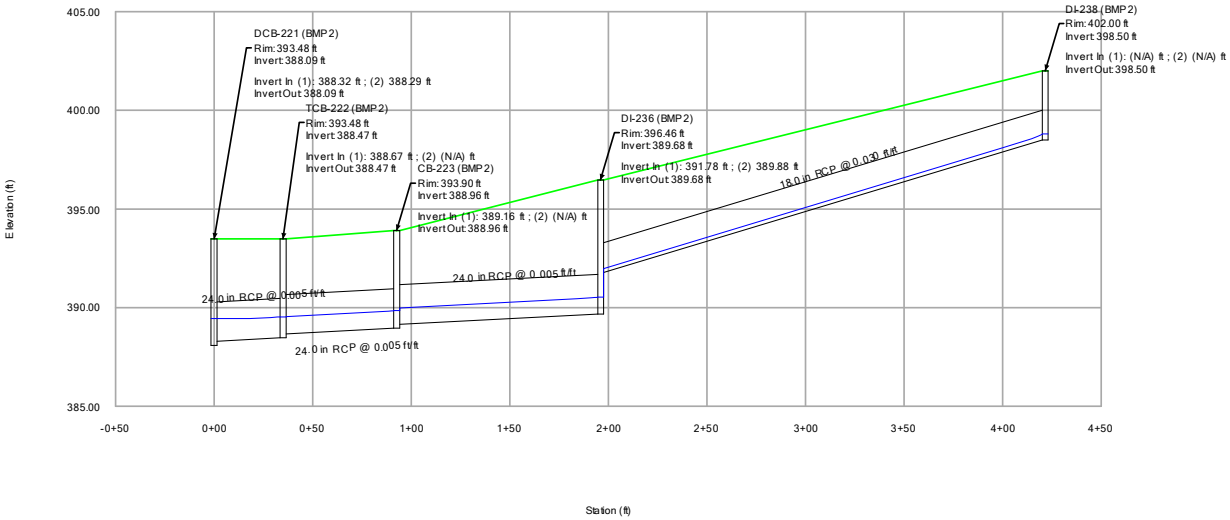
SCM 2 10-YR


CB-219 (BMP 2)
Rim: 401.16 ft
Invert: 396.04 ft
Invert In (1): 396.24 ft ; (2) (N/A) ft
Invert Out: 396.04 ft
CB-220 (BMP 2)
Rim: 401.51 ft
Invert: 396.41 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 396.41 ft
CB-214 (BMP 2)
Rim: 394.54 ft
Invert: 386.55 ft
Invert In (1): 387.30 ft ; (2) 386.75 ft
Invert Out: 386.55 ft
CB-216 (BMP 2)
Rim: 395.30 ft
Invert: 390.80 ft
Invert In (1): 391.00 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
CB-215 (BMP 2)
Rim: 394.54 ft
Invert: 387.70 ft
Invert In (1): 389.80 ft ; (2) (N/A) ft
Invert Out: 387.70 ft
CB-218 (BMP 2)
Rim: 396.74 ft
Invert: 392.12 ft
Invert In (1): 392.37 ft ; (2) (N/A) ft
Invert Out: 392.12 ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.023 ft/ft
18.0 in RCP @ 0.017 ft/ft
18.0 in RCP @ 0.011 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

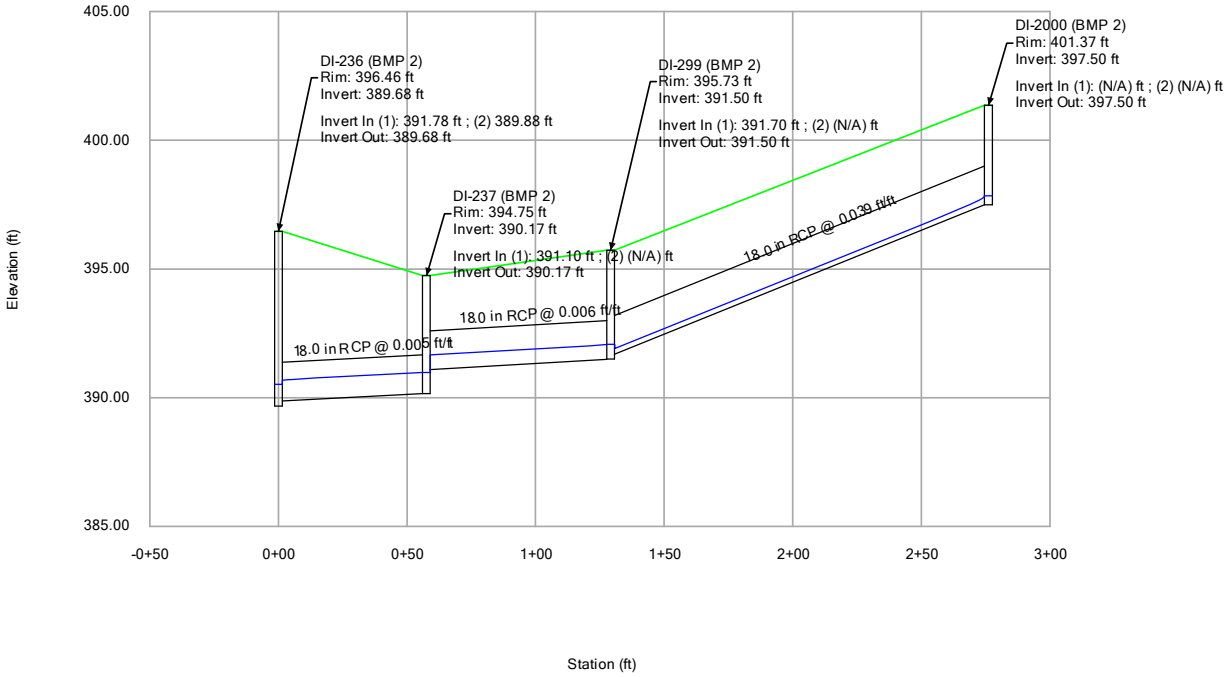
SCM 2 10-YR


CB-217 (BMP 2)
Rim: 395.27 ft
Invert: 391.17 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 391.17 ft
CB-216 (BMP 2)
Rim: 395.30 ft
Invert: 390.80 ft
Invert In (1): 391.00 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
15.0 in RCP @ 0.006 ft/ft
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

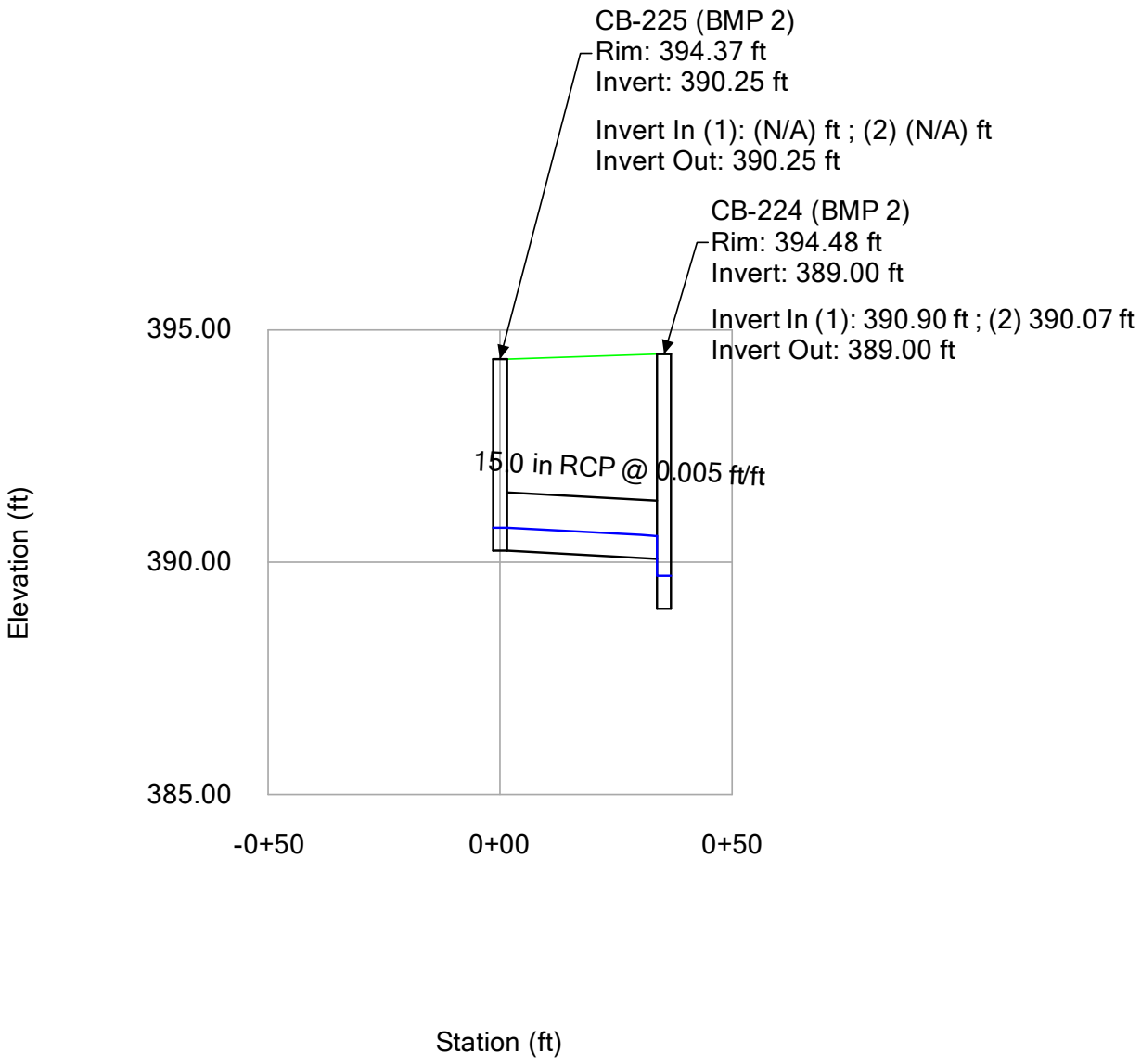
SCM 2 10-YR


DCB-221 (BMP2)
Rim: 393.48 ft
Invert: 388.09 ft
Invert In (1): 388.32 ft ; (2) 388.29 ft
InvertOut: 388.09 ft
TCB-222 (BMP2)
Rim: 393.48 ft
Invert: 388.47 ft
Invert In (1): 388.67 ft ; (2) (N/A) ft
InvertOut: 388.47 ft
CB-223 (BMP2)
Rim: 393.90 ft
Invert: 388.96 ft
Invert In (1): 389.16 ft ; (2) (N/A) ft
InvertOut: 388.96 ft
DI-236 (BMP2)
Rim: 396.46 ft
Invert: 389.68 ft
Invert In (1): 391.78 ft ; (2) 389.88 ft
InvertOut: 389.68 ft
DI-238 (BMP2)
Rim: 402.00 ft
Invert: 398.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
InvertOut: 398.50 ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.030 ft/ft
Elevation (ft)
Station (ft)
405.00
400.00
395.00
390.00
385.00
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50

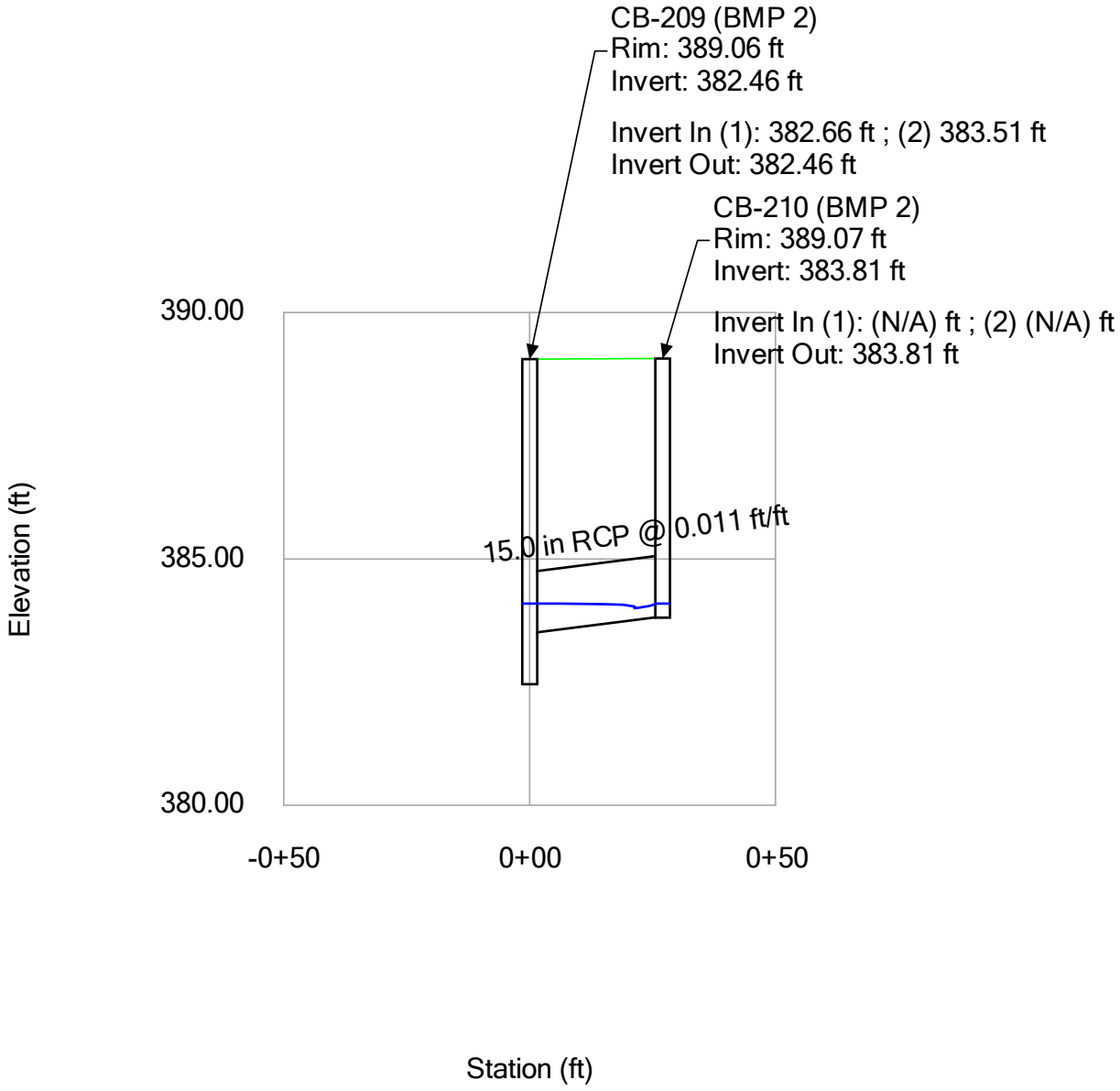
SCM 2 10-YR


405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)
DI-236 (BMP 2)
Rim: 396.46 ft
Invert: 389.68 ft
Invert In (1): 391.78 ft ; (2) 389.88 ft
Invert Out: 389.68 ft
DI-237 (BMP 2)
Rim: 394.75 ft
Invert: 390.17 ft
Invert In (1): 391.10 ft ; (2) (N/A) ft
Invert Out: 390.17 ft
DI-299 (BMP 2)
Rim: 395.73 ft
Invert: 391.50 ft
Invert In (1): 391.70 ft ; (2) (N/A) ft
Invert Out: 391.50 ft
DI-2000 (BMP 2)
Rim: 401.37 ft
Invert: 397.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.50 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.006 ft/ft
18.0 in RCP @ 0.039 ft/ft

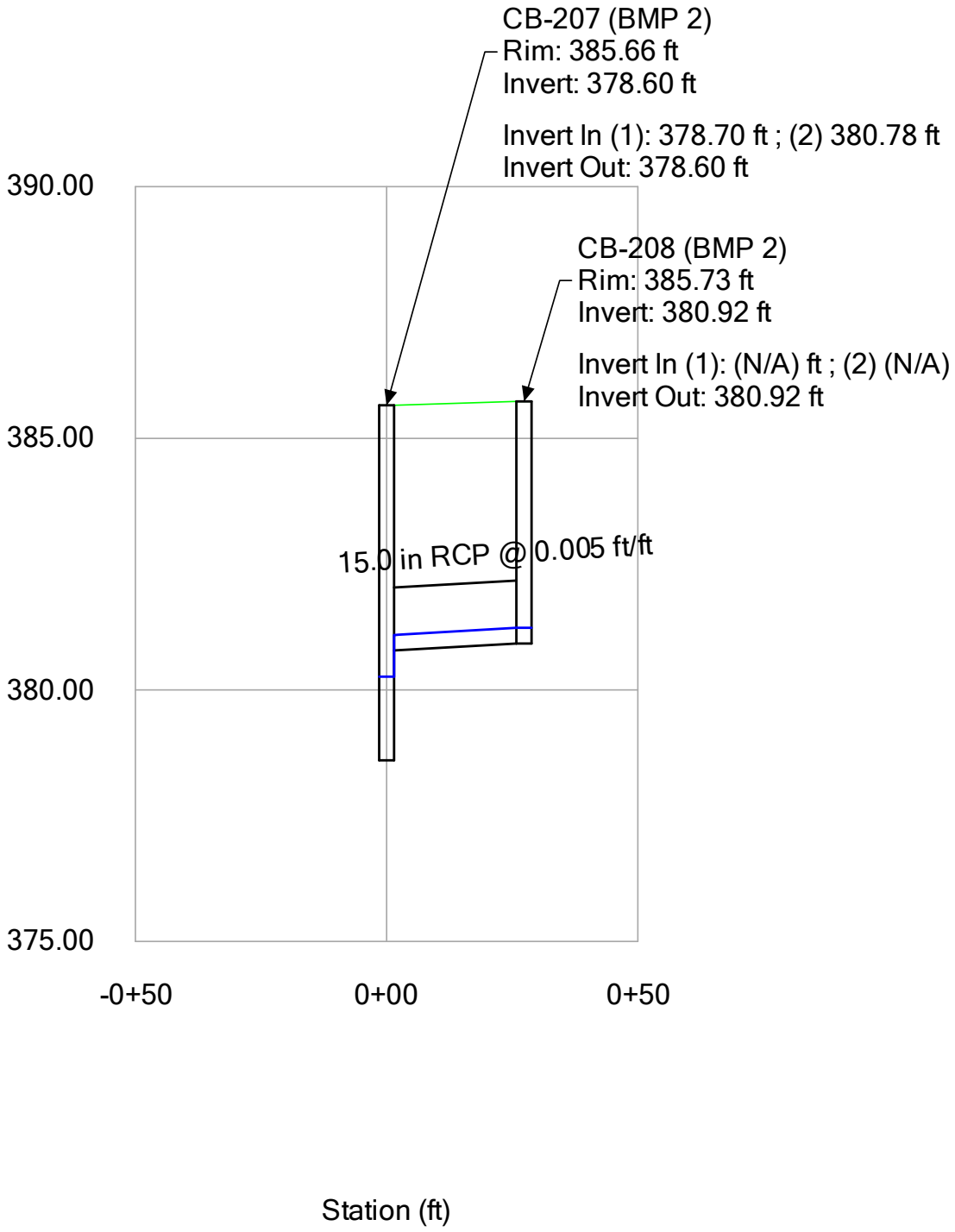
SCM 2 10-YR


CB-225 (BMP 2)
Rim: 394.37 ft
Invert: 390.25 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.25 ft
CB-224 (BMP 2)
Rim: 394.48 ft
Invert: 389.00 ft
Invert In (1): 390.90 ft ; (2) 390.07 ft
Invert Out: 389.00 ft
150 in RCP @ 0.005 ft/ft
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

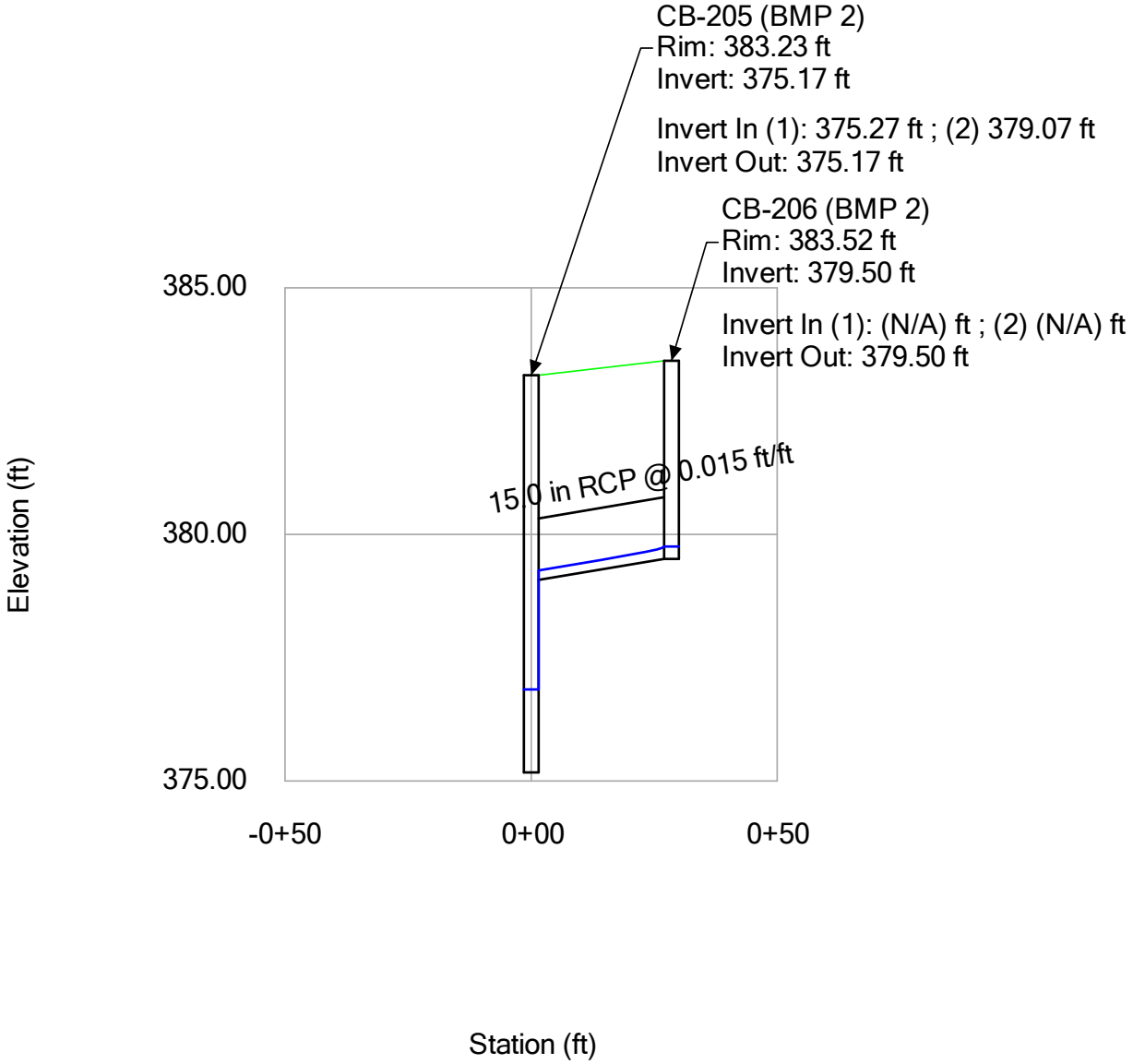
SCM 2 10-YR


CB-209 (BMP 2)
Rim: 389.06 ft
Invert: 382.46 ft
Invert In (1): 382.66 ft ; (2) 383.51 ft
Invert Out: 382.46 ft
CB-210 (BMP 2)
Rim: 389.07 ft
Invert: 383.81 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 383.81 ft
15.0 in RCP @ 0.011 ft/ft
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

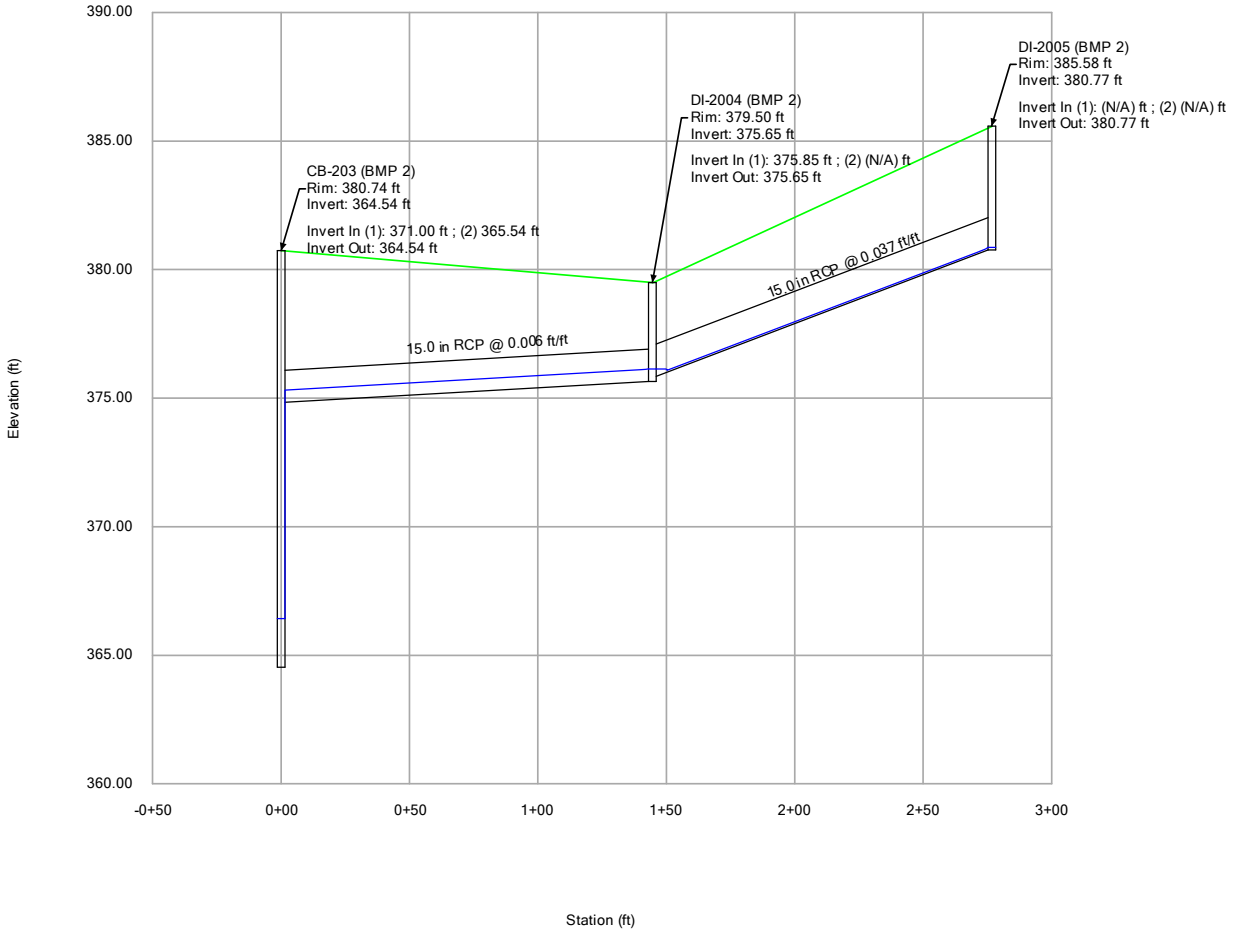
SCM 2 10-YR


CB-207 (BMP 2)
Rim: 385.66 ft
Invert: 378.60 ft
Invert In (1): 378.70 ft ; (2) 380.78 ft
Invert Out: 378.60 ft
CB-208 (BMP 2)
Rim: 385.73 ft
Invert: 380.92 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 380.92 ft
15.0 in RCP @ 0.005 ft/ft
390.00
385.00
380.00
375.00
-0+50
0+00
0+50
Station (ft)

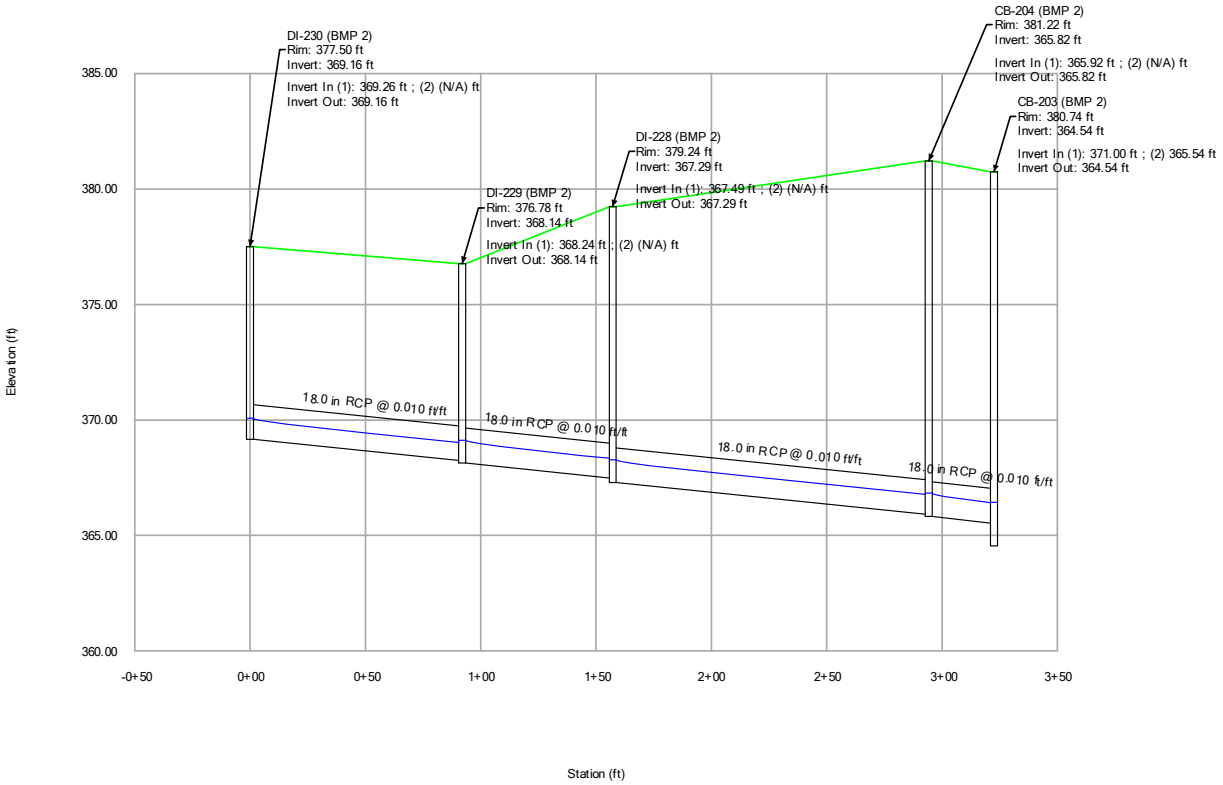
SCM 2 10-YR


CB-205 (BMP 2)
Rim: 383.23 ft
Invert: 375.17 ft
Invert In (1): 375.27 ft ; (2) 379.07 ft
Invert Out: 375.17 ft
CB-206 (BMP 2)
Rim: 383.52 ft
Invert: 379.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 379.50 ft
15.0 in RCP @ 0.015 ft/ft
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

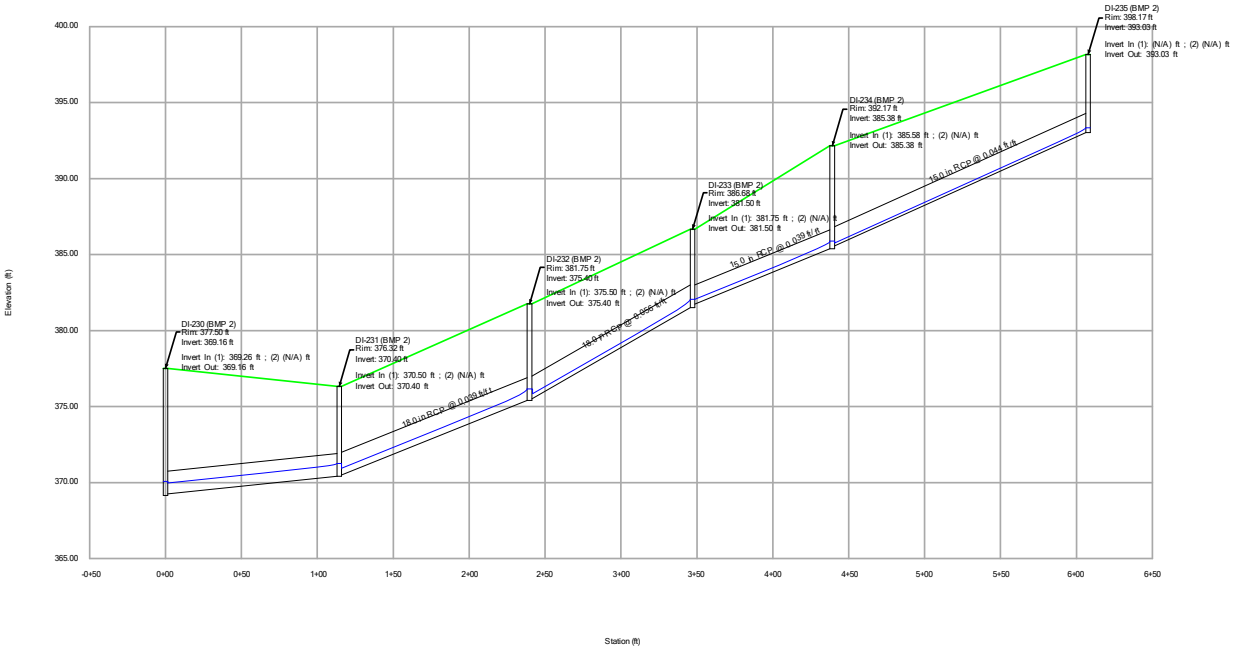
SCM 2 10-YR


390.00
385.00
380.00
375.00
370.00
365.00
360.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)
CB-203 (BMP 2)
Rim: 380.74 ft
Invert: 364.54 ft
Invert In (1): 371.00 ft ; (2) 365.54 ft
Invert Out: 364.54 ft
DI-2004 (BMP 2)
Rim: 379.50 ft
Invert: 375.65 ft
Invert In (1): 375.85 ft ; (2) (N/A) ft
Invert Out: 375.65 ft
DI-2005 (BMP 2)
Rim: 385.58 ft
Invert: 380.77 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 380.77 ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.037 ft/ft

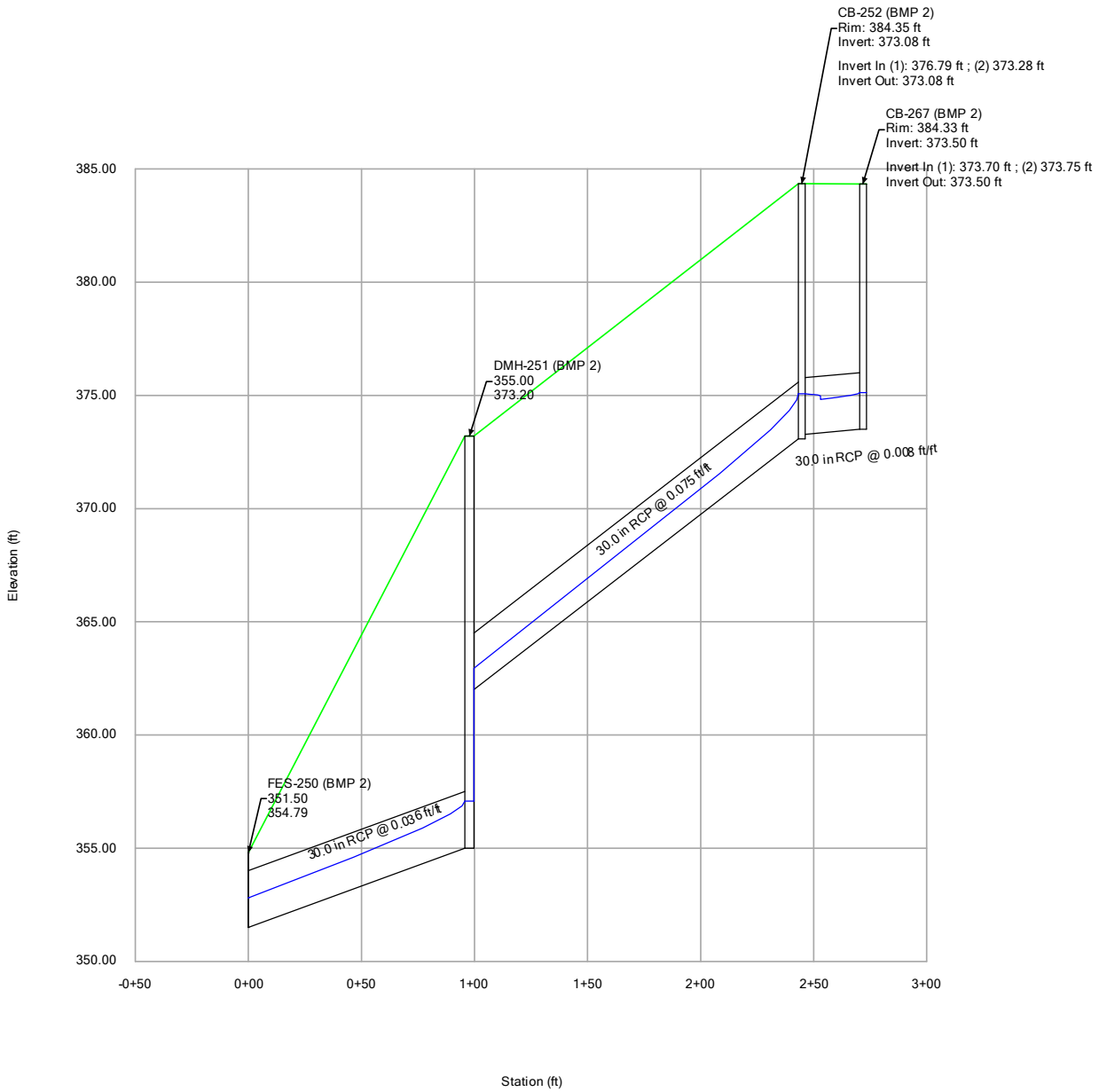
SCM 2 10-YR


DI-230 (BMP 2)
Rim: 377.50 ft
Invert: 369.16 ft
Invert In (1): 369.26 ft ; (2) (N/A) ft
Invert Out: 369.16 ft
DI-229 (BMP 2)
Rim: 376.78 ft
Invert: 368.14 ft
Invert In (1): 368.24 ft ; (2) (N/A) ft
Invert Out: 368.14 ft
DI-228 (BMP 2)
Rim: 379.24 ft
Invert: 367.29 ft
Invert In (1): 367.49 ft ; (2) (N/A) ft
Invert Out: 367.29 ft
CB-204 (BMP 2)
Rim: 381.22 ft
Invert: 365.82 ft
Invert In (1): 365.92 ft ; (2) (N/A) ft
Invert Out: 365.82 ft
CB-203 (BMP 2)
Rim: 380.74 ft
Invert: 364.54 ft
Invert In (1): 371.00 ft ; (2) 365.54 ft
Invert Out: 364.54 ft
18.0 in RCP @ 0.010 ft/ft
18.0 in RCP @ 0.010 ft/ft
18.0 in RCP @ 0.010 ft/ft
18.0 in RCP @ 0.010 ft/ft
385.00
380.00
375.00
370.00
365.00
360.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

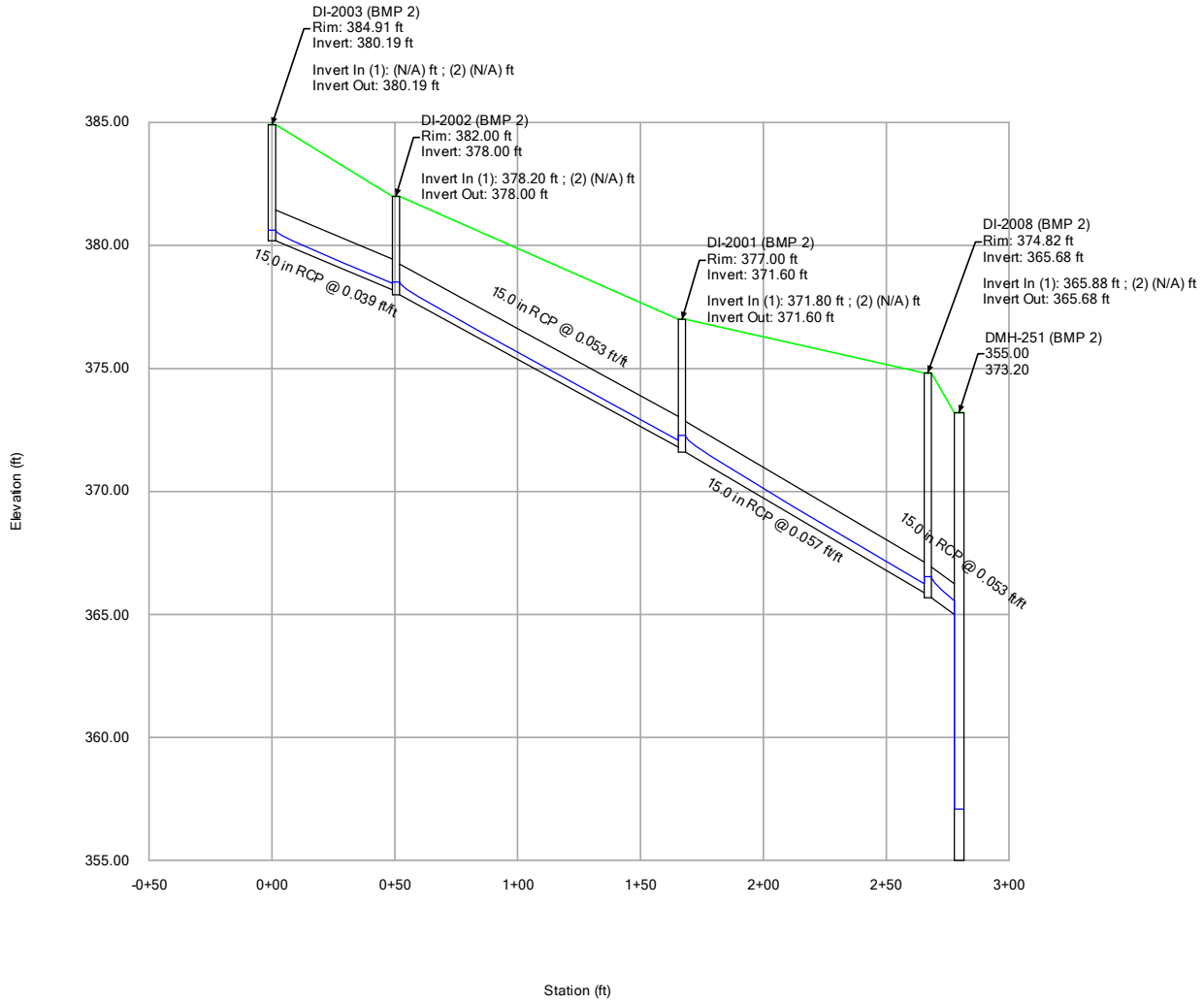
SCM 2 10-YR


DI-230 (BMP 2)
Rim: 377.50 ft
Invert: 369.16 ft
Invert In (1): 369.26 ft ; (2) (N/A) ft
Invert Out: 369.16 ft
DI-231 (BMP 2)
Rim: 376.32 ft
Invert: 370.40 ft
Invert In (1): 370.50 ft ; (2) (N/A) ft
Invert Out: 370.40 ft
DI-232 (BMP 2)
Rim: 381.75 ft
Invert: 375.40 ft
Invert In (1): 375.50 ft ; (2) (N/A) ft
Invert Out: 375.40 ft
DI-233 (BMP 2)
Rim: 386.69 ft
Invert: 381.50 ft
Invert In (1): 381.75 ft ; (2) (N/A) ft
Invert Out: 381.50 ft
DI-234 (BMP 2)
Rim: 392.17 ft
Invert: 385.38 ft
Invert In (1): 385.58 ft ; (2) (N/A) ft
Invert Out: 385.38 ft
DI-235 (BMP 2)
Rim: 398.17 ft
Invert: 393.03 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.03 ft
18.0 in RCP @ 0.069 ft/ft
18.0 in RCP @ 0.054 ft/ft
15.0 in RCP @ 0.039 ft/ft
15.0 in RCP @ 0.044 ft/ft
Elevation (ft)
Station (ft)

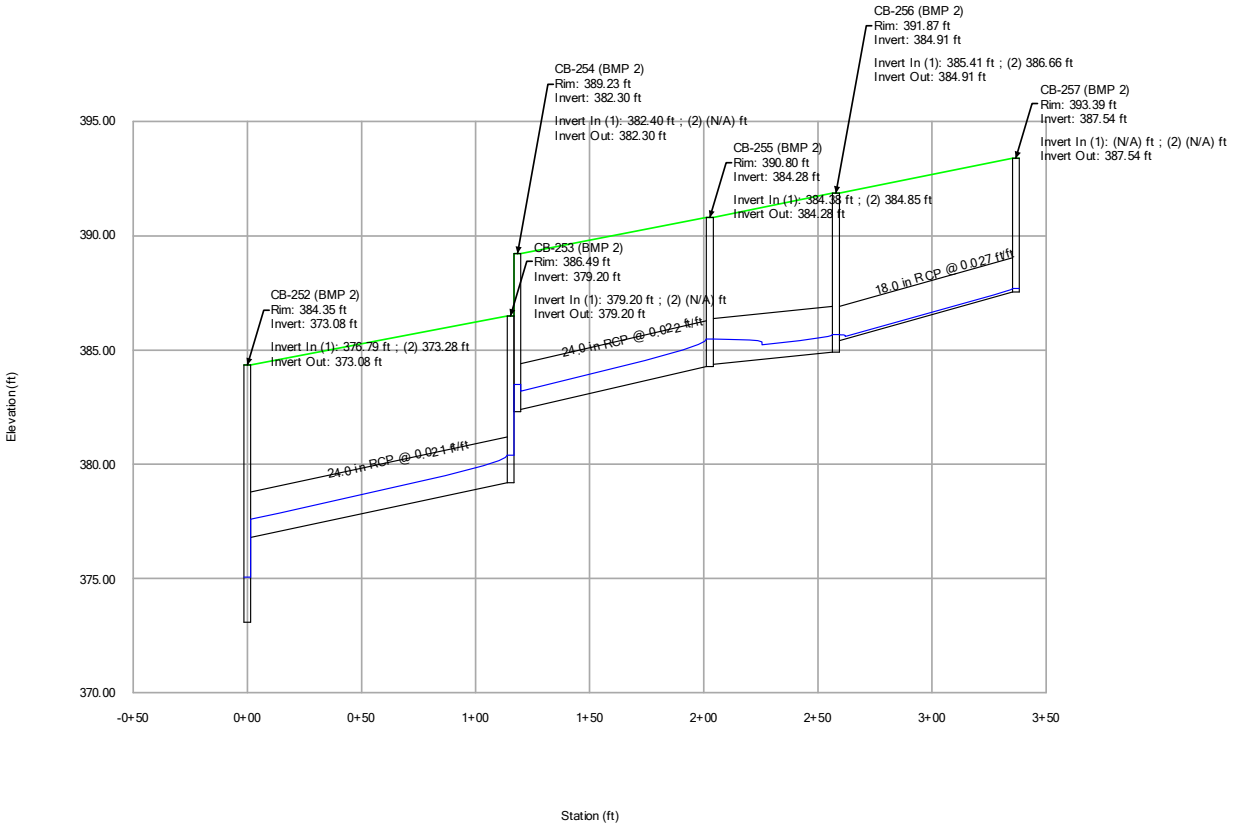
SCM 2 10-YR


CB-252 (BMP 2)
Rim: 384.35 ft
Invert: 373.08 ft
Invert In (1): 376.79 ft ; (2) 373.28 ft
Invert Out: 373.08 ft
CB-267 (BMP 2)
Rim: 384.33 ft
Invert: 373.50 ft
Invert In (1): 373.70 ft ; (2) 373.75 ft
Invert Out: 373.50 ft
DMH-251 (BMP 2)
355.00
373.20
FES-250 (BMP 2)
351.50
354.79
30.0 in RCP @ 0.075 ft/ft
30.0 in RCP @ 0.008 ft/ft
30.0 in RCP @ 0.036 ft/ft
385.00
380.00
375.00
370.00
365.00
360.00
355.00
350.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

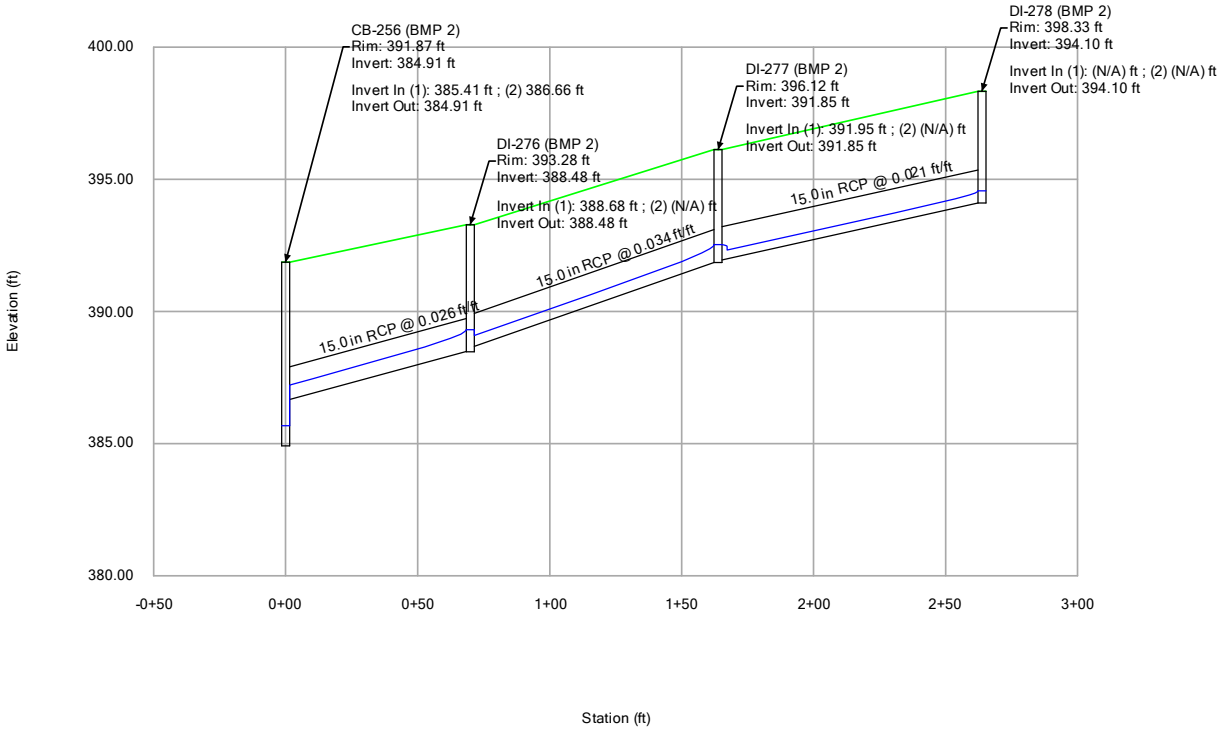
SCM 2 10-YR


DI-2003 (BMP 2)
Rim: 384.91 ft
Invert: 380.19 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 380.19 ft
DI-2002 (BMP 2)
Rim: 382.00 ft
Invert: 378.00 ft
Invert In (1): 378.20 ft ; (2) (N/A) ft
Invert Out: 378.00 ft
DI-2001 (BMP 2)
Rim: 377.00 ft
Invert: 371.60 ft
Invert In (1): 371.80 ft ; (2) (N/A) ft
Invert Out: 371.60 ft
DI-2008 (BMP 2)
Rim: 374.82 ft
Invert: 365.68 ft
Invert In (1): 365.88 ft ; (2) (N/A) ft
Invert Out: 365.68 ft
DMH-251 (BMP 2)
355.00
373.20
15.0 in RCP @ 0.039 ft/ft
15.0 in RCP @ 0.053 ft/ft
15.0 in RCP @ 0.057 ft/ft
15.0 in RCP @ 0.053 ft/ft
385.00
380.00
375.00
370.00
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

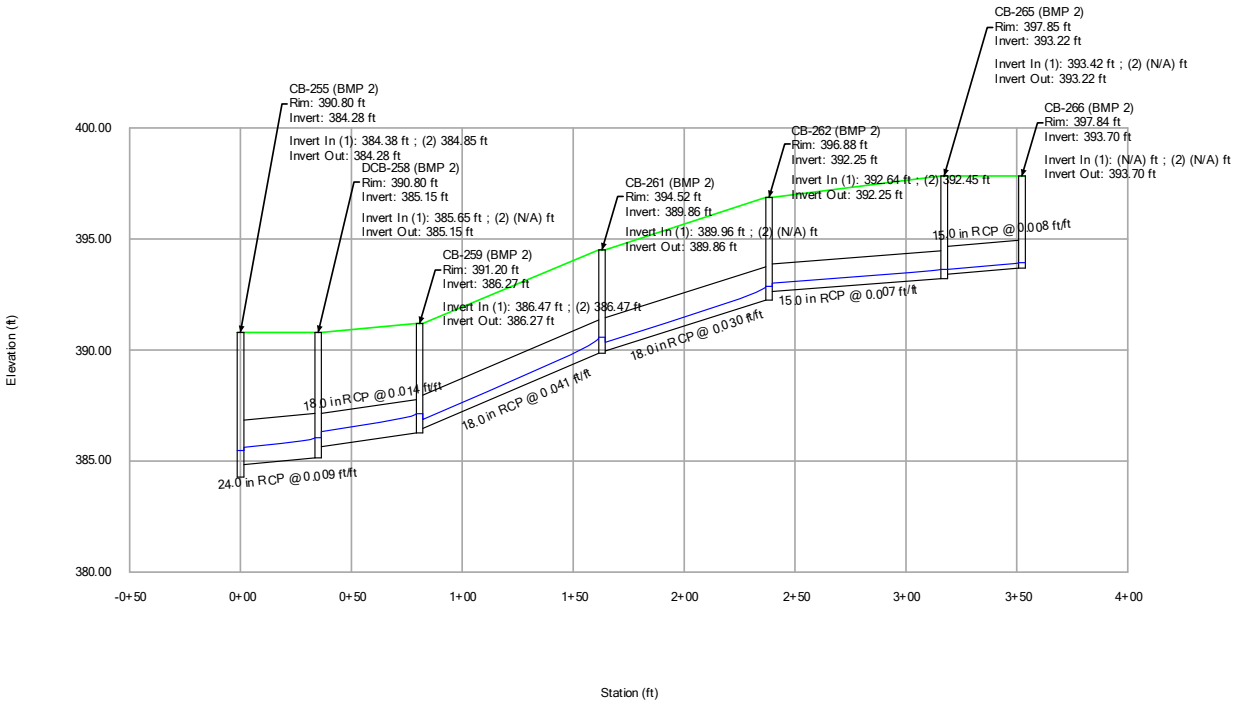
SCM 2 10-YR


CB-256 (BMP 2)
Rim: 391.87 ft
Invert: 384.91 ft
Invert In (1): 385.41 ft ; (2) 386.66 ft
Invert Out: 384.91 ft
CB-254 (BMP 2)
Rim: 389.23 ft
Invert: 382.30 ft
Invert In (1): 382.40 ft ; (2) (N/A) ft
Invert Out: 382.30 ft
CB-257 (BMP 2)
Rim: 393.39 ft
Invert: 387.54 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 387.54 ft
CB-255 (BMP 2)
Rim: 390.80 ft
Invert: 384.28 ft
Invert In (1): 384.33 ft ; (2) 384.85 ft
Invert Out: 384.28 ft
CB-253 (BMP 2)
Rim: 386.49 ft
Invert: 379.20 ft
Invert In (1): 379.20 ft ; (2) (N/A) ft
Invert Out: 379.20 ft
CB-252 (BMP 2)
Rim: 384.35 ft
Invert: 373.08 ft
Invert In (1): 376.79 ft ; (2) 373.28 ft
Invert Out: 373.08 ft
18.0 in RCP @ 0.027 ft/ft
24.0 in RCP @ 0.022 ft/ft
24.0 in RCP @ 0.021 ft/ft
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

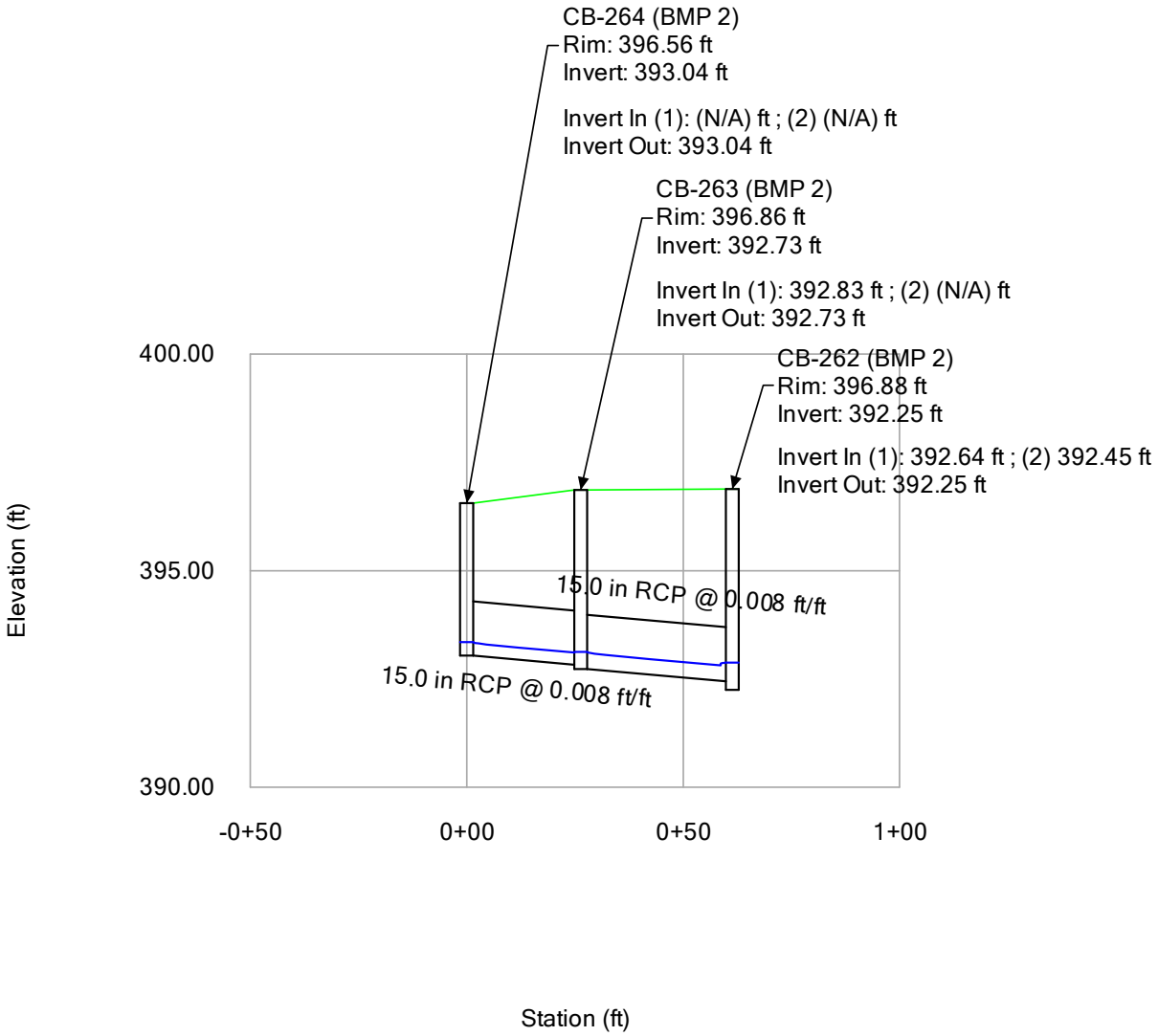
SCM 2 10-YR


CB-256 (BMP 2)
Rim: 391.87 ft
Invert: 384.91 ft
Invert In (1): 385.41 ft ; (2) 386.66 ft
Invert Out: 384.91 ft
DI-276 (BMP 2)
Rim: 393.28 ft
Invert: 388.48 ft
Invert In (1): 388.68 ft ; (2) (N/A) ft
Invert Out: 388.48 ft
DI-277 (BMP 2)
Rim: 396.12 ft
Invert: 391.85 ft
Invert In (1): 391.95 ft ; (2) (N/A) ft
Invert Out: 391.85 ft
DI-278 (BMP 2)
Rim: 398.33 ft
Invert: 394.10 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 394.10 ft
15.0 in RCP @ 0.026 ft/ft
15.0 in RCP @ 0.034 ft/ft
15.0 in RCP @ 0.021 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

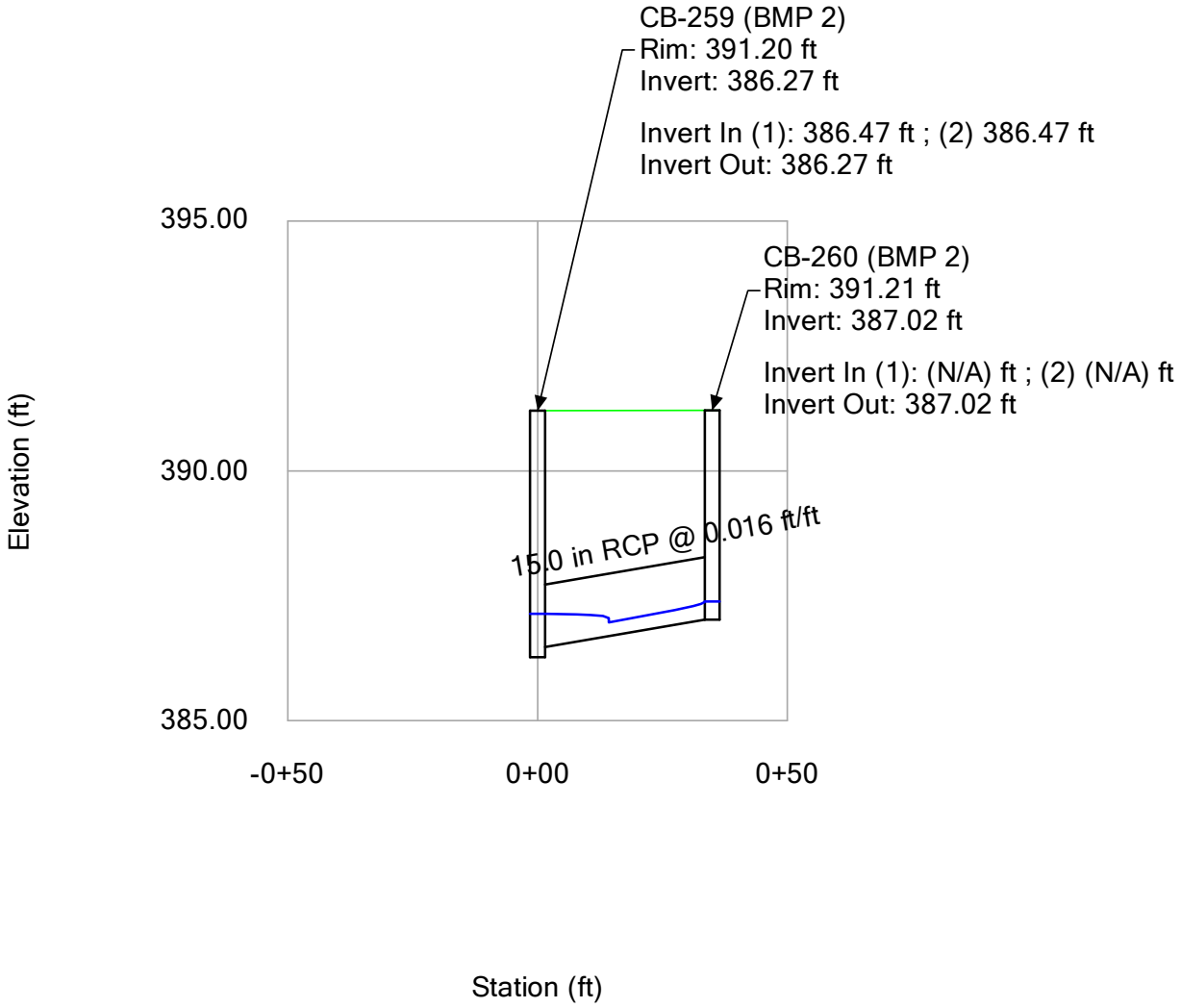
SCM 2 10-YR


CB-265 (BMP 2)
Rim: 397.85 ft
Invert: 393.22 ft
Invert In (1): 393.42 ft ; (2) (N/A) ft
Invert Out: 393.22 ft
CB-255 (BMP 2)
Rim: 390.80 ft
Invert: 384.28 ft
Invert In (1): 384.38 ft ; (2) 384.85 ft
Invert Out: 384.28 ft
CB-266 (BMP 2)
Rim: 397.84 ft
Invert: 393.70 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.70 ft
CB-262 (BMP 2)
Rim: 396.88 ft
Invert: 392.25 ft
Invert In (1): 392.64 ft ; (2) 392.45 ft
Invert Out: 392.25 ft
DCB-258 (BMP 2)
Rim: 390.80 ft
Invert: 385.15 ft
Invert In (1): 385.65 ft ; (2) (N/A) ft
Invert Out: 385.15 ft
CB-261 (BMP 2)
Rim: 394.52 ft
Invert: 389.86 ft
Invert In (1): 389.96 ft ; (2) (N/A) ft
Invert Out: 389.86 ft
CB-259 (BMP 2)
Rim: 391.20 ft
Invert: 386.27 ft
Invert In (1): 386.47 ft ; (2) 386.47 ft
Invert Out: 386.27 ft
15.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.030 ft/ft
18.0 in RCP @ 0.014 ft/ft
18.0 in RCP @ 0.041 ft/ft
24.0 in RCP @ 0.009 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

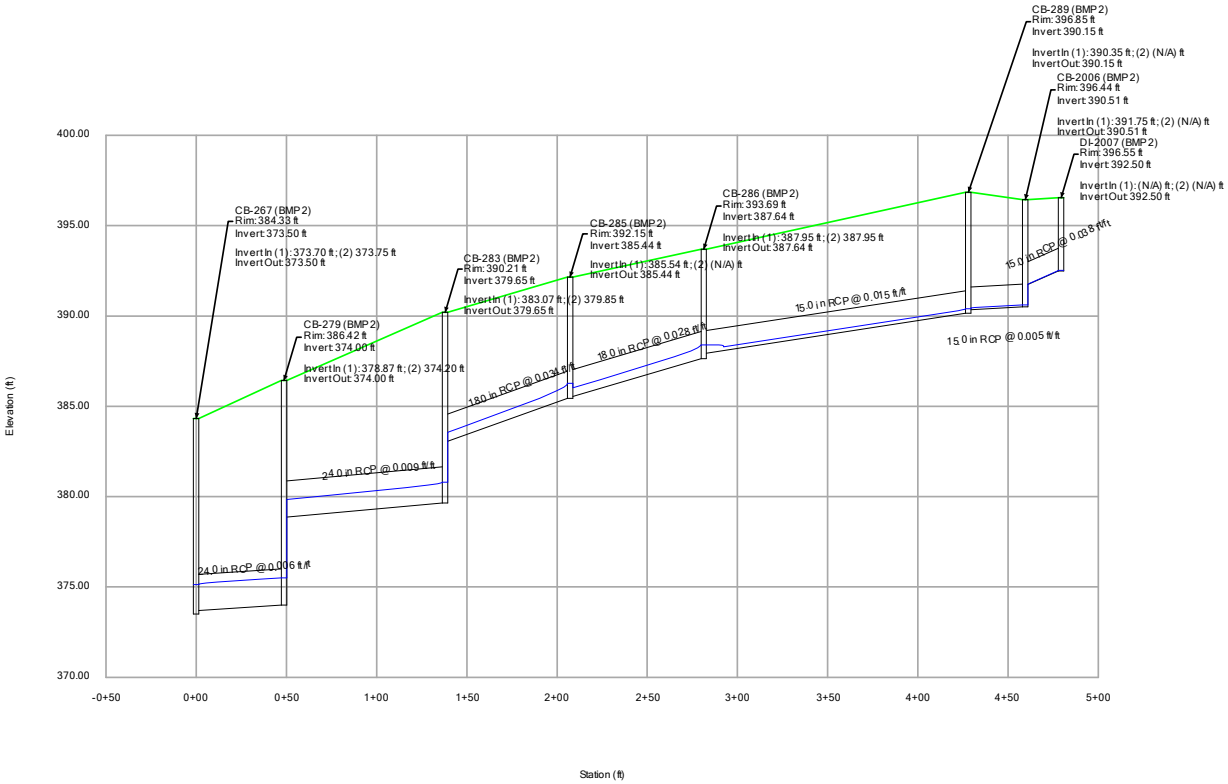
SCM 2 10-YR


CB-264 (BMP 2)
Rim: 396.56 ft
Invert: 393.04 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.04 ft
CB-263 (BMP 2)
Rim: 396.86 ft
Invert: 392.73 ft
Invert In (1): 392.83 ft ; (2) (N/A) ft
Invert Out: 392.73 ft
CB-262 (BMP 2)
Rim: 396.88 ft
Invert: 392.25 ft
Invert In (1): 392.64 ft ; (2) 392.45 ft
Invert Out: 392.25 ft
400.00
395.00
390.00
Elevation (ft)
15.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.008 ft/ft
-0+50
0+00
0+50
1+00
Station (ft)

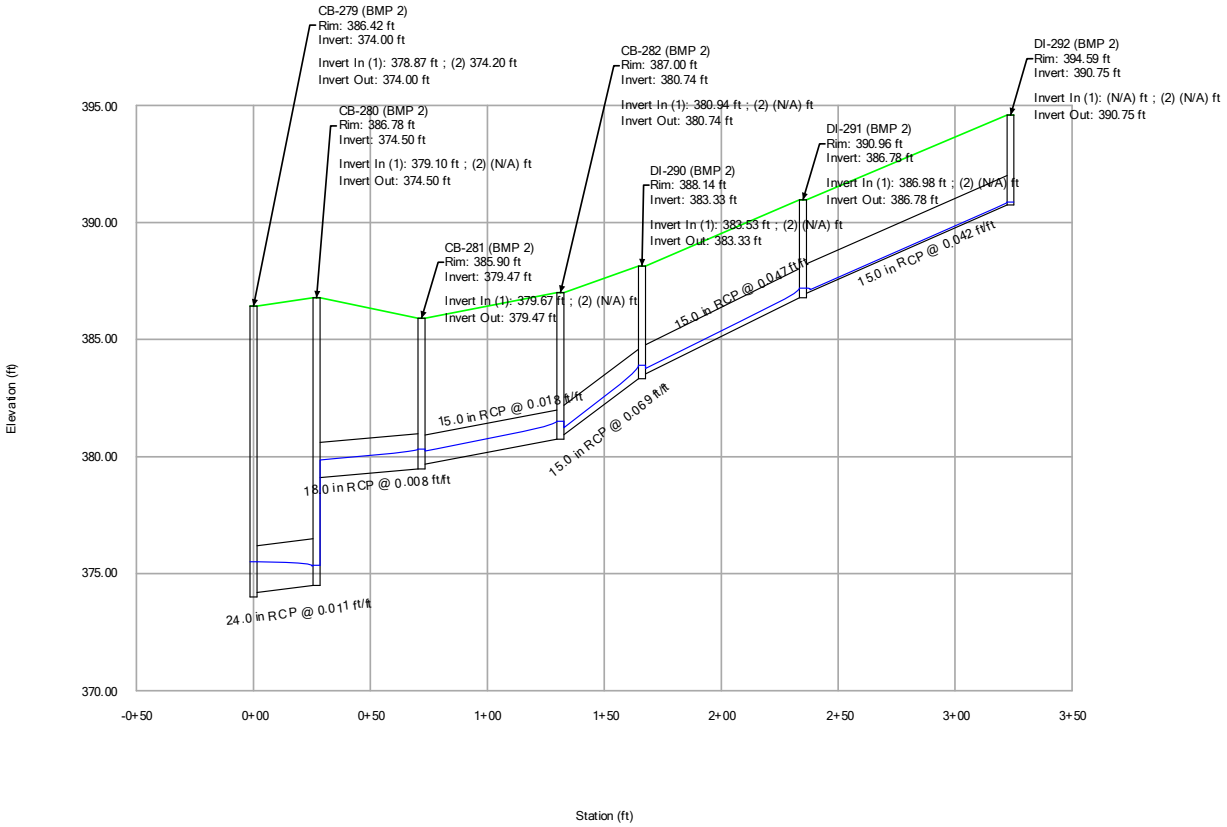
SCM 2 10-YR


CB-259 (BMP 2)
Rim: 391.20 ft
Invert: 386.27 ft
Invert In (1): 386.47 ft ; (2) 386.47 ft
Invert Out: 386.27 ft
CB-260 (BMP 2)
Rim: 391.21 ft
Invert: 387.02 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 387.02 ft
15.0 in RCP @ 0.016 ft/ft
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

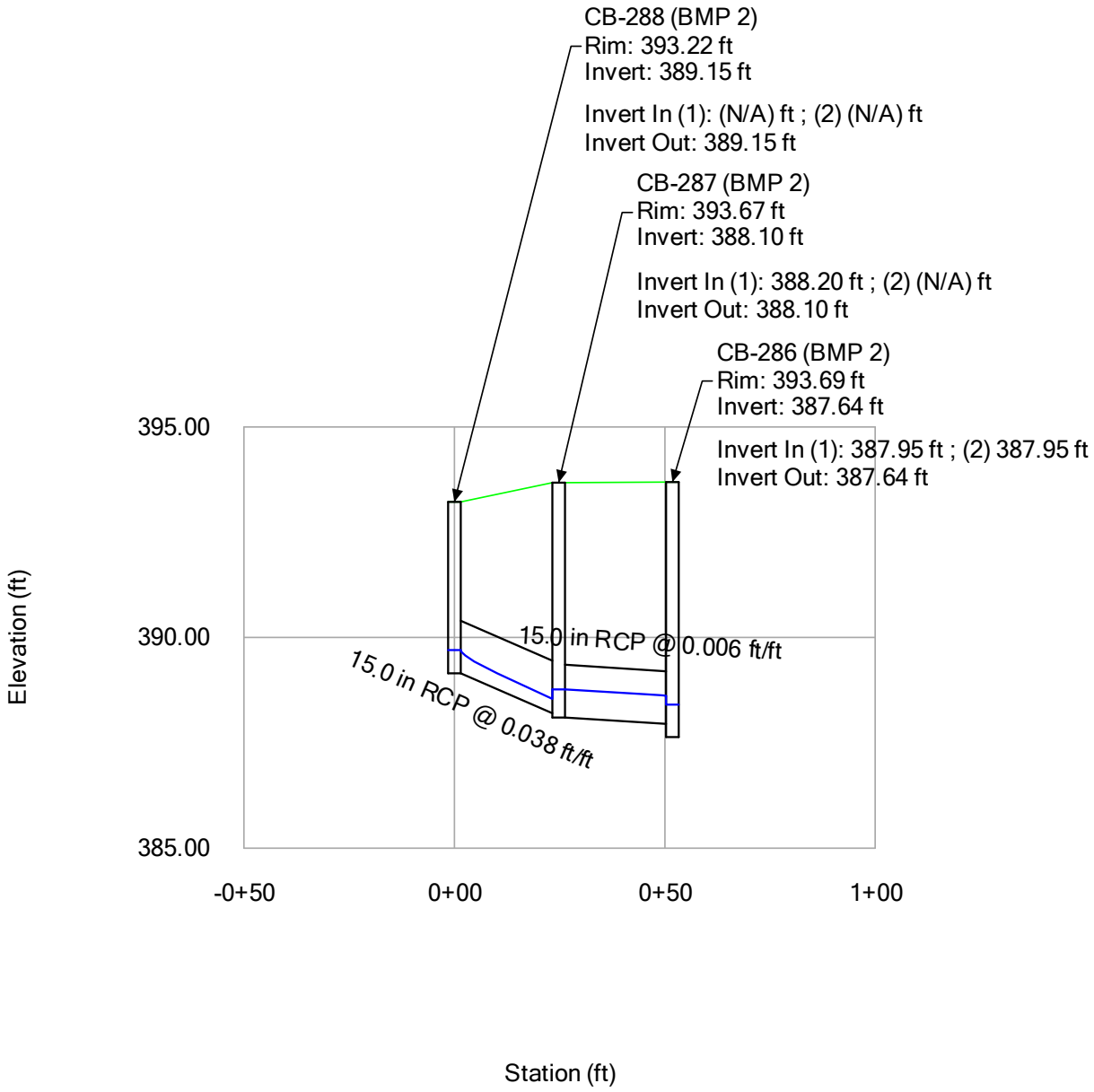
SCM 2 10-YR


CB-289 (BMP2)
Rim: 396.85 ft
Invert: 390.15 ft
InvertIn (1): 390.35 ft; (2) (N/A) ft
InvertOut: 390.15 ft
CB-2006 (BMP2)
Rim: 396.44 ft
Invert: 390.51 ft
InvertIn (1): 391.75 ft; (2) (N/A) ft
InvertOut: 390.51 ft
DI-2007 (BMP2)
Rim: 396.55 ft
Invert: 392.50 ft
InvertIn (1): (N/A) ft; (2) (N/A) ft
InvertOut: 392.50 ft
CB-286 (BMP2)
Rim: 393.69 ft
Invert: 387.64 ft
InvertIn (1): 387.95 ft; (2) 387.95 ft
InvertOut: 387.64 ft
CB-285 (BMP2)
Rim: 392.15 ft
Invert: 385.44 ft
InvertIn (1): 385.54 ft; (2) (N/A) ft
InvertOut: 385.44 ft
CB-283 (BMP2)
Rim: 390.21 ft
Invert: 379.65 ft
InvertIn (1): 383.07 ft; (2) 379.85 ft
InvertOut: 379.65 ft
CB-267 (BMP2)
Rim: 384.33 ft
Invert: 373.50 ft
InvertIn (1): 373.70 ft; (2) 373.75 ft
InvertOut: 373.50 ft
CB-279 (BMP2)
Rim: 386.42 ft
Invert: 374.00 ft
InvertIn (1): 378.87 ft; (2) 374.20 ft
InvertOut: 374.00 ft
15.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.015 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.028 ft/ft
18.0 in RCP @ 0.031 ft/ft
24.0 in RCP @ 0.009 ft/ft
24.0 in RCP @ 0.006 ft/ft
400.00
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

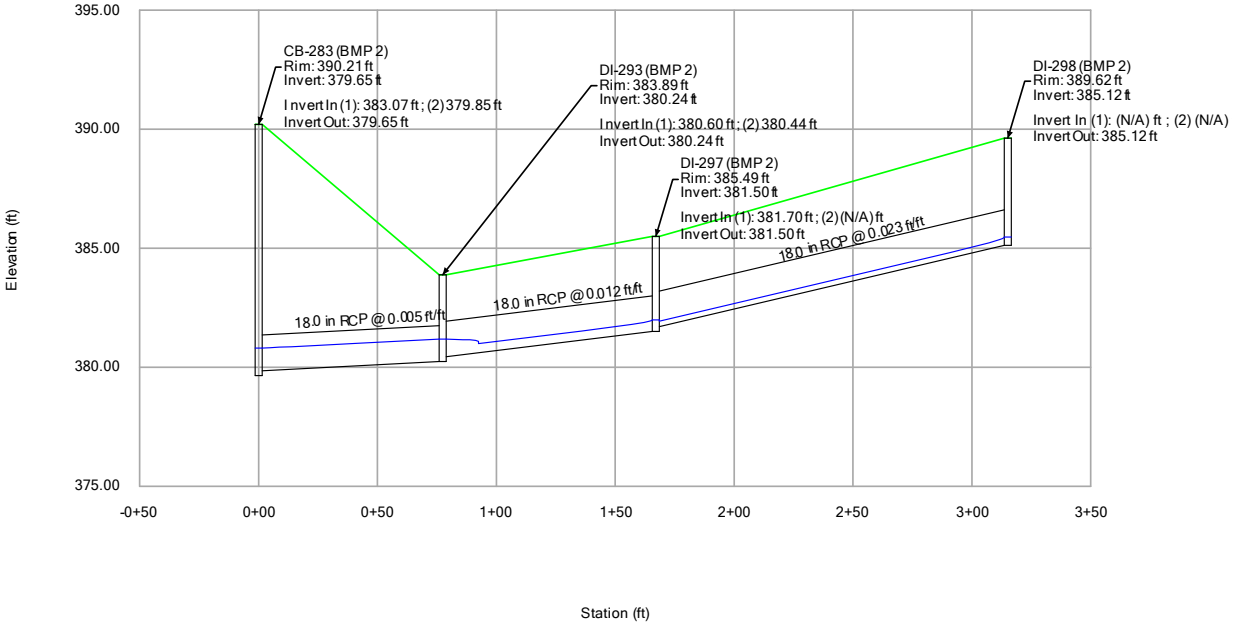
SCM 2 10-YR


CB-279 (BMP 2)
Rim: 386.42 ft
Invert: 374.00 ft
Invert In (1): 378.87 ft ; (2) 374.20 ft
Invert Out: 374.00 ft
CB-280 (BMP 2)
Rim: 386.78 ft
Invert: 374.50 ft
Invert In (1): 379.10 ft ; (2) (N/A) ft
Invert Out: 374.50 ft
CB-281 (BMP 2)
Rim: 385.90 ft
Invert: 379.47 ft
Invert In (1): 379.67 ft ; (2) (N/A) ft
Invert Out: 379.47 ft
CB-282 (BMP 2)
Rim: 387.00 ft
Invert: 380.74 ft
Invert In (1): 380.94 ft ; (2) (N/A) ft
Invert Out: 380.74 ft
DI-290 (BMP 2)
Rim: 388.14 ft
Invert: 383.33 ft
Invert In (1): 383.53 ft ; (2) (N/A) ft
Invert Out: 383.33 ft
DI-291 (BMP 2)
Rim: 390.96 ft
Invert: 386.78 ft
Invert In (1): 386.98 ft ; (2) (N/A) ft
Invert Out: 386.78 ft
DI-292 (BMP 2)
Rim: 394.59 ft
Invert: 390.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.75 ft
24.0 in RCP @ 0.011 ft/ft
18.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.069 ft/ft
15.0 in RCP @ 0.047 ft/ft
15.0 in RCP @ 0.042 ft/ft
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

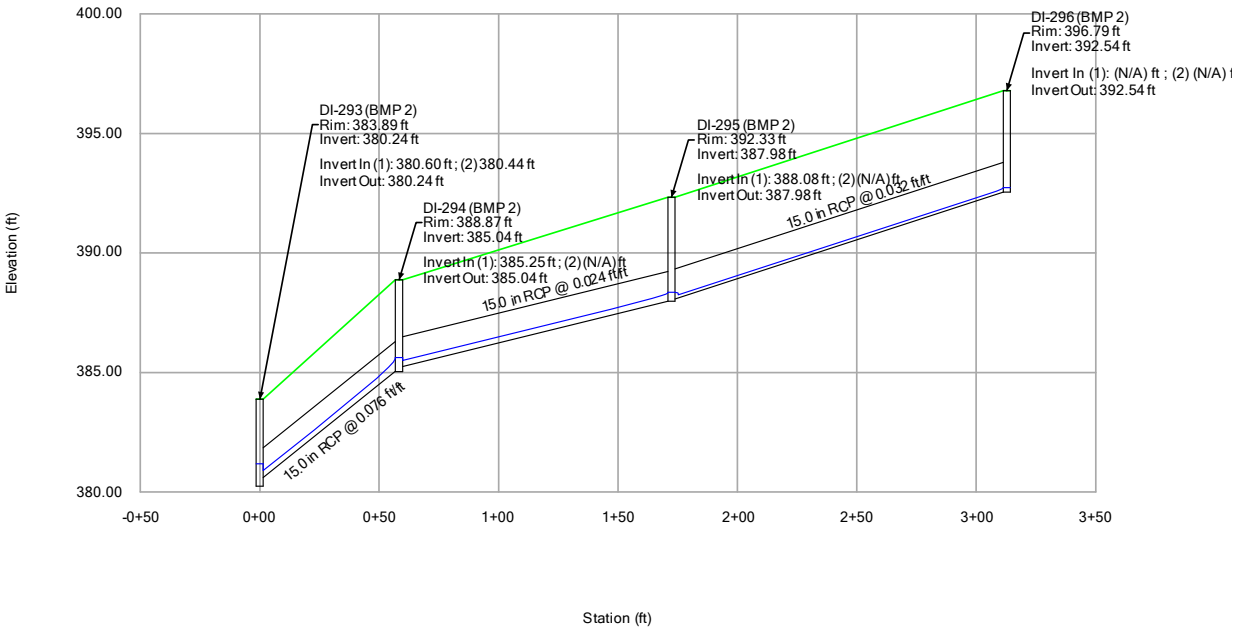
SCM 2 10-YR


CB-288 (BMP 2)
Rim: 393.22 ft
Invert: 389.15 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 389.15 ft
CB-287 (BMP 2)
Rim: 393.67 ft
Invert: 388.10 ft
Invert In (1): 388.20 ft ; (2) (N/A) ft
Invert Out: 388.10 ft
CB-286 (BMP 2)
Rim: 393.69 ft
Invert: 387.64 ft
Invert In (1): 387.95 ft ; (2) 387.95 ft
Invert Out: 387.64 ft
395.00
390.00
385.00
Elevation (ft)
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.038 ft/ft
-0+50
0+00
0+50
1+00
Station (ft)

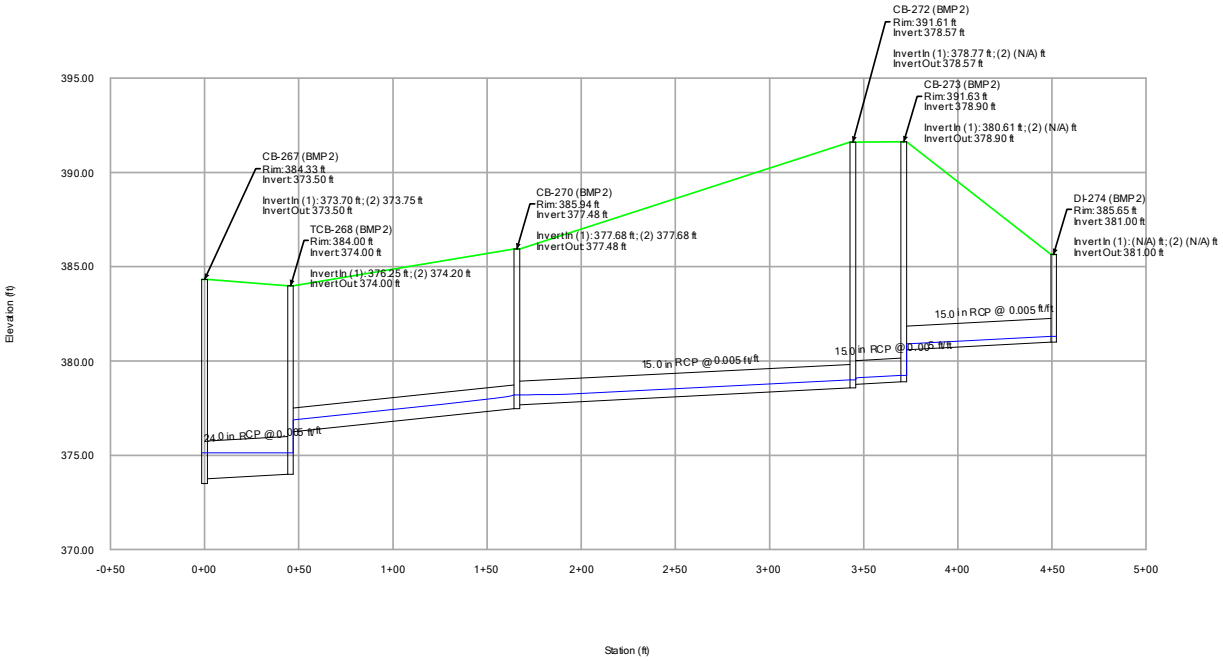
SCM 2 10-YR


395.00
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)
CB-283 (BMP 2)
Rim: 390.21 ft
Invert: 379.65 ft
Invert In (1): 383.07 ft ; (2) 379.85 ft
Invert Out: 379.65 ft
DI-293 (BMP 2)
Rim: 383.89 ft
Invert: 380.24 ft
Invert In (1): 380.60 ft ; (2) 380.44 ft
Invert Out: 380.24 ft
DI-297 (BMP 2)
Rim: 385.49 ft
Invert: 381.50 ft
Invert In (1): 381.70 ft ; (2) (N/A) ft
Invert Out: 381.50 ft
DI-298 (BMP 2)
Rim: 389.62 ft
Invert: 385.12 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 385.12 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.023 ft/ft

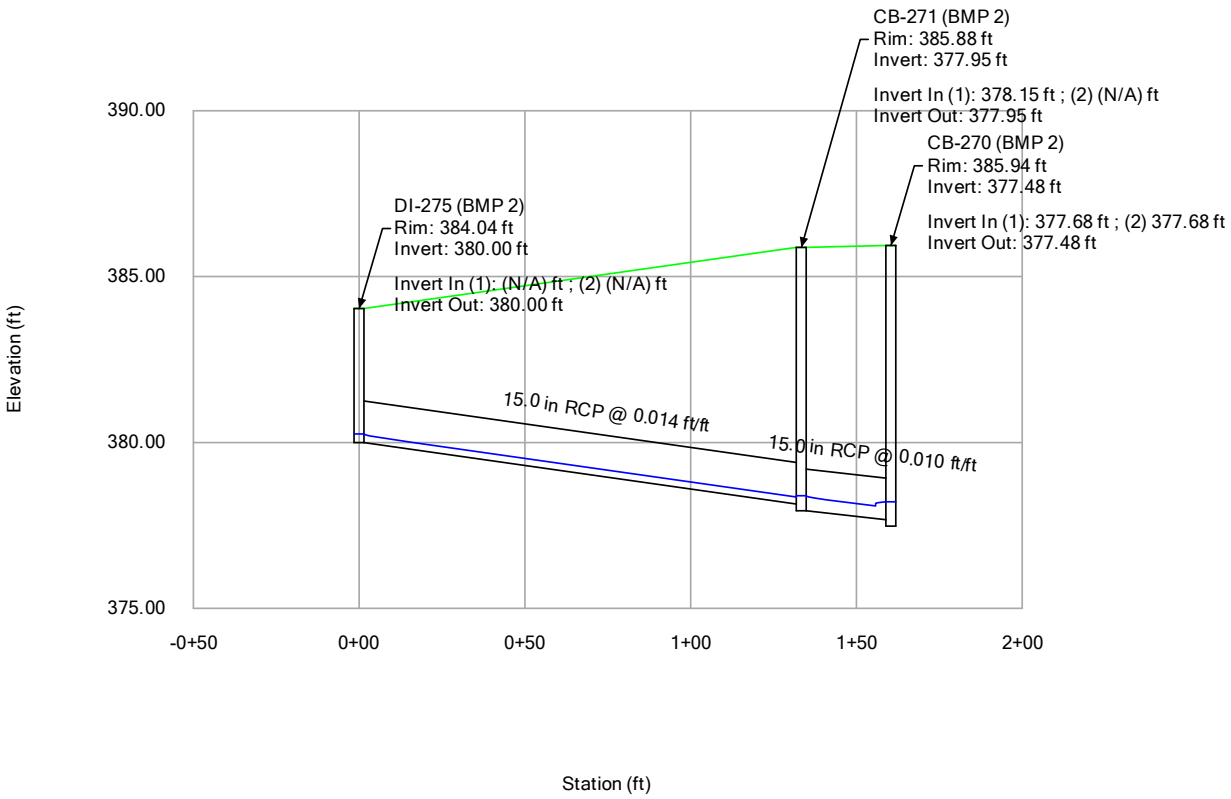
SCM 2 10-YR


400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)
DI-293 (BMP 2)
Rim: 383.89 ft
Invert: 380.24 ft
Invert In (1): 380.60 ft ; (2) 380.44 ft
Invert Out: 380.24 ft
DI-294 (BMP 2)
Rim: 388.87 ft
Invert: 385.04 ft
Invert In (1): 385.25 ft ; (2) (N/A) ft
Invert Out: 385.04 ft
DI-295 (BMP 2)
Rim: 392.33 ft
Invert: 387.98 ft
Invert In (1): 388.08 ft ; (2) (N/A) ft
Invert Out: 387.98 ft
DI-296 (BMP 2)
Rim: 396.79 ft
Invert: 392.54 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 392.54 ft
15.0 in RCP @ 0.076 ft/ft
15.0 in RCP @ 0.024 ft/ft
15.0 in RCP @ 0.032 ft/ft

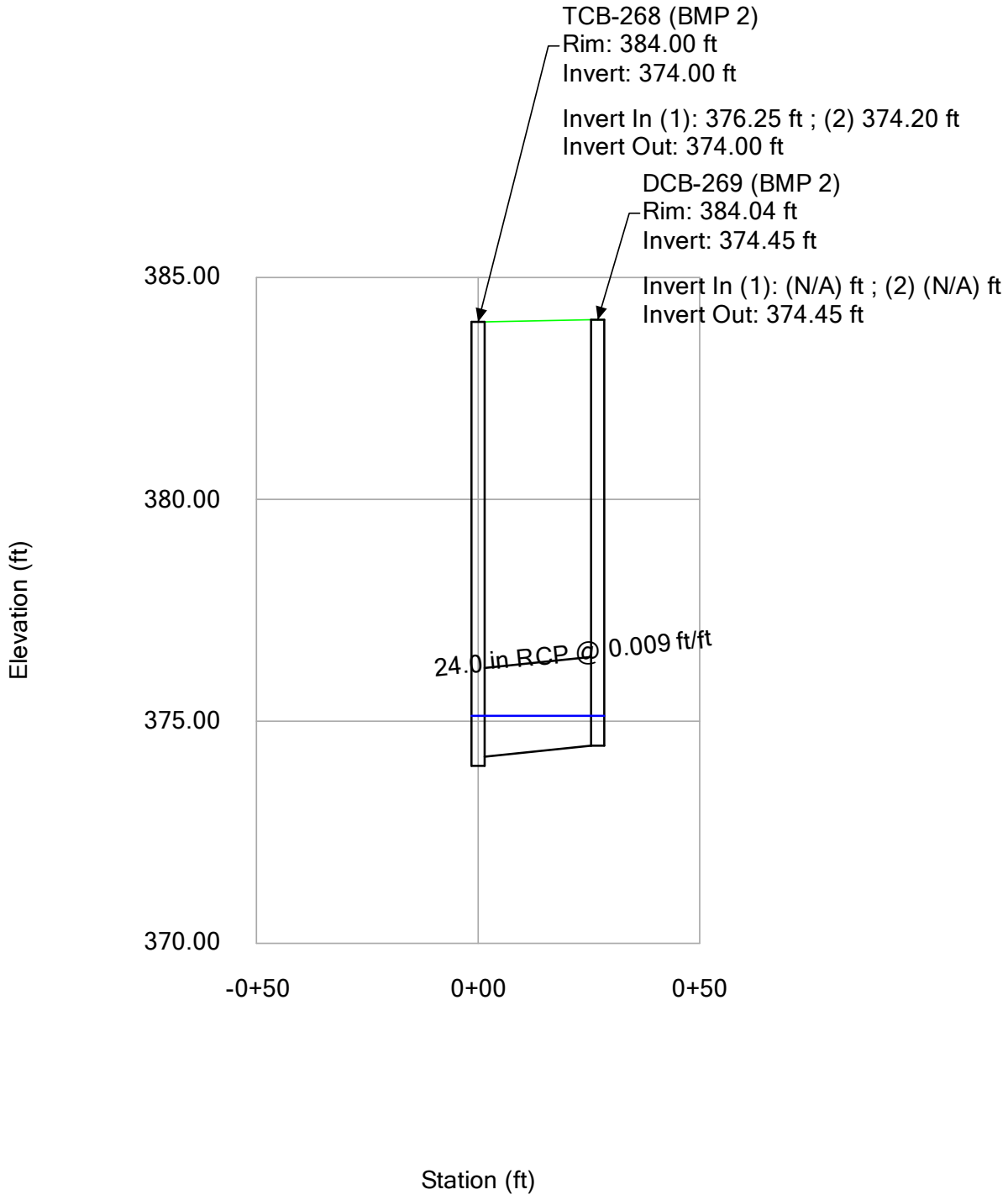
SCM 2 10-YR


CB-272 (BMP2)
Rim: 391.61 ft
Invert: 378.57 ft
InvertIn (1): 378.77 ft; (2) (N/A) ft
InvertOut: 378.57 ft
CB-273 (BMP2)
Rim: 391.63 ft
Invert: 378.90 ft
InvertIn (1): 380.61 ft; (2) (N/A) ft
InvertOut: 378.90 ft
CB-267 (BMP2)
Rim: 384.33 ft
Invert: 373.50 ft
InvertIn (1): 373.70 ft; (2) 373.75 ft
InvertOut: 373.50 ft
TCB-268 (BMP2)
Rim: 384.00 ft
Invert: 374.00 ft
InvertIn (1): 376.25 ft; (2) 374.20 ft
InvertOut: 374.00 ft
CB-270 (BMP2)
Rim: 385.94 ft
Invert: 377.48 ft
InvertIn (1): 377.68 ft; (2) 377.68 ft
InvertOut: 377.48 ft
DI-274 (BMP2)
Rim: 385.65 ft
Invert: 381.00 ft
InvertIn (1): (N/A) ft; (2) (N/A) ft
InvertOut: 381.00 ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

SCM 2 10-YR


CB-271 (BMP 2)
Rim: 385.88 ft
Invert: 377.95 ft
Invert In (1): 378.15 ft ; (2) (N/A) ft
Invert Out: 377.95 ft
CB-270 (BMP 2)
Rim: 385.94 ft
Invert: 377.48 ft
Invert In (1): 377.68 ft ; (2) 377.68 ft
Invert Out: 377.48 ft
DI-275 (BMP 2)
Rim: 384.04 ft
Invert: 380.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 380.00 ft
15.0 in RCP @ 0.014 ft/ft
15.0 in RCP @ 0.010 ft/ft
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

SCM 2 10-YR


TCB-268 (BMP 2)
Rim: 384.00 ft
Invert: 374.00 ft
Invert In (1): 376.25 ft ; (2) 374.20 ft
Invert Out: 374.00 ft
DCB-269 (BMP 2)
Rim: 384.04 ft
Invert: 374.45 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 374.45 ft
385.00
380.00
375.00
370.00
Elevation (ft)
24.0 in RCP @ 0.009 ft/ft
-0+50
0+00
0+50
Station (ft)

SCM 2 – 25 YR STORM

SCM 2 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-228 (BMP 2)	0.069	0.000	True	0.19	0.084	0.350
DI-2005 (BMP 2)	0.025	0.000	True	0.07	0.084	0.350
CB-289 (BMP 2)	0.151	0.000	True	0.43	0.084	0.350
DI-237 (BMP 2)	1.148	0.000	True	4.15	0.084	0.450
DI-299 (BMP 2)	0.745	0.000	True	2.69	0.084	0.450
DI-2000 (BMP 2)	0.334	0.000	True	1.21	0.084	0.450
DI-236 (BMP 2)	0.301	0.000	True	1.21	0.084	0.500
DI-233 (BMP 2)	0.202	0.000	True	0.81	0.084	0.500
DI-231 (BMP 2)	0.340	0.000	True	1.37	0.084	0.500
DI-230 (BMP 2)	0.270	0.000	True	1.08	0.084	0.500
DI-201 (BMP 2)	0.168	0.000	True	0.68	0.084	0.500
DI-2004 (BMP 2)	0.415	0.000	True	1.67	0.084	0.500
CB-287 (BMP 2)	0.258	0.000	True	1.04	0.084	0.500
DI-238 (BMP 2)	0.210	0.000	True	0.93	0.084	0.550
CB-227 (BMP 2)	0.329	0.000	True	1.45	0.084	0.550
CB-204 (BMP 2)	0.085	0.000	True	0.38	0.084	0.550

SCM 2 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DCB-202 (BMP 2)	0.337	0.000	True	1.49	0.084	0.550
DI-2003 (BMP 2)	0.434	0.000	True	1.92	0.084	0.550
CB-205 (BMP 2)	0.166	0.000	True	0.74	0.084	0.550
CB-207 (BMP 2)	0.095	0.000	True	0.42	0.084	0.550
CB-288 (BMP 2)	0.805	0.000	True	3.55	0.084	0.550
TCB-268 (BMP 2)	0.389	0.000	True	1.72	0.084	0.550
DI-275 (BMP 2)	0.121	0.000	True	0.53	0.084	0.550
CB-270 (BMP 2)	0.317	0.000	True	1.40	0.084	0.550
DI-297 (BMP 2)	0.249	0.000	True	1.10	0.084	0.550
DI-2002 (BMP 2)	0.142	0.000	True	0.63	0.084	0.550
DI-2007 (BMP 2)	0.001	0.000	True	0.00	0.084	0.550
CB-226 (BMP 2)	0.111	0.000	True	0.53	0.084	0.600
CB-225 (BMP 2)	0.453	0.000	True	2.18	0.084	0.600
CB-224 (BMP 2)	0.361	0.000	True	1.74	0.084	0.600
CB-203 (BMP 2)	0.102	0.000	True	0.49	0.084	0.600
CB-206 (BMP 2)	0.084	0.000	True	0.41	0.084	0.600

SCM 2 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-209 (BMP 2)	0.095	0.000	True	0.46	0.084	0.600
CB-210 (BMP 2)	0.126	0.000	True	0.61	0.084	0.600
TCB-222 (BMP 2)	0.457	0.000	True	2.20	0.084	0.600
DI-235 (BMP 2)	0.161	0.000	True	0.84	0.084	0.650
DI-234 (BMP 2)	0.300	0.000	True	1.56	0.084	0.650
DI-229 (BMP 2)	0.278	0.000	True	1.45	0.084	0.650
DI-278 (BMP 2)	0.455	0.000	True	2.37	0.084	0.650
DI-293 (BMP 2)	0.356	0.000	True	1.86	0.084	0.650
CB-272 (BMP 2)	0.097	0.000	True	0.51	0.084	0.650
DI-298 (BMP 2)	0.240	0.000	True	1.25	0.084	0.650
CB-271 (BMP 2)	0.227	0.000	True	1.19	0.084	0.650
CB-252 (BMP 2)	0.175	0.000	True	0.96	0.084	0.680
CB-285 (BMP 2)	0.094	0.000	True	0.52	0.084	0.680
DI-274 (BMP 2)	0.138	0.000	True	0.75	0.084	0.680
CB-208 (BMP 2)	0.130	0.000	True	0.73	0.084	0.700
CB-212 (BMP 2)	0.069	0.000	True	0.39	0.084	0.700

SCM 2 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-265 (BMP 2)	0.181	0.000	True	1.02	0.084	0.700
CB-262 (BMP 2)	0.122	0.000	True	0.69	0.084	0.700
CB-286 (BMP 2)	0.281	0.000	True	1.58	0.084	0.700
DI-296 (BMP 2)	0.047	0.000	True	0.27	0.084	0.700
DI-295 (BMP 2)	0.153	0.000	True	0.86	0.084	0.700
DI-294 (BMP 2)	0.262	0.000	True	1.47	0.084	0.700
DI-2001 (BMP 2)	0.344	0.000	True	1.93	0.084	0.700
DI-232 (BMP 2)	0.365	0.000	True	2.08	0.084	0.710
CB-219 (BMP 2)	0.138	0.000	True	0.83	0.084	0.750
CB-217 (BMP 2)	0.359	0.000	True	2.16	0.084	0.750
CB-215 (BMP 2)	0.197	0.000	True	1.19	0.084	0.750
CB-218 (BMP 2)	0.320	0.000	True	1.92	0.084	0.750
DI-277 (BMP 2)	0.295	0.000	True	1.78	0.084	0.750
DI-276 (BMP 2)	0.231	0.000	True	1.39	0.084	0.750
CB-259 (BMP 2)	0.134	0.000	True	0.81	0.084	0.750
CB-260 (BMP 2)	0.193	0.000	True	1.17	0.084	0.750

SCM 2 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-282 (BMP 2)	0.339	0.000	True	2.04	0.084	0.750
DI-291 (BMP 2)	0.259	0.000	True	1.56	0.084	0.750
DI-290 (BMP 2)	0.178	0.000	True	1.08	0.084	0.750
CB-281 (BMP 2)	0.136	0.000	True	0.82	0.084	0.750
CB-280 (BMP 2)	0.265	0.000	True	1.59	0.084	0.750
CB-283 (BMP 2)	0.114	0.000	True	0.68	0.084	0.750
DCB-221 (BMP 2)	0.227	0.000	True	1.41	0.084	0.770
DCB-258 (BMP 2)	0.329	0.000	True	2.04	0.084	0.770
CB-261 (BMP 2)	0.166	0.000	True	1.03	0.084	0.770
DCB-269 (BMP 2)	0.110	0.000	True	0.68	0.084	0.770
CB-223 (BMP 2)	0.091	0.000	True	0.59	0.084	0.800
CB-220 (BMP 2)	0.196	0.000	True	1.26	0.084	0.800
CB-255 (BMP 2)	0.038	0.000	True	0.24	0.084	0.800
CB-266 (BMP 2)	0.063	0.000	True	0.41	0.084	0.800
CB-279 (BMP 2)	0.054	0.000	True	0.35	0.084	0.800
CB-267 (BMP 2)	0.166	0.000	True	1.07	0.084	0.800

SCM 2 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-213 (BMP 2)	0.062	0.000	True	0.41	0.084	0.820
CB-216 (BMP 2)	0.039	0.000	True	0.27	0.084	0.850
CB-263 (BMP 2)	0.062	0.000	True	0.43	0.084	0.850
CB-214 (BMP 2)	0.008	0.000	True	0.06	0.084	0.950
CB-257 (BMP 2)	0.025	0.000	True	0.19	0.084	0.950
CB-256 (BMP 2)	0.054	0.000	True	0.41	0.084	0.950
CB-264 (BMP 2)	0.103	0.000	True	0.79	0.084	0.950
DI-292 (BMP 2)	0.012	0.000	True	0.10	0.084	0.950
CB-273 (BMP 2)	0.025	0.000	True	0.19	0.084	0.950
CB-2006 (BMP 2)	0.010	0.000	True	0.08	0.084	0.950

SCM 2 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-236 TO DI-238 (BMP 2)	18.0	0.030	2.70	5.06	0.76	18.13	398.82	391.99
CB-219 TO CB-220 (BMP 2)	15.0	0.005	3.01	3.06	0.98	4.76	396.80	396.63
DI-299 TO DI-2000 (BMP 2)	18.0	0.039	2.85	2.47	0.92	20.87	397.86	392.10
CB-218 TO CB-219 (BMP 2)	15.0	0.018	3.53	5.50	1.68	8.75	396.56	392.74
CB-226 TO CB-227 (BMP 2)	15.0	0.005	3.06	3.11	1.10	4.57	397.17	396.99
CB-224 TO CB-226 (BMP 2)	15.0	0.034	3.46	6.71	1.58	11.85	396.87	391.21
DI-297 TO DI-298 (BMP 2)	18.0	0.023	2.88	4.95	0.95	15.96	385.48	381.95
DI-277 TO DI-278 (BMP 2)	15.0	0.021	3.41	2.54	1.50	9.47	394.59	392.56
DI-234 TO DI-235 (BMP 2)	15.0	0.044	2.74	5.82	0.70	13.58	393.36	385.77
CB-262 TO CB-265 (BMP 2)	15.0	0.007	3.20	3.62	1.21	5.55	393.66	393.03
CB-265 TO CB-266 (BMP 2)	15.0	0.008	2.34	2.68	0.39	5.78	393.94	393.64
DI-236 TO DI-237 (BMP 2)	18.0	0.005	4.43	4.64	4.62	7.43	391.03	390.71
CB-223 TO DI-236 (BMP 2)	24.0	0.005	4.65	4.78	6.20	16.04	390.56	390.02
CB-261 TO CB-262 (BMP 2)	18.0	0.030	4.01	7.64	2.99	18.32	392.91	390.37
CB-262 TO CB-263 (BMP 2)	15.0	0.008	3.11	2.69	1.10	5.78	393.14	392.91
CB-263 TO CB-264 (BMP 2)	15.0	0.008	2.72	3.16	0.68	5.78	393.36	393.12
CB-286 TO CB-289 (BMP 2)	15.0	0.015	2.46	1.06	0.47	7.91	390.42	388.44
CB-289 TO CB-2006 (BMP 2)	15.0	0.005	1.41	1.53	0.08	4.57	390.62	390.46
DI-295 TO DI-296 (BMP 2)	15.0	0.032	2.10	1.26	0.26	11.51	392.74	388.36
CB-216 TO CB-218 (BMP 2)	18.0	0.017	4.02	3.84	3.01	13.59	392.78	391.68
CB-2006 TO DI-2007 (BMP 2)	15.0	0.038	0.62	0.98	0.00	12.56	392.52	391.76
DI-276 TO DI-277 (BMP 2)	15.0	0.034	4.31	8.13	3.08	11.87	392.56	389.12
DI-237 TO DI-299 (BMP 2)	18.0	0.006	3.81	3.94	2.52	7.81	392.10	391.69
CB-216 TO CB-217 (BMP 2)	15.0	0.006	3.48	2.33	1.60	5.15	391.67	391.68
CB-215 TO CB-216 (BMP 2)	18.0	0.023	4.86	7.83	5.25	16.07	391.68	390.41
CB-214 TO CB-215 (BMP 2)	18.0	0.011	5.15	6.37	6.13	11.24	388.66	388.10
DI-291 TO DI-292 (BMP 2)	15.0	0.042	1.61	0.62	0.10	13.31	390.87	387.21
CB-213 TO CB-214 (BMP 2)	24.0	0.012	7.71	8.75	21.47	24.65	388.21	387.22

SCM 2 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-214 TO DCB-221 (BMP 2)	24.0	0.010	6.54	6.40	15.70	22.42	389.52	388.21
CB-259 TO CB-261 (BMP 2)	18.0	0.041	4.36	9.16	3.87	21.32	390.61	386.90
CB-224 TO CB-225 (BMP 2)	15.0	0.005	3.43	3.51	1.65	4.59	390.77	390.58
DCB-221 TO CB-224 (BMP 2)	24.0	0.008	4.19	2.24	4.40	20.25	389.74	389.52
DCB-222 TO CB-223 (BMP 2)	24.0	0.005	4.78	4.88	6.78	16.00	389.88	389.58
CB-286 TO CB-287 (BMP 2)	15.0	0.006	4.11	4.23	2.93	4.81	388.81	388.64
CB-285 TO CB-286 (BMP 2)	18.0	0.028	4.54	8.28	4.34	17.69	388.44	386.05
CB-287 TO CB-288 (BMP 2)	15.0	0.038	3.78	3.56	2.09	12.64	389.73	388.81
DCB-221 TO DCB-222 (BMP 2)	24.0	0.005	5.40	4.81	9.74	16.22	389.59	389.52
CB-256 TO CB-257 (BMP 2)	18.0	0.027	1.88	0.77	0.19	17.26	387.70	385.71
CB-256 TO DI-276 (BMP 2)	15.0	0.026	5.02	8.21	4.55	10.42	389.35	387.24
CB-212 TO CB-213 (BMP 2)	24.0	0.013	7.76	8.96	21.71	26.19	387.33	386.58
DI-233 TO DI-234 (BMP 2)	15.0	0.039	3.59	7.35	1.78	12.82	385.91	382.07
DI-294 TO DI-295 (BMP 2)	15.0	0.024	2.99	2.74	0.96	10.00	388.36	385.65
CB-283 TO CB-285 (BMP 2)	18.0	0.034	4.78	9.24	5.05	19.44	386.31	383.59
CB-209 TO CB-212 (BMP 2)	24.0	0.025	7.83	11.58	21.99	35.76	386.72	383.83
CB-255 TO CB-256 (BMP 2)	24.0	0.010	4.37	2.69	5.09	22.16	385.71	385.54
CB-272 TO CB-273 (BMP 2)	15.0	0.005	2.81	2.85	0.81	4.57	379.26	379.12
CB-273 TO DI-274 (BMP 2)	15.0	0.005	2.63	2.68	0.64	4.57	381.32	380.92
CB-270 TO CB-272 (BMP 2)	15.0	0.005	3.19	2.35	1.27	4.57	379.02	378.24
CB-259 TO CB-260 (BMP 2)	15.0	0.016	2.97	1.31	0.94	8.10	387.40	387.18
DCB-258 TO CB-259 (BMP 2)	18.0	0.014	4.96	6.65	5.57	12.23	387.18	386.37
DI-290 TO DI-291 (BMP 2)	15.0	0.047	3.18	6.96	1.19	14.04	387.21	383.78
CB-254 TO CB-255 (BMP 2)	24.0	0.022	5.90	9.71	12.32	33.78	385.54	383.25
CB-255 TO DCB-258 (BMP 2)	24.0	0.009	4.86	5.92	7.11	20.94	386.10	385.66

SCM 2 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-279 TO CB-283 (BMP 2)	24.0	0.009	5.72	6.88	11.40	21.22	380.86	379.91
CB-283 TO DI-293 (BMP 2)	18.0	0.005	4.67	4.62	5.86	7.46	381.24	380.86
CB-209 TO CB-210 (BMP 2)	15.0	0.011	2.58	0.87	0.56	6.85	384.10	384.16
CB-207 TO CB-209 (BMP 2)	24.0	0.035	8.00	13.34	22.78	42.44	384.16	379.77
DI-293 TO DI-294 (BMP 2)	15.0	0.076	3.93	3.71	2.35	17.82	385.65	381.24
CB-282 TO DI-290 (BMP 2)	15.0	0.069	3.87	3.79	2.24	16.92	383.93	381.55
CB-281 TO CB-282 (BMP 2)	15.0	0.018	4.75	6.92	3.99	8.67	381.55	380.27
CB-280 TO CB-281 (BMP 2)	18.0	0.008	4.86	5.53	5.25	9.54	380.35	379.90
CB-279 TO CB-280 (BMP 2)	24.0	0.011	3.77	2.67	6.45	23.84	375.57	375.64
CB-267 TO CB-279 (BMP 2)	24.0	0.006	6.51	6.97	17.90	17.76	375.64	375.23
DI-232 TO DI-233 (BMP 2)	18.0	0.056	3.77	2.97	2.43	24.83	382.09	376.21
CB-252 TO CB-253 (BMP 2)	24.0	0.021	5.87	9.64	12.17	32.70	380.45	377.64
TCB-268 TO CB-270 (BMP 2)	15.0	0.010	4.55	5.44	3.57	6.54	378.24	376.91
CB-270 TO CB-271 (BMP 2)	15.0	0.010	3.33	2.59	1.39	6.46	378.42	378.24
CB-271 TO DI-275 (BMP 2)	15.0	0.014	2.48	3.48	0.49	7.61	380.27	378.37
CB-207 TO CB-208 (BMP 2)	15.0	0.005	2.70	2.72	0.68	4.62	381.25	381.10
CB-205 TO CB-207 (BMP 2)	24.0	0.043	8.21	13.95	23.65	47.05	380.33	376.33
DI-2004 TO DI-2005 (BMP 2)	15.0	0.037	1.48	0.29	0.07	12.46	380.87	376.17
DI-293 TO DI-297 (BMP 2)	18.0	0.012	3.43	1.85	1.77	11.42	382.00	381.24
DI-2002 TO DI-2003 (BMP 2)	15.0	0.039	3.26	6.70	1.29	12.82	380.64	378.47
CB-252 TO CB-267 (BMP 2)	30.0	0.008	7.03	6.36	25.09	37.00	375.21	375.15
CB-267 TO TCB-268 (BMP 2)	24.0	0.005	3.31	2.70	6.61	16.75	375.22	375.21
TCB-268 TO DCB-269 (BMP 2)	24.0	0.009	0.99	0.68	1.09	21.74	375.21	375.22
CB-205 TO CB-206 (BMP 2)	15.0	0.015	2.46	3.55	0.48	7.90	379.77	379.28
CB-203 TO CB-205 (BMP 2)	24.0	0.051	8.43	15.04	24.58	51.15	376.92	372.03
DI-2001 TO DI-2002 (BMP 2)	15.0	0.053	3.63	8.25	1.84	14.91	378.54	372.10

SCM 2 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-231 TO DI-232 (BMP 2)	18.0	0.039	4.56	9.33	4.41	20.76	376.21	370.97
CB-204 TO DI-228 (BMP 2)	18.0	0.010	5.48	6.39	7.12	10.50	368.32	366.83
CB-203 TO CB-204 (BMP 2)	18.0	0.010	5.56	6.34	7.36	10.50	366.87	366.47
DCB-202 TO CB-203 (BMP 2)	30.0	0.010	8.12	9.16	33.79	40.55	366.52	365.53
CB-203 TO DI-2004 (BMP 2)	15.0	0.006	3.53	3.58	1.68	4.84	376.17	375.35
DI-201 TO DCB-202 (BMP 2)	30.0	0.020	8.27	10.31	34.96	58.00	365.68	364.85
DI-228 TO DI-229 (BMP 2)	18.0	0.010	5.44	6.36	6.99	10.50	369.16	368.38
FES-200 TO DI-201 (BMP 2)	36.0	0.008	7.36	8.65	35.51	60.26	353.94	353.19
DI-230 TO DI-231 (BMP 2)	18.0	0.010	4.88	5.97	5.34	10.50	371.29	370.01
DI-229 TO DI-230 (BMP 2)	18.0	0.010	5.13	6.16	6.07	10.50	370.11	369.06
DMH-251 TO CB-252 (BMP 2)	30.0	0.075	8.62	20.29	37.51	112.60	375.15	363.01
DI-2008 TO DI-2001 (BMP 2)	15.0	0.057	4.32	9.84	3.10	15.45	372.31	366.26
DMH-251 TO DI-2008 (BMP 2)	15.0	0.053	5.16	8.60	4.83	14.94	366.57	365.58
FES-250 TO DMH-251 (BMP 2)	30.0	0.036	9.25	14.92	41.79	77.61	357.17	352.89

SCM 2 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-238 (BMP 2)	0.76	0.17	0.76	81.7	398.82	398.82	2.0	2.70	2.70
CB-220 (BMP 2)	0.98	0.28	0.98	78.1	396.80	396.80	3.0	3.01	3.01
DI-2000 (BMP 2)	0.92	0.28	0.92	76.5	397.86	397.86	2.0	2.85	2.85
CB-219 (BMP 2)	0.71	0.12	1.68	85.6	396.56	396.56	3.0	3.06	3.53
CB-226 (BMP 2)	0.49	0.04	1.58	92.6	396.87	396.87	3.0	3.11	3.46
CB-227 (BMP 2)	1.10	0.36	1.10	75.4	397.17	397.17	3.0	3.06	3.06
DI-298 (BMP 2)	0.95	0.30	0.95	75.8	385.48	385.48	2.0	2.88	2.88
DI-278 (BMP 2)	1.50	0.87	1.50	63.2	394.59	394.59	2.0	3.41	3.41
DI-235 (BMP 2)	0.70	0.14	0.70	83.6	393.36	393.36	2.0	2.74	2.74
CB-265 (BMP 2)	0.83	0.18	1.21	82.0	393.66	393.66	3.0	2.68	3.20
CB-266 (BMP 2)	0.39	0.02	0.39	96.0	393.94	393.94	3.0	2.34	2.34
DI-236 (BMP 2)	0.93	0.28	6.20	76.5	390.56	390.56	2.0	4.64	4.65
CB-262 (BMP 2)	0.74	0.13	2.99	84.8	392.91	392.91	3.0	2.69	4.01
CB-263 (BMP 2)	0.42	0.02	1.10	95.0	393.14	393.14	3.0	3.16	3.11
CB-289 (BMP 2)	0.41	0.02	0.47	95.5	390.42	390.42	3.0	1.53	2.46
DI-296 (BMP 2)	0.26	0.00	0.26	99.1	392.74	392.74	2.0	2.10	2.10

SCM 2 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-218 (BMP 2)	1.41	0.63	3.01	69.0	392.78	392.78	3.0	5.50	4.02
CB-264 (BMP 2)	0.68	0.11	0.68	86.5	393.36	393.36	3.0	2.72	2.72
DI-2007 (BMP 2)	0.00	0.00	0.00	100.0	392.52	392.52	2.0	0.62	0.62
CB-2006 (BMP 2)	0.08	0.00	0.08	100.0	390.62	390.62	3.0	0.98	1.41
DI-277 (BMP 2)	1.62	1.03	3.08	61.1	392.56	392.56	2.0	2.54	4.31
DI-299 (BMP 2)	1.64	1.05	2.52	60.8	392.10	392.10	2.0	2.47	3.81
CB-216 (BMP 2)	0.76	0.14	5.25	84.2	391.68	391.68	3.0	3.84	4.86
CB-217 (BMP 2)	1.60	0.83	1.60	65.7	391.67	391.67	3.0	3.48	3.48
DI-237 (BMP 2)	2.20	1.95	4.62	53.0	391.03	391.03	2.0	3.94	4.43
CB-215 (BMP 2)	0.94	0.25	6.13	79.2	388.66	388.66	3.0	7.83	5.15
DI-292 (BMP 2)	0.10	0.00	0.10	100.0	390.87	390.87	2.0	1.61	1.61
CB-214 (BMP 2)	0.06	0.00	21.47	100.0	388.21	388.21	3.0	6.37	7.71
CB-261 (BMP 2)	0.92	0.24	3.87	79.7	390.61	390.61	3.0	7.64	4.36
CB-224 (BMP 2)	1.27	0.50	4.40	71.6	389.74	389.74	3.0	3.51	4.19
CB-225 (BMP 2)	1.65	0.89	1.65	65.0	390.77	390.77	3.0	3.43	3.43
CB-223 (BMP 2)	0.71	0.12	6.78	85.6	389.88	389.88	3.0	4.78	4.78

SCM 2 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-286 (BMP 2)	1.18	0.42	4.34	73.6	388.44	388.44	3.0	1.06	4.54
CB-287 (BMP 2)	0.85	0.19	2.93	81.7	388.81	388.81	3.0	3.56	4.11
TCB-222 (BMP 2)	3.21	0.00	9.74	100.0	389.59	389.59	9.0	4.88	5.40
DCB-221 (BMP 2)	1.91	0.00	15.70	100.0	389.52	389.52	6.0	4.81	6.54
CB-257 (BMP 2)	0.19	0.00	0.19	100.0	387.70	387.70	3.0	1.88	1.88
DI-276 (BMP 2)	1.52	0.90	4.55	62.8	389.35	389.35	2.0	8.13	5.02
CB-288 (BMP 2)	2.09	1.46	2.09	58.9	389.73	389.73	3.0	3.78	3.78
CB-213 (BMP 2)	0.39	0.02	21.71	95.9	387.33	387.33	3.0	8.75	7.76
DI-234 (BMP 2)	1.12	0.45	1.78	71.4	385.91	385.91	2.0	5.82	3.59
DI-295 (BMP 2)	0.72	0.15	0.96	83.1	388.36	388.36	2.0	1.26	2.99
CB-285 (BMP 2)	0.78	0.15	5.05	83.5	386.31	386.31	3.0	8.28	4.78
CB-212 (BMP 2)	0.37	0.01	21.99	96.5	386.72	386.72	3.0	8.96	7.83
CB-256 (BMP 2)	0.40	0.02	5.09	95.8	385.71	385.71	3.0	0.77	4.37
CB-273 (BMP 2)	0.19	0.00	0.81	100.0	379.26	379.26	3.0	2.68	2.81
CB-272 (BMP 2)	0.47	0.03	1.27	93.3	379.02	379.02	3.0	2.85	3.19
CB-260 (BMP 2)	0.94	0.25	0.94	79.2	387.40	387.40	3.0	2.97	2.97

SCM 2 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-259 (BMP 2)	0.85	0.19	5.57	81.6	387.18	387.18	3.0	9.16	4.96
DI-291 (BMP 2)	1.11	0.45	1.19	71.4	387.21	387.21	2.0	0.62	3.18
CB-255 (BMP 2)	0.26	0.00	12.32	99.4	385.54	385.54	3.0	2.69	5.90
DCB-258 (BMP 2)	1.63	0.41	7.11	80.1	386.10	386.10	6.0	6.65	4.86
CB-283 (BMP 2)	0.72	0.12	11.40	85.4	380.86	380.86	3.0	4.62	5.72
CB-254 (BMP 2)	0.00	0.00	12.25	100.0	383.56	383.56	3.0	9.71	5.88
CB-210 (BMP 2)	0.56	0.06	0.56	90.3	384.10	384.10	3.0	2.58	2.58
CB-209 (BMP 2)	0.45	0.03	22.78	94.2	384.16	384.16	3.0	11.58	8.00
DI-294 (BMP 2)	1.47	0.00	2.35	100.0	385.65	385.65	2.0	2.74	3.93
DI-290 (BMP 2)	1.09	0.43	2.24	71.9	383.93	383.93	2.0	6.96	3.87
CB-282 (BMP 2)	1.80	1.07	3.99	62.7	381.55	381.55	3.0	3.79	4.75
CB-280 (BMP 2)	1.28	0.51	6.45	71.6	375.57	375.57	3.0	5.53	3.77
CB-279 (BMP 2)	0.44	0.03	17.90	94.2	375.64	375.64	3.0	2.67	6.51
DI-233 (BMP 2)	0.68	0.13	2.43	84.2	382.09	382.09	2.0	7.35	3.77
CB-253 (BMP 2)	0.00	0.00	12.17	100.0	380.45	380.45	3.0	11.13	5.87
CB-270 (BMP 2)	1.08	0.35	3.57	75.7	378.24	378.24	3.0	2.35	4.55

SCM 2 25-YR

Inlets - Time: 0.00 hours

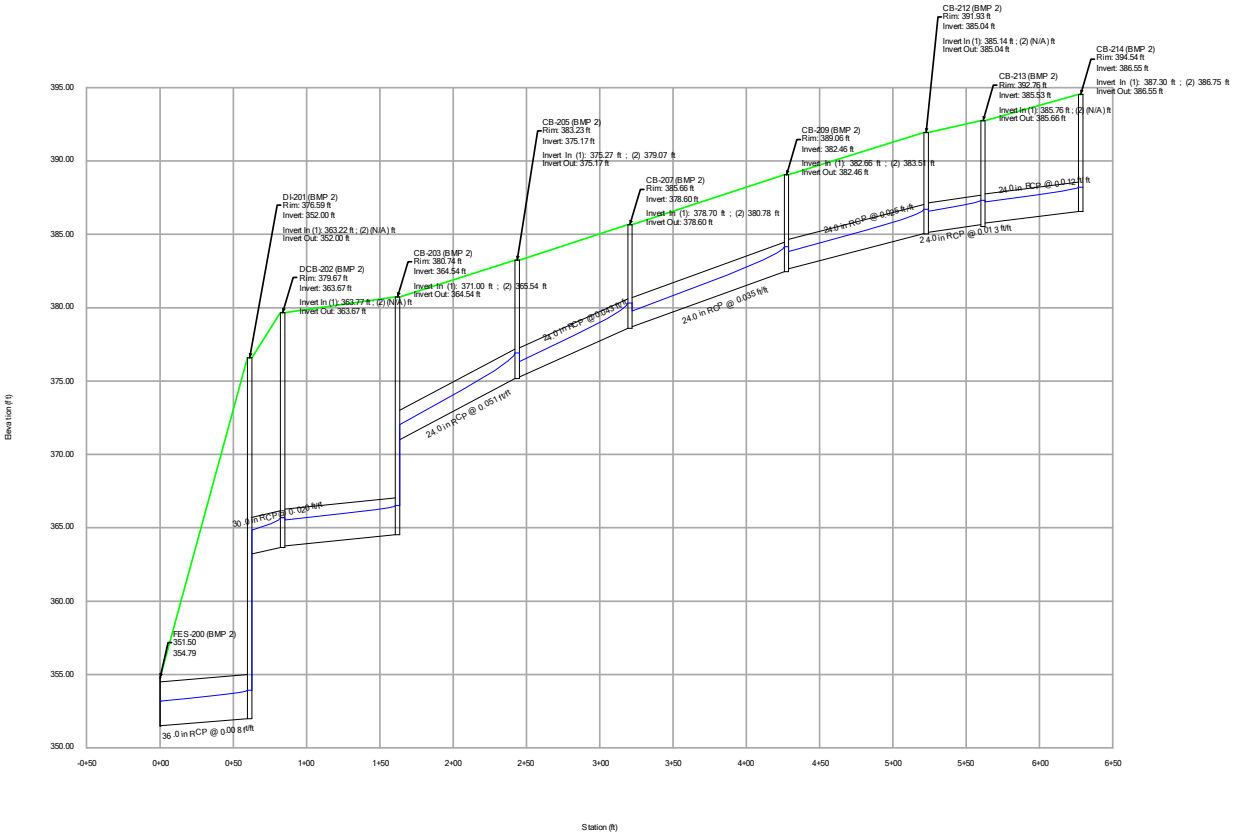
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-281 (BMP 2)	1.33	0.56	5.25	70.4	380.35	380.35	3.0	6.92	4.86
CB-271 (BMP 2)	0.94	0.25	1.39	79.2	378.42	378.42	3.0	3.48	3.33
CB-208 (BMP 2)	0.68	0.11	0.68	86.5	381.25	381.25	3.0	2.70	2.70
CB-207 (BMP 2)	0.42	0.02	23.65	94.9	380.33	380.33	3.0	13.34	8.21
DI-274 (BMP 2)	0.64	0.11	0.64	85.7	381.32	381.32	2.0	2.63	2.63
DI-2005 (BMP 2)	0.07	0.00	0.07	100.0	380.87	380.87	2.0	1.48	1.48
DI-297 (BMP 2)	0.86	0.24	1.77	78.3	382.00	382.00	2.0	4.95	3.43
DI-2003 (BMP 2)	1.29	0.63	1.29	67.4	380.64	380.64	2.0	3.26	3.26
CB-252 (BMP 2)	0.80	0.16	37.51	83.1	375.15	375.15	3.0	6.36	8.62
CB-267 (BMP 2)	0.88	0.21	25.09	80.7	375.21	375.21	3.0	2.70	7.03
DI-275 (BMP 2)	0.49	0.05	0.49	91.5	380.27	380.27	2.0	2.48	2.48
DCB-269 (BMP 2)	1.09	0.00	1.09	100.0	375.21	375.21	6.0	0.99	0.99
TCB-268 (BMP 2)	2.28	0.00	6.61	100.0	375.22	375.22	9.0	0.68	3.31
DI-293 (BMP 2)	1.86	0.00	5.86	100.0	381.24	381.24	2.0	1.85	4.67
CB-206 (BMP 2)	0.48	0.03	0.48	93.2	379.77	379.77	3.0	2.46	2.46
CB-205 (BMP 2)	0.66	0.10	24.58	87.2	376.92	376.92	3.0	13.95	8.43

SCM 2 25-YR

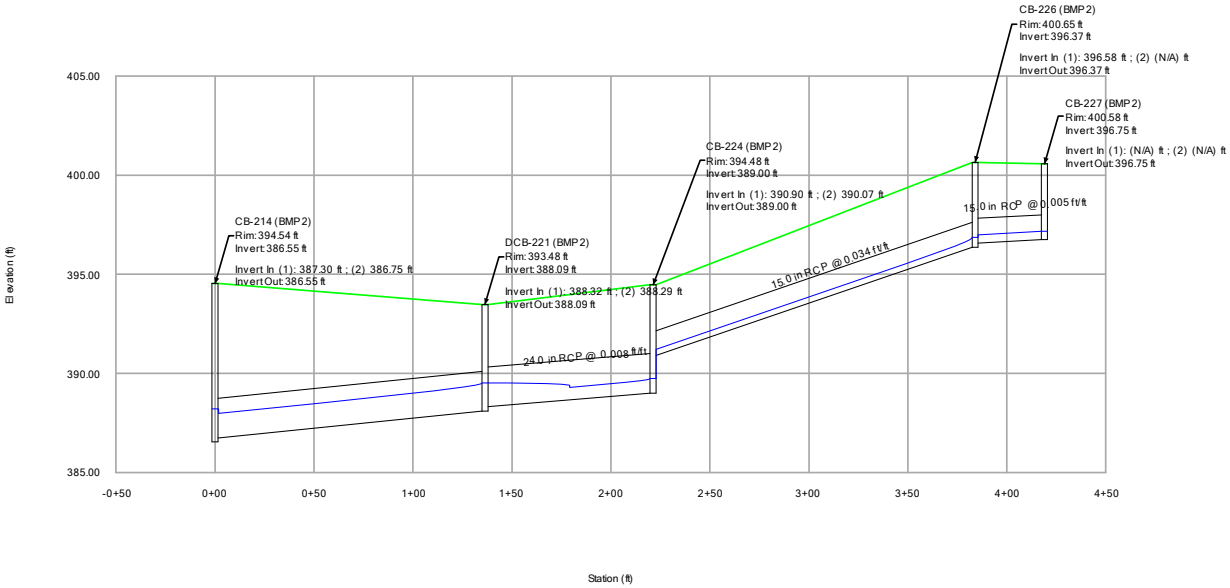
Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-2002 (BMP 2)	0.56	0.07	1.84	88.8	378.54	378.54	2.0	6.70	3.63
DI-232 (BMP 2)	2.08	0.00	4.41	100.0	376.21	376.21	2.0	2.97	4.56
CB-204 (BMP 2)	0.39	0.02	7.36	95.9	366.87	366.87	3.0	6.39	5.56
CB-203 (BMP 2)	0.54	0.05	33.79	91.2	366.52	366.52	3.0	6.34	8.12
DCB-202 (BMP 2)	1.56	0.00	34.96	100.0	365.68	365.68	6.0	9.16	8.27
DI-2004 (BMP 2)	1.67	0.00	1.68	100.0	376.17	376.17	2.0	0.29	3.53
DI-228 (BMP 2)	0.19	0.00	7.12	100.0	368.32	368.32	2.0	6.36	5.48
DI-2001 (BMP 2)	1.30	0.63	3.10	67.2	372.31	372.31	2.0	8.25	4.32
DI-201 (BMP 2)	0.68	0.00	35.51	100.0	353.94	353.94	2.0	10.31	7.36
DI-231 (BMP 2)	1.01	0.35	5.34	74.1	371.29	371.29	2.0	9.33	4.88
DI-230 (BMP 2)	0.85	0.23	6.07	78.6	370.11	370.11	2.0	5.97	5.13
DI-229 (BMP 2)	1.06	0.39	6.99	72.9	369.16	369.16	2.0	6.16	5.44
DI-2008 (BMP 2)	1.79	1.27	4.83	58.4	366.57	366.57	2.0	9.84	5.16

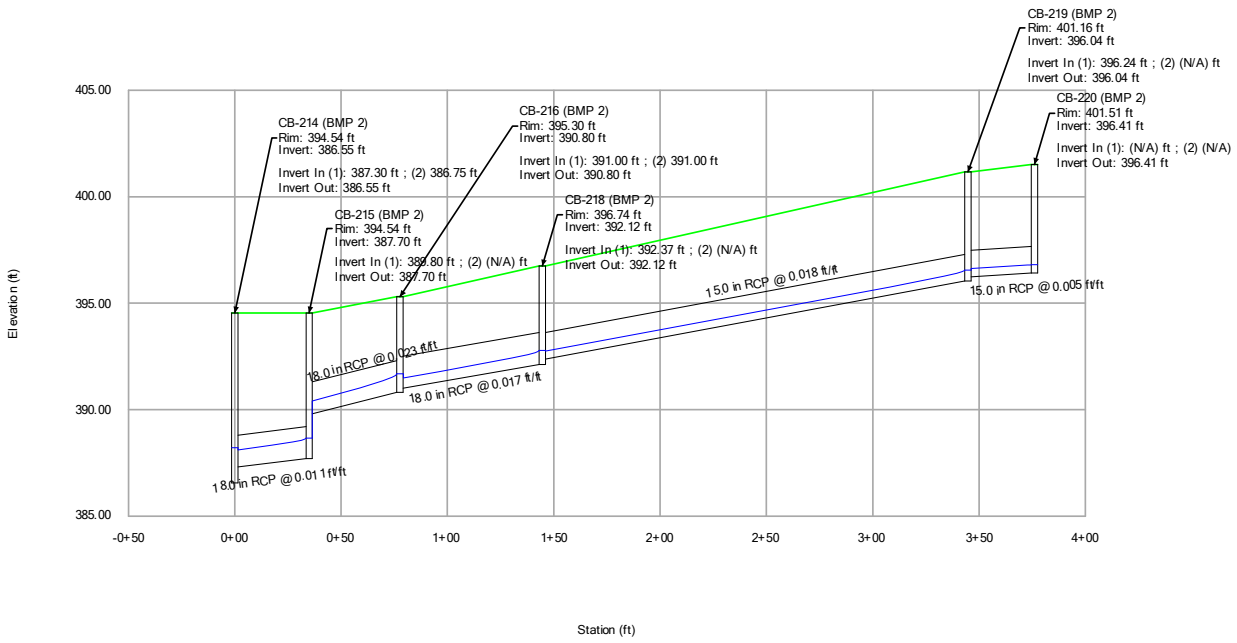
SCM 2 25-YR


CB-212 (BMP 2)
Rim: 391.93 ft
Invert: 385.04 ft
Invert In (1): 385.14 ft ; (2) (N/A) ft
Invert Out: 385.04 ft
CB-214 (BMP 2)
Rim: 394.54 ft
Invert: 386.55 ft
Invert In (1): 387.30 ft ; (2) 386.75 ft
Invert Out: 386.55 ft
CB-213 (BMP 2)
Rim: 392.76 ft
Invert: 385.53 ft
Invert In (1): 385.76 ft ; (2) (N/A) ft
Invert Out: 385.66 ft
CB-205 (BMP 2)
Rim: 383.23 ft
Invert: 375.17 ft
Invert In (1): 375.27 ft ; (2) 379.07 ft
Invert Out: 375.17 ft
CB-209 (BMP 2)
Rim: 389.06 ft
Invert: 382.46 ft
Invert In (1): 382.66 ft ; (2) 383.51 ft
Invert Out: 382.46 ft
CB-207 (BMP 2)
Rim: 385.66 ft
Invert: 378.60 ft
Invert In (1): 378.70 ft ; (2) 380.78 ft
Invert Out: 378.60 ft
DI-201 (BMP 2)
Rim: 376.59 ft
Invert: 352.00 ft
Invert In (1): 363.22 ft ; (2) (N/A) ft
Invert Out: 352.00 ft
DCB-202 (BMP 2)
Rim: 379.67 ft
Invert: 363.67 ft
Invert In (1): 363.77 ft ; (2) (N/A) ft
Invert Out: 363.67 ft
CB-203 (BMP 2)
Rim: 380.78 ft
Invert: 364.54 ft
Invert In (1): 371.00 ft ; (2) 365.54 ft
Invert Out: 364.54 ft
FES-200 (BMP 2)
351.50
354.79
24.0 in RCP @ 0.051 ft/ft
24.0 in RCP @ 0.035 ft/ft
24.0 in RCP @ 0.025 ft/ft
24.0 in RCP @ 0.012 ft/ft
24.0 in RCP @ 0.013 ft/ft
30.0 in RCP @ 0.020 ft/ft
36.0 in RCP @ 0.008 ft/ft
395.00
390.00
385.00
380.00
375.00
370.00
365.00
360.00
355.00
350.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
6+00
6+50
Station (ft)

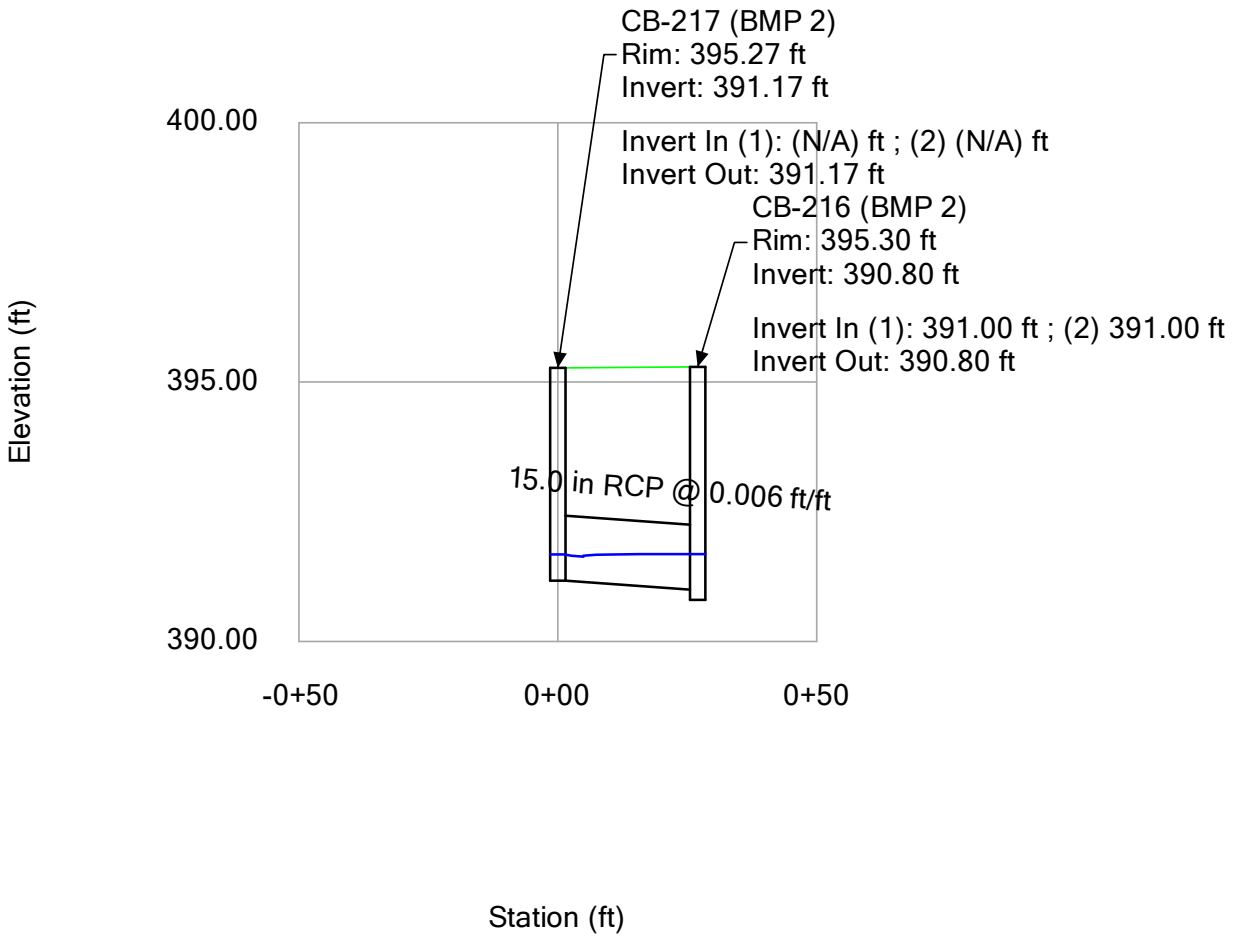
SCM 2 25-YR


CB-226 (BMP2)
Rim: 400.65 ft
Invert: 396.37 ft
Invert In (1): 396.58 ft ; (2) (N/A) ft
Invert Out: 396.37 ft
CB-227 (BMP2)
Rim: 400.58 ft
Invert: 396.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 396.75 ft
CB-224 (BMP2)
Rim: 394.48 ft
Invert: 389.00 ft
Invert In (1): 390.90 ft ; (2) 390.07 ft
Invert Out: 389.00 ft
CB-214 (BMP2)
Rim: 394.54 ft
Invert: 386.55 ft
Invert In (1): 387.30 ft ; (2) 386.75 ft
Invert Out: 386.55 ft
DCB-221 (BMP2)
Rim: 393.48 ft
Invert: 388.09 ft
Invert In (1): 388.32 ft ; (2) 388.29 ft
Invert Out: 388.09 ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.034 ft/ft
24.0 in RCP @ 0.008 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

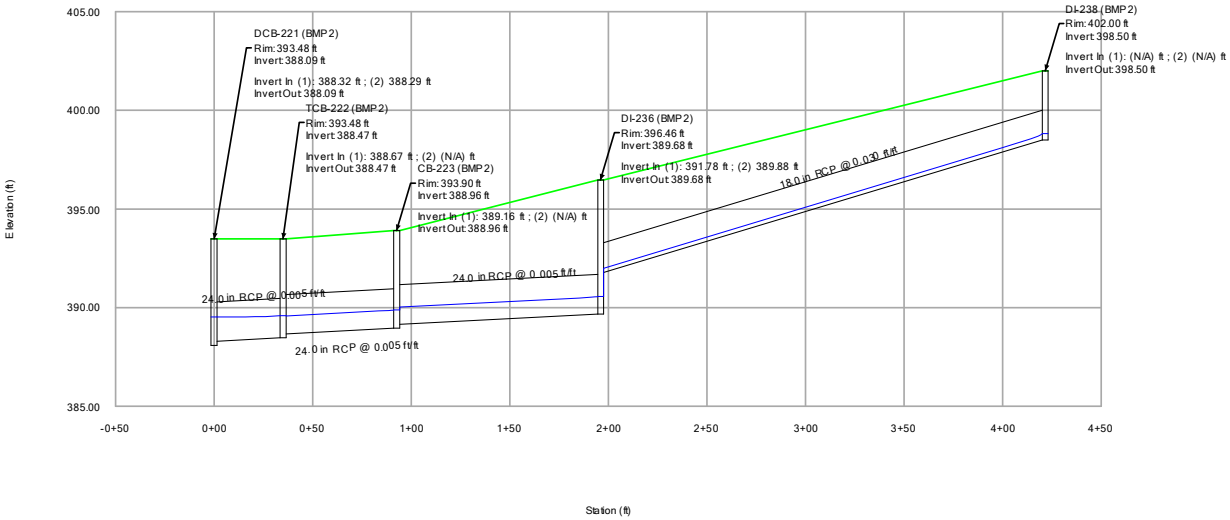
SCM 2 25-YR


CB-219 (BMP 2)
Rim: 401.16 ft
Invert: 396.04 ft
Invert In (1): 396.24 ft ; (2) (N/A) ft
Invert Out: 396.04 ft
CB-220 (BMP 2)
Rim: 401.51 ft
Invert: 396.41 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 396.41 ft
CB-214 (BMP 2)
Rim: 394.54 ft
Invert: 386.55 ft
Invert In (1): 387.30 ft ; (2) 386.75 ft
Invert Out: 386.55 ft
CB-216 (BMP 2)
Rim: 395.30 ft
Invert: 390.80 ft
Invert In (1): 391.00 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
CB-215 (BMP 2)
Rim: 394.54 ft
Invert: 387.70 ft
Invert In (1): 389.80 ft ; (2) (N/A) ft
Invert Out: 387.70 ft
CB-218 (BMP 2)
Rim: 396.74 ft
Invert: 392.12 ft
Invert In (1): 392.37 ft ; (2) (N/A) ft
Invert Out: 392.12 ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.023 ft/ft
18.0 in RCP @ 0.017 ft/ft
18.0 in RCP @ 0.011 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

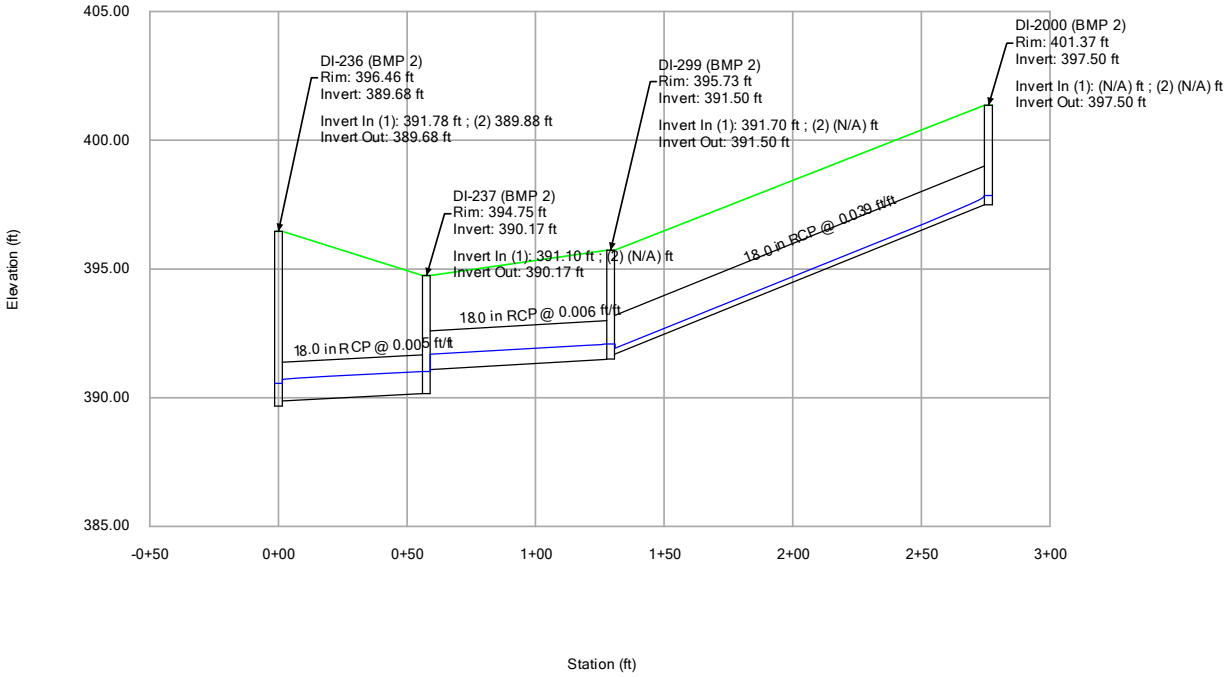
SCM 2 25-YR


CB-217 (BMP 2)
Rim: 395.27 ft
Invert: 391.17 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 391.17 ft
CB-216 (BMP 2)
Rim: 395.30 ft
Invert: 390.80 ft
Invert In (1): 391.00 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
15.0 in RCP @ 0.006 ft/ft
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

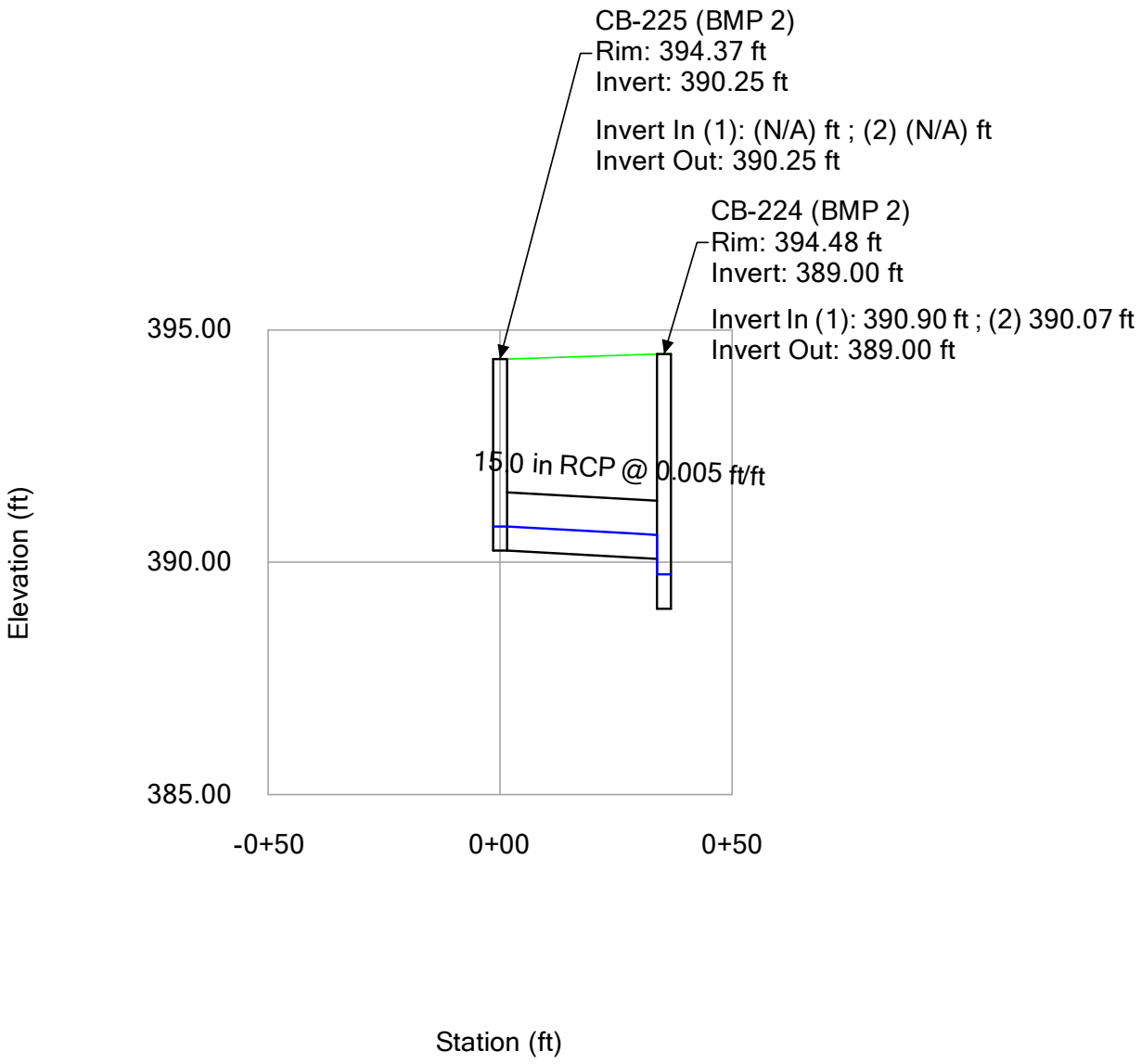
SCM 2 25-YR


DCB-221 (BMP2)
Rim: 393.48 ft
Invert: 388.09 ft
Invert In (1): 388.32 ft ; (2) 388.29 ft
InvertOut: 388.09 ft
TCB-222 (BMP2)
Rim: 393.48 ft
Invert: 388.47 ft
Invert In (1): 388.67 ft ; (2) (N/A) ft
InvertOut: 388.47 ft
CB-223 (BMP2)
Rim: 393.90 ft
Invert: 388.96 ft
Invert In (1): 389.16 ft ; (2) (N/A) ft
InvertOut: 388.96 ft
DI-236 (BMP2)
Rim: 396.46 ft
Invert: 389.68 ft
Invert In (1): 391.78 ft ; (2) 389.88 ft
InvertOut: 389.68 ft
DI-238 (BMP2)
Rim: 402.00 ft
Invert: 398.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
InvertOut: 398.50 ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.030 ft/ft
Elevation (ft)
Station (ft)
405.00
400.00
395.00
390.00
385.00
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50

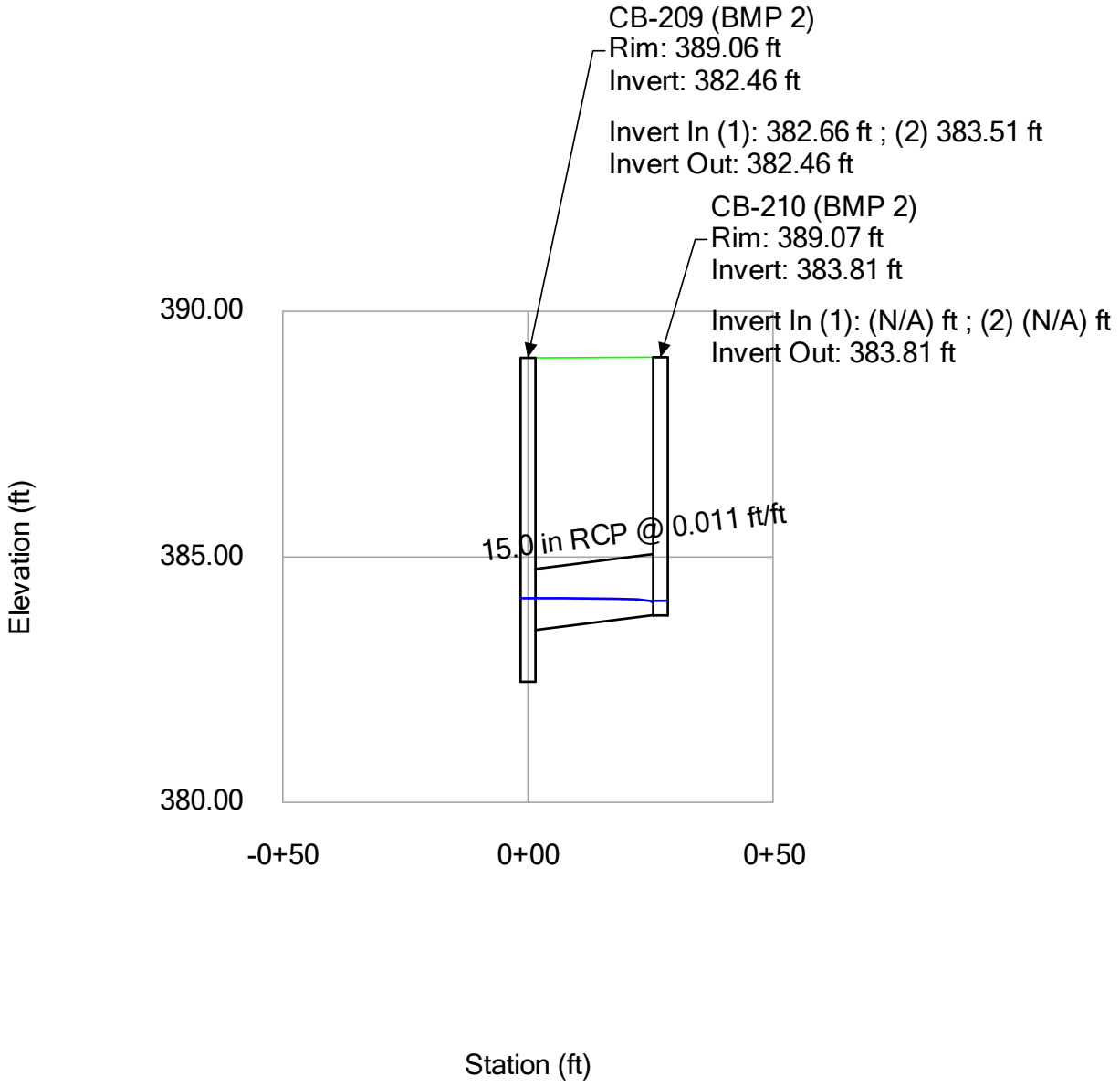
SCM 2 25-YR


405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)
DI-236 (BMP 2)
Rim: 396.46 ft
Invert: 389.68 ft
Invert In (1): 391.78 ft ; (2) 389.88 ft
Invert Out: 389.68 ft
DI-237 (BMP 2)
Rim: 394.75 ft
Invert: 390.17 ft
Invert In (1): 391.10 ft ; (2) (N/A) ft
Invert Out: 390.17 ft
DI-299 (BMP 2)
Rim: 395.73 ft
Invert: 391.50 ft
Invert In (1): 391.70 ft ; (2) (N/A) ft
Invert Out: 391.50 ft
DI-2000 (BMP 2)
Rim: 401.37 ft
Invert: 397.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.50 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.006 ft/ft
18.0 in RCP @ 0.039 ft/ft

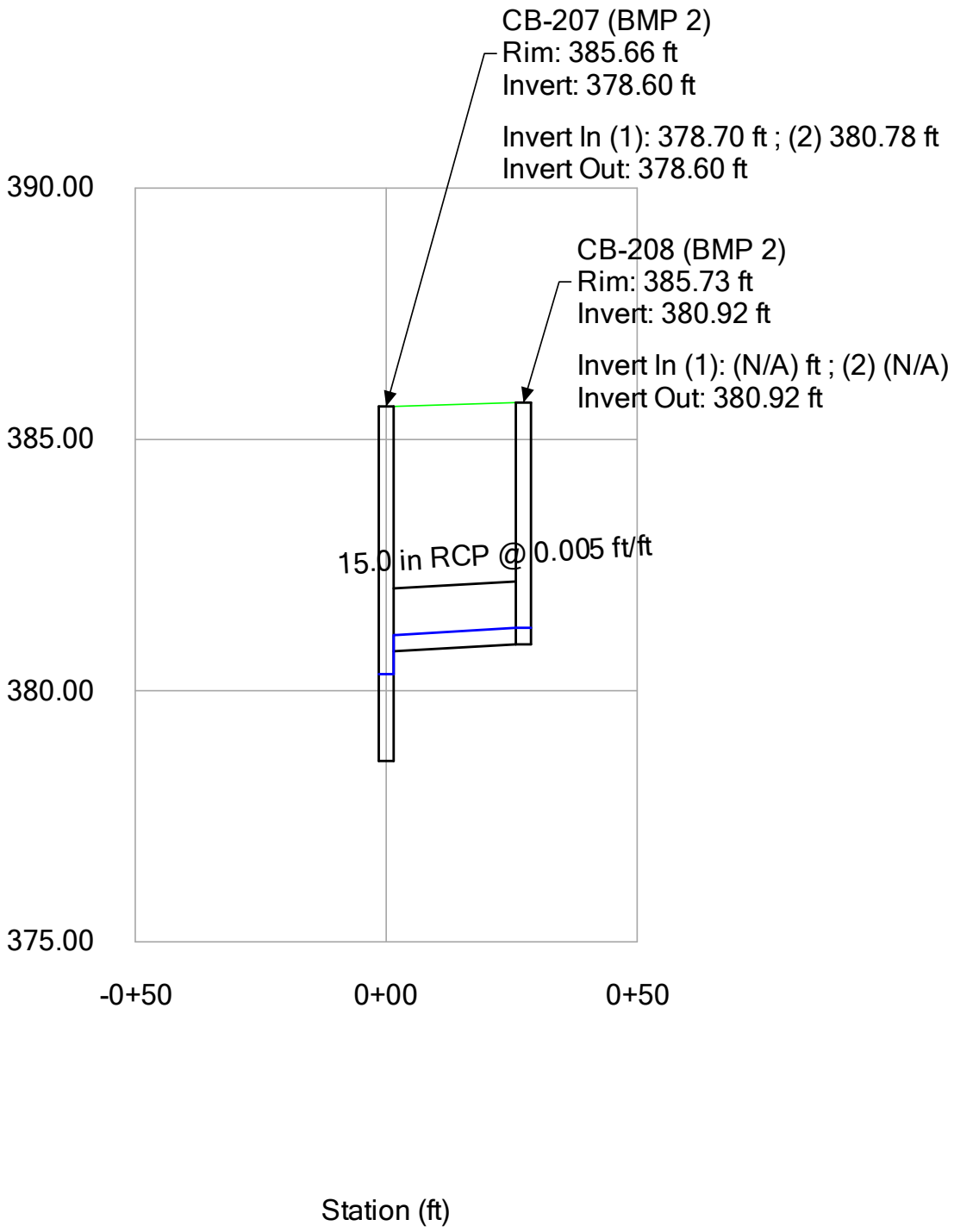
SCM 2 25-YR


CB-225 (BMP 2)
Rim: 394.37 ft
Invert: 390.25 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.25 ft
CB-224 (BMP 2)
Rim: 394.48 ft
Invert: 389.00 ft
Invert In (1): 390.90 ft ; (2) 390.07 ft
Invert Out: 389.00 ft
150 in RCP @ 0.005 ft/ft
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

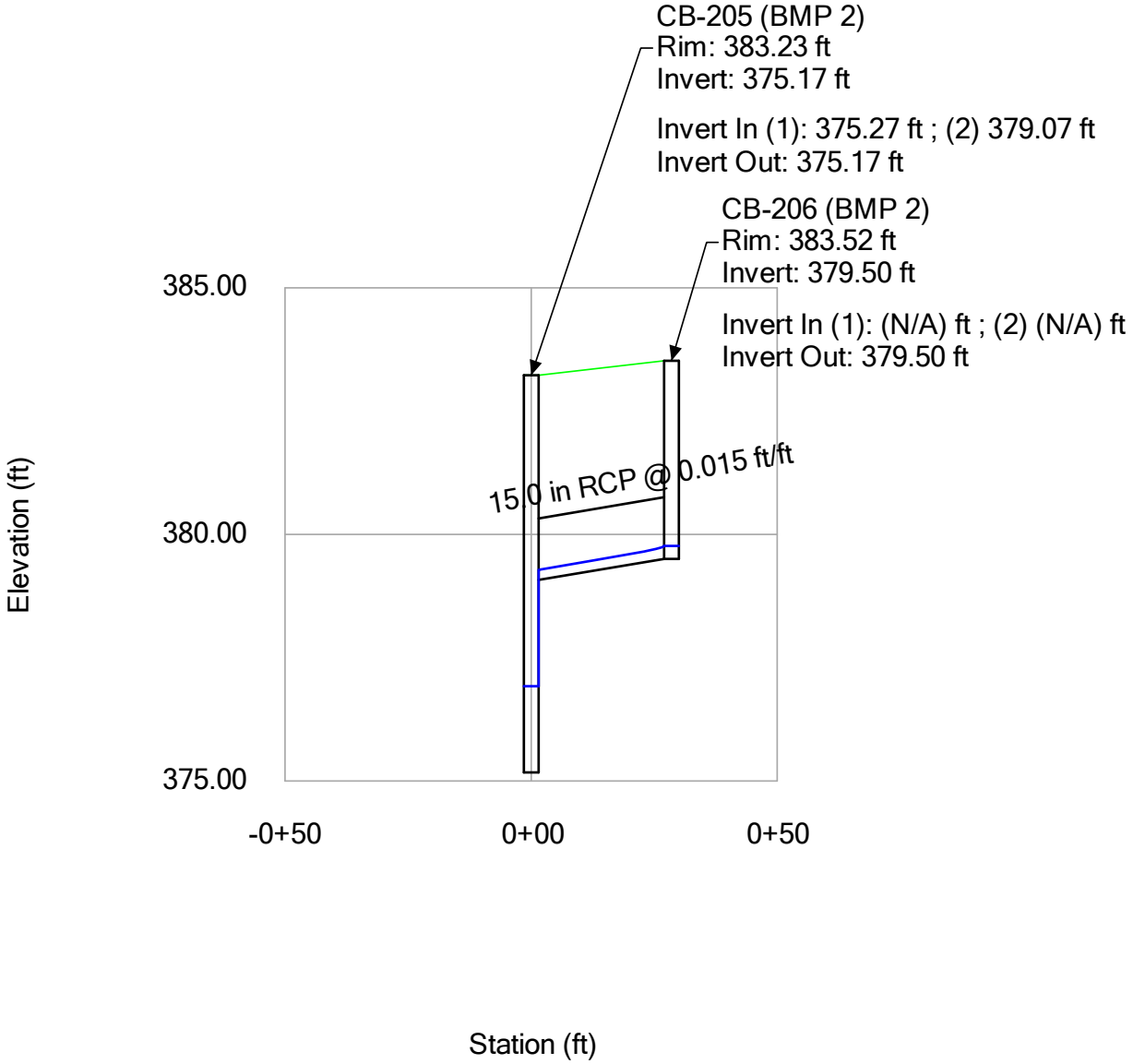
SCM 2 25-YR


CB-209 (BMP 2)
Rim: 389.06 ft
Invert: 382.46 ft
Invert In (1): 382.66 ft ; (2) 383.51 ft
Invert Out: 382.46 ft
CB-210 (BMP 2)
Rim: 389.07 ft
Invert: 383.81 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 383.81 ft
15.0 in RCP @ 0.011 ft/ft
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

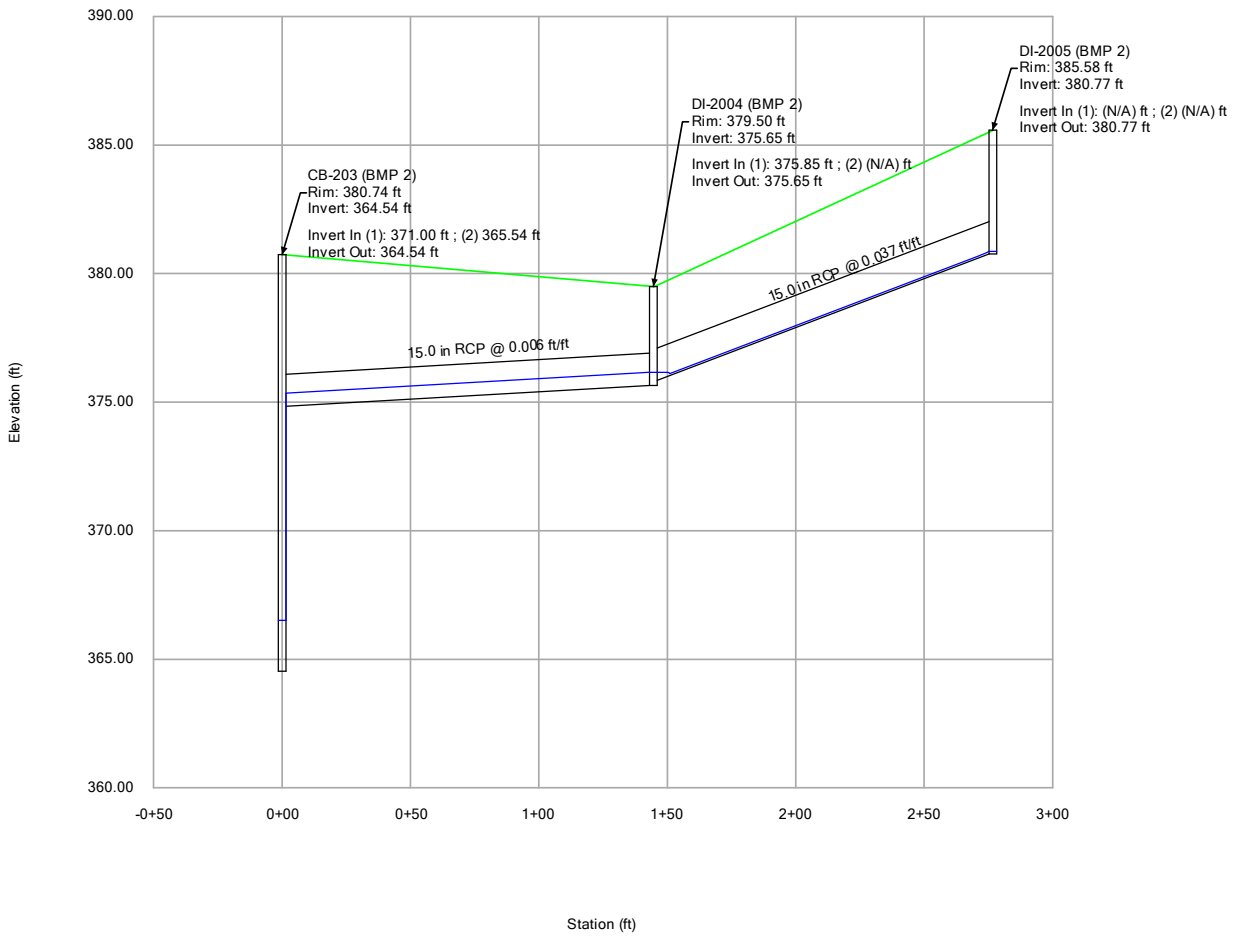
SCM 2 25-YR


CB-207 (BMP 2)
Rim: 385.66 ft
Invert: 378.60 ft
Invert In (1): 378.70 ft ; (2) 380.78 ft
Invert Out: 378.60 ft
CB-208 (BMP 2)
Rim: 385.73 ft
Invert: 380.92 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 380.92 ft
15.0 in RCP @ 0.005 ft/ft
390.00
385.00
380.00
375.00
-0+50
0+00
0+50
Station (ft)

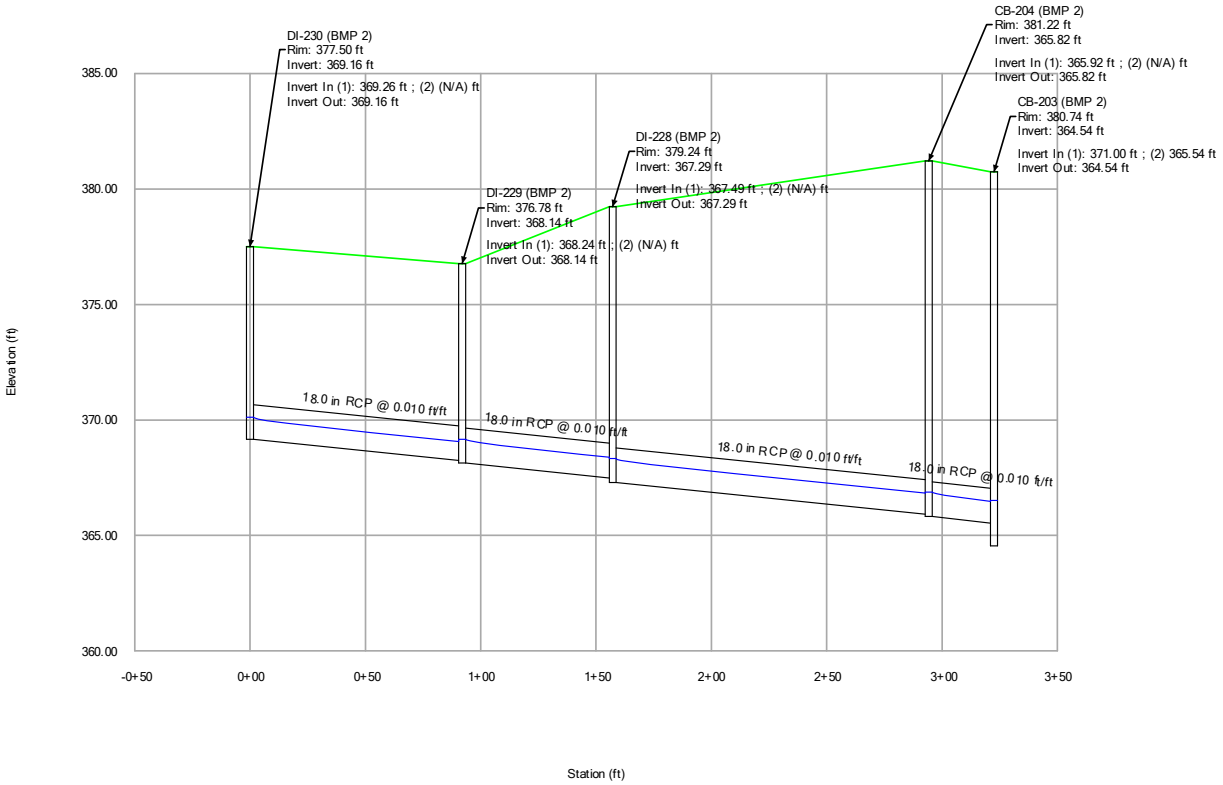
SCM 2 25-YR


CB-205 (BMP 2)
Rim: 383.23 ft
Invert: 375.17 ft
Invert In (1): 375.27 ft ; (2) 379.07 ft
Invert Out: 375.17 ft
CB-206 (BMP 2)
Rim: 383.52 ft
Invert: 379.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 379.50 ft
15.0 in RCP @ 0.015 ft/ft
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

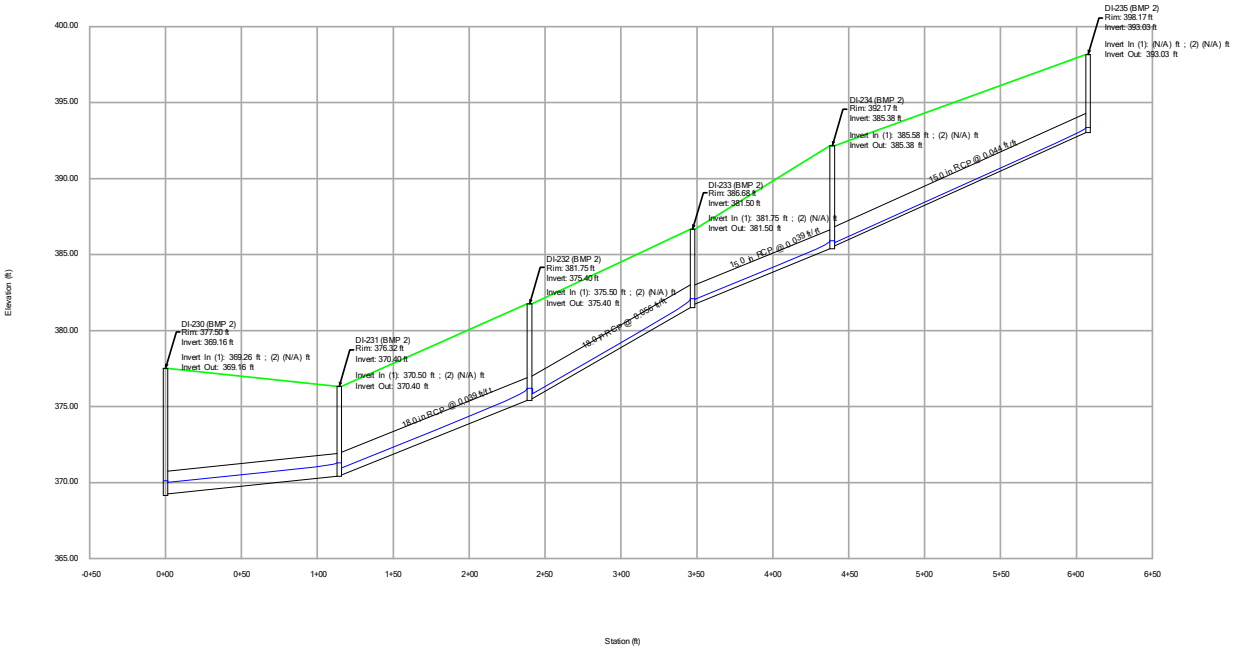
SCM 2 25-YR


390.00
385.00
380.00
375.00
370.00
365.00
360.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)
CB-203 (BMP 2)
Rim: 380.74 ft
Invert: 364.54 ft
Invert In (1): 371.00 ft ; (2) 365.54 ft
Invert Out: 364.54 ft
DI-2004 (BMP 2)
Rim: 379.50 ft
Invert: 375.65 ft
Invert In (1): 375.85 ft ; (2) (N/A) ft
Invert Out: 375.65 ft
DI-2005 (BMP 2)
Rim: 385.58 ft
Invert: 380.77 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 380.77 ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.037 ft/ft

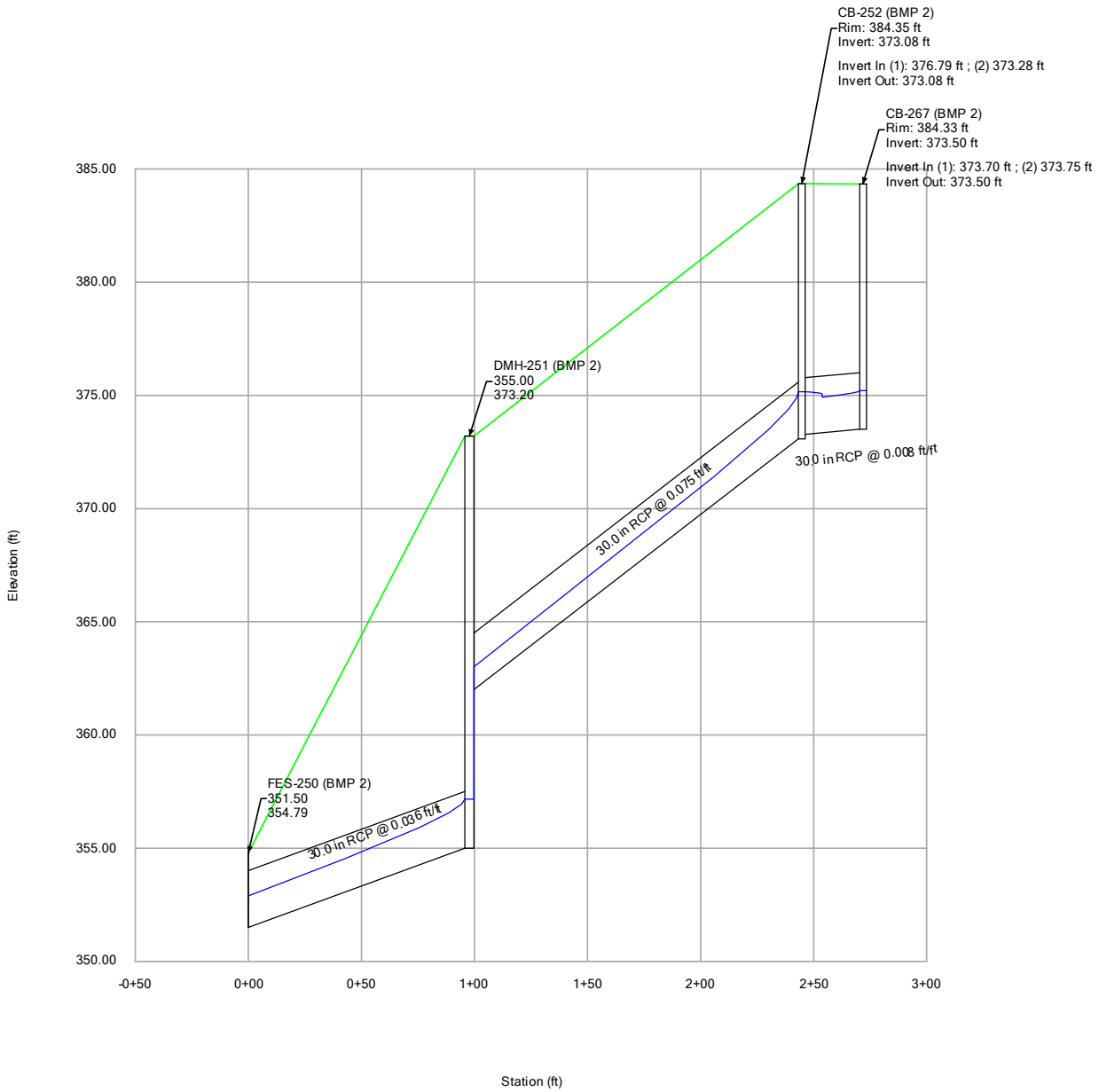
SCM 2 25-YR


DI-230 (BMP 2)
Rim: 377.50 ft
Invert: 369.16 ft
Invert In (1): 369.26 ft ; (2) (N/A) ft
Invert Out: 369.16 ft
DI-229 (BMP 2)
Rim: 376.78 ft
Invert: 368.14 ft
Invert In (1): 368.24 ft ; (2) (N/A) ft
Invert Out: 368.14 ft
DI-228 (BMP 2)
Rim: 379.24 ft
Invert: 367.29 ft
Invert In (1): 367.49 ft ; (2) (N/A) ft
Invert Out: 367.29 ft
CB-204 (BMP 2)
Rim: 381.22 ft
Invert: 365.82 ft
Invert In (1): 365.92 ft ; (2) (N/A) ft
Invert Out: 365.82 ft
CB-203 (BMP 2)
Rim: 380.74 ft
Invert: 364.54 ft
Invert In (1): 371.00 ft ; (2) 365.54 ft
Invert Out: 364.54 ft
18.0 in RCP @ 0.010 ft/ft
18.0 in RCP @ 0.010 ft/ft
18.0 in RCP @ 0.010 ft/ft
18.0 in RCP @ 0.010 ft/ft
385.00
380.00
375.00
370.00
365.00
360.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

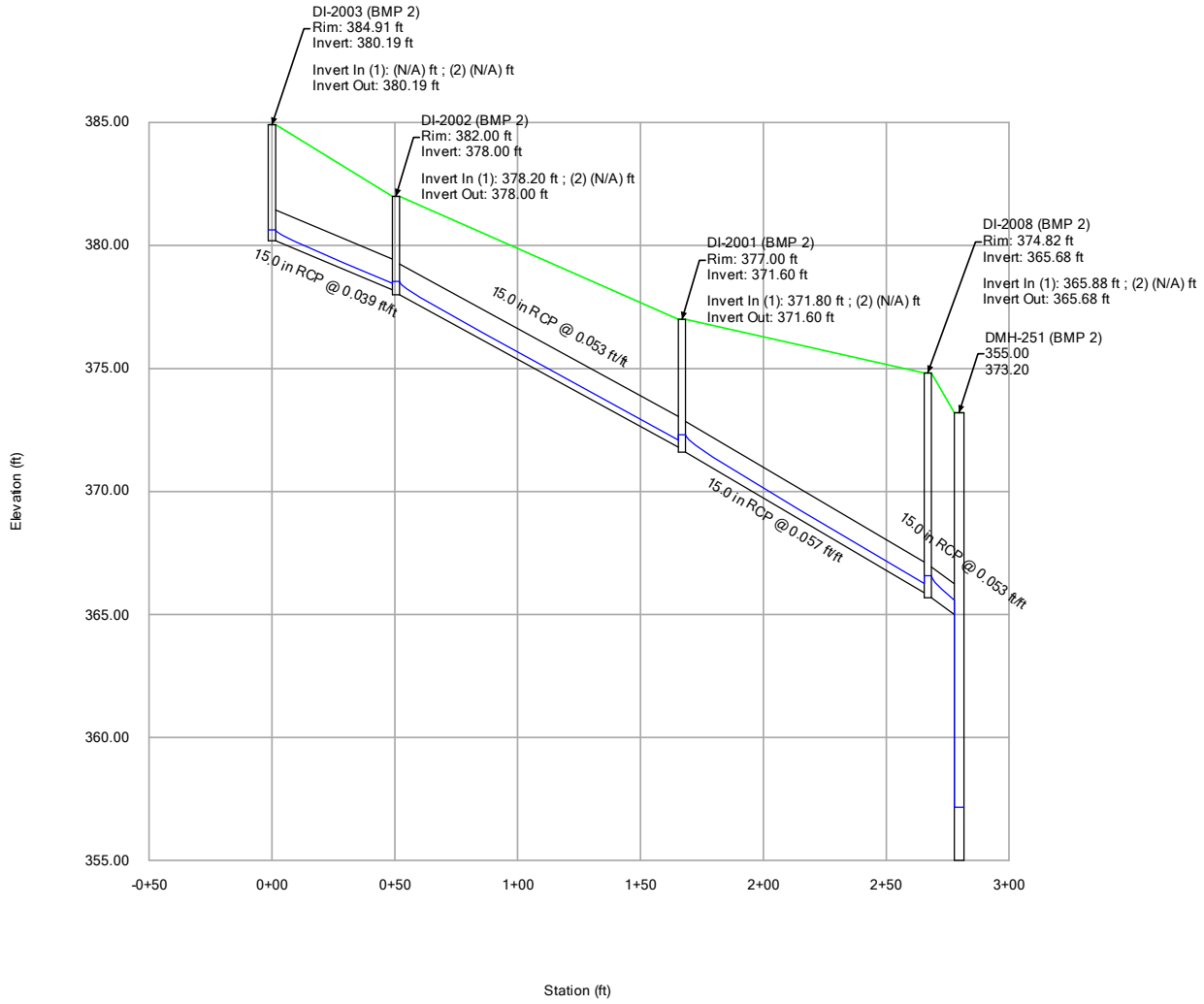
SCM 2 25-YR


DI-230 (BMP 2)
Rim: 377.50 ft
Invert: 369.16 ft
Invert In (1): 369.26 ft ; (2) (N/A) ft
Invert Out: 369.16 ft
DI-231 (BMP 2)
Rim: 376.32 ft
Invert: 370.40 ft
Invert In (1): 370.50 ft ; (2) (N/A) ft
Invert Out: 370.40 ft
DI-232 (BMP 2)
Rim: 381.75 ft
Invert: 375.40 ft
Invert In (1): 375.50 ft ; (2) (N/A) ft
Invert Out: 375.40 ft
DI-233 (BMP 2)
Rim: 386.69 ft
Invert: 381.50 ft
Invert In (1): 381.75 ft ; (2) (N/A) ft
Invert Out: 381.50 ft
DI-234 (BMP 2)
Rim: 392.17 ft
Invert: 385.38 ft
Invert In (1): 385.58 ft ; (2) (N/A) ft
Invert Out: 385.38 ft
DI-235 (BMP 2)
Rim: 398.17 ft
Invert: 393.03 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.03 ft
18.0 in RCP @ 0.069 ft/ft
18.0 in RCP @ 0.056 ft/ft
15.0 in RCP @ 0.039 ft/ft
15.0 in RCP @ 0.044 ft/ft
Elevation (ft)
Station (ft)
400.00
395.00
390.00
385.00
380.00
375.00
370.00
365.00
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
6+00
6+50

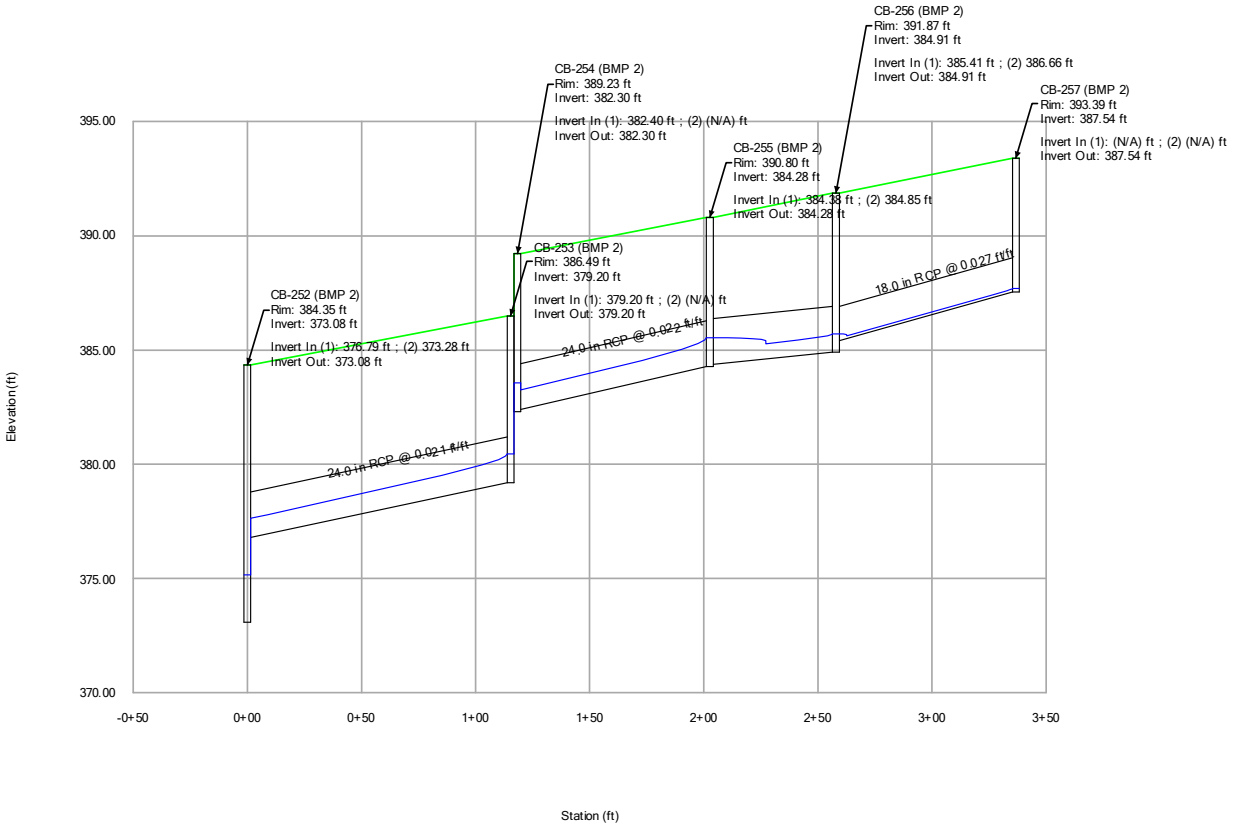
SCM 2 25-YR


CB-252 (BMP 2)
Rim: 384.35 ft
Invert: 373.08 ft
Invert In (1): 376.79 ft ; (2) 373.28 ft
Invert Out: 373.08 ft
CB-267 (BMP 2)
Rim: 384.33 ft
Invert: 373.50 ft
Invert In (1): 373.70 ft ; (2) 373.75 ft
Invert Out: 373.50 ft
DMH-251 (BMP 2)
355.00
373.20
FES-250 (BMP 2)
351.50
354.79
30.0 in RCP @ 0.075 ft/ft
30.0 in RCP @ 0.008 ft/ft
30.0 in RCP @ 0.036 ft/ft
385.00
380.00
375.00
370.00
365.00
360.00
355.00
350.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

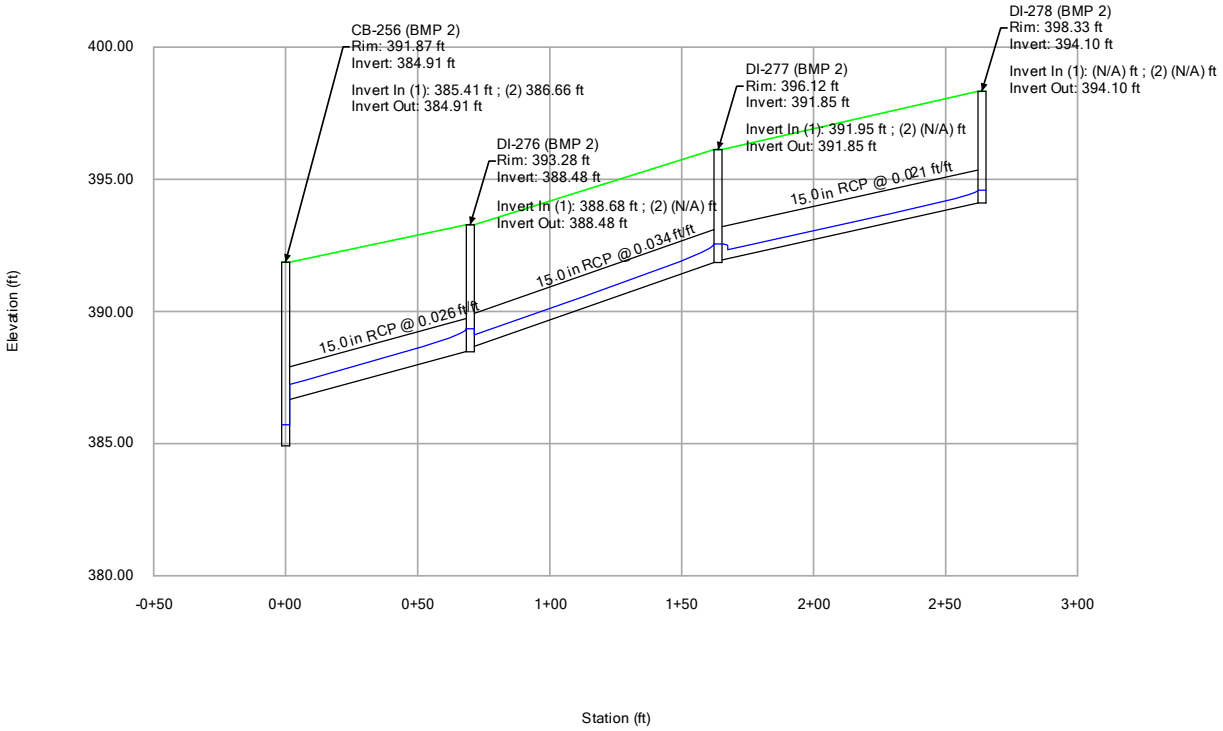
SCM 2 25-YR


DI-2003 (BMP 2)
Rim: 384.91 ft
Invert: 380.19 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 380.19 ft
DI-2002 (BMP 2)
Rim: 382.00 ft
Invert: 378.00 ft
Invert In (1): 378.20 ft ; (2) (N/A) ft
Invert Out: 378.00 ft
DI-2001 (BMP 2)
Rim: 377.00 ft
Invert: 371.60 ft
Invert In (1): 371.80 ft ; (2) (N/A) ft
Invert Out: 371.60 ft
DI-2008 (BMP 2)
Rim: 374.82 ft
Invert: 365.68 ft
Invert In (1): 365.88 ft ; (2) (N/A) ft
Invert Out: 365.68 ft
DMH-251 (BMP 2)
355.00
373.20
15.0 in RCP @ 0.039 ft/ft
15.0 in RCP @ 0.053 ft/ft
15.0 in RCP @ 0.057 ft/ft
15.0 in RCP @ 0.053 ft/ft
385.00
380.00
375.00
370.00
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

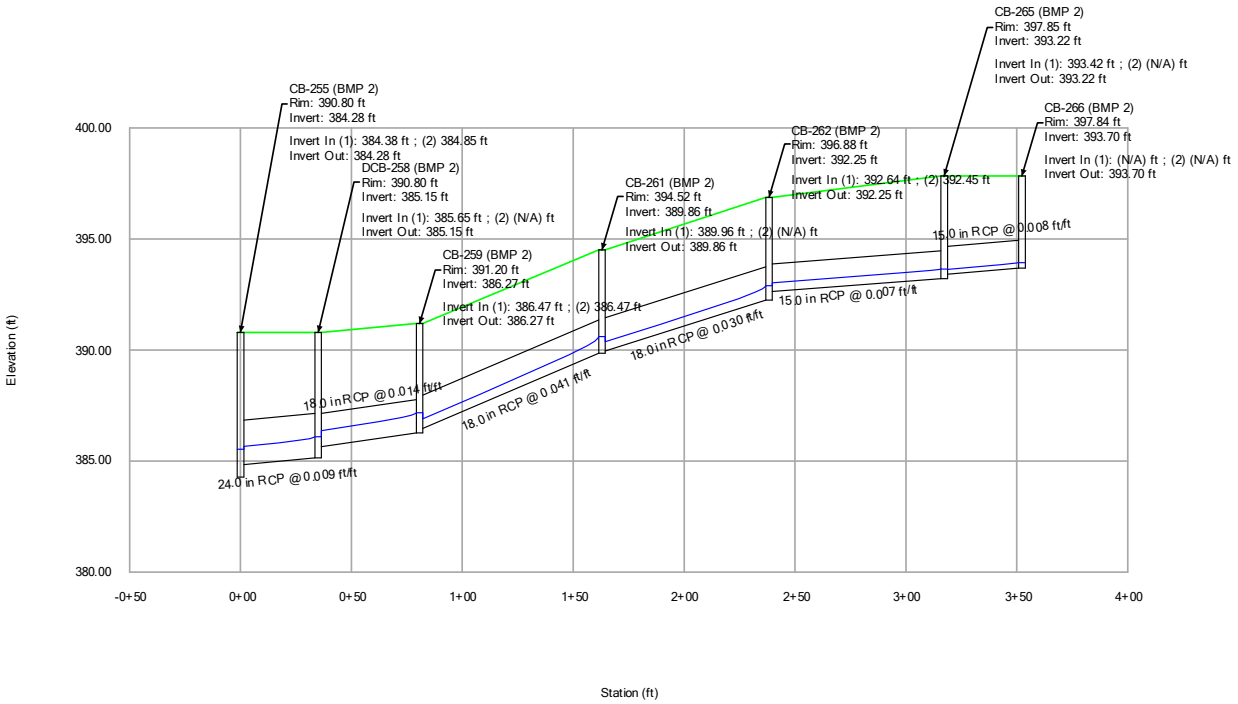
SCM 2 25-YR


CB-256 (BMP 2)
Rim: 391.87 ft
Invert: 384.91 ft
Invert In (1): 385.41 ft ; (2) 386.66 ft
Invert Out: 384.91 ft
CB-254 (BMP 2)
Rim: 389.23 ft
Invert: 382.30 ft
Invert In (1): 382.40 ft ; (2) (N/A) ft
Invert Out: 382.30 ft
CB-257 (BMP 2)
Rim: 393.39 ft
Invert: 387.54 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 387.54 ft
CB-255 (BMP 2)
Rim: 390.80 ft
Invert: 384.28 ft
Invert In (1): 384.33 ft ; (2) 384.85 ft
Invert Out: 384.28 ft
CB-253 (BMP 2)
Rim: 386.49 ft
Invert: 379.20 ft
Invert In (1): 379.20 ft ; (2) (N/A) ft
Invert Out: 379.20 ft
CB-252 (BMP 2)
Rim: 384.35 ft
Invert: 373.08 ft
Invert In (1): 376.79 ft ; (2) 373.28 ft
Invert Out: 373.08 ft
18.0 in RCP @ 0.027 ft/ft
24.0 in RCP @ 0.022 ft/ft
24.0 in RCP @ 0.021 ft/ft
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

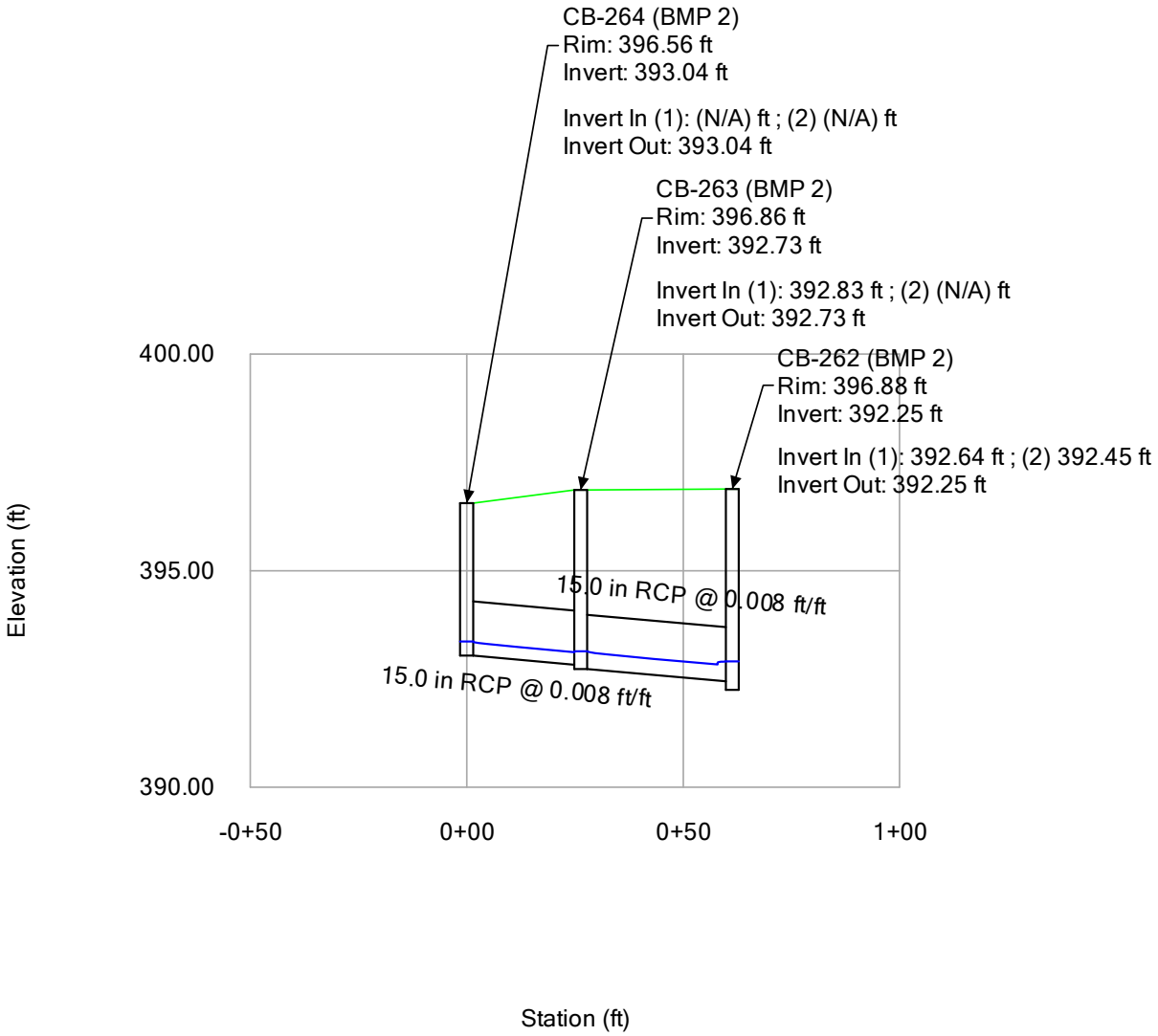
SCM 2 25-YR


CB-256 (BMP 2)
Rim: 391.87 ft
Invert: 384.91 ft
Invert In (1): 385.41 ft ; (2) 386.66 ft
Invert Out: 384.91 ft
DI-276 (BMP 2)
Rim: 393.28 ft
Invert: 388.48 ft
Invert In (1): 388.68 ft ; (2) (N/A) ft
Invert Out: 388.48 ft
DI-277 (BMP 2)
Rim: 396.12 ft
Invert: 391.85 ft
Invert In (1): 391.95 ft ; (2) (N/A) ft
Invert Out: 391.85 ft
DI-278 (BMP 2)
Rim: 398.33 ft
Invert: 394.10 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 394.10 ft
15.0 in RCP @ 0.026 ft/ft
15.0 in RCP @ 0.034 ft/ft
15.0 in RCP @ 0.021 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
Station (ft)

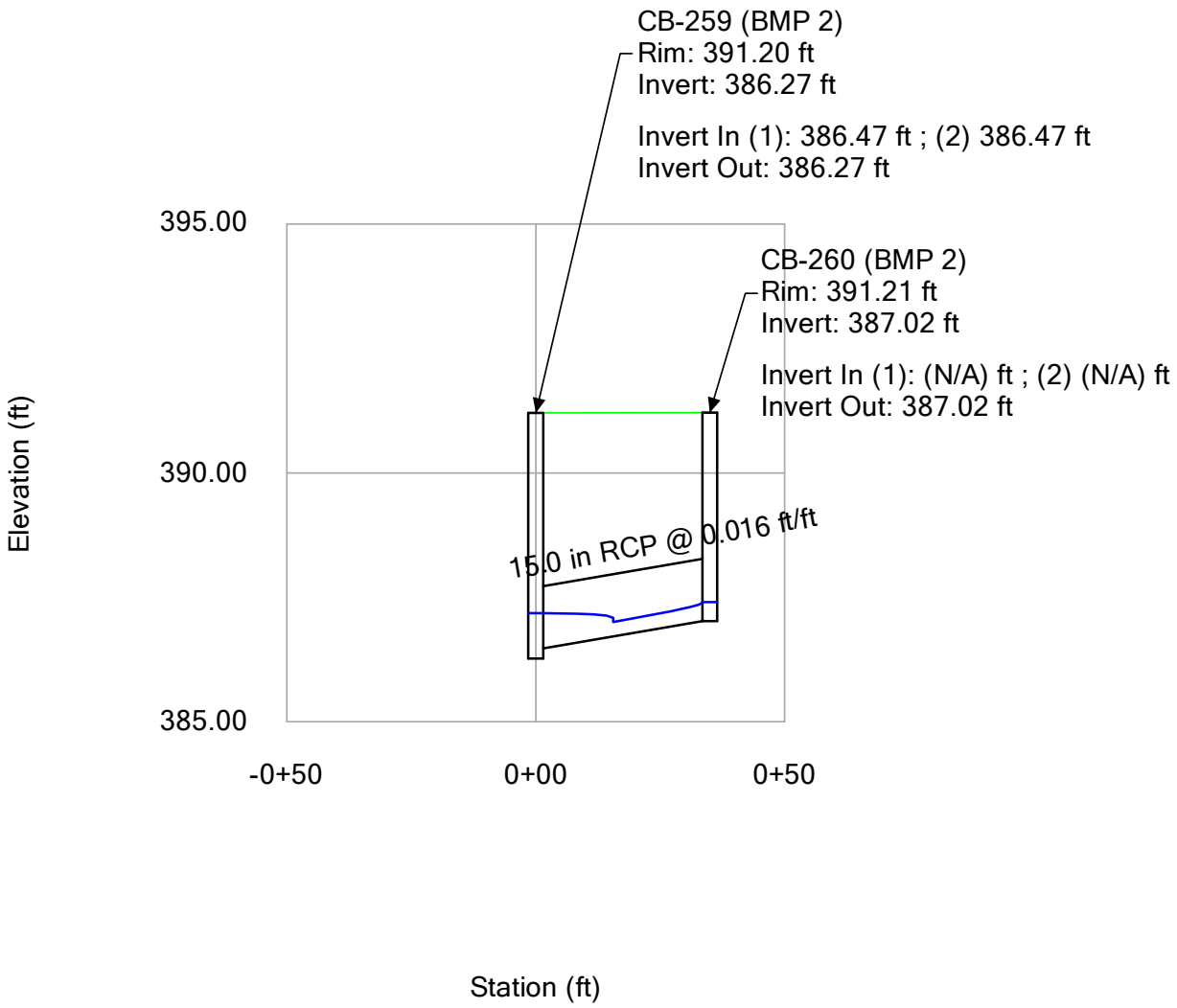
SCM 2 25-YR


CB-265 (BMP 2)
Rim: 397.85 ft
Invert: 393.22 ft
Invert In (1): 393.42 ft ; (2) (N/A) ft
Invert Out: 393.22 ft
CB-255 (BMP 2)
Rim: 390.80 ft
Invert: 384.28 ft
Invert In (1): 384.38 ft ; (2) 384.85 ft
Invert Out: 384.28 ft
CB-266 (BMP 2)
Rim: 397.84 ft
Invert: 393.70 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.70 ft
CB-262 (BMP 2)
Rim: 396.88 ft
Invert: 392.25 ft
Invert In (1): 392.64 ft ; (2) 392.45 ft
Invert Out: 392.25 ft
DCB-258 (BMP 2)
Rim: 390.80 ft
Invert: 385.15 ft
Invert In (1): 385.65 ft ; (2) (N/A) ft
Invert Out: 385.15 ft
CB-261 (BMP 2)
Rim: 394.52 ft
Invert: 389.86 ft
Invert In (1): 389.96 ft ; (2) (N/A) ft
Invert Out: 389.86 ft
CB-259 (BMP 2)
Rim: 391.20 ft
Invert: 386.27 ft
Invert In (1): 386.47 ft ; (2) 386.47 ft
Invert Out: 386.27 ft
15.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.030 ft/ft
18.0 in RCP @ 0.014 ft/ft
18.0 in RCP @ 0.041 ft/ft
24.0 in RCP @ 0.009 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

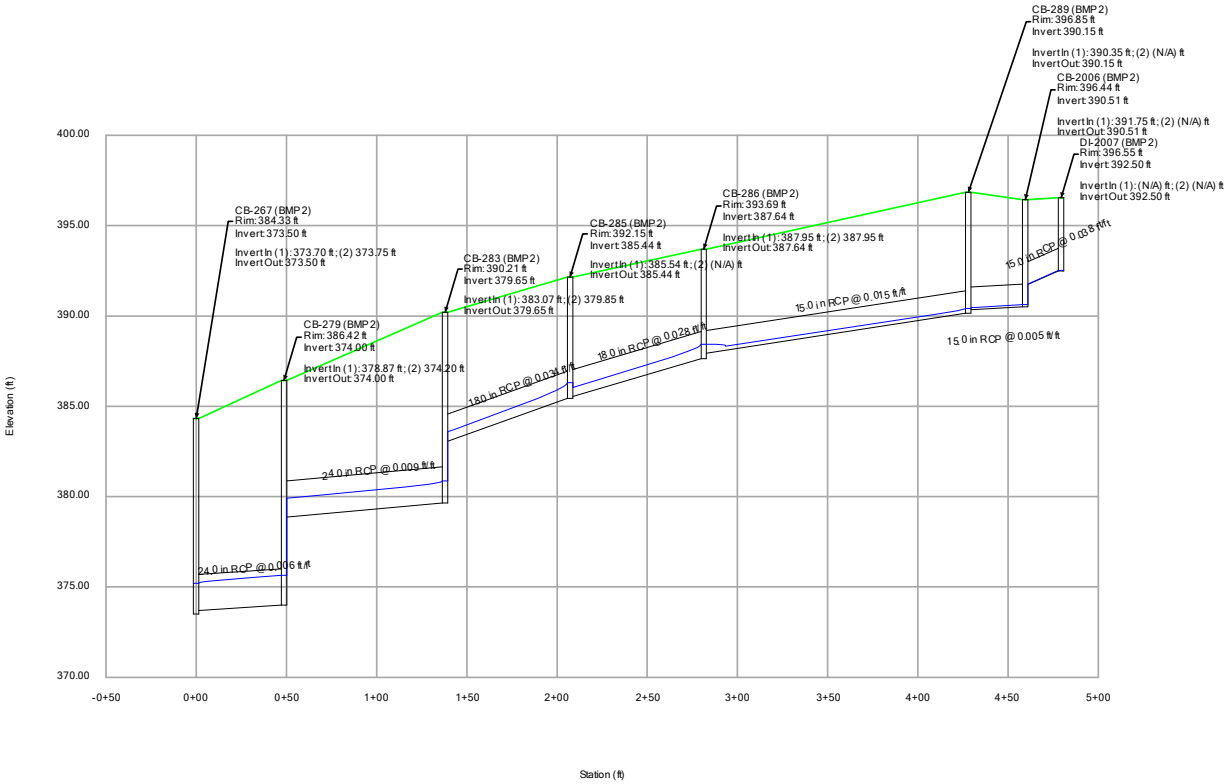
SCM 2 25-YR


CB-264 (BMP 2)
Rim: 396.56 ft
Invert: 393.04 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.04 ft
CB-263 (BMP 2)
Rim: 396.86 ft
Invert: 392.73 ft
Invert In (1): 392.83 ft ; (2) (N/A) ft
Invert Out: 392.73 ft
CB-262 (BMP 2)
Rim: 396.88 ft
Invert: 392.25 ft
Invert In (1): 392.64 ft ; (2) 392.45 ft
Invert Out: 392.25 ft
400.00
395.00
390.00
Elevation (ft)
15.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.008 ft/ft
-0+50
0+00
0+50
1+00
Station (ft)

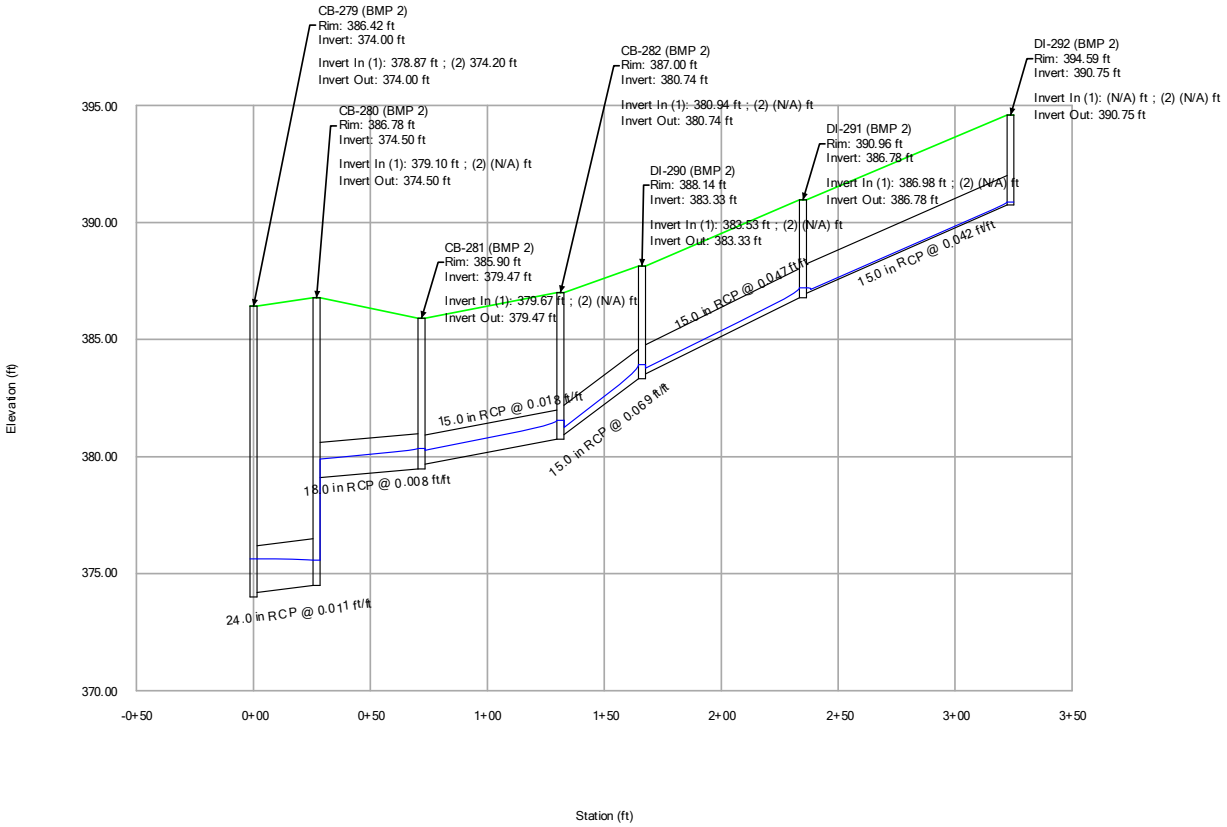
SCM 2 25-YR


CB-259 (BMP 2)
Rim: 391.20 ft
Invert: 386.27 ft
Invert In (1): 386.47 ft ; (2) 386.47 ft
Invert Out: 386.27 ft
CB-260 (BMP 2)
Rim: 391.21 ft
Invert: 387.02 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 387.02 ft
15.0 in RCP @ 0.016 ft/ft
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

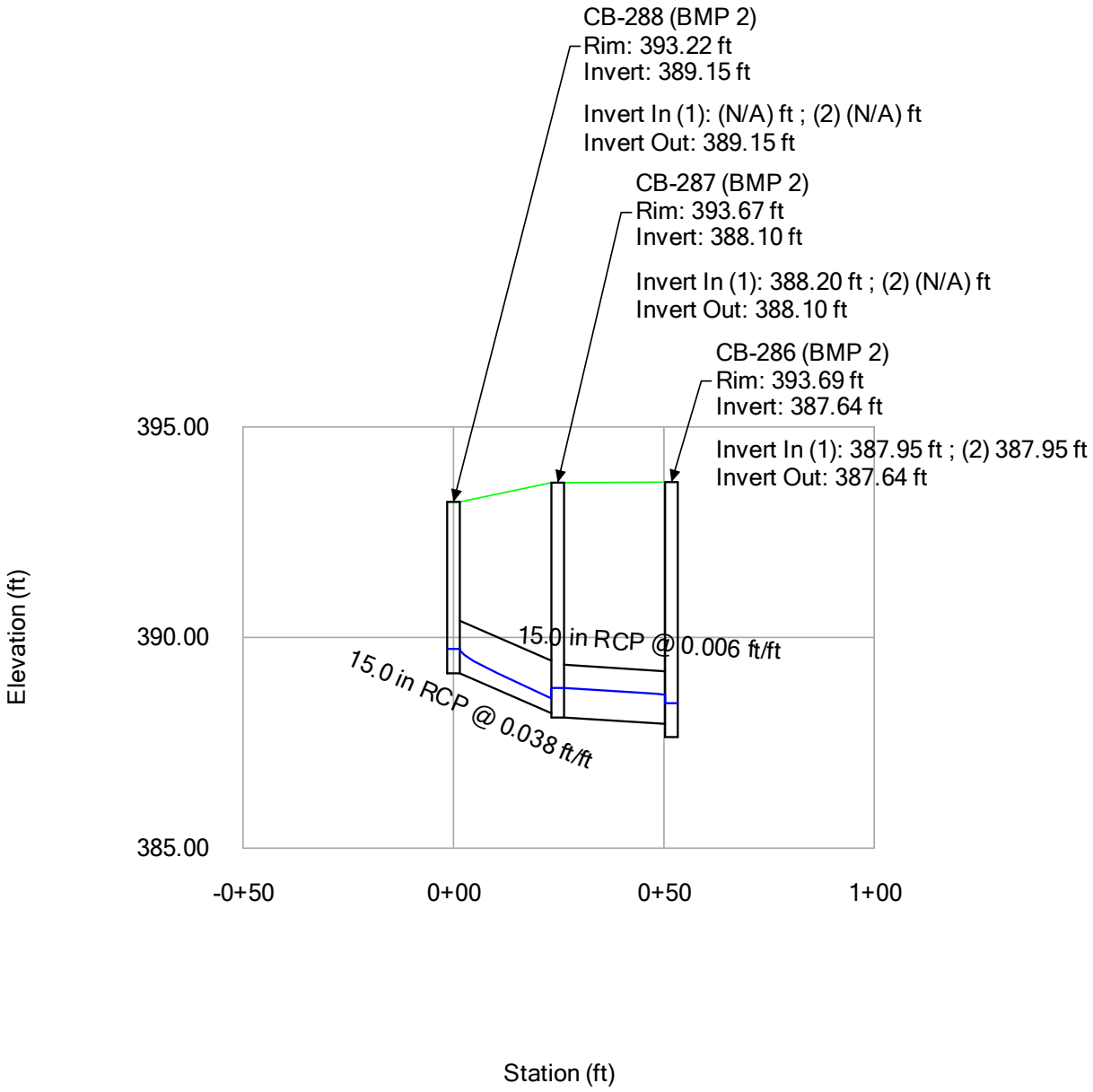
SCM 2 25-YR


CB-289 (BMP2)
Rim: 396.85 ft
Invert: 390.15 ft
InvertIn (1): 390.35 ft; (2) (N/A) ft
InvertOut: 390.15 ft
CB-2006 (BMP2)
Rim: 396.44 ft
Invert: 390.51 ft
InvertIn (1): 391.75 ft; (2) (N/A) ft
InvertOut: 390.51 ft
DI-2007 (BMP2)
Rim: 396.55 ft
Invert: 392.50 ft
InvertIn (1): (N/A) ft; (2) (N/A) ft
InvertOut: 392.50 ft
CB-286 (BMP2)
Rim: 393.69 ft
Invert: 387.64 ft
InvertIn (1): 387.95 ft; (2) 387.95 ft
InvertOut: 387.64 ft
CB-285 (BMP2)
Rim: 392.15 ft
Invert: 385.44 ft
InvertIn (1): 385.54 ft; (2) (N/A) ft
InvertOut: 385.44 ft
CB-283 (BMP2)
Rim: 390.21 ft
Invert: 379.65 ft
InvertIn (1): 383.07 ft; (2) 379.85 ft
InvertOut: 379.65 ft
CB-267 (BMP2)
Rim: 384.33 ft
Invert: 373.50 ft
InvertIn (1): 373.70 ft; (2) 373.75 ft
InvertOut: 373.50 ft
CB-279 (BMP2)
Rim: 386.42 ft
Invert: 374.00 ft
InvertIn (1): 378.87 ft; (2) 374.20 ft
InvertOut: 374.00 ft
15.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.015 ft/ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.028 ft/ft
18.0 in RCP @ 0.031 ft/ft
24.0 in RCP @ 0.009 ft/ft
24.0 in RCP @ 0.006 ft/ft
400.00
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

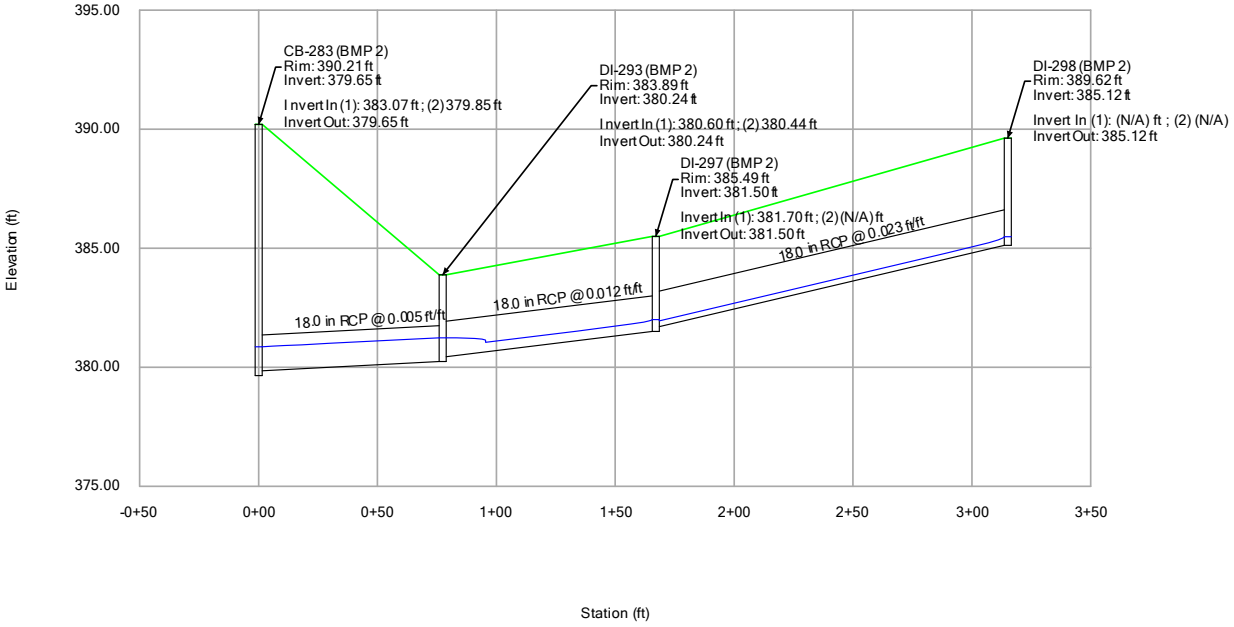
SCM 2 25-YR


CB-279 (BMP 2)
Rim: 386.42 ft
Invert: 374.00 ft
Invert In (1): 378.87 ft ; (2) 374.20 ft
Invert Out: 374.00 ft
CB-280 (BMP 2)
Rim: 386.78 ft
Invert: 374.50 ft
Invert In (1): 379.10 ft ; (2) (N/A) ft
Invert Out: 374.50 ft
CB-281 (BMP 2)
Rim: 385.90 ft
Invert: 379.47 ft
Invert In (1): 379.67 ft ; (2) (N/A) ft
Invert Out: 379.47 ft
CB-282 (BMP 2)
Rim: 387.00 ft
Invert: 380.74 ft
Invert In (1): 380.94 ft ; (2) (N/A) ft
Invert Out: 380.74 ft
DI-290 (BMP 2)
Rim: 388.14 ft
Invert: 383.33 ft
Invert In (1): 383.53 ft ; (2) (N/A) ft
Invert Out: 383.33 ft
DI-291 (BMP 2)
Rim: 390.96 ft
Invert: 386.78 ft
Invert In (1): 386.98 ft ; (2) (N/A) ft
Invert Out: 386.78 ft
DI-292 (BMP 2)
Rim: 394.59 ft
Invert: 390.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.75 ft
24.0 in RCP @ 0.011 ft/ft
18.0 in RCP @ 0.008 ft/ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.069 ft/ft
15.0 in RCP @ 0.047 ft/ft
15.0 in RCP @ 0.042 ft/ft
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

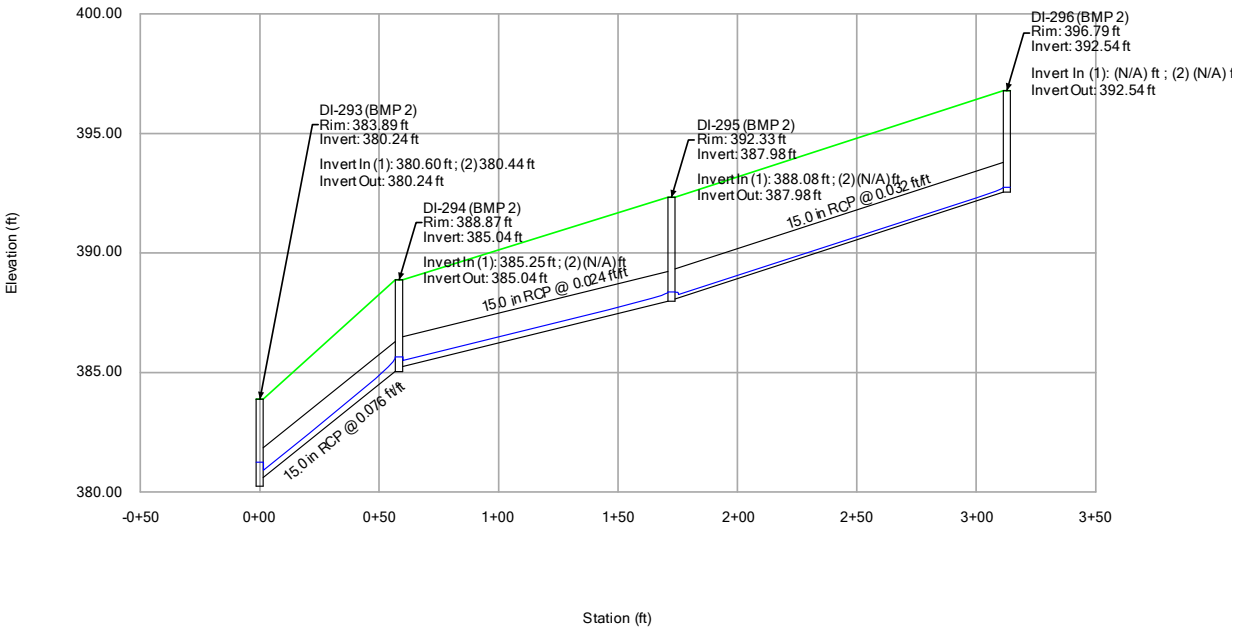
SCM 2 25-YR


CB-288 (BMP 2)
Rim: 393.22 ft
Invert: 389.15 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 389.15 ft
CB-287 (BMP 2)
Rim: 393.67 ft
Invert: 388.10 ft
Invert In (1): 388.20 ft ; (2) (N/A) ft
Invert Out: 388.10 ft
CB-286 (BMP 2)
Rim: 393.69 ft
Invert: 387.64 ft
Invert In (1): 387.95 ft ; (2) 387.95 ft
Invert Out: 387.64 ft
395.00
390.00
385.00
Elevation (ft)
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.038 ft/ft
-0+50
0+00
0+50
1+00
Station (ft)

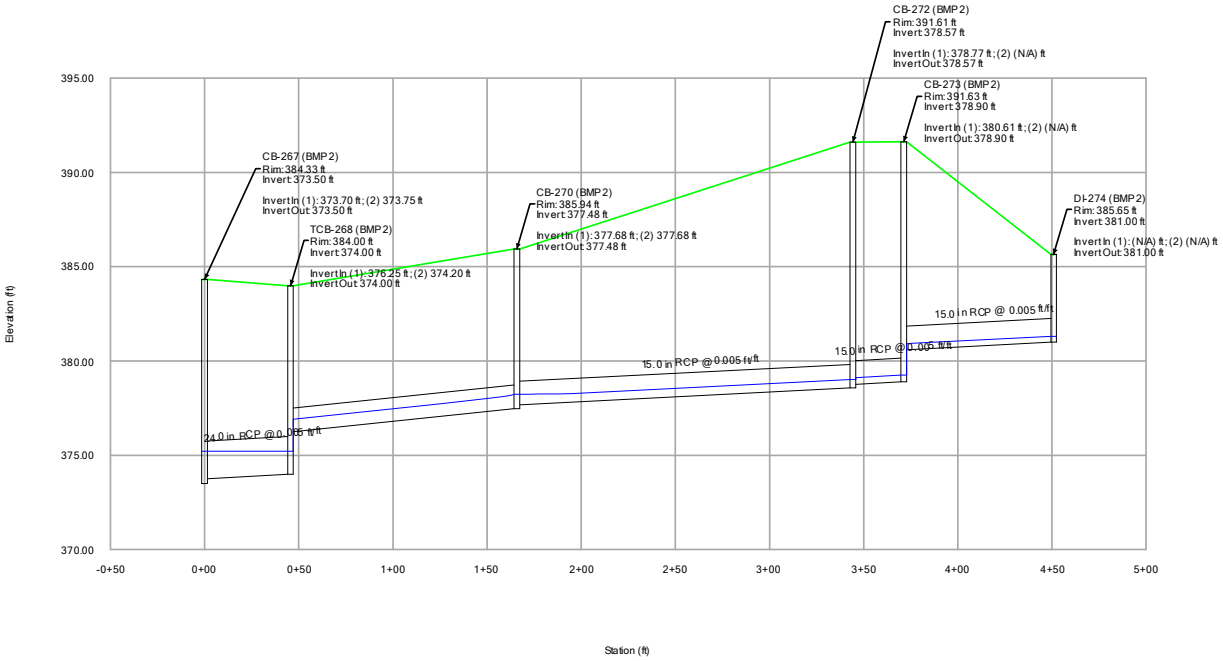
SCM 2 25-YR


395.00
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)
CB-283 (BMP 2)
Rim: 390.21 ft
Invert: 379.65 ft
Invert In (1): 383.07 ft ; (2) 379.85 ft
Invert Out: 379.65 ft
DI-293 (BMP 2)
Rim: 383.89 ft
Invert: 380.24 ft
Invert In (1): 380.60 ft ; (2) 380.44 ft
Invert Out: 380.24 ft
DI-297 (BMP 2)
Rim: 385.49 ft
Invert: 381.50 ft
Invert In (1): 381.70 ft ; (2) (N/A) ft
Invert Out: 381.50 ft
DI-298 (BMP 2)
Rim: 389.62 ft
Invert: 385.12 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 385.12 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.023 ft/ft

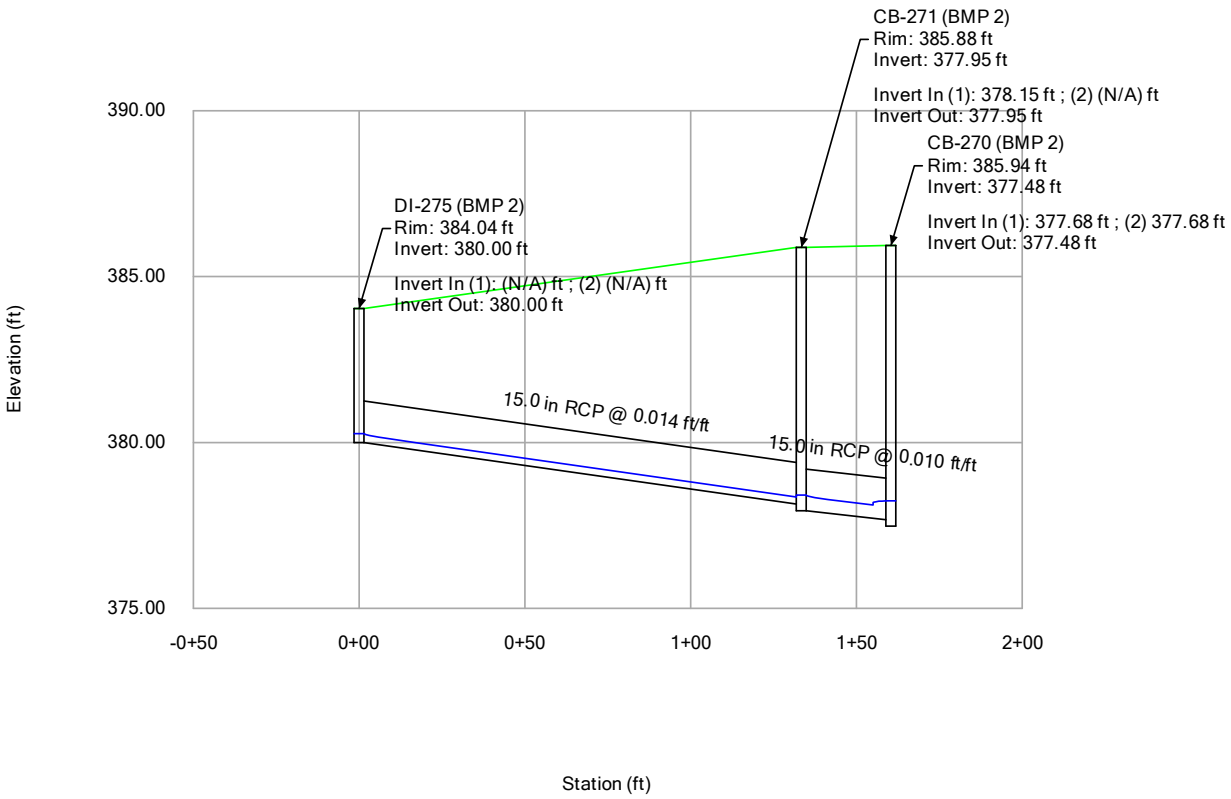
SCM 2 25-YR


400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)
DI-293 (BMP 2)
Rim: 383.89 ft
Invert: 380.24 ft
Invert In (1): 380.60 ft ; (2) 380.44 ft
Invert Out: 380.24 ft
DI-294 (BMP 2)
Rim: 388.87 ft
Invert: 385.04 ft
Invert In (1): 385.25 ft ; (2) (N/A) ft
Invert Out: 385.04 ft
DI-295 (BMP 2)
Rim: 392.33 ft
Invert: 387.98 ft
Invert In (1): 388.08 ft ; (2) (N/A) ft
Invert Out: 387.98 ft
DI-296 (BMP 2)
Rim: 396.79 ft
Invert: 392.54 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 392.54 ft
15.0 in RCP @ 0.076 ft/ft
15.0 in RCP @ 0.024 ft/ft
15.0 in RCP @ 0.032 ft/ft

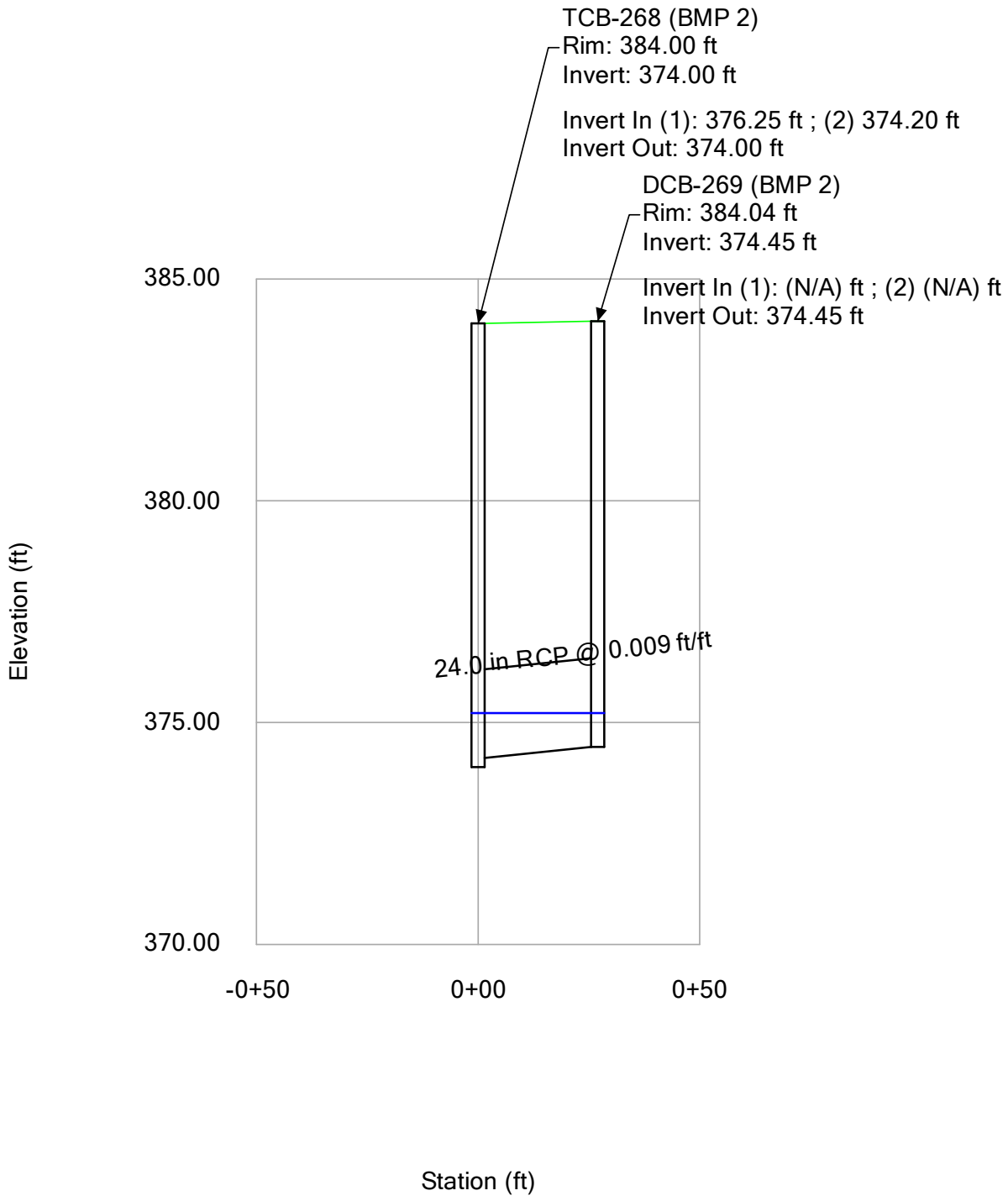
SCM 2 25-YR


CB-272 (BMP2)
Rim: 391.61 ft
Invert: 378.57 ft
InvertIn (1): 378.77 ft; (2) (N/A) ft
InvertOut: 378.57 ft
CB-273 (BMP2)
Rim: 391.63 ft
Invert: 378.90 ft
InvertIn (1): 380.61 ft; (2) (N/A) ft
InvertOut: 378.90 ft
CB-267 (BMP2)
Rim: 384.33 ft
Invert: 373.50 ft
InvertIn (1): 373.70 ft; (2) 373.75 ft
InvertOut: 373.50 ft
TCB-268 (BMP2)
Rim: 384.00 ft
Invert: 374.00 ft
InvertIn (1): 376.25 ft; (2) 374.20 ft
InvertOut: 374.00 ft
CB-270 (BMP2)
Rim: 385.94 ft
Invert: 377.48 ft
InvertIn (1): 377.68 ft; (2) 377.68 ft
InvertOut: 377.48 ft
DI-274 (BMP2)
Rim: 385.65 ft
Invert: 381.00 ft
InvertIn (1): (N/A) ft; (2) (N/A) ft
InvertOut: 381.00 ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
395.00
390.00
385.00
380.00
375.00
370.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

SCM 2 25-YR


CB-271 (BMP 2)
Rim: 385.88 ft
Invert: 377.95 ft
Invert In (1): 378.15 ft ; (2) (N/A) ft
Invert Out: 377.95 ft
CB-270 (BMP 2)
Rim: 385.94 ft
Invert: 377.48 ft
Invert In (1): 377.68 ft ; (2) 377.68 ft
Invert Out: 377.48 ft
DI-275 (BMP 2)
Rim: 384.04 ft
Invert: 380.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 380.00 ft
15.0 in RCP @ 0.014 ft/ft
15.0 in RCP @ 0.010 ft/ft
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

SCM 2 25-YR


TCB-268 (BMP 2)
Rim: 384.00 ft
Invert: 374.00 ft
Invert In (1): 376.25 ft ; (2) 374.20 ft
Invert Out: 374.00 ft
DCB-269 (BMP 2)
Rim: 384.04 ft
Invert: 374.45 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 374.45 ft
385.00
380.00
375.00
370.00
Elevation (ft)
24.0 in RCP @ 0.009 ft/ft
-0+50
0+00
0+50
Station (ft)

SCM 2 – INLET SPREAD

SCM 2 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
TCB-222 (BMP 2)	0.457	0.366	2.07	0.00	7.08	7.2	3.2
CB-282 (BMP 2)	0.339	0.232	1.31	0.54	2.94	6.9	2.1
CB-225 (BMP 2)	0.453	0.220	1.24	0.48	1.24	6.7	2.1
CB-217 (BMP 2)	0.359	0.214	1.21	0.45	1.21	6.6	2.1
DCB-221 (BMP 2)	0.227	0.222	1.26	0.00	11.40	5.9	2.9
TCB-268 (BMP 2)	0.389	0.262	1.48	0.00	4.59	5.9	2.9
DCB-258 (BMP 2)	0.329	0.216	1.22	0.22	5.20	6.2	2.0
CB-281 (BMP 2)	0.136	0.159	0.90	0.22	3.79	5.6	1.8
CB-224 (BMP 2)	0.361	0.172	0.97	0.27	3.33	5.8	1.9
CB-280 (BMP 2)	0.265	0.169	0.96	0.26	4.68	5.8	1.9
DCB-202 (BMP 2)	0.337	0.188	1.06	0.00	25.32	5.3	2.7
CB-286 (BMP 2)	0.281	0.159	0.90	0.22	3.30	5.6	1.8
CB-227 (BMP 2)	0.329	0.148	0.84	0.18	0.84	5.4	1.8
CB-270 (BMP 2)	0.317	0.145	0.82	0.17	2.66	5.3	1.7
CB-220 (BMP 2)	0.196	0.132	0.75	0.14	0.75	5.0	1.7
CB-215 (BMP 2)	0.197	0.126	0.72	0.12	4.55	4.9	1.6

SCM 2 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
CB-271 (BMP 2)	0.227	0.126	0.71	0.12	1.05	4.9	1.6
CB-260 (BMP 2)	0.193	0.125	0.71	0.12	0.71	4.8	1.6
CB-267 (BMP 2)	0.166	0.116	0.66	0.10	18.02	4.6	1.6
CB-287 (BMP 2)	0.258	0.113	0.64	0.09	2.27	4.6	1.6
CB-265 (BMP 2)	0.181	0.112	0.63	0.09	0.91	4.5	1.6
CB-259 (BMP 2)	0.134	0.106	0.60	0.07	4.05	4.4	1.5
CB-252 (BMP 2)	0.175	0.106	0.60	0.07	27.12	4.4	1.5
DCB-269 (BMP 2)	0.110	0.119	0.68	0.00	0.68	3.9	2.4
CB-285 (BMP 2)	0.094	0.094	0.53	0.05	3.78	4.1	1.5
CB-216 (BMP 2)	0.039	0.086	0.49	0.04	3.88	3.9	1.4
CB-262 (BMP 2)	0.122	0.092	0.52	0.05	2.19	4.0	1.4
CB-219 (BMP 2)	0.138	0.094	0.53	0.05	1.27	4.1	1.5
CB-283 (BMP 2)	0.114	0.087	0.49	0.04	8.34	3.9	1.4
CB-223 (BMP 2)	0.091	0.087	0.49	0.04	5.20	3.9	1.4
CB-208 (BMP 2)	0.130	0.087	0.49	0.04	0.49	3.9	1.4
CB-205 (BMP 2)	0.166	0.086	0.49	0.04	17.83	3.9	1.4

SCM 2 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

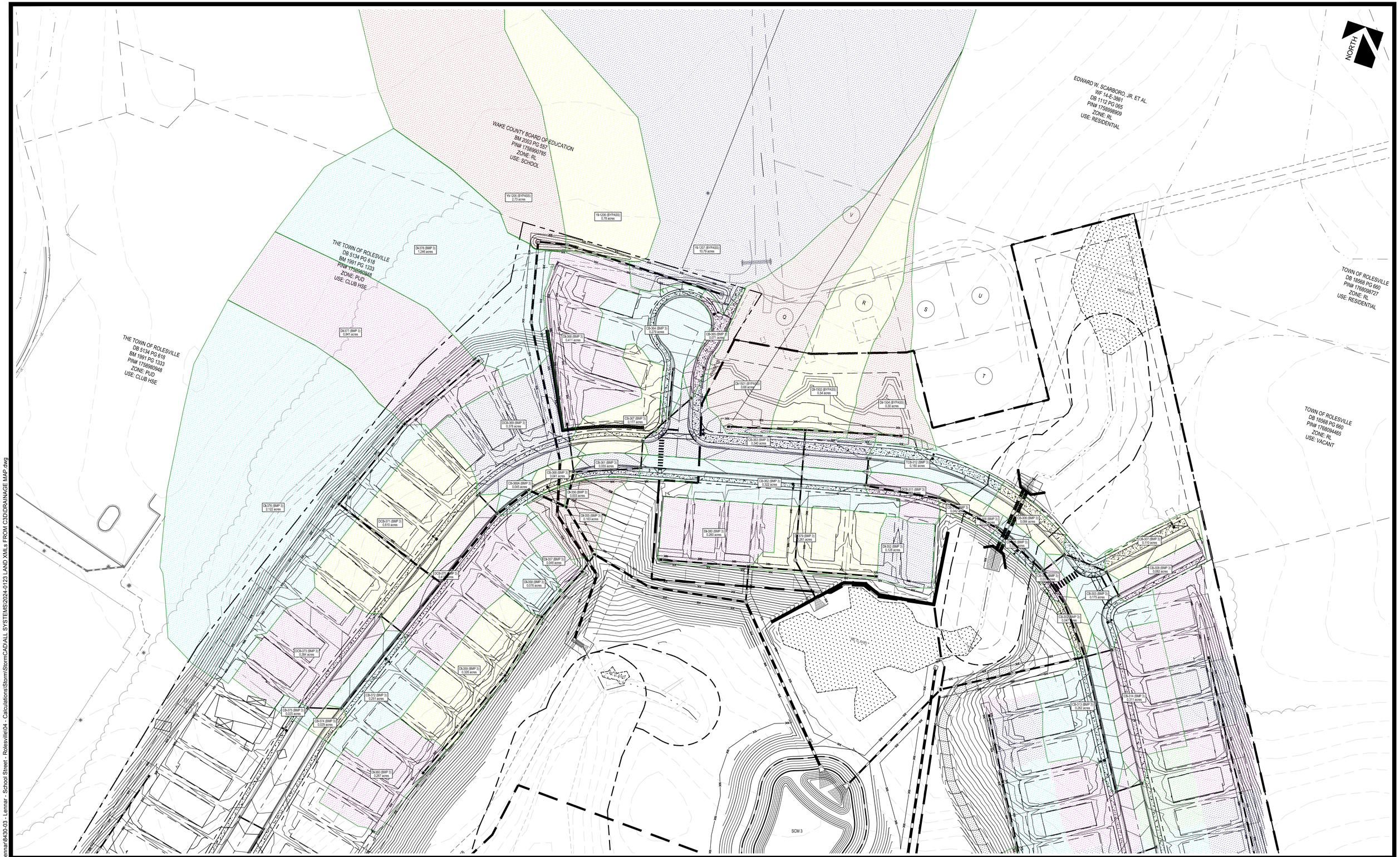
Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
CB-210 (BMP 2)	0.126	0.073	0.41	0.02	0.41	3.5	1.3
CB-203 (BMP 2)	0.102	0.065	0.37	0.01	24.55	3.3	1.3
CB-226 (BMP 2)	0.111	0.064	0.36	0.01	1.19	3.2	1.3
CB-272 (BMP 2)	0.097	0.061	0.35	0.01	0.94	3.1	1.2
CB-206 (BMP 2)	0.084	0.056	0.32	0.01	0.32	3.0	1.2
CB-209 (BMP 2)	0.095	0.056	0.32	0.01	16.58	3.0	1.2
CB-279 (BMP 2)	0.054	0.050	0.28	0.00	13.00	2.7	1.1
CB-207 (BMP 2)	0.095	0.053	0.30	0.00	17.19	2.8	1.2
CB-263 (BMP 2)	0.062	0.053	0.30	0.00	0.81	2.8	1.2
CB-289 (BMP 2)	0.151	0.052	0.30	0.00	0.34	2.8	1.2
CB-213 (BMP 2)	0.062	0.050	0.28	0.00	15.82	2.8	1.1
CB-266 (BMP 2)	0.063	0.050	0.28	0.00	0.28	2.8	1.1
CB-204 (BMP 2)	0.085	0.047	0.27	0.00	5.45	2.7	1.1
CB-212 (BMP 2)	0.069	0.048	0.27	0.00	16.02	2.7	1.1
CB-255 (BMP 2)	0.038	0.031	0.17	0.00	9.05	2.0	0.9
CB-257 (BMP 2)	0.025	0.024	0.13	0.00	0.13	1.8	0.9

SCM 2 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
CB-273 (BMP 2)	0.025	0.023	0.13	0.00	0.60	1.8	0.9
CB-2006 (BMP 2)	0.010	0.010	0.05	0.00	0.06	1.3	0.6
CB-214 (BMP 2)	0.008	0.007	0.04	0.00	15.66	1.2	0.6
CB-254 (BMP 2)	0.000	0.000	0.00	0.00	8.99	0.0	0.0
CB-253 (BMP 2)	0.000	0.000	0.00	0.00	8.93	0.0	0.0

ATTACHMENT 3: DRAINAGE AREA MAPS – SCM 3



G:\NCA\Projects\Lennar\8430-03 - Lennar - School Street - Rolesville\04 - Calculations\Storm\StormCAD\ALL SYSTEMS\2024-0123 LAND XMLs FROM C3D\DRAINAGE MAP.dwg

BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
www.bgeinc.com
NC LICENSE #C-4397

SCM 3 DRAINAGE AREAS

DATE: 3/4/2024

0 50' 100' 150'
SCALE: 1" = 50'

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BGE INC. SHALL BE WITHOUT LIABILITY TO BGE INC.

SCM 3 – 10 YR STORM

SCM 3 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-356 (BMP 3)	0.003	0.000	True	0.01	0.084	0.350
DI-355 (BMP 3)	0.163	0.000	True	0.41	0.084	0.350
TCB-312 (BMP 3)	0.160	0.000	True	0.52	0.084	0.450
DI-377 (BMP 3)	0.841	0.000	True	2.74	0.084	0.450
DI-378 (BMP 3)	1.246	0.000	True	4.06	0.084	0.450
DI-376 (BMP 3)	2.122	0.000	True	7.68	0.084	0.500
DI-380 (BMP 3)	0.260	0.000	True	0.94	0.084	0.500
DI-352 (BMP 3)	0.128	0.000	True	0.46	0.084	0.500
DCB-373 (BMP 3)	0.384	0.000	True	1.53	0.084	0.550
CB-372 (BMP 3)	0.251	0.000	True	1.00	0.084	0.550
DCB-371 (BMP 3)	0.610	0.000	True	2.43	0.084	0.550
DCB-370 (BMP 3)	0.410	0.000	True	1.63	0.084	0.550
DCB-369 (BMP 3)	0.378	0.000	True	1.51	0.084	0.550
DI-379 (BMP 3)	0.261	0.000	True	1.04	0.084	0.550
DI-360 (BMP 3)	0.267	0.000	True	1.06	0.084	0.550
DI-359 (BMP 3)	0.328	0.000	True	1.31	0.084	0.550

SCM 3 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-358 (BMP 3)	0.076	0.000	True	0.30	0.084	0.550
DI-357 (BMP 3)	0.048	0.000	True	0.19	0.084	0.550
DI-368 (BMP 3)	0.411	0.000	True	1.64	0.084	0.550
CB-313 (BMP 3)	0.262	0.000	True	1.04	0.084	0.550
CB-314 (BMP 3)	0.311	0.000	True	1.24	0.084	0.550
CB-364 (BMP 3)	0.279	0.000	True	1.21	0.084	0.600
CB-367 (BMP 3)	0.177	0.000	True	0.77	0.084	0.600
CB-303 (BMP 3)	0.175	0.000	True	0.76	0.084	0.600
CB-362 (BMP 3)	0.322	0.000	True	1.47	0.084	0.630
CB-363 (BMP 3)	0.330	0.000	True	1.72	0.084	0.720
DCB-311 (BMP 3)	0.093	0.000	True	0.50	0.084	0.750
CB-308 (BMP 3)	0.082	0.000	True	0.46	0.084	0.770
CB-307 (BMP 3)	0.110	0.000	True	0.64	0.084	0.800
CB-375 (BMP 3)	0.025	0.000	True	0.15	0.084	0.820
CB-374 (BMP 3)	0.029	0.000	True	0.17	0.084	0.820
CB-368A (BMP 3)	0.045	0.000	True	0.28	0.084	0.850

SCM 3 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-365 (BMP 3)	0.071	0.000	True	0.44	0.084	0.850
CB-361 (BMP 3)	0.055	0.000	True	0.34	0.084	0.850
CB-310 (BMP 3)	0.042	0.000	True	0.26	0.084	0.850
CB-368 (BMP 3)	0.041	0.000	True	0.28	0.084	0.950
CB-309 (BMP 3)	0.015	0.000	True	0.10	0.084	0.950
CB-306 (BMP 3)	0.084	0.000	True	0.57	0.084	0.950
CB-305 (BMP 3)	0.051	0.000	True	0.35	0.084	0.950
CB-304 (BMP 3)	0.031	0.000	True	0.21	0.084	0.950
CB-302 (BMP 3)	0.047	0.000	True	0.33	0.084	0.950

SCM 3 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-309 TO CB-310 (BMP 3)	24.0	0.006	2.92	3.24	1.21	17.80	398.48	397.95
CB-305 TO CB-309 (BMP 3)	24.0	0.005	2.97	2.81	1.29	16.07	397.79	397.41
CB-310 TO DCB-311 (BMP 3)	24.0	0.007	2.76	3.13	0.99	18.51	399.17	398.52
CB-305 TO CB-306 (BMP 3)	18.0	0.005	3.27	3.30	1.51	7.43	400.26	400.08
CB-304 TO CB-305 (BMP 3)	24.0	0.015	3.75	5.79	3.03	27.69	397.41	396.50
CB-306 TO CB-307 (BMP 3)	18.0	0.014	2.92	4.25	1.00	12.55	401.17	400.29
DCB-311 TO TCB-312 (BMP 3)	18.0	0.005	2.41	2.43	0.51	7.43	399.77	399.59
CB-307 TO CB-308 (BMP 3)	18.0	0.012	2.33	3.15	0.43	11.64	401.67	401.20
CB-364 TO CB-365 (BMP 3)	15.0	0.007	2.37	2.24	0.42	5.39	400.25	399.99
CB-363 TO CB-364 (BMP 3)	15.0	0.005	3.31	2.66	1.36	4.70	399.99	399.84
DI-379 TO DI-352 (BMP 3)	18.0	0.065	2.33	1.47	0.43	26.81	400.11	389.70
CB-302 TO CB-304 (BMP 3)	24.0	0.019	3.82	6.45	3.22	31.48	396.58	395.01
CB-367 TO DI-368 (BMP 3)	15.0	0.012	3.15	4.23	1.15	7.03	400.42	400.04
DI-379 TO DI-380 (BMP 3)	18.0	0.017	2.71	4.14	0.76	13.53	400.46	398.54
DMH-351 TO DI-379 (BMP 3)	18.0	0.071	3.54	9.15	1.99	27.95	389.70	386.27
CB-362 TO CB-363 (BMP 3)	15.0	0.006	4.05	4.10	2.57	4.99	399.84	399.64
CB-361 TO CB-362 (BMP 3)	15.0	0.014	4.59	6.19	3.64	7.70	399.57	398.21
CB-302 TO CB-303 (BMP 3)	15.0	0.009	2.69	3.21	0.66	5.98	399.32	398.98
CB-302 TO CB-313 (BMP 3)	15.0	0.007	3.65	2.85	1.87	5.59	393.56	392.37
DI-301 TO CB-302 (BMP 3)	24.0	0.027	4.56	8.62	5.84	37.15	392.37	387.04
CB-361 TO CB-367 (BMP 3)	15.0	0.010	3.80	4.74	2.12	6.51	395.76	395.31
DI-356 TO CB-361 (BMP 3)	30.0	0.007	3.10	2.19	6.28	33.92	390.32	390.35
DI-377 TO DI-378 (BMP 3)	18.0	0.022	3.64	6.20	2.17	15.55	398.03	395.18
CB-368 TO CB-368A (BMP 3)	30.0	0.005	5.62	5.94	13.79	29.69	391.39	391.08
DI-356 TO CB-368 (BMP 3)	30.0	0.007	5.65	6.53	14.03	33.84	390.94	390.46
DI-376 TO DI-377 (BMP 3)	18.0	0.008	4.33	5.05	3.78	9.45	395.34	394.21
CB-374 TO CB-375 (BMP 3)	15.0	0.005	1.72	1.81	0.15	4.57	393.34	393.12

SCM 3 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-372 TO CB-374 (BMP 3)	15.0	0.005	2.15	0.88	0.32	4.57	393.00	392.58
CB-368A TO CB-369 (BMP 3)	15.0	0.005	3.34	3.38	1.46	4.62	391.67	391.49
CB-368A TO DCB-370 (BMP 3)	30.0	0.005	5.42	5.66	12.37	28.91	391.98	391.38
CB-372 TO CB-373 (BMP 3)	15.0	0.010	3.25	4.11	1.29	6.46	392.96	392.54
DCB-370 TO CB-372 (BMP 3)	15.0	0.005	3.78	3.90	2.30	4.65	392.58	392.16
DCB-370 TO TCB-371 (BMP 3)	24.0	0.007	5.25	5.96	8.97	19.17	392.32	391.97
TCB-371 TO DI-376 (BMP 3)	24.0	0.013	4.81	6.88	6.92	25.39	394.08	392.26
DI-355 TO DI-356 (BMP 3)	30.0	0.005	6.36	6.30	19.85	29.00	390.35	390.02
DI-359 TO DI-360 (BMP 3)	18.0	0.021	2.78	4.65	0.84	15.37	395.84	392.32
DI-358 TO DI-359 (BMP 3)	18.0	0.012	3.43	4.70	1.78	11.44	392.38	391.25
DI-357 TO DI-358 (BMP 3)	18.0	0.007	3.57	4.09	2.04	8.93	391.29	390.69
DI-355 TO DI-357 (BMP 3)	18.0	0.011	3.65	4.84	2.20	11.14	390.66	390.26
CB-313 TO CB-314 (BMP 3)	15.0	0.005	3.00	3.05	1.03	4.57	393.80	393.62
FES-300 TO DI-301 (BMP 3)	24.0	0.010	4.54	6.11	5.75	23.16	387.15	385.18
DMH-354 TO DI-355 (BMP 3)	30.0	0.005	6.50	6.67	22.11	29.00	390.02	389.58
DMH-351 TO DMH-354 (BMP 3)	30.0	0.024	6.64	11.50	21.91	62.92	389.37	385.91
FES-350 TO DMH-351 (BMP 3)	36.0	0.005	6.32	6.67	23.53	47.23	385.74	384.51

SCM 3 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-309 (BMP 3)	0.10	0.00	1.29	100.0	397.79	397.79	3.0	3.24	2.97
CB-310 (BMP 3)	0.25	0.00	1.21	99.4	398.48	398.48	3.0	3.13	2.92
CB-305 (BMP 3)	0.34	0.01	3.03	97.4	397.41	397.41	3.0	2.81	3.75
CB-306 (BMP 3)	0.53	0.05	1.51	91.6	400.26	400.26	3.0	4.25	3.27
TCB-312 (BMP 3)	0.51	0.01	0.51	97.9	399.77	399.77	9.0	2.41	2.41
DCB-311 (BMP 3)	0.49	0.02	0.99	96.4	399.17	399.17	6.0	2.43	2.76
CB-307 (BMP 3)	0.58	0.06	1.00	89.9	401.17	401.17	3.0	3.15	2.92
CB-308 (BMP 3)	0.43	0.02	0.43	94.6	401.67	401.67	3.0	2.33	2.33
CB-364 (BMP 3)	0.96	0.26	1.36	78.8	399.99	399.99	3.0	2.24	3.31
DI-352 (BMP 3)	0.43	0.03	0.43	93.6	400.11	400.11	2.0	2.33	2.33
CB-304 (BMP 3)	0.22	0.00	3.22	99.8	396.58	396.58	3.0	5.79	3.82
CB-365 (BMP 3)	0.42	0.02	0.42	95.2	400.25	400.25	3.0	2.37	2.37
DI-368 (BMP 3)	1.15	0.48	1.15	70.5	400.42	400.42	2.0	3.15	3.15
DI-379 (BMP 3)	0.83	0.21	1.99	79.5	389.70	389.70	2.0	1.47	3.54
CB-363 (BMP 3)	1.25	0.48	2.57	72.1	399.84	399.84	3.0	2.66	4.05
CB-362 (BMP 3)	1.12	0.37	3.64	75.0	399.57	399.57	3.0	4.10	4.59

SCM 3 10-YR

Inlets - Time: 0.00 hours

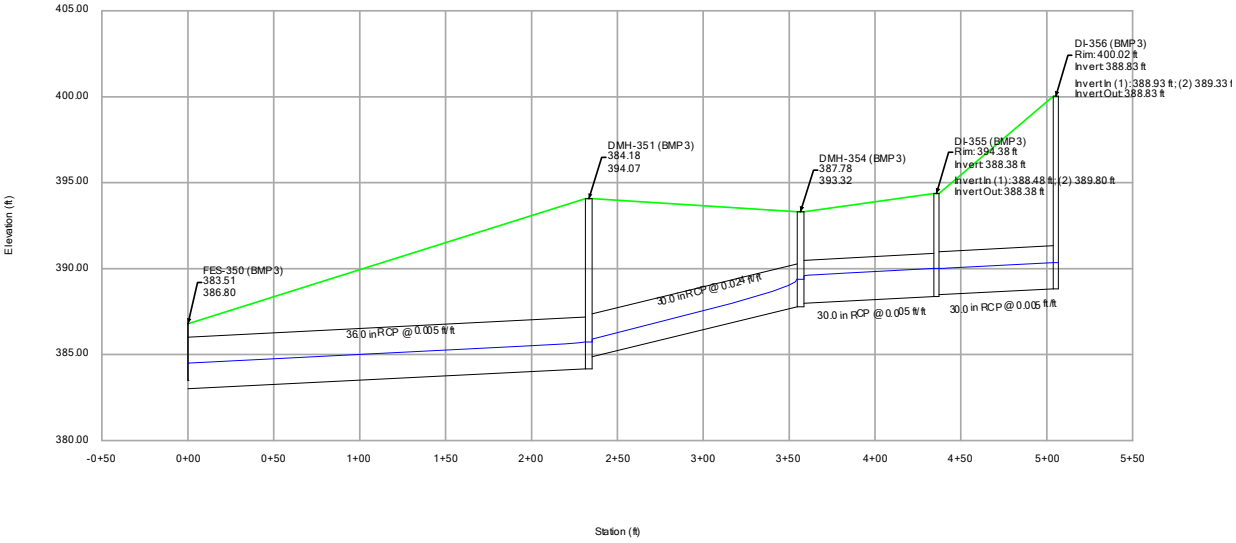
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-303 (BMP 3)	0.66	0.10	0.66	87.1	399.32	399.32	3.0	2.69	2.69
CB-302 (BMP 3)	0.32	0.01	5.84	98.0	392.37	392.37	3.0	2.85	4.56
CB-367 (BMP 3)	0.98	0.27	2.12	78.2	395.76	395.76	3.0	4.23	3.80
CB-361 (BMP 3)	0.63	0.08	6.28	88.3	390.32	390.32	3.0	4.74	3.10
DI-378 (BMP 3)	2.17	1.89	2.17	53.4	398.03	398.03	2.0	3.64	3.64
DI-380 (BMP 3)	0.76	0.17	0.76	81.4	400.46	400.46	2.0	2.71	2.71
CB-368 (BMP 3)	0.35	0.01	14.03	97.1	390.94	390.94	3.0	5.94	5.65
DI-377 (BMP 3)	1.66	1.08	3.78	60.5	395.34	395.34	2.0	6.20	4.33
CB-375 (BMP 3)	0.15	0.00	0.15	100.0	393.34	393.34	3.0	1.72	1.72
CB-374 (BMP 3)	0.17	0.00	0.32	100.0	393.00	393.00	3.0	1.81	2.15
DCB-369 (BMP 3)	1.46	0.32	1.46	82.0	391.67	391.67	6.0	3.34	3.34
CB-368A (BMP 3)	0.28	0.00	13.79	98.9	391.39	391.39	3.0	5.66	5.62
DCB-373 (BMP 3)	1.29	0.24	1.29	84.1	392.96	392.96	6.0	3.25	3.25
CB-372 (BMP 3)	0.82	0.18	2.30	82.3	392.58	392.58	3.0	4.11	3.78
DCB-370 (BMP 3)	1.48	0.33	12.37	81.8	391.98	391.98	6.0	5.96	5.42
DCB-371 (BMP 3)	2.22	0.77	8.97	74.4	392.32	392.32	6.0	6.88	5.25

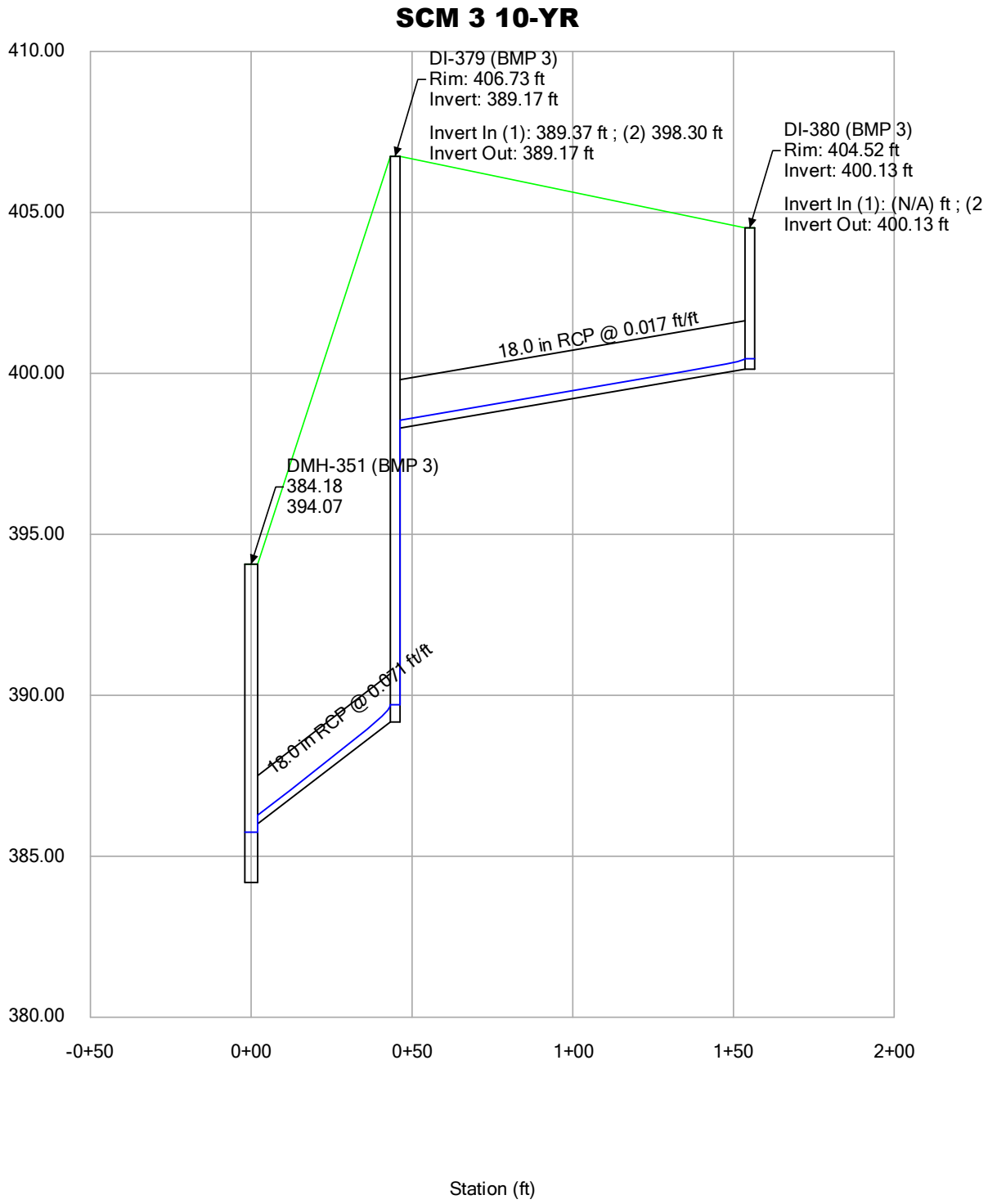
SCM 3 10-YR

Inlets - Time: 0.00 hours

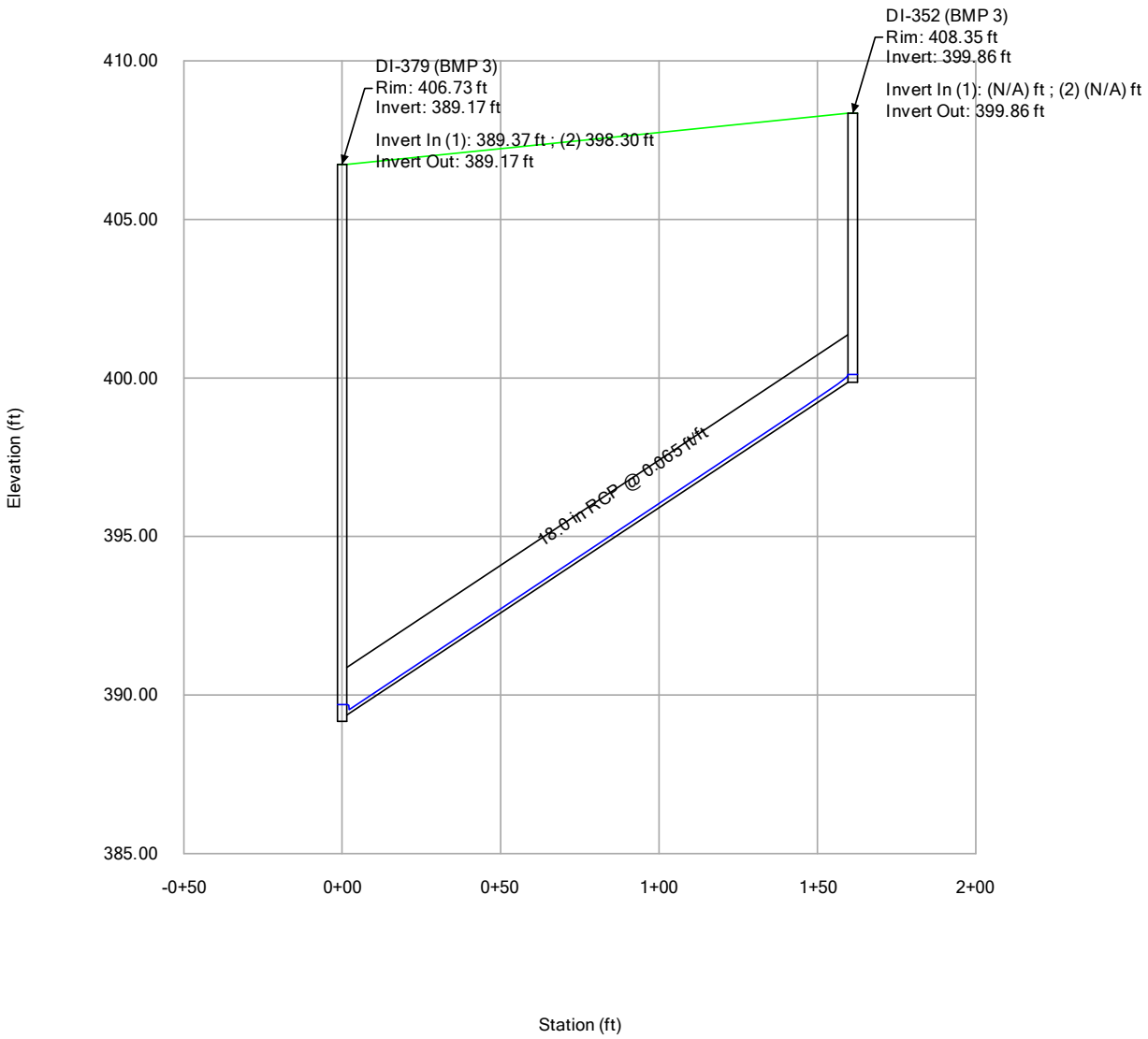
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-356 (BMP 3)	0.01	0.00	19.85	100.0	390.35	390.35	2.0	2.19	6.36
DI-360 (BMP 3)	0.84	0.22	0.84	79.0	395.84	395.84	2.0	2.78	2.78
DI-376 (BMP 3)	3.32	4.36	6.92	43.2	394.08	394.08	2.0	5.05	4.81
DI-358 (BMP 3)	0.30	0.00	2.04	98.4	391.29	391.29	2.0	4.70	3.57
DI-357 (BMP 3)	0.19	0.00	2.20	100.0	390.66	390.66	2.0	4.09	3.65
CB-314 (BMP 3)	1.03	0.31	1.03	77.0	393.80	393.80	3.0	3.00	3.00
CB-313 (BMP 3)	0.86	0.19	1.87	81.4	393.56	393.56	3.0	3.05	3.65
DI-359 (BMP 3)	0.98	0.33	1.78	75.0	392.38	392.38	2.0	4.65	3.43
DI-301 (BMP 3)	0.00	0.00	5.75	100.0	387.15	387.15	2.0	8.62	4.54
DI-355 (BMP 3)	0.39	0.02	22.11	95.2	390.02	390.02	2.0	6.30	6.50

SCM 3 10-YR

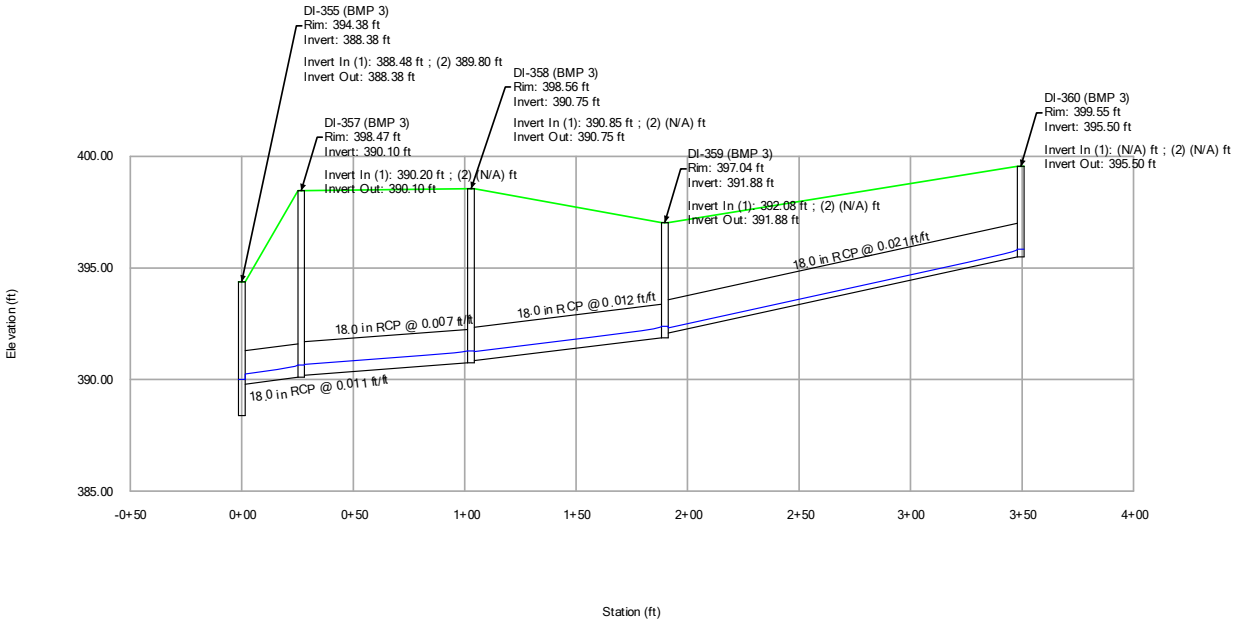

405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
Station (ft)
FES-350 (BMP3)
383.51
386.80
DMH-351 (BMP3)
384.18
394.07
DMH-354 (BMP3)
387.78
393.32
DI-355 (BMP3)
Rim: 394.38 ft
Invert: 388.38 ft
Invert In (1): 388.48 ft; (2) 389.80 ft
Invert Out: 388.38 ft
DI-356 (BMP3)
Rim: 400.02 ft
Invert: 388.83 ft
Invert In (1): 388.93 ft; (2) 389.33 f
Invert Out: 388.83 ft
36.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.024 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft


SCM 3 10-YR
410.00
405.00
400.00
395.00
390.00
385.00
380.00
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)
DI-379 (BMP 3)
Rim: 406.73 ft
Invert: 389.17 ft
Invert In (1): 389.37 ft ; (2) 398.30 ft
Invert Out: 389.17 ft
DI-380 (BMP 3)
Rim: 404.52 ft
Invert: 400.13 ft
Invert In (1): (N/A) ft ; (2
Invert Out: 400.13 ft
18.0 in RCP @ 0.017 ft/ft
DMH-351 (BMP 3)
384.18
394.07
18.0 in RCP @ 0.071 ft/ft

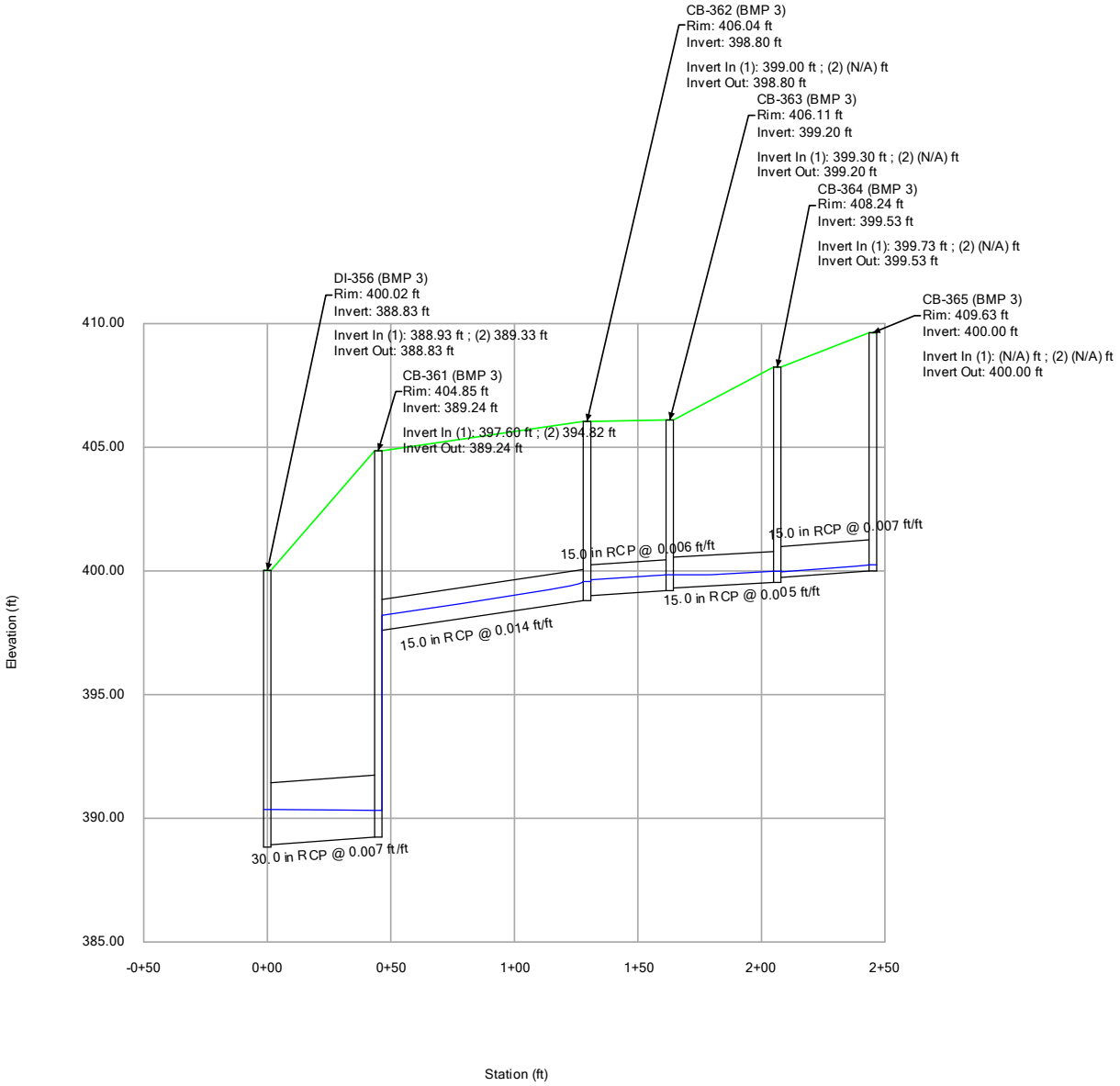
SCM 3 10-YR


DI-352 (BMP 3)
Rim: 408.35 ft
Invert: 399.86 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.86 ft
DI-379 (BMP 3)
Rim: 406.73 ft
Invert: 389.17 ft
Invert In (1): 389.37 ft ; (2) 398.30 ft
Invert Out: 389.17 ft
18.0 in RCP @ 0.065 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

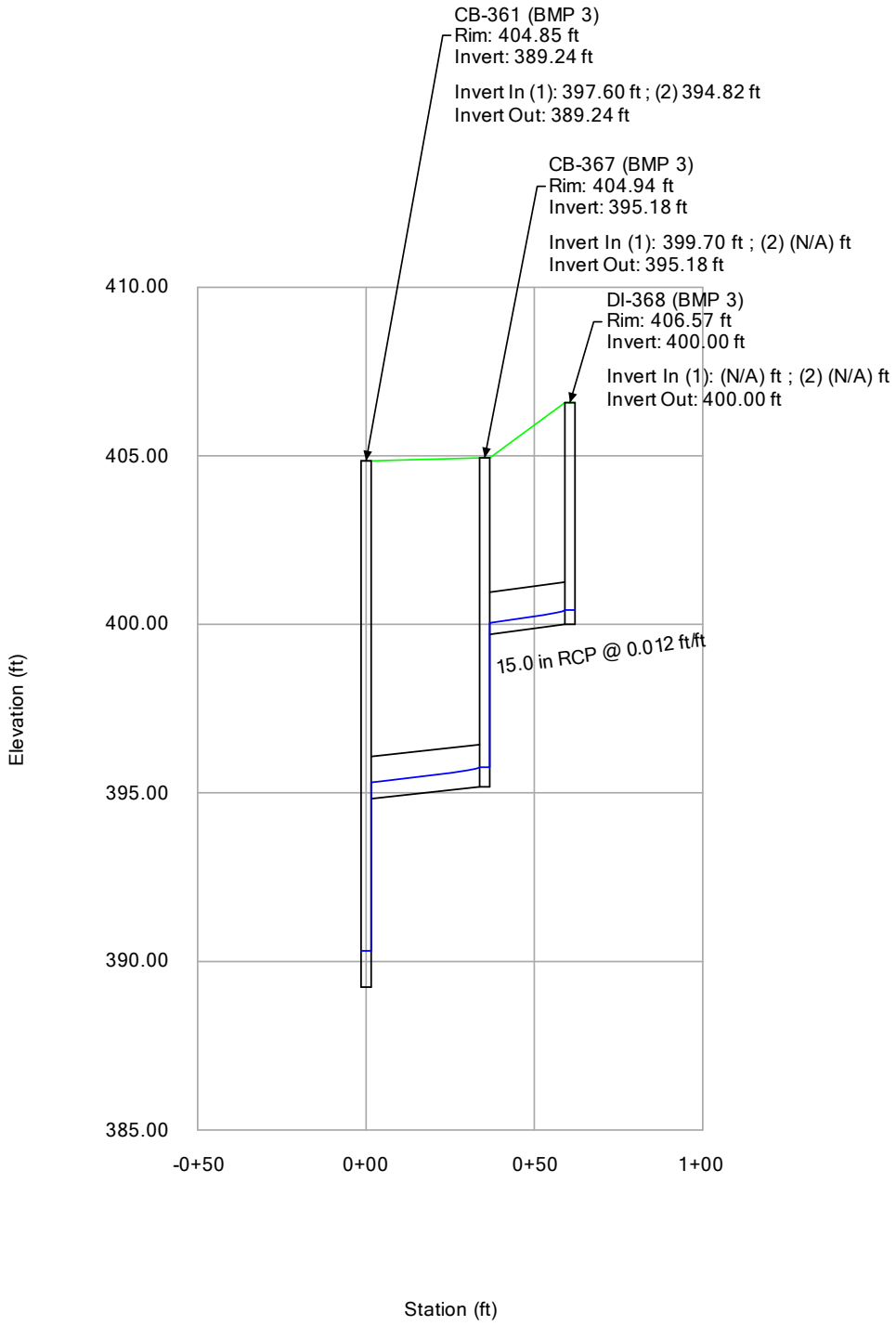
SCM 3 10-YR


DI-355 (BMP 3)
Rim: 394.38 ft
Invert: 388.38 ft
Invert In (1): 388.48 ft ; (2) 389.80 ft
Invert Out: 388.38 ft
DI-357 (BMP 3)
Rim: 398.47 ft
Invert: 390.10 ft
Invert In (1): 390.20 ft ; (2) (N/A) ft
Invert Out: 390.10 ft
DI-358 (BMP 3)
Rim: 398.56 ft
Invert: 390.75 ft
Invert In (1): 390.85 ft ; (2) (N/A) ft
Invert Out: 390.75 ft
DI-359 (BMP 3)
Rim: 397.04 ft
Invert: 391.88 ft
Invert In (1): 392.08 ft ; (2) (N/A) ft
Invert Out: 391.88 ft
DI-360 (BMP 3)
Rim: 399.55 ft
Invert: 395.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 395.50 ft
18.0 in RCP @ 0.011 ft/ft
18.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.021 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

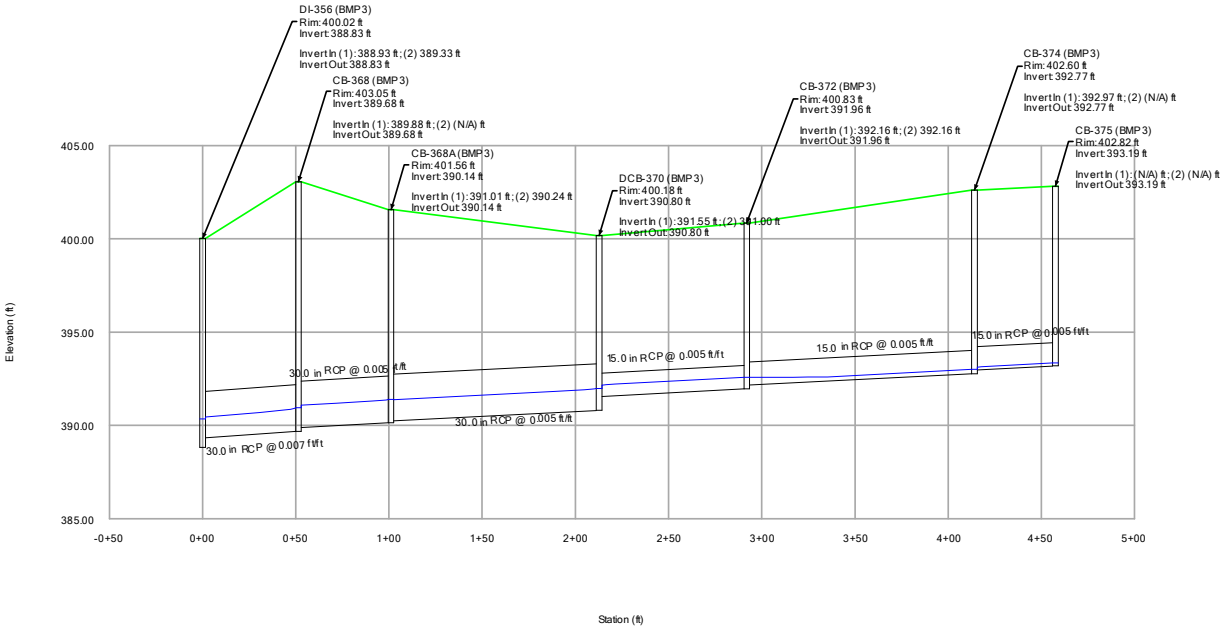
SCM 3 10-YR


CB-362 (BMP 3)
Rim: 406.04 ft
Invert: 398.80 ft
Invert In (1): 399.00 ft ; (2) (N/A) ft
Invert Out: 398.80 ft
CB-363 (BMP 3)
Rim: 406.11 ft
Invert: 399.20 ft
Invert In (1): 399.30 ft ; (2) (N/A) ft
Invert Out: 399.20 ft
CB-364 (BMP 3)
Rim: 408.24 ft
Invert: 399.53 ft
Invert In (1): 399.73 ft ; (2) (N/A) ft
Invert Out: 399.53 ft
DI-356 (BMP 3)
Rim: 400.02 ft
Invert: 388.83 ft
Invert In (1): 388.93 ft ; (2) 389.33 ft
Invert Out: 388.83 ft
CB-365 (BMP 3)
Rim: 409.63 ft
Invert: 400.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.00 ft
CB-361 (BMP 3)
Rim: 404.85 ft
Invert: 389.24 ft
Invert In (1): 397.60 ft ; (2) 394.82 ft
Invert Out: 389.24 ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.007 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.014 ft/ft
30.0 in RCP @ 0.007 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)

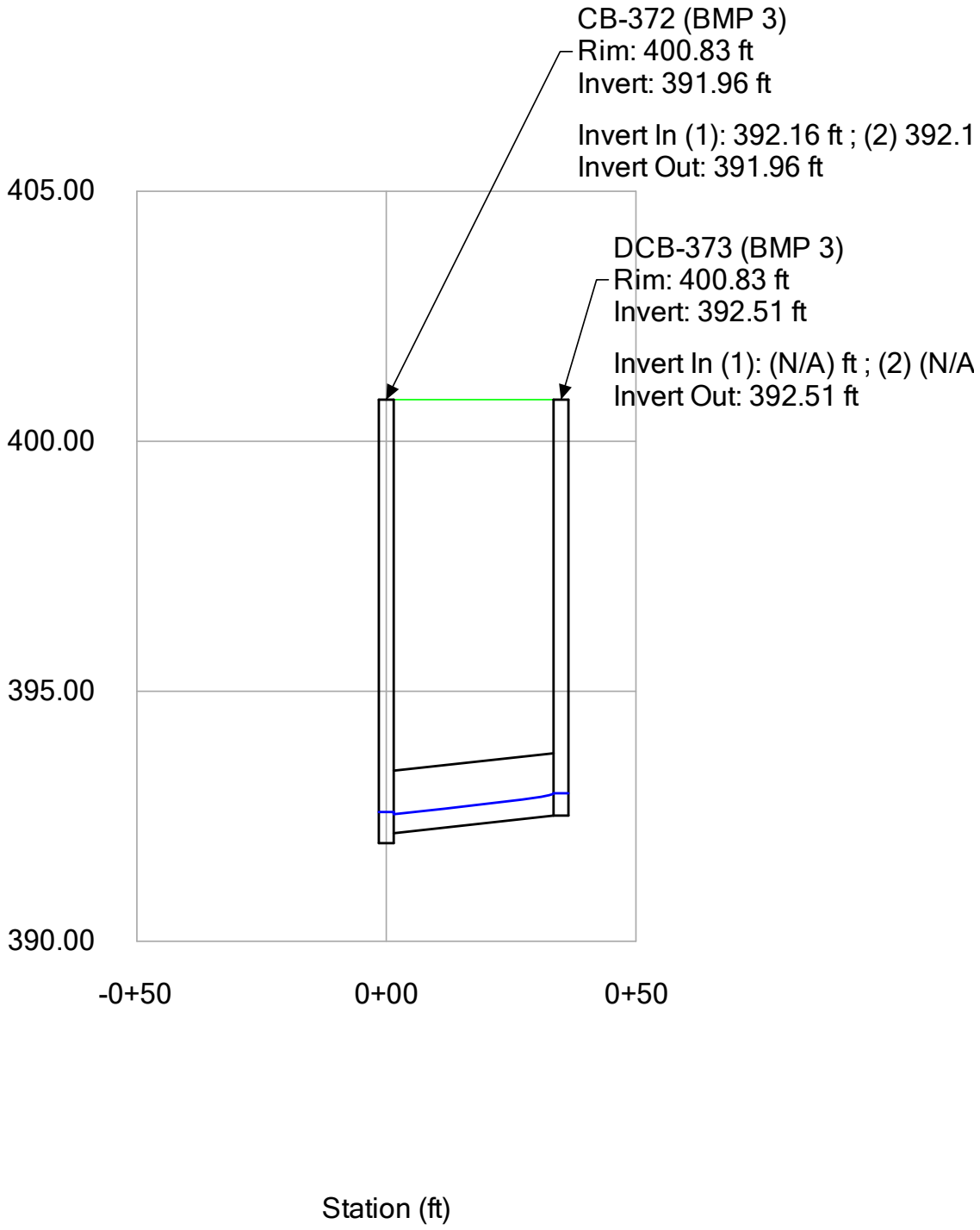
SCM 3 10-YR


CB-361 (BMP 3)
Rim: 404.85 ft
Invert: 389.24 ft
Invert In (1): 397.60 ft ; (2) 394.82 ft
Invert Out: 389.24 ft
CB-367 (BMP 3)
Rim: 404.94 ft
Invert: 395.18 ft
Invert In (1): 399.70 ft ; (2) (N/A) ft
Invert Out: 395.18 ft
DI-368 (BMP 3)
Rim: 406.57 ft
Invert: 400.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.00 ft
15.0 in RCP @ 0.012 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
Station (ft)

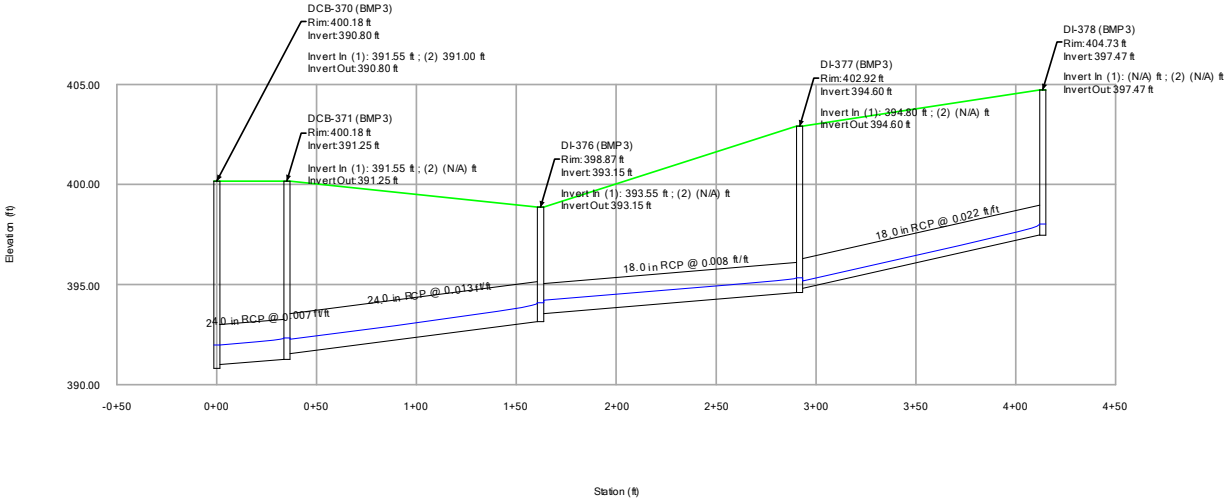
SCM 3 10-YR


DI-356 (BMP3)
Rim: 400.02 ft
Invert: 388.83 ft
Invert In (1): 388.93 ft; (2) 389.33 ft
Invert Out: 388.83 ft
CB-368 (BMP3)
Rim: 403.05 ft
Invert: 389.68 ft
Invert In (1): 389.88 ft; (2) (N/A) ft
Invert Out: 389.68 ft
CB-368A (BMP3)
Rim: 401.56 ft
Invert: 390.14 ft
Invert In (1): 391.01 ft; (2) 390.24 ft
Invert Out: 390.14 ft
DCB-370 (BMP3)
Rim: 400.18 ft
Invert: 390.80 ft
Invert In (1): 391.55 ft; (2) 391.00 ft
Invert Out: 390.80 ft
CB-372 (BMP3)
Rim: 400.83 ft
Invert: 391.96 ft
Invert In (1): 392.16 ft; (2) 392.16 ft
Invert Out: 391.96 ft
CB-374 (BMP3)
Rim: 402.60 ft
Invert: 392.77 ft
Invert In (1): 392.97 ft; (2) (N/A) ft
Invert Out: 392.77 ft
CB-375 (BMP3)
Rim: 402.82 ft
Invert: 393.19 ft
Invert In (1): (N/A) ft; (2) (N/A) ft
Invert Out: 393.19 ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.007 ft/ft
30.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

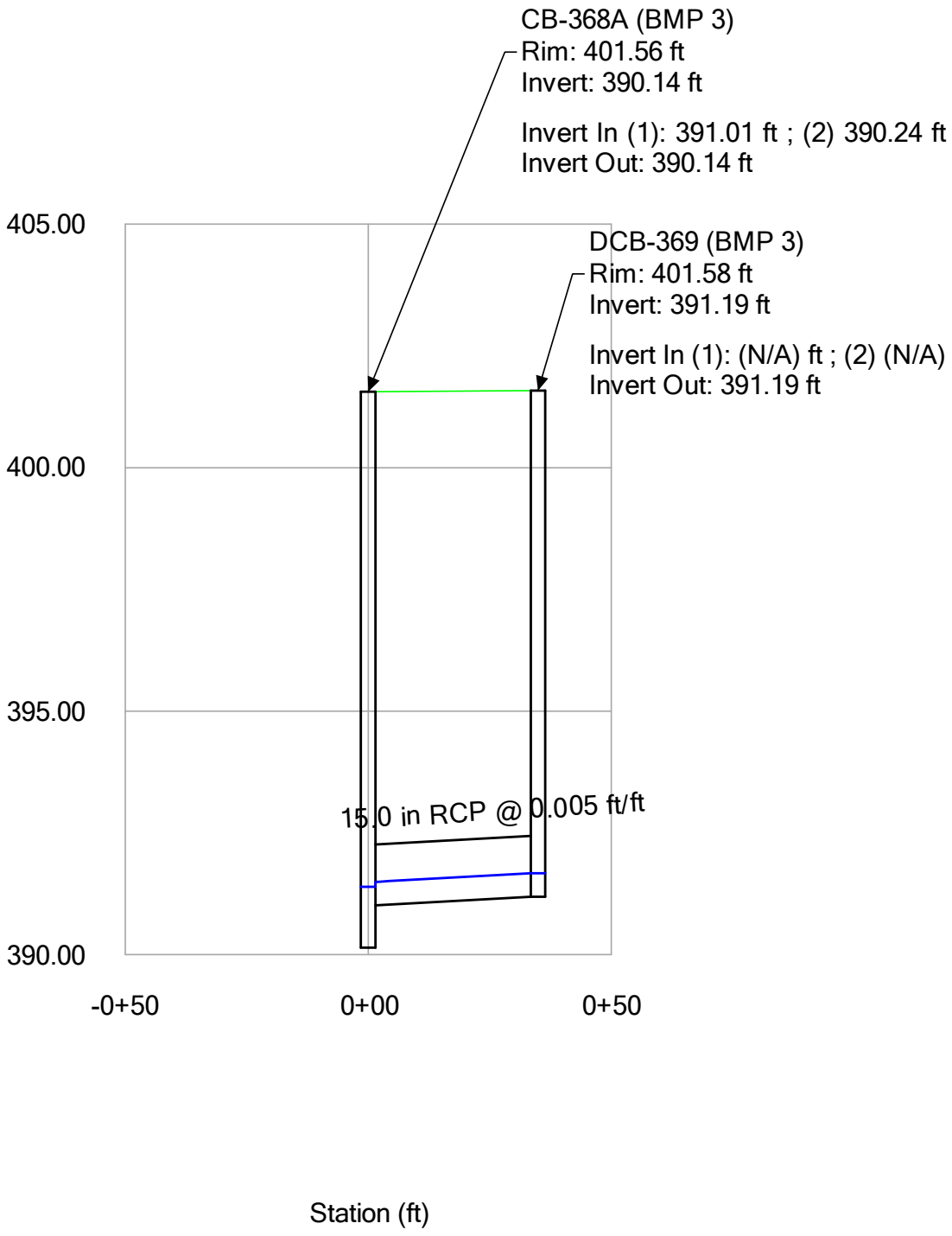
SCM 3 10-YR


CB-372 (BMP 3)
Rim: 400.83 ft
Invert: 391.96 ft
Invert In (1): 392.16 ft ; (2) 392.1
Invert Out: 391.96 ft
DCB-373 (BMP 3)
Rim: 400.83 ft
Invert: 392.51 ft
Invert In (1): (N/A) ft ; (2) (N/A
Invert Out: 392.51 ft
405.00
400.00
395.00
390.00
-0+50
0+00
0+50
Station (ft)

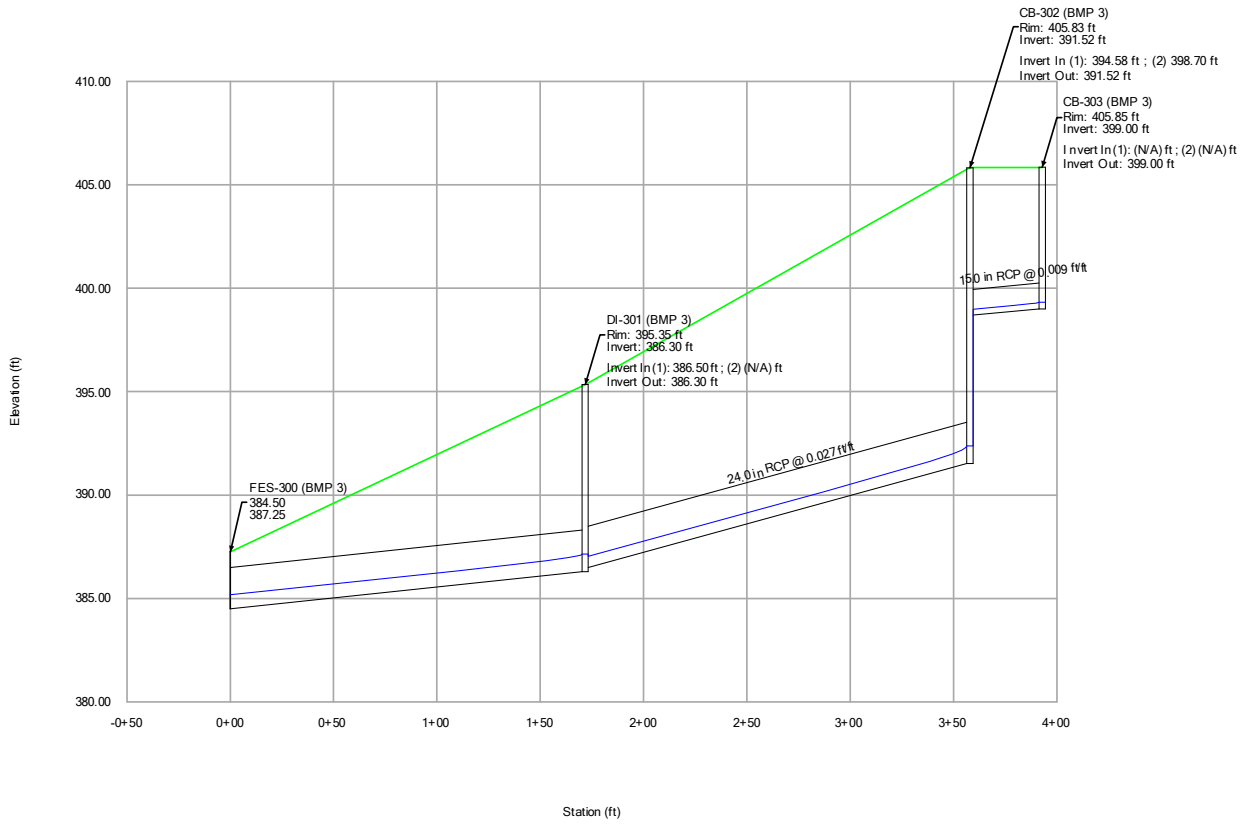
SCM 3 10-YR


DCB-370 (BMP3)
Rim: 400.18 ft
Invert: 390.80 ft
Invert In (1): 391.55 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
DCB-371 (BMP3)
Rim: 400.18 ft
Invert: 391.25 ft
Invert In (1): 391.55 ft ; (2) (N/A) ft
Invert Out: 391.25 ft
DI-376 (BMP3)
Rim: 398.87 ft
Invert: 393.15 ft
Invert In (1): 393.55 ft ; (2) (N/A) ft
Invert Out: 393.15 ft
DI-377 (BMP3)
Rim: 402.92 ft
Invert: 394.60 ft
Invert In (1): 394.80 ft ; (2) (N/A) ft
Invert Out: 394.60 ft
DI-378 (BMP3)
Rim: 404.73 ft
Invert: 397.47 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.47 ft
24.0 in RCP @ 0.007 ft/ft
24.0 in RCP @ 0.013 ft/ft
18.0 in RCP @ 0.008 ft/ft
18.0 in RCP @ 0.022 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

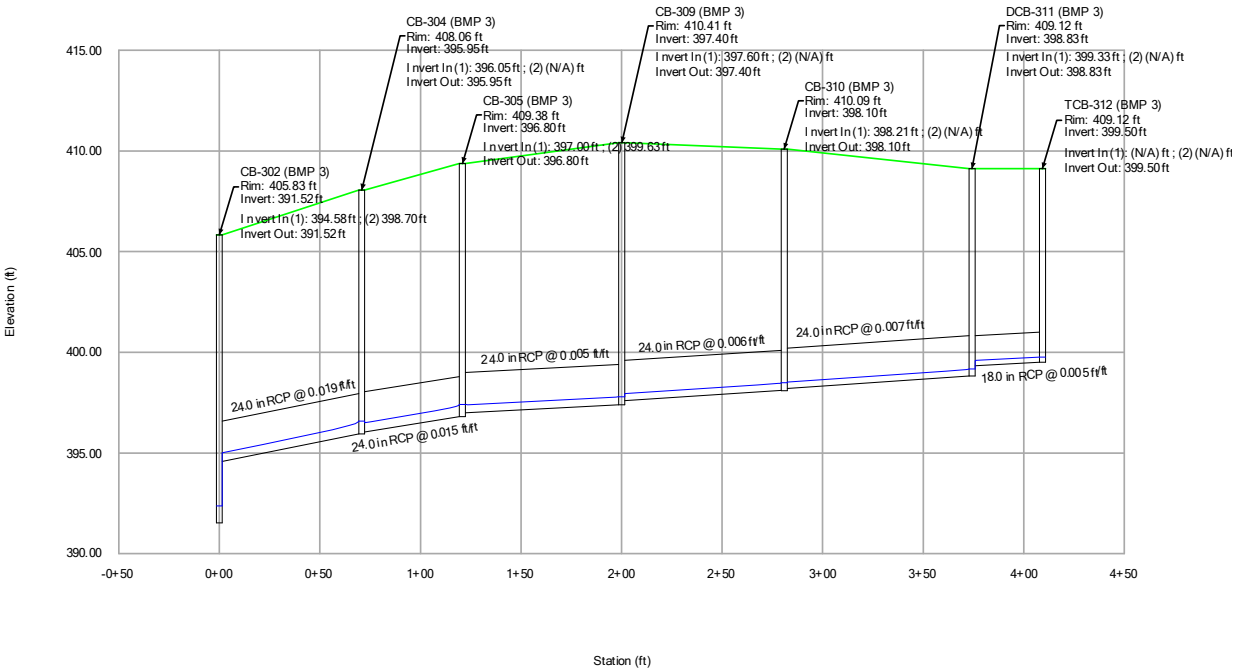
SCM 3 10-YR


CB-368A (BMP 3)
Rim: 401.56 ft
Invert: 390.14 ft
Invert In (1): 391.01 ft ; (2) 390.24 ft
Invert Out: 390.14 ft
DCB-369 (BMP 3)
Rim: 401.58 ft
Invert: 391.19 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 391.19 ft
405.00
400.00
395.00
390.00
15.0 in RCP @ 0.005 ft/ft
-0+50
0+00
0+50
Station (ft)

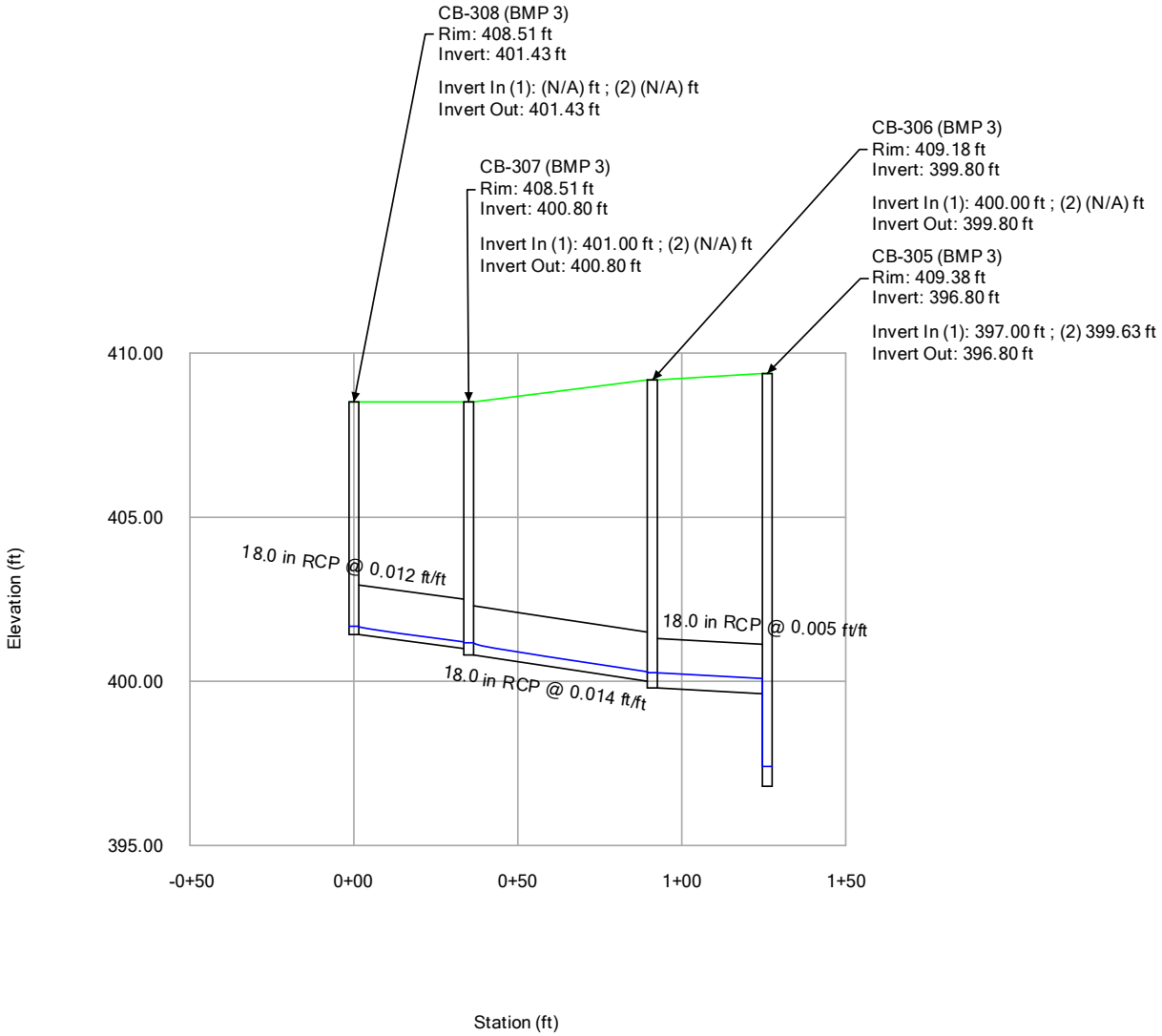
SCM 3 10-YR


CB-302 (BMP 3)
Rim: 405.83 ft
Invert: 391.52 ft
Invert In (1): 394.58 ft ; (2) 398.70 ft
Invert Out: 391.52 ft
CB-303 (BMP 3)
Rim: 405.85 ft
Invert: 399.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.00 ft
15.0 in RCP @ 0.009 ft/ft
DI-301 (BMP 3)
Rim: 395.35 ft
Invert: 386.30 ft
Invert In (1): 386.50 ft ; (2) (N/A) ft
Invert Out: 386.30 ft
24.0 in RCP @ 0.027 ft/ft
FES-300 (BMP 3)
384.50
387.25
410.00
405.00
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

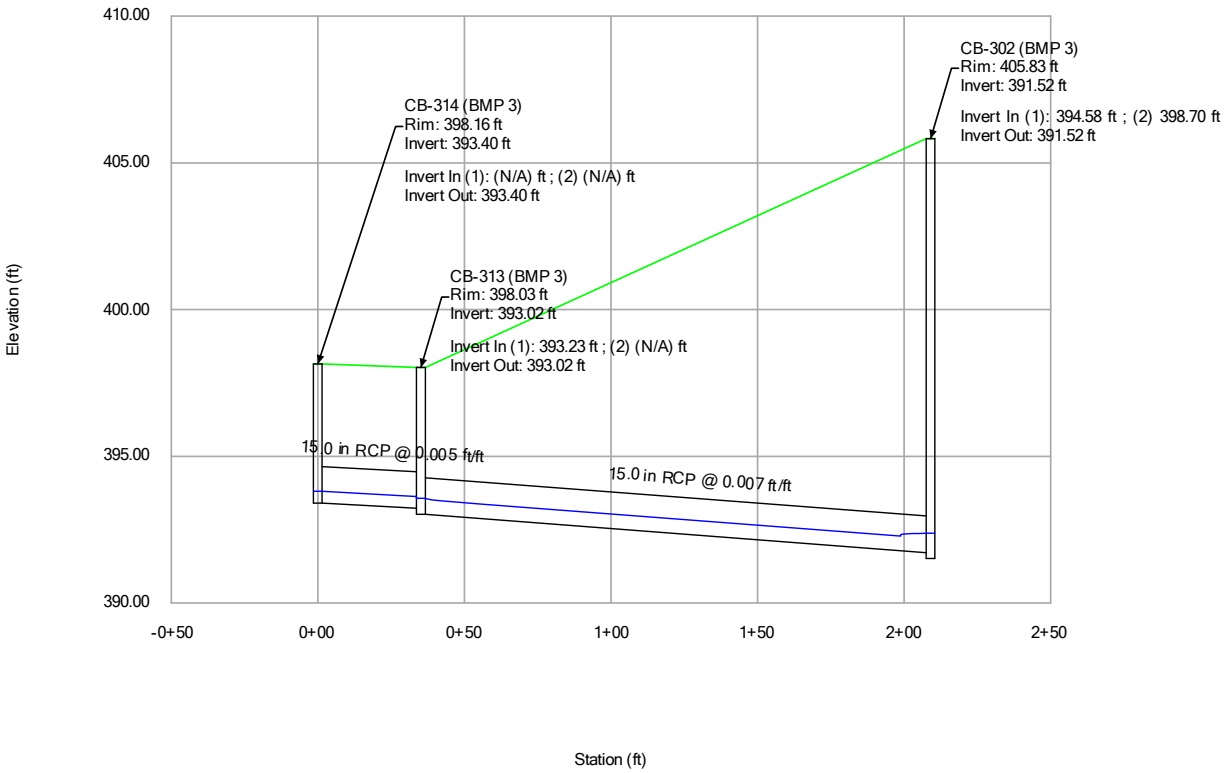
SCM 3 10-YR


CB-304 (BMP 3)
Rim: 408.06 ft
Invert: 395.95 ft
Invert In (1): 396.05 ft ; (2) (N/A) ft
Invert Out: 395.95 ft
CB-309 (BMP 3)
Rim: 410.41 ft
Invert: 397.40 ft
Invert In (1): 397.60 ft ; (2) (N/A) ft
Invert Out: 397.40 ft
DCB-311 (BMP 3)
Rim: 409.12 ft
Invert: 398.83 ft
Invert In (1): 399.33 ft ; (2) (N/A) ft
Invert Out: 398.83 ft
CB-305 (BMP 3)
Rim: 409.38 ft
Invert: 396.80 ft
Invert In (1): 397.00 ft ; (2) 399.63 ft
Invert Out: 396.80 ft
CB-310 (BMP 3)
Rim: 410.09 ft
Invert: 398.10 ft
Invert In (1): 398.21 ft ; (2) (N/A) ft
Invert Out: 398.10 ft
TCB-312 (BMP 3)
Rim: 409.12 ft
Invert: 399.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.50 ft
CB-302 (BMP 3)
Rim: 405.83 ft
Invert: 391.52 ft
Invert In (1): 394.58 ft ; (2) 398.70 ft
Invert Out: 391.52 ft
24.0 in RCP @ 0.019 ft/ft
24.0 in RCP @ 0.015 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.006 ft/ft
24.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.005 ft/ft
415.00
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

SCM 3 10-YR


CB-308 (BMP 3)
Rim: 408.51 ft
Invert: 401.43 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 401.43 ft
CB-307 (BMP 3)
Rim: 408.51 ft
Invert: 400.80 ft
Invert In (1): 401.00 ft ; (2) (N/A) ft
Invert Out: 400.80 ft
CB-306 (BMP 3)
Rim: 409.18 ft
Invert: 399.80 ft
Invert In (1): 400.00 ft ; (2) (N/A) ft
Invert Out: 399.80 ft
CB-305 (BMP 3)
Rim: 409.38 ft
Invert: 396.80 ft
Invert In (1): 397.00 ft ; (2) 399.63 ft
Invert Out: 396.80 ft
410.00
405.00
400.00
395.00
Elevation (ft)
18.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.014 ft/ft
18.0 in RCP @ 0.005 ft/ft
-0+50
0+00
0+50
1+00
1+50
Station (ft)

SCM 3 10-YR


410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)
CB-314 (BMP 3)
Rim: 398.16 ft
Invert: 393.40 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.40 ft
CB-313 (BMP 3)
Rim: 398.03 ft
Invert: 393.02 ft
Invert In (1): 393.23 ft ; (2) (N/A) ft
Invert Out: 393.02 ft
CB-302 (BMP 3)
Rim: 405.83 ft
Invert: 391.52 ft
Invert In (1): 394.58 ft ; (2) 398.70 ft
Invert Out: 391.52 ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.007 ft/ft

SCM 3 – 25 YR STORM

SCM 3 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-356 (BMP 3)	0.003	0.000	True	0.01	0.084	0.350
DI-355 (BMP 3)	0.163	0.000	True	0.46	0.084	0.350
TCB-312 (BMP 3)	0.160	0.000	True	0.58	0.084	0.450
DI-377 (BMP 3)	0.841	0.000	True	3.04	0.084	0.450
DI-378 (BMP 3)	1.246	0.000	True	4.50	0.084	0.450
DI-376 (BMP 3)	2.122	0.000	True	8.52	0.084	0.500
DI-380 (BMP 3)	0.260	0.000	True	1.04	0.084	0.500
DI-352 (BMP 3)	0.128	0.000	True	0.52	0.084	0.500
DCB-373 (BMP 3)	0.384	0.000	True	1.70	0.084	0.550
CB-372 (BMP 3)	0.251	0.000	True	1.11	0.084	0.550
DCB-371 (BMP 3)	0.610	0.000	True	2.70	0.084	0.550
DCB-370 (BMP 3)	0.410	0.000	True	1.81	0.084	0.550
DCB-369 (BMP 3)	0.378	0.000	True	1.67	0.084	0.550
DI-379 (BMP 3)	0.261	0.000	True	1.15	0.084	0.550
DI-360 (BMP 3)	0.267	0.000	True	1.18	0.084	0.550
DI-359 (BMP 3)	0.328	0.000	True	1.45	0.084	0.550

SCM 3 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-358 (BMP 3)	0.076	0.000	True	0.33	0.084	0.550
DI-357 (BMP 3)	0.048	0.000	True	0.21	0.084	0.550
DI-368 (BMP 3)	0.411	0.000	True	1.82	0.084	0.550
CB-313 (BMP 3)	0.262	0.000	True	1.16	0.084	0.550
CB-314 (BMP 3)	0.311	0.000	True	1.37	0.084	0.550
CB-364 (BMP 3)	0.279	0.000	True	1.35	0.084	0.600
CB-367 (BMP 3)	0.177	0.000	True	0.85	0.084	0.600
CB-303 (BMP 3)	0.175	0.000	True	0.84	0.084	0.600
CB-362 (BMP 3)	0.322	0.000	True	1.63	0.084	0.630
CB-363 (BMP 3)	0.330	0.000	True	1.91	0.084	0.720
DCB-311 (BMP 3)	0.093	0.000	True	0.56	0.084	0.750
CB-308 (BMP 3)	0.082	0.000	True	0.51	0.084	0.770
CB-307 (BMP 3)	0.110	0.000	True	0.71	0.084	0.800
CB-375 (BMP 3)	0.025	0.000	True	0.17	0.084	0.820
CB-374 (BMP 3)	0.029	0.000	True	0.19	0.084	0.820
CB-368A (BMP 3)	0.045	0.000	True	0.31	0.084	0.850

SCM 3 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-365 (BMP 3)	0.071	0.000	True	0.49	0.084	0.850
CB-361 (BMP 3)	0.055	0.000	True	0.37	0.084	0.850
CB-310 (BMP 3)	0.042	0.000	True	0.28	0.084	0.850
CB-368 (BMP 3)	0.041	0.000	True	0.31	0.084	0.950
CB-309 (BMP 3)	0.015	0.000	True	0.11	0.084	0.950
CB-306 (BMP 3)	0.084	0.000	True	0.64	0.084	0.950
CB-305 (BMP 3)	0.051	0.000	True	0.39	0.084	0.950
CB-304 (BMP 3)	0.031	0.000	True	0.24	0.084	0.950
CB-302 (BMP 3)	0.047	0.000	True	0.36	0.084	0.950

SCM 3 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-309 TO CB-310 (BMP 3)	24.0	0.006	3.00	3.33	1.34	17.80	398.50	397.97
CB-305 TO CB-309 (BMP 3)	24.0	0.005	3.05	2.81	1.43	16.07	397.81	397.44
CB-310 TO DCB-311 (BMP 3)	24.0	0.007	2.83	3.22	1.09	18.51	399.19	398.53
CB-305 TO CB-306 (BMP 3)	18.0	0.005	3.36	3.38	1.65	7.43	400.28	400.11
CB-304 TO CB-305 (BMP 3)	24.0	0.015	3.86	5.95	3.33	27.69	397.44	396.52
CB-306 TO CB-307 (BMP 3)	18.0	0.014	2.99	4.36	1.09	12.55	401.19	400.30
DCB-311 TO TCB-312 (BMP 3)	18.0	0.005	2.48	2.50	0.56	7.43	399.78	399.60
CB-307 TO CB-308 (BMP 3)	18.0	0.012	2.39	3.23	0.48	11.64	401.69	401.21
CB-364 TO CB-365 (BMP 3)	15.0	0.007	2.43	2.20	0.46	5.39	400.26	400.01
CB-363 TO CB-364 (BMP 3)	15.0	0.005	3.39	2.71	1.48	4.70	400.01	399.87
DI-379 TO DI-352 (BMP 3)	18.0	0.065	2.39	1.46	0.47	26.81	400.12	389.72
CB-302 TO CB-304 (BMP 3)	24.0	0.019	3.93	6.63	3.54	31.48	396.61	395.03
CB-367 TO DI-368 (BMP 3)	15.0	0.012	3.22	4.31	1.24	7.03	400.44	400.06
DI-379 TO DI-380 (BMP 3)	18.0	0.017	2.77	4.24	0.83	13.53	400.47	398.55
DMH-351 TO DI-379 (BMP 3)	18.0	0.071	3.63	9.36	2.15	27.95	389.72	386.28
CB-362 TO CB-363 (BMP 3)	15.0	0.006	4.16	4.18	2.79	4.99	399.87	399.67
CB-361 TO CB-362 (BMP 3)	15.0	0.014	4.73	6.31	3.95	7.70	399.60	398.24
CB-302 TO CB-303 (BMP 3)	15.0	0.009	2.76	3.29	0.72	5.98	399.33	398.99
CB-302 TO CB-313 (BMP 3)	15.0	0.007	3.75	2.88	2.04	5.59	393.59	392.42
DI-301 TO CB-302 (BMP 3)	24.0	0.027	4.70	8.85	6.40	37.15	392.42	387.06
CB-361 TO CB-367 (BMP 3)	15.0	0.010	3.91	4.85	2.32	6.51	395.79	395.34
DI-356 TO CB-361 (BMP 3)	30.0	0.007	3.02	2.21	6.84	33.92	390.42	390.44
DI-377 TO DI-378 (BMP 3)	18.0	0.022	3.72	6.33	2.33	15.55	398.05	395.19
CB-368 TO CB-368A (BMP 3)	30.0	0.005	5.78	6.06	15.02	29.69	391.45	391.14
DI-356 TO CB-368 (BMP 3)	30.0	0.007	5.82	6.67	15.30	33.84	391.00	390.52
DI-376 TO DI-377 (BMP 3)	18.0	0.008	4.43	5.14	4.05	9.45	395.37	394.24
CB-374 TO CB-375 (BMP 3)	15.0	0.005	1.77	1.87	0.17	4.57	393.35	393.13

SCM 3 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-372 TO CB-374 (BMP 3)	15.0	0.005	2.21	0.88	0.36	4.57	393.01	392.62
CB-368A TO CB-369 (BMP 3)	15.0	0.005	3.43	3.49	1.62	4.62	391.70	391.52
CB-368A TO DCB-370 (BMP 3)	30.0	0.005	5.57	5.78	13.42	28.91	392.03	391.44
CB-372 TO CB-373 (BMP 3)	15.0	0.010	3.34	4.21	1.40	6.46	392.98	392.56
DCB-370 TO CB-372 (BMP 3)	15.0	0.005	3.86	4.02	2.52	4.65	392.62	392.19
DCB-370 TO TCB-371 (BMP 3)	24.0	0.007	5.39	6.07	9.68	19.17	392.37	392.01
TCB-371 TO DI-376 (BMP 3)	24.0	0.013	4.93	7.01	7.43	25.39	394.12	392.29
DI-355 TO DI-356 (BMP 3)	30.0	0.005	6.48	6.35	21.65	29.00	390.44	390.12
DI-359 TO DI-360 (BMP 3)	18.0	0.021	2.84	4.76	0.91	15.37	395.86	392.33
DI-358 TO DI-359 (BMP 3)	18.0	0.012	3.51	4.81	1.92	11.44	392.40	391.27
DI-357 TO DI-358 (BMP 3)	18.0	0.007	3.66	4.19	2.21	8.93	391.31	390.71
DI-355 TO DI-357 (BMP 3)	18.0	0.011	3.74	4.94	2.38	11.14	390.68	390.28
CB-313 TO CB-314 (BMP 3)	15.0	0.005	3.08	3.13	1.12	4.57	393.82	393.64
FES-300 TO DI-301 (BMP 3)	24.0	0.010	4.67	6.27	6.30	23.16	387.19	385.21
DMH-354 TO DI-355 (BMP 3)	30.0	0.005	6.61	6.91	24.11	29.00	390.12	389.66
DMH-351 TO DMH-354 (BMP 3)	30.0	0.024	6.88	11.72	23.90	62.92	389.45	385.96
FES-350 TO DMH-351 (BMP 3)	36.0	0.005	6.51	6.82	25.65	47.23	385.82	384.59

SCM 3 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-309 (BMP 3)	0.11	0.00	1.43	100.0	397.81	397.81	3.0	3.33	3.05
CB-310 (BMP 3)	0.28	0.00	1.34	98.9	398.50	398.50	3.0	3.22	3.00
CB-305 (BMP 3)	0.38	0.01	3.33	96.4	397.44	397.44	3.0	2.81	3.86
CB-306 (BMP 3)	0.57	0.06	1.65	90.0	400.28	400.28	3.0	4.36	3.36
TCB-312 (BMP 3)	0.56	0.01	0.56	97.5	399.78	399.78	9.0	2.48	2.48
DCB-311 (BMP 3)	0.54	0.03	1.09	95.5	399.19	399.19	6.0	2.50	2.83
CB-307 (BMP 3)	0.63	0.08	1.09	88.3	401.19	401.19	3.0	3.23	2.99
CB-308 (BMP 3)	0.48	0.03	0.48	93.2	401.69	401.69	3.0	2.39	2.39
CB-364 (BMP 3)	1.03	0.31	1.48	76.9	400.01	400.01	3.0	2.20	3.39
DI-352 (BMP 3)	0.47	0.04	0.47	92.1	400.12	400.12	2.0	2.39	2.39
CB-304 (BMP 3)	0.25	0.00	3.54	99.5	396.61	396.61	3.0	5.95	3.93
CB-365 (BMP 3)	0.46	0.03	0.46	93.9	400.26	400.26	3.0	2.43	2.43
DI-368 (BMP 3)	1.24	0.57	1.24	68.4	400.44	400.44	2.0	3.22	3.22
DI-379 (BMP 3)	0.89	0.26	2.15	77.4	389.72	389.72	2.0	1.46	3.63
CB-363 (BMP 3)	1.35	0.57	2.79	70.2	399.87	399.87	3.0	2.71	4.16
CB-362 (BMP 3)	1.21	0.45	3.95	73.0	399.60	399.60	3.0	4.18	4.73

SCM 3 25-YR

Inlets - Time: 0.00 hours

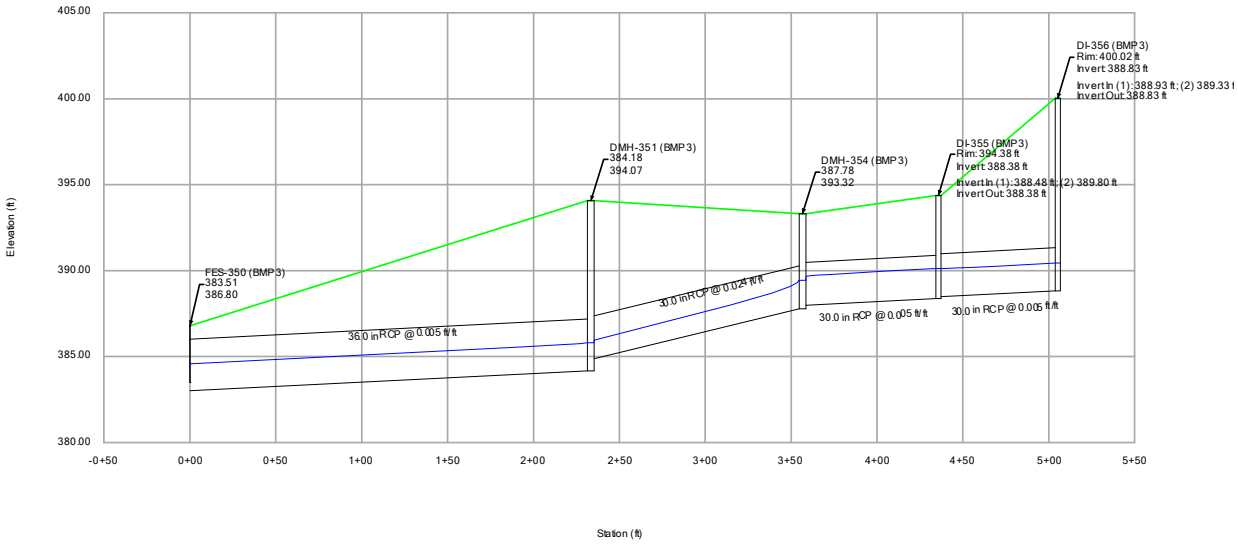
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-303 (BMP 3)	0.72	0.12	0.72	85.3	399.33	399.33	3.0	2.76	2.76
CB-302 (BMP 3)	0.35	0.01	6.40	97.1	392.42	392.42	3.0	2.88	4.70
CB-367 (BMP 3)	1.08	0.35	2.32	75.8	395.79	395.79	3.0	4.31	3.91
CB-361 (BMP 3)	0.70	0.12	6.84	85.8	390.42	390.42	3.0	4.85	3.02
DI-378 (BMP 3)	2.33	2.18	2.33	51.7	398.05	398.05	2.0	3.72	3.72
DI-380 (BMP 3)	0.83	0.21	0.83	79.4	400.47	400.47	2.0	2.77	2.77
CB-368 (BMP 3)	0.41	0.02	15.30	95.4	391.00	391.00	3.0	6.06	5.82
DI-377 (BMP 3)	1.78	1.26	4.05	58.6	395.37	395.37	2.0	6.33	4.43
CB-375 (BMP 3)	0.17	0.00	0.17	100.0	393.35	393.35	3.0	1.77	1.77
CB-374 (BMP 3)	0.19	0.00	0.36	100.0	393.01	393.01	3.0	1.87	2.21
DCB-369 (BMP 3)	1.62	0.40	1.62	80.2	391.70	391.70	6.0	3.43	3.43
CB-368A (BMP 3)	0.32	0.01	15.02	98.0	391.45	391.45	3.0	5.78	5.78
DCB-373 (BMP 3)	1.40	0.29	1.40	82.7	392.98	392.98	6.0	3.34	3.34
CB-372 (BMP 3)	0.89	0.22	2.52	80.4	392.62	392.62	3.0	4.21	3.86
DCB-370 (BMP 3)	1.63	0.41	13.42	80.1	392.03	392.03	6.0	6.07	5.57
DCB-371 (BMP 3)	2.46	0.93	9.68	72.5	392.37	392.37	6.0	7.01	5.39

SCM 3 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-356 (BMP 3)	0.01	0.00	21.65	100.0	390.44	390.44	2.0	2.21	6.48
DI-360 (BMP 3)	0.91	0.27	0.91	77.0	395.86	395.86	2.0	2.84	2.84
DI-376 (BMP 3)	3.55	4.97	7.43	41.7	394.12	394.12	2.0	5.14	4.93
DI-358 (BMP 3)	0.33	0.01	2.21	97.5	391.31	391.31	2.0	4.81	3.66
DI-357 (BMP 3)	0.21	0.00	2.38	99.9	390.68	390.68	2.0	4.19	3.74
CB-314 (BMP 3)	1.12	0.38	1.12	74.9	393.82	393.82	3.0	3.08	3.08
CB-313 (BMP 3)	0.93	0.24	2.04	79.5	393.59	393.59	3.0	3.13	3.75
DI-359 (BMP 3)	1.06	0.39	1.92	72.9	392.40	392.40	2.0	4.76	3.51
DI-301 (BMP 3)	0.00	0.00	6.30	100.0	387.19	387.19	2.0	8.85	4.67
DI-355 (BMP 3)	0.43	0.03	24.11	93.8	390.12	390.12	2.0	6.35	6.61

SCM 3 25-YR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2+50
3+00
3+50
4+00
4+50
5+00
5+50
Station (ft)
FES-350 (BMP3)
383.51
386.80
DMH-351 (BMP3)
384.18
394.07
DMH-354 (BMP3)
387.78
393.32
DI-355 (BMP3)
Rim: 394.38 ft
Invert: 388.38 ft
Invert In (1): 388.48 ft; (2) 389.80 ft
Invert Out: 388.38 ft
DI-356 (BMP3)
Rim: 400.02 ft
Invert: 388.83 ft
Invert In (1): 388.93 ft; (2) 389.33 f
Invert Out: 388.83 ft
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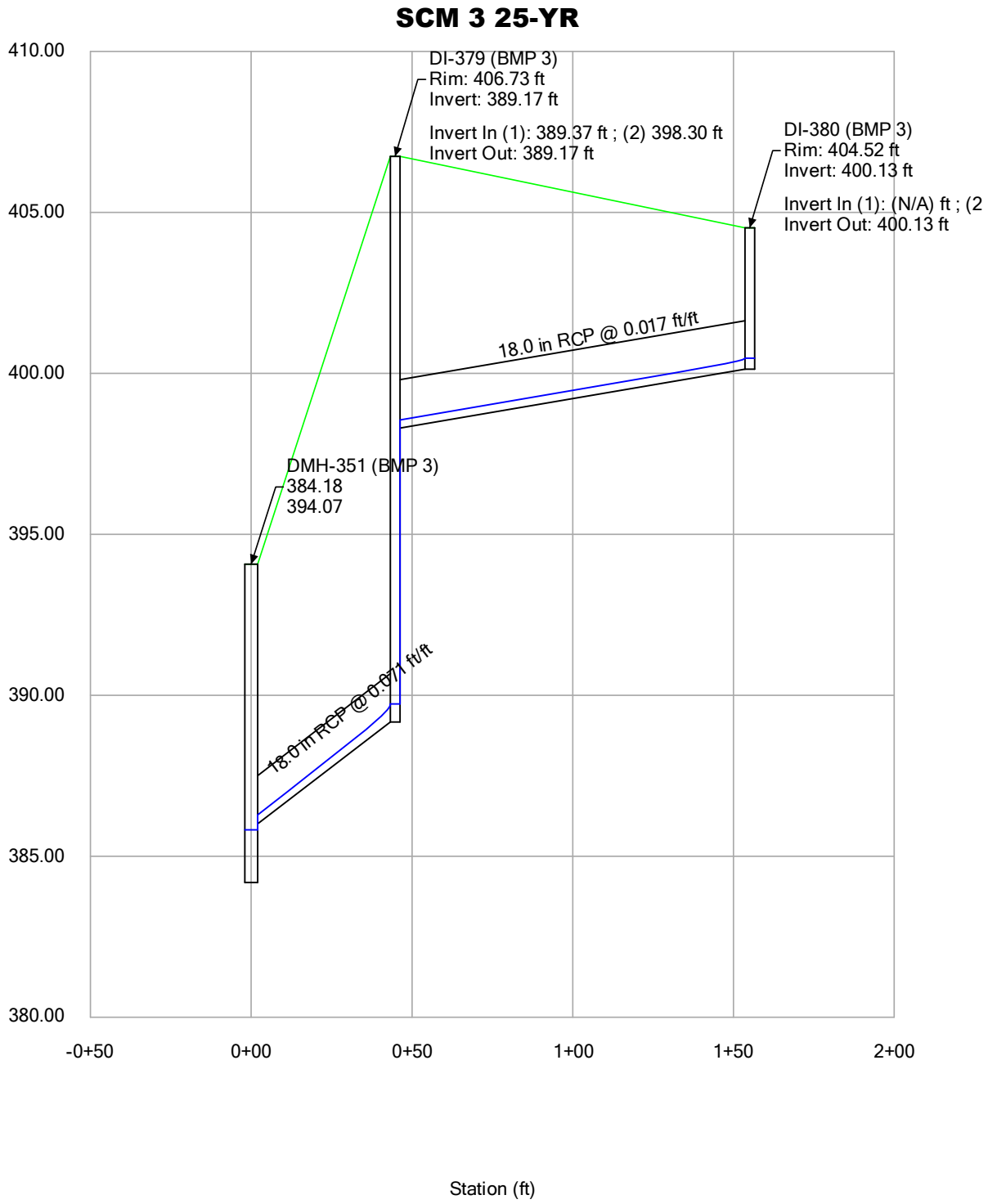
30.0 in RCP @ 0.024 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft


SCM 3 25-YR
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400.00
395.00
390.00
385.00
380.00
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0+00
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1+00
1+50
2+00
Station (ft)
DI-379 (BMP 3)
Rim: 406.73 ft
Invert: 389.17 ft
Invert In (1): 389.37 ft ; (2) 398.30 ft
Invert Out: 389.17 ft
DI-380 (BMP 3)
Rim: 404.52 ft
Invert: 400.13 ft
Invert In (1): (N/A) ft ; (2
Invert Out: 400.13 ft
18.0 in RCP @ 0.017 ft/ft
DMH-351 (BMP 3)
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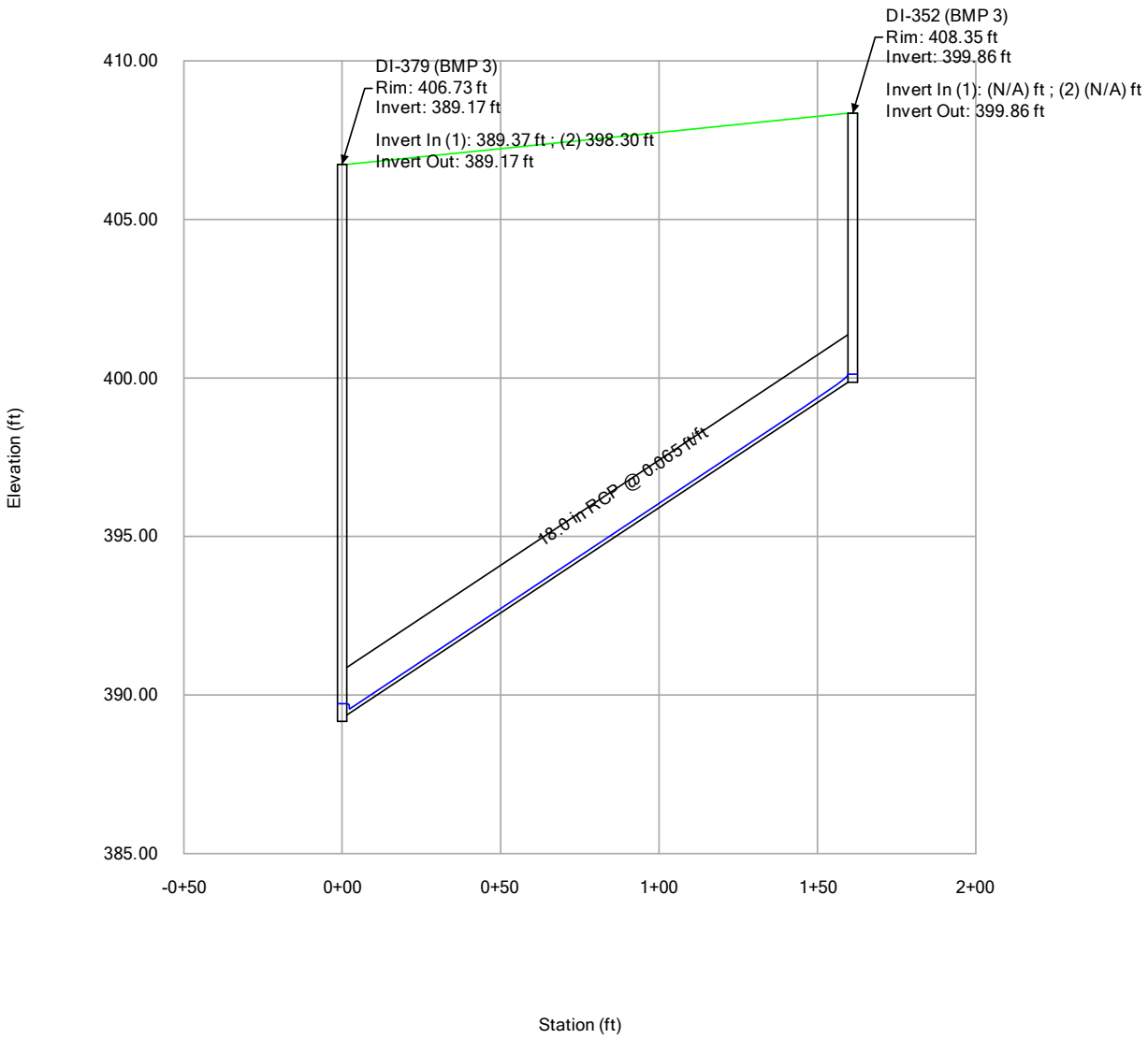
394.07
18.0 in RCP @ 0.071 ft/ft

SCM 3 25-YR


DI-352 (BMP 3)
Rim: 408.35 ft
Invert: 399.86 ft
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Invert Out: 399.86 ft
DI-379 (BMP 3)
Rim: 406.73 ft
Invert: 389.17 ft
Invert In (1): 389.37 ft ; (2) 398.30 ft
Invert Out: 389.17 ft
18.0 in RCP @ 0.065 ft/ft
410.00
405.00
400.00
395.00
390.00
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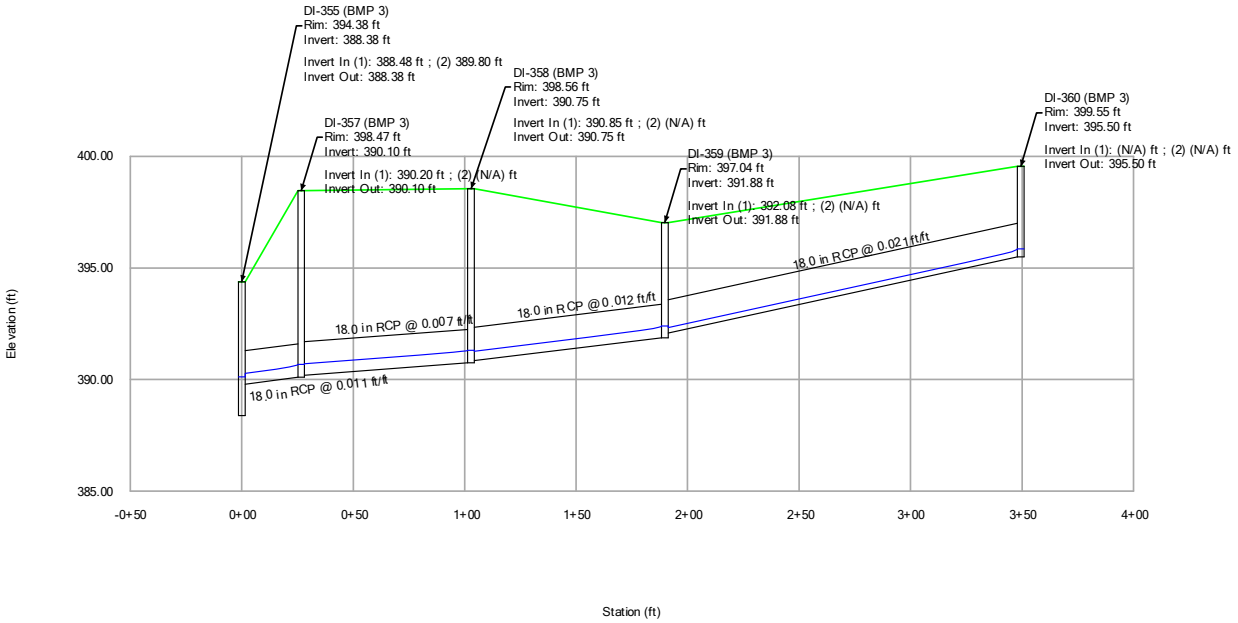
SCM 3 25-YR


DI-355 (BMP 3)
Rim: 394.38 ft
Invert: 388.38 ft
Invert In (1): 388.48 ft ; (2) 389.80 ft
Invert Out: 388.38 ft
DI-357 (BMP 3)
Rim: 398.47 ft
Invert: 390.10 ft
Invert In (1): 390.20 ft ; (2) (N/A) ft
Invert Out: 390.10 ft
DI-358 (BMP 3)
Rim: 398.56 ft
Invert: 390.75 ft
Invert In (1): 390.85 ft ; (2) (N/A) ft
Invert Out: 390.75 ft
DI-359 (BMP 3)
Rim: 397.04 ft
Invert: 391.88 ft
Invert In (1): 392.08 ft ; (2) (N/A) ft
Invert Out: 391.88 ft
DI-360 (BMP 3)
Rim: 399.55 ft
Invert: 395.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 395.50 ft
18.0 in RCP @ 0.011 ft/ft
18.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.021 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
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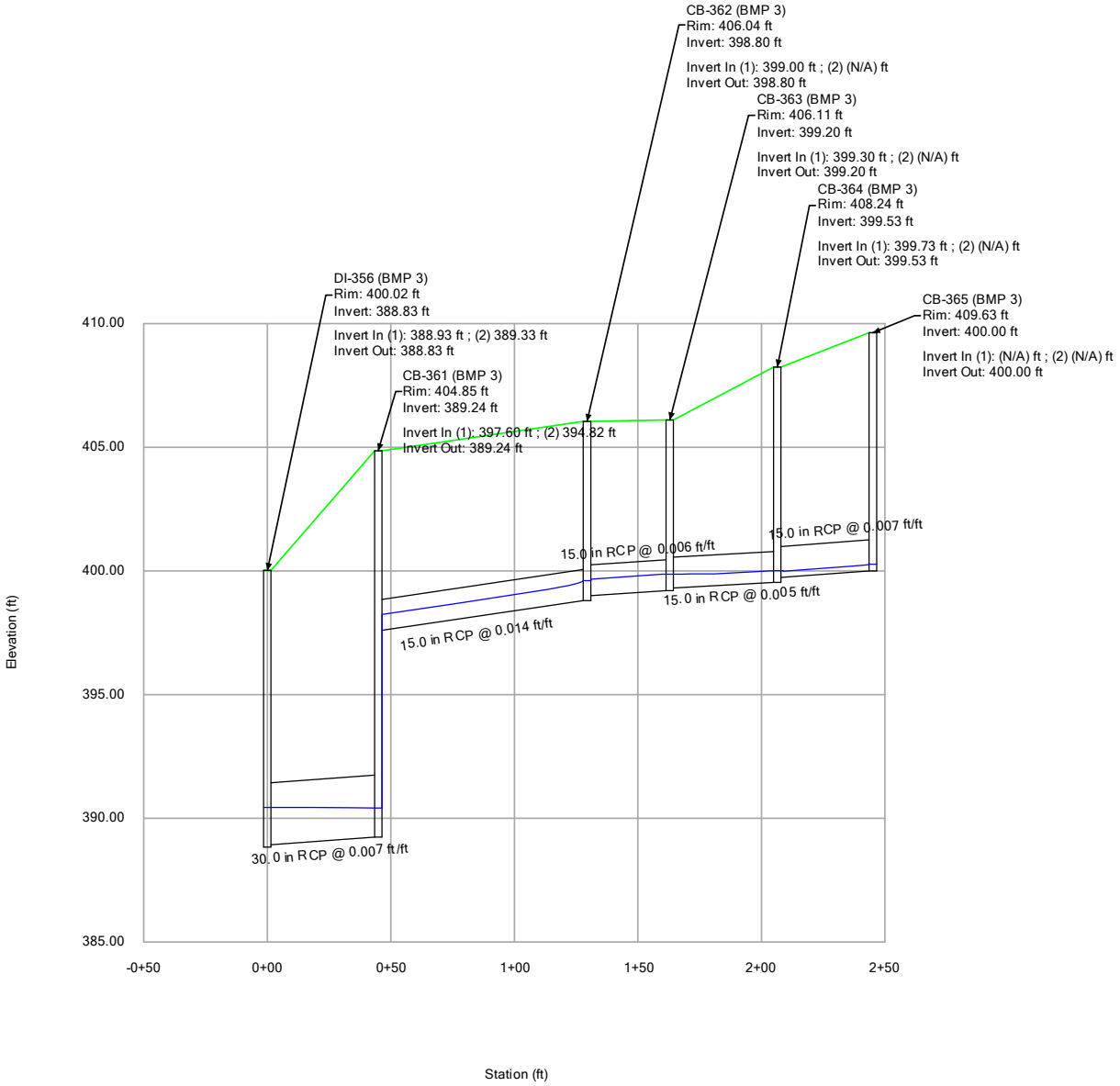
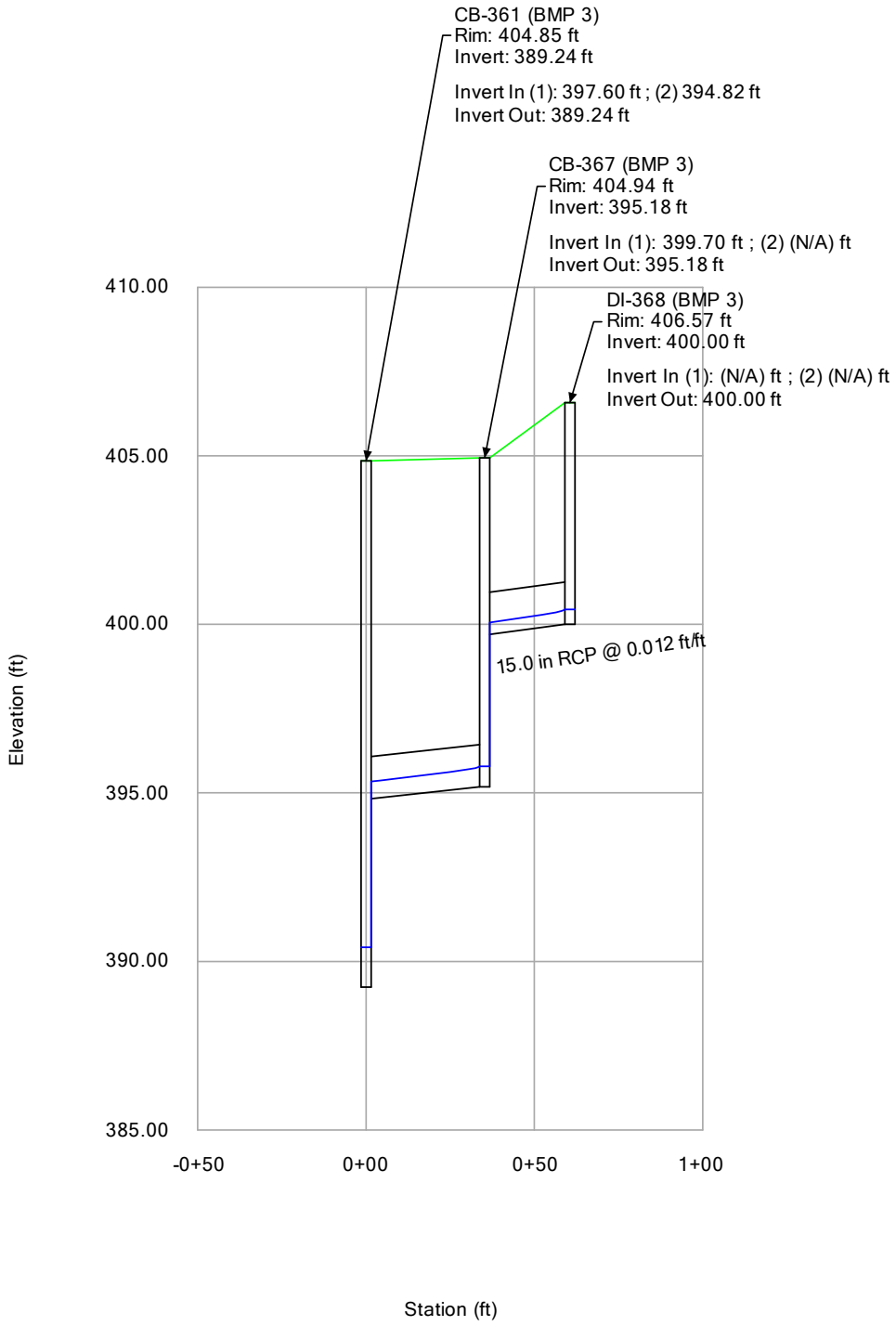
2+00
2+50
3+00
3+50
4+00
Station (ft)

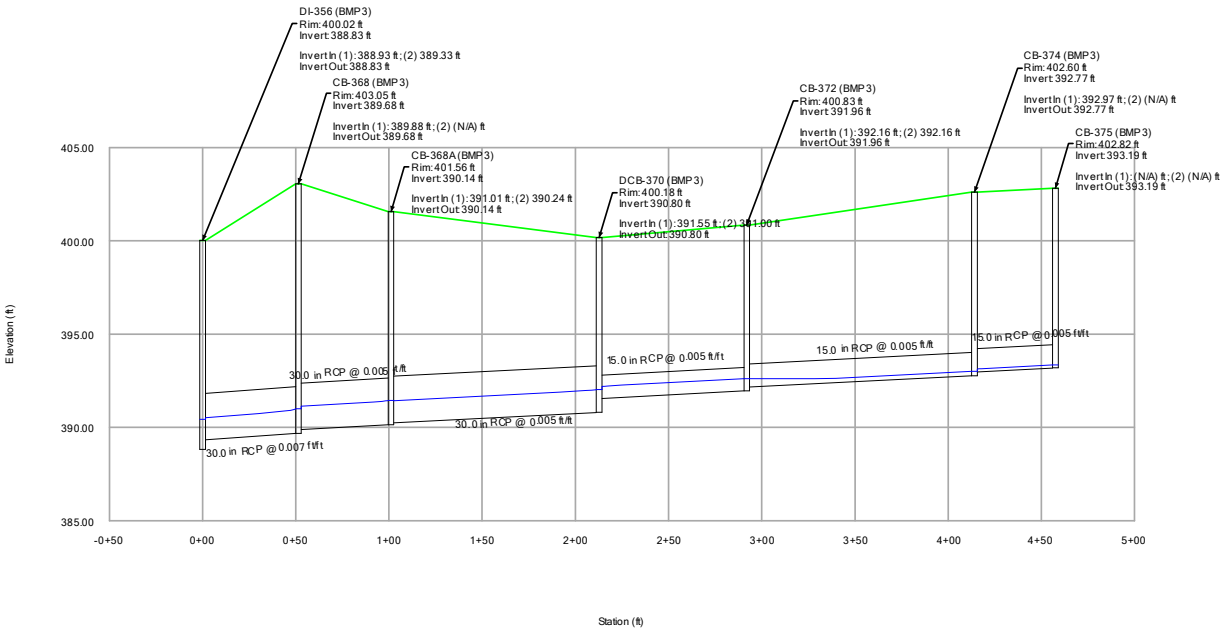
SCM 3 25-YR


CB-362 (BMP 3)
Rim: 406.04 ft
Invert: 398.80 ft
Invert In (1): 399.00 ft ; (2) (N/A) ft
Invert Out: 398.80 ft
CB-363 (BMP 3)
Rim: 406.11 ft
Invert: 399.20 ft
Invert In (1): 399.30 ft ; (2) (N/A) ft
Invert Out: 399.20 ft
CB-364 (BMP 3)
Rim: 408.24 ft
Invert: 399.53 ft
Invert In (1): 399.73 ft ; (2) (N/A) ft
Invert Out: 399.53 ft
DI-356 (BMP 3)
Rim: 400.02 ft
Invert: 388.83 ft
Invert In (1): 388.93 ft ; (2) 389.33 ft
Invert Out: 388.83 ft
CB-365 (BMP 3)
Rim: 409.63 ft
Invert: 400.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.00 ft
CB-361 (BMP 3)
Rim: 404.85 ft
Invert: 389.24 ft
Invert In (1): 397.60 ft ; (2) 394.82 ft
Invert Out: 389.24 ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.007 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.014 ft/ft
30.0 in RCP @ 0.007 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)

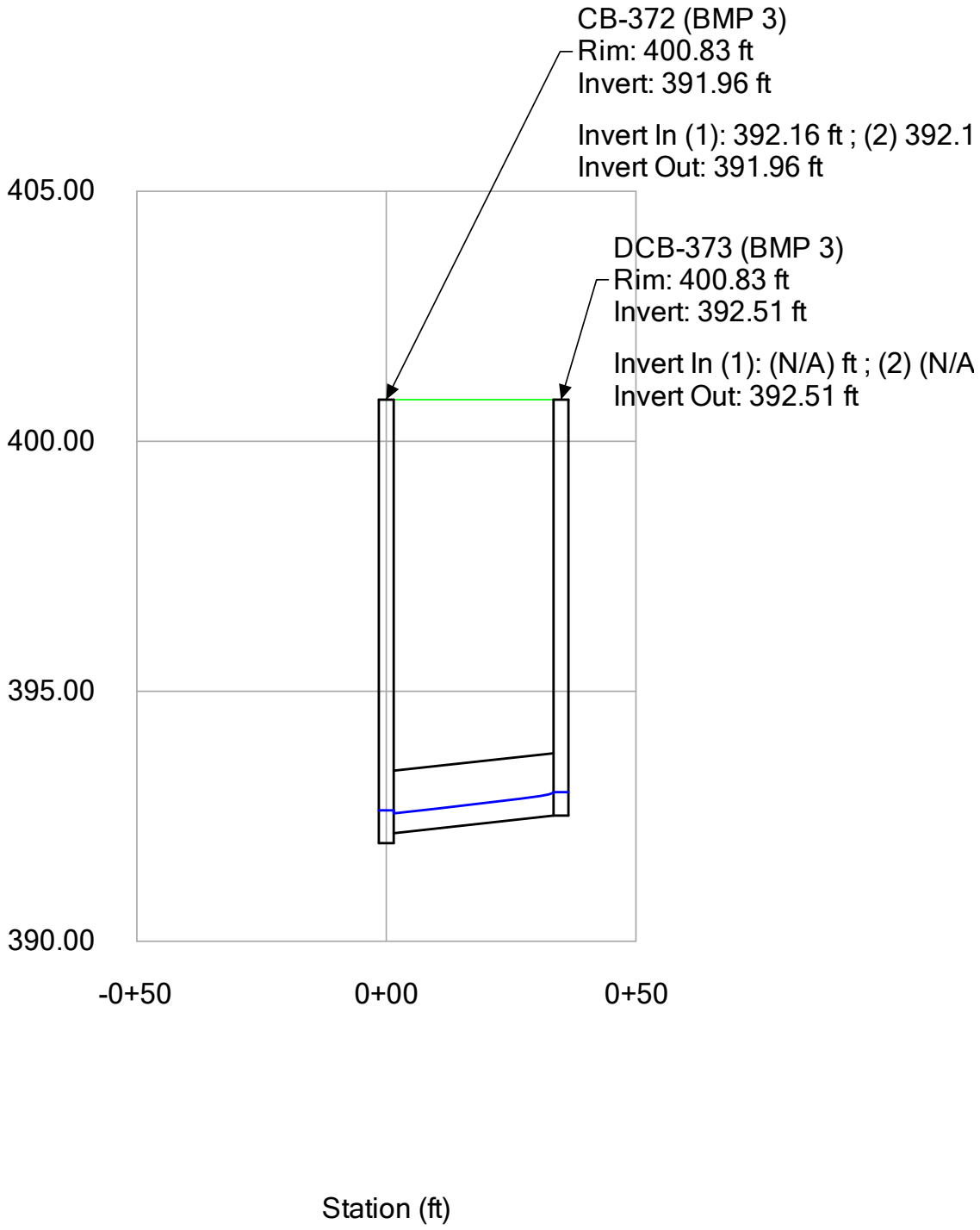
SCM 3 25-YR


CB-361 (BMP 3)
Rim: 404.85 ft
Invert: 389.24 ft
Invert In (1): 397.60 ft ; (2) 394.82 ft
Invert Out: 389.24 ft
CB-367 (BMP 3)
Rim: 404.94 ft
Invert: 395.18 ft
Invert In (1): 399.70 ft ; (2) (N/A) ft
Invert Out: 395.18 ft
DI-368 (BMP 3)
Rim: 406.57 ft
Invert: 400.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 400.00 ft
15.0 in RCP @ 0.012 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
Station (ft)

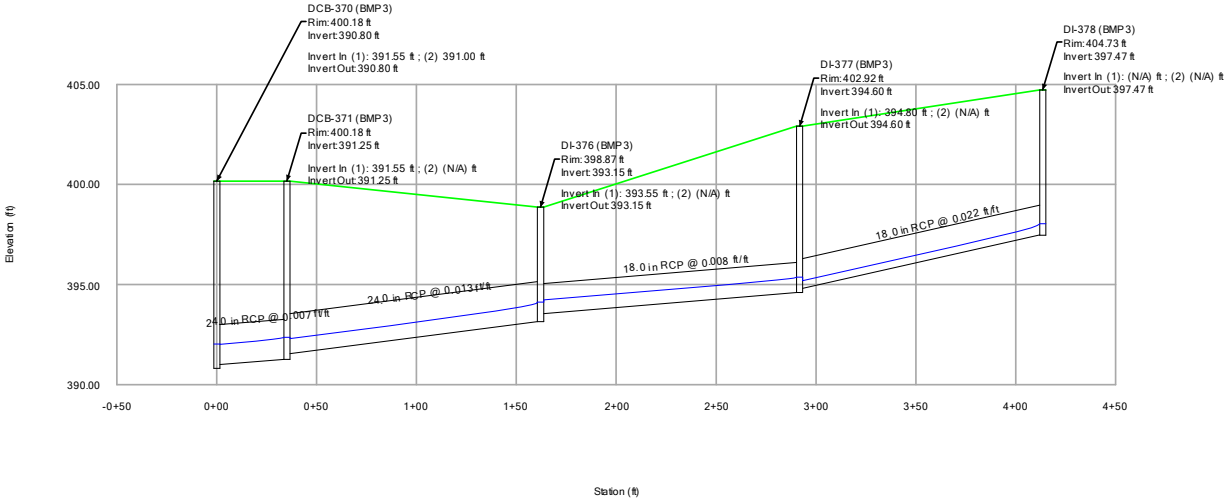
SCM 3 25-YR


DI-356 (BMP3)
Rim: 400.02 ft
Invert: 388.83 ft
Invert In (1): 388.93 ft; (2) 389.33 ft
Invert Out: 388.83 ft
CB-368 (BMP3)
Rim: 403.05 ft
Invert: 389.68 ft
Invert In (1): 389.88 ft; (2) (N/A) ft
Invert Out: 389.68 ft
CB-368A (BMP3)
Rim: 401.56 ft
Invert: 390.14 ft
Invert In (1): 391.01 ft; (2) 390.24 ft
Invert Out: 390.14 ft
DCB-370 (BMP3)
Rim: 400.18 ft
Invert: 390.80 ft
Invert In (1): 391.55 ft; (2) 391.00 ft
Invert Out: 390.80 ft
CB-372 (BMP3)
Rim: 400.83 ft
Invert: 391.96 ft
Invert In (1): 392.16 ft; (2) 392.16 ft
Invert Out: 391.96 ft
CB-374 (BMP3)
Rim: 402.60 ft
Invert: 392.77 ft
Invert In (1): 392.97 ft; (2) (N/A) ft
Invert Out: 392.77 ft
CB-375 (BMP3)
Rim: 402.82 ft
Invert: 393.19 ft
Invert In (1): (N/A) ft; (2) (N/A) ft
Invert Out: 393.19 ft
30.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.007 ft/ft
405.00
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
Station (ft)

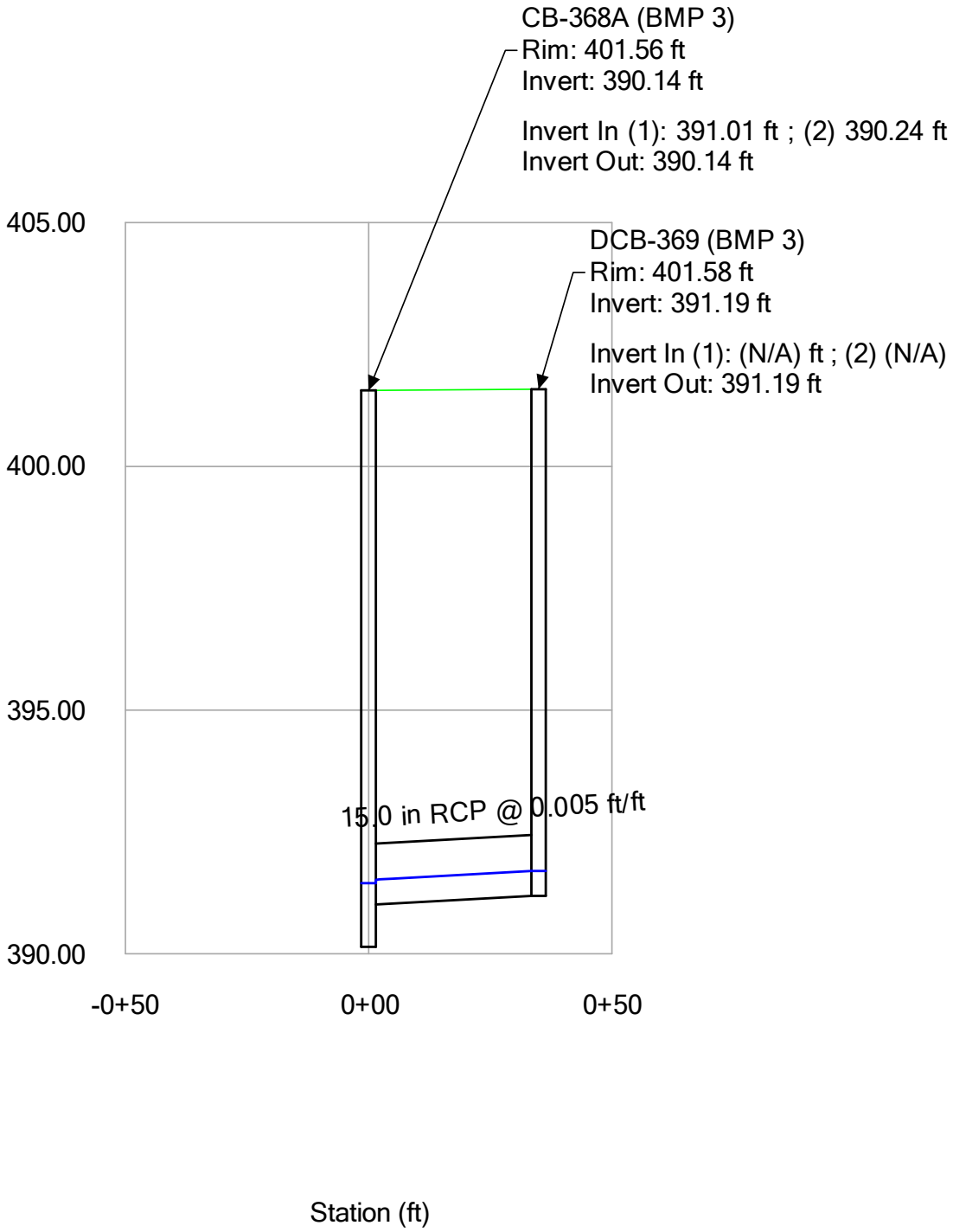
SCM 3 25-YR


CB-372 (BMP 3)
Rim: 400.83 ft
Invert: 391.96 ft
Invert In (1): 392.16 ft ; (2) 392.1
Invert Out: 391.96 ft
DCB-373 (BMP 3)
Rim: 400.83 ft
Invert: 392.51 ft
Invert In (1): (N/A) ft ; (2) (N/A
Invert Out: 392.51 ft
405.00
400.00
395.00
390.00
-0+50
0+00
0+50
Station (ft)

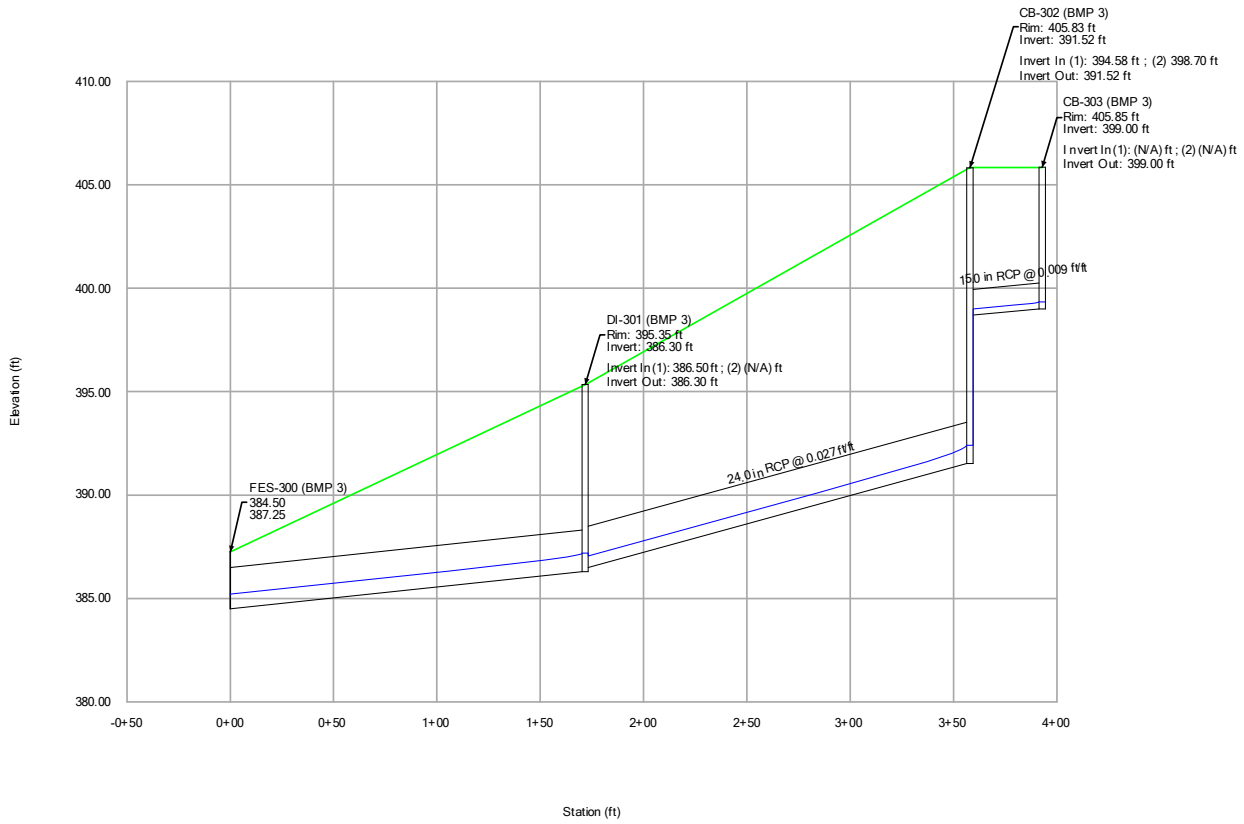
SCM 3 25-YR


DCB-370 (BMP3)
Rim: 400.18 ft
Invert: 390.80 ft
Invert In (1): 391.55 ft ; (2) 391.00 ft
Invert Out: 390.80 ft
DCB-371 (BMP3)
Rim: 400.18 ft
Invert: 391.25 ft
Invert In (1): 391.55 ft ; (2) (N/A) ft
Invert Out: 391.25 ft
DI-376 (BMP3)
Rim: 398.87 ft
Invert: 393.15 ft
Invert In (1): 393.55 ft ; (2) (N/A) ft
Invert Out: 393.15 ft
DI-377 (BMP3)
Rim: 402.92 ft
Invert: 394.60 ft
Invert In (1): 394.80 ft ; (2) (N/A) ft
Invert Out: 394.60 ft
DI-378 (BMP3)
Rim: 404.73 ft
Invert: 397.47 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.47 ft
24.0 in RCP @ 0.007 ft/ft
24.0 in RCP @ 0.013 ft/ft
18.0 in RCP @ 0.008 ft/ft
18.0 in RCP @ 0.022 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

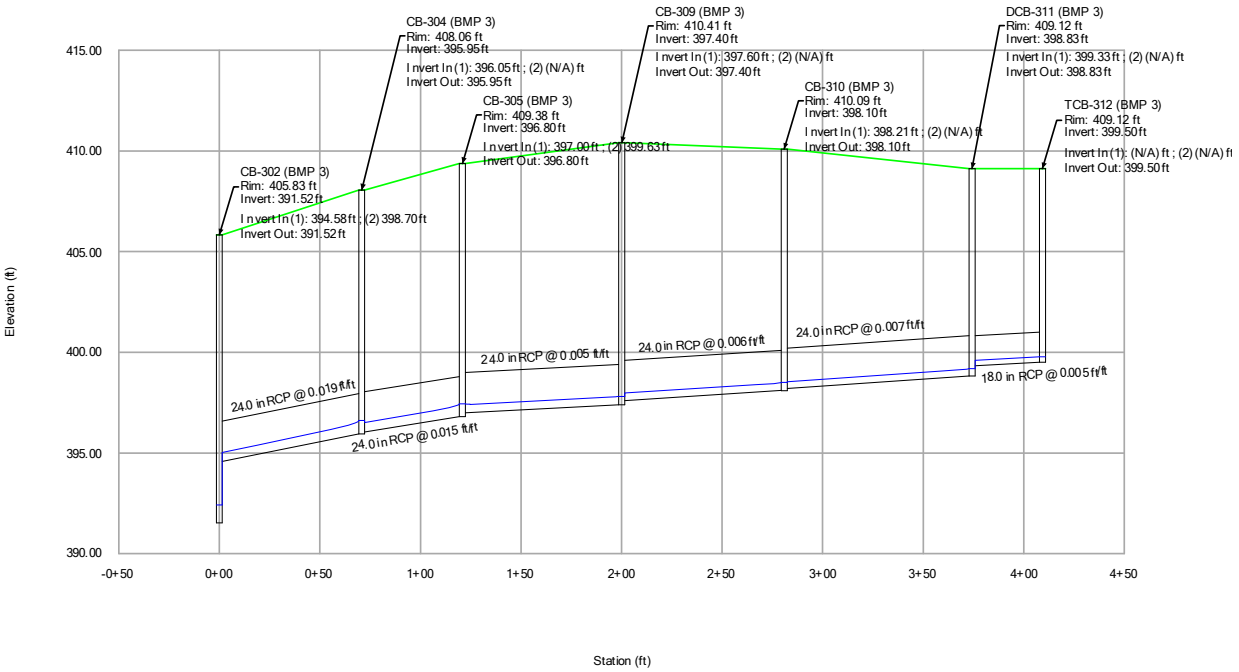
SCM 3 25-YR


CB-368A (BMP 3)
Rim: 401.56 ft
Invert: 390.14 ft
Invert In (1): 391.01 ft ; (2) 390.24 ft
Invert Out: 390.14 ft
DCB-369 (BMP 3)
Rim: 401.58 ft
Invert: 391.19 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 391.19 ft
405.00
400.00
395.00
390.00
15.0 in RCP @ 0.005 ft/ft
-0+50
0+00
0+50
Station (ft)

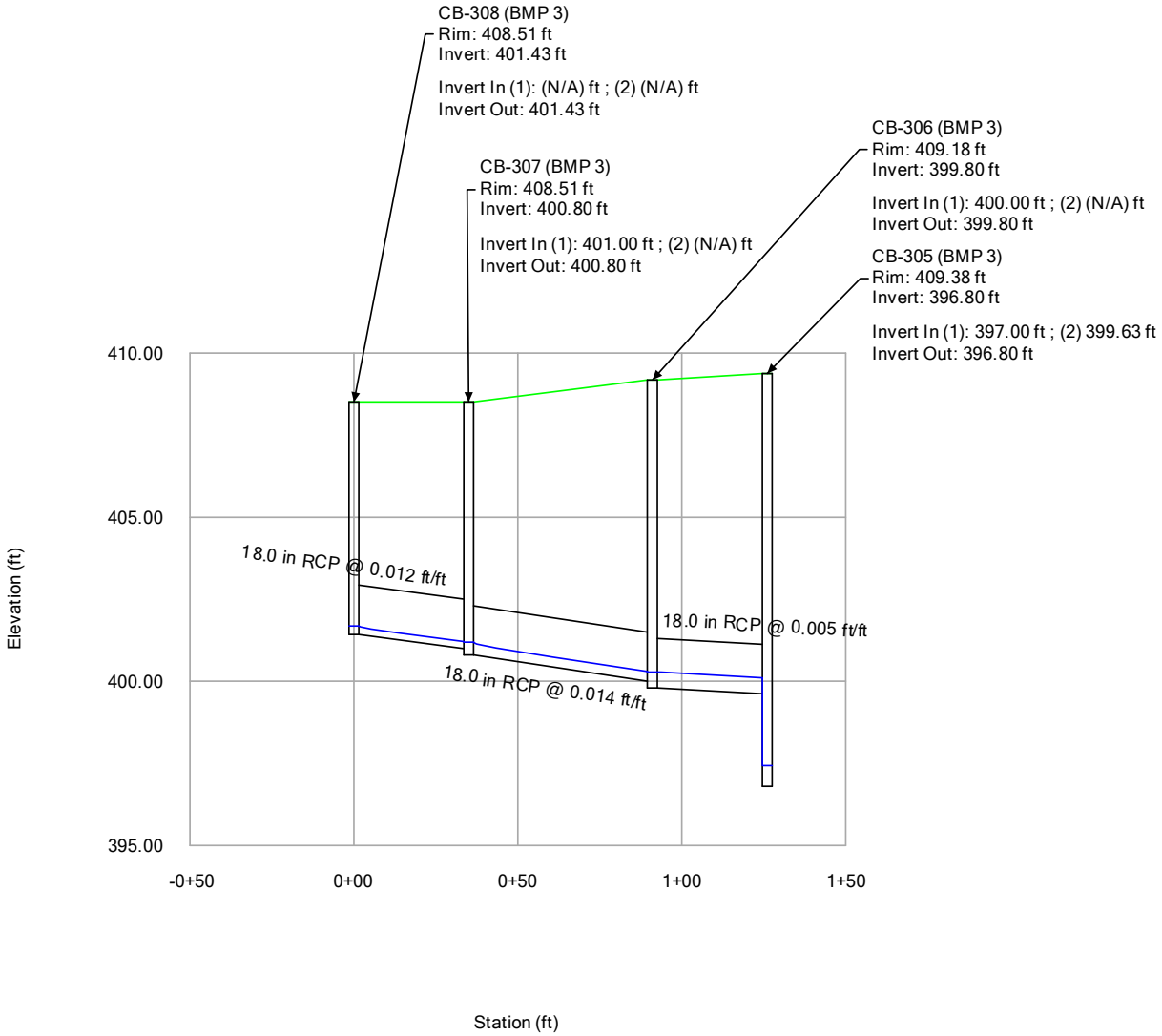
SCM 3 25-YR


CB-302 (BMP 3)
Rim: 405.83 ft
Invert: 391.52 ft
Invert In (1): 394.58 ft ; (2) 398.70 ft
Invert Out: 391.52 ft
CB-303 (BMP 3)
Rim: 405.85 ft
Invert: 399.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.00 ft
15.0 in RCP @ 0.009 ft/ft
DI-301 (BMP 3)
Rim: 395.35 ft
Invert: 386.30 ft
Invert In (1): 386.50 ft ; (2) (N/A) ft
Invert Out: 386.30 ft
24.0 in RCP @ 0.027 ft/ft
FES-300 (BMP 3)
384.50
387.25
410.00
405.00
400.00
395.00
390.00
385.00
380.00
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Elevation (ft)
Station (ft)

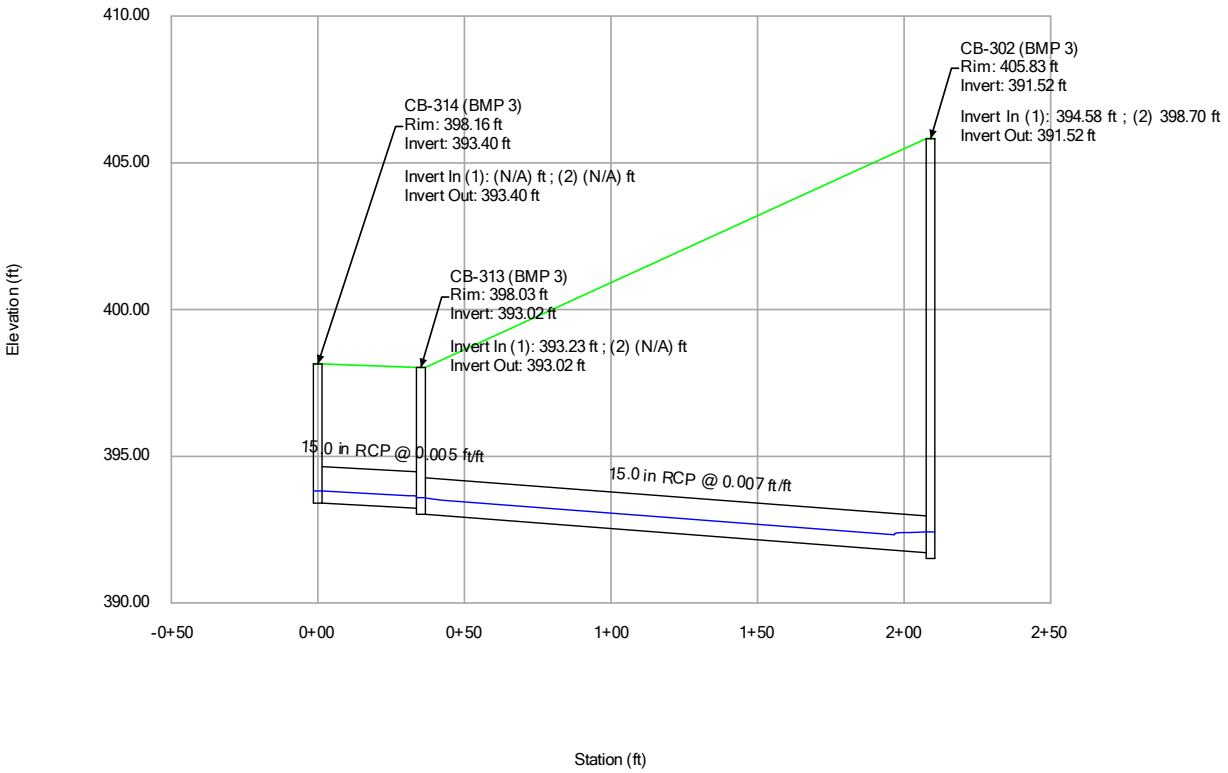
SCM 3 25-YR


CB-304 (BMP 3)
Rim: 408.06 ft
Invert: 395.95 ft
Invert In (1): 396.05 ft ; (2) (N/A) ft
Invert Out: 395.95 ft
CB-309 (BMP 3)
Rim: 410.41 ft
Invert: 397.40 ft
Invert In (1): 397.60 ft ; (2) (N/A) ft
Invert Out: 397.40 ft
DCB-311 (BMP 3)
Rim: 409.12 ft
Invert: 398.83 ft
Invert In (1): 399.33 ft ; (2) (N/A) ft
Invert Out: 398.83 ft
CB-305 (BMP 3)
Rim: 409.38 ft
Invert: 396.80 ft
Invert In (1): 397.00 ft ; (2) 399.63 ft
Invert Out: 396.80 ft
CB-310 (BMP 3)
Rim: 410.09 ft
Invert: 398.10 ft
Invert In (1): 398.21 ft ; (2) (N/A) ft
Invert Out: 398.10 ft
TCB-312 (BMP 3)
Rim: 409.12 ft
Invert: 399.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.50 ft
CB-302 (BMP 3)
Rim: 405.83 ft
Invert: 391.52 ft
Invert In (1): 394.58 ft ; (2) 398.70 ft
Invert Out: 391.52 ft
24.0 in RCP @ 0.019 ft/ft
24.0 in RCP @ 0.015 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.006 ft/ft
24.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.005 ft/ft
415.00
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

SCM 3 25-YR


CB-308 (BMP 3)
Rim: 408.51 ft
Invert: 401.43 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 401.43 ft
CB-307 (BMP 3)
Rim: 408.51 ft
Invert: 400.80 ft
Invert In (1): 401.00 ft ; (2) (N/A) ft
Invert Out: 400.80 ft
CB-306 (BMP 3)
Rim: 409.18 ft
Invert: 399.80 ft
Invert In (1): 400.00 ft ; (2) (N/A) ft
Invert Out: 399.80 ft
CB-305 (BMP 3)
Rim: 409.38 ft
Invert: 396.80 ft
Invert In (1): 397.00 ft ; (2) 399.63 ft
Invert Out: 396.80 ft
410.00
405.00
400.00
395.00
Elevation (ft)
18.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.014 ft/ft
18.0 in RCP @ 0.005 ft/ft
-0+50
0+00
0+50
1+00
1+50
Station (ft)

SCM 3 25-YR


410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)
CB-314 (BMP 3)
Rim: 398.16 ft
Invert: 393.40 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.40 ft
CB-313 (BMP 3)
Rim: 398.03 ft
Invert: 393.02 ft
Invert In (1): 393.23 ft ; (2) (N/A) ft
Invert Out: 393.02 ft
CB-302 (BMP 3)
Rim: 405.83 ft
Invert: 391.52 ft
Invert In (1): 394.58 ft ; (2) 398.70 ft
Invert Out: 391.52 ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.007 ft/ft

SCM 3 – INLET SPREAD

SCM 3 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

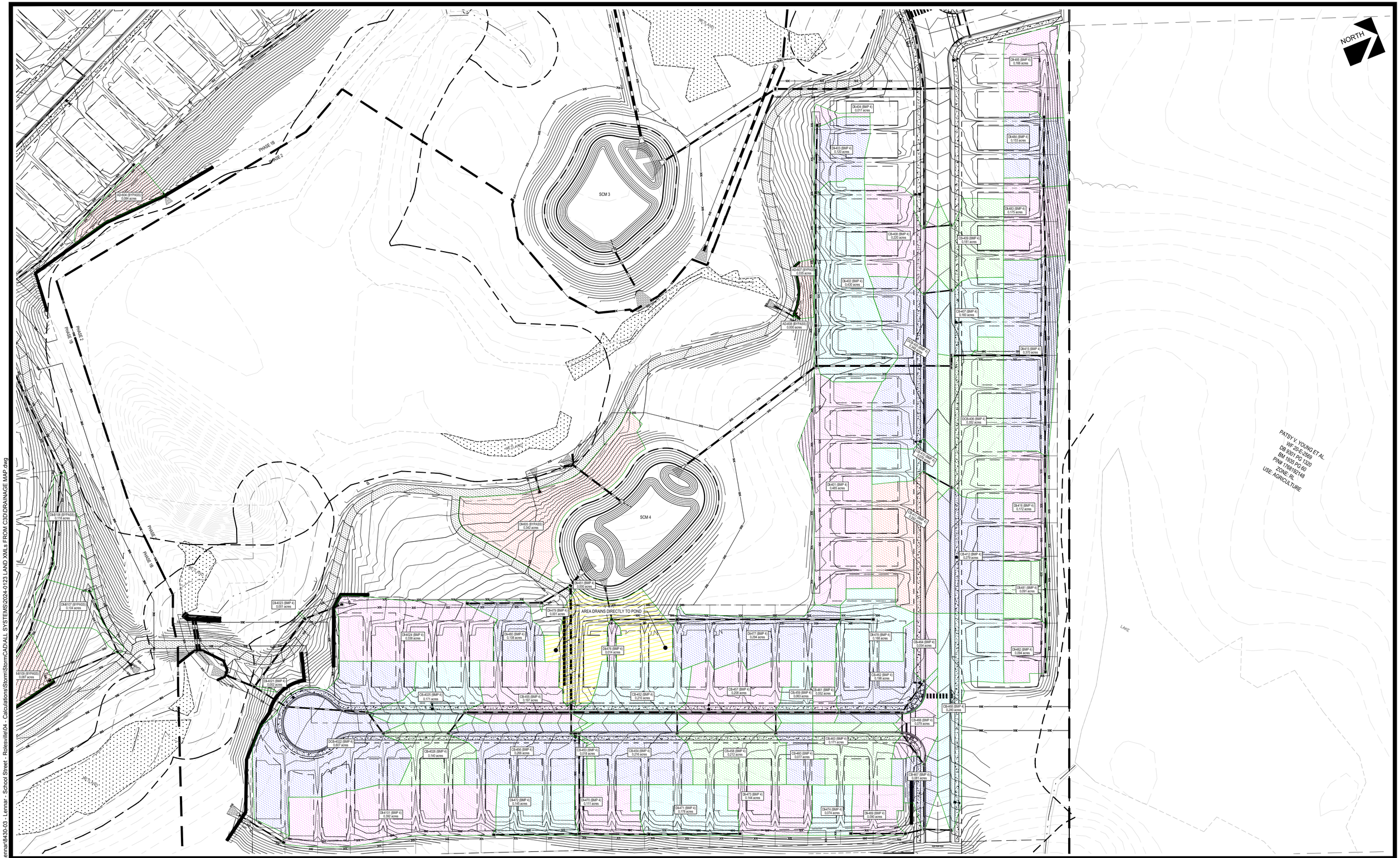
Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
DCB-371 (BMP 3)	0.610	0.311	1.76	0.47	7.46	7.5	2.3
DCB-370 (BMP 3)	0.410	0.209	1.18	0.20	10.15	6.1	1.9
DCB-369 (BMP 3)	0.378	0.201	1.14	0.18	1.14	6.0	1.9
CB-363 (BMP 3)	0.330	0.183	1.04	0.31	2.12	6.1	1.9
DCB-373 (BMP 3)	0.384	0.185	1.04	0.15	1.04	5.7	1.9
CB-362 (BMP 3)	0.322	0.163	0.92	0.23	3.00	5.7	1.8
CB-314 (BMP 3)	0.311	0.148	0.84	0.18	0.84	5.3	1.8
CB-367 (BMP 3)	0.177	0.136	0.77	0.15	1.72	5.1	1.7
CB-364 (BMP 3)	0.279	0.140	0.79	0.16	1.11	5.2	1.7
CB-313 (BMP 3)	0.262	0.124	0.70	0.12	1.53	4.8	1.6
CB-372 (BMP 3)	0.251	0.120	0.68	0.10	1.86	4.7	1.6
CB-303 (BMP 3)	0.175	0.096	0.54	0.05	0.54	4.1	1.5
CB-361 (BMP 3)	0.055	0.082	0.47	0.03	5.09	3.8	1.4
CB-307 (BMP 3)	0.110	0.083	0.47	0.03	0.81	3.8	1.4
CB-306 (BMP 3)	0.084	0.075	0.43	0.02	1.22	3.6	1.3
TCB-312 (BMP 3)	0.160	0.071	0.40	0.00	0.40	3.4	1.3

SCM 3 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
DCB-311 (BMP 3)	0.093	0.068	0.39	0.01	0.78	3.3	1.3
CB-308 (BMP 3)	0.082	0.062	0.35	0.01	0.35	3.2	1.2
CB-365 (BMP 3)	0.071	0.059	0.33	0.01	0.33	3.1	1.2
CB-368 (BMP 3)	0.041	0.044	0.25	0.00	11.39	2.5	1.1
CB-305 (BMP 3)	0.051	0.048	0.27	0.00	2.41	2.7	1.1
CB-302 (BMP 3)	0.047	0.045	0.25	0.00	4.67	2.6	1.1
CB-368A (BMP 3)	0.045	0.038	0.22	0.00	11.23	2.3	1.0
CB-310 (BMP 3)	0.042	0.035	0.20	0.00	0.96	2.2	1.0
CB-304 (BMP 3)	0.031	0.030	0.17	0.00	2.55	2.0	0.9
CB-374 (BMP 3)	0.029	0.024	0.14	0.00	0.25	1.8	0.9
CB-375 (BMP 3)	0.025	0.021	0.12	0.00	0.12	1.7	0.8
CB-309 (BMP 3)	0.015	0.014	0.08	0.00	1.02	1.5	0.7

ATTACHMENT 4: DRAINAGE AREA MAPS – SCM 4



G:\NCA\Projects\Lennar\84430-03 - Lennar - School Street - Rolesville\04 - Calculations\Storm\StormCAD\ALL SYSTEMS\2024-0123 LAND XMLs FROM C3D\DRAINAGE MAP.dwg

BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
www.bgeinc.com
NC LICENSE #C-4397

SCM 4 DRAINAGE AREAS

DATE: 3/4/2024

0 50' 100' 150'
SCALE: 1" = 50'

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BGE INC. SHALL BE WITHOUT LIABILITY TO BGE INC.

SCM 4 – 10 YR STORM

SCM 4 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-479 (BMP 4)	0.001	0.000	True	0.00	0.084	0.350
DI-4023 (BMP 4)	0.001	0.000	True	0.00	0.083	0.350
DI-4021 (BMP 4)	0.002	0.000	True	0.00	0.083	0.350
DI-451 (BMP 4)	0.000	0.000	True	0.00	0.084	0.400
DI-473 (BMP 4)	0.144	0.000	True	0.52	0.084	0.500
CB-408 (BMP 4)	0.220	0.000	True	0.87	0.084	0.550
CB-409 (BMP 4)	0.181	0.000	True	0.72	0.084	0.550
DCB-406 (BMP 4)	0.352	0.000	True	1.40	0.084	0.550
CB-411 (BMP 4)	0.292	0.000	True	1.16	0.084	0.550
CB-412 (BMP 4)	0.279	0.000	True	1.11	0.084	0.550
DI-404 (BMP 4)	0.017	0.000	True	0.07	0.084	0.550
DI-403 (BMP 4)	0.120	0.000	True	0.48	0.084	0.550
CB-463 (BMP 4)	0.171	0.000	True	0.68	0.084	0.550
CB-462 (BMP 4)	0.198	0.000	True	0.79	0.084	0.550
CB-457 (BMP 4)	0.208	0.000	True	0.83	0.084	0.550
CB-458 (BMP 4)	0.212	0.000	True	0.84	0.084	0.550

SCM 4 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-454 (BMP 4)	0.216	0.000	True	0.86	0.084	0.550
CB-452 (BMP 4)	0.210	0.000	True	0.84	0.084	0.550
CB-455 (BMP 4)	0.197	0.000	True	0.78	0.084	0.550
CB-456 (BMP 4)	0.266	0.000	True	1.06	0.084	0.550
DI-471 (BMP 4)	0.178	0.000	True	0.71	0.084	0.550
DCB-4022 (BMP 4)	0.607	0.000	True	2.42	0.084	0.550
DI-483 (BMP 4)	0.175	0.000	True	0.70	0.084	0.550
DI-484 (BMP 4)	0.153	0.000	True	0.61	0.084	0.550
DI-485 (BMP 4)	0.166	0.000	True	0.66	0.084	0.550
DI-482 (BMP 4)	0.094	0.000	True	0.37	0.084	0.550
CB-4026	0.140	0.000	True	0.56	0.084	0.550
CB-4025	0.171	0.000	True	0.68	0.084	0.550
DCB-405 (BMP 4)	0.348	0.000	True	1.51	0.084	0.600
CB-407 (BMP 4)	0.160	0.000	True	0.69	0.084	0.600
CB-410 (BMP 4)	0.079	0.000	True	0.34	0.084	0.600
DI-478 (BMP 4)	0.168	0.000	True	0.73	0.084	0.600
DI-477 (BMP 4)	0.294	0.000	True	1.28	0.084	0.600

SCM 4 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-461 (BMP 4)	0.052	0.000	True	0.22	0.084	0.600
CB-459 (BMP 4)	0.063	0.000	True	0.27	0.084	0.600
DI-481 (BMP 4)	0.091	0.000	True	0.40	0.084	0.600
DI-480 (BMP 4)	0.108	0.000	True	0.50	0.084	0.640
DI-476 (BMP 4)	0.014	0.000	True	0.07	0.084	0.650
CB-468 (BMP 4)	0.280	0.000	True	1.32	0.084	0.650
CB-467 (BMP 4)	0.081	0.000	True	0.38	0.084	0.650
CB-460 (BMP 4)	0.077	0.000	True	0.36	0.084	0.650
DI-4024 (BMP 4)	0.338	0.000	True	1.59	0.084	0.650
DI-4101 (BMP 4)	0.392	0.000	True	1.84	0.084	0.650
DI-415 (BMP 4)	0.370	0.000	True	1.82	0.084	0.680
DI-416 (BMP 4)	0.172	0.000	True	0.85	0.084	0.680
DI-401 (BMP 4)	0.485	0.000	True	2.39	0.084	0.680
DI-402 (BMP 4)	0.430	0.000	True	2.18	0.084	0.700
DI-474 (BMP 4)	0.074	0.000	True	0.37	0.084	0.700
DI-469 (BMP 4)	0.090	0.000	True	0.45	0.084	0.700

SCM 4 10-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-470 (BMP 4)	0.111	0.000	True	0.58	0.084	0.720
DI-472 (BMP 4)	0.145	0.000	True	0.75	0.084	0.720
CB-453 (BMP 4)	0.018	0.000	True	0.10	0.084	0.770
CB-464 (BMP 4)	0.054	0.000	True	0.37	0.084	0.950
CB-466 (BMP 4)	0.079	0.000	True	0.54	0.084	0.950

SCM 4 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-403 TO DI-404 (BMP 4)	18.0	0.051	1.44	2.94	0.07	23.64	397.42	393.10
DI-402 TO DI-403 (BMP 4)	18.0	0.036	2.42	1.90	0.50	19.99	393.10	387.10
CB-459 TO CB-461 (BMP 4)	18.0	0.007	4.56	5.11	4.41	9.10	384.51	383.86
CB-461 TO CB-462 (BMP 4)	18.0	0.005	4.35	4.51	4.26	7.43	385.03	384.60
CB-462 TO CB-464 (BMP 4)	15.0	0.080	2.28	5.89	0.36	18.33	393.82	389.87
CB-459 TO CB-460 (BMP 4)	15.0	0.005	2.20	2.27	0.35	4.57	391.92	391.78
CB-457 TO CB-459 (BMP 4)	18.0	0.008	4.75	5.39	4.95	9.39	383.88	382.80
DI-477 TO DI-478 (BMP 4)	15.0	0.014	2.66	3.80	0.63	7.76	392.99	389.37
CB-462 TO CB-463 (BMP 4)	15.0	0.007	4.40	4.73	3.26	5.59	385.34	385.10
CB-463 TO CB-466 (BMP 4)	15.0	0.007	4.11	4.52	2.70	5.59	385.82	385.42
CB-411 TO CB-412 (BMP 4)	15.0	0.007	2.93	3.27	0.89	5.43	392.58	392.27
CB-410 TO CB-411 (BMP 4)	15.0	0.055	3.61	8.30	1.80	15.12	392.26	389.82
DI-415 TO DI-416 (BMP 4)	18.0	0.005	3.18	2.10	1.36	7.43	391.97	391.49
DI-469 TO DI-474 (BMP 4)	15.0	0.018	2.28	3.46	0.36	8.62	390.80	389.53
CB-405 TO CB-410 (BMP 4)	15.0	0.006	3.91	4.06	2.32	5.09	389.94	389.34
CB-408 TO CB-409 (BMP 4)	15.0	0.010	2.88	3.63	0.84	6.46	391.16	390.75
CB-405 TO CB-408 (BMP 4)	15.0	0.010	3.54	4.44	1.70	6.46	390.77	389.78
CB-457 TO CB-458 (BMP 4)	15.0	0.005	2.72	2.77	0.73	4.57	388.35	388.21
CB-452 TO CB-457 (BMP 4)	24.0	0.010	4.65	4.34	6.19	22.62	382.41	381.13
DI-471 TO DI-473 (BMP 4)	15.0	0.018	2.46	3.76	0.48	8.59	388.29	386.20
CB-407 TO DI-415 (BMP 4)	18.0	0.005	4.28	4.43	4.04	7.41	391.49	390.89
CB-466 TO CB-467 (BMP 4)	15.0	0.005	3.69	3.84	2.19	4.58	386.38	385.95
CB-406 TO CB-407 (BMP 4)	18.0	0.005	4.44	4.64	4.63	7.43	390.78	390.68
CB-405 TO CB-406 (BMP 4)	18.0	0.019	5.17	7.41	6.18	14.31	390.61	389.72
DI-401 TO CB-405 (BMP 4)	24.0	0.039	5.71	11.91	11.35	44.88	389.21	383.39
DI-476 TO DI-477 (BMP 4)	15.0	0.033	3.43	6.60	1.52	11.74	389.42	386.52
FES-400 TO DI-401 (BMP 4)	24.0	0.009	6.27	7.45	14.28	21.99	383.86	381.67
DI-401 TO DI-402 (BMP 4)	18.0	0.031	3.47	6.72	1.84	18.61	387.10	385.32
FES-475 TO DI-476 (BMP 4)	15.0	0.081	3.46	9.16	1.58	18.41	384.50	380.75
CB-467 TO DI-469 (BMP 4)	15.0	0.058	2.82	2.23	0.78	15.59	387.70	386.38

SCM 4 10-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-454 TO DI-470 (BMP 4)	18.0	0.006	3.65	3.90	2.18	8.14	382.23	381.45
CB-453 TO CB-454 (BMP 4)	18.0	0.005	3.94	3.98	2.90	7.43	381.37	381.32
CB-452 TO CB-455 (BMP 4)	18.0	0.005	3.35	1.43	1.64	7.50	381.36	381.13
CB-452 TO CB-453 (BMP 4)	18.0	0.010	4.08	2.75	3.15	10.50	381.15	381.13
DI-451 TO CB-452 (BMP 4)	30.0	0.005	5.27	5.53	11.33	28.90	381.13	380.30
DI-470 TO DI-471 (BMP 4)	15.0	0.018	3.09	4.76	1.07	8.57	386.21	384.56
CB-467 TO CB-468 (BMP 4)	15.0	0.005	3.00	2.92	1.02	4.57	386.55	386.38
DI-470 TO DI-472 (BMP 4)	15.0	0.006	2.68	2.19	0.65	5.00	382.83	382.23
DI-451 TO DI-479 (BMP 4)	18.0	0.020	2.36	3.76	0.45	14.79	381.30	380.39
DI-479 TO DI-480 (BMP 4)	18.0	0.005	2.37	2.40	0.46	7.69	382.00	381.50
FES-450 TO DI-451 (BMP 4)	30.0	0.005	5.30	5.57	11.51	29.00	380.25	380.09
CB-455 TO CB-456 (BMP 4)	15.0	0.005	2.86	2.90	0.86	4.57	381.67	381.49
DI-4023 TO DI-4024 (BMP 4)	18.0	0.020	3.02	4.96	1.13	14.89	362.40	361.28
DI-4021 TO CB-4022 (BMP 4)	18.0	0.042	4.39	9.15	3.96	21.61	359.76	357.44
FES-4100 TO DI-4101 (BMP 4)	15.0	0.044	3.23	6.88	1.25	13.49	371.74	368.60
DI-4021 TO DI-4023 (BMP 4)	24.0	0.008	2.86	1.45	1.12	20.81	358.27	357.59
HW-4020 TO DI-4021 (BMP 4)	24.0	0.045	4.35	9.40	5.01	47.80	357.59	355.45
DI-484 TO DI-485 (BMP 4)	18.0	0.044	2.52	2.38	0.58	22.07	400.17	396.39
DI-483 TO DI-484 (BMP 4)	18.0	0.039	3.01	6.26	1.11	20.80	396.39	392.77
DI-481 TO DI-482 (BMP 4)	18.0	0.010	2.22	2.77	0.36	10.50	394.65	393.21
DI-416 TO DI-481 (BMP 4)	18.0	0.010	2.66	2.36	0.71	10.50	393.23	391.97
DI-415 TO DI-483 (BMP 4)	18.0	0.012	3.38	2.63	1.70	11.63	392.92	391.49

SCM 4 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-404 (BMP 4)	0.07	0.00	0.07	100.0	397.42	397.42	2.0	1.44	1.44
DI-403 (BMP 4)	0.44	0.03	0.50	93.2	393.10	393.10	2.0	2.94	2.42
CB-461 (BMP 4)	0.22	0.00	4.41	99.8	384.51	384.51	3.0	4.51	4.56
CB-464 (BMP 4)	0.36	0.01	0.36	96.9	393.82	393.82	3.0	2.28	2.28
CB-460 (BMP 4)	0.35	0.01	0.35	97.2	391.92	391.92	3.0	2.20	2.20
CB-459 (BMP 4)	0.27	0.00	4.95	99.2	383.88	383.88	3.0	5.11	4.75
DI-478 (BMP 4)	0.63	0.10	0.63	86.2	392.99	392.99	2.0	2.66	2.66
CB-462 (BMP 4)	0.69	0.11	4.26	86.2	385.03	385.03	3.0	4.73	4.35
CB-463 (BMP 4)	0.60	0.07	3.26	89.0	385.34	385.34	3.0	4.52	4.40
CB-412 (BMP 4)	0.89	0.22	0.89	80.4	392.58	392.58	3.0	2.93	2.93
CB-411 (BMP 4)	0.92	0.24	1.80	79.6	392.26	392.26	3.0	3.27	3.61
DI-416 (BMP 4)	0.71	0.14	1.36	83.4	391.97	391.97	2.0	2.36	3.18
DI-474 (BMP 4)	0.36	0.01	0.36	96.4	390.80	390.80	2.0	2.28	2.28
CB-410 (BMP 4)	0.53	0.05	2.32	91.4	389.94	389.94	3.0	8.30	3.91
CB-409 (BMP 4)	0.84	0.19	0.84	81.9	391.16	391.16	3.0	2.88	2.88
CB-408 (BMP 4)	0.87	0.20	1.70	81.1	390.77	390.77	3.0	3.63	3.54

SCM 4 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-458 (BMP 4)	0.73	0.13	0.73	85.1	388.35	388.35	3.0	2.72	2.72
CB-457 (BMP 4)	0.71	0.12	6.19	85.7	382.41	382.41	3.0	5.39	4.65
DI-473 (BMP 4)	0.48	0.04	0.48	91.9	388.29	388.29	2.0	2.46	2.46
DI-415 (BMP 4)	1.24	0.57	4.04	68.4	391.49	391.49	2.0	2.10	4.28
CB-466 (BMP 4)	0.56	0.06	2.70	90.4	385.82	385.82	3.0	3.84	4.11
CB-407 (BMP 4)	0.74	0.14	4.63	84.6	390.78	390.78	3.0	4.43	4.44
DCB-405 (BMP 4)	1.76	0.00	11.35	100.0	389.21	389.21	3.0	4.06	5.71
DCB-406 (BMP 4)	1.75	0.00	6.18	100.0	390.61	390.61	3.0	4.64	5.17
DI-477 (BMP 4)	0.96	0.31	1.52	75.4	389.42	389.42	2.0	3.80	3.43
DI-401 (BMP 4)	1.51	0.88	14.28	63.1	383.86	383.86	2.0	11.91	6.27
DI-476 (BMP 4)	0.07	0.00	1.58	100.0	384.50	384.50	2.0	6.60	3.46
DI-469 (BMP 4)	0.43	0.03	0.78	93.9	387.70	387.70	2.0	3.46	2.82
CB-454 (BMP 4)	0.81	0.17	2.90	82.6	381.37	381.37	3.0	3.90	3.94
CB-452 (BMP 4)	0.79	0.16	11.33	83.2	381.13	381.13	3.0	4.34	5.27
CB-453 (BMP 4)	0.27	0.00	3.15	99.2	381.15	381.15	3.0	3.98	4.08
DI-471 (BMP 4)	0.61	0.09	1.07	86.8	386.21	386.21	2.0	3.76	3.09

SCM 4 10-YR

Inlets - Time: 0.00 hours

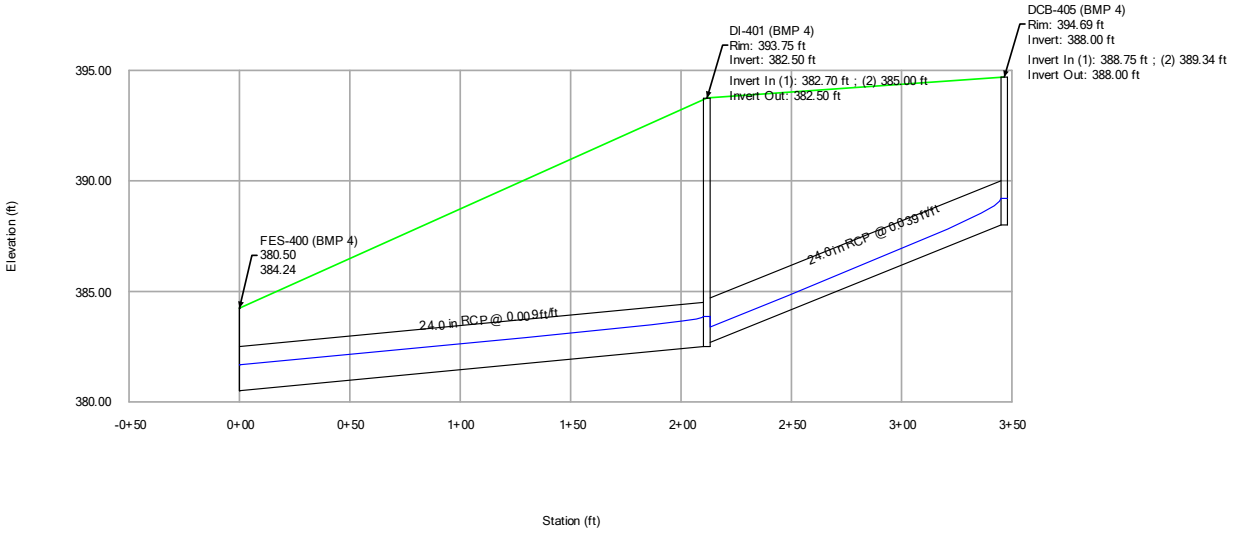
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-402 (BMP 4)	1.41	0.77	1.84	64.9	387.10	387.10	2.0	1.90	3.47
CB-467 (BMP 4)	0.42	0.02	2.19	95.0	386.38	386.38	3.0	2.92	3.69
CB-468 (BMP 4)	1.02	0.30	1.02	77.3	386.55	386.55	3.0	3.00	3.00
DI-470 (BMP 4)	0.52	0.06	2.18	90.3	382.23	382.23	2.0	2.19	3.65
DI-479 (BMP 4)	0.00	0.00	0.45	100.0	381.30	381.30	2.0	2.40	2.36
DI-451 (BMP 4)	0.00	0.00	11.51	100.0	380.25	380.25	2.0	5.53	5.30
CB-455 (BMP 4)	0.79	0.16	1.64	83.4	381.36	381.36	3.0	2.90	3.35
DI-472 (BMP 4)	0.65	0.11	0.65	85.6	382.83	382.83	2.0	2.68	2.68
DI-480 (BMP 4)	0.46	0.04	0.46	92.5	382.00	382.00	2.0	2.37	2.37
CB-456 (BMP 4)	0.86	0.20	0.86	81.2	381.67	381.67	3.0	2.86	2.86
DI-4024 (BMP 4)	1.13	0.46	1.13	71.1	362.40	362.40	2.0	3.02	3.02
DCB-4022 (BMP 4)	2.78	0.00	3.96	100.0	359.76	359.76	6.0	8.08	4.39
DI-4101 (BMP 4)	1.25	0.59	1.25	68.1	371.74	371.74	2.0	3.23	3.23
DI-4023 (BMP 4)	0.00	0.00	1.12	100.0	358.27	358.27	2.0	4.96	2.86
DI-4021 (BMP 4)	0.00	0.00	5.01	100.0	357.59	357.59	2.0	9.15	4.35
DI-485 (BMP 4)	0.58	0.08	0.58	88.0	400.17	400.17	2.0	2.52	2.52

SCM 4 10-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-484 (BMP 4)	0.54	0.06	1.11	89.4	396.39	396.39	2.0	2.38	3.01
DI-482 (BMP 4)	0.36	0.01	0.36	96.3	394.65	394.65	2.0	2.22	2.22
DI-481 (BMP 4)	0.38	0.02	0.71	95.7	393.23	393.23	2.0	2.77	2.66
DI-483 (BMP 4)	0.61	0.09	1.70	87.1	392.92	392.92	2.0	6.26	3.38

SCM 4 10-YR


DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
DI-401 (BMP 4)
Rim: 393.75 ft
Invert: 382.50 ft
Invert In (1): 382.70 ft ; (2) 385.00 ft
Invert Out: 382.50 ft
FES-400 (BMP 4)
380.50
384.24
24.0 in RCP @ 0.009 ft/ft
24.0 in RCP @ 0.039 ft/ft
395.00
390.00
385.00
380.00
Elevation (ft)
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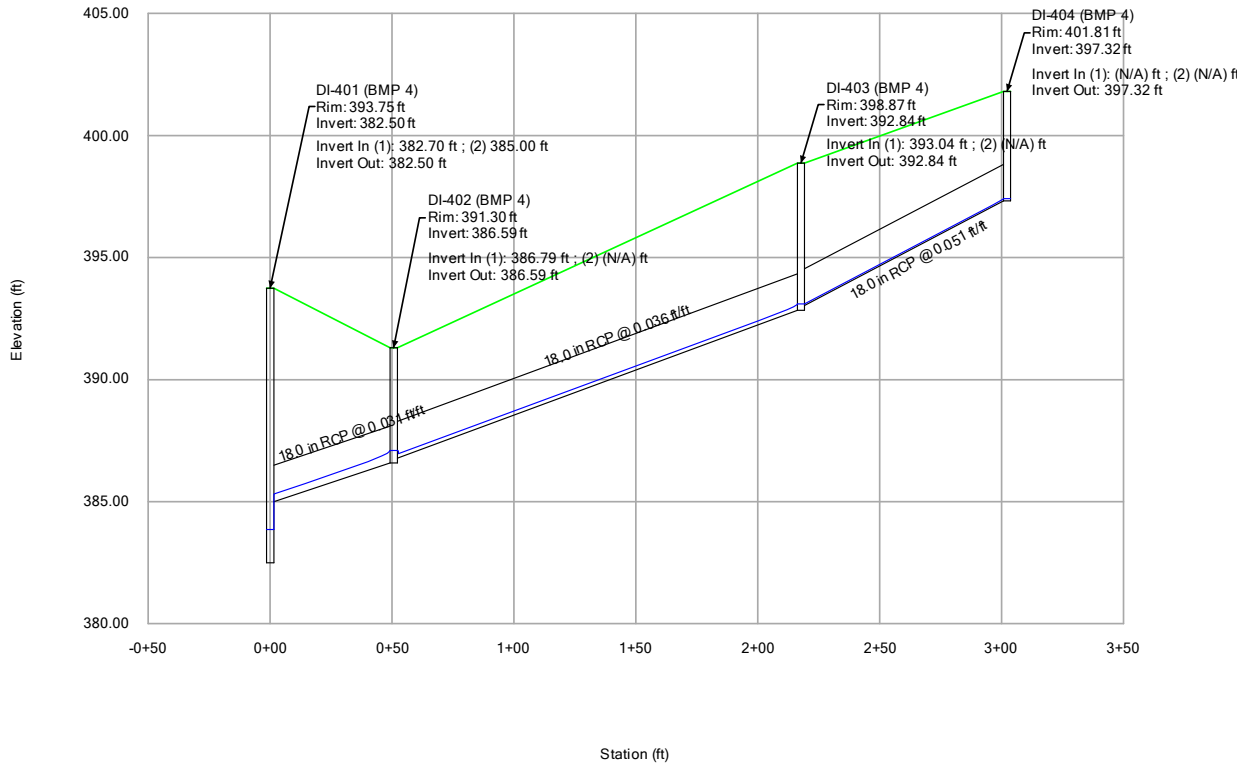
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

SCM 4 10-YR


405.00
400.00
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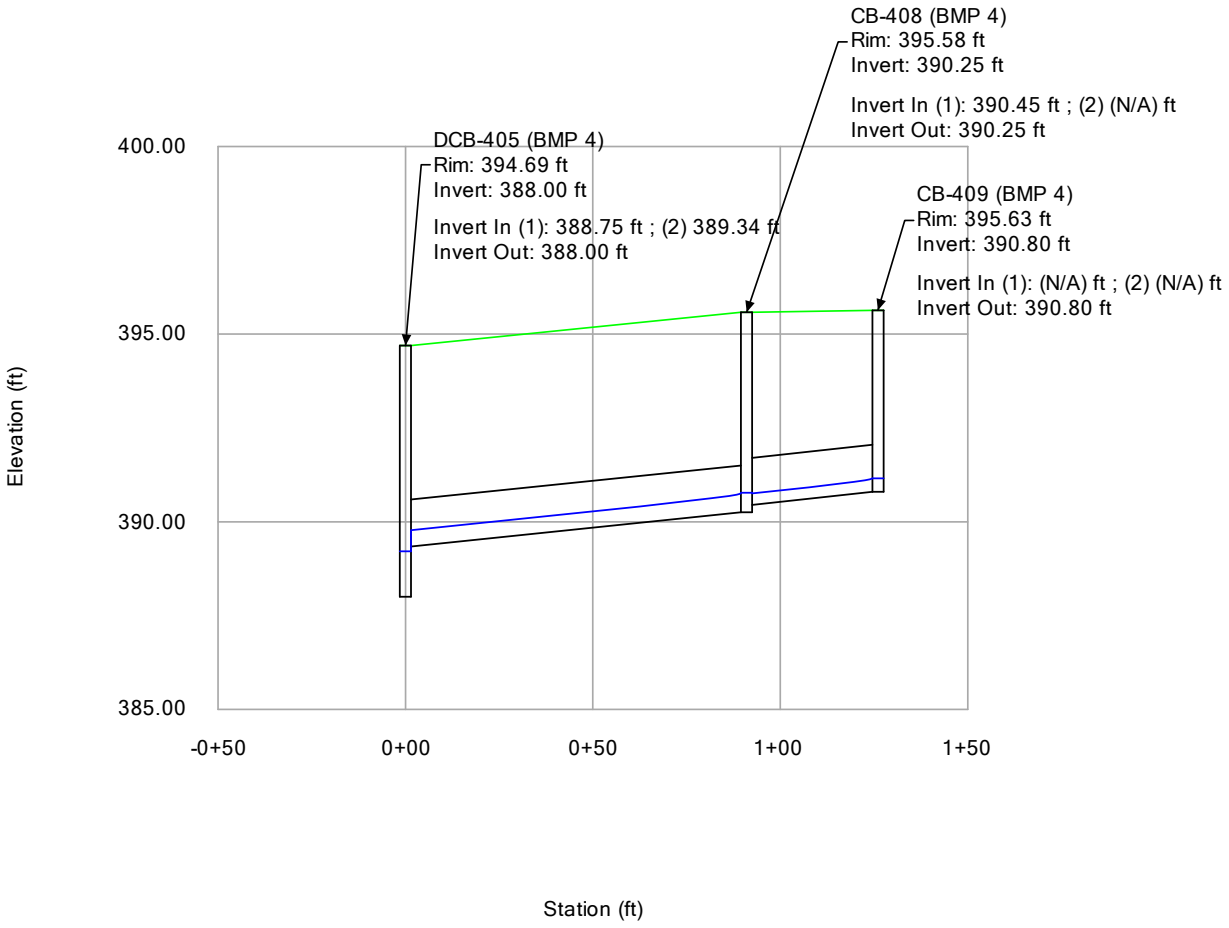
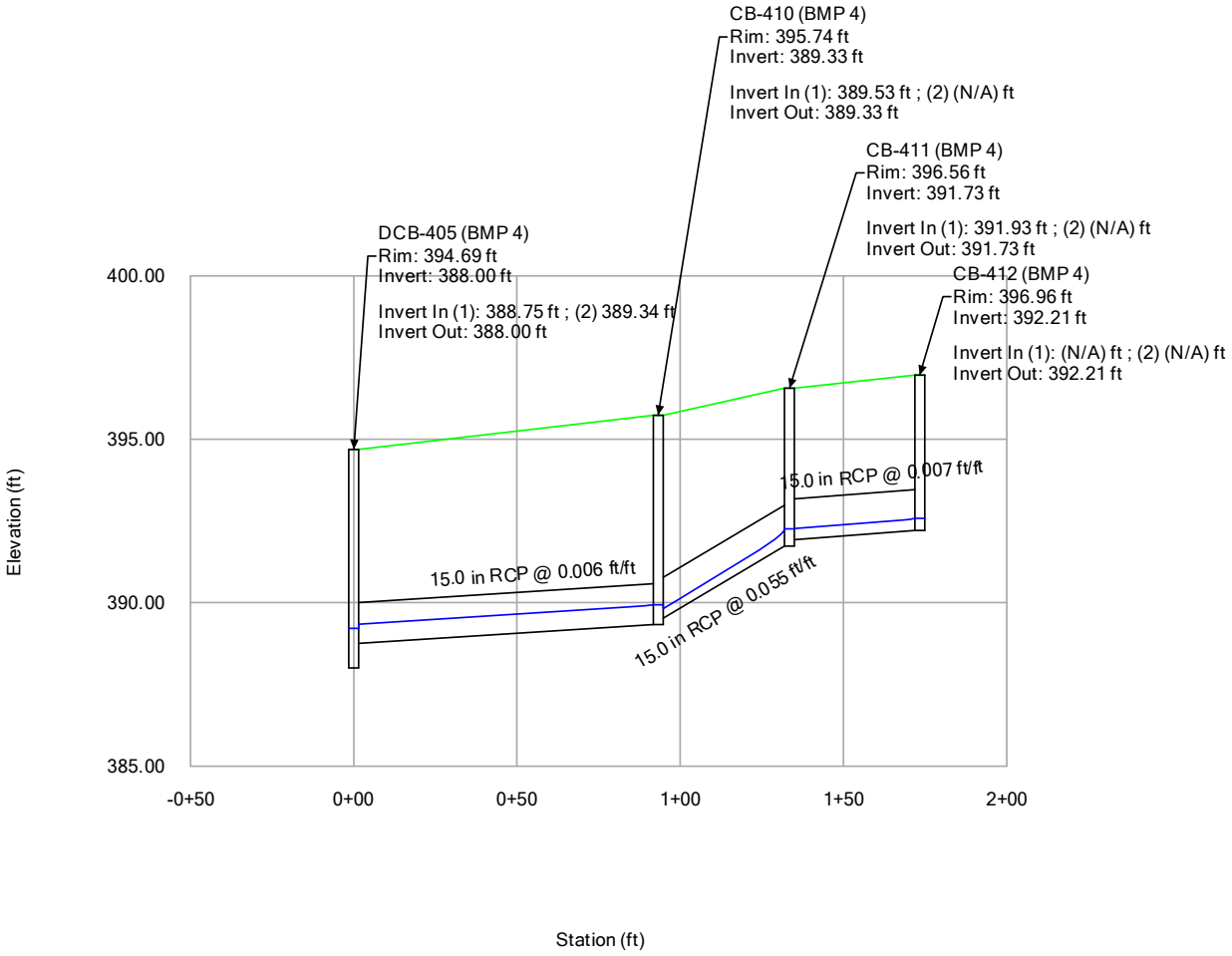
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)
DI-401 (BMP 4)
Rim: 393.75 ft
Invert: 382.50 ft
Invert In (1): 382.70 ft ; (2) 385.00 ft
Invert Out: 382.50 ft
DI-402 (BMP 4)
Rim: 391.30 ft
Invert: 386.59 ft
Invert In (1): 386.79 ft ; (2) (N/A) ft
Invert Out: 386.59 ft
DI-403 (BMP 4)
Rim: 398.87 ft
Invert: 392.84 ft
Invert In (1): 393.04 ft ; (2) (N/A) ft
Invert Out: 392.84 ft
DI-404 (BMP 4)
Rim: 401.81 ft
Invert: 397.32 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.32 ft
18.0 in RCP @ 0.031 ft/ft
18.0 in RCP @ 0.036 ft/ft
18.0 in RCP @ 0.051 ft/ft

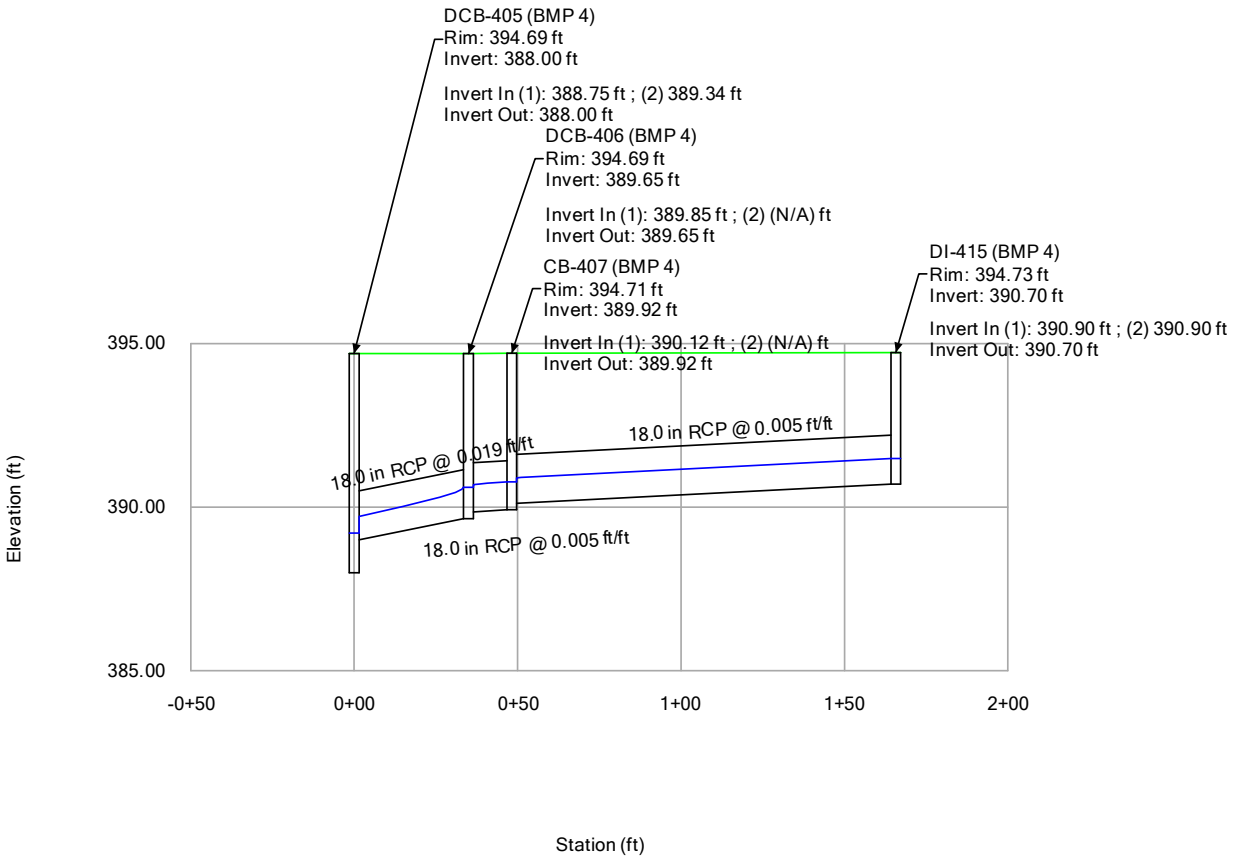
SCM 4 10-YR


CB-408 (BMP 4)
Rim: 395.58 ft
Invert: 390.25 ft
Invert In (1): 390.45 ft ; (2) (N/A) ft
Invert Out: 390.25 ft
DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
CB-409 (BMP 4)
Rim: 395.63 ft
Invert: 390.80 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.80 ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

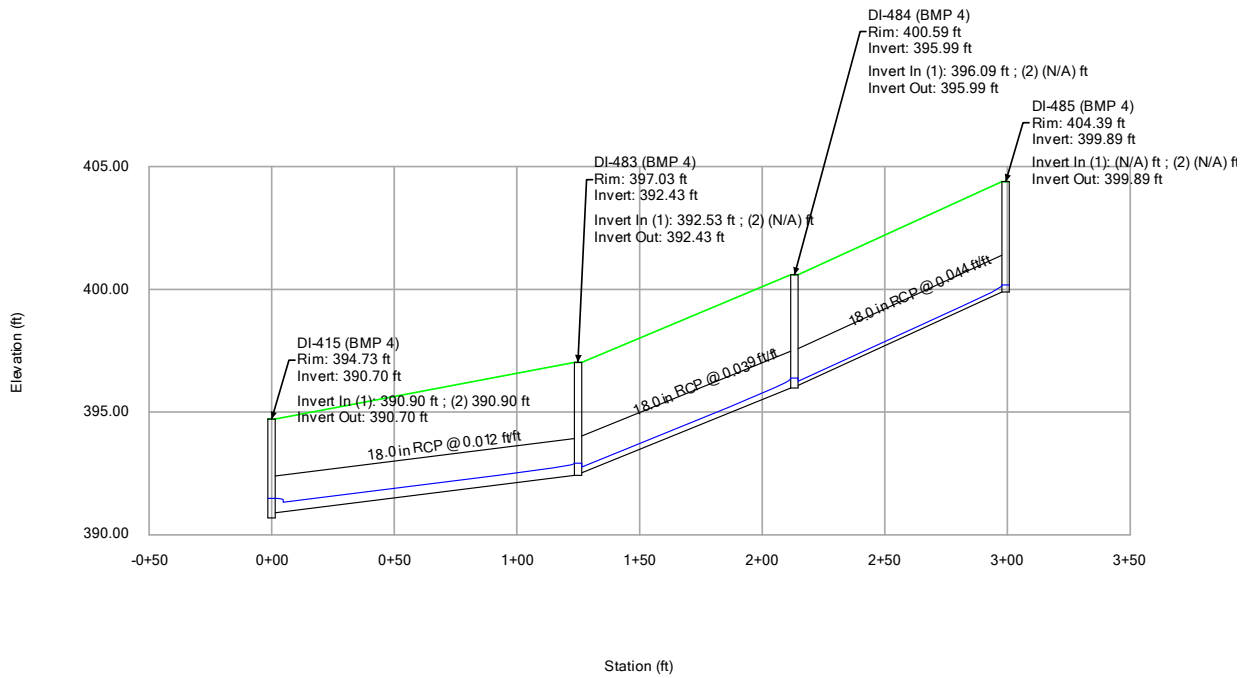
SCM 4 10-YR


CB-410 (BMP 4)
Rim: 395.74 ft
Invert: 389.33 ft
Invert In (1): 389.53 ft ; (2) (N/A) ft
Invert Out: 389.33 ft
CB-411 (BMP 4)
Rim: 396.56 ft
Invert: 391.73 ft
Invert In (1): 391.93 ft ; (2) (N/A) ft
Invert Out: 391.73 ft
DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
CB-412 (BMP 4)
Rim: 396.96 ft
Invert: 392.21 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.21 ft
15.0 in RCP @ 0.007 ft/ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.055 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

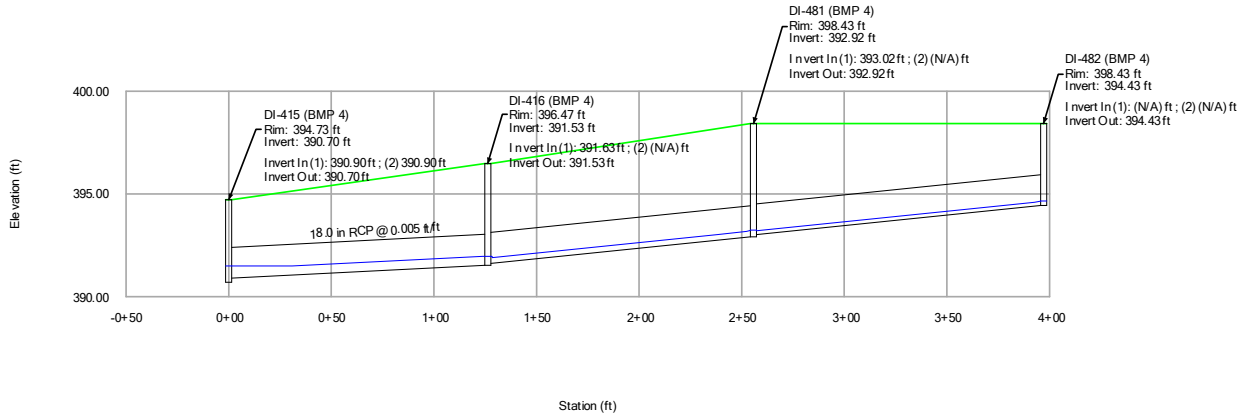
SCM 4 10-YR


DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
DCB-406 (BMP 4)
Rim: 394.69 ft
Invert: 389.65 ft
Invert In (1): 389.85 ft ; (2) (N/A) ft
Invert Out: 389.65 ft
CB-407 (BMP 4)
Rim: 394.71 ft
Invert: 389.92 ft
Invert In (1): 390.12 ft ; (2) (N/A) ft
Invert Out: 389.92 ft
DI-415 (BMP 4)
Rim: 394.73 ft
Invert: 390.70 ft
Invert In (1): 390.90 ft ; (2) 390.90 ft
Invert Out: 390.70 ft
18.0 in RCP @ 0.019 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

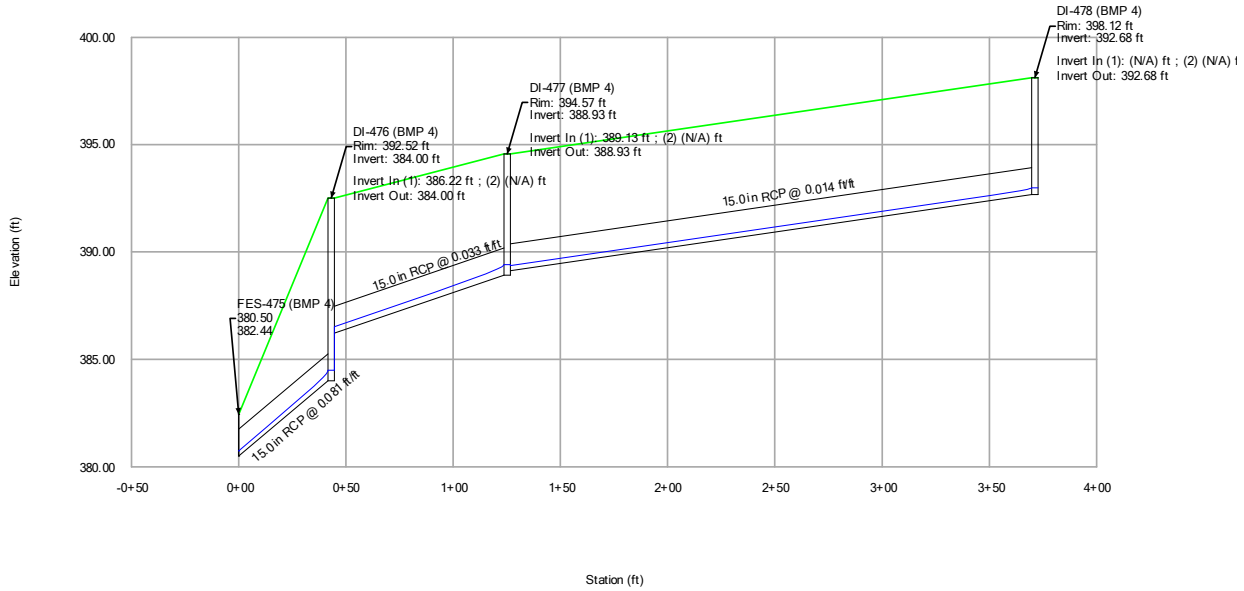
SCM 4 10-YR


DI-484 (BMP 4)
Rim: 400.59 ft
Invert: 395.99 ft
Invert In (1): 396.09 ft ; (2) (N/A) ft
Invert Out: 395.99 ft
DI-485 (BMP 4)
Rim: 404.39 ft
Invert: 399.89 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.89 ft
DI-483 (BMP 4)
Rim: 397.03 ft
Invert: 392.43 ft
Invert In (1): 392.53 ft ; (2) (N/A) ft
Invert Out: 392.43 ft
DI-415 (BMP 4)
Rim: 394.73 ft
Invert: 390.70 ft
Invert In (1): 390.90 ft ; (2) 390.90 ft
Invert Out: 390.70 ft
18.0 in RCP @ 0.012 ft/ft
18.0 in RCP @ 0.039 ft/ft
18.0 in RCP @ 0.044 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

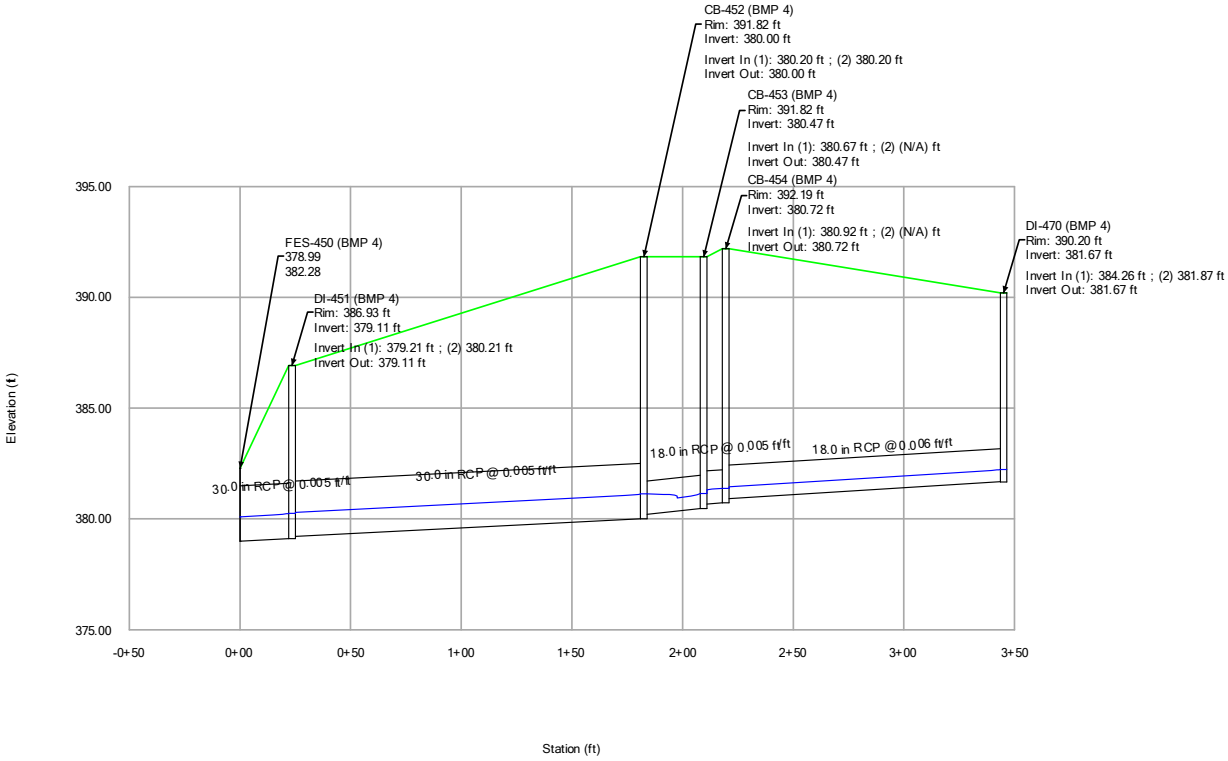
SCM 4 10-YR


DI-481 (BMP 4)
Rim: 398.43 ft
Invert: 392.92 ft
Invert In (1): 393.02 ft ; (2) (N/A) ft
Invert Out: 392.92 ft
DI-482 (BMP 4)
Rim: 398.43 ft
Invert: 394.43 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 394.43 ft
DI-415 (BMP 4)
Rim: 394.73 ft
Invert: 390.70 ft
Invert In (1): 390.90 ft ; (2) 390.90 ft
Invert Out: 390.70 ft
DI-416 (BMP 4)
Rim: 396.47 ft
Invert: 391.53 ft
Invert In (1): 391.63 ft ; (2) (N/A) ft
Invert Out: 391.53 ft
18.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

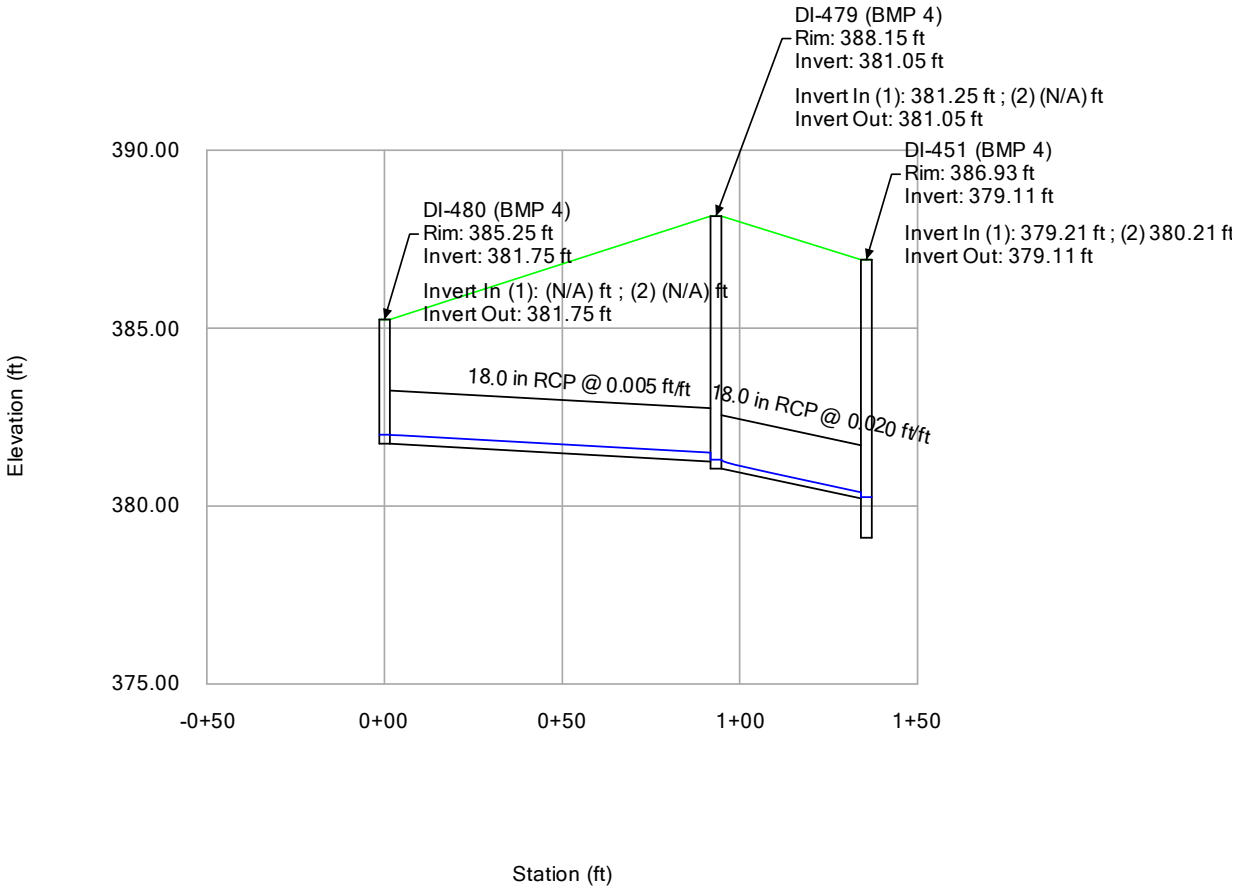
SCM 4 10-YR


DI-478 (BMP 4)
Rim: 398.12 ft
Invert: 392.68 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 392.68 ft
DI-477 (BMP 4)
Rim: 394.57 ft
Invert: 388.93 ft
Invert In (1): 389.13 ft ; (2) (N/A) ft
Invert Out: 388.93 ft
DI-476 (BMP 4)
Rim: 392.52 ft
Invert: 384.00 ft
Invert In (1): 386.22 ft ; (2) (N/A) ft
Invert Out: 384.00 ft
FES-475 (BMP 4)
380.50
382.44
15.0 in RCP @ 0.014 ft/ft
15.0 in RCP @ 0.033 ft/ft
15.0 in RCP @ 0.081 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

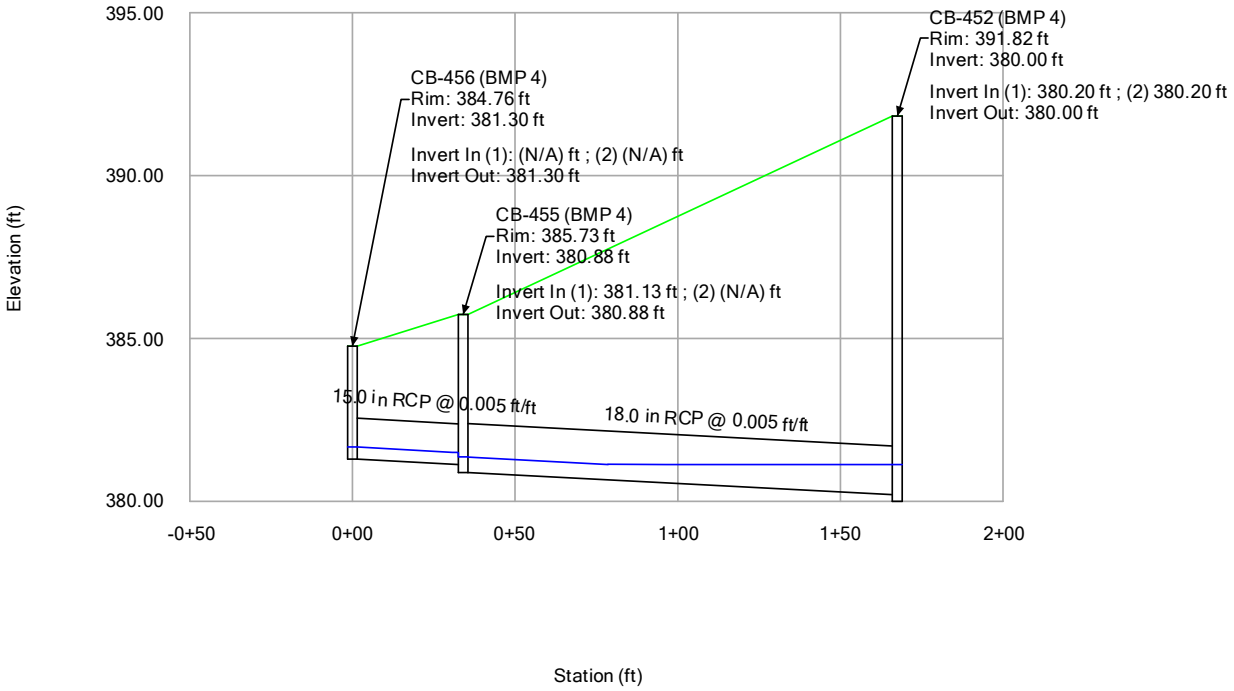
SCM 4 10-YR


CB-452 (BMP 4)
Rim: 391.82 ft
Invert: 380.00 ft
Invert In (1): 380.20 ft ; (2) 380.20 ft
Invert Out: 380.00 ft
CB-453 (BMP 4)
Rim: 391.82 ft
Invert: 380.47 ft
Invert In (1): 380.67 ft ; (2) (N/A) ft
Invert Out: 380.47 ft
CB-454 (BMP 4)
Rim: 392.19 ft
Invert: 380.72 ft
Invert In (1): 380.92 ft ; (2) (N/A) ft
Invert Out: 380.72 ft
FES-450 (BMP 4)
378.99
382.28
DI-451 (BMP 4)
Rim: 386.93 ft
Invert: 379.11 ft
Invert In (1): 379.21 ft ; (2) 380.21 ft
Invert Out: 379.11 ft
DI-470 (BMP 4)
Rim: 390.20 ft
Invert: 381.67 ft
Invert In (1): 384.26 ft ; (2) 381.87 ft
Invert Out: 381.67 ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.006 ft/ft
395.00
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

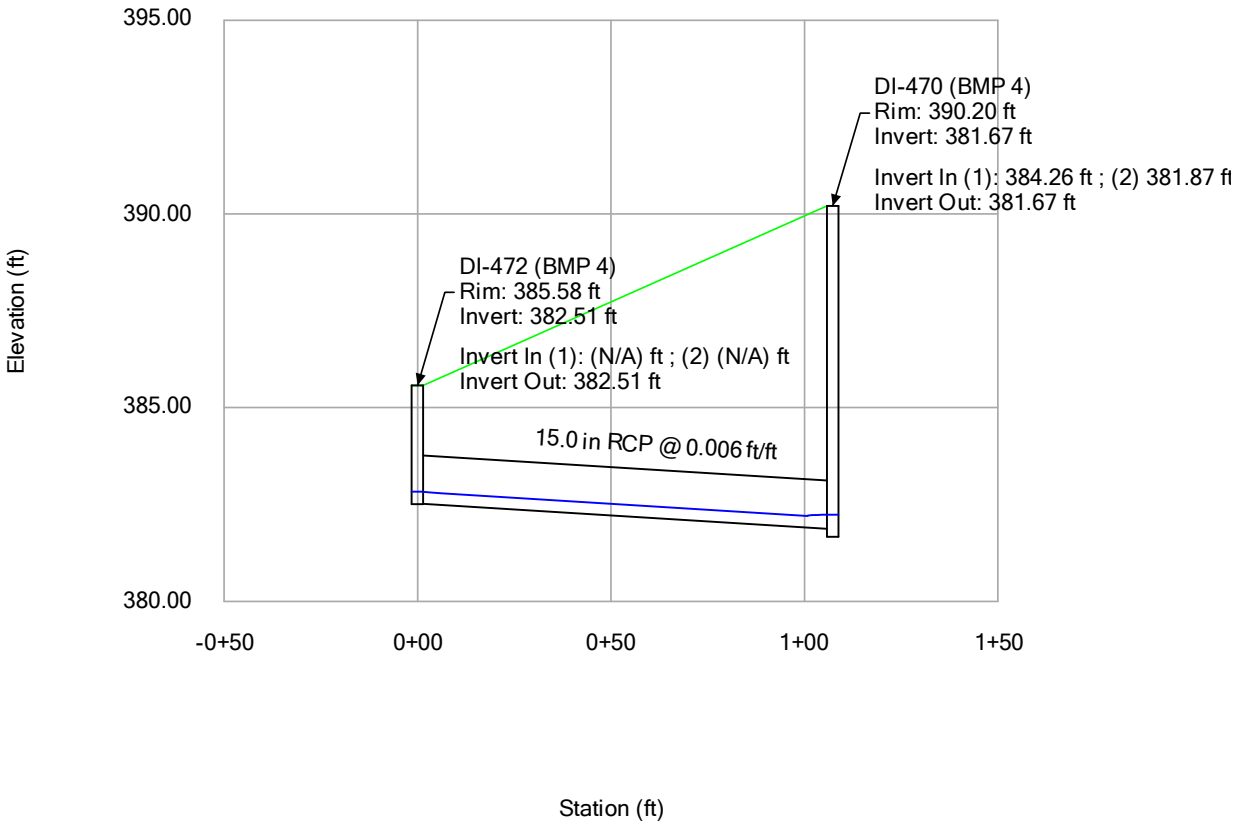
SCM 4 10-YR


DI-479 (BMP 4)
Rim: 388.15 ft
Invert: 381.05 ft
Invert In (1): 381.25 ft ; (2) (N/A) ft
Invert Out: 381.05 ft
DI-451 (BMP 4)
Rim: 386.93 ft
Invert: 379.11 ft
Invert In (1): 379.21 ft ; (2) 380.21 ft
Invert Out: 379.11 ft
DI-480 (BMP 4)
Rim: 385.25 ft
Invert: 381.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 381.75 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.020 ft/ft
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

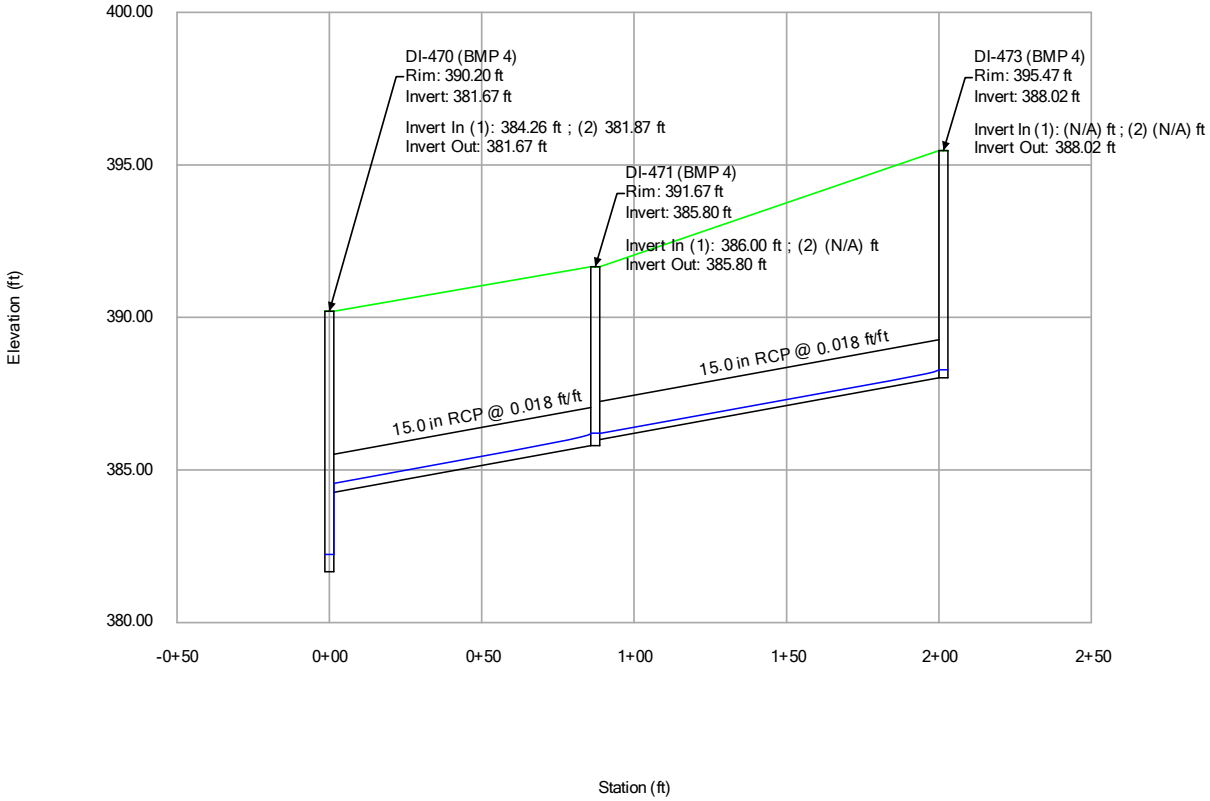
SCM 4 10-YR


395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)
CB-452 (BMP 4)
Rim: 391.82 ft
Invert: 380.00 ft
Invert In (1): 380.20 ft ; (2) 380.20 ft
Invert Out: 380.00 ft
CB-456 (BMP 4)
Rim: 384.76 ft
Invert: 381.30 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 381.30 ft
CB-455 (BMP 4)
Rim: 385.73 ft
Invert: 380.88 ft
Invert In (1): 381.13 ft ; (2) (N/A) ft
Invert Out: 380.88 ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft

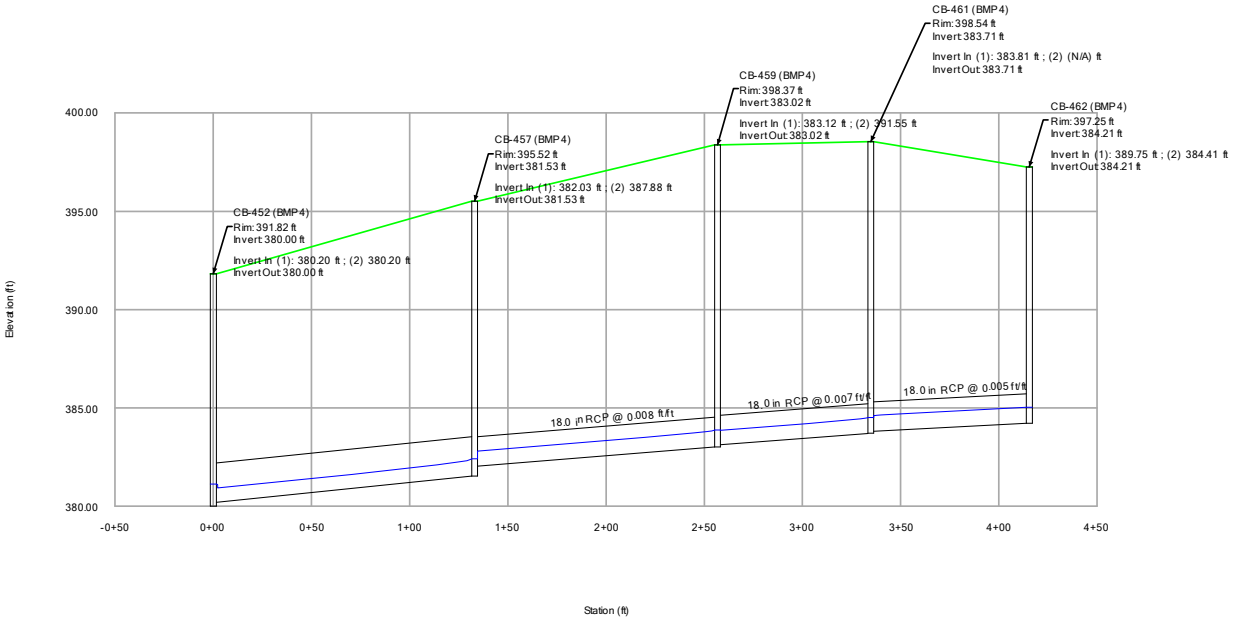
SCM 4 10-YR


395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)
DI-470 (BMP 4)
Rim: 390.20 ft
Invert: 381.67 ft
Invert In (1): 384.26 ft ; (2) 381.87 ft
Invert Out: 381.67 ft
DI-472 (BMP 4)
Rim: 385.58 ft
Invert: 382.51 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 382.51 ft
15.0 in RCP @ 0.006 ft/ft

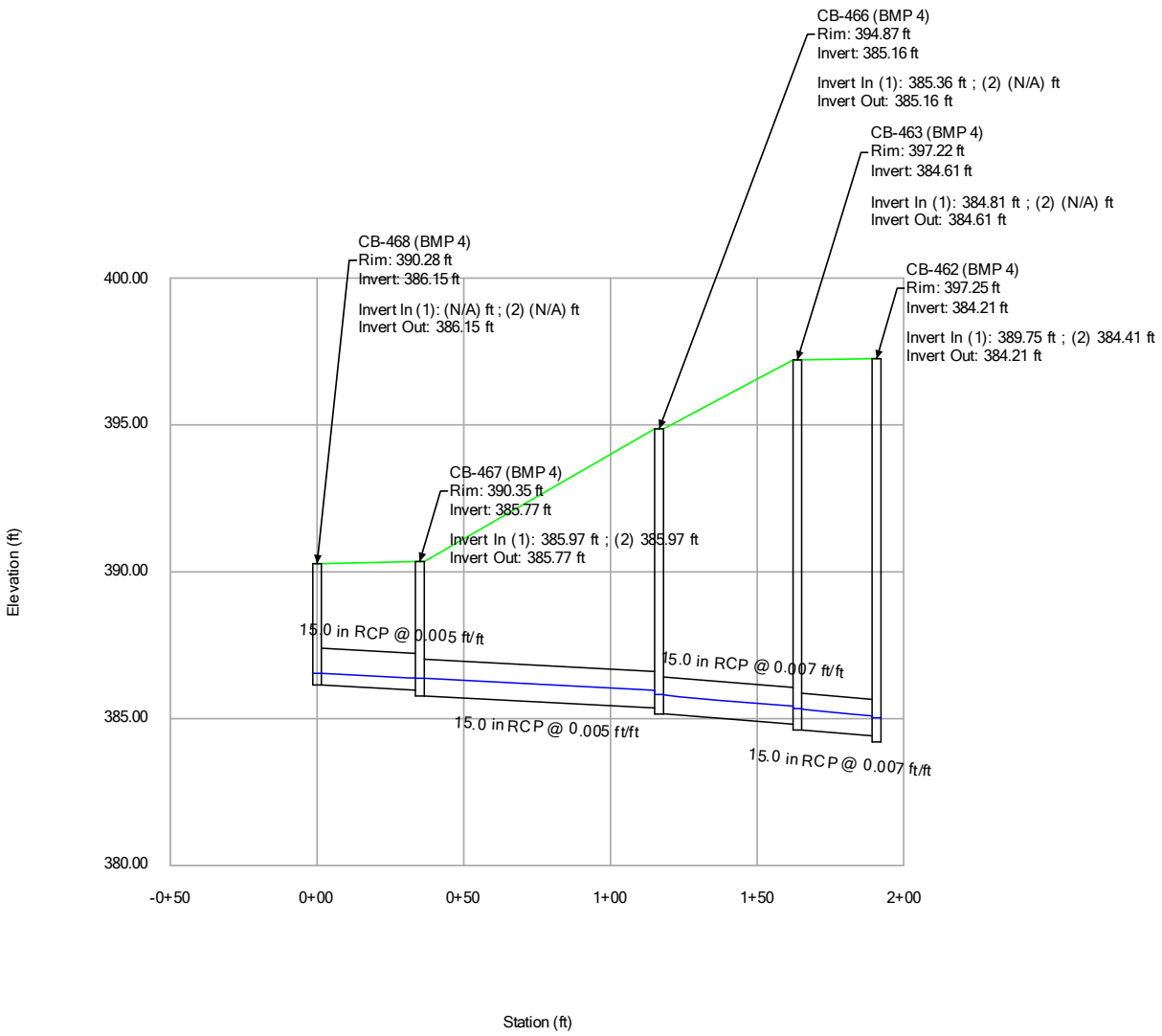
SCM 4 10-YR


400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)
DI-470 (BMP 4)
Rim: 390.20 ft
Invert: 381.67 ft
Invert In (1): 384.26 ft ; (2) 381.87 ft
Invert Out: 381.67 ft
DI-471 (BMP 4)
Rim: 391.67 ft
Invert: 385.80 ft
Invert In (1): 386.00 ft ; (2) (N/A) ft
Invert Out: 385.80 ft
DI-473 (BMP 4)
Rim: 395.47 ft
Invert: 388.02 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.02 ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.018 ft/ft

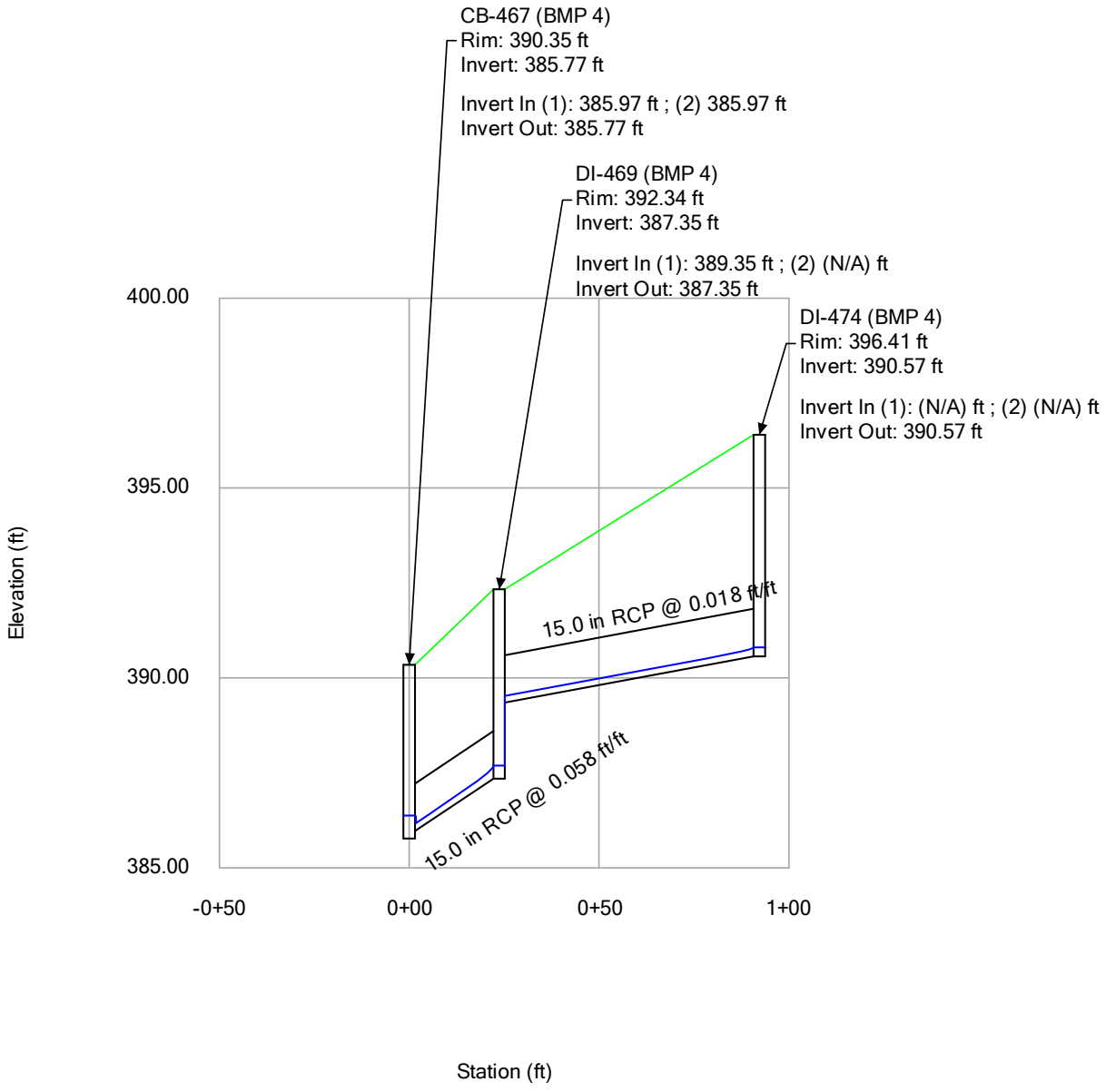
SCM 4 10-YR


CB-461 (BMP4)
Rim: 398.54 ft
Invert: 383.71 ft
Invert In (1): 383.81 ft ; (2) (N/A) ft
Invert Out: 383.71 ft
CB-459 (BMP4)
Rim: 398.37 ft
Invert: 383.02 ft
Invert In (1): 383.12 ft ; (2) 391.55 ft
Invert Out: 383.02 ft
CB-462 (BMP4)
Rim: 397.25 ft
Invert: 384.21 ft
Invert In (1): 389.75 ft ; (2) 384.41 ft
Invert Out: 384.21 ft
CB-457 (BMP4)
Rim: 395.52 ft
Invert: 381.53 ft
Invert In (1): 382.03 ft ; (2) 387.88 ft
Invert Out: 381.53 ft
CB-452 (BMP4)
Rim: 391.82 ft
Invert: 380.00 ft
Invert In (1): 380.20 ft ; (2) 380.20 ft
Invert Out: 380.00 ft
18.0 in RCP @ 0.008 ft/ft
18.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

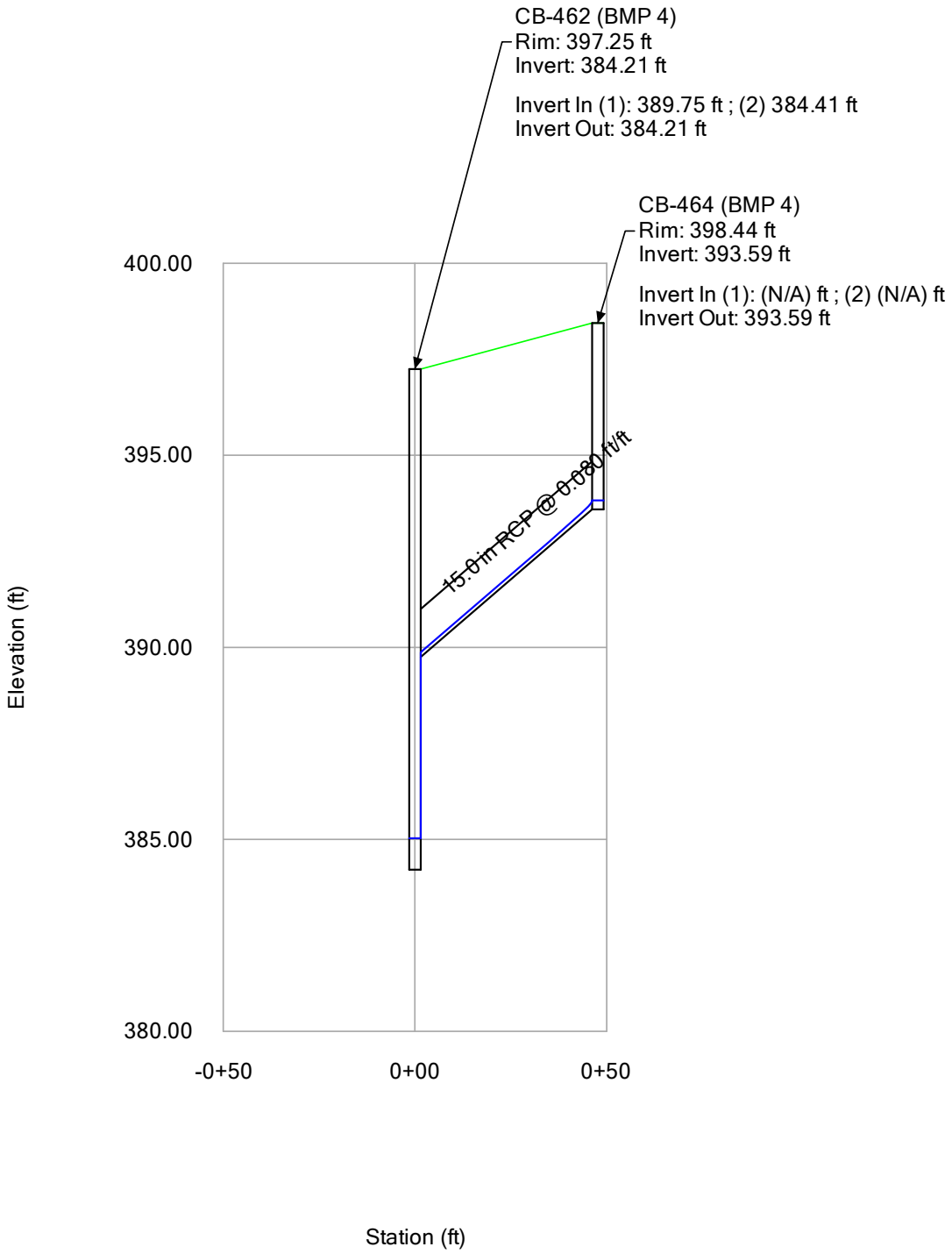
SCM 4 10-YR


CB-466 (BMP 4)
Rim: 394.87 ft
Invert: 385.16 ft
Invert In (1): 385.36 ft ; (2) (N/A) ft
Invert Out: 385.16 ft
CB-463 (BMP 4)
Rim: 397.22 ft
Invert: 384.61 ft
Invert In (1): 384.81 ft ; (2) (N/A) ft
Invert Out: 384.61 ft
CB-468 (BMP 4)
Rim: 390.28 ft
Invert: 386.15 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 386.15 ft
CB-462 (BMP 4)
Rim: 397.25 ft
Invert: 384.21 ft
Invert In (1): 389.75 ft ; (2) 384.41 ft
Invert Out: 384.21 ft
CB-467 (BMP 4)
Rim: 390.35 ft
Invert: 385.77 ft
Invert In (1): 385.97 ft ; (2) 385.97 ft
Invert Out: 385.77 ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.007 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.007 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

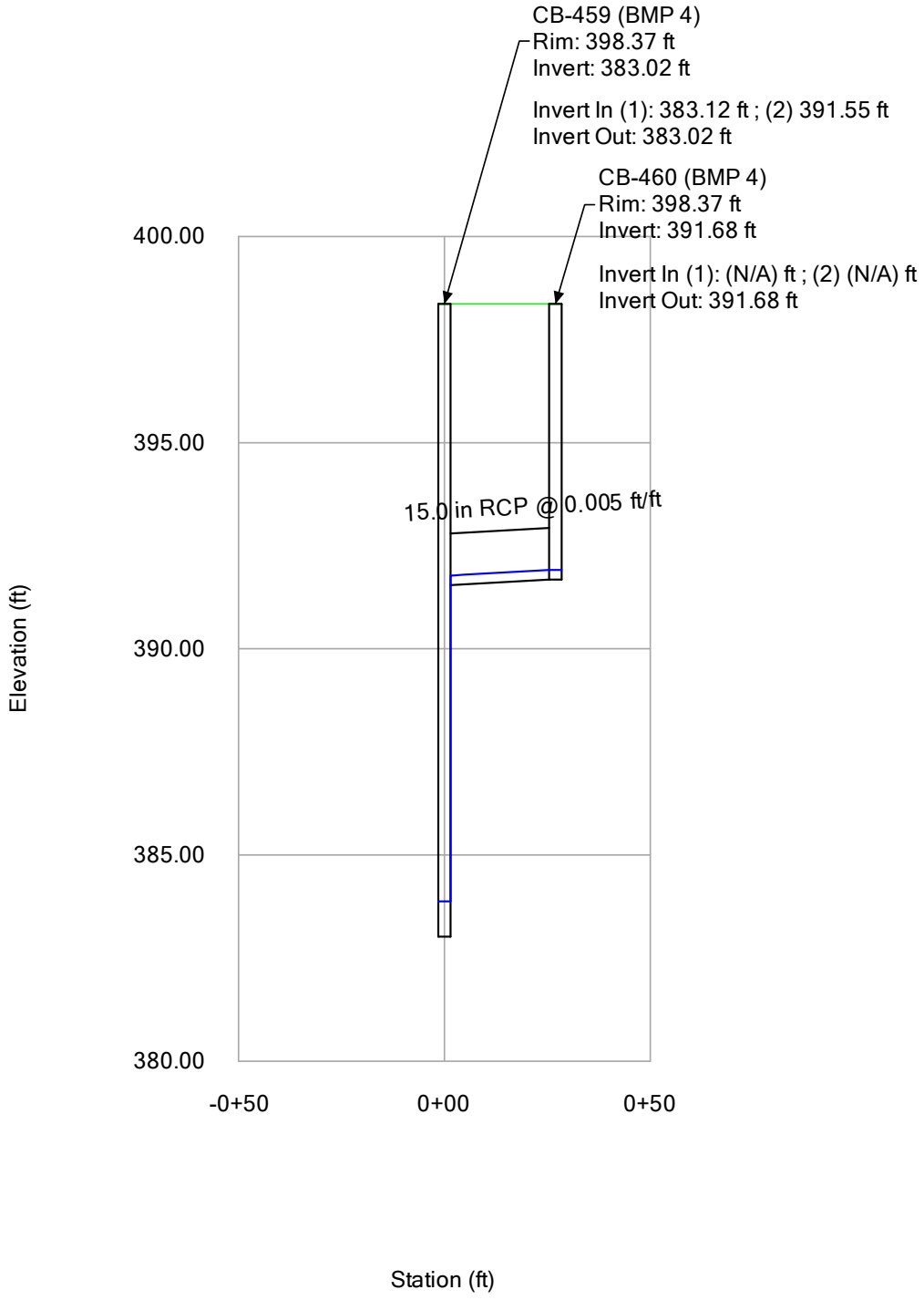
SCM 4 10-YR


CB-467 (BMP 4)
Rim: 390.35 ft
Invert: 385.77 ft
Invert In (1): 385.97 ft ; (2) 385.97 ft
Invert Out: 385.77 ft
DI-469 (BMP 4)
Rim: 392.34 ft
Invert: 387.35 ft
Invert In (1): 389.35 ft ; (2) (N/A) ft
Invert Out: 387.35 ft
DI-474 (BMP 4)
Rim: 396.41 ft
Invert: 390.57 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.57 ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.058 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
Station (ft)

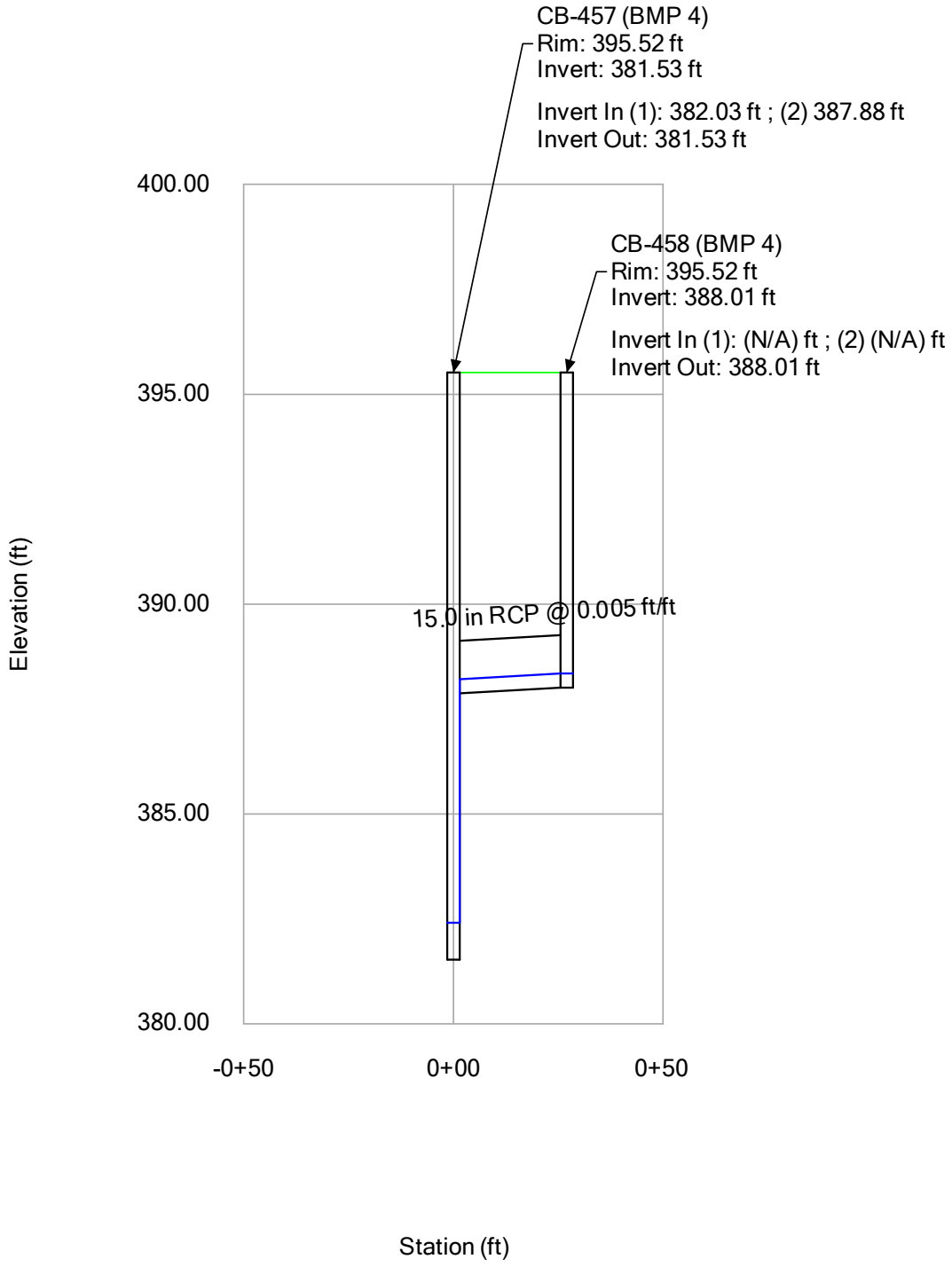
SCM 4 10-YR


CB-462 (BMP 4)
Rim: 397.25 ft
Invert: 384.21 ft
Invert In (1): 389.75 ft ; (2) 384.41 ft
Invert Out: 384.21 ft
CB-464 (BMP 4)
Rim: 398.44 ft
Invert: 393.59 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.59 ft
15.0 in RCP @ 0.080 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

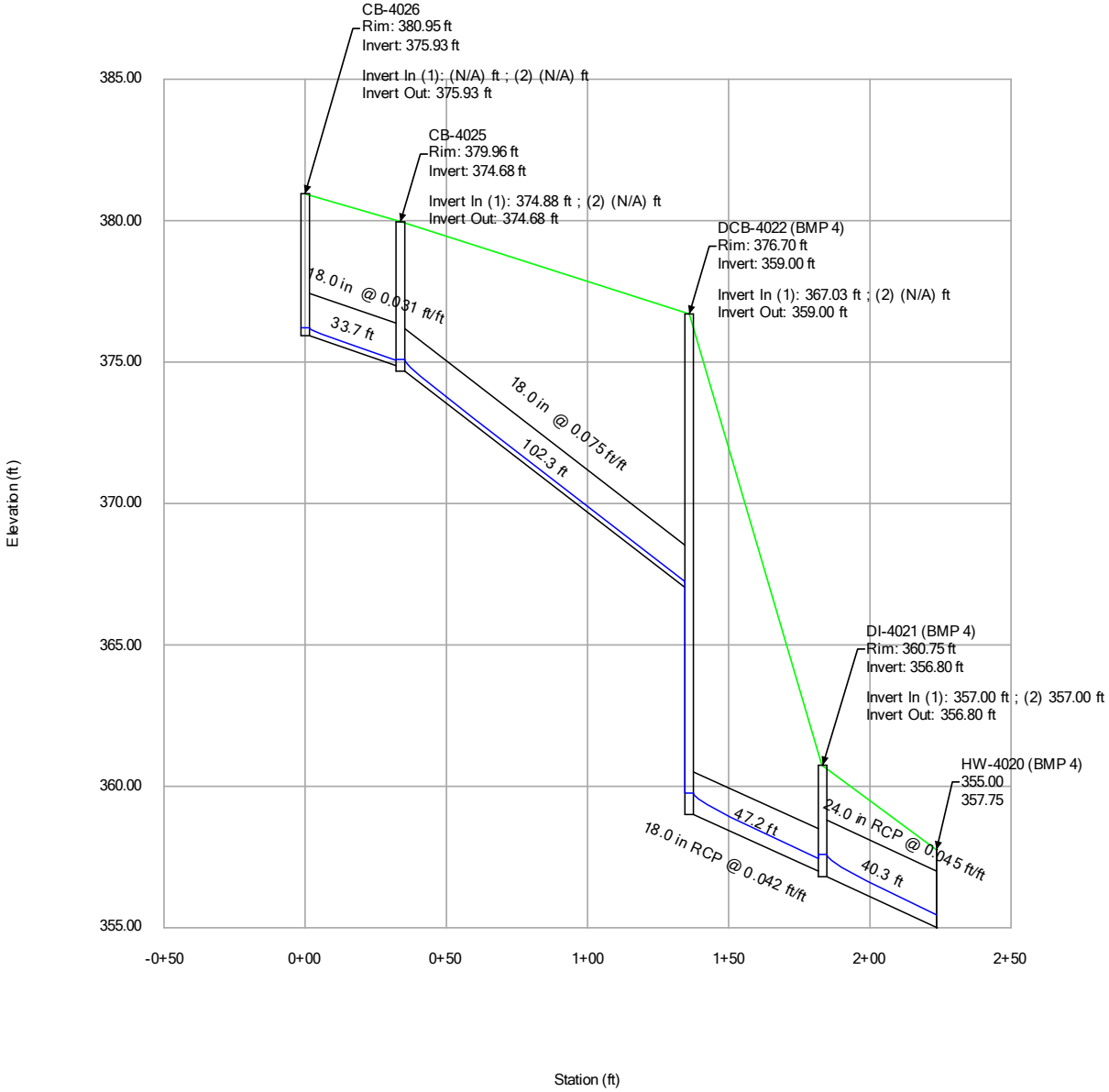
SCM 4 10-YR


CB-459 (BMP 4)
Rim: 398.37 ft
Invert: 383.02 ft
Invert In (1): 383.12 ft ; (2) 391.55 ft
Invert Out: 383.02 ft
CB-460 (BMP 4)
Rim: 398.37 ft
Invert: 391.68 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 391.68 ft
15.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

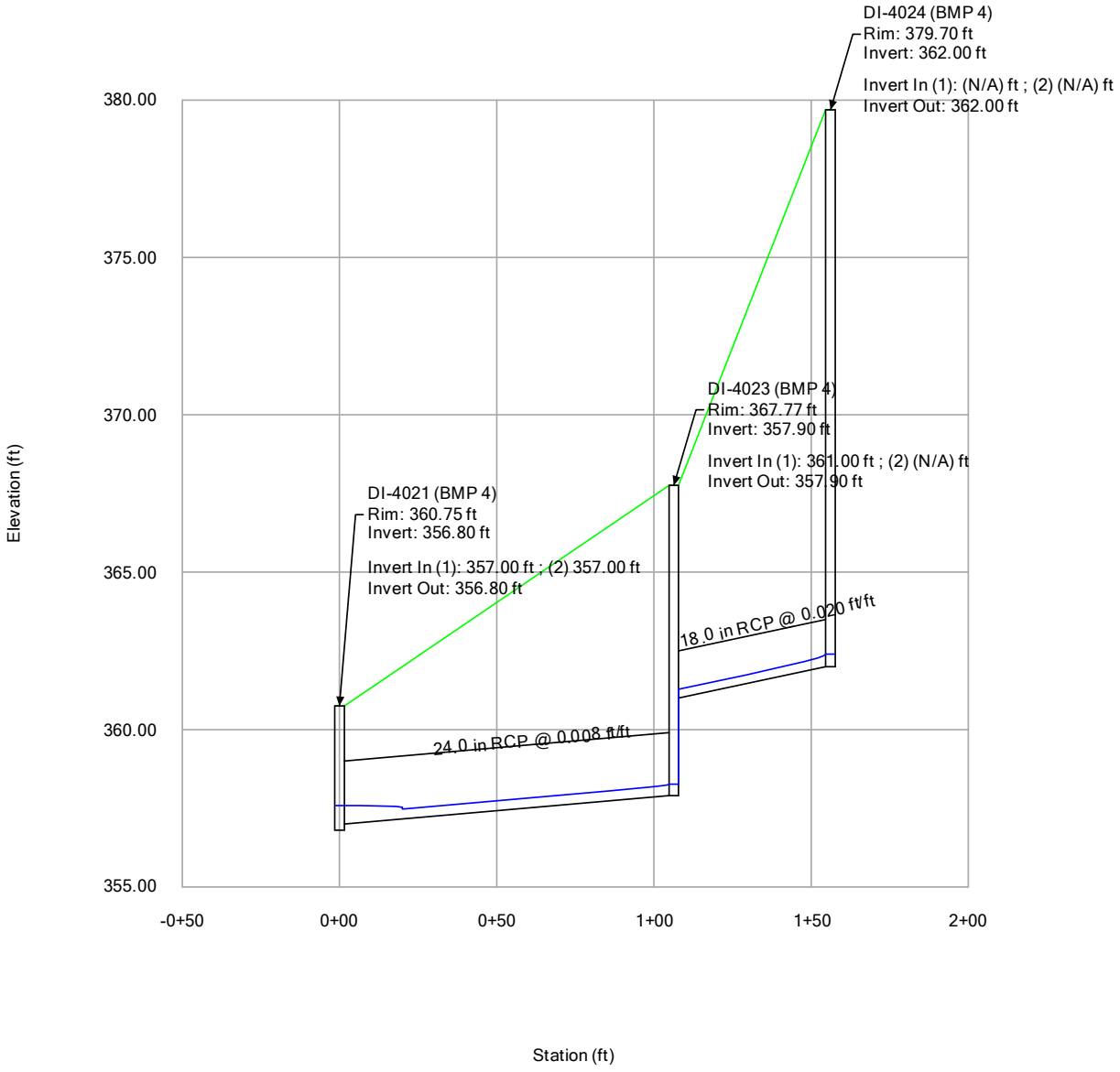
SCM 4 10-YR


CB-457 (BMP 4)
Rim: 395.52 ft
Invert: 381.53 ft
Invert In (1): 382.03 ft ; (2) 387.88 ft
Invert Out: 381.53 ft
CB-458 (BMP 4)
Rim: 395.52 ft
Invert: 388.01 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.01 ft
15.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

SCM 4 10-YR


CB-4026
Rim: 380.95 ft
Invert: 375.93 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 375.93 ft
CB-4025
Rim: 379.96 ft
Invert: 374.68 ft
Invert In (1): 374.88 ft ; (2) (N/A) ft
Invert Out: 374.68 ft
DCB-4022 (BMP 4)
Rim: 376.70 ft
Invert: 359.00 ft
Invert In (1): 367.03 ft ; (2) (N/A) ft
Invert Out: 359.00 ft
DI-4021 (BMP 4)
Rim: 360.75 ft
Invert: 356.80 ft
Invert In (1): 357.00 ft ; (2) 357.00 ft
Invert Out: 356.80 ft
HW-4020 (BMP 4)
355.00
357.75
18.0 in @ 0.031 ft/ft
33.7 ft
18.0 in @ 0.075 ft/ft
102.3 ft
18.0 in RCP @ 0.042 ft/ft
47.2 ft
24.0 in RCP @ 0.045 ft/ft
40.3 ft
385.00
380.00
375.00
370.00
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)

SCM 4 10-YR


DI-4024 (BMP 4)
Rim: 379.70 ft
Invert: 362.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 362.00 ft
DI-4023 (BMP 4)
Rim: 367.77 ft
Invert: 357.90 ft
Invert In (1): 361.00 ft ; (2) (N/A) ft
Invert Out: 357.90 ft
DI-4021 (BMP 4)
Rim: 360.75 ft
Invert: 356.80 ft
Invert In (1): 357.00 ft ; (2) 357.00 ft
Invert Out: 356.80 ft
18.0 in RCP @ 0.020 ft/ft
24.0 in RCP @ 0.008 ft/ft
380.00
375.00
370.00
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

SCM 4 – 25 YR STORM

SCM 4 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-479 (BMP 4)	0.001	0.000	True	0.00	0.084	0.350
DI-4023 (BMP 4)	0.001	0.000	True	0.00	0.083	0.350
DI-4021 (BMP 4)	0.002	0.000	True	0.01	0.083	0.350
DI-451 (BMP 4)	0.000	0.000	True	0.00	0.084	0.400
DI-473 (BMP 4)	0.144	0.000	True	0.58	0.084	0.500
CB-408 (BMP 4)	0.220	0.000	True	0.97	0.084	0.550
CB-409 (BMP 4)	0.181	0.000	True	0.80	0.084	0.550
DCB-406 (BMP 4)	0.352	0.000	True	1.55	0.084	0.550
CB-411 (BMP 4)	0.292	0.000	True	1.29	0.084	0.550
CB-412 (BMP 4)	0.279	0.000	True	1.23	0.084	0.550
DI-404 (BMP 4)	0.017	0.000	True	0.08	0.084	0.550
DI-403 (BMP 4)	0.120	0.000	True	0.53	0.084	0.550
CB-463 (BMP 4)	0.171	0.000	True	0.75	0.084	0.550
CB-462 (BMP 4)	0.198	0.000	True	0.88	0.084	0.550
CB-457 (BMP 4)	0.208	0.000	True	0.92	0.084	0.550
CB-458 (BMP 4)	0.212	0.000	True	0.94	0.084	0.550

SCM 4 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-454 (BMP 4)	0.216	0.000	True	0.95	0.084	0.550
CB-452 (BMP 4)	0.210	0.000	True	0.93	0.084	0.550
CB-455 (BMP 4)	0.197	0.000	True	0.87	0.084	0.550
CB-456 (BMP 4)	0.266	0.000	True	1.18	0.084	0.550
DI-471 (BMP 4)	0.178	0.000	True	0.78	0.084	0.550
DCB-4022 (BMP 4)	0.607	0.000	True	2.68	0.084	0.550
DI-483 (BMP 4)	0.175	0.000	True	0.77	0.084	0.550
DI-484 (BMP 4)	0.153	0.000	True	0.68	0.084	0.550
DI-485 (BMP 4)	0.166	0.000	True	0.73	0.084	0.550
DI-482 (BMP 4)	0.094	0.000	True	0.42	0.084	0.550
CB-4026	0.140	0.000	True	0.62	0.084	0.550
CB-4025	0.171	0.000	True	0.75	0.084	0.550
DCB-405 (BMP 4)	0.348	0.000	True	1.68	0.084	0.600
CB-407 (BMP 4)	0.160	0.000	True	0.77	0.084	0.600
CB-410 (BMP 4)	0.079	0.000	True	0.38	0.084	0.600
DI-478 (BMP 4)	0.168	0.000	True	0.81	0.084	0.600
DI-477 (BMP 4)	0.294	0.000	True	1.42	0.084	0.600

SCM 4 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-461 (BMP 4)	0.052	0.000	True	0.25	0.084	0.600
CB-459 (BMP 4)	0.063	0.000	True	0.30	0.084	0.600
DI-481 (BMP 4)	0.091	0.000	True	0.44	0.084	0.600
DI-480 (BMP 4)	0.108	0.000	True	0.56	0.084	0.640
DI-476 (BMP 4)	0.014	0.000	True	0.08	0.084	0.650
CB-468 (BMP 4)	0.280	0.000	True	1.46	0.084	0.650
CB-467 (BMP 4)	0.081	0.000	True	0.43	0.084	0.650
CB-460 (BMP 4)	0.077	0.000	True	0.40	0.084	0.650
DI-4024 (BMP 4)	0.338	0.000	True	1.76	0.084	0.650
DI-4101 (BMP 4)	0.392	0.000	True	2.04	0.084	0.650
DI-415 (BMP 4)	0.370	0.000	True	2.02	0.084	0.680
DI-416 (BMP 4)	0.172	0.000	True	0.94	0.084	0.680
DI-401 (BMP 4)	0.485	0.000	True	2.65	0.084	0.680
DI-402 (BMP 4)	0.430	0.000	True	2.42	0.084	0.700
DI-474 (BMP 4)	0.074	0.000	True	0.41	0.084	0.700
DI-469 (BMP 4)	0.090	0.000	True	0.50	0.084	0.700

SCM 4 25-YR

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Area (User Defined) (acres)	Use Scaled Area?	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-470 (BMP 4)	0.111	0.000	True	0.64	0.084	0.720
DI-472 (BMP 4)	0.145	0.000	True	0.84	0.084	0.720
CB-453 (BMP 4)	0.018	0.000	True	0.11	0.084	0.770
CB-464 (BMP 4)	0.054	0.000	True	0.41	0.084	0.950
CB-466 (BMP 4)	0.079	0.000	True	0.60	0.084	0.950

SCM 4 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-403 TO DI-404 (BMP 4)	18.0	0.051	1.48	3.03	0.08	23.64	397.42	393.10
DI-402 TO DI-403 (BMP 4)	18.0	0.036	2.48	1.89	0.55	19.99	393.12	387.12
CB-459 TO CB-461 (BMP 4)	18.0	0.007	4.71	5.23	4.84	9.10	384.55	383.90
CB-461 TO CB-462 (BMP 4)	18.0	0.005	4.44	4.65	4.66	7.43	385.08	384.64
CB-462 TO CB-464 (BMP 4)	15.0	0.080	2.34	6.05	0.40	18.33	393.84	389.88
CB-459 TO CB-460 (BMP 4)	15.0	0.005	2.26	2.33	0.38	4.57	391.93	391.79
CB-457 TO CB-459 (BMP 4)	18.0	0.008	4.91	5.51	5.43	9.39	383.92	382.85
DI-477 TO DI-478 (BMP 4)	15.0	0.014	2.72	3.90	0.68	7.76	393.00	389.38
CB-462 TO CB-463 (BMP 4)	15.0	0.007	4.55	4.83	3.57	5.59	385.38	385.14
CB-463 TO CB-466 (BMP 4)	15.0	0.007	4.25	4.62	2.96	5.59	385.86	385.46
CB-411 TO CB-412 (BMP 4)	15.0	0.007	3.00	3.34	0.97	5.43	392.60	392.29
CB-410 TO CB-411 (BMP 4)	15.0	0.055	3.70	8.49	1.95	15.12	392.29	389.83
DI-415 TO DI-416 (BMP 4)	18.0	0.005	3.26	2.09	1.48	7.43	391.99	391.53
DI-469 TO DI-474 (BMP 4)	15.0	0.018	2.34	3.56	0.39	8.62	390.81	389.53
CB-405 TO CB-410 (BMP 4)	15.0	0.006	4.03	4.15	2.54	5.09	389.97	389.37
CB-408 TO CB-409 (BMP 4)	15.0	0.010	2.97	3.75	0.93	6.46	391.18	390.77
CB-405 TO CB-408 (BMP 4)	15.0	0.010	3.65	4.56	1.88	6.46	390.80	389.80
CB-457 TO CB-458 (BMP 4)	15.0	0.005	2.79	2.83	0.79	4.57	388.36	388.22
CB-452 TO CB-457 (BMP 4)	24.0	0.010	4.78	4.41	6.78	22.62	382.45	381.18
DI-471 TO DI-473 (BMP 4)	15.0	0.018	2.52	3.86	0.52	8.59	388.30	386.21
CB-407 TO DI-415 (BMP 4)	18.0	0.005	4.37	4.55	4.39	7.41	391.53	390.92
CB-466 TO CB-467 (BMP 4)	15.0	0.005	3.77	3.95	2.39	4.58	386.41	385.98
CB-406 TO CB-407 (BMP 4)	18.0	0.005	4.54	4.78	5.05	7.43	390.82	390.72
CB-405 TO CB-406 (BMP 4)	18.0	0.019	5.38	7.58	6.83	14.31	390.66	389.76
DI-401 TO CB-405 (BMP 4)	24.0	0.039	5.95	12.25	12.56	44.88	389.28	383.42
DI-476 TO DI-477 (BMP 4)	15.0	0.033	3.51	6.75	1.65	11.74	389.44	386.54
FES-400 TO DI-401 (BMP 4)	24.0	0.009	6.54	7.61	15.73	21.99	383.93	381.75
DI-401 TO DI-402 (BMP 4)	18.0	0.031	3.55	6.87	1.99	18.61	387.12	385.33
FES-475 TO DI-476 (BMP 4)	15.0	0.081	3.55	9.38	1.71	18.41	384.52	380.76
CB-467 TO DI-469 (BMP 4)	15.0	0.058	2.89	2.19	0.85	15.59	387.71	386.41

SCM 4 25-YR

Conduit Results - Time: 0.00 hours

Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-454 TO DI-470 (BMP 4)	18.0	0.006	3.74	3.99	2.37	8.14	382.26	381.48
CB-453 TO CB-454 (BMP 4)	18.0	0.005	4.03	4.09	3.17	7.43	381.40	381.35
CB-452 TO CB-455 (BMP 4)	18.0	0.005	3.44	1.46	1.79	7.50	381.38	381.18
CB-452 TO CB-453 (BMP 4)	18.0	0.010	4.21	2.82	3.46	10.50	381.18	381.18
DI-451 TO CB-452 (BMP 4)	30.0	0.005	5.43	5.67	12.43	28.90	381.18	380.36
DI-470 TO DI-471 (BMP 4)	15.0	0.018	3.16	4.88	1.16	8.57	386.23	384.57
CB-467 TO CB-468 (BMP 4)	15.0	0.005	3.06	2.84	1.10	4.57	386.56	386.41
DI-470 TO DI-472 (BMP 4)	15.0	0.006	2.74	2.17	0.70	5.00	382.84	382.26
DI-451 TO DI-479 (BMP 4)	18.0	0.020	2.41	3.88	0.50	14.79	381.31	380.40
DI-479 TO DI-480 (BMP 4)	18.0	0.005	2.42	2.46	0.51	7.69	382.01	381.51
FES-450 TO DI-451 (BMP 4)	30.0	0.005	5.46	5.70	12.63	29.00	380.30	380.15
CB-455 TO CB-456 (BMP 4)	15.0	0.005	2.93	2.97	0.94	4.57	381.68	381.51
DI-4023 TO DI-4024 (BMP 4)	18.0	0.020	3.08	5.08	1.22	14.89	362.41	361.29
DI-4021 TO CB-4022 (BMP 4)	18.0	0.042	4.57	9.39	4.45	21.61	359.81	357.47
FES-4100 TO DI-4101 (BMP 4)	15.0	0.044	3.30	7.03	1.35	13.49	371.76	368.61
DI-4021 TO DI-4023 (BMP 4)	24.0	0.008	2.92	1.41	1.21	20.81	358.28	357.63
HW-4020 TO DI-4021 (BMP 4)	24.0	0.045	4.50	9.62	5.58	47.80	357.63	355.48
DI-484 TO DI-485 (BMP 4)	18.0	0.044	2.57	2.38	0.63	22.07	400.19	396.40
DI-483 TO DI-484 (BMP 4)	18.0	0.039	3.08	6.42	1.21	20.80	396.40	392.78
DI-481 TO DI-482 (BMP 4)	18.0	0.010	2.27	2.26	0.40	10.50	394.66	393.25
DI-416 TO DI-481 (BMP 4)	18.0	0.010	2.73	2.39	0.78	10.50	393.25	391.99
DI-415 TO DI-483 (BMP 4)	18.0	0.012	3.47	2.61	1.84	11.63	392.94	391.53

SCM 4 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-404 (BMP 4)	0.08	0.00	0.08	100.0	397.42	397.42	2.0	1.48	1.48
DI-403 (BMP 4)	0.49	0.04	0.55	91.6	393.12	393.12	2.0	3.03	2.48
CB-461 (BMP 4)	0.25	0.00	4.84	99.5	384.55	384.55	3.0	4.65	4.71
CB-464 (BMP 4)	0.40	0.02	0.40	95.8	393.84	393.84	3.0	2.34	2.34
CB-460 (BMP 4)	0.38	0.02	0.38	96.2	391.93	391.93	3.0	2.26	2.26
CB-459 (BMP 4)	0.30	0.00	5.43	98.6	383.92	383.92	3.0	5.23	4.91
DI-478 (BMP 4)	0.68	0.13	0.68	84.2	393.00	393.00	2.0	2.72	2.72
CB-462 (BMP 4)	0.75	0.14	4.66	84.3	385.08	385.08	3.0	4.83	4.44
CB-463 (BMP 4)	0.66	0.10	3.57	87.3	385.38	385.38	3.0	4.62	4.55
CB-412 (BMP 4)	0.97	0.27	0.97	78.5	392.60	392.60	3.0	3.00	3.00
CB-411 (BMP 4)	1.00	0.29	1.95	77.7	392.29	392.29	3.0	3.34	3.70
DI-416 (BMP 4)	0.76	0.17	1.48	81.4	391.99	391.99	2.0	2.39	3.26
DI-474 (BMP 4)	0.39	0.02	0.39	95.1	390.81	390.81	2.0	2.34	2.34
CB-410 (BMP 4)	0.60	0.07	2.54	89.2	389.97	389.97	3.0	8.49	4.03
CB-409 (BMP 4)	0.93	0.24	0.93	79.4	391.18	391.18	3.0	2.97	2.97
CB-408 (BMP 4)	0.95	0.26	1.88	78.8	390.80	390.80	3.0	3.75	3.65

SCM 4 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
CB-458 (BMP 4)	0.79	0.16	0.79	83.2	388.36	388.36	3.0	2.79	2.79
CB-457 (BMP 4)	0.77	0.15	6.78	83.8	382.45	382.45	3.0	5.51	4.78
DI-473 (BMP 4)	0.52	0.06	0.52	90.3	388.30	388.30	2.0	2.52	2.52
DI-415 (BMP 4)	1.34	0.68	4.39	66.4	391.53	391.53	2.0	2.09	4.37
CB-466 (BMP 4)	0.62	0.08	2.96	88.5	385.86	385.86	3.0	3.95	4.25
CB-407 (BMP 4)	0.83	0.18	5.05	82.1	390.82	390.82	3.0	4.55	4.54
DCB-405 (BMP 4)	2.00	0.00	12.56	100.0	389.28	389.28	3.0	4.15	5.95
DCB-406 (BMP 4)	2.00	0.00	6.83	100.0	390.66	390.66	3.0	4.78	5.38
DI-477 (BMP 4)	1.04	0.38	1.65	73.3	389.44	389.44	2.0	3.90	3.51
DI-401 (BMP 4)	1.62	1.03	15.73	61.2	383.93	383.93	2.0	12.25	6.54
DI-476 (BMP 4)	0.08	0.00	1.71	100.0	384.52	384.52	2.0	6.75	3.55
DI-469 (BMP 4)	0.47	0.04	0.85	92.4	387.71	387.71	2.0	3.56	2.89
CB-454 (BMP 4)	0.89	0.22	3.17	80.4	381.40	381.40	3.0	3.99	4.03
CB-452 (BMP 4)	0.87	0.21	12.43	81.0	381.18	381.18	3.0	4.41	5.43
CB-453 (BMP 4)	0.32	0.01	3.46	98.0	381.18	381.18	3.0	4.09	4.21
DI-471 (BMP 4)	0.67	0.12	1.16	84.8	386.23	386.23	2.0	3.86	3.16

SCM 4 25-YR

Inlets - Time: 0.00 hours

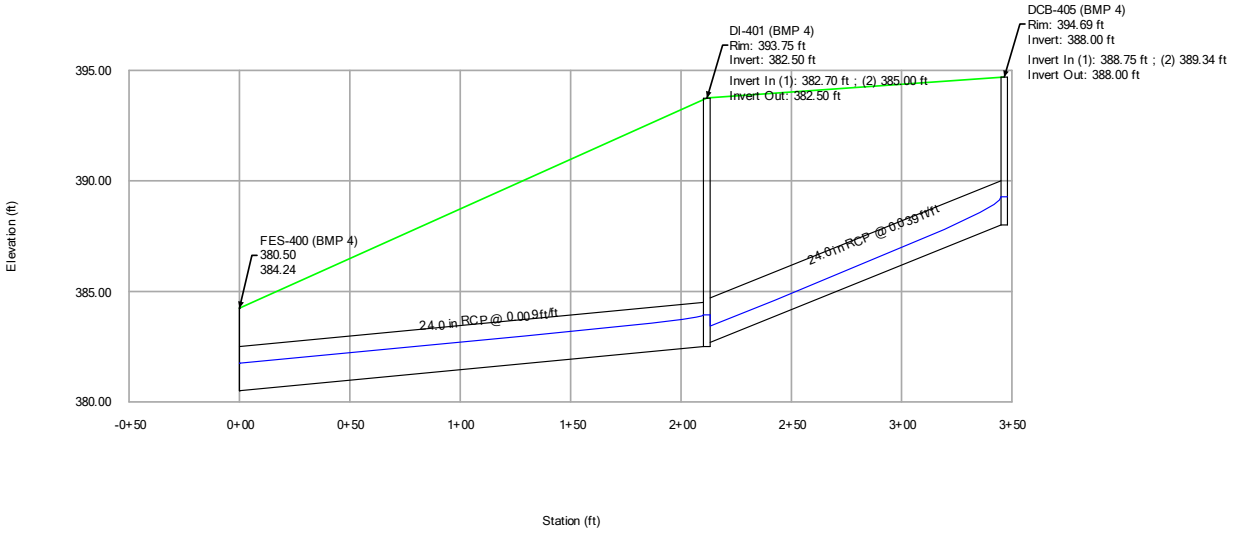
Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-402 (BMP 4)	1.52	0.90	1.99	62.9	387.12	387.12	2.0	1.89	3.55
CB-467 (BMP 4)	0.47	0.03	2.39	93.3	386.41	386.41	3.0	2.84	3.77
CB-468 (BMP 4)	1.10	0.36	1.10	75.3	386.56	386.56	3.0	3.06	3.06
DI-470 (BMP 4)	0.57	0.07	2.37	88.5	382.26	382.26	2.0	2.17	3.74
DI-479 (BMP 4)	0.00	0.00	0.50	100.0	381.31	381.31	2.0	2.46	2.41
DI-451 (BMP 4)	0.00	0.00	12.63	100.0	380.30	380.30	2.0	5.67	5.46
CB-455 (BMP 4)	0.87	0.20	1.79	81.1	381.38	381.38	3.0	2.97	3.44
DI-472 (BMP 4)	0.70	0.14	0.70	83.6	382.84	382.84	2.0	2.74	2.74
DI-480 (BMP 4)	0.51	0.05	0.51	90.8	382.01	382.01	2.0	2.42	2.42
CB-456 (BMP 4)	0.94	0.25	0.94	79.3	381.68	381.68	3.0	2.93	2.93
DI-4024 (BMP 4)	1.22	0.55	1.22	69.0	362.41	362.41	2.0	3.08	3.08
DCB-4022 (BMP 4)	3.14	0.00	4.45	100.0	359.81	359.81	6.0	8.34	4.57
DI-4101 (BMP 4)	1.35	0.69	1.35	66.1	371.76	371.76	2.0	3.30	3.30
DI-4023 (BMP 4)	0.00	0.00	1.21	100.0	358.28	358.28	2.0	5.08	2.92
DI-4021 (BMP 4)	0.01	0.00	5.58	100.0	357.63	357.63	2.0	9.39	4.50
DI-485 (BMP 4)	0.63	0.10	0.63	86.1	400.19	400.19	2.0	2.57	2.57

SCM 4 25-YR

Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-484 (BMP 4)	0.59	0.08	1.21	87.6	396.40	396.40	2.0	2.38	3.08
DI-482 (BMP 4)	0.40	0.02	0.40	95.1	394.66	394.66	2.0	2.27	2.27
DI-481 (BMP 4)	0.41	0.02	0.78	94.4	393.25	393.25	2.0	2.26	2.73
DI-483 (BMP 4)	0.66	0.11	1.84	85.2	392.94	392.94	2.0	6.42	3.47

SCM 4 25-YR


DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
DI-401 (BMP 4)
Rim: 393.75 ft
Invert: 382.50 ft
Invert In (1): 382.70 ft ; (2) 385.00 ft
Invert Out: 382.50 ft
FES-400 (BMP 4)
380.50
384.24
24.0 in RCP @ 0.009 ft/ft
24.0 in RCP @ 0.039 ft/ft
395.00
390.00
385.00
380.00
Elevation (ft)
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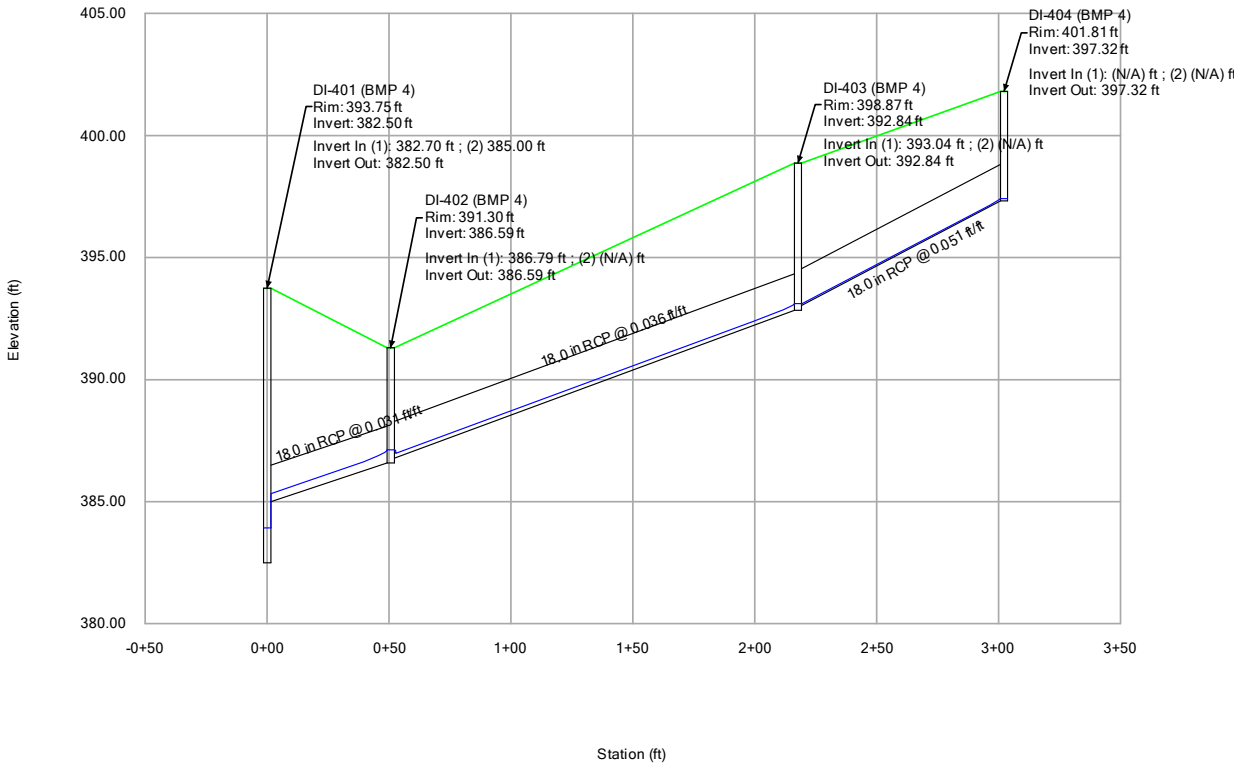
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

SCM 4 25-YR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Elevation (ft)
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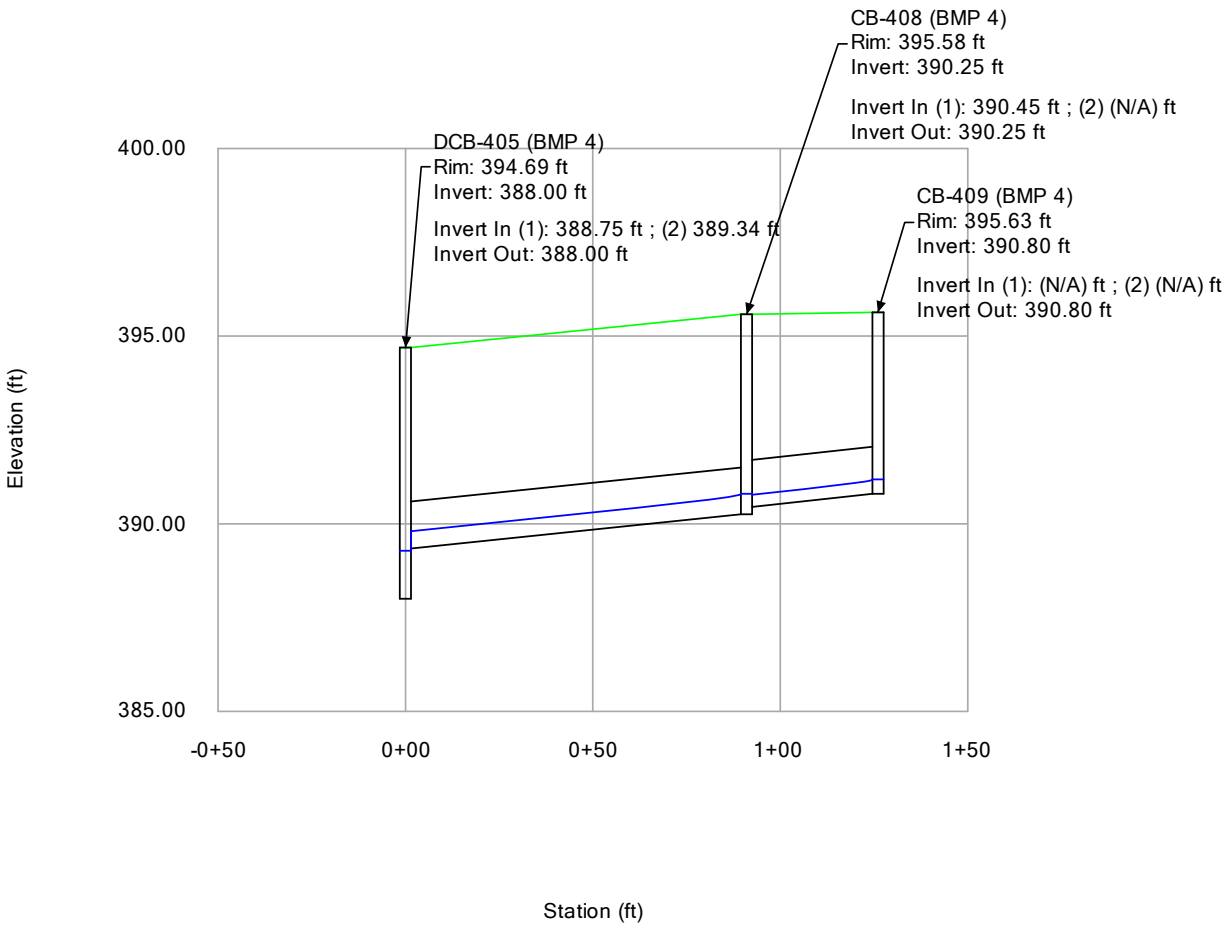
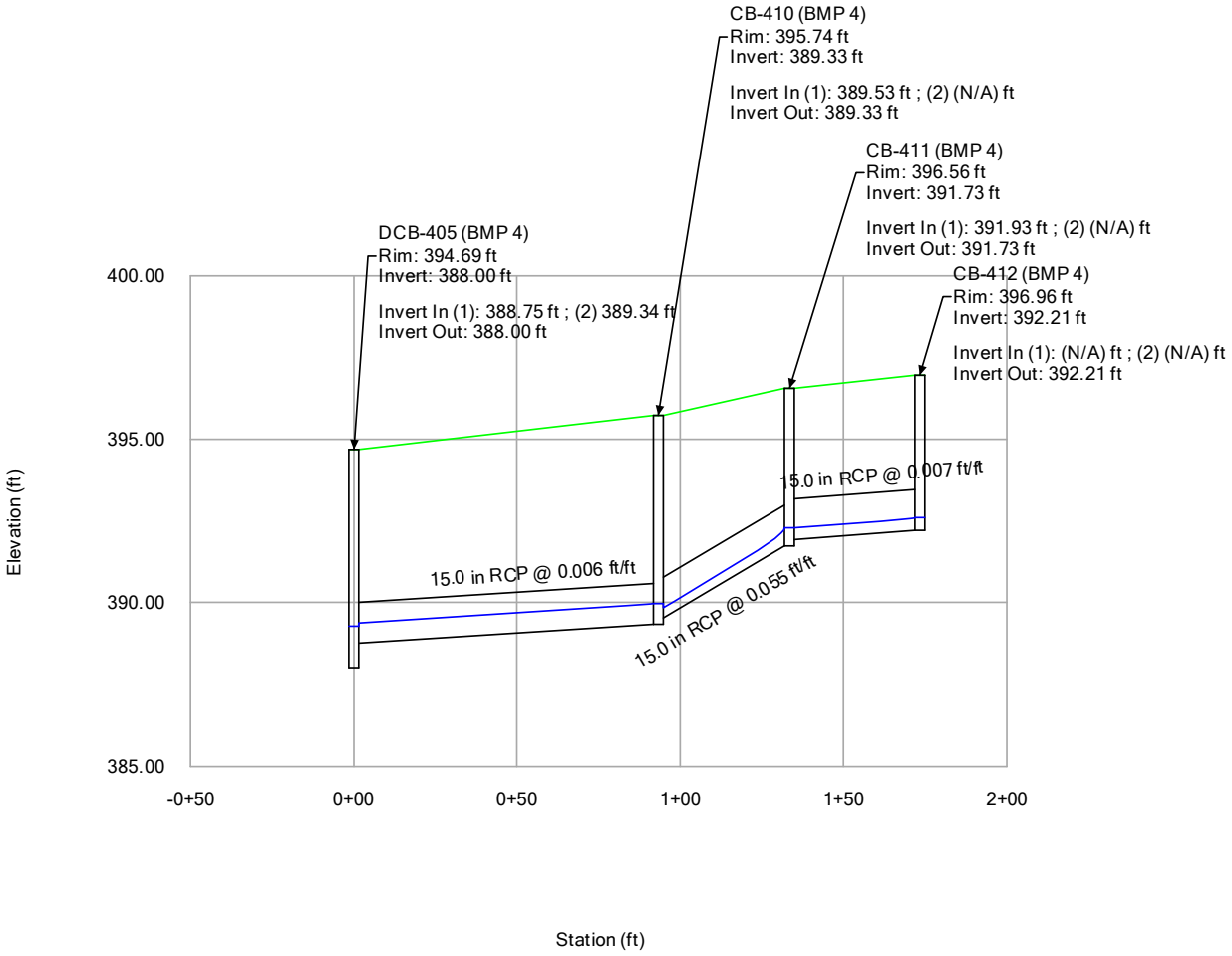
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)
DI-401 (BMP 4)
Rim: 393.75 ft
Invert: 382.50 ft
Invert In (1): 382.70 ft ; (2) 385.00 ft
Invert Out: 382.50 ft
DI-402 (BMP 4)
Rim: 391.30 ft
Invert: 386.59 ft
Invert In (1): 386.79 ft ; (2) (N/A) ft
Invert Out: 386.59 ft
DI-403 (BMP 4)
Rim: 398.87 ft
Invert: 392.84 ft
Invert In (1): 393.04 ft ; (2) (N/A) ft
Invert Out: 392.84 ft
DI-404 (BMP 4)
Rim: 401.81 ft
Invert: 397.32 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.32 ft
18.0 in RCP @ 0.031 ft/ft
18.0 in RCP @ 0.036 ft/ft
18.0 in RCP @ 0.051 ft/ft

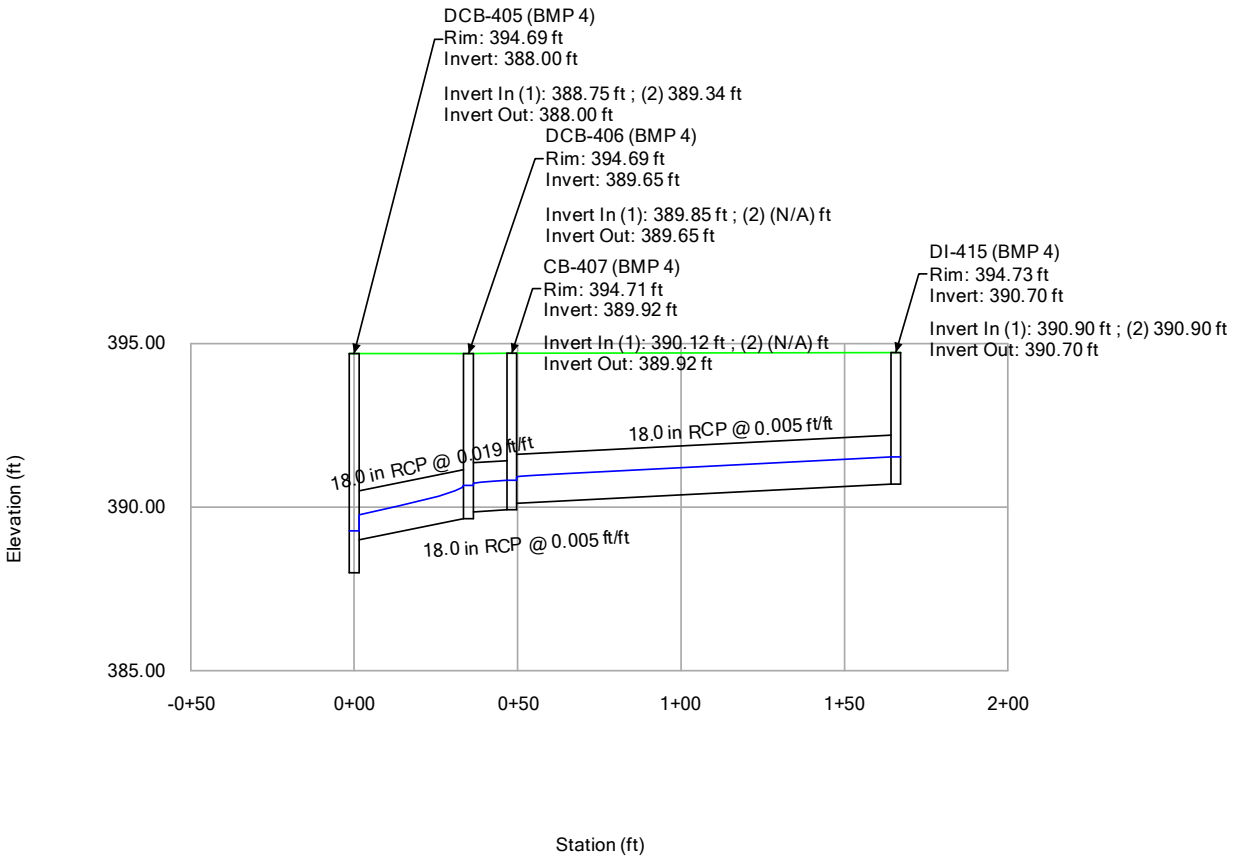
SCM 4 25-YR


CB-408 (BMP 4)
Rim: 395.58 ft
Invert: 390.25 ft
Invert In (1): 390.45 ft ; (2) (N/A) ft
Invert Out: 390.25 ft
DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
CB-409 (BMP 4)
Rim: 395.63 ft
Invert: 390.80 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.80 ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

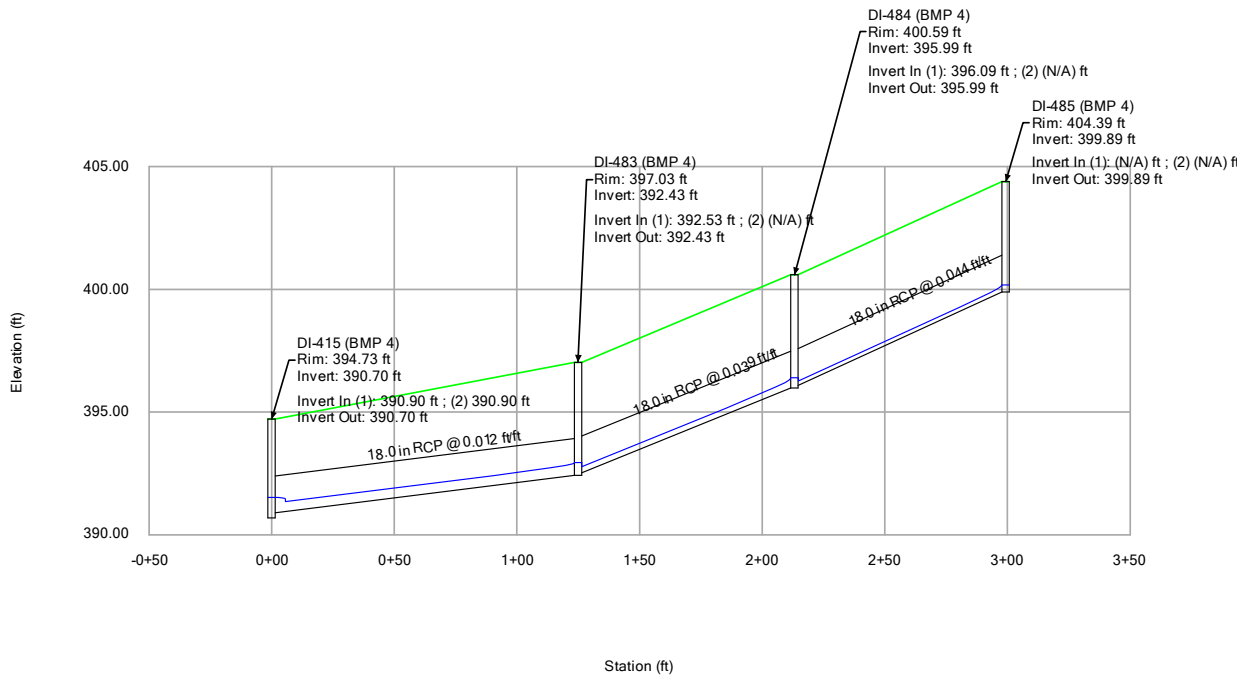
SCM 4 25-YR


CB-410 (BMP 4)
Rim: 395.74 ft
Invert: 389.33 ft
Invert In (1): 389.53 ft ; (2) (N/A) ft
Invert Out: 389.33 ft
CB-411 (BMP 4)
Rim: 396.56 ft
Invert: 391.73 ft
Invert In (1): 391.93 ft ; (2) (N/A) ft
Invert Out: 391.73 ft
DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
CB-412 (BMP 4)
Rim: 396.96 ft
Invert: 392.21 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 392.21 ft
15.0 in RCP @ 0.007 ft/ft
15.0 in RCP @ 0.006 ft/ft
15.0 in RCP @ 0.055 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

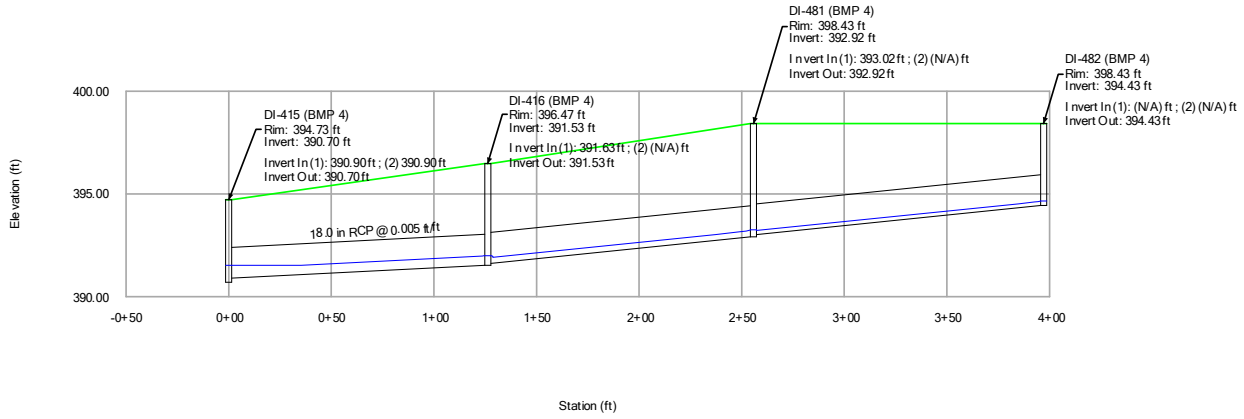
SCM 4 25-YR


DCB-405 (BMP 4)
Rim: 394.69 ft
Invert: 388.00 ft
Invert In (1): 388.75 ft ; (2) 389.34 ft
Invert Out: 388.00 ft
DCB-406 (BMP 4)
Rim: 394.69 ft
Invert: 389.65 ft
Invert In (1): 389.85 ft ; (2) (N/A) ft
Invert Out: 389.65 ft
CB-407 (BMP 4)
Rim: 394.71 ft
Invert: 389.92 ft
Invert In (1): 390.12 ft ; (2) (N/A) ft
Invert Out: 389.92 ft
DI-415 (BMP 4)
Rim: 394.73 ft
Invert: 390.70 ft
Invert In (1): 390.90 ft ; (2) 390.90 ft
Invert Out: 390.70 ft
18.0 in RCP @ 0.019 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

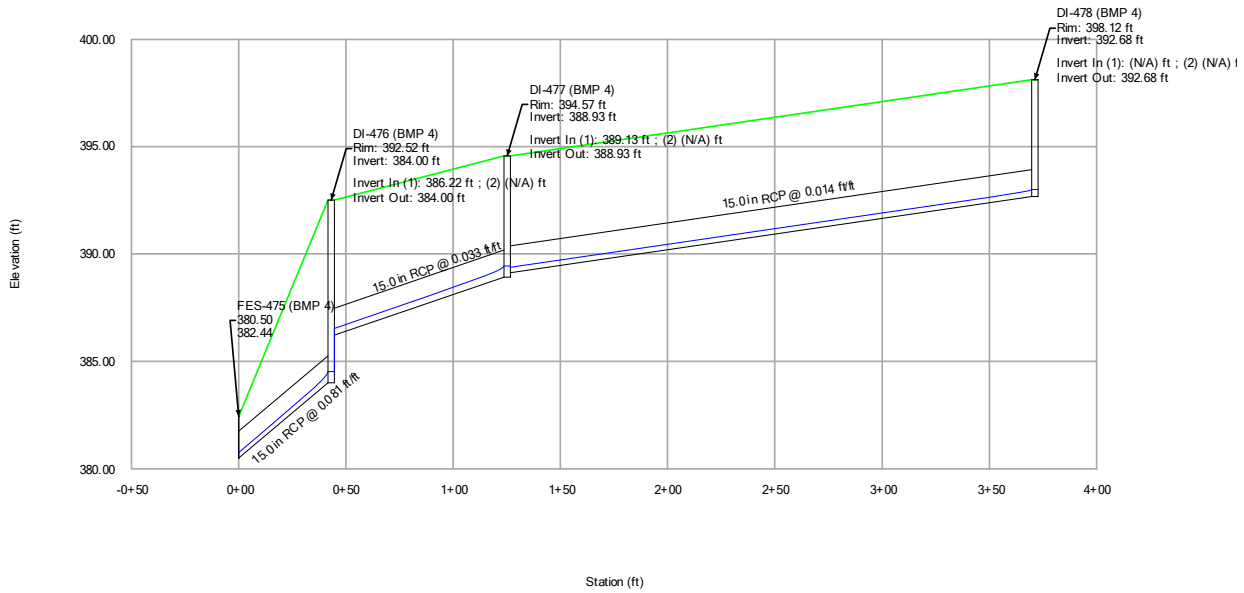
SCM 4 25-YR


DI-484 (BMP 4)
Rim: 400.59 ft
Invert: 395.99 ft
Invert In (1): 396.09 ft ; (2) (N/A) ft
Invert Out: 395.99 ft
DI-485 (BMP 4)
Rim: 404.39 ft
Invert: 399.89 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 399.89 ft
DI-483 (BMP 4)
Rim: 397.03 ft
Invert: 392.43 ft
Invert In (1): 392.53 ft ; (2) (N/A) ft
Invert Out: 392.43 ft
DI-415 (BMP 4)
Rim: 394.73 ft
Invert: 390.70 ft
Invert In (1): 390.90 ft ; (2) 390.90 ft
Invert Out: 390.70 ft
18.0 in RCP @ 0.044 ft/ft
18.0 in RCP @ 0.039 ft/ft
18.0 in RCP @ 0.012 ft/ft
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

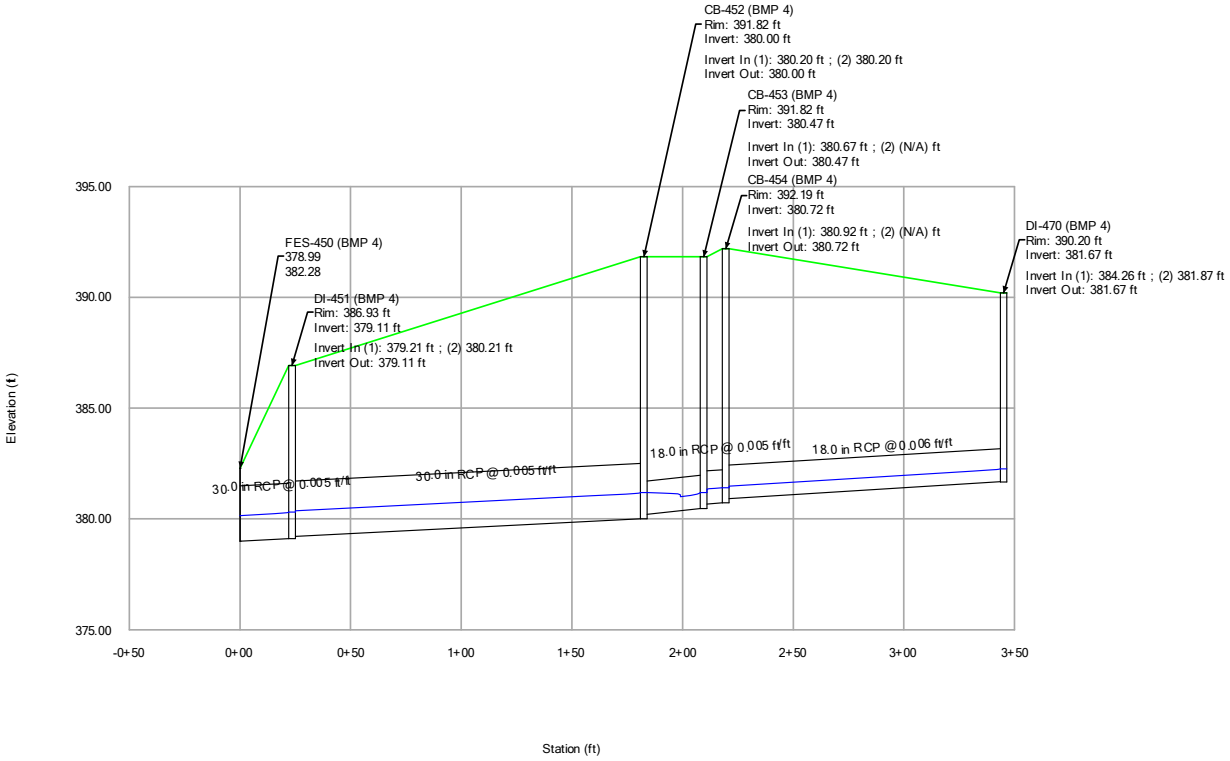
SCM 4 25-YR


DI-481 (BMP 4)
Rim: 398.43 ft
Invert: 392.92 ft
Invert In (1): 393.02 ft ; (2) (N/A) ft
Invert Out: 392.92 ft
DI-482 (BMP 4)
Rim: 398.43 ft
Invert: 394.43 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 394.43 ft
DI-415 (BMP 4)
Rim: 394.73 ft
Invert: 390.70 ft
Invert In (1): 390.90 ft ; (2) 390.90 ft
Invert Out: 390.70 ft
DI-416 (BMP 4)
Rim: 396.47 ft
Invert: 391.53 ft
Invert In (1): 391.63 ft ; (2) (N/A) ft
Invert Out: 391.53 ft
18.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

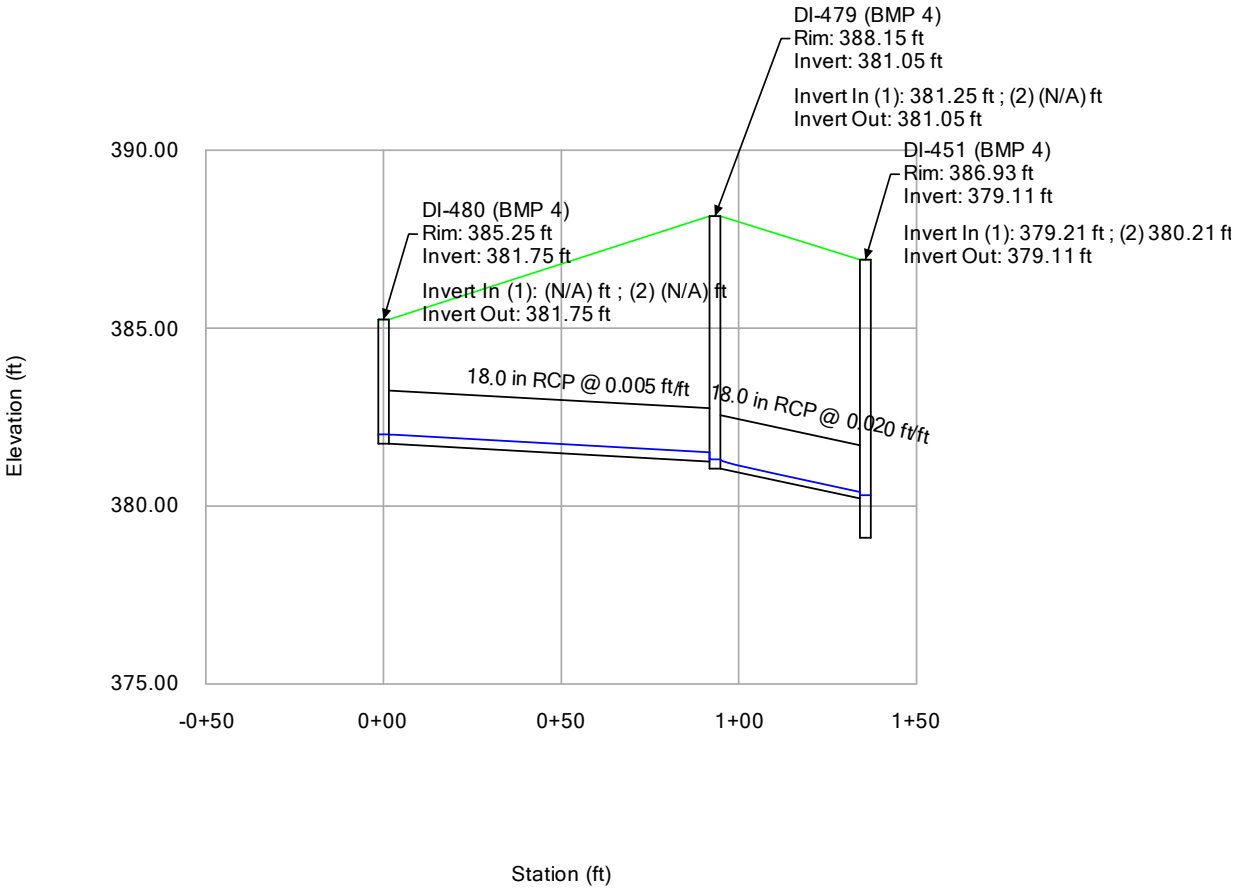
SCM 4 25-YR


DI-478 (BMP 4)
Rim: 398.12 ft
Invert: 392.68 ft
Invert In (1): (N/A) ft ; (2) (N/A) f
Invert Out: 392.68 ft
DI-477 (BMP 4)
Rim: 394.57 ft
Invert: 388.93 ft
Invert In (1): 389.13 ft ; (2) (N/A) ft
Invert Out: 388.93 ft
DI-476 (BMP 4)
Rim: 392.52 ft
Invert: 384.00 ft
Invert In (1): 386.22 ft ; (2) (N/A) ft
Invert Out: 384.00 ft
FES-475 (BMP 4)
380.50
382.44
15.0 in RCP @ 0.014 ft/ft
15.0 in RCP @ 0.033 ft/ft
15.0 in RCP @ 0.081 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

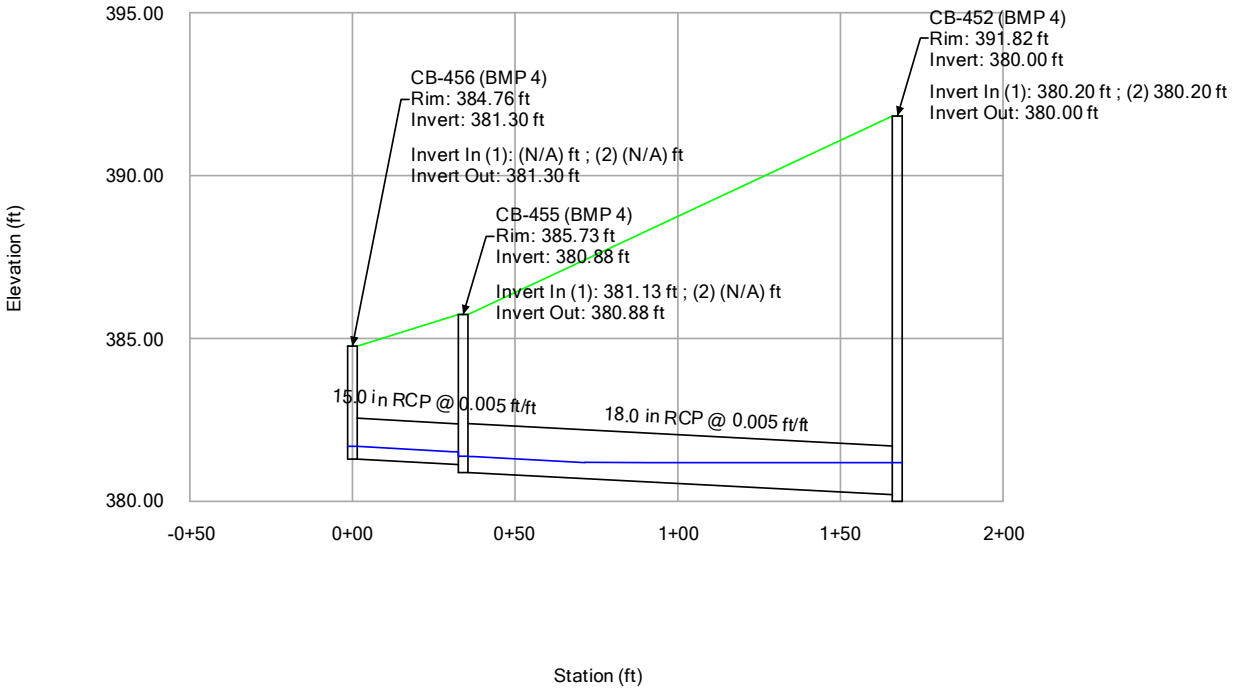
SCM 4 25-YR


CB-452 (BMP 4)
Rim: 391.82 ft
Invert: 380.00 ft
Invert In (1): 380.20 ft ; (2) 380.20 ft
Invert Out: 380.00 ft
CB-453 (BMP 4)
Rim: 391.82 ft
Invert: 380.47 ft
Invert In (1): 380.67 ft ; (2) (N/A) ft
Invert Out: 380.47 ft
CB-454 (BMP 4)
Rim: 392.19 ft
Invert: 380.72 ft
Invert In (1): 380.92 ft ; (2) (N/A) ft
Invert Out: 380.72 ft
FES-450 (BMP 4)
378.99
382.28
DI-451 (BMP 4)
Rim: 386.93 ft
Invert: 379.11 ft
Invert In (1): 379.21 ft ; (2) 380.21 ft
Invert Out: 379.11 ft
DI-470 (BMP 4)
Rim: 390.20 ft
Invert: 381.67 ft
Invert In (1): 384.26 ft ; (2) 381.87 ft
Invert Out: 381.67 ft
30.0 in RCP @ 0.005 ft/ft
30.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.006 ft/ft
395.00
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

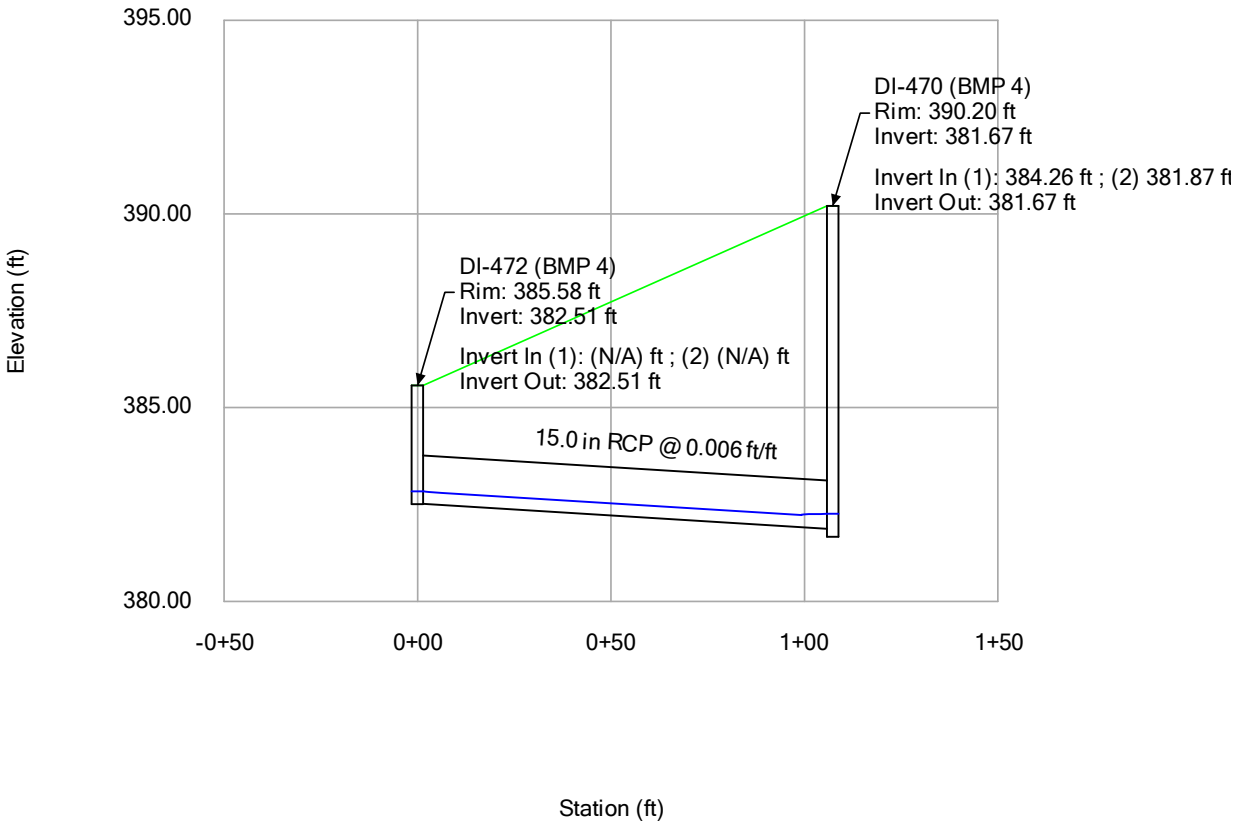
SCM 4 25-YR


DI-479 (BMP 4)
Rim: 388.15 ft
Invert: 381.05 ft
Invert In (1): 381.25 ft ; (2) (N/A) ft
Invert Out: 381.05 ft
DI-451 (BMP 4)
Rim: 386.93 ft
Invert: 379.11 ft
Invert In (1): 379.21 ft ; (2) 380.21 ft
Invert Out: 379.11 ft
DI-480 (BMP 4)
Rim: 385.25 ft
Invert: 381.75 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 381.75 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.020 ft/ft
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

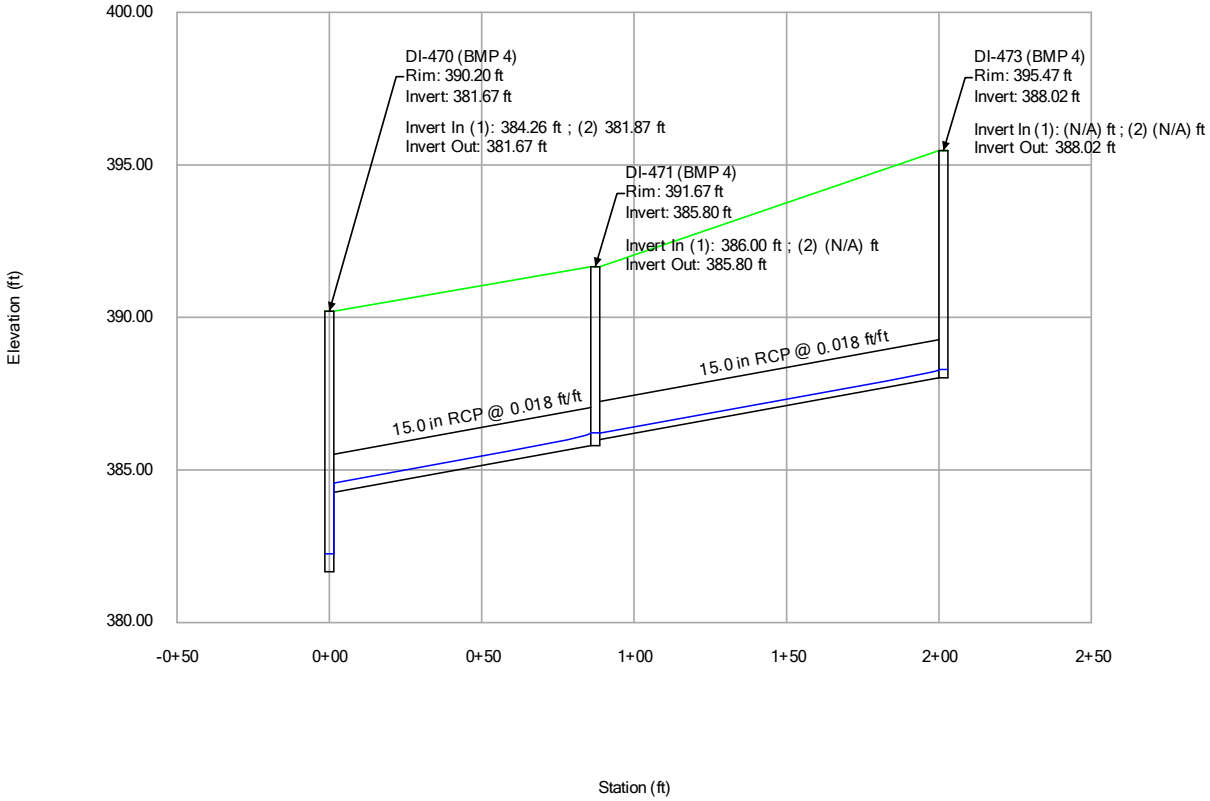
SCM 4 25-YR


395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)
CB-452 (BMP 4)
Rim: 391.82 ft
Invert: 380.00 ft
Invert In (1): 380.20 ft ; (2) 380.20 ft
Invert Out: 380.00 ft
CB-456 (BMP 4)
Rim: 384.76 ft
Invert: 381.30 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 381.30 ft
CB-455 (BMP 4)
Rim: 385.73 ft
Invert: 380.88 ft
Invert In (1): 381.13 ft ; (2) (N/A) ft
Invert Out: 380.88 ft
15.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft

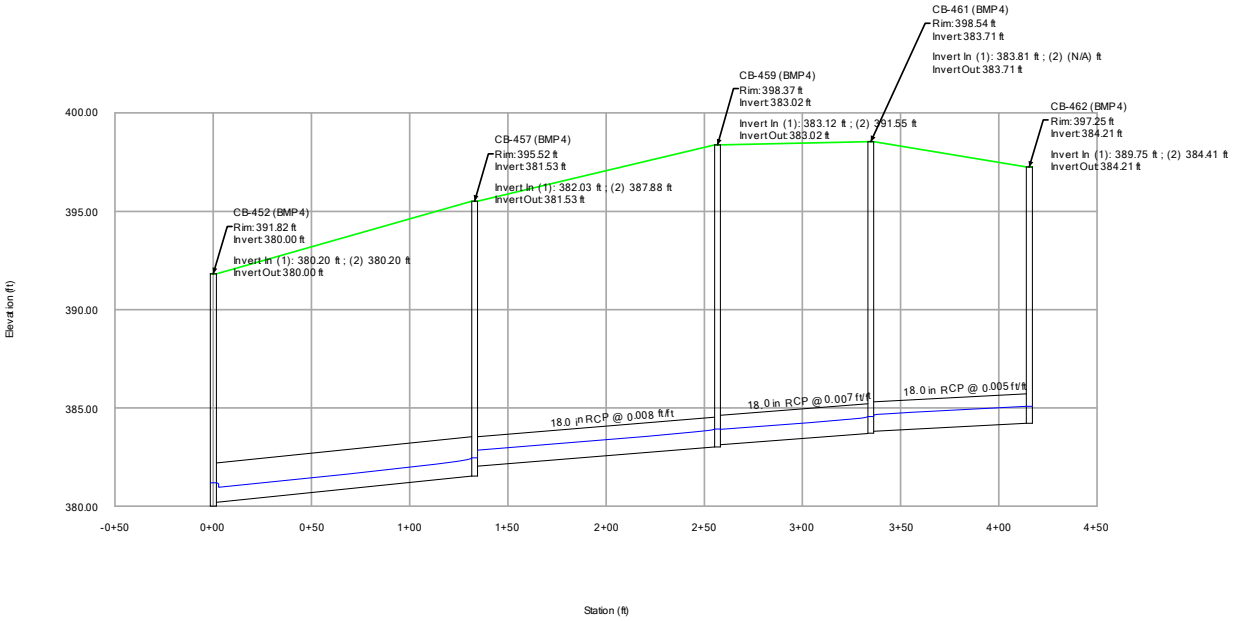
SCM 4 25-YR


395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)
DI-470 (BMP 4)
Rim: 390.20 ft
Invert: 381.67 ft
Invert In (1): 384.26 ft ; (2) 381.87 ft
Invert Out: 381.67 ft
DI-472 (BMP 4)
Rim: 385.58 ft
Invert: 382.51 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 382.51 ft
15.0 in RCP @ 0.006 ft/ft

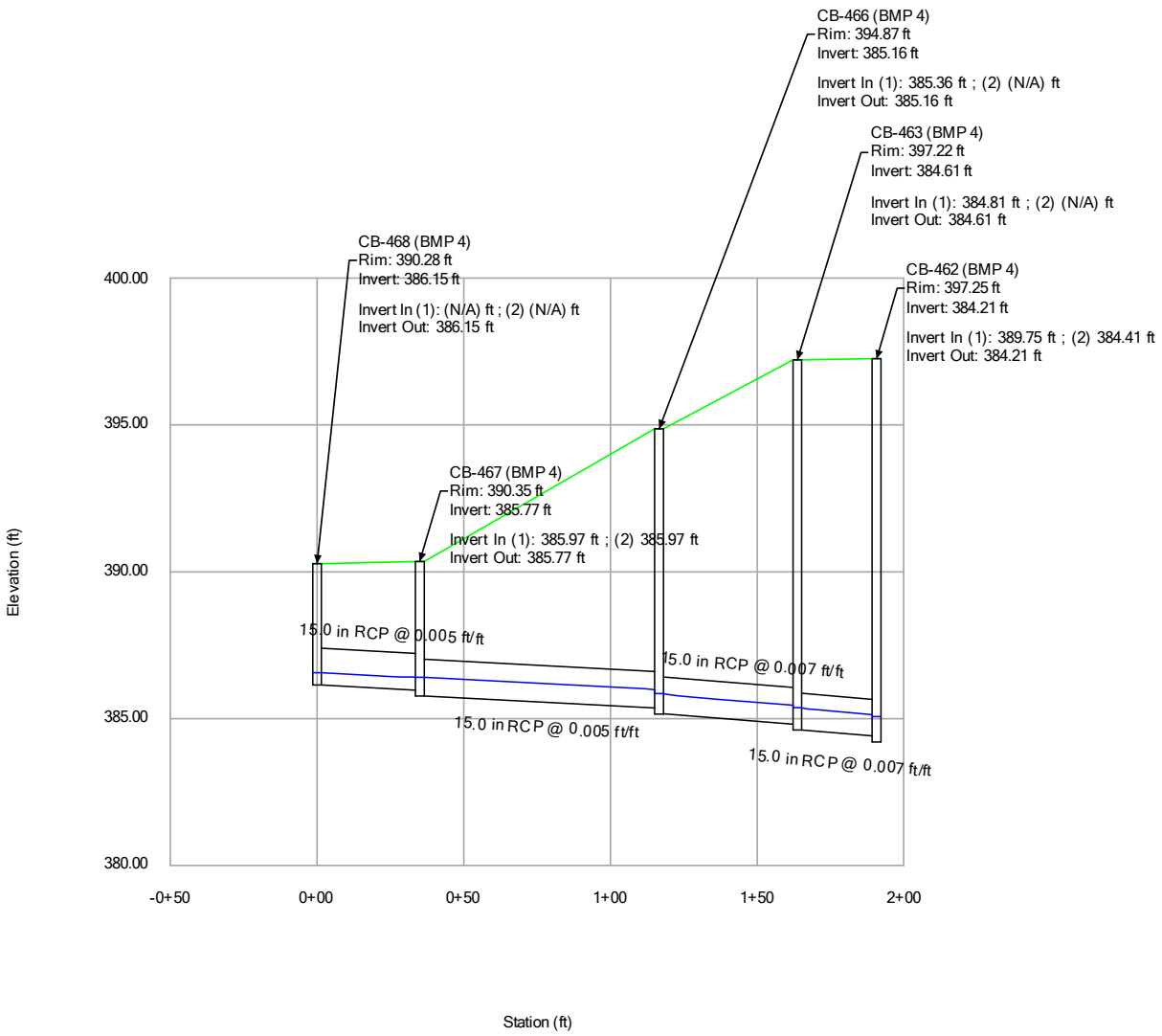
SCM 4 25-YR


400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)
DI-470 (BMP 4)
Rim: 390.20 ft
Invert: 381.67 ft
Invert In (1): 384.26 ft ; (2) 381.87 ft
Invert Out: 381.67 ft
DI-471 (BMP 4)
Rim: 391.67 ft
Invert: 385.80 ft
Invert In (1): 386.00 ft ; (2) (N/A) ft
Invert Out: 385.80 ft
DI-473 (BMP 4)
Rim: 395.47 ft
Invert: 388.02 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.02 ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.018 ft/ft

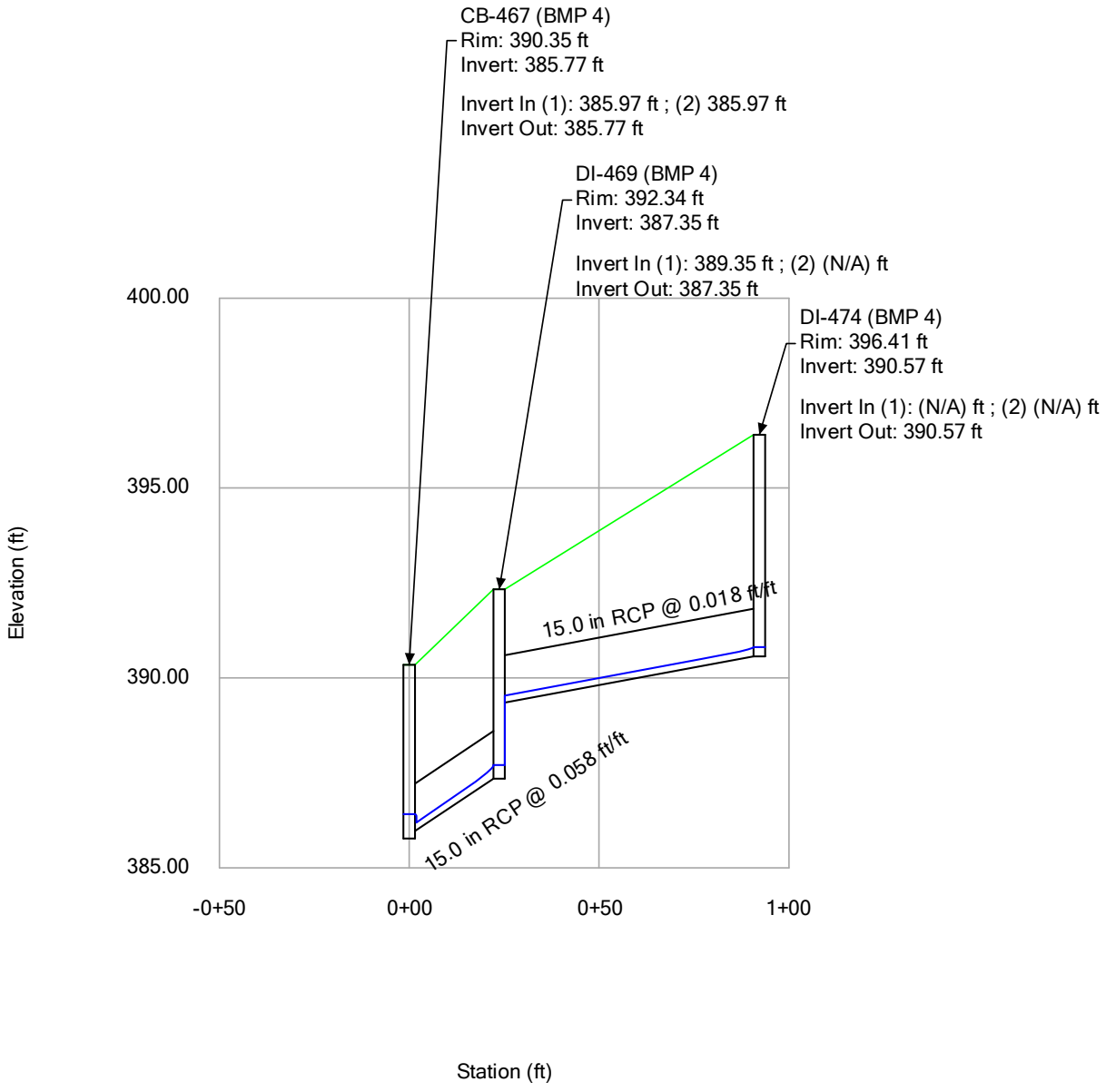
SCM 4 25-YR


CB-461 (BMP4)
Rim: 398.54 ft
Invert: 383.71 ft
Invert In (1): 383.81 ft ; (2) (N/A) ft
Invert Out: 383.71 ft
CB-459 (BMP4)
Rim: 398.37 ft
Invert: 383.02 ft
Invert In (1): 383.12 ft ; (2) 391.55 ft
Invert Out: 383.02 ft
CB-462 (BMP4)
Rim: 397.25 ft
Invert: 384.21 ft
Invert In (1): 389.75 ft ; (2) 384.41 ft
Invert Out: 384.21 ft
CB-457 (BMP4)
Rim: 395.52 ft
Invert: 381.53 ft
Invert In (1): 382.03 ft ; (2) 387.88 ft
Invert Out: 381.53 ft
CB-452 (BMP4)
Rim: 391.82 ft
Invert: 380.00 ft
Invert In (1): 380.20 ft ; (2) 380.20 ft
Invert Out: 380.00 ft
18.0 in RCP @ 0.008 ft/ft
18.0 in RCP @ 0.007 ft/ft
18.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
Station (ft)

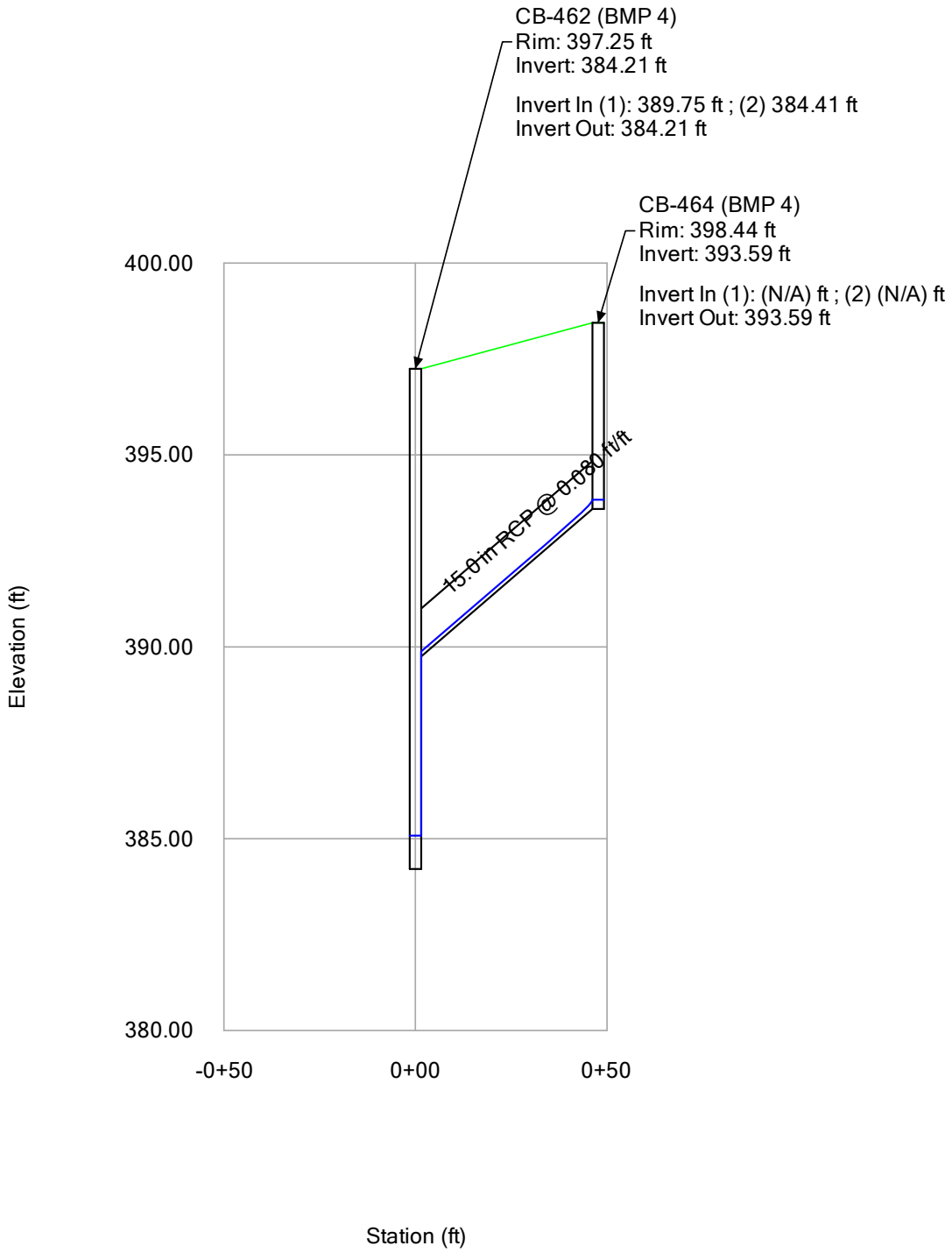
SCM 4 25-YR


CB-466 (BMP 4)
Rim: 394.87 ft
Invert: 385.16 ft
Invert In (1): 385.36 ft ; (2) (N/A) ft
Invert Out: 385.16 ft
CB-463 (BMP 4)
Rim: 397.22 ft
Invert: 384.61 ft
Invert In (1): 384.81 ft ; (2) (N/A) ft
Invert Out: 384.61 ft
CB-468 (BMP 4)
Rim: 390.28 ft
Invert: 386.15 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 386.15 ft
CB-462 (BMP 4)
Rim: 397.25 ft
Invert: 384.21 ft
Invert In (1): 389.75 ft ; (2) 384.41 ft
Invert Out: 384.21 ft
CB-467 (BMP 4)
Rim: 390.35 ft
Invert: 385.77 ft
Invert In (1): 385.97 ft ; (2) 385.97 ft
Invert Out: 385.77 ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.007 ft/ft
15.0 in RCP @ 0.005 ft/ft
15.0 in RCP @ 0.007 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

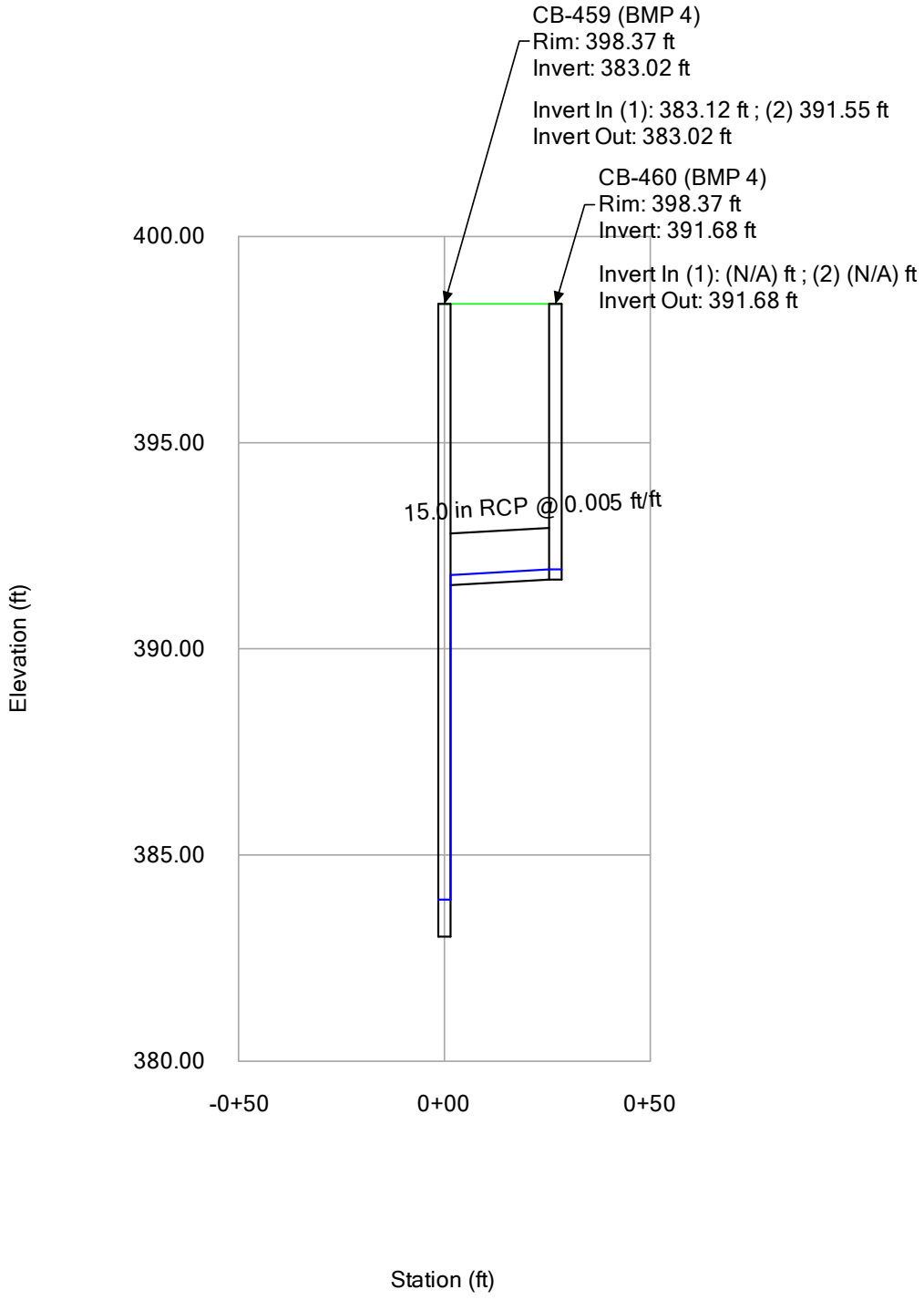
SCM 4 25-YR


CB-467 (BMP 4)
Rim: 390.35 ft
Invert: 385.77 ft
Invert In (1): 385.97 ft ; (2) 385.97 ft
Invert Out: 385.77 ft
DI-469 (BMP 4)
Rim: 392.34 ft
Invert: 387.35 ft
Invert In (1): 389.35 ft ; (2) (N/A) ft
Invert Out: 387.35 ft
DI-474 (BMP 4)
Rim: 396.41 ft
Invert: 390.57 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.57 ft
15.0 in RCP @ 0.018 ft/ft
15.0 in RCP @ 0.058 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
Station (ft)

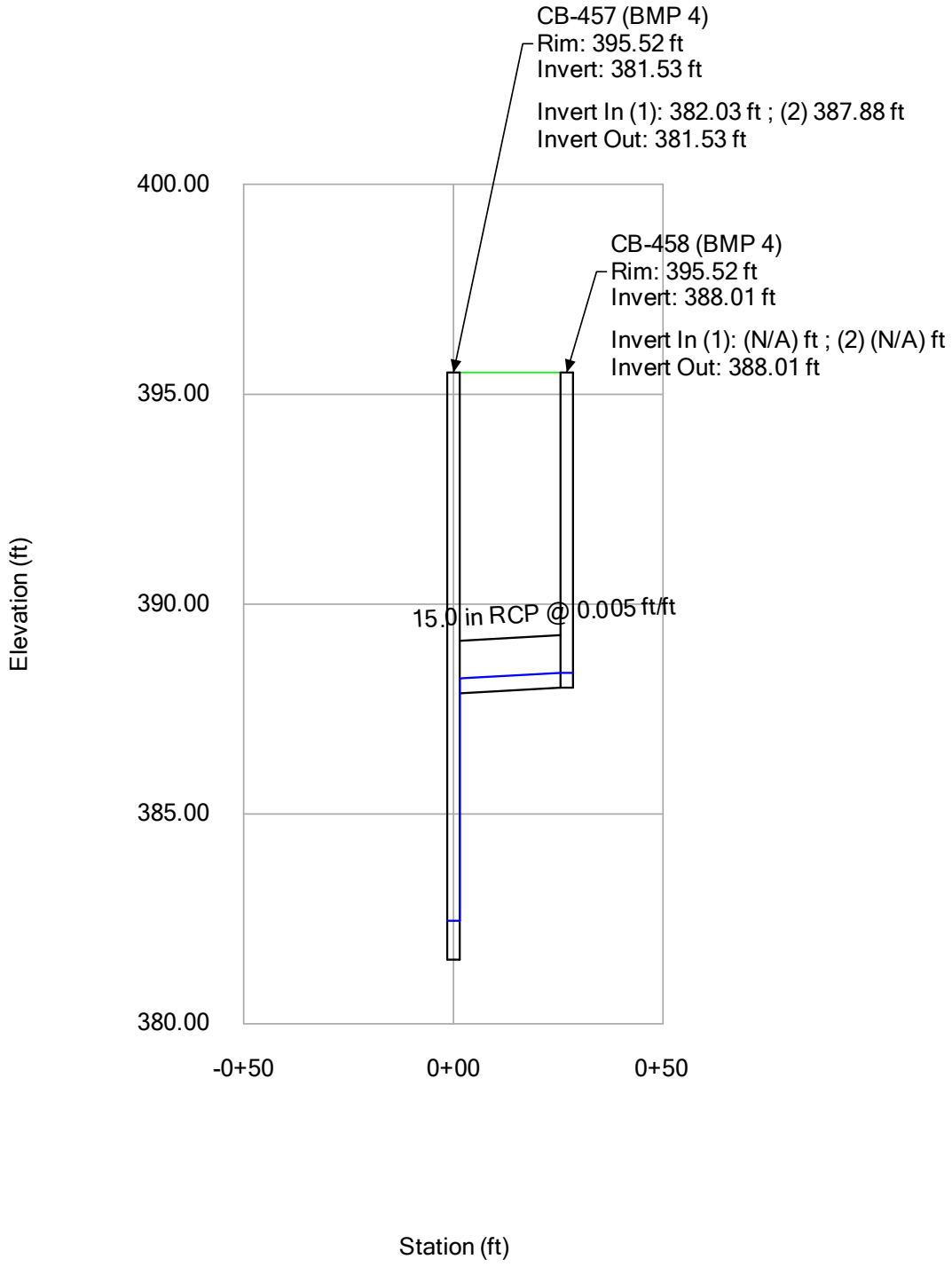
SCM 4 25-YR


CB-462 (BMP 4)
Rim: 397.25 ft
Invert: 384.21 ft
Invert In (1): 389.75 ft ; (2) 384.41 ft
Invert Out: 384.21 ft
CB-464 (BMP 4)
Rim: 398.44 ft
Invert: 393.59 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 393.59 ft
15.0 in RCP @ 0.080 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

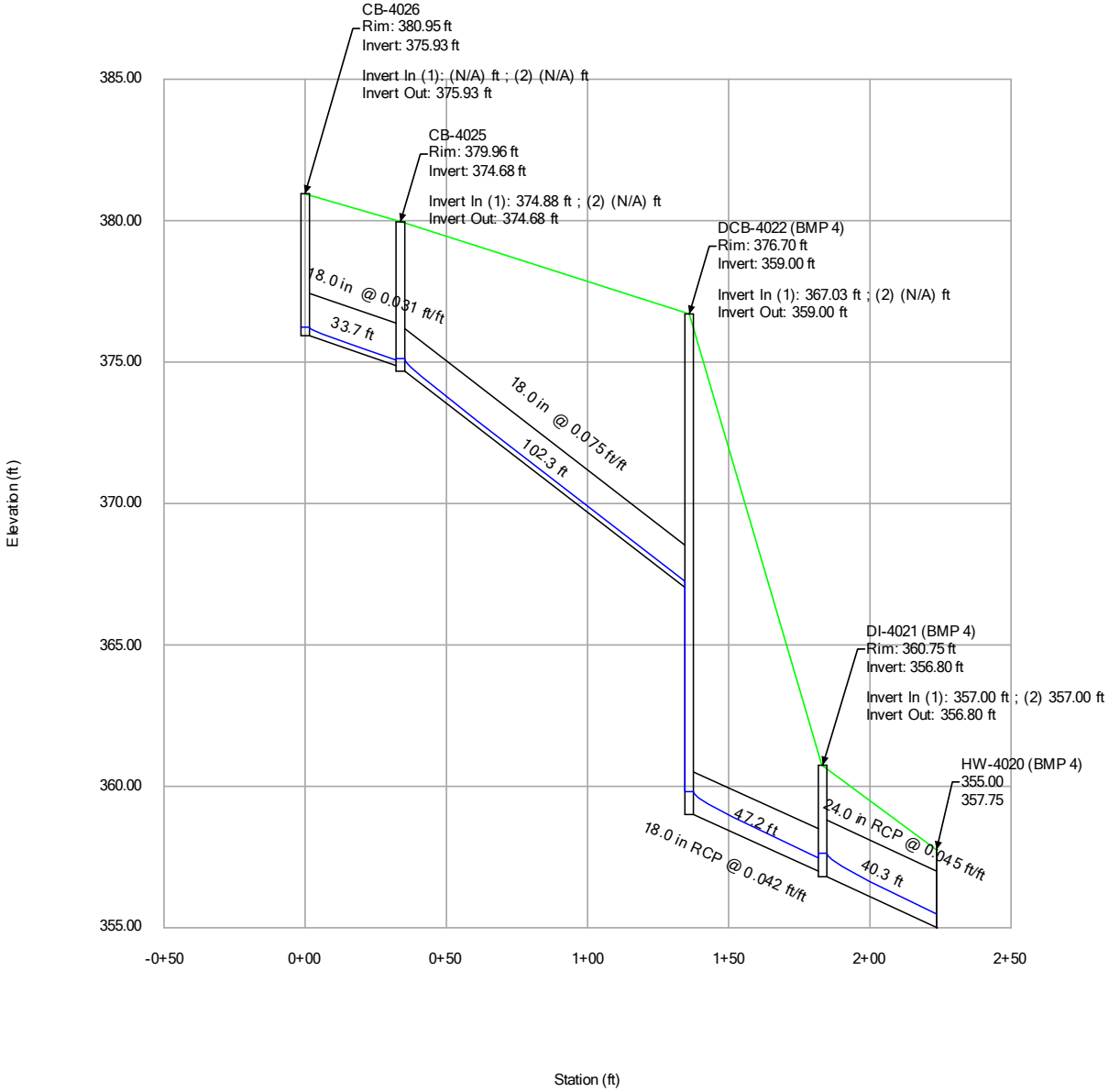
SCM 4 25-YR


CB-459 (BMP 4)
Rim: 398.37 ft
Invert: 383.02 ft
Invert In (1): 383.12 ft ; (2) 391.55 ft
Invert Out: 383.02 ft
CB-460 (BMP 4)
Rim: 398.37 ft
Invert: 391.68 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 391.68 ft
15.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

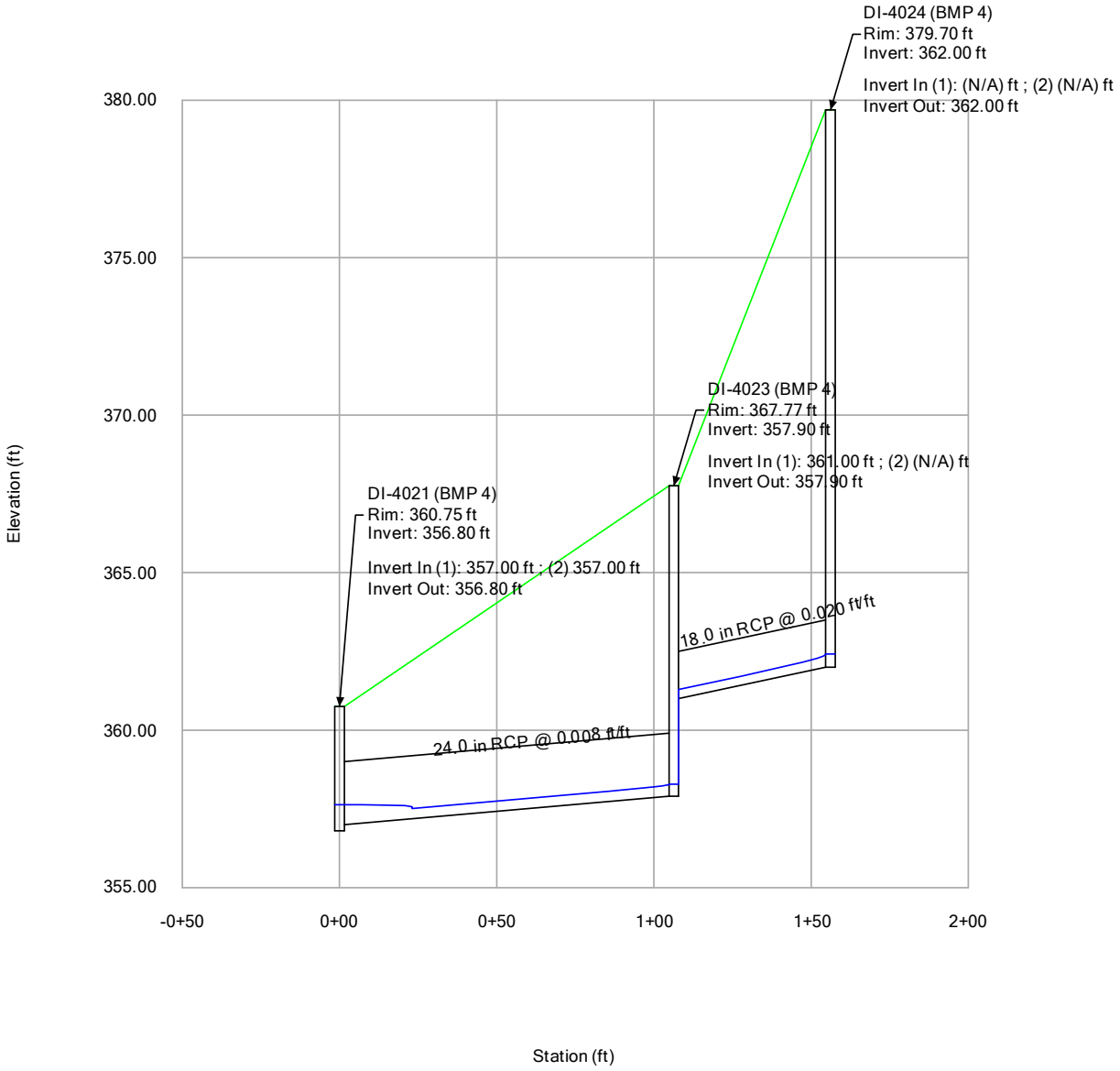
SCM 4 25-YR


CB-457 (BMP 4)
Rim: 395.52 ft
Invert: 381.53 ft
Invert In (1): 382.03 ft ; (2) 387.88 ft
Invert Out: 381.53 ft
CB-458 (BMP 4)
Rim: 395.52 ft
Invert: 388.01 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 388.01 ft
15.0 in RCP @ 0.005 ft/ft
400.00
395.00
390.00
385.00
380.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

SCM 4 25-YR


CB-4026
Rim: 380.95 ft
Invert: 375.93 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 375.93 ft
CB-4025
Rim: 379.96 ft
Invert: 374.68 ft
Invert In (1): 374.88 ft ; (2) (N/A) ft
Invert Out: 374.68 ft
DCB-4022 (BMP 4)
Rim: 376.70 ft
Invert: 359.00 ft
Invert In (1): 367.03 ft ; (2) (N/A) ft
Invert Out: 359.00 ft
DI-4021 (BMP 4)
Rim: 360.75 ft
Invert: 356.80 ft
Invert In (1): 357.00 ft ; (2) 357.00 ft
Invert Out: 356.80 ft
HW-4020 (BMP 4)
355.00
357.75
18.0 in @ 0.031 ft/ft
33.7 ft
18.0 in @ 0.075 ft/ft
102.3 ft
18.0 in RCP @ 0.042 ft/ft
47.2 ft
24.0 in RCP @ 0.045 ft/ft
40.3 ft
385.00
380.00
375.00
370.00
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)

SCM 4 25-YR


DI-4024 (BMP 4)
Rim: 379.70 ft
Invert: 362.00 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 362.00 ft
DI-4023 (BMP 4)
Rim: 367.77 ft
Invert: 357.90 ft
Invert In (1): 361.00 ft ; (2) (N/A) ft
Invert Out: 357.90 ft
DI-4021 (BMP 4)
Rim: 360.75 ft
Invert: 356.80 ft
Invert In (1): 357.00 ft ; (2) 357.00 ft
Invert Out: 356.80 ft
18.0 in RCP @ 0.020 ft/ft
24.0 in RCP @ 0.008 ft/ft
380.00
375.00
370.00
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
Station (ft)

SCM 4 – INLET SPREAD

SCM 4 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
DCB-405 (BMP 4)	0.348	0.231	1.31	0.00	8.87	6.9	3.1
DCB-406 (BMP 4)	0.352	0.228	1.29	0.00	4.87	6.8	3.1
CB-468 (BMP 4)	0.280	0.149	0.84	0.19	0.84	5.4	1.8
CB-411 (BMP 4)	0.292	0.135	0.76	0.14	1.49	5.1	1.7
CB-412 (BMP 4)	0.279	0.130	0.74	0.13	0.74	5.0	1.7
CB-408 (BMP 4)	0.220	0.122	0.69	0.11	1.33	4.8	1.6
CB-456 (BMP 4)	0.266	0.126	0.71	0.12	0.71	4.9	1.6
CB-409 (BMP 4)	0.181	0.115	0.65	0.09	0.65	4.6	1.6
CB-454 (BMP 4)	0.216	0.115	0.65	0.09	2.35	4.6	1.6
CB-452 (BMP 4)	0.210	0.112	0.63	0.09	9.03	4.5	1.6
CB-455 (BMP 4)	0.197	0.109	0.62	0.08	1.32	4.5	1.6
CB-407 (BMP 4)	0.160	0.101	0.57	0.06	3.73	4.3	1.5
CB-458 (BMP 4)	0.212	0.105	0.59	0.07	0.59	4.4	1.5
CB-457 (BMP 4)	0.208	0.103	0.58	0.07	4.96	4.3	1.5
CB-462 (BMP 4)	0.198	0.099	0.56	0.06	3.42	4.2	1.5
CB-463 (BMP 4)	0.171	0.087	0.49	0.04	2.61	3.9	1.4

SCM 4 SPREAD (2-YR)

Inlet Spread - Time: 0.00 hours

Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
CB-466 (BMP 4)	0.079	0.078	0.44	0.03	2.16	3.6	1.4
CB-410 (BMP 4)	0.079	0.070	0.40	0.02	1.87	3.4	1.3
CB-467 (BMP 4)	0.081	0.056	0.32	0.01	1.76	3.0	1.2
CB-464 (BMP 4)	0.054	0.051	0.29	0.00	0.29	2.8	1.1
CB-460 (BMP 4)	0.077	0.049	0.28	0.00	0.28	2.7	1.1
CB-459 (BMP 4)	0.063	0.038	0.21	0.00	3.95	2.3	1.0
CB-453 (BMP 4)	0.018	0.030	0.17	0.00	2.50	2.0	0.9
CB-461 (BMP 4)	0.052	0.031	0.18	0.00	3.53	2.0	1.0

BYPASS CALCULATIONS

BYPASS 10-YR

Conduit Results - Time: 0.00 hours

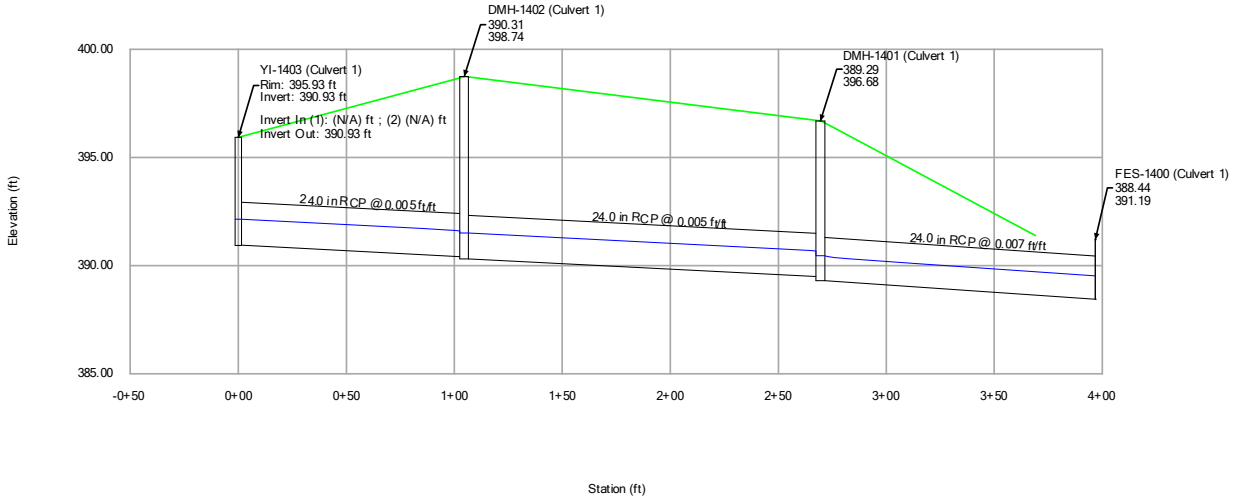
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
FES-4100 TO DI-4101 (BMP 4)	15.0	0.044	3.23	6.88	1.25	13.49	371.74	368.60
DMH-1204 TO YI-1205 (Culvert 1)	30.0	0.054	6.32	14.90	19.29	95.58	407.98	401.75
DMH-1203 TO DMH-1204 (Culvert 1)	30.0	0.048	6.32	14.60	19.24	90.11	402.36	393.04
Pipe - (379) (Culvert 1)	18.0	0.010	5.37	6.24	6.78	10.50	399.63	399.17
Pipe - (380) (Culvert 1)	18.0	0.005	4.76	5.36	6.76	7.43	399.21	398.45
Pipe - (381) (Culvert 1)	18.0	0.005	4.74	5.23	6.64	7.40	398.23	397.45
DMH-1202 TO DMH-1203 (Culvert 1)	36.0	0.010	5.90	7.90	19.15	66.69	382.16	381.21
DMH-1201 TO DMH-1202 (Culvert 1)	36.0	0.010	5.90	8.03	19.09	66.69	381.28	380.08
FES-B102 TO DI-B103 (Culvert 1)	18.0	0.005	4.96	5.44	7.00	7.56	397.45	397.23
YI-1200 TO DMH-1201 (Culvert 1)	36.0	0.010	5.89	8.00	19.01	66.69	380.16	379.01
AD-608 TO AD-607 (Culvert 1)	15.0	0.048	1.58	3.20	0.09	14.16	382.36	382.02
FES-609 TO AD-608 (Culvert 1)	15.0	0.005	1.46	1.59	0.09	4.57	381.87	381.73
Structure - (315) TO AD-604 (Culvert 1)	15.0	0.046	1.99	3.96	0.21	13.87	370.93	370.56
Structure - (317) TO AD-600 (Culvert 1)	15.0	0.075	2.56	5.71	0.55	17.65	361.79	361.17
FES-B106 TO DI-B107 (Culvert 1)	15.0	0.005	2.77	2.81	0.77	4.57	357.80	357.66
CO-1	30.0	0.066	4.98	9.65	18.93	211.01	378.93	377.63
Pipe - (392) (Culvert 1)	15.0	0.052	2.01	4.37	0.22	14.76	362.65	357.76
Pipe - (391) (Culvert 1)	15.0	0.051	2.17	4.74	0.30	14.61	362.16	357.77

BYPASS 10-YR

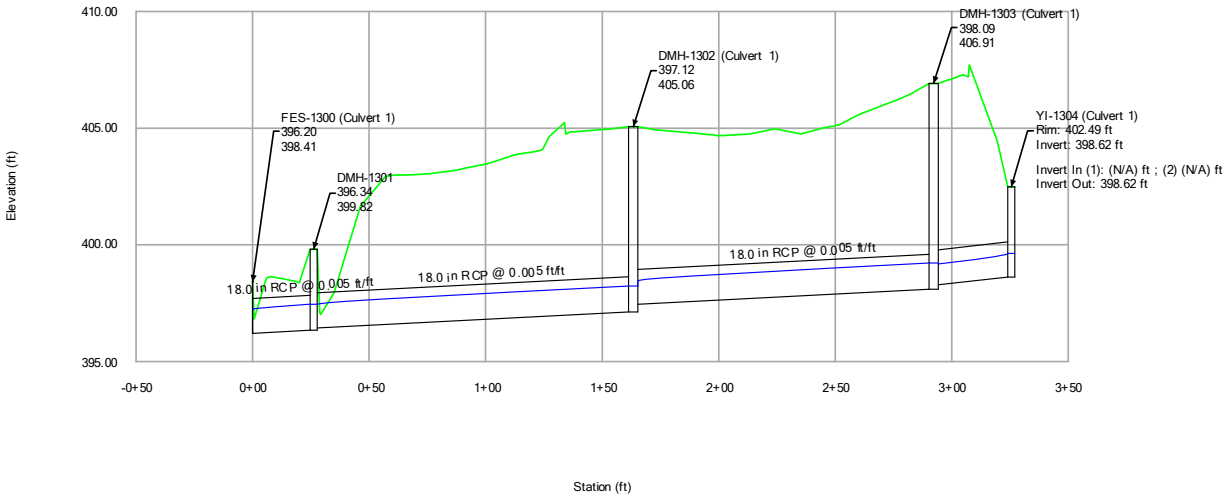
Inlets - Time: 0.00 hours

Label	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Capture Efficiency (Calculated) (%)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)	Grate Length (ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)
DI-4101 (BMP 4)	1.25	0.59	1.25	68.1	371.74	371.74	2.0	3.23	3.23
YI-1205 (Culvert 1)	6.91	0.00	19.29	100.0	407.98	407.98	0.0	9.17	6.32
YI-1304 (Culvert 1)	6.78	0.00	6.78	100.0	399.63	399.63	0.0	5.37	5.37
AD-607 (Culvert 1)	0.09	0.00	0.09	100.0	382.36	382.36	0.0	1.58	1.58
AD-608 (Culvert 1)	0.00	0.00	0.09	100.0	381.87	381.87	0.0	3.20	1.46
AD-604 (Culvert 1)	0.21	0.00	0.21	100.0	370.93	370.93	0.0	1.99	1.99
YI-1200 (Culvert 1)	0.00	0.00	18.93	100.0	378.93	378.93	0.0	8.00	4.98
AD-600 (Culvert 1)	0.55	0.00	0.55	100.0	361.79	361.79	0.0	2.56	2.56
DI-B107 (Culvert 1)	0.26	0.00	0.77	100.0	357.80	357.80	0.0	4.37	2.77
DI-B108 (Culvert 1)	0.30	0.00	0.30	100.0	362.16	362.16	0.0	2.17	2.17

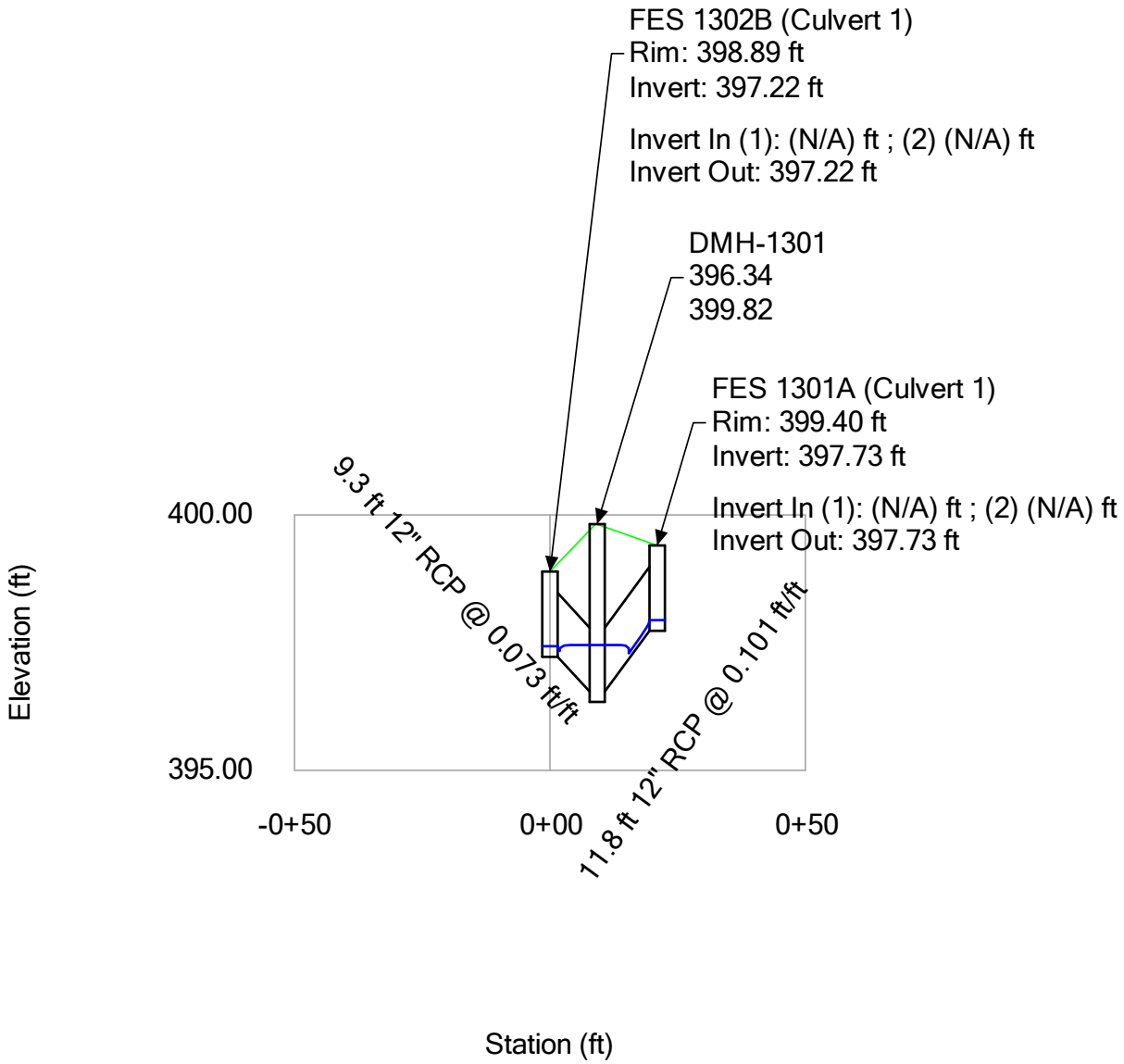
BYPASS 10-YR


DMH-1402 (Culvert 1)
390.31
398.74
YI-1403 (Culvert 1)
Rim: 395.93 ft
Invert: 390.93 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 390.93 ft
DMH-1401 (Culvert 1)
389.29
396.68
FES-1400 (Culvert 1)
388.44
391.19
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.005 ft/ft
24.0 in RCP @ 0.007 ft/ft
400.00
395.00
390.00
385.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
Station (ft)

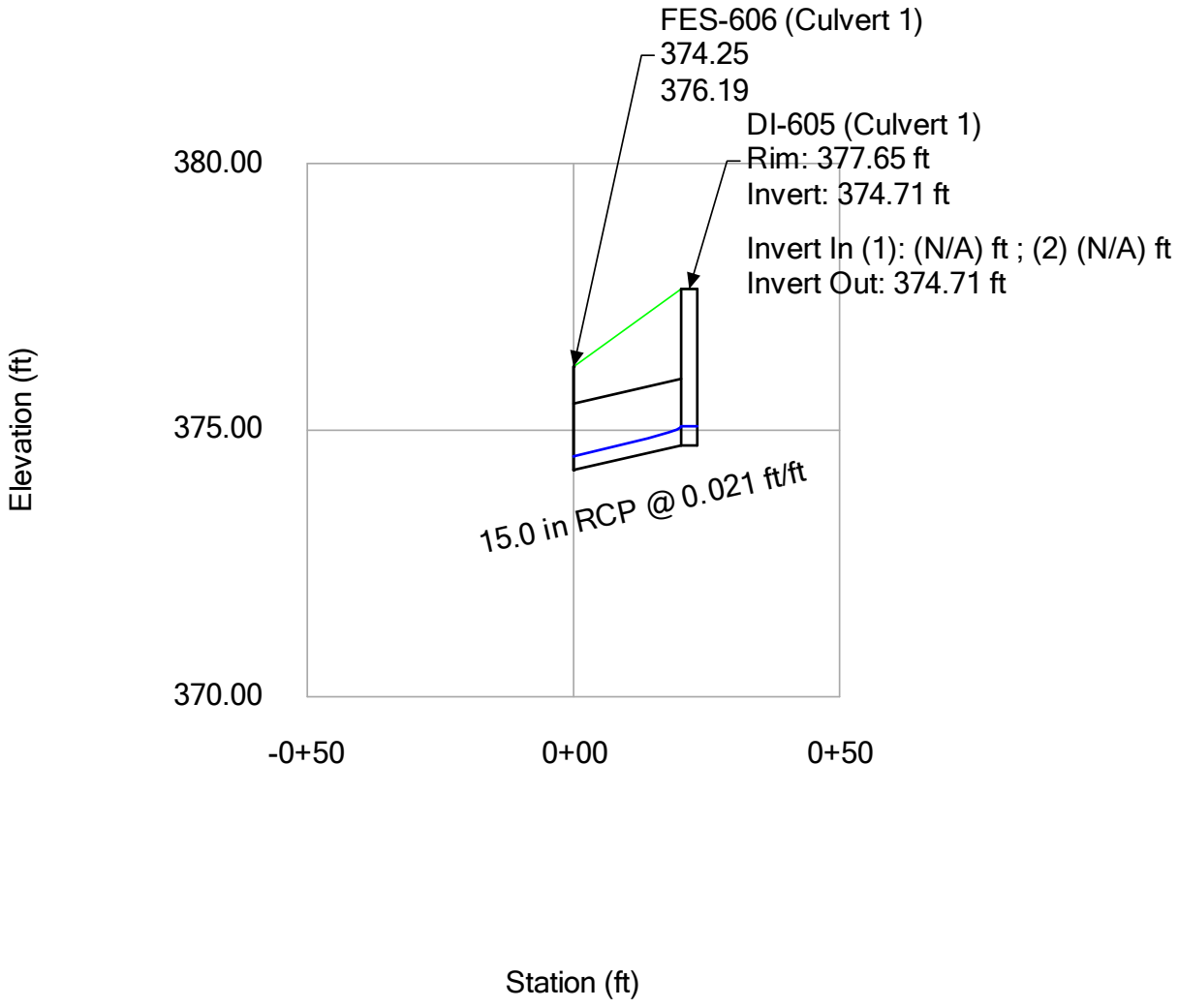
BYPASS 10-YR


410.00
405.00
400.00
395.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)
FES-1300 (Culvert 1)
396.20
398.41
DMH-1301
396.34
399.82
DMH-1302 (Culvert 1)
397.12
405.06
DMH-1303 (Culvert 1)
398.09
406.91
YI-1304 (Culvert 1)
Rim: 402.49 ft
Invert: 398.62 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 398.62 ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft
18.0 in RCP @ 0.005 ft/ft

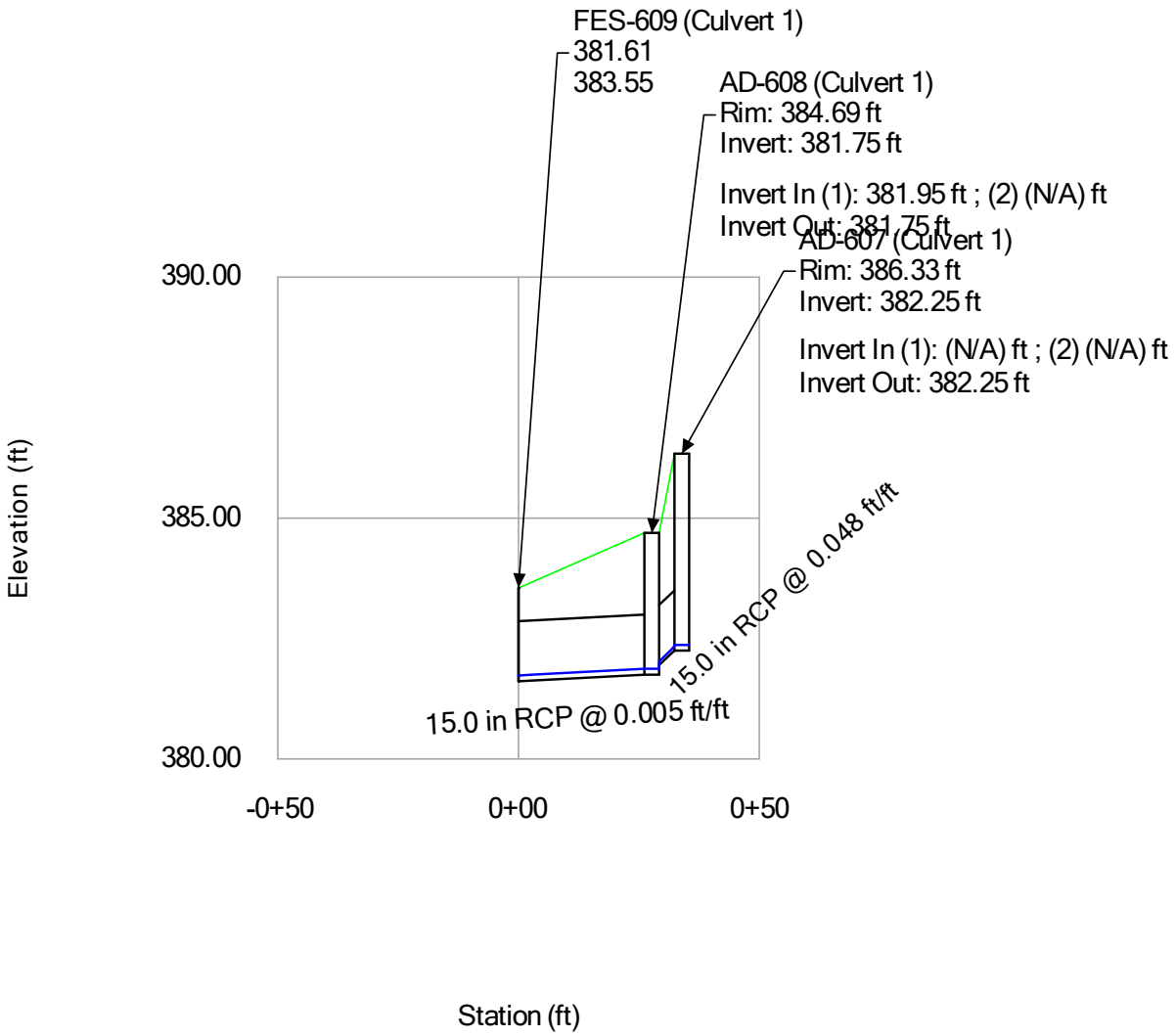
BYPASS 10-YR


FES 1302B (Culvert 1)
Rim: 398.89 ft
Invert: 397.22 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.22 ft
DMH-1301
396.34
399.82
FES 1301A (Culvert 1)
Rim: 399.40 ft
Invert: 397.73 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 397.73 ft
9.3 ft 12" RCP @ 0.073 ft/ft
11.8 ft 12" RCP @ 0.101 ft/ft
400.00
395.00
Elevation (ft)
-0+50
0+00
0+50
Station (ft)

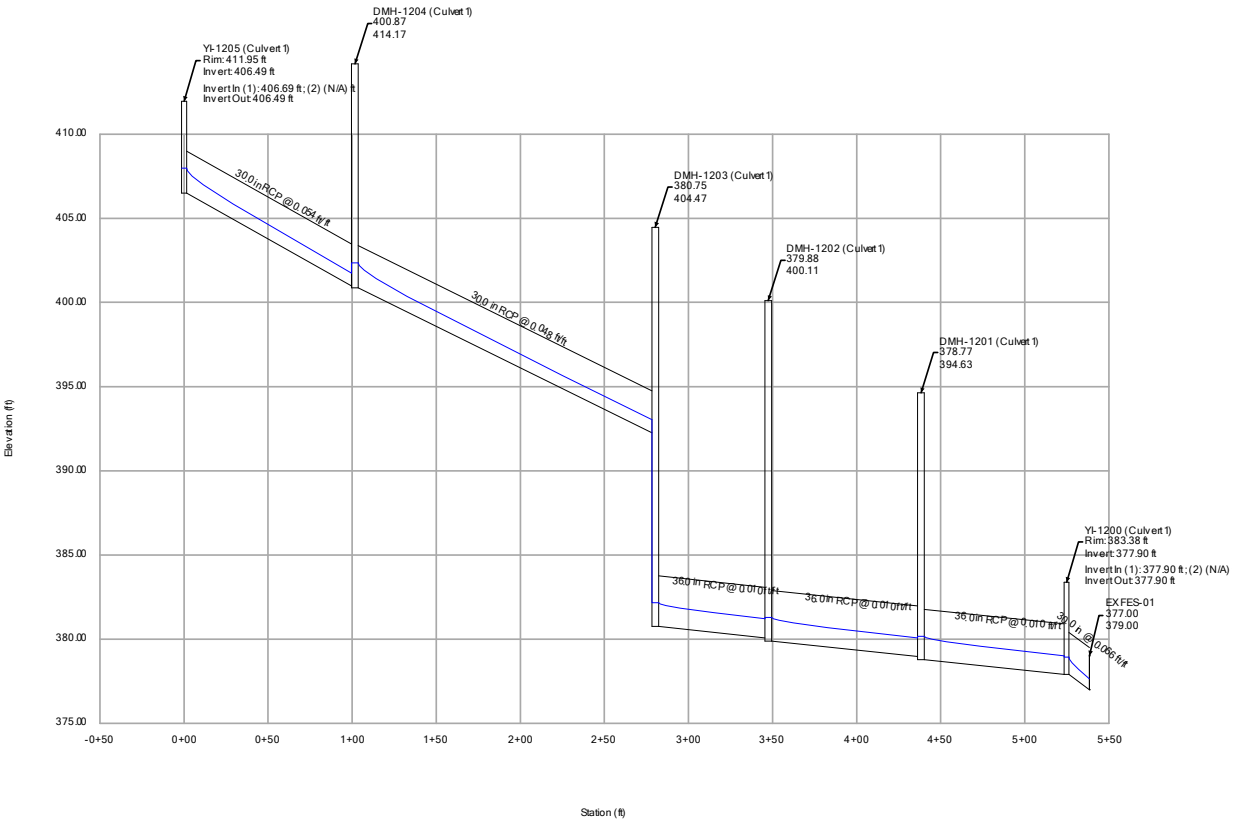
BYPASS 10-YR

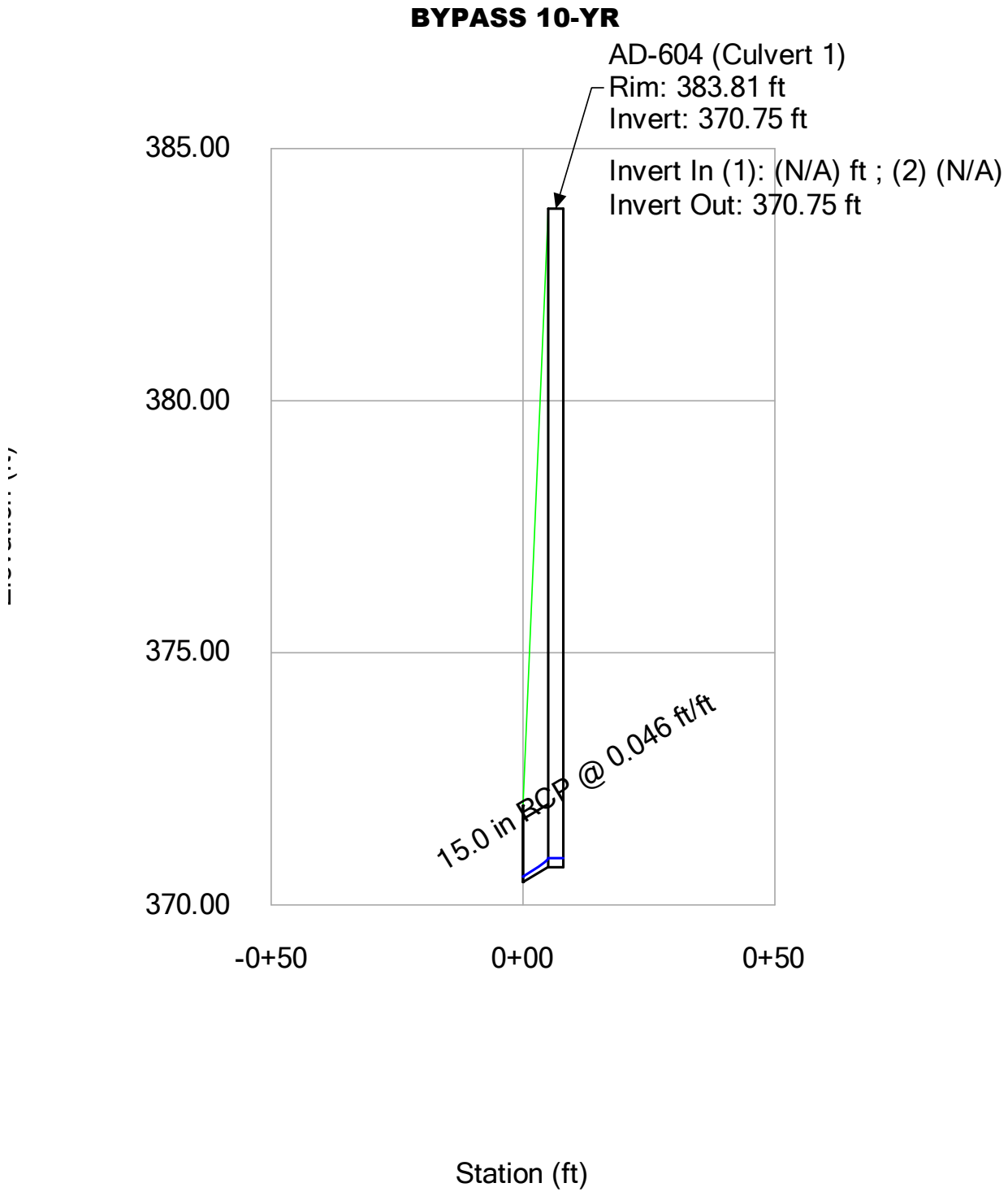

FES-606 (Culvert 1)
374.25
376.19
DI-605 (Culvert 1)
Rim: 377.65 ft
Invert: 374.71 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 374.71 ft
380.00
375.00
370.00
Elevation (ft)
15.0 in RCP @ 0.021 ft/ft
-0+50
0+00
0+50
Station (ft)

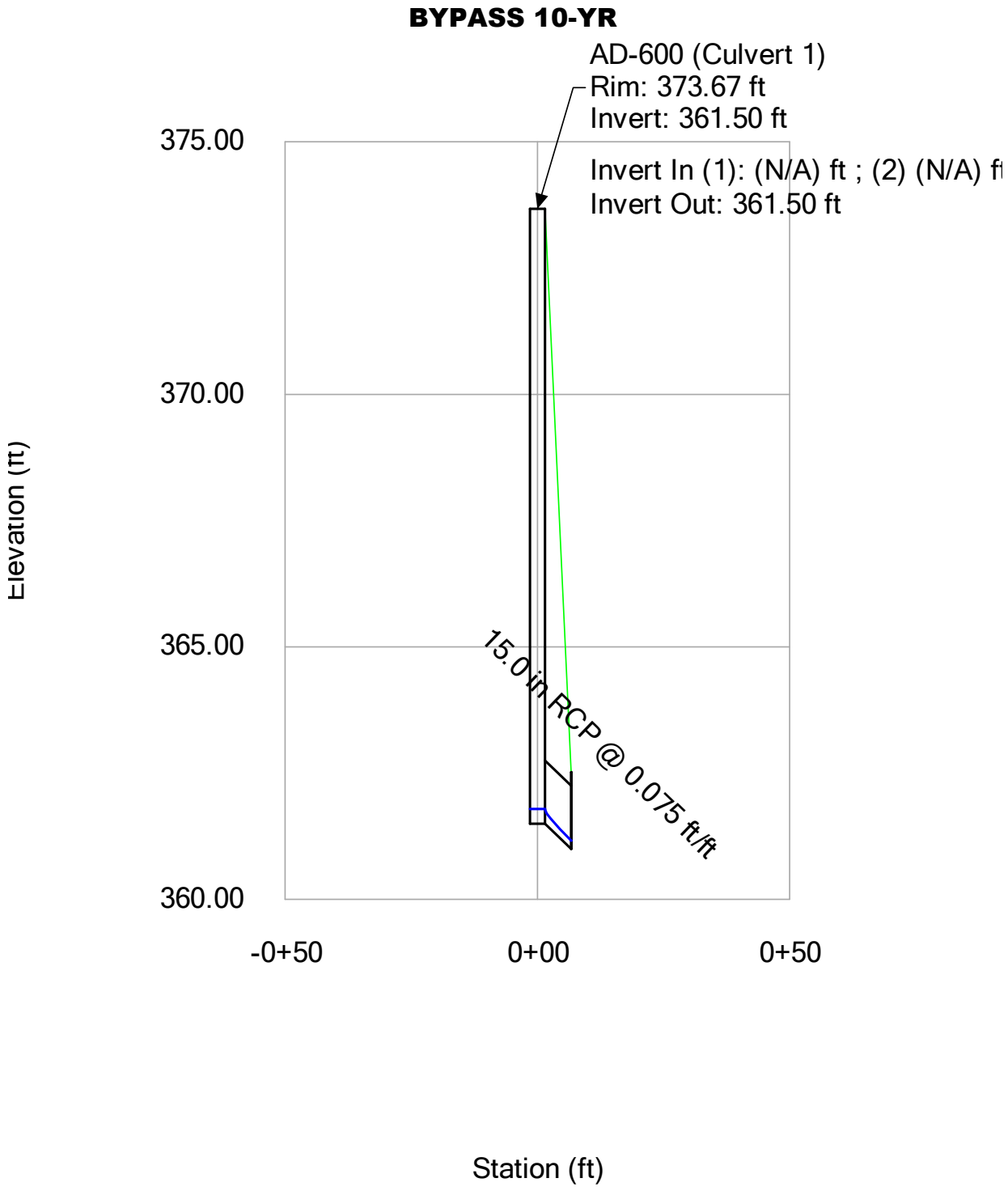
BYPASS 10-YR


FES-609 (Culvert 1)
381.61
383.55
AD-608 (Culvert 1)
Rim: 384.69 ft
Invert: 381.75 ft
Invert In (1): 381.95 ft ; (2) (N/A) ft
Invert Out: 381.75 ft
AD-607 (Culvert 1)
Rim: 386.33 ft
Invert: 382.25 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 382.25 ft
390.00
385.00
380.00
Elevation (ft)
15.0 in RCP @ 0.048 ft/ft
15.0 in RCP @ 0.005 ft/ft
-0+50
0+00
0+50
Station (ft)

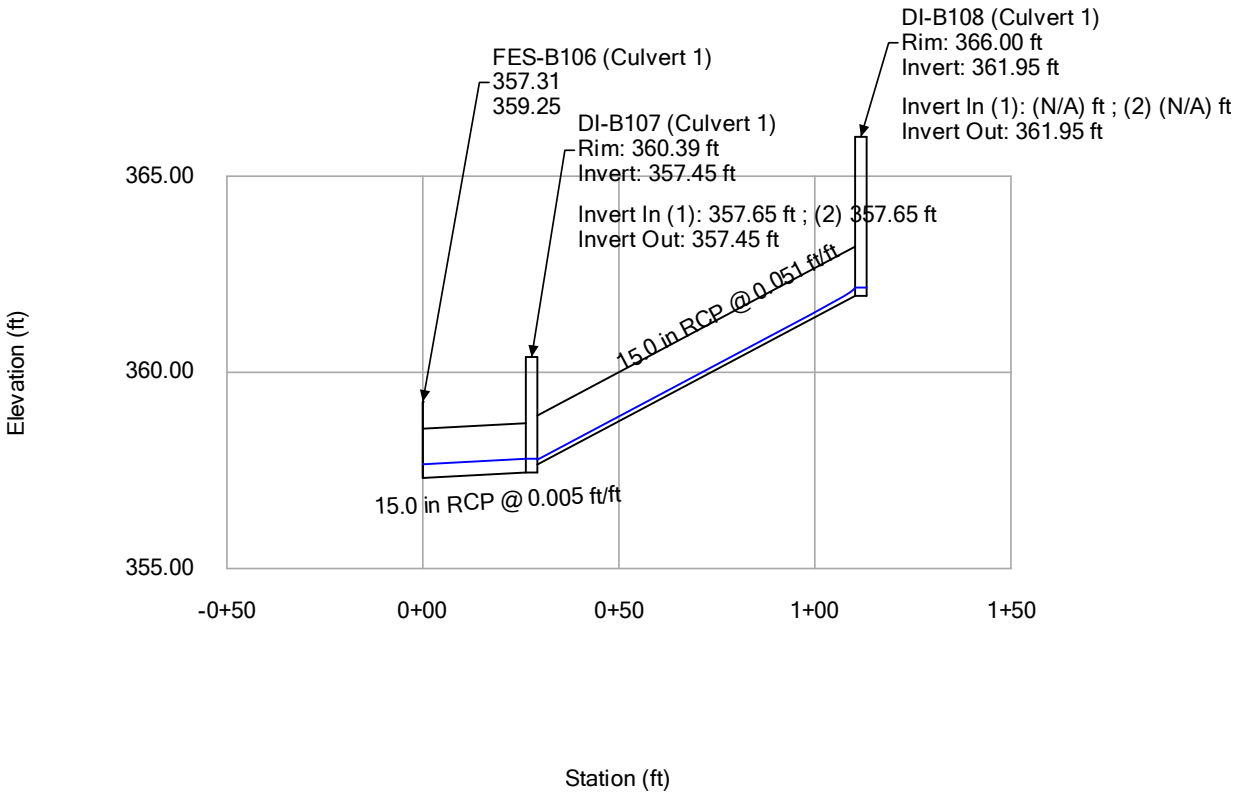
BYPASS 10-YR


DMH-1204 (Culvert 1)
400.87
414.17
YI-1205 (Culvert 1)
Rim: 411.95 ft
Invert: 406.49 ft
Invert In (1): 406.69 ft; (2) (N/A) ft
Invert Out: 406.49 ft
DMH-1203 (Culvert 1)
380.75
404.47
DMH-1202 (Culvert 1)
379.88
400.11
DMH-1201 (Culvert 1)
378.77
394.63
YI-1200 (Culvert 1)
Rim: 383.38 ft
Invert: 377.90 ft
Invert In (1): 377.90 ft; (2) (N/A)
Invert Out: 377.90 ft
EXFES-01
377.00
379.00
30.0 in RCP @ 0.054 ft/ft
30.0 in RCP @ 0.049 ft/ft
36.0 in RCP @ 0.010 ft/ft
36.0 in RCP @ 0.010 ft/ft
36.0 in RCP @ 0.010 ft/ft
30.0 in RCP @ 0.066 ft/ft
410.00
405.00
400.00
395.00
390.00
385.00
380.00
375.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
4+00
4+50
5+00
5+50
Station (ft)

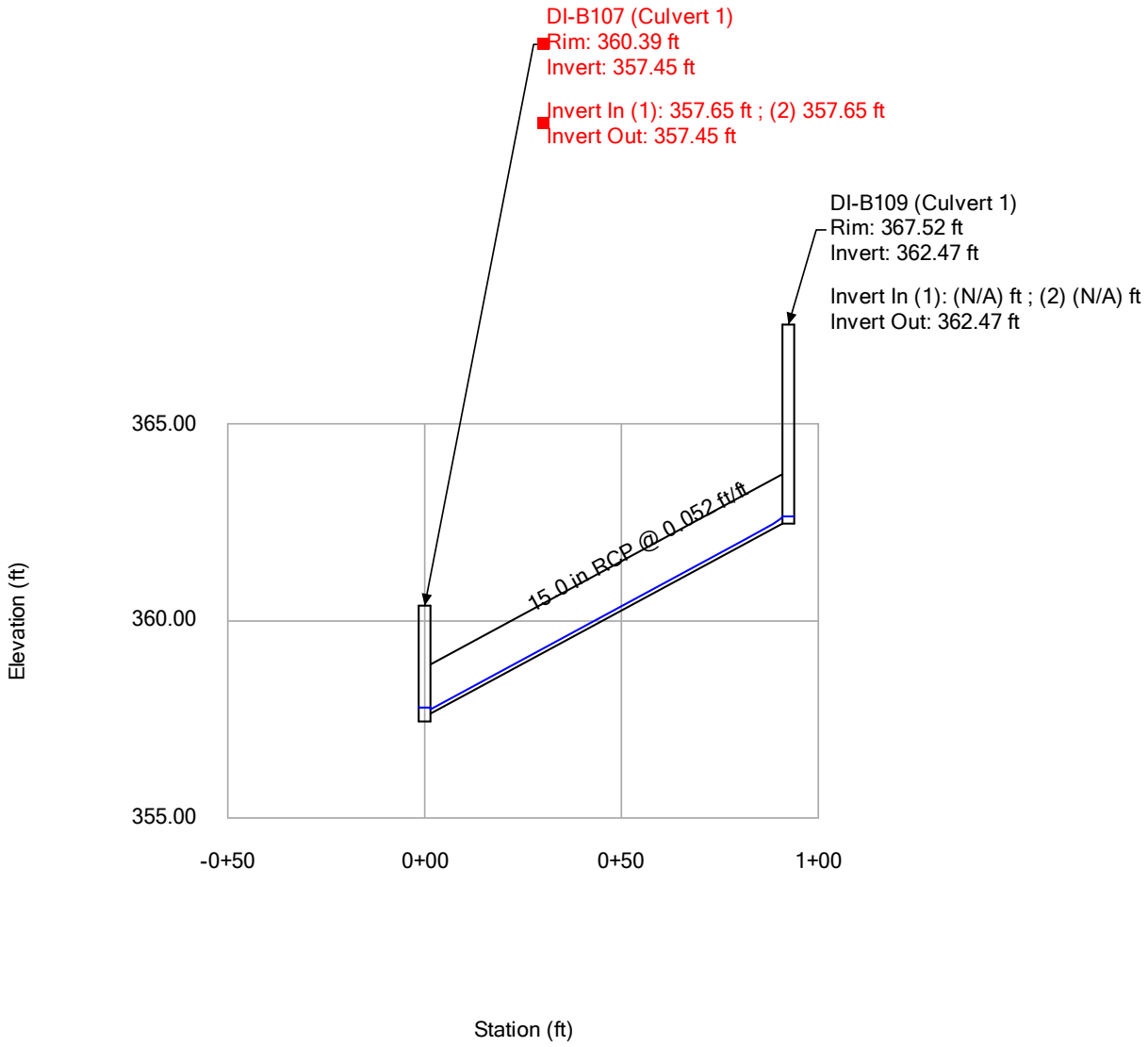

BYPASS 10-YR
AD-604 (Culvert 1)
Rim: 383.81 ft
Invert: 370.75 ft
Invert In (1): (N/A) ft ; (2) (N/A)
Invert Out: 370.75 ft
385.00
380.00
375.00
370.00
15.0 in RCP @ 0.046 ft/ft
-0+50
0+00
0+50
Station (ft)


BYPASS 10-YR
AD-600 (Culvert 1)
Rim: 373.67 ft
Invert: 361.50 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 361.50 ft
375.00
370.00
365.00
360.00
Elevation (ft)
15.0 in RCP @ 0.075 ft/ft
-0+50
0+00
0+50
Station (ft)

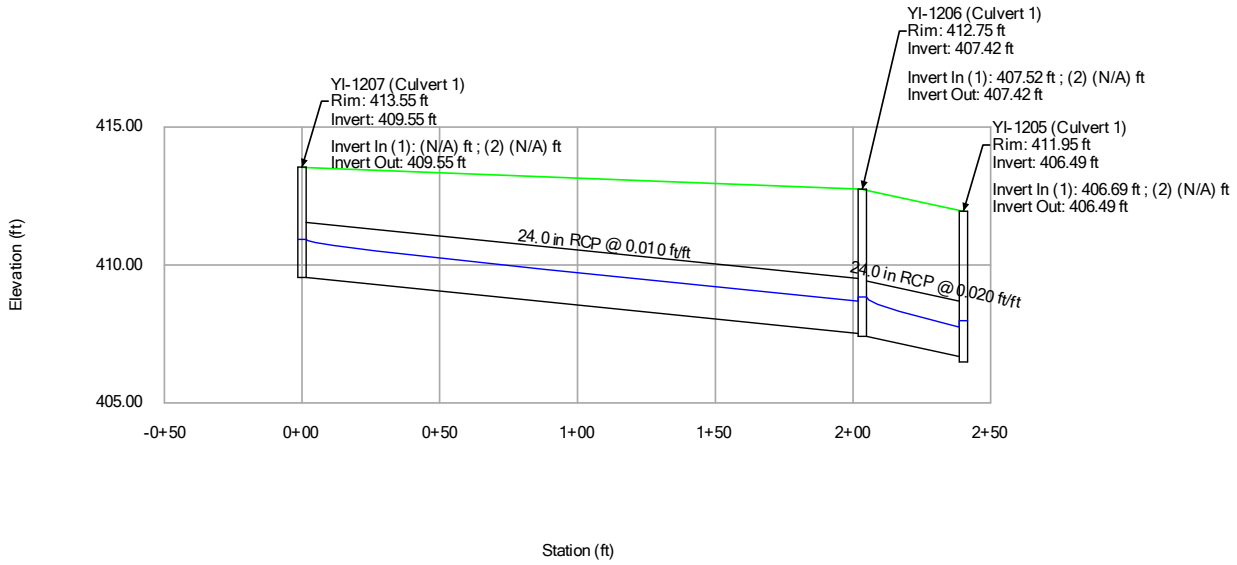
BYPASS 10-YR


DI-B108 (Culvert 1)
Rim: 366.00 ft
Invert: 361.95 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 361.95 ft
FES-B106 (Culvert 1)
357.31
359.25
DI-B107 (Culvert 1)
Rim: 360.39 ft
Invert: 357.45 ft
Invert In (1): 357.65 ft ; (2) 357.65 ft
Invert Out: 357.45 ft
15.0 in RCP @ 0.051 ft/ft
15.0 in RCP @ 0.005 ft/ft
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)

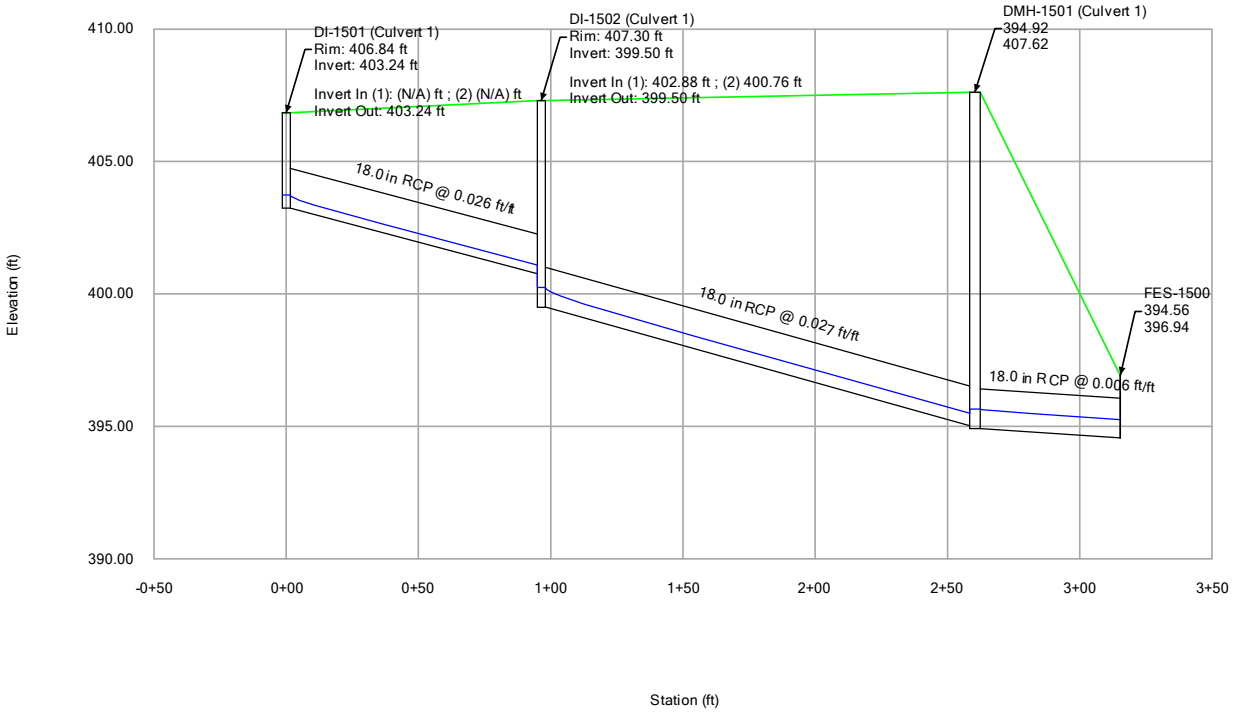
BYPASS 10-YR


DI-B107 (Culvert 1)
Rim: 360.39 ft
Invert: 357.45 ft
Invert In (1): 357.65 ft ; (2) 357.65 ft
Invert Out: 357.45 ft
DI-B109 (Culvert 1)
Rim: 367.52 ft
Invert: 362.47 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 362.47 ft
15.0 in RCP @ 0.052 ft/ft
365.00
360.00
355.00
Elevation (ft)
-0+50
0+00
0+50
1+00
Station (ft)

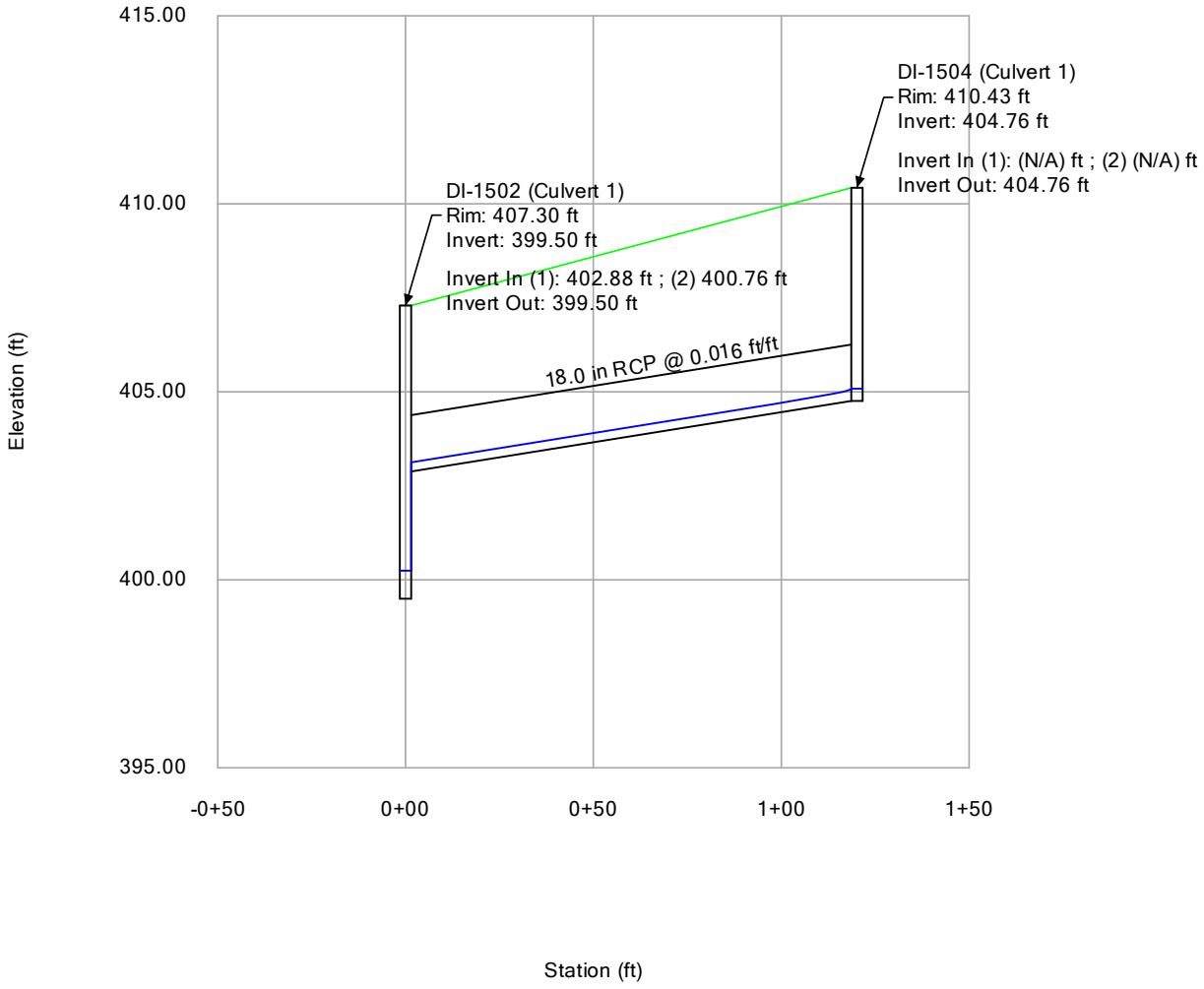
BYPASS 10-YR


YI-1206 (Culvert 1)
Rim: 412.75 ft
Invert: 407.42 ft
Invert In (1): 407.52 ft ; (2) (N/A) ft
Invert Out: 407.42 ft
YI-1207 (Culvert 1)
Rim: 413.55 ft
Invert: 409.55 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 409.55 ft
YI-1205 (Culvert 1)
Rim: 411.95 ft
Invert: 406.49 ft
Invert In (1): 406.69 ft ; (2) (N/A) ft
Invert Out: 406.49 ft
24.0 in RCP @ 0.010 ft/ft
24.0 in RCP @ 0.020 ft/ft
415.00
410.00
405.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
Station (ft)

BYPASS 10-YR

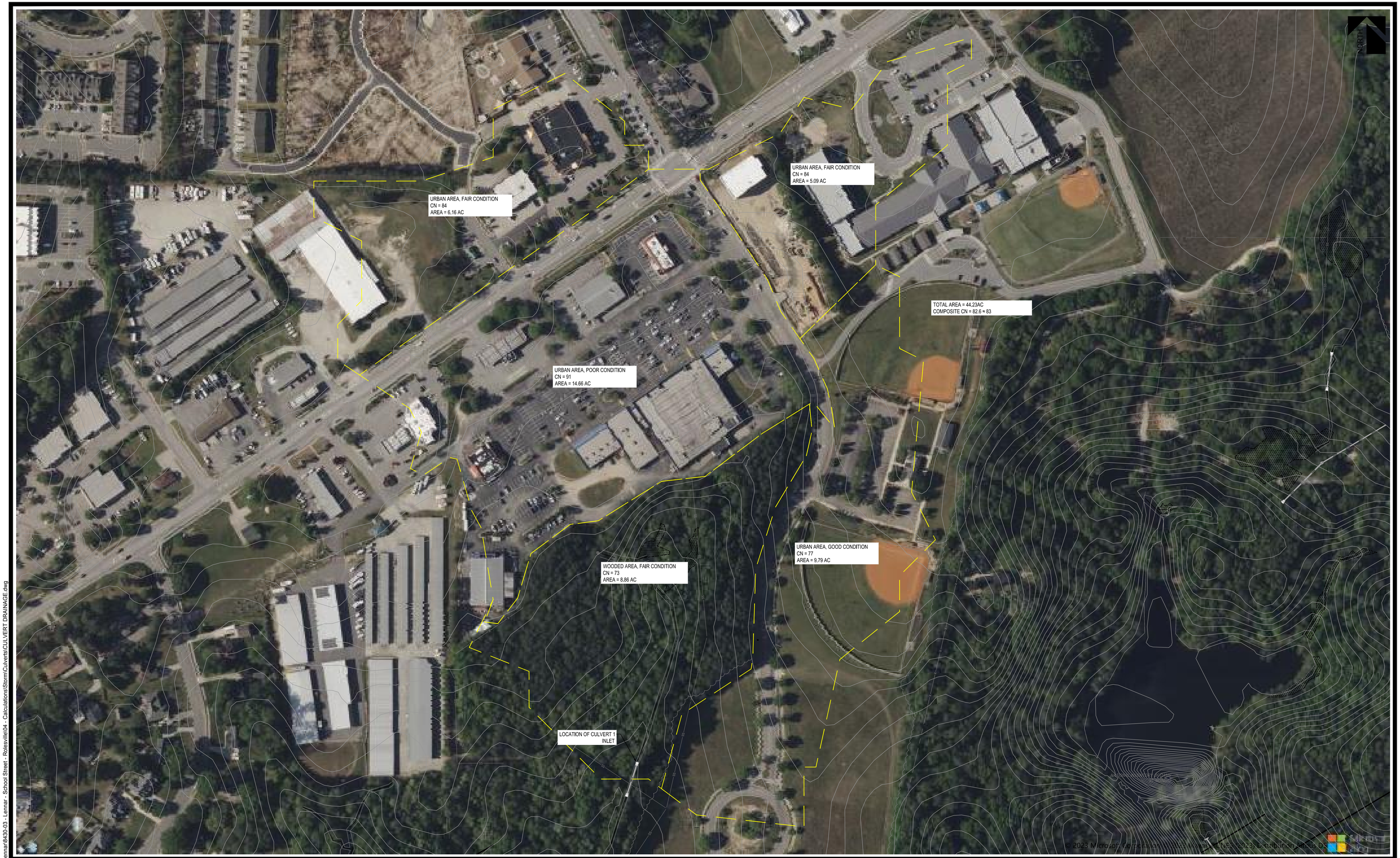

DI-1501 (Culvert 1)
Rim: 406.84 ft
Invert: 403.24 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 403.24 ft
DI-1502 (Culvert 1)
Rim: 407.30 ft
Invert: 399.50 ft
Invert In (1): 402.88 ft ; (2) 400.76 ft
Invert Out: 399.50 ft
DMH-1501 (Culvert 1)
394.92
407.62
FES-1500
394.56
396.94
18.0 in RCP @ 0.026 ft/ft
18.0 in RCP @ 0.027 ft/ft
18.0 in RCP @ 0.006 ft/ft
410.00
405.00
400.00
395.00
390.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
2+00
2+50
3+00
3+50
Station (ft)

BYPASS 10-YR


415.00
410.00
405.00
400.00
395.00
Elevation (ft)
-0+50
0+00
0+50
1+00
1+50
Station (ft)
DI-1504 (Culvert 1)
Rim: 410.43 ft
Invert: 404.76 ft
Invert In (1): (N/A) ft ; (2) (N/A) ft
Invert Out: 404.76 ft
DI-1502 (Culvert 1)
Rim: 407.30 ft
Invert: 399.50 ft
Invert In (1): 402.88 ft ; (2) 400.76 ft
Invert Out: 399.50 ft
18.0 in RCP @ 0.016 ft/ft

CULVERT CALCULATIONS

CULVERT 1



BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
www.bgeinc.com
NC LICENSE #C-4397

CULVERT 1 DRAINAGE AREA

DATE: 7/10/2023

0 100' 200' 300'
SCALE: 1" = 100'

G:\NCA\Projects\Lennar\8430-03 - Lennar - School Street - Rolesville\04 - Calculations\Storm\Culverts\CULVERT DRAINAGE.dwg

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BGE INC. SHALL BE WITHOUT LIABILITY TO BGE INC.

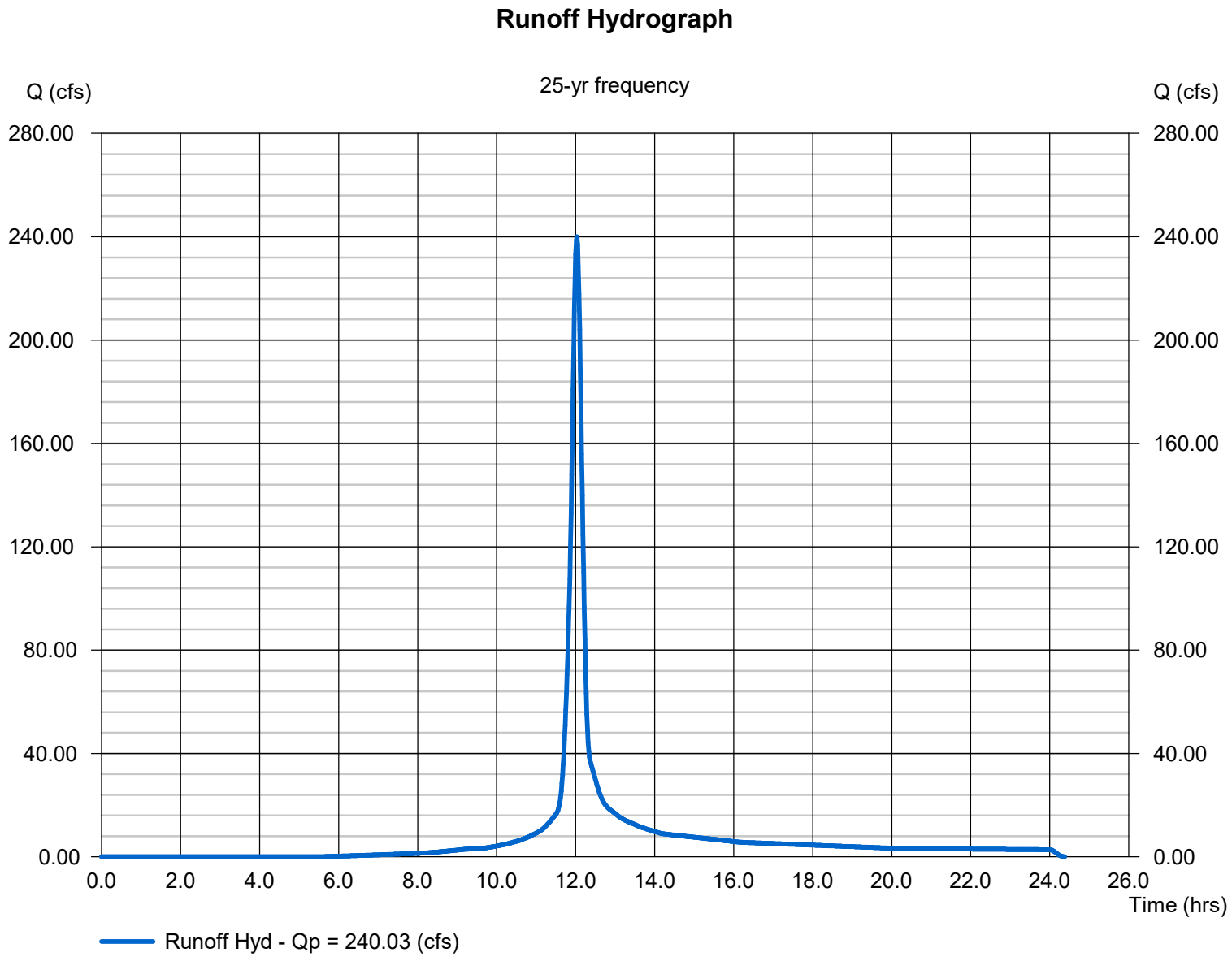
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 1 HYDROLOGY

Hydrograph type	= SCS	Peak discharge (cfs)	= 240.03
Storm frequency (yrs)	= 25	Time interval (min)	= 1
Drainage area (ac)	= 44.230	Curve number (CN)	= 83
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 14
Total precip. (in)	= 6.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 656,889 (cuft); 15.080 (acft)



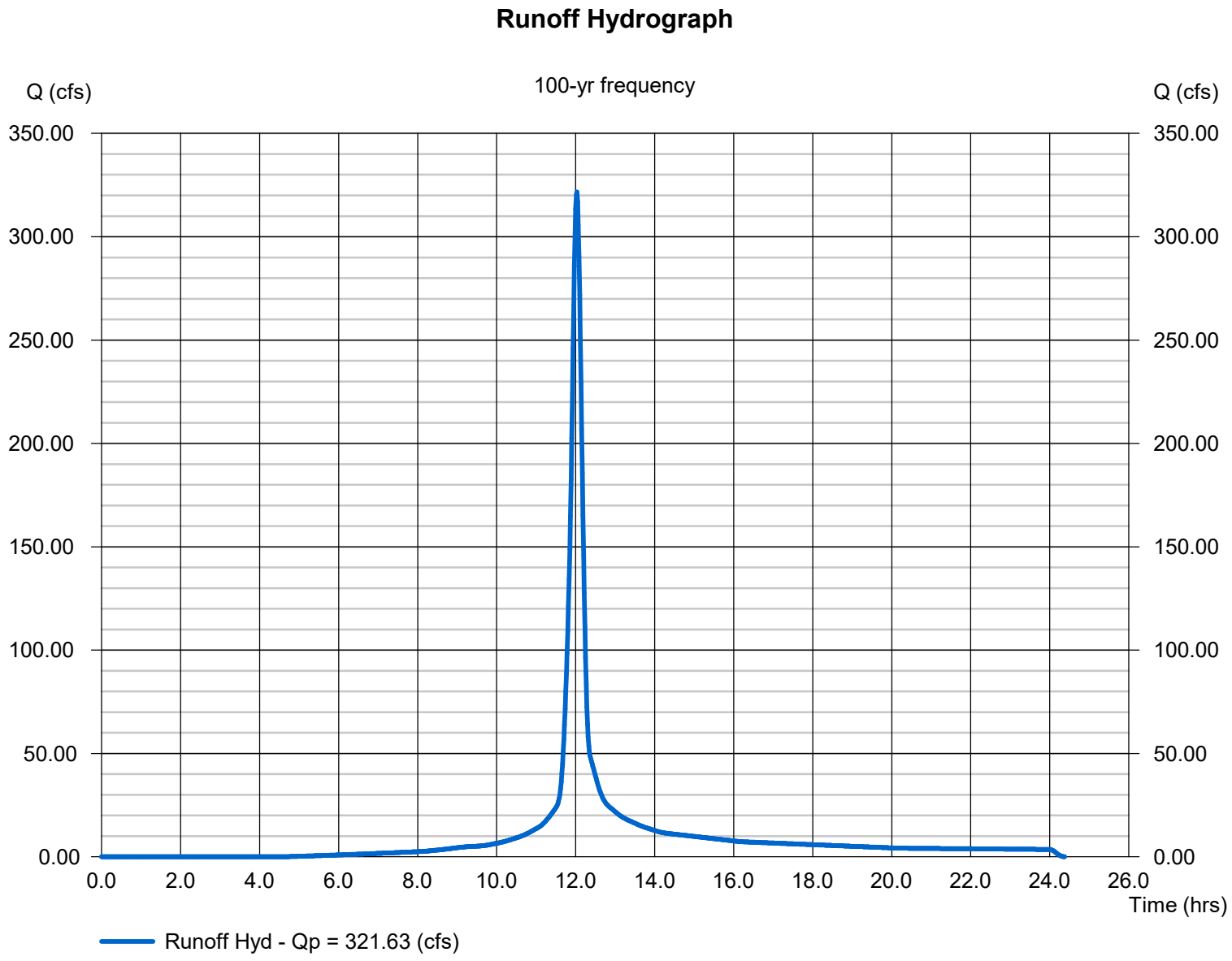
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 1 HYDROLOGY

Hydrograph type	= SCS	Peak discharge (cfs)	= 321.63
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 44.230	Curve number (CN)	= 83
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 14
Total precip. (in)	= 7.56	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 892,400 (cuft); 20.487 (acft)



TR55 Tc Worksheet

Hydraflow Express by Intelisolve

SCS

CULVERT 1 HYDROLOGY

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.011		0.400		0.011		
Flow length (ft)	=	300.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	3.46		0.00		0.00		
Land slope (%)	=	1.10		0.00		0.00		
Travel Time (min)	**=**	**3.56**	**+**	**0.00**	**+**	**0.00**	**=**	**3.56**
Shallow Concentrated Flow								
Flow length (ft)	=	791.00		0.00		0.00		
Watercourse slope (%)	=	1.50		0.00		0.00		
Surface description	=	Paved		Paved		Paved		
Average velocity (ft/s)	=	2.49		0.00		0.00		
Travel Time (min)	**=**	**5.30**	**+**	**0.00**	**+**	**0.00**	**=**	**5.30**
Channel Flow								
X sectional flow area ((sqft))	=	8.70		0.00		0.00		
Wetted perimeter ((ft))	=	8.76		0.00		0.00		
Channel slope (%)	=	0.35		0.00		0.00		
Manning's n-value	=	0.045		0.015		0.015		
Velocity (ft/s)	=	1.95		0.00		0.00		
Flow length (ft)	=	573.0		0.0		0.0		
Travel Time (min)	**=**	**4.8977380.00**		**0**	**+**	**0**	**=**	**4.90**

Total Travel Time, Tc ..... 14.00 min

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 1 (25-YR)

Invert Elev Dn (ft)	=	390.50
Pipe Length (ft)	=	89.75
Slope (%)	=	0.35
Invert Elev Up (ft)	=	390.81
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	48.0
No. Barrels	=	3
n-Value	=	0.013
Culvert Type	=	Skewed Headwall, Chamfered or Beveled Inlet Edges
Culvert Entrance	=	3/4-in chamfers, 15D skewed headwall
Coeff. K,M,c,Y,k	=	0.522, 0.667, 0.0402, 0.68, 0.2

Embankment

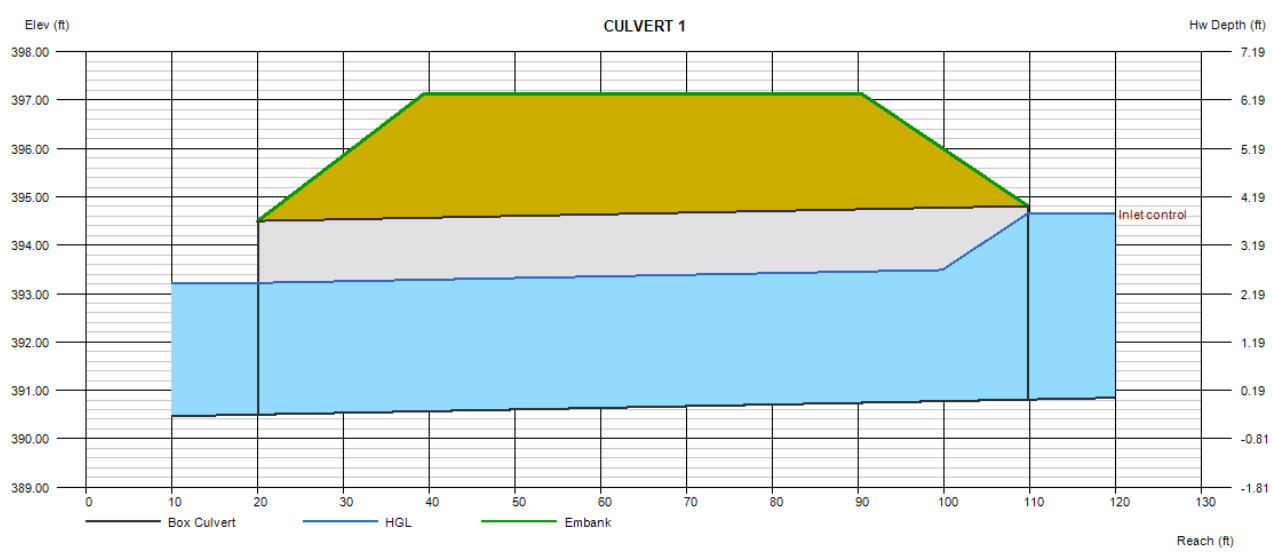
Top Elevation (ft)	=	397.13
Top Width (ft)	=	51.00
Crest Width (ft)	=	120.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	240.03
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	240.00
Qpipe (cfs)	=	240.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.35
Veloc Up (ft/s)	=	7.38
HGL Dn (ft)	=	393.22
HGL Up (ft)	=	393.52
Hw Elev (ft)	=	394.66
Hw/D (ft)	=	0.96
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 1 (100-YR)

Invert Elev Dn (ft)	=	390.50
Pipe Length (ft)	=	89.75
Slope (%)	=	0.35
Invert Elev Up (ft)	=	390.81
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	48.0
No. Barrels	=	3
n-Value	=	0.013
Culvert Type	=	Skewed Headwall, Chamfered or Beveled Inlet Edges
Culvert Entrance	=	3/4-in chamfers, 15D skewed headwall
Coeff. K,M,c,Y,k	=	0.522, 0.667, 0.0402, 0.68, 0.2

Embankment

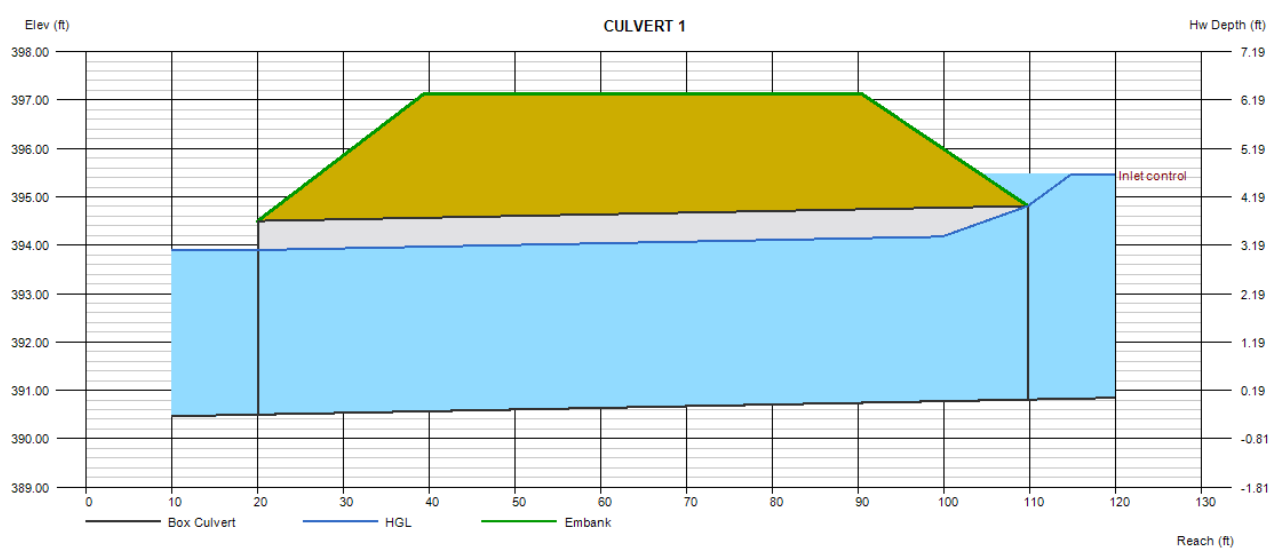
Top Elevation (ft)	=	397.13
Top Width (ft)	=	51.00
Crest Width (ft)	=	120.00

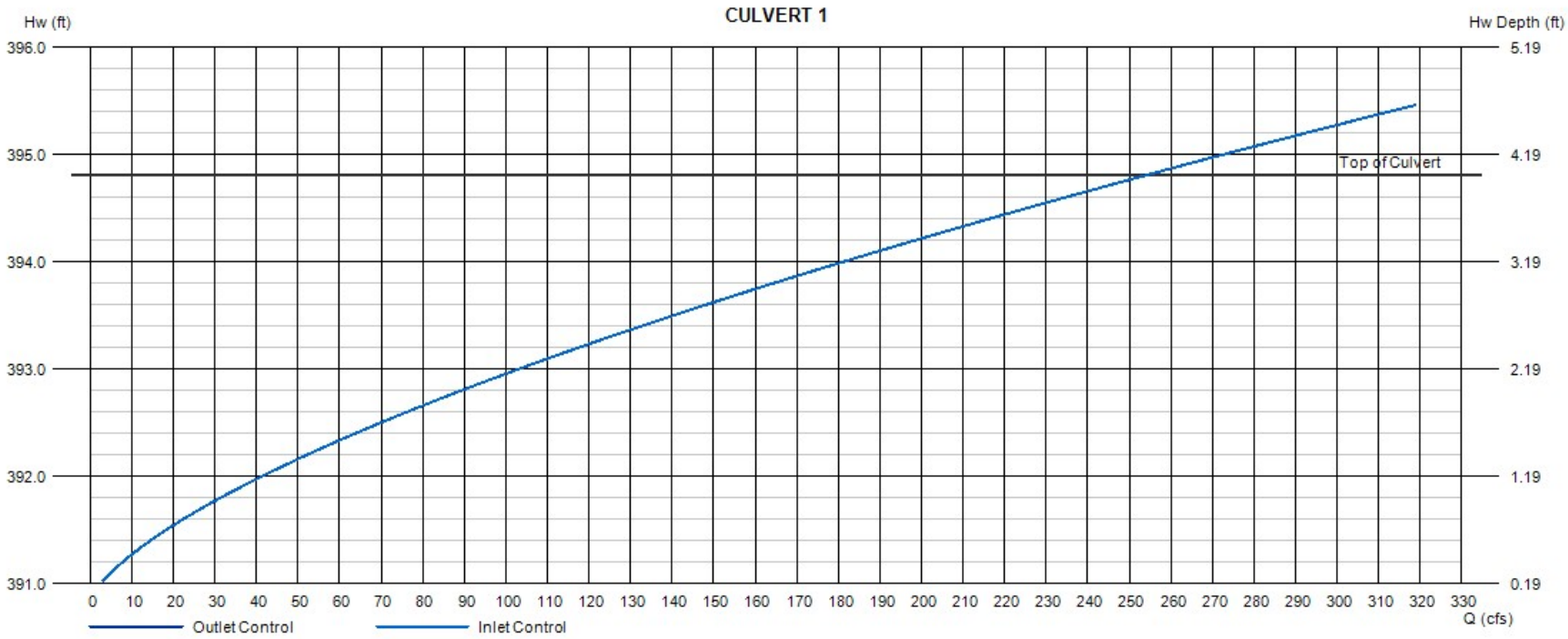
Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	321.63
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	318.78
Qpipe (cfs)	=	318.78
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	7.81
Veloc Up (ft/s)	=	7.81
HGL Dn (ft)	=	393.90
HGL Up (ft)	=	394.21
Hw Elev (ft)	=	395.46
Hw/D (ft)	=	1.16
Flow Regime	=	Inlet Control




CULVERT 1
Hw (ft)
Hw Depth (ft)
396.0
395.0
394.0
393.0
392.0
391.0
5.19
4.19
3.19
2.19
1.19
0.19
Top of Culvert
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330
Q (cfs)
Outlet Control
Inlet Control

CULVERT 2

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NC LICENSE #C-4397

CULVERT 2 DRAINAGE AREA

DATE: 7/10/2023

0 100' 200' 300'
SCALE: 1" = 100'

G:\NCA\Projects\Lennar\84430-03 - Lennar - School Street - Rolesville\04 - Calculations\Storm\Culverts\CULVERT DRAINAGE.dwg

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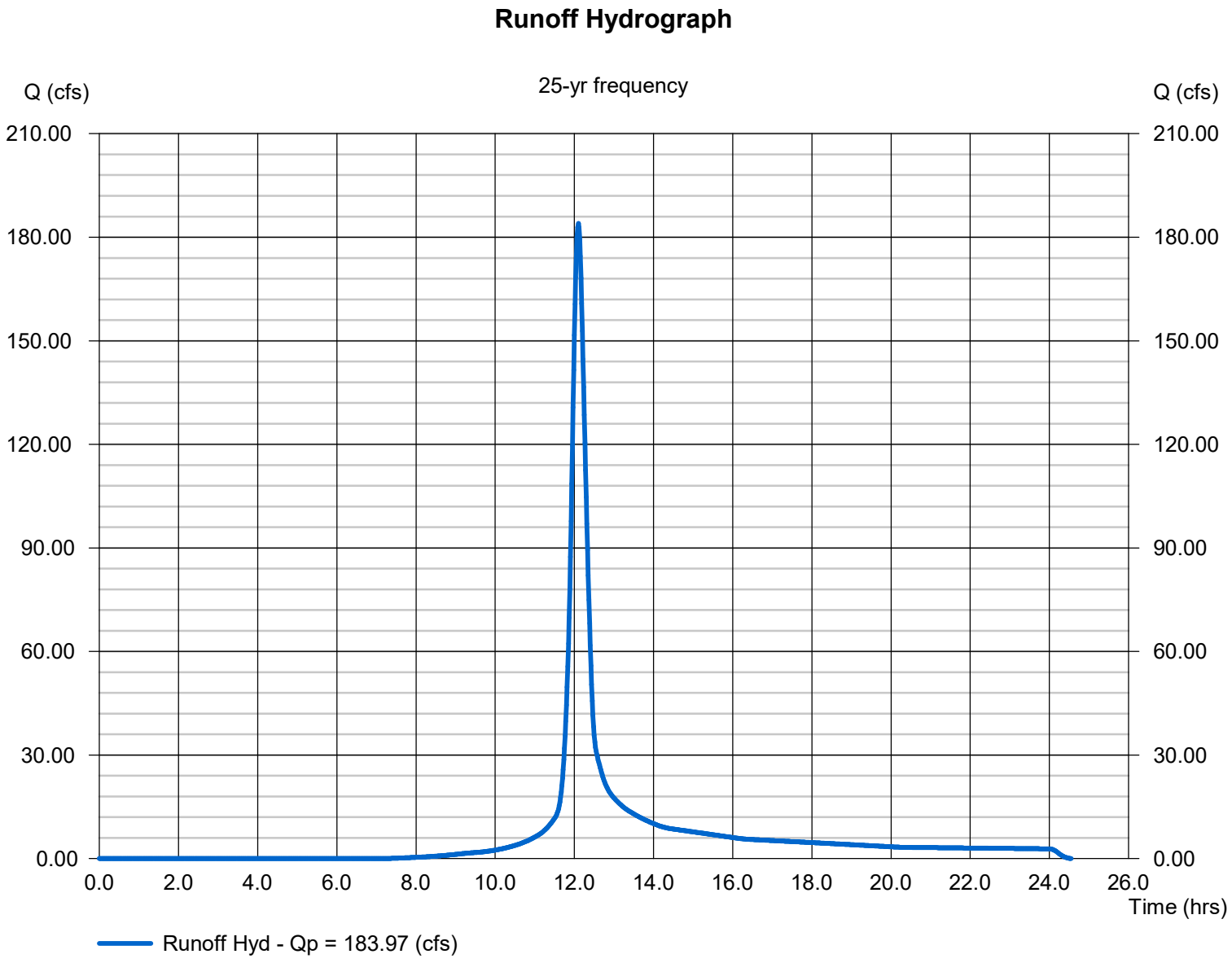
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 2 HYDROLOGY

Hydrograph type	= SCS	Peak discharge (cfs)	= 183.97
Storm frequency (yrs)	= 25	Time interval (min)	= 1
Drainage area (ac)	= 47.400	Curve number (CN)	= 77
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 21
Total precip. (in)	= 6.00	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 604,372 (cuft); 13.874 (acft)



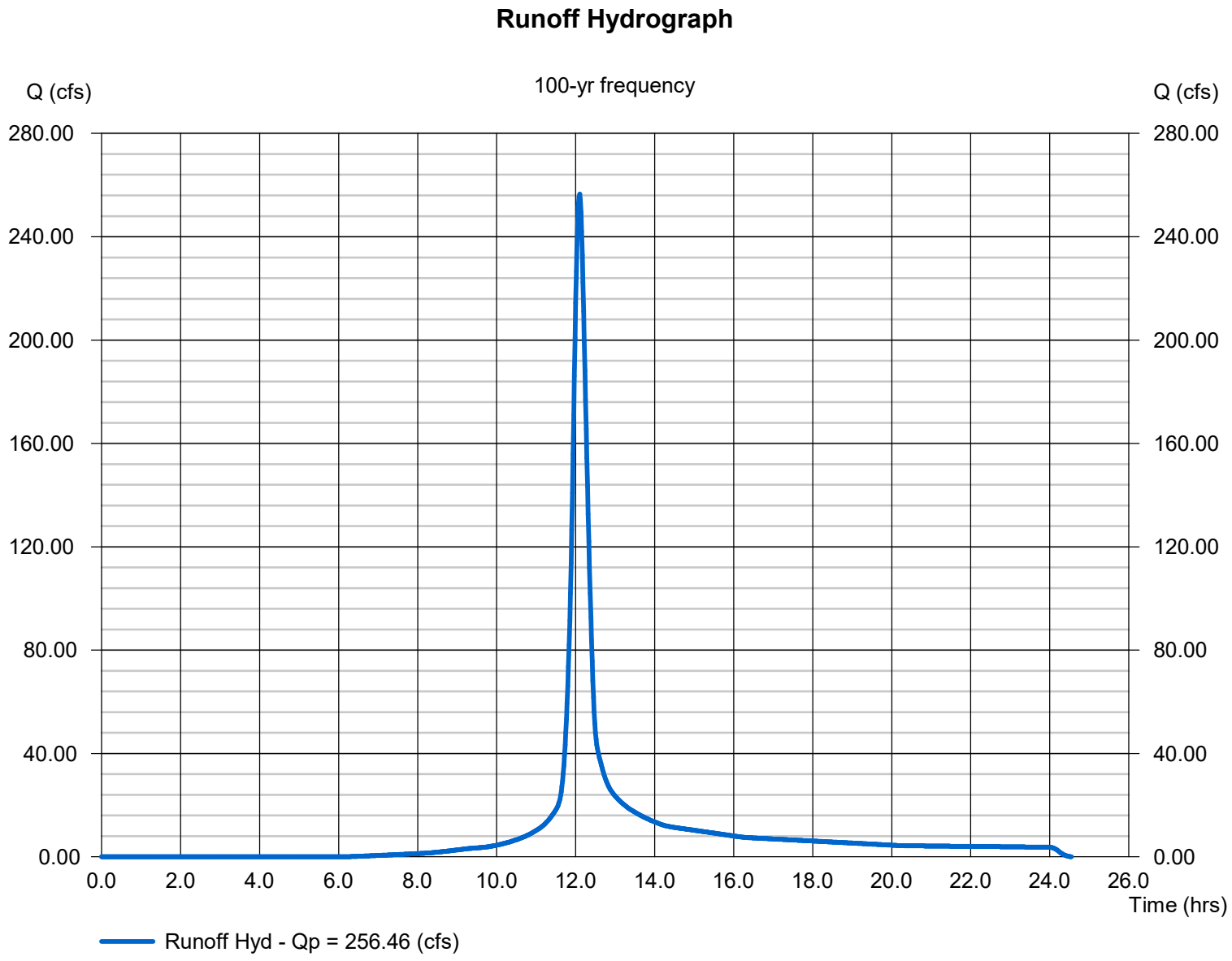
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 2 HYDROLOGY

Hydrograph type	= SCS	Peak discharge (cfs)	= 256.46
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 47.400	Curve number (CN)	= 77
Basin Slope (%)	= *See Worksheet*	Hydraulic length (ft)	= *See Worksheet*
Tc method	= TR55	Time of conc. (min)	= 21
Total precip. (in)	= 7.56	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 846,403 (cuft); 19.431 (acft)



TR55 Tc Worksheet

Hydraflow Express by Intelisolve

SCS

CULVERT 2 HYDROLOGY

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.050		0.011		0.011		
Flow length (ft)	=	300.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	3.46		0.00		0.00		
Land slope (%)	=	1.67		0.00		0.00		
Travel Time (min)	**=**	**10.13**	**+**	**0.00**	**+**	**0.00**	**=**	**10.13**
Shallow Concentrated Flow								
Flow length (ft)	=	1035.00		0.00		0.00		
Watercourse slope (%)	=	1.74		0.00		0.00		
Surface description	=	Unpaved		Paved		Paved		
Average velocity (ft/s)	=	2.13		0.00		0.00		
Travel Time (min)	**=**	**8.11**	**+**	**0.00**	**+**	**0.00**	**=**	**8.11**
Channel Flow								
X sectional flow area ((sqft))	=	2.92		0.00		0.00		
Wetted perimeter ((ft))	=	6.67		0.00		0.00		
Channel slope (%)	=	1.30		0.00		0.00		
Manning's n-value	=	0.025		0.015		0.015		
Velocity (ft/s)	=	3.91		0.00		0.00		
Flow length (ft)	=	700.0		0.0		0.0		
Travel Time (min)	**=**	**2.985979**	**0.00**	**0**	**+**	**0**	**=**	**2.99**

Total Travel Time, Tc ..... 21.00 min

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 2 (25-YR)

Invert Elev Dn (ft)	=	402.30
Pipe Length (ft)	=	96.70
Slope (%)	=	1.24
Invert Elev Up (ft)	=	403.50
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	48.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls, Top Edge Bevel
Culvert Entrance	=	18D to 33.7D wingwall flare, d=0.083D
Coeff. K,M,c,Y,k	=	0.486, 0.667, 0.0249, 0.83, 0.2

Embankment

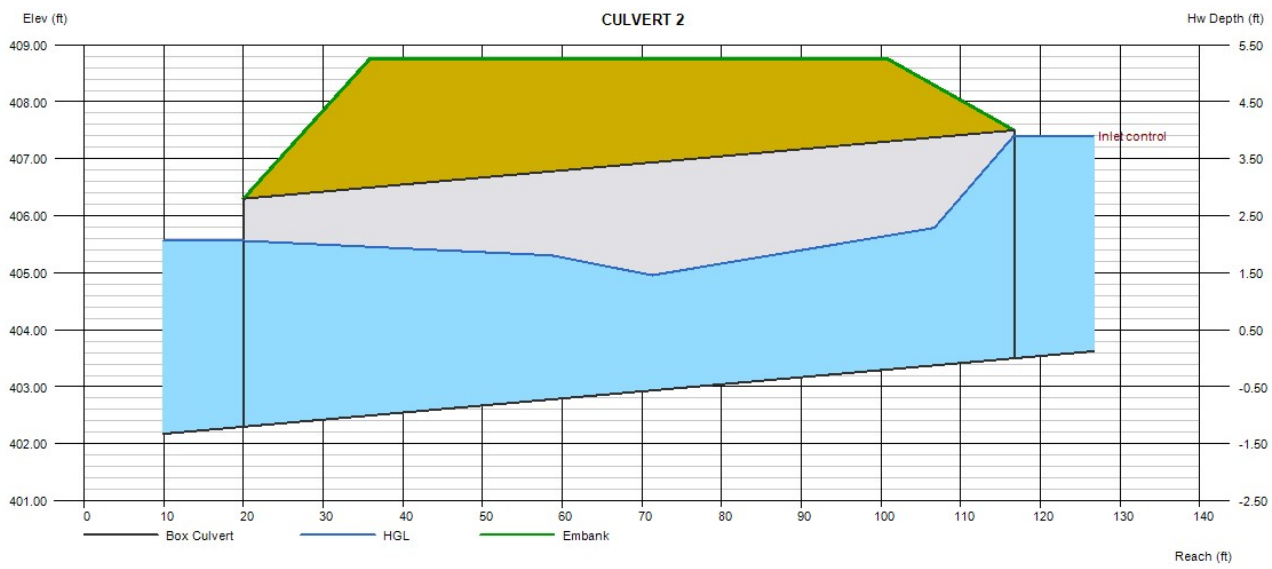
Top Elevation (ft)	=	408.75
Top Width (ft)	=	65.00
Crest Width (ft)	=	110.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	183.97
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	182.16
Qpipe (cfs)	=	182.16
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	6.98
Veloc Up (ft/s)	=	9.02
HGL Dn (ft)	=	405.56
HGL Up (ft)	=	406.02
Hw Elev (ft)	=	407.41
Hw/D (ft)	=	0.98
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 2 (100-YR)

Invert Elev Dn (ft)	=	402.30
Pipe Length (ft)	=	96.70
Slope (%)	=	1.24
Invert Elev Up (ft)	=	403.50
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	48.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls, Top Edge Bevel
Culvert Entrance	=	18D to 33.7D wingwall flare, d=0.083D
Coeff. K,M,c,Y,k	=	0.486, 0.667, 0.0249, 0.83, 0.2

Embankment

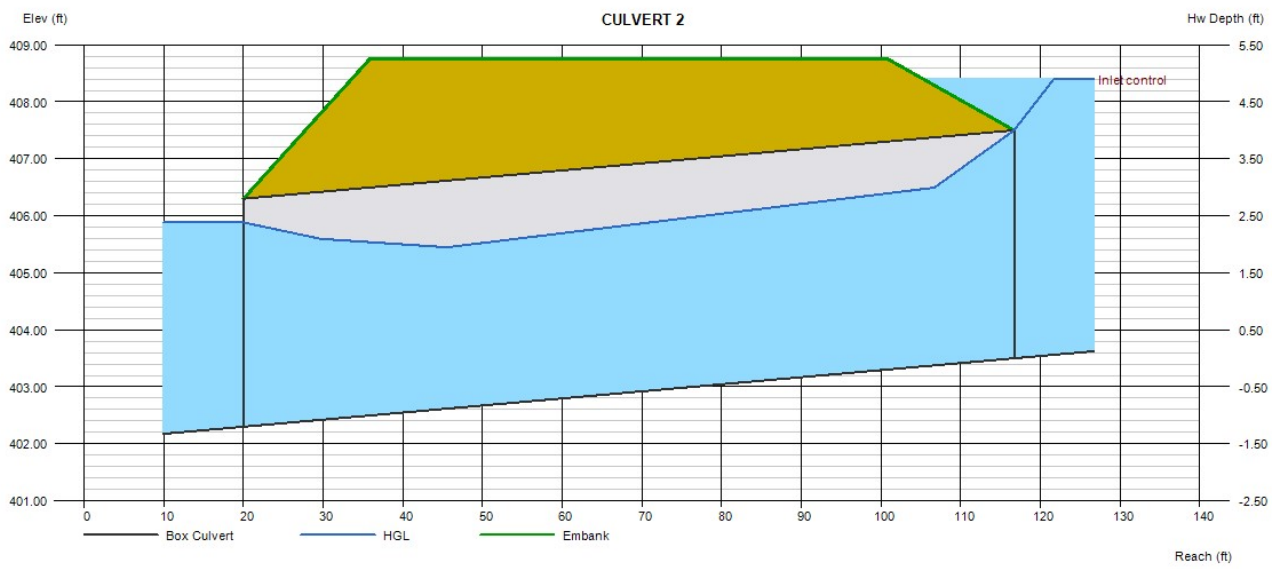
Top Elevation (ft)	=	408.75
Top Width (ft)	=	65.00
Crest Width (ft)	=	110.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	256.46
Tailwater Elev (ft)	=	(dc+D)/2

Highlighted

Qtotal (cfs)	=	256.00
Qpipe (cfs)	=	256.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	8.93
Veloc Up (ft/s)	=	10.11
HGL Dn (ft)	=	405.88
HGL Up (ft)	=	406.67
Hw Elev (ft)	=	408.40
Hw/D (ft)	=	1.23
Flow Regime	=	Inlet Control



CULVERT 3

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RALEIGH NC 27607
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NC LICENSE #C-4397

CULVERT 3 DRAINAGE AREA

DATE: 7/10/2023

0 150' 300' 450'
SCALE: 1" = 150'

G:\NCA\Projects\Lennar\8430-03 - Lennar - School Street - Rolesville\04 - Calculations\Storm\Culverts\CULVERT DRAINAGE.dwg

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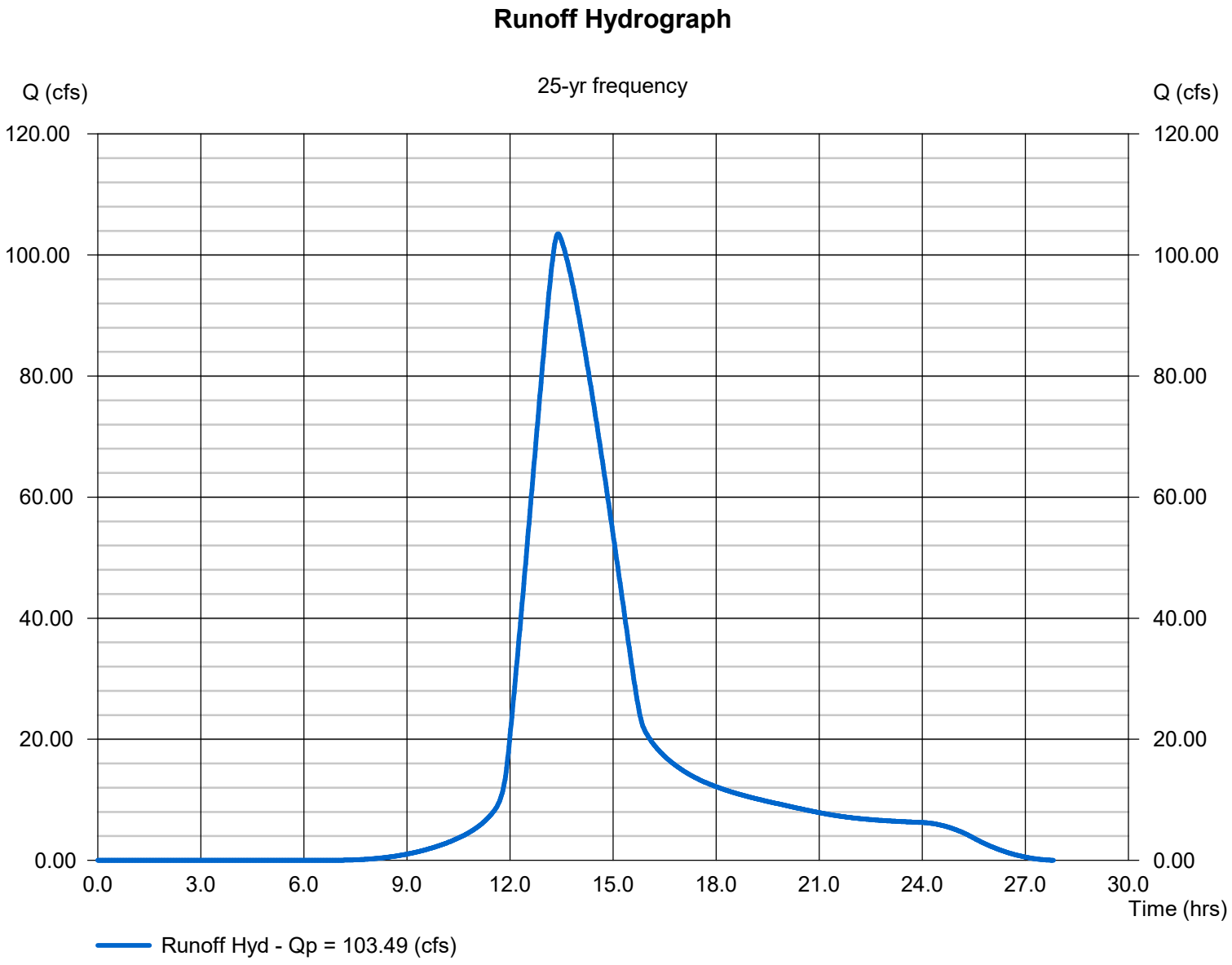
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 3 HYDROLOGY

Hydrograph type	=	SCS	Peak discharge (cfs)	=	103.49
Storm frequency (yrs)	=	25	Time interval (min)	=	1
Drainage area (ac)	=	101.200	Curve number (CN)	=	80
Basin Slope (%)	=	n/a	Hydraulic length (ft)	=	n/a
Tc method	=	User	Time of conc. (min)	=	150
Total precip. (in)	=	5.77	Storm Distribution	=	Type II
Storm duration (hrs)	=	24	Shape factor	=	484

Hydrograph Volume = 1,311,226 (cuft); 30.102 (acft)



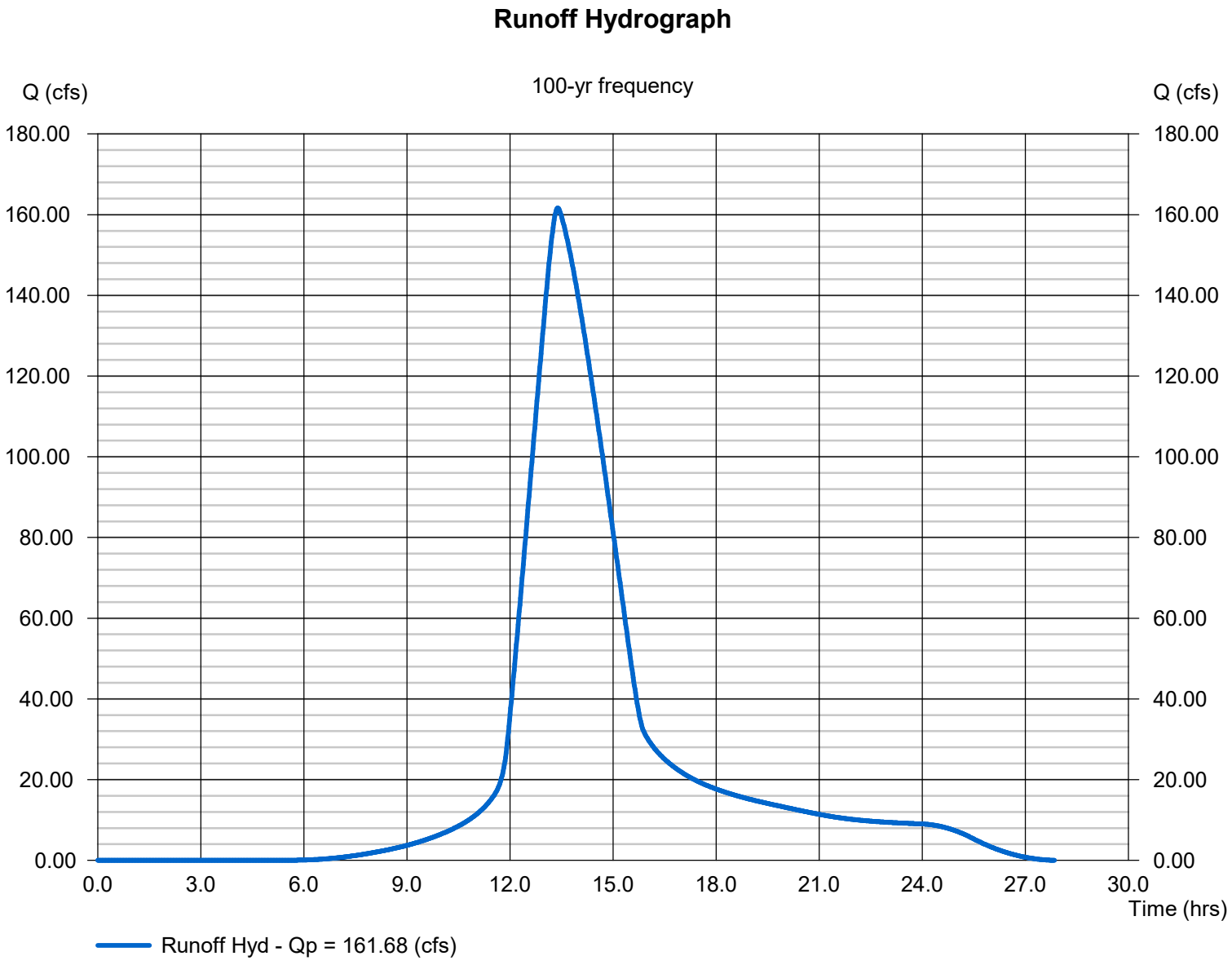
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 3 HYDROLOGY

Hydrograph type	= SCS	Peak discharge (cfs)	= 161.68
Storm frequency (yrs)	= 100	Time interval (min)	= 1
Drainage area (ac)	= 101.200	Curve number (CN)	= 80
Basin Slope (%)	= n/a	Hydraulic length (ft)	= n/a
Tc method	= User	Time of conc. (min)	= 150
Total precip. (in)	= 7.95	Storm Distribution	= Type II
Storm duration (hrs)	= 24	Shape factor	= 484

Hydrograph Volume = 2,046,288 (cuft); 46.976 (acft)



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 3 (25-YR)

Invert Elev Dn (ft)	=	346.23
Pipe Length (ft)	=	44.60
Slope (%)	=	0.83
Invert Elev Up (ft)	=	346.60
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Groove end w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0018, 2, 0.0292, 0.74, 0.2

Embankment

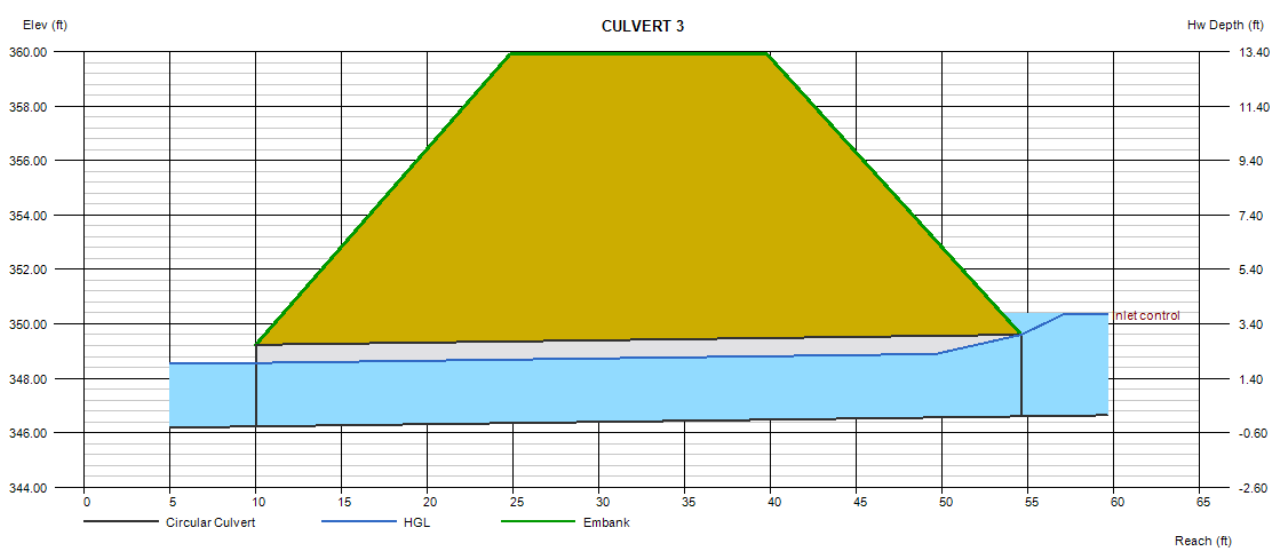
Top Elevation (ft)	=	359.90
Top Width (ft)	=	15.00
Crest Width (ft)	=	40.00

Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	103.49
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	103.00
Qpipe (cfs)	=	103.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	8.73
Veloc Up (ft/s)	=	8.73
HGL Dn (ft)	=	348.56
HGL Up (ft)	=	348.93
Hw Elev (ft)	=	350.36
Hw/D (ft)	=	1.25
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Monday, Oct 2 2023

CULVERT 3 (100-YR)

Invert Elev Dn (ft)	=	346.23
Pipe Length (ft)	=	44.60
Slope (%)	=	0.83
Invert Elev Up (ft)	=	346.60
Rise (in)	=	36.0
Shape	=	Circular
Span (in)	=	36.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Circular Concrete
Culvert Entrance	=	Groove end w/headwall (C)
Coeff. K,M,c,Y,k	=	0.0018, 2, 0.0292, 0.74, 0.2

Embankment

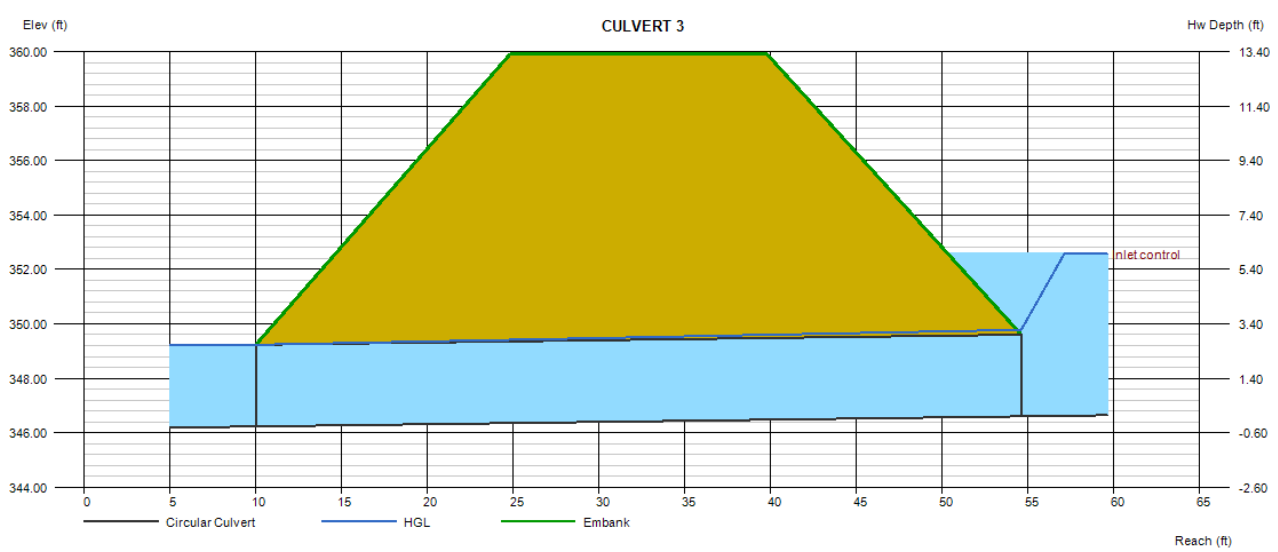
Top Elevation (ft)	=	359.90
Top Width (ft)	=	15.00
Crest Width (ft)	=	40.00

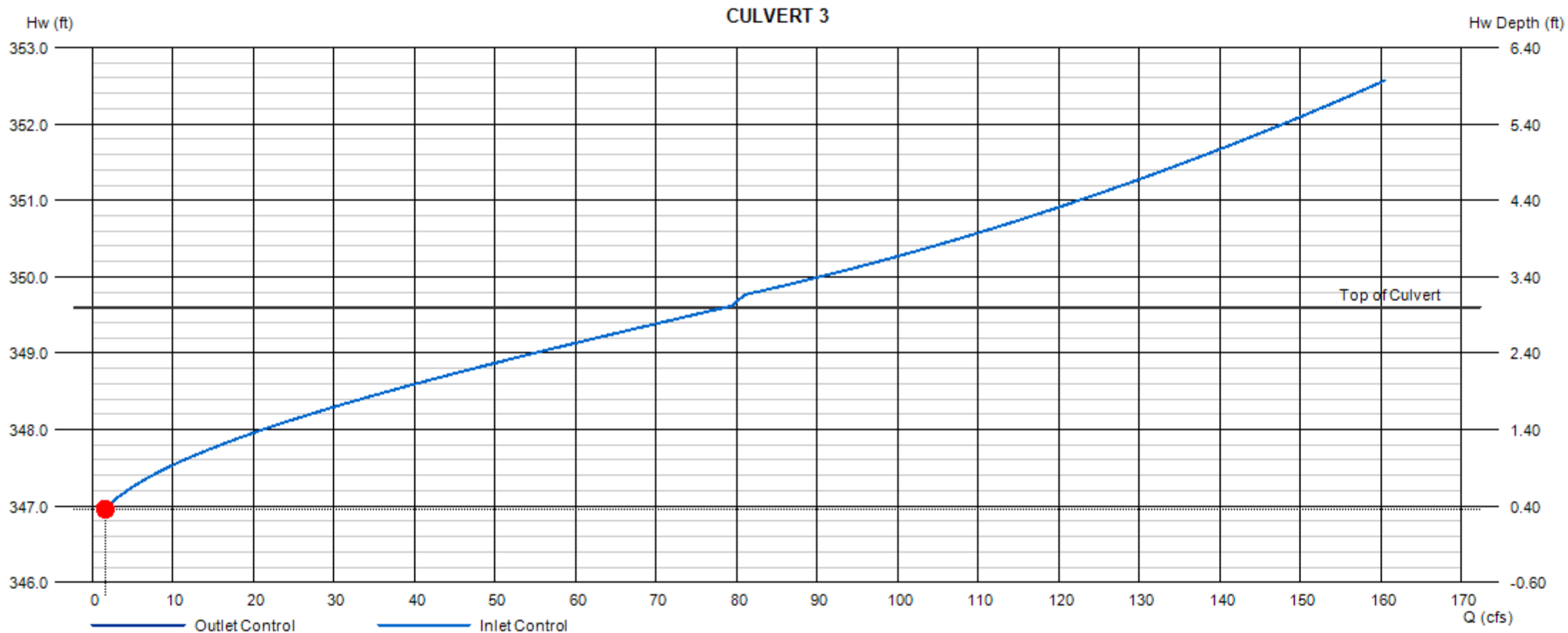
Calculations

Qmin (cfs)	=	0.00
Qmax (cfs)	=	161.68
Tailwater Elev (ft)	=	Normal

Highlighted

Qtotal (cfs)	=	160.38
Qpipe (cfs)	=	160.38
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	11.35
Veloc Up (ft/s)	=	11.34
HGL Dn (ft)	=	349.23
HGL Up (ft)	=	349.78
Hw Elev (ft)	=	352.57
Hw/D (ft)	=	1.99
Flow Regime	=	Inlet Control




CULVERT 3
Hw (ft)
Hw Depth (ft)
353.0
352.0
351.0
350.0
349.0
348.0
347.0
346.0
6.40
5.40
4.40
3.40
2.40
1.40
0.40
-0.60
Top of Culvert
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
Q (cfs)
Outlet Control
Inlet Control

CULVERT 4

BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
www.bgeinc.com
NC LICENSE #C-4397

CULVERT 4 DRAINAGE AREA

DATE: 7/10/2023

0 100' 200' 300'
SCALE: 1" = 100'

G:\NCA\Projects\Lennar\8430-03 - Lennar - School Street - Rolesville\04 - Calculations\Storm\Culverts\CULVERT DRAINAGE.dwg

THIS DOCUMENT, TOGETHER WITH THE CONCEPTS AND DESIGNS PRESENTED HEREIN, AS AN INSTRUMENT OF SERVICE, IS INTENDED ONLY FOR THE SPECIFIC PURPOSE AND CLIENT FOR WHICH IT WAS PREPARED. REUSE OF AND IMPROPER RELIANCE ON THIS DOCUMENT WITHOUT WRITTEN AUTHORIZATION AND ADAPTATION BY BGE INC. SHALL BE WITHOUT LIABILITY TO BGE INC.

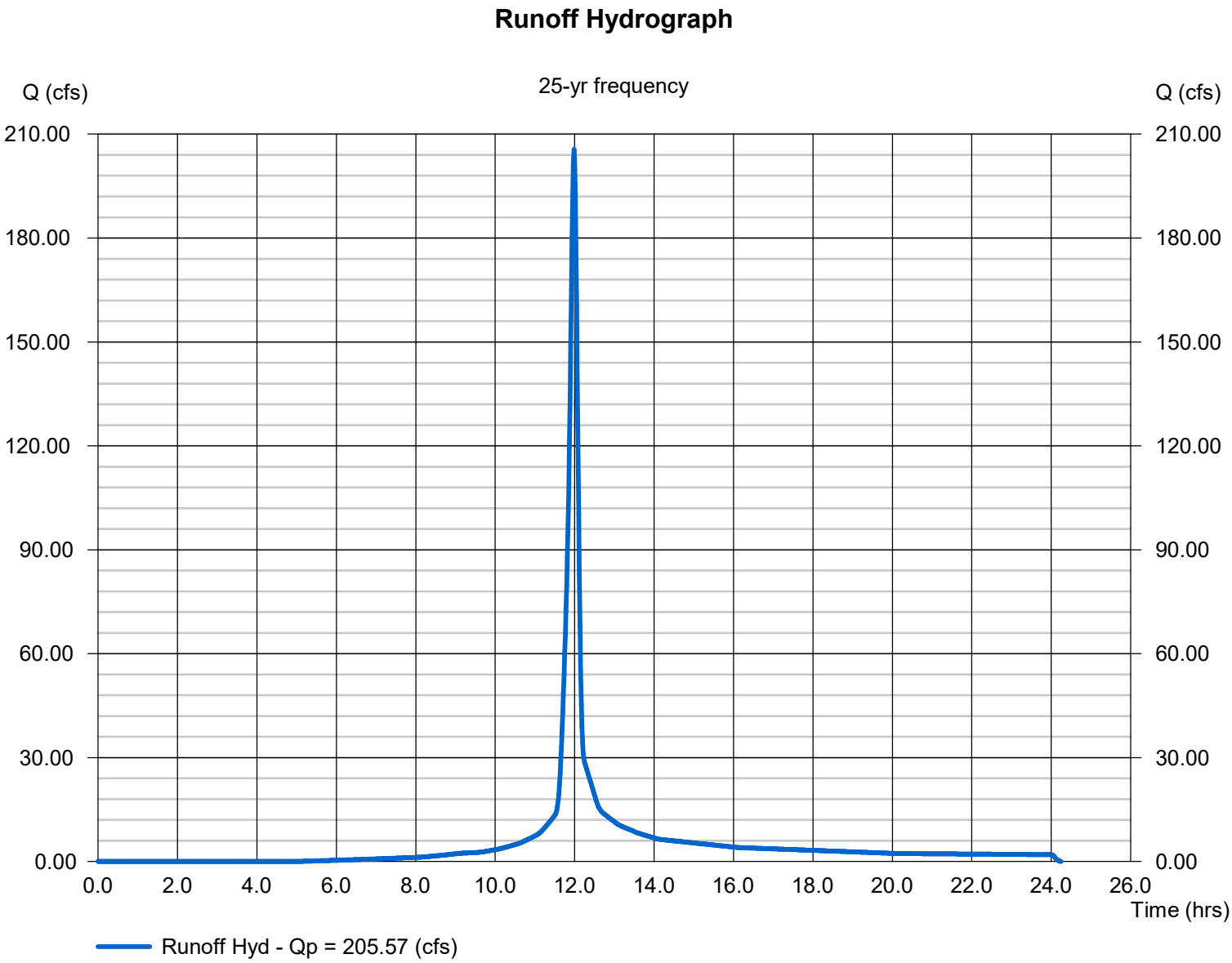
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 4

Hydrograph type	=	SCS	Peak discharge (cfs)	=	205.57
Storm frequency (yrs)	=	25	Time interval (min)	=	1
Drainage area (ac)	=	32.430	Curve number (CN)	=	85
Basin Slope (%)	=	*See Worksheet*	Hydraulic length (ft)	=	*See Worksheet*
Tc method	=	TR55	Time of conc. (min)	=	9
Total precip. (in)	=	5.77	Storm Distribution	=	Type II
Storm duration (hrs)	=	24	Shape factor	=	484

Hydrograph Volume = 481,005 (cuft); 11.042 (acft)



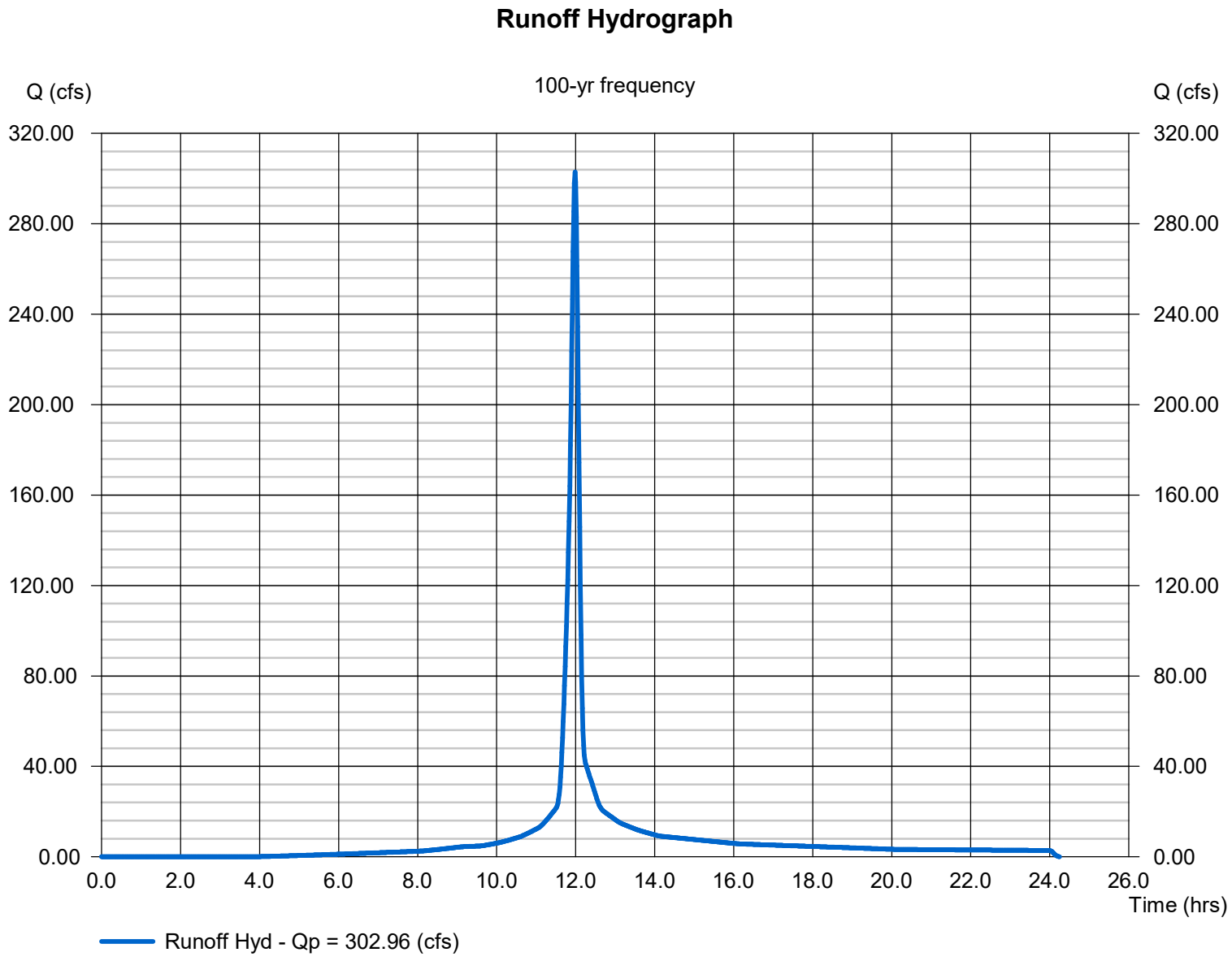
Hydrology Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 4

Hydrograph type	=	SCS	Peak discharge (cfs)	=	302.96
Storm frequency (yrs)	=	100	Time interval (min)	=	1
Drainage area (ac)	=	32.430	Curve number (CN)	=	85
Basin Slope (%)	=	*See Worksheet*	Hydraulic length (ft)	=	*See Worksheet*
Tc method	=	TR55	Time of conc. (min)	=	9
Total precip. (in)	=	7.95	Storm Distribution	=	Type II
Storm duration (hrs)	=	24	Shape factor	=	484

Hydrograph Volume = 725,749 (cuft); 16.661 (acft)



TR55 Tc Worksheet

Hydraflow Express by Intelisolve

SCS

CULVERT 4

Description		A		B		C		Totals
Sheet Flow								
Manning's n-value	=	0.011		0.011		0.011		
Flow length (ft)	=	300.0		0.0		0.0		
Two-year 24-hr precip. ((in))	=	2.20		0.00		0.00		
Land slope (%)	=	1.83		0.00		0.00		
Travel Time (min)	**=**	**3.65**	**+**	**0.00**	**+**	**0.00**	**=**	**3.65**
Shallow Concentrated Flow								
Flow length (ft)	=	775.00		160.00		0.00		
Watercourse slope (%)	=	1.68		7.50		0.00		
Surface description	=	Paved		Unpaved		Paved		
Average velocity (ft/s)	=	2.63		4.42		0.00		
Travel Time (min)	**=**	**4.90**	**+**	**0.60**	**+**	**0.00**	**=**	**5.51**
Channel Flow								
X sectional flow area ((sqft))	=	0.00		0.00		0.00		
Wetted perimeter ((ft))	=	0.00		0.00		0.00		
Channel slope (%)	=	0.00		0.00		0.00		
Manning's n-value	=	0.015		0.015		0.015		
Velocity (ft/s)	=	0.00		0.00		0.00		
Flow length (ft)	=	0.0		0.0		0.0		
Travel Time (min)	**=**	**0**	**+**	**0**	**+**	**0**	**=**	**0.00**

Total Travel Time, Tc ..... 9.00 min

Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 4 (25-YR)

Invert Elev Dn (ft)	=	392.81
Pipe Length (ft)	=	47.00
Slope (%)	=	0.83
Invert Elev Up (ft)	=	393.20
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	54.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls
Culvert Entrance	=	30D to 75D wingwall flares
Coeff. K,M,c,Y,k	=	0.026, 1, 0.0347, 0.81, 0.4

Embankment

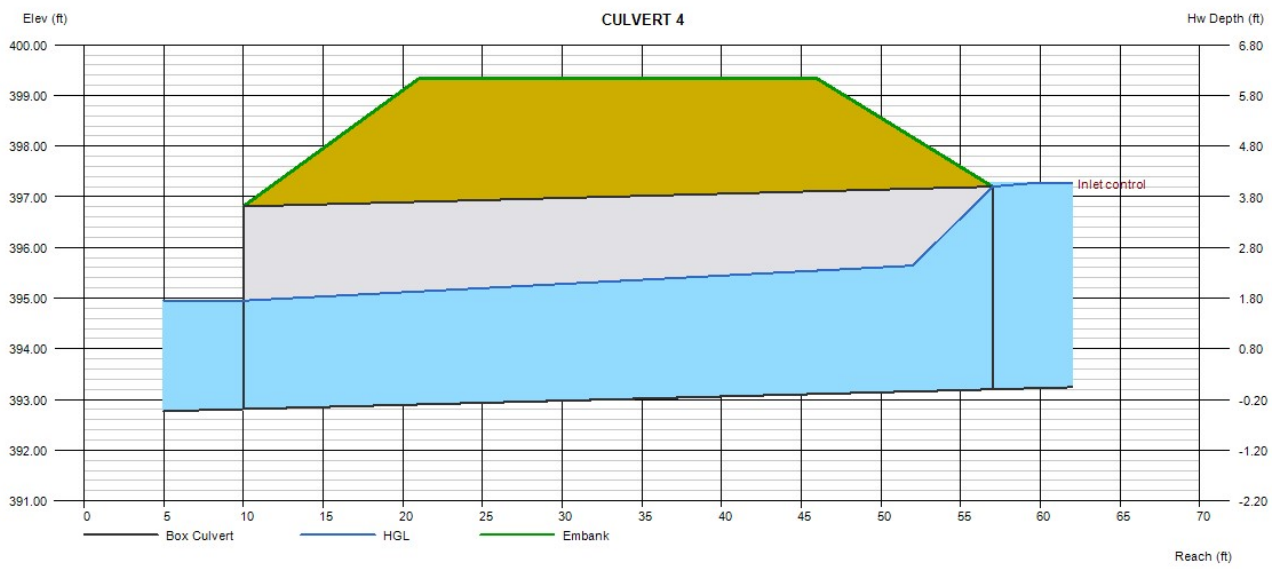
Top Elevation (ft)	=	399.33
Top Width (ft)	=	25.00
Crest Width (ft)	=	62.00

Calculations

Qmin (cfs)	=	1.00
Qmax (cfs)	=	205.57
Tailwater Elev (ft)	=	Critical

Highlighted

Qtotal (cfs)	=	205.00
Qpipe (cfs)	=	205.00
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	10.64
Veloc Up (ft/s)	=	9.02
HGL Dn (ft)	=	394.95
HGL Up (ft)	=	395.72
Hw Elev (ft)	=	397.27
Hw/D (ft)	=	1.02
Flow Regime	=	Inlet Control



Culvert Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 11 2023

CULVERT 4 (100-YR)

Invert Elev Dn (ft)	=	392.81
Pipe Length (ft)	=	47.00
Slope (%)	=	0.83
Invert Elev Up (ft)	=	393.20
Rise (in)	=	48.0
Shape	=	Box
Span (in)	=	54.0
No. Barrels	=	2
n-Value	=	0.012
Culvert Type	=	Flared Wingwalls
Culvert Entrance	=	30D to 75D wingwall flares
Coeff. K,M,c,Y,k	=	0.026, 1, 0.0347, 0.81, 0.4

Embankment

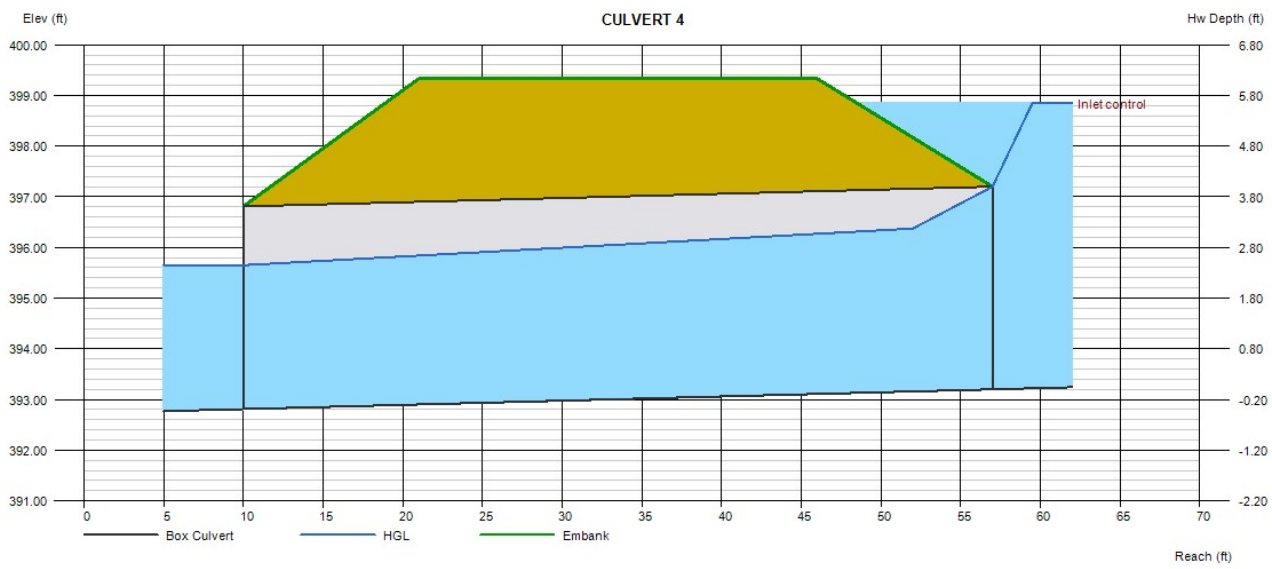
Top Elevation (ft)	=	399.33
Top Width (ft)	=	25.00
Crest Width (ft)	=	62.00

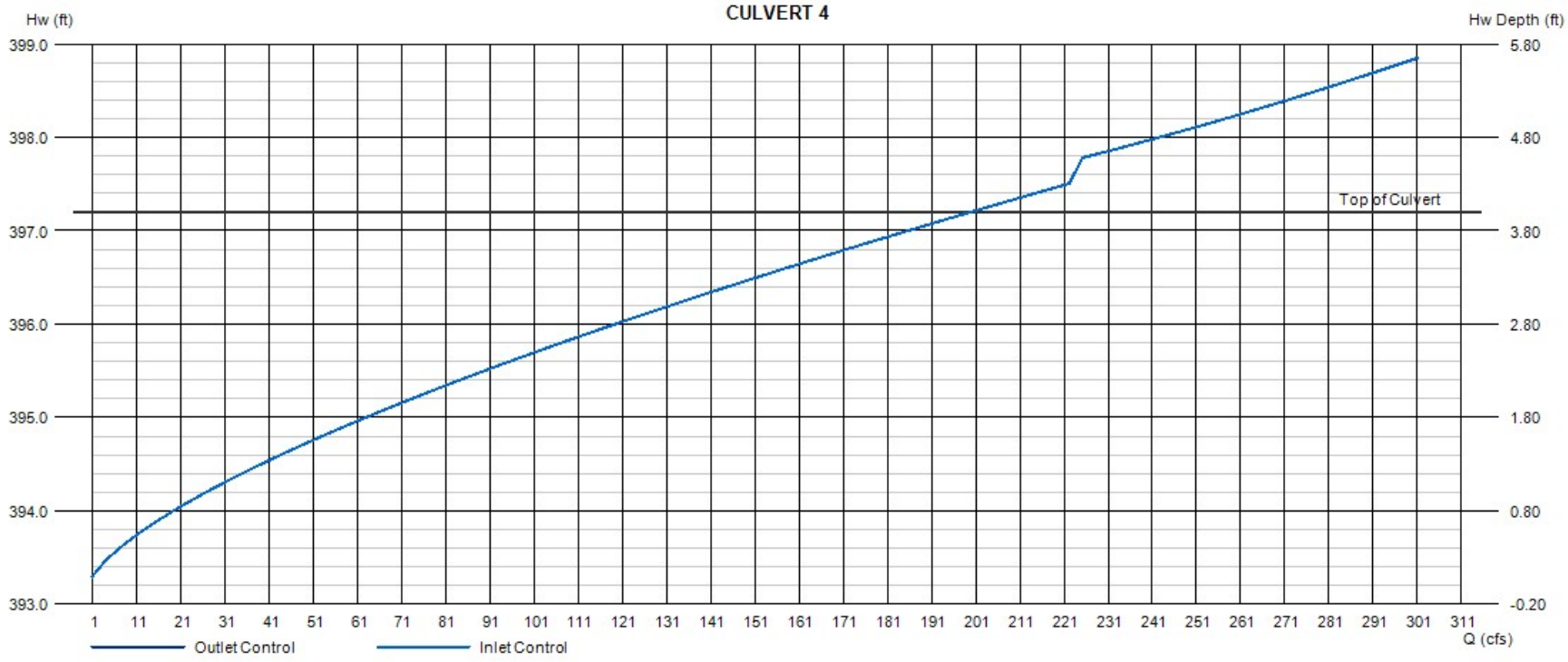
Calculations

Qmin (cfs)	=	1.00
Qmax (cfs)	=	302.96
Tailwater Elev (ft)	=	Critical

Highlighted

Qtotal (cfs)	=	300.97
Qpipe (cfs)	=	300.97
Qovertop (cfs)	=	0.00
Veloc Dn (ft/s)	=	11.78
Veloc Up (ft/s)	=	10.26
HGL Dn (ft)	=	395.65
HGL Up (ft)	=	396.46
Hw Elev (ft)	=	398.85
Hw/D (ft)	=	1.41
Flow Regime	=	Inlet Control




CULVERT 4
Hw (ft)
Hw Depth (ft)
399.0
398.0
397.0
396.0
395.0
394.0
393.0
5.80
4.80
3.80
2.80
1.80
0.80
-0.20
Top of Culvert
1 11 21 31 41 51 61 71 81 91 101 111 121 131 141 151 161 171 181 191 201 211 221 231 241 251 261 271 281 291 301 311
Q (cfs)
Outlet Control
Inlet Control

EROSION CONTROL DA MAP

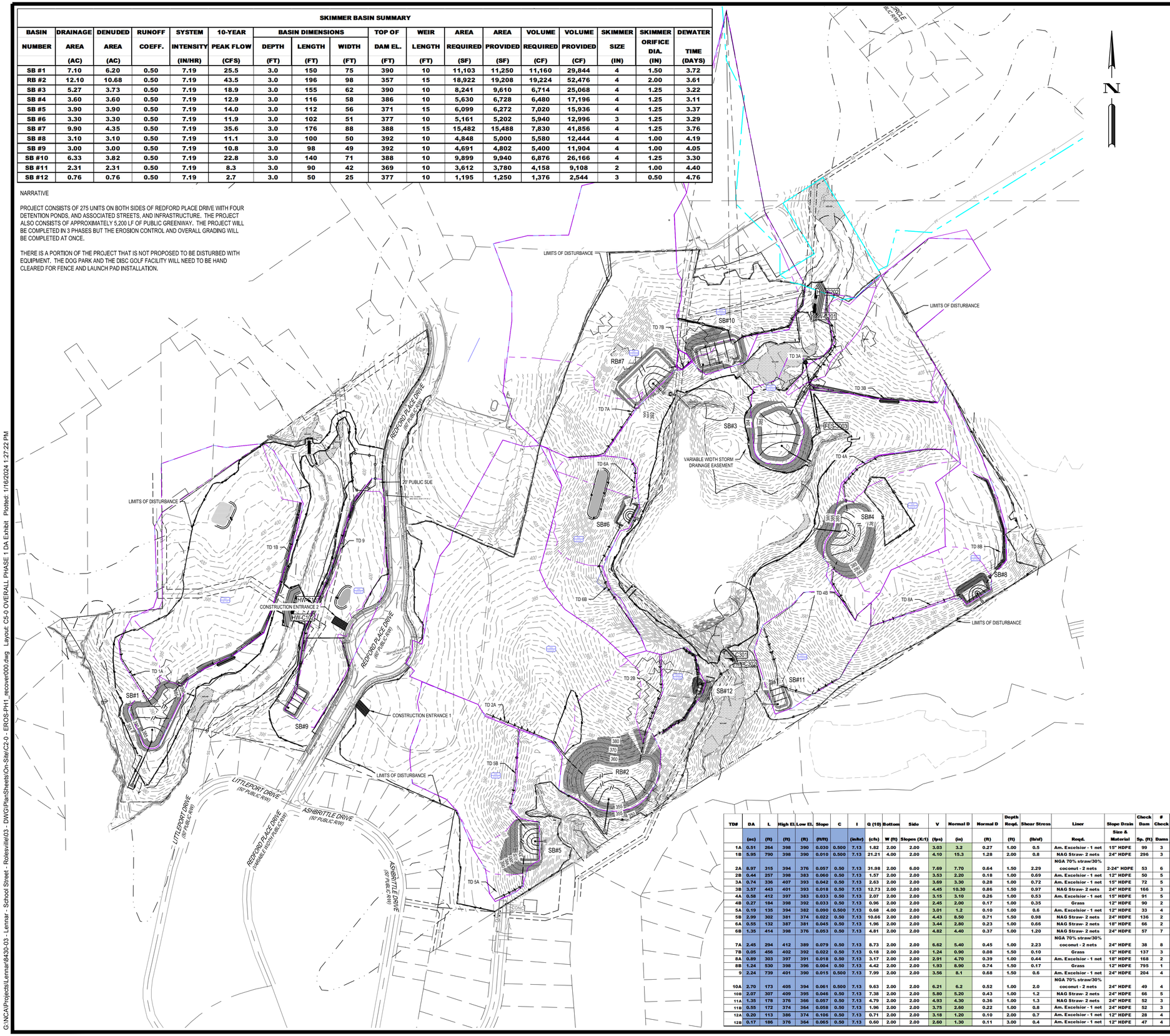
SKIMMER BASIN SUMMARY

BASIN NUMBER	DRAINAGE AREA (AC)	DENUDED AREA (AC)	RUNOFF COEFF.	SYSTEM INTENSITY (IN/HR)	10-YEAR PEAK FLOW (CFS)	BASIN DIMENSIONS DEPTH (FT)	LENGTH (FT)	WIDTH (FT)	TOP OF DAM EL. (FT)	WEIR LENGTH (FT)	AREA REQUIRED (SF)	AREA PROVIDED (SF)	VOLUME REQUIRED (CF)	VOLUME PROVIDED (CF)	SKIMMER SIZE (IN)	SKIMMER ORIFICE DIA. (IN)	DEWATER TIME (DAYS)
SB #1	7.10	6.20	0.50	7.19	25.5	3.0	150	75	390	10	11,103	11,250	11,160	29,844	4	1.50	3.72
RB #2	12.10	10.68	0.50	7.19	43.5	3.0	196	98	357	15	18,922	19,208	19,224	52,476	4	2.00	3.61
SB #3	5.27	3.73	0.50	7.19	18.9	3.0	155	62	390	10	8,241	9,610	6,714	25,068	4	1.25	3.22
SB #4	3.60	3.60	0.50	7.19	12.9	3.0	116	58	386	10	5,630	6,728	6,480	17,196	4	1.25	3.11
SB #5	3.90	3.90	0.50	7.19	14.0	3.0	112	56	371	15	6,099	6,272	7,020	15,936	4	1.25	3.37
SB #6	3.30	3.30	0.50	7.19	11.9	3.0	102	51	377	10	5,161	5,202	5,940	12,996	3	1.25	3.29
SB #7	9.90	4.35	0.50	7.19	35.6	3.0	176	88	388	15	15,482	15,488	7,830	41,856	4	1.25	3.76
SB #8	3.10	3.10	0.50	7.19	11.1	3.0	100	50	392	10	4,848	5,000	5,580	12,444	4	1.00	4.19
SB #9	3.00	3.00	0.50	7.19	10.8	3.0	98	49	392	10	4,691	4,802	5,400	11,904	4	1.00	4.05
SB #10	6.33	3.82	0.50	7.19	22.8	3.0	140	71	388	10	9,899	9,940	6,876	26,166	4	1.25	3.30
SB #11	2.31	2.31	0.50	7.19	8.3	3.0	90	42	369	10	3,612	3,780	4,158	9,108	2	1.00	4.40
SB #12	0.76	0.76	0.50	7.19	2.7	3.0	50	25	377	10	1,195	1,250	1,376	2,544	3	0.50	4.76

NARRATIVE

PROJECT CONSISTS OF 275 UNITS ON BOTH SIDES OF REDFORD PLACE DRIVE WITH FOUR DETENTION PONDS, AND ASSOCIATED STREETS, AND INFRASTRUCTURE. THE PROJECT ALSO CONSISTS OF APPROXIMATELY 5,200 LF OF PUBLIC GREENWAY. THE PROJECT WILL BE COMPLETED IN 3 PHASES BUT THE EROSION CONTROL AND OVERALL GRADING WILL BE COMPLETED AT ONCE.

THERE IS A PORTION OF THE PROJECT THAT IS NOT PROPOSED TO BE DISTURBED WITH EQUIPMENT. THE DOG PARK AND THE DISC GOLF FACILITY WILL NEED TO BE HAND CLEARED FOR FENCE AND LAUNCH PAD INSTALLATION.



TD#	DA (ac)	L (ft)	High El. (ft)	Low El. (ft)	Slope (ft/ft)	C	I (in/hr)	Q (10) (cfs)	W (ft)	Slopes (X:1) Bottom	Slopes (X:1) Side	V (fps)	Normal D (in)	Normal D (ft)	Depth Reqd. (ft)	Shear Stress (lb/sf)	Liner Reqd.	Slope Drain Size & Material	Check Dam Sp. (ft)	# Check Dams
1A	0.51	264	398	390	0.030	0.500	7.13	1.82	2.00	2.00	2.00	3.03	3.2	0.27	1.00	0.5	Am. Excelsior - 1 net	15" HDPE	99	3
1B	5.95	790	398	390	0.010	0.500	7.13	21.21	4.00	2.00	2.00	4.10	15.3	1.28	2.00	0.8	NAG Straw- 2 nets	24" HDPE	296	3
2A	8.97	315	394	376	0.057	0.50	7.13	31.98	2.00	6.00	2.00	7.69	7.70	0.64	1.50	2.29	NGA 70% straw/30% coconut - 2 nets	2-24" HDPE	53	6
2B	0.44	257	398	383	0.060	0.50	7.13	1.57	2.00	2.00	2.00	3.53	2.20	0.18	1.00	0.69	Am. Excelsior - 1 net	12" HDPE	50	5
3A	0.74	336	407	393	0.042	0.50	7.13	2.63	2.00	2.00	2.00	3.69	3.30	0.28	1.00	0.72	Am. Excelsior - 1 net	15" HDPE	72	5
3B	3.57	443	401	393	0.018	0.50	7.13	12.73	2.00	2.00	2.00	4.45	10.30	0.86	1.50	0.97	NAG Straw- 2 nets	24" HDPE	166	3
4A	0.58	412	397	383	0.033	0.50	7.13	2.07	2.00	2.00	2.00	3.15	3.10	0.26	1.00	0.53	Am. Excelsior - 1 net	15" HDPE	91	5
4B	0.27	184	398	392	0.033	0.50	7.13	0.96	2.00	2.00	2.00	2.45	2.00	0.17	1.00	0.35	Grass	12" HDPE	90	2
5A	0.19	135	394	382	0.090	0.500	7.13	0.68	4.00	2.00	2.00	3.01	1.2	0.10	1.00	0.6	Am. Excelsior - 1 net	12" HDPE	33	4
5B	2.99	302	381	374	0.022	0.50	7.13	10.66	2.00	2.00	2.00	4.43	8.50	0.71	1.50	0.98	NAG Straw- 2 nets	24" HDPE	136	2
6A	0.55	132	387	381	0.045	0.50	7.13	1.96	2.00	2.00	2.00	3.44	2.80	0.23	1.00	0.66	NAG Straw- 2 nets	18" HDPE	66	2
6B	1.35	414	398	376	0.053	0.50	7.13	4.81	2.00	2.00	2.00	4.82	4.40	0.37	1.00	1.20	NAG Straw- 2 nets	24" HDPE	57	7
7A	2.45	294	412	389	0.079	0.50	7.13	8.73	2.00	2.00	2.00	6.62	5.40	0.45	1.00	2.23	NGA 70% straw/30% coconut - 2 nets	24" HDPE	38	8
7B	0.05	456	402	392	0.022	0.50	7.13	0.18	2.00	2.00	2.00	1.24	0.90	0.08	1.50	0.10	Grass	12" HDPE	137	3
8A	0.89	303	397	391	0.018	0.50	7.13	3.17	2.00	2.00	2.00	2.91	4.70	0.39	1.00	0.44	Am. Excelsior - 1 net	18" HDPE	168	2
8B	1.24	530	398	396	0.004	0.50	7.13	4.42	2.00	2.00	2.00	1.93	8.90	0.74	1.50	0.17	Grass	12" HDPE	795	1
9	2.24	739	401	390	0.015	0.500	7.13	7.99	2.00	2.00	2.00	3.56	8.1	0.68	1.50	0.6	Am. Excelsior - 1 net	24" HDPE	204	4
10A	2.70	173	405	394	0.061	0.500	7.13	9.63	2.00	2.00	2.00	6.21	6.2	0.52	1.00	2.0	NGA 70% straw/30% coconut - 2 nets	24" HDPE	49	4
10B	2.07	307	409	395	0.046	0.50	7.13	7.38	2.00	2.00	2.00	5.80	5.20	0.43	1.00	1.2	NAG Straw- 2 nets	24" HDPE	66	5
11A	1.35	178	376	366	0.057	0.50	7.13	4.79	2.00	2.00	2.00	4.93	4.30	0.36	1.00	1.3	NAG Straw- 2 nets	24" HDPE	52	3
11B	0.55	172	374	364	0.058	0.50	7.13	1.96	2.00	2.00	2.00	3.75	2.60	0.22	1.00	0.8	Am. Excelsior - 1 net	24" HDPE	52	3
12A	0.20	113	386	374	0.106	0.50	7.13	0.71	2.00	2.00	2.00	3.18	1.20	0.10	2.00	0.7	Am. Excelsior - 1 net	12" HDPE	28	4
12B	0.17	186	376	364	0.065	0.50	7.13	0.60	2.00	2.00	2.00	2.60	1.30	0.11	3.00	0.4	Am. Excelsior - 1 net	12" HDPE	47	4

EROSION CONTROL LEGEND

- PROPERTY LINE
- 600 — EXISTING MAJOR CONTOUR
- 601 — EXISTING MINOR CONTOUR
- 600 — PROPOSED MAJOR CONTOUR
- 601 — PROPOSED MINOR CONTOUR
- H.V / X.X% — DIRECTION OF OVERLAND FLOW
- 100.XX / 100.XX — DIRECTION OF OVERLAND FLOW
- RIP RAP APRON
- CONSTRUCTION ENTRANCE / EXIT
- EROSION CONTROL MATTING (NAG S150BN)
- LIMITS OF DISTURBANCE
- TEMPORARY DIVERSION DITCH OR BERM
- TEMP SILT FENCE WITH OUTLET
- TEMP TREE PROTECTION FENCE
- CHECK DAM
- SEDIMENTATION CHAMBER BERM
- SLOPE DRAIN WITH RIP-RAP APRON
- TEMPORARY RISER SKIMMER SEDIMENT BASIN
- PIPE INLET PROTECTION
- INLET PROTECTION
- EXCAVATED INLET PROTECTION
- LIMIT OF DRAINAGE AREA
- ROCK OUTCROP

TOTAL DISTURBED AREA
±62.9 ACRES

0 75 150 300
SCALE: 1" = 150

811 Know what's below. Call before you dig.

REV	DATE	COMMENTS
4	1/12/2024	PER TOWN OF ROLESVILLE COMMENTS
3	11/21/2023	PER TOWN OF ROLESVILLE COMMENT
2	10/02/2023	PER TOWN OF ROLESVILLE COMMENT
1	08/01/2023	PER TOWN OF ROLESVILLE COMMENT
	06/01/2023	INITIAL SUBMITTAL

DESIGNED BY: DF/CD
DRAWN BY: DF/JWM
REVIEWED BY: DF

BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
WWW.BGEINC.COM
NC LICENSE #C-4397
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LENNAR CORPORTAION
1100 PERIMETER PARK DRIVE, SUITE 112
MORRISVILLE / NORTH CAROLINA / 27560

PARKER RIDGE
82 SCHOOL STREET
ROLESVILLE / NORTH CAROLINA / 27571

OVERALL PHASE 1 EROSION CONTROL PLAN

NORTH CAROLINA PROFESSIONAL SEAL 028892 ENGINEER DEBRA M. FERN

FILE NUMBER: 8430-03
DATE: 01/12/2024
C5-0

G:\NCA\Projects\Lennar\8430-03 - Lennar - School Street - Rolesville\03 - DWG\PlanSheets\On-Site\C2-0 - EROS-PH1_recover000.dwg Layout: C5-0 OVERALL PHASE 1 DA Exhibit Plotted: 1/16/2024 1:27:22 PM

SKIMMER BASIN CALCULATIONS

PROJECT: PARKER RIDGE
PROJ. NO: 08430-03
DATE: January 15, 2024
DESIGNED DF

SKIMMER BASIN SUMMARY

BASIN NUMBER	DRAINAGE AREA (AC)	DENUDED AREA (AC)	RUNOFF COEFF.	SYSTEM INTENSITY (IN/HR)	10-YEAR PEAK FLOW (CFS)	BASIN DIMENSIONS DEPTH (FT)	LENGTH (FT)	WIDTH (FT)	TOP OF DAM EL. (FT)	WEIR LENGTH (FT)	AREA REQUIRED (SF)	AREA PROVIDED (SF)	VOLUME REQUIRED (CF)	VOLUME PROVIDED (CF)	SKIMMER SIZE (IN)	SKIMMER ORIFICE DIA. (IN)	DEWATER TIME (DAYS)
SB #1	7.10	6.20	0.50	7.19	25.5	3.0	150	75	390	10	11,103	11,250	11,160	29,844	4	1.50	3.72
RB #2	12.10	10.68	0.50	7.19	43.5	3.0	196	98	357	15	18,922	19,208	19,224	52,476	4	2.00	3.61
SB #3	5.27	3.73	0.50	7.19	18.9	3.0	155	62	390	10	8,241	9,610	6,714	25,068	4	1.25	3.22
SB #4	3.60	3.60	0.50	7.19	12.9	3.0	116	58	386	10	5,630	6,728	6,480	17,196	4	1.25	3.11
SB #5	3.90	3.90	0.50	7.19	14.0	3.0	112	56	371	15	6,099	6,272	7,020	15,936	4	1.25	3.37
SB #6	3.30	3.30	0.50	7.19	11.9	3.0	102	51	377	10	5,161	5,202	5,940	12,996	3	1.25	3.29
SB #7	9.90	4.35	0.50	7.19	35.6	3.0	176	88	388	15	15,482	15,488	7,830	41,856	4	1.25	3.76
SB #8	3.10	3.10	0.50	7.19	11.1	3.0	100	50	392	10	4,848	5,000	5,580	12,444	4	1.00	4.19
SB #9	3.00	3.00	0.50	7.19	10.8	3.0	98	49	392	10	4,691	4,802	5,400	11,904	4	1.00	4.05
SB #10	6.33	3.82	0.50	7.19	22.8	3.0	140	71	388	10	9,899	9,940	6,876	26,166	4	1.25	3.30
SB #11	2.31	2.31	0.50	7.19	8.3	3.0	90	42	387	10	3,612	3,780	4,158	9,108	2	1.00	4.40
SB #12	0.76	0.76	0.50	7.19	2.7	3.0	50	25	388	10	1,195	1,250	1,376	2,544	3	0.50	4.76

NOTES:

1. One foot of free board is provided for all basins.
2. System Intensity calculated for Tc=5 min.
3. Orifice sizes calculated for a 3-5-day drawdown per reference of "Determining Orifice Size for the Faircloth Skimmer, Feb. 2001".

Skimmer Basin 1

Okay

		0.5 C
7.1	Drainage Area (Acres)	7.19 i
6.20	Denuded Area (Acres)	
25.52	Peak Flow from 10-year Storm (cfs)	
11160	Required Volume (ft^3)	
11103	Required Surface Area (ft^2)	
74.5	Suggested Width (ft)	
149.0	Suggested Length (ft)	
75	Trial Top Width at Spillway Invert (ft)	
150	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft) (2 to 3.5 feet above grade)	
63	Bottom Width (ft)	
138	Bottom Length (ft)	
8694	Bottom Area (ft^2)	
29844	Actual Volume (ft^3)	**Okay**
11250	Actual Surface Area (ft^2)	**Okay**
10	Trial Weir Length (ft)	
1.5	Suggested Trial Depth of Flow (ft)	
55.1	Spillway Capacity (cfs)	**Okay**
4	Skimmer Size (inches)	
0.333	Head on Skimmer (feet)	
1.5	Orifice Size (1/4 inch increments)	
3.72	Dewatering Time (days)	
	Required 3 to 5 days for Wake County	

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Riser Basin 2

Okay

0.5 C
7.19 i

12.1	Drainage Area (Acres)
10.68	Denuded Area (Acres)
43.50	Peak Flow from 10-year Storm (cfs)

19224	Required Volume (ft^3)
18922	Required Surface Area (ft^2)
97.3	Suggested Width (ft)
194.5	Suggested Length (ft)

98	Trial Top Width at Spillway Invert (ft)	
196	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft) (2 to 3.5 feet above grade)	
86	Bottom Width (ft)	
184	Bottom Length (ft)	
15824	Bottom Area (ft^2)	
52476	Actual Volume (ft^3)	**Okay**
19208	Actual Surface Area (ft^2)	**Okay**

15	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
45.0	Spillway Capacity (cfs)	**Okay**

4	Skimmer Size (inches)
0.333	Head on Skimmer (feet)
2	Orifice Size (1/4 inch increments)
3.61	Dewatering Time (days)
	Required 3 to 5 days for Wake County

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 3

Okay

0.5 C
7.19 i

5.27	Drainage Area (Acres)
3.73	Denuded Area (Acres)
18.95	Peak Flow from 10-year Storm (cfs)
6714	Required Volume (ft^3)
8241	Required Surface Area (ft^2)
64.2	Suggested Width (ft)
128.4	Suggested Length (ft)
62	Trial Top Width at Spillway Invert (ft)
155	Trial Top Length at Spillway Invert (ft)
2	Trial Side Slope Ratio Z:1
3	Trial Depth (ft) (2 to 3.5 feet above grade)
50	Bottom Width (ft)
143	Bottom Length (ft)
7150	Bottom Area (ft^2)
25068	Actual Volume (ft^3) **Okay**
9610	Actual Surface Area (ft^2) **Okay**
10	Trial Weir Length (ft)
1	Suggested Trial Depth of Flow (ft)
30.0	Spillway Capacity (cfs) **Okay**
4	Skimmer Size (inches)
0.333	Head on Skimmer (feet)
1.25	Orifice Size (1/4 inch increments)
3.22	Dewatering Time (days)
	Required 3 to 5 days for Wake County

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 4

Okay

		0.5 C
3.6	Drainage Area (Acres)	7.19 i
3.60	Denuded Area (Acres)	
12.94	Peak Flow from 10-year Storm (cfs)	
6480	Required Volume (ft^3)	
5630	Required Surface Area (ft^2)	
53.1	Suggested Width (ft)	
106.1	Suggested Length (ft)	
58	Trial Top Width at Spillway Invert (ft)	
116	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft) (2 to 3.5 feet above grade)	
46	Bottom Width (ft)	
104	Bottom Length (ft)	
4784	Bottom Area (ft^2)	
17196	Actual Volume (ft^3)	**Okay**
6728	Actual Surface Area (ft^2)	**Okay**
10	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
30.0	Spillway Capacity (cfs)	**Okay**
4	Skimmer Size (inches)	
0.333	Head on Skimmer (feet)	
1.25	Orifice Size (1/4 inch increments)	
3.11	Dewatering Time (days)	
	Required 3 to 5 days for Wake County	

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 5

Okay

		0.5 C
3.9	Drainage Area (Acres)	7.19 i
3.90	Denuded Area (Acres)	
14.02	Peak Flow from 10-year Storm (cfs)	
7020	Required Volume (ft^3)	
6099	Required Surface Area (ft^2)	
55.2	Suggested Width (ft)	
110.4	Suggested Length (ft)	
56	Trial Top Width at Spillway Invert (ft)	
112	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft) (2 to 3.5 feet above grade)	
44	Bottom Width (ft)	
100	Bottom Length (ft)	
4400	Bottom Area (ft^2)	
15936	Actual Volume (ft^3)	**Okay**
6272	Actual Surface Area (ft^2)	**Okay**
15	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
45.0	Spillway Capacity (cfs)	**Okay**
4	Skimmer Size (inches)	
0.333	Head on Skimmer (feet)	
1.25	Orifice Size (1/4 inch increments)	
3.37	Dewatering Time (days)	
	Required 3 to 5 days for Wake County	

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 6

Okay

		0.5 C
3.3	Drainage Area (Acres)	7.19 i
3.30	Denuded Area (Acres)	
11.86	Peak Flow from 10-year Storm (cfs)	
5940	Required Volume (ft^3)	
5161	Required Surface Area (ft^2)	
50.8	Suggested Width (ft)	
101.6	Suggested Length (ft)	
51	Trial Top Width at Spillway Invert (ft)	
102	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft) (2 to 3.5 feet above grade)	
39	Bottom Width (ft)	
90	Bottom Length (ft)	
3510	Bottom Area (ft^2)	
12996	Actual Volume (ft^3)	**Okay**
5202	Actual Surface Area (ft^2)	**Okay**
10	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
30.0	Spillway Capacity (cfs)	**Okay**
3	Skimmer Size (inches)	
0.25	Head on Skimmer (feet)	
1.25	Orifice Size (1/4 inch increments)	
3.29	Dewatering Time (days)	
	Required 3 to 5 days for Wake County	

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 7

Okay

		0.5 C
9.9	Drainage Area (Acres)	7.19 i
4.35	Denuded Area (Acres)	
35.59	Peak Flow from 10-year Storm (cfs)	
7830	Required Volume (ft^3)	
15482	Required Surface Area (ft^2)	
88.0	Suggested Width (ft)	
176.0	Suggested Length (ft)	
88	Trial Top Width at Spillway Invert (ft)	
176	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft) (2 to 3.5 feet above grade)	
76	Bottom Width (ft)	
164	Bottom Length (ft)	
12464	Bottom Area (ft^2)	
41856	Actual Volume (ft^3)	**Okay**
15488	Actual Surface Area (ft^2)	**Okay**
15	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
45.0	Spillway Capacity (cfs)	**Okay**
4	Skimmer Size (inches)	
0.333	Head on Skimmer (feet)	
1.25	Orifice Size (1/4 inch increments)	
3.76	Dewatering Time (days)	
	Required 3 to 5 days for Wake County	

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 8

Okay

		0.5 C
3.10	Drainage Area (Acres)	7.19 i
3.10	Denuded Area (Acres)	
11.14	Peak Flow from 10-year Storm (cfs)	

5580	Required Volume (ft^3)
4848	Required Surface Area (ft^2)
49.2	Suggested Width (ft)
98.5	Suggested Length (ft)

50	Trial Top Width at Spillway Invert (ft)	
100	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft)	(2 to 3.5 feet above grade)
38	Bottom Width (ft)	
88	Bottom Length (ft)	
3344	Bottom Area (ft^2)	
12444	Actual Volume (ft^3)	**Okay**
5000	Actual Surface Area (ft^2)	**Okay**

10	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
30.0	Spillway Capacity (cfs)	**Okay**

4	Skimmer Size (inches)
0.333	Head on Skimmer (feet)
1	Orifice Size (1/4 inch increments)
4.19	Dewatering Time (days)
	Required 3 to 5 days for Wake County

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 9

Okay

		0.5 C
3.00	Drainage Area (Acres)	7.19 i
3.00	Denuded Area (Acres)	
10.79	Peak Flow from 10-year Storm (cfs)	
5400	Required Volume (ft^3)	
4691	Required Surface Area (ft^2)	
48.4	Suggested Width (ft)	
96.9	Suggested Length (ft)	
49	Trial Top Width at Spillway Invert (ft)	
98	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft) (2 to 3.5 feet above grade)	
37	Bottom Width (ft)	
86	Bottom Length (ft)	
3182	Bottom Area (ft^2)	
11904	Actual Volume (ft^3)	**Okay**
4802	Actual Surface Area (ft^2)	**Okay**
10	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
30.0	Spillway Capacity (cfs)	**Okay**
4	Skimmer Size (inches)	
0.333	Head on Skimmer (feet)	
1	Orifice Size (1/4 inch increments)	
4.05	Dewatering Time (days)	
	Required 3 to 5 days for Wake County	

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 10

Okay

0.5 C
7.19 i

6.33	Drainage Area (Acres)
3.82	Denuded Area (Acres)
22.76	Peak Flow from 10-year Storm (cfs)

6876	Required Volume (ft^3)
9899	Required Surface Area (ft^2)
70.4	Suggested Width (ft)
140.7	Suggested Length (ft)

71	Trial Top Width at Spillway Invert (ft)	
140	Trial Top Length at Spillway Invert (ft)	
2	Trial Side Slope Ratio Z:1	
3	Trial Depth (ft)	(2 to 3.5 feet above grade)
59	Bottom Width (ft)	
128	Bottom Length (ft)	
7552	Bottom Area (ft^2)	
26166	Actual Volume (ft^3)	**Okay**
9940	Actual Surface Area (ft^2)	**Okay**

10	Trial Weir Length (ft)	
1	Suggested Trial Depth of Flow (ft)	
30.0	Spillway Capacity (cfs)	**Okay**

4	Skimmer Size (inches)
0.333	Head on Skimmer (feet)
1.25	Orifice Size (1/4 inch increments)
3.30	Dewatering Time (days)

Required 3 to 5 days for Wake County

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 11

Okay

0.5 C
7.19 i

2.31	Drainage Area (Acres)
2.31	Denuded Area (Acres)
8.30	Peak Flow from 10-year Storm (cfs)
4158	Required Volume (ft^3)
3612	Required Surface Area (ft^2)
42.5	Suggested Width (ft)
85.0	Suggested Length (ft)
42	Trial Top Width at Spillway Invert (ft)
90	Trial Top Length at Spillway Invert (ft)
2	Trial Side Slope Ratio Z:1
3	Trial Depth (ft) (2 to 3.5 feet above grade)
30	Bottom Width (ft)
78	Bottom Length (ft)
2340	Bottom Area (ft^2)
9108	Actual Volume (ft^3) **Okay**
3780	Actual Surface Area (ft^2) **Okay**
10	Trial Weir Length (ft)
1	Suggested Trial Depth of Flow (ft)
30.0	Spillway Capacity (cfs) **Okay**
2	Skimmer Size (inches)
0.167	Head on Skimmer (feet)
1	Orifice Size (1/4 inch increments)
4.40	Dewatering Time (days)

Required 3 to 5 days for Wake County

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

Skimmer Basin 12

Okay

0.5 C
7.19 i

0.76	Drainage Area (Acres)
0.76	Denuded Area (Acres)
2.75	Peak Flow from 10-year Storm (cfs)
1375.66	Required Volume (ft^3)
1195	Required Surface Area (ft^2)
24.4	Suggested Width (ft)
48.9	Suggested Length (ft)
25	Trial Top Width at Spillway Invert (ft)
50	Trial Top Length at Spillway Invert (ft)
2	Trial Side Slope Ratio Z:1
3	Trial Depth (ft) (2 to 3.5 feet above grade)
13	Bottom Width (ft)
38	Bottom Length (ft)
494	Bottom Area (ft^2)
2544	Actual Volume (ft^3) **Okay**
1250	Actual Surface Area (ft^2) **Okay**
10	Trial Weir Length (ft)
1	Suggested Trial Depth of Flow (ft)
30.0	Spillway Capacity (cfs) **Okay**
3	Skimmer Size (inches)
0.25	Head on Skimmer (feet)
0.5	Orifice Size (1/4 inch increments)
4.76	Dewatering Time (days)
	Required 3 to 5 days for Wake County

Skimmer Size (Inches)
1.5
2
2.5
3
4
5
6
8

TEMPORARY DIVERSIONS

TEMPORARY DIVERSION DITCH																			
TD#	DA	L	High El.	Low El.	Slope	C	I	Q (10)	Bottom	Side	V	Normal D	Normal D	Depth Reqd.	Shear Stress	Liner	Slope Drain	Check Dam	# Check
	(ac)	(ft)	(ft)	(ft)	(ft/ft)		(in/hr)	(cfs)	W (ft)	Slopes (X:1)	(fps)	(in)	(ft)	(ft)	(lb/sf)	Reqd.	Size & Material	Sp. (ft)	Dams
1A	0.51	264	398	390	0.030	0.500	7.13	1.82	2.00	2.00	3.03	3.2	0.27	1.00	0.5	Am. Excelsior - 1 net	15" HDPE	99	3
1B	5.95	790	398	390	0.010	0.500	7.13	21.21	4.00	2.00	4.10	15.3	1.28	2.00	0.8	NAG Straw- 2 nets	24" HDPE	296	3
2A	8.97	315	394	376	0.057	0.50	7.13	31.98	2.00	6.00	7.69	7.70	0.64	1.50	2.29	NGA 70% straw/30% coconut - 2 nets	2-24" HDPE	53	6
2B	0.44	257	398	383	0.060	0.50	7.13	1.57	2.00	2.00	3.53	2.20	0.18	1.00	0.69	Am. Excelsior - 1 net	12" HDPE	50	5
3A	0.74	336	407	393	0.042	0.50	7.13	2.63	2.00	2.00	3.69	3.30	0.28	1.00	0.72	Am. Excelsior - 1 net	15" HDPE	72	5
3B	3.57	443	401	393	0.018	0.50	7.13	12.73	2.00	2.00	4.45	10.30	0.86	1.50	0.97	NAG Straw- 2 nets	24" HDPE	166	3
4A	0.58	412	397	383	0.033	0.50	7.13	2.07	2.00	2.00	3.15	3.10	0.26	1.00	0.53	Am. Excelsior - 1 net	15" HDPE	91	5
4B	0.27	184	398	392	0.033	0.50	7.13	0.96	2.00	2.00	2.45	2.00	0.17	1.00	0.35	Grass	12" HDPE	90	2
5A	0.19	135	394	382	0.090	0.500	7.13	0.68	4.00	2.00	3.01	1.2	0.10	1.00	0.6	Am. Excelsior - 1 net	12" HDPE	33	4
5B	2.99	302	381	374	0.022	0.50	7.13	10.66	2.00	2.00	4.43	8.50	0.71	1.50	0.98	NAG Straw- 2 nets	24" HDPE	136	2
6A	0.55	132	387	381	0.045	0.50	7.13	1.96	2.00	2.00	3.44	2.80	0.23	1.00	0.66	NAG Straw- 2 nets	18" HDPE	66	2
6B	1.35	414	398	376	0.053	0.50	7.13	4.81	2.00	2.00	4.82	4.40	0.37	1.00	1.20	NAG Straw- 2 nets	24" HDPE	57	7
7A	2.45	294	412	389	0.079	0.50	7.13	8.73	2.00	2.00	6.62	5.40	0.45	1.00	2.23	NGA 70% straw/30% coconut - 2 nets	24" HDPE	38	8
7B	0.05	456	402	392	0.022	0.50	7.13	0.18	2.00	2.00	1.24	0.90	0.08	1.50	0.10	Grass	12" HDPE	137	3
8A	0.89	303	397	391	0.018	0.50	7.13	3.17	2.00	2.00	2.91	4.70	0.39	1.00	0.44	Am. Excelsior - 1 net	18" HDPE	168	2
8B	1.24	530	398	396	0.004	0.50	7.13	4.42	2.00	2.00	1.93	8.90	0.74	1.50	0.17	Grass	12" HDPE	795	1
9	2.24	739	401	390	0.015	0.500	7.13	7.99	2.00	2.00	3.56	8.1	0.68	1.50	0.6	Am. Excelsior - 1 net	24" HDPE	204	4
10A	2.70	173	405	394	0.061	0.500	7.13	9.63	2.00	2.00	6.21	6.2	0.52	1.00	2.0	NGA 70% straw/30% coconut - 2 nets	24" HDPE	49	4
10B	2.07	307	409	395	0.046	0.50	7.13	7.38	2.00	2.00	5.80	5.20	0.43	1.00	1.2	NAG Straw- 2 nets	24" HDPE	66	5
11A	1.35	178	376	366	0.057	0.50	7.13	4.79	2.00	2.00	4.93	4.30	0.36	1.00	1.3	NAG Straw- 2 nets	24" HDPE	52	3
11B	0.55	172	374	364	0.058	0.50	7.13	1.96	2.00	2.00	3.75	2.60	0.22	1.00	0.8	Am. Excelsior - 1 net	24" HDPE	52	3

Worksheet for 1B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.010 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	25.03 cfs

Results	
Normal Depth	15.7 in
Flow Area	6.0 ft²
Wetted Perimeter	7.8 ft
Hydraulic Radius	9.2 in
Top Width	7.22 ft
Critical Depth	14.0 in
Critical Slope	0.016 ft/ft
Velocity	4.15 ft/s
Velocity Head	0.27 ft
Specific Energy	1.57 ft
Froude Number	0.802
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	15.7 in
Critical Depth	14.0 in
Channel Slope	0.010 ft/ft
Critical Slope	0.016 ft/ft

Worksheet for 2A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.057 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	6.00 ft
Discharge	35.79 cfs

Results	
Normal Depth	7.7 in
Flow Area	4.7 ft²
Wetted Perimeter	8.9 ft
Hydraulic Radius	6.3 in
Top Width	8.56 ft
Critical Depth	11.1 in
Critical Slope	0.015 ft/ft
Velocity	7.69 ft/s
Velocity Head	0.92 ft
Specific Energy	1.56 ft
Froude Number	1.839
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	7.7 in
Critical Depth	11.1 in
Channel Slope	0.057 ft/ft
Critical Slope	0.015 ft/ft

Worksheet for 2B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.060 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	1.57 cfs

Results	
Normal Depth	2.2 in
Flow Area	0.4 ft²
Wetted Perimeter	2.8 ft
Hydraulic Radius	1.9 in
Top Width	2.75 ft
Critical Depth	2.9 in
Critical Slope	0.023 ft/ft
Velocity	3.53 ft/s
Velocity Head	0.19 ft
Specific Energy	0.38 ft
Froude Number	1.546
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.2 in
Critical Depth	2.9 in
Channel Slope	0.060 ft/ft
Critical Slope	0.023 ft/ft

Worksheet for 3A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.045 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	2.35 cfs

Results	
Normal Depth	3.1 in
Flow Area	0.6 ft²
Wetted Perimeter	3.1 ft
Hydraulic Radius	2.5 in
Top Width	3.03 ft
Critical Depth	3.8 in
Critical Slope	0.022 ft/ft
Velocity	3.65 ft/s
Velocity Head	0.21 ft
Specific Energy	0.46 ft
Froude Number	1.394
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.1 in
Critical Depth	3.8 in
Channel Slope	0.045 ft/ft
Critical Slope	0.022 ft/ft

Worksheet for 3B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.018 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	14.24 cfs

Results	
Normal Depth	10.3 in
Flow Area	3.2 ft²
Wetted Perimeter	5.8 ft
Hydraulic Radius	6.6 in
Top Width	5.44 ft
Critical Depth	10.4 in
Critical Slope	0.017 ft/ft
Velocity	4.45 ft/s
Velocity Head	0.31 ft
Specific Energy	1.17 ft
Froude Number	1.022
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	10.3 in
Critical Depth	10.4 in
Channel Slope	0.018 ft/ft
Critical Slope	0.017 ft/ft

Worksheet for 4A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.033 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	2.07 cfs

Results	
Normal Depth	3.1 in
Flow Area	0.7 ft²
Wetted Perimeter	3.2 ft
Hydraulic Radius	2.5 in
Top Width	3.04 ft
Critical Depth	3.5 in
Critical Slope	0.022 ft/ft
Velocity	3.15 ft/s
Velocity Head	0.15 ft
Specific Energy	0.41 ft
Froude Number	1.197
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.1 in
Critical Depth	3.5 in
Channel Slope	0.033 ft/ft
Critical Slope	0.022 ft/ft

Worksheet for 4B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.033 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	0.96 cfs

Results	
Normal Depth	2.0 in
Flow Area	0.4 ft²
Wetted Perimeter	2.7 ft
Hydraulic Radius	1.7 in
Top Width	2.67 ft
Critical Depth	2.2 in
Critical Slope	0.025 ft/ft
Velocity	2.45 ft/s
Velocity Head	0.09 ft
Specific Energy	0.26 ft
Froude Number	1.130
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.0 in
Critical Depth	2.2 in
Channel Slope	0.033 ft/ft
Critical Slope	0.025 ft/ft

Worksheet for 5A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.090 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	0.68 cfs

Results	
Normal Depth	1.2 in
Flow Area	0.2 ft²
Wetted Perimeter	2.5 ft
Hydraulic Radius	1.1 in
Top Width	2.41 ft
Critical Depth	1.7 in
Critical Slope	0.027 ft/ft
Velocity	3.01 ft/s
Velocity Head	0.14 ft
Specific Energy	0.24 ft
Froude Number	1.736
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.2 in
Critical Depth	1.7 in
Channel Slope	0.090 ft/ft
Critical Slope	0.027 ft/ft

Worksheet for 5B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.022 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	10.66 cfs

Results	
Normal Depth	8.5 in
Flow Area	2.4 ft²
Wetted Perimeter	5.2 ft
Hydraulic Radius	5.6 in
Top Width	4.82 ft
Critical Depth	8.9 in
Critical Slope	0.018 ft/ft
Velocity	4.43 ft/s
Velocity Head	0.30 ft
Specific Energy	1.01 ft
Froude Number	1.104
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.5 in
Critical Depth	8.9 in
Channel Slope	0.022 ft/ft
Critical Slope	0.018 ft/ft

TD 6A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.045 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	1.96 cfs

Results	
Normal Depth	2.8 in
Flow Area	0.6 ft²
Wetted Perimeter	3.0 ft
Hydraulic Radius	2.3 in
Top Width	2.92 ft
Critical Depth	3.4 in
Critical Slope	0.023 ft/ft
Velocity	3.44 ft/s
Velocity Head	0.18 ft
Specific Energy	0.42 ft
Froude Number	1.376
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.8 in
Critical Depth	3.4 in
Channel Slope	0.045 ft/ft
Critical Slope	0.023 ft/ft

TD 6B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.053 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	4.81 cfs

Results	
Normal Depth	4.4 in
Flow Area	1.0 ft²
Wetted Perimeter	3.6 ft
Hydraulic Radius	3.3 in
Top Width	3.46 ft
Critical Depth	5.7 in
Critical Slope	0.020 ft/ft
Velocity	4.82 ft/s
Velocity Head	0.36 ft
Specific Energy	0.73 ft
Froude Number	1.582
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.4 in
Critical Depth	5.7 in
Channel Slope	0.053 ft/ft
Critical Slope	0.020 ft/ft

Worksheet for 7A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.079 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	8.73 cfs

Results	
Normal Depth	5.4 in
Flow Area	1.3 ft²
Wetted Perimeter	4.0 ft
Hydraulic Radius	3.9 in
Top Width	3.81 ft
Critical Depth	8.0 in
Critical Slope	0.018 ft/ft
Velocity	6.62 ft/s
Velocity Head	0.68 ft
Specific Energy	1.13 ft
Froude Number	1.984
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.4 in
Critical Depth	8.0 in
Channel Slope	0.079 ft/ft
Critical Slope	0.018 ft/ft

Worksheet for 7B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.022 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	0.20 cfs

Results	
Normal Depth	0.9 in
Flow Area	0.2 ft²
Wetted Perimeter	2.3 ft
Hydraulic Radius	0.8 in
Top Width	2.30 ft
Critical Depth	0.8 in
Critical Slope	0.034 ft/ft
Velocity	1.24 ft/s
Velocity Head	0.02 ft
Specific Energy	0.10 ft
Froude Number	0.822
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	0.9 in
Critical Depth	0.8 in
Channel Slope	0.022 ft/ft
Critical Slope	0.034 ft/ft

Worksheet for 8A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.018 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	3.17 cfs

Results	
Normal Depth	4.7 in
Flow Area	1.1 ft²
Wetted Perimeter	3.7 ft
Hydraulic Radius	3.5 in
Top Width	3.56 ft
Critical Depth	4.5 in
Critical Slope	0.021 ft/ft
Velocity	2.91 ft/s
Velocity Head	0.13 ft
Specific Energy	0.52 ft
Froude Number	0.929
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	4.7 in
Critical Depth	4.5 in
Channel Slope	0.018 ft/ft
Critical Slope	0.021 ft/ft

Worksheet for 8B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.004 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	4.95 cfs

Results	
Normal Depth	8.9 in
Flow Area	2.6 ft²
Wetted Perimeter	5.3 ft
Hydraulic Radius	5.8 in
Top Width	4.95 ft
Critical Depth	5.8 in
Critical Slope	0.020 ft/ft
Velocity	1.93 ft/s
Velocity Head	0.06 ft
Specific Energy	0.80 ft
Froude Number	0.473
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.9 in
Critical Depth	5.8 in
Channel Slope	0.004 ft/ft
Critical Slope	0.020 ft/ft

Worksheet for 9

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.015 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	7.99 cfs

Results	
Normal Depth	8.1 in
Flow Area	2.2 ft²
Wetted Perimeter	5.0 ft
Hydraulic Radius	5.4 in
Top Width	4.69 ft
Critical Depth	7.6 in
Critical Slope	0.019 ft/ft
Velocity	3.56 ft/s
Velocity Head	0.20 ft
Specific Energy	0.87 ft
Froude Number	0.906
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	8.1 in
Critical Depth	7.6 in
Channel Slope	0.015 ft/ft
Critical Slope	0.019 ft/ft

Worksheet for 10A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.061 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	9.63 cfs

Results	
Normal Depth	6.2 in
Flow Area	1.6 ft²
Wetted Perimeter	4.3 ft
Hydraulic Radius	4.3 in
Top Width	4.05 ft
Critical Depth	8.5 in
Critical Slope	0.018 ft/ft
Velocity	6.21 ft/s
Velocity Head	0.60 ft
Specific Energy	1.11 ft
Froude Number	1.768
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	6.2 in
Critical Depth	8.5 in
Channel Slope	0.061 ft/ft
Critical Slope	0.018 ft/ft

Worksheet for 10B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.046 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	7.38 cfs

Results	
Normal Depth	5.8 in
Flow Area	1.4 ft²
Wetted Perimeter	4.1 ft
Hydraulic Radius	4.1 in
Top Width	3.92 ft
Critical Depth	7.3 in
Critical Slope	0.019 ft/ft
Velocity	5.20 ft/s
Velocity Head	0.42 ft
Specific Energy	0.90 ft
Froude Number	1.523
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	5.8 in
Critical Depth	7.3 in
Channel Slope	0.046 ft/ft
Critical Slope	0.019 ft/ft

Worksheet for 11A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.057 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	4.79 cfs

Results	
Normal Depth	4.3 in
Flow Area	1.0 ft²
Wetted Perimeter	3.6 ft
Hydraulic Radius	3.2 in
Top Width	3.43 ft
Critical Depth	5.7 in
Critical Slope	0.020 ft/ft
Velocity	4.93 ft/s
Velocity Head	0.38 ft
Specific Energy	0.74 ft
Froude Number	1.635
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.3 in
Critical Depth	5.7 in
Channel Slope	0.057 ft/ft
Critical Slope	0.020 ft/ft

Worksheet for 11B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.058 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	1.96 cfs

Results	
Normal Depth	2.6 in
Flow Area	0.5 ft²
Wetted Perimeter	3.0 ft
Hydraulic Radius	2.1 in
Top Width	2.86 ft
Critical Depth	3.4 in
Critical Slope	0.023 ft/ft
Velocity	3.75 ft/s
Velocity Head	0.22 ft
Specific Energy	0.43 ft
Froude Number	1.548
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.6 in
Critical Depth	3.4 in
Channel Slope	0.058 ft/ft
Critical Slope	0.023 ft/ft

TD 12A

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.100 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	0.71 cfs

Results	
Normal Depth	1.2 in
Flow Area	0.2 ft²
Wetted Perimeter	2.5 ft
Hydraulic Radius	1.1 in
Top Width	2.41 ft
Critical Depth	1.8 in
Critical Slope	0.027 ft/ft
Velocity	3.18 ft/s
Velocity Head	0.16 ft
Specific Energy	0.26 ft
Froude Number	1.841
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.2 in
Critical Depth	1.8 in
Channel Slope	0.100 ft/ft
Critical Slope	0.027 ft/ft

TD 12B

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.030
Channel Slope	0.065 ft/ft
Left Side Slope	2.000 H:V
Right Side Slope	2.000 H:V
Bottom Width	2.00 ft
Discharge	0.60 cfs

Results	
Normal Depth	1.3 in
Flow Area	0.2 ft²
Wetted Perimeter	2.5 ft
Hydraulic Radius	1.1 in
Top Width	2.42 ft
Critical Depth	1.6 in
Critical Slope	0.027 ft/ft
Velocity	2.60 ft/s
Velocity Head	0.11 ft
Specific Energy	0.21 ft
Froude Number	1.485
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	1.3 in
Critical Depth	1.6 in
Channel Slope	0.065 ft/ft
Critical Slope	0.027 ft/ft

PERMANENT DIVERSIONS

Permanent Diversion Summary

PD	DA	C	I	Q (25)	Bottom W (ft)	Side Slopes	V (fps)	Normal D	Normal D	Depth Req	Shear Stress	Liner
	(ac)		(in/hr)	(ft^3/sec)		(__H:1V)		(in)	(ft)	(ft)	(lb/ft^2)	
1	0.226	0.55	7.98	0.99	2	3	2.21	2.1	0.18	1	0.4	NAG S75BN
2	0.516	0.65	7.98	2.68	2	3	2.1	4.5	0.38	1	0.35	NAG S75BN
3	0.551	0.65	7.98	2.86	2	3	2.51	4.4	0.37	1	0.49	NAG S75BN
4	0.443	0.65	7.98	2.30	2	3	3.04	3.2	0.27	1	0.85	NAG S75BN
5	0.582	0.65	7.98	3.02	2	3	2.52	4.6	0.38	1	0.47	NAG S75BN
6	0.524	0.72	7.98	3.01	2	3	2.86	4.2	0.35	1	0.58	NAG S75BN
7	0.389	0.65	7.98	2.02	2	3	3.17	3.4	0.28	1	1.24	NAG SC150BN

PD1

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.035
Channel Slope	0.036 ft/ft
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Discharge	0.99 cfs

Results	
Normal Depth	2.1 in
Flow Area	0.4 ft²
Wetted Perimeter	3.1 ft
Hydraulic Radius	1.7 in
Top Width	3.06 ft
Critical Depth	2.1 in
Critical Slope	0.035 ft/ft
Velocity	2.21 ft/s
Velocity Head	0.08 ft
Specific Energy	0.25 ft
Froude Number	1.019
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	2.1 in
Critical Depth	2.1 in
Channel Slope	0.036 ft/ft
Critical Slope	0.035 ft/ft

PD2

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.036
Channel Slope	0.014 ft/ft
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Discharge	2.68 cfs

Results	
Normal Depth	4.8 in
Flow Area	1.3 ft²
Wetted Perimeter	4.5 ft
Hydraulic Radius	3.4 in
Top Width	4.39 ft
Critical Depth	3.9 in
Critical Slope	0.031 ft/ft
Velocity	2.10 ft/s
Velocity Head	0.07 ft
Specific Energy	0.47 ft
Froude Number	0.687
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.8 in
Critical Depth	3.9 in
Channel Slope	0.014 ft/ft
Critical Slope	0.031 ft/ft

PD3

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.036
Channel Slope	0.022 ft/ft
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Discharge	2.86 cfs

Results	
Normal Depth	4.4 in
Flow Area	1.1 ft²
Wetted Perimeter	4.3 ft
Hydraulic Radius	3.2 in
Top Width	4.20 ft
Critical Depth	4.0 in
Critical Slope	0.031 ft/ft
Velocity	2.51 ft/s
Velocity Head	0.10 ft
Specific Energy	0.47 ft
Froude Number	0.852
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	4.4 in
Critical Depth	4.0 in
Channel Slope	0.022 ft/ft
Critical Slope	0.031 ft/ft

PD4

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.033
Channel Slope	0.038 ft/ft
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Discharge	2.30 cfs

Results	
Normal Depth	3.2 in
Flow Area	0.8 ft²
Wetted Perimeter	3.7 ft
Hydraulic Radius	2.4 in
Top Width	3.62 ft
Critical Depth	3.5 in
Critical Slope	0.027 ft/ft
Velocity	3.04 ft/s
Velocity Head	0.14 ft
Specific Energy	0.41 ft
Froude Number	1.173
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.2 in
Critical Depth	3.5 in
Channel Slope	0.038 ft/ft
Critical Slope	0.027 ft/ft

PD5

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.035
Channel Slope	0.020 ft/ft
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Discharge	3.02 cfs

Results	
Normal Depth	4.6 in
Flow Area	1.2 ft²
Wetted Perimeter	4.4 ft
Hydraulic Radius	3.3 in
Top Width	4.29 ft
Critical Depth	4.1 in
Critical Slope	0.029 ft/ft
Velocity	2.52 ft/s
Velocity Head	0.10 ft
Specific Energy	0.48 ft
Froude Number	0.840
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	4.6 in
Critical Depth	4.1 in
Channel Slope	0.020 ft/ft
Critical Slope	0.029 ft/ft

PD6

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.034
Channel Slope	0.027 ft/ft
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Discharge	3.01 cfs

Results	
Normal Depth	4.2 in
Flow Area	1.1 ft²
Wetted Perimeter	4.2 ft
Hydraulic Radius	3.0 in
Top Width	4.08 ft
Critical Depth	4.1 in
Critical Slope	0.027 ft/ft
Velocity	2.86 ft/s
Velocity Head	0.13 ft
Specific Energy	0.47 ft
Froude Number	0.991
Flow Type	Subcritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	0.00 ft/s
Upstream Velocity	0.00 ft/s
Normal Depth	4.2 in
Critical Depth	4.1 in
Channel Slope	0.027 ft/ft
Critical Slope	0.027 ft/ft

PD7

Project Description	
Friction Method	Manning Formula
Solve For	Normal Depth

Input Data	
Roughness Coefficient	0.032
Channel Slope	0.037 ft/ft
Left Side Slope	3.000 H:V
Right Side Slope	3.000 H:V
Bottom Width	2.00 ft
Discharge	2.54 cfs

Results	
Normal Depth	3.4 in
Flow Area	0.8 ft²
Wetted Perimeter	3.8 ft
Hydraulic Radius	2.5 in
Top Width	3.69 ft
Critical Depth	3.8 in
Critical Slope	0.025 ft/ft
Velocity	3.17 ft/s
Velocity Head	0.16 ft
Specific Energy	0.44 ft
Froude Number	1.201
Flow Type	Supercritical

GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 ft
Number Of Steps	0

GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	3.4 in
Critical Depth	3.8 in
Channel Slope	0.037 ft/ft
Critical Slope	0.025 ft/ft

DISSIPATORS

RIP RAP DISSIPATOR SUMMARY TABLE						
OUTLET	MEDIAN STONE DIAMETER (D_{50})	MINIMUM APRON LENGTH	WIDTH AT PIPE	WIDTH AT END	MAX STONE DIAMETER	APRON THICKNESS
FES100	0.60 FT	19.00 FT	9.00 FT	22.00 FT	0.90 FT	1.35 FT
FES152	0.25 FT	9.00 FT	4.50 FT	10.50 FT	0.38 FT	0.56 FT
FES200	0.85 FT	19.00 FT	9.00 FT	22.00 FT	1.28 FT	1.91 FT
FES250	0.66 FT	12.00 FT	7.50 FT	14.50 FT	0.99 FT	1.49 FT
FES300	0.85 FT	19.00 FT	9.00 FT	22.00 FT	1.28 FT	1.91 FT
FES350	0.85 FT	19.00 FT	9.00 FT	22.00 FT	1.28 FT	1.91 FT
FES400	0.55 FT	11.00 FT	6.00 FT	13.00 FT	0.83 FT	1.24 FT
FES450	0.85 FT	16.00 FT	7.50 FT	18.50 FT	1.28 FT	1.91 FT
FES475	0.50 FT	9.00 FT	3.75 FT	10.25 FT	0.75 FT	1.13 FT
FES1000	0.60 FT	18.00 FT	6.00 FT	20.00 FT	0.90 FT	1.35 FT
FES2000	0.50 FT	20.00 FT	6.00 FT	22.00 FT	0.75 FT	1.13 FT
HW3001	0.60 FT	19.00 FT	6.00 FT	24.00 FT	0.90 FT	2.81 FT
FES3003	0.33 FT	12.00 FT	9.00 FT	15.00 FT	0.50 FT	0.74 FT
HW4000	0.40 FT	12.00 FT	6.00 FT	14.00 FT	0.60 FT	0.90 FT
HW4020	0.55 FT	12.00 FT	6.00 FT	14.00 FT	0.83 FT	1.24 FT
FES4100	0.33 FT	12.00 FT	3.75 FT	13.25 FT	0.50 FT	0.74 FT
CULVERT 1	0.83 FT	40.00 FT	30.00 FT	30.00 FT	1.25 FT	1.88 FT
CULVERT 2	0.67 FT	30.00 FT	20.00 FT	15.00 FT	1.00 FT	1.50 FT
CULVERT 3	0.67 FT	18.80 FT	12.00 FT	10.00 FT	1.00 FT	1.50 FT
CULVERT 4	0.83 FT	40.00 FT	20.00 FT	20.00 FT	1.25 FT	1.88 FT
FESB104	0.25 FT	8.00 FT	3.75 FT	9.25 FT	0.38 FT	0.56 FT
FESB106	0.25 FT	8.00 FT	3.75 FT	9.25 FT	0.38 FT	0.56 FT
FES606	0.25 FT	8.00 FT	3.75 FT	9.25 FT	0.38 FT	0.56 FT
FES609	0.25 FT	8.00 FT	3.75 FT	9.25 FT	0.38 FT	0.56 FT
PE600	0.25 FT	8.00 FT	3.75 FT	9.25 FT	0.38 FT	0.56 FT
PE6000	0.25 FT	8.00 FT	3.75 FT	9.25 FT	0.38 FT	0.56 FT
HW1101	0.50 FT	9.00 FT	4.50 FT	10.50 FT	0.75 FT	1.13 FT
FES1300	0.50 FT	9.00 FT	4.50 FT	10.50 FT	0.75 FT	1.13 FT
FES1400	0.50 FT	12.00 FT	6.00 FT	14.00 FT	0.75 FT	1.13 FT
PE-1500	0.40 FT	12.00 FT	4.50 FT	13.50 FT	0.60 FT	0.90 FT

DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES100
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	36
Tailwater depth (in.)	7
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	27.02
Velocity (ft./s)	7

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.6	
Minimum apron length, L_a (ft.)	19	
Apron width at pipe outlet (ft.)	9	9
Apron shape		
Apron width at outlet end (ft.)	22	3

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.9	0

Step 5. Determine the apron thickness:

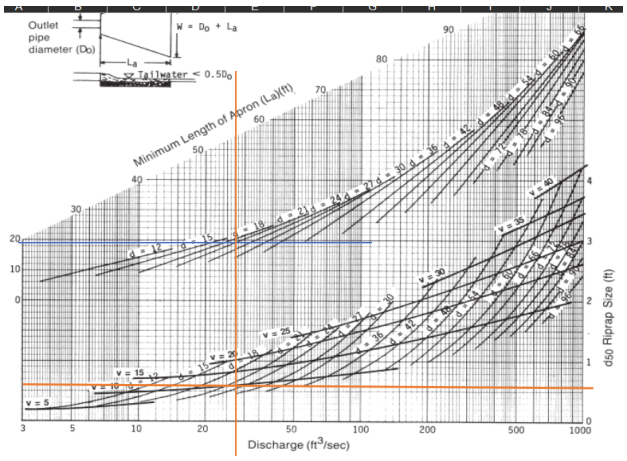
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.35	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES152
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	18
Tailwater depth (in.)	1
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	0.46
Velocity (ft./s)	2.37

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.25	
Minimum apron length, L_a (ft.)	9	
Apron width at pipe outlet (ft.)	4.5	4.5
Apron shape		
Apron width at outlet end (ft.)	10.5	1.5

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.375	0

Step 5. Determine the apron thickness:

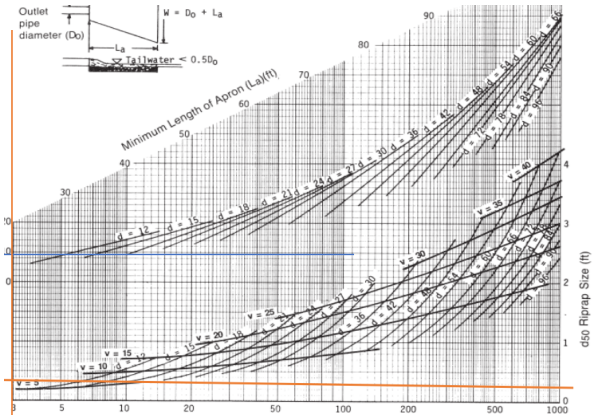
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.5625	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES200
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	36
Tailwater depth (in.)	14.2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	37.81
Velocity (ft./s)	7.6

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.85	
Minimum apron length, L_a (ft.)	19	
Apron width at pipe outlet (ft.)	9	9
Apron shape		
Apron width at outlet end (ft.)	22	3

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	1.275	0

Step 5. Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.9125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.

DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES250
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	30
Tailwater depth (in.)	18
Minimum/Maximum tailwater?	Max TW (Fig. 8.06b)
Discharge (cfs)	27.03
Velocity (ft./s)	14.73

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	**Maximum TW**
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.66	
Minimum apron length, L_a (ft.)	12	
Apron width at pipe outlet (ft.)	7.5	7.5
Apron shape		
Apron width at outlet end (ft.)	14.5	2.5

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	**Maximum TW**
Max Stone Diameter, dmax (ft.)	0.99	0

Step 5. Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	**Maximum TW**
Apron Thickness(ft.)	1.485	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.

DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES300
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	36
Tailwater depth (in.)	14.2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	37.81
Velocity (ft./s)	7.6

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.85	
Minimum apron length, L_a (ft.)	19	
Apron width at pipe outlet (ft.)	9	9
Apron shape		
Apron width at outlet end (ft.)	22	3

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	1.275	0

Step 5. Determine the apron thickness:

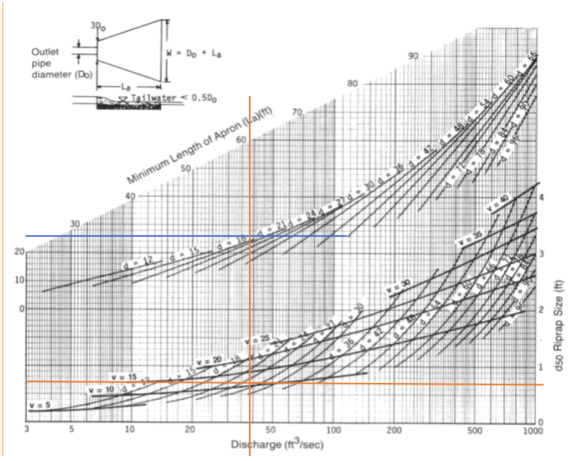
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.9125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES350
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	36
Tailwater depth (in.)	14.2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	37.81
Velocity (ft./s)	7.6

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.85	
Minimum apron length, L_a (ft.)	19	
Apron width at pipe outlet (ft.)	9	9
Apron shape		
Apron width at outlet end (ft.)	22	3

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	1.275	0

Step 5. Determine the apron thickness:

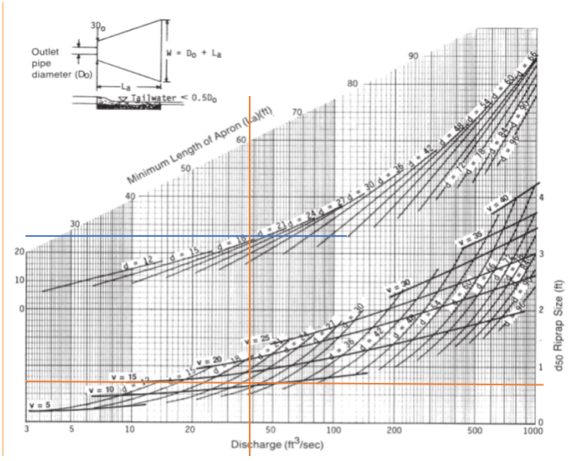
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.9125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES400
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	24
Tailwater depth (in.)	0
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	16.52
Velocity (ft./s)	6.78

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.55	
Minimum apron length, L_a (ft.)	11	
Apron width at pipe outlet (ft.)	6	6
Apron shape		
Apron width at outlet end (ft.)	13	2

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.825	0

Step 5. Determine the apron thickness:

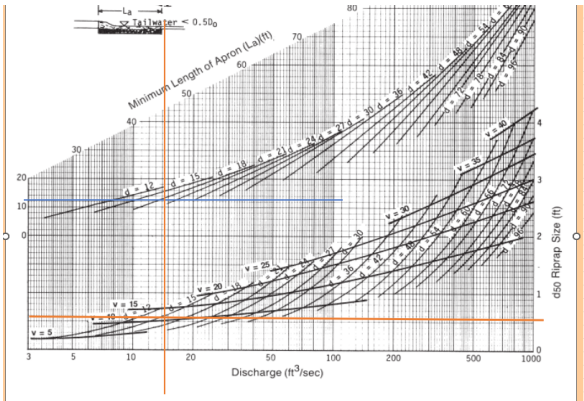
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.2375	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



Curves may not be extrapolated.

Figure 8.06a Design of outlet protection protection from a round pipe flowing full, minimum tailwater condition (T_w < 0.5 diameter).

DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES450
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	30
Tailwater depth (in.)	0
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	16.46
Velocity (ft./s)	12.75

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.85	
Minimum apron length, L_a (ft.)	16	
Apron width at pipe outlet (ft.)	7.5	7.5
Apron shape		
Apron width at outlet end (ft.)	18.5	2.5

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	1.275	0

Step 5. Determine the apron thickness:

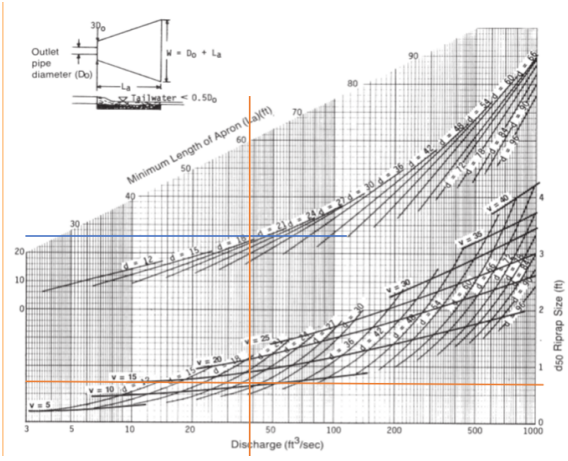
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.9125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES475
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	0
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	1.58
Velocity (ft./s)	9.16

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.5	
Minimum apron length, L_a (ft.)	9	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	10.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.75	0

Step 5. Determine the apron thickness:

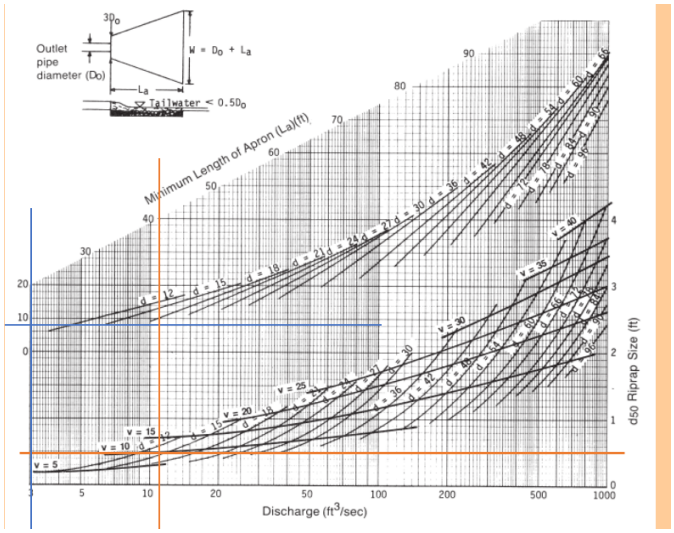
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES1000
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	24
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	31.5
Velocity (ft./s)	10.02

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.6	
Minimum apron length, L_a (ft.)	18	
Apron width at pipe outlet (ft.)	6	6
Apron shape		
Apron width at outlet end (ft.)	20	2

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.9	0

Step 5. Determine the apron thickness:

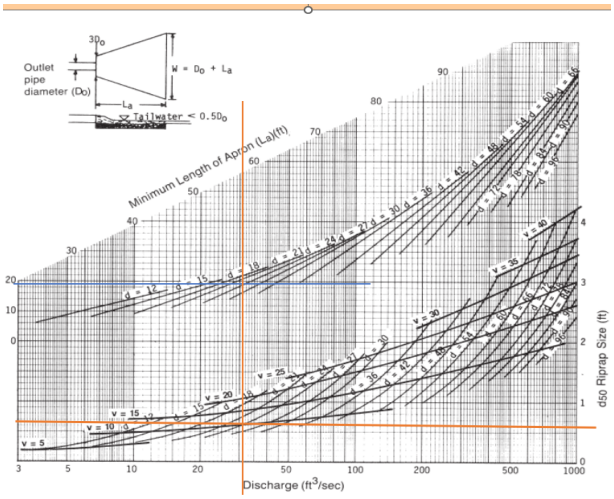
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.35	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES2000
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	24
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	38.4
Velocity (ft./s)	12.22

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.5	0.5
Minimum apron length, L_a (ft.)	20	35
Apron width at pipe outlet (ft.)	6	6
Apron shape		
Apron width at outlet end (ft.)	22	16

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.75	0.75

Step 5. Determine the apron thickness:

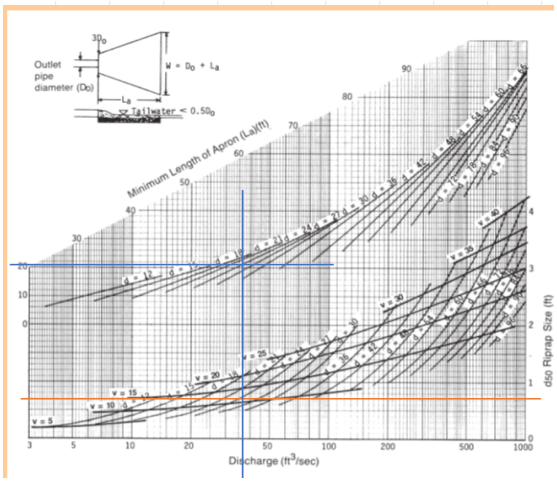
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.125	1.125

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	HW3001
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	24
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	43
Velocity (ft./s)	17

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	1.25	0.6
Minimum apron length, L_a (ft.)	22	19
Apron width at pipe outlet (ft.)	6	6
Apron shape		
Apron width at outlet end (ft.)	24	9.6

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	1.875	0.9

Step 5. Determine the apron thickness:

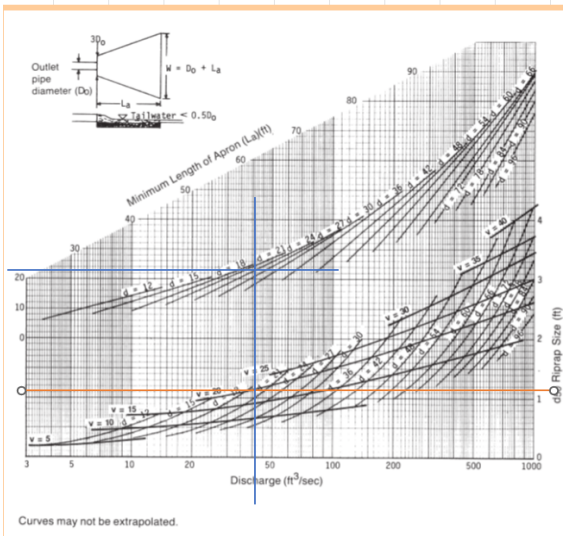
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	2.8125	1.35

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES3003
Total Drainage Area (acres)	

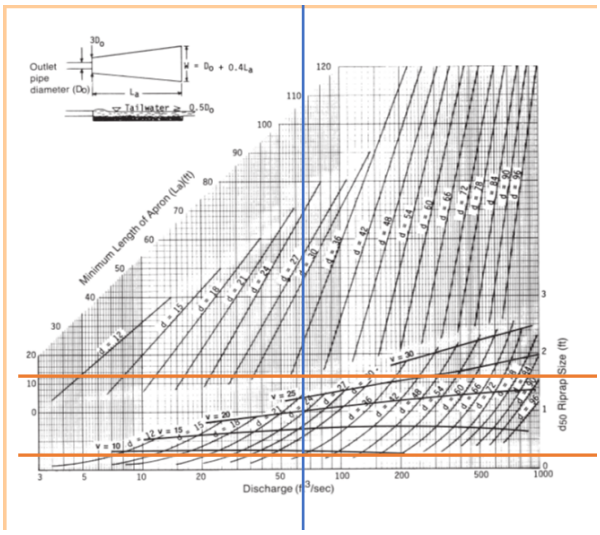
Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	36
Tailwater depth (in.)	26
Minimum/Maximum tailwater?	Max TW (Fig. 8.06b)
Discharge (cfs)	50
Velocity (ft./s)	8.93

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.33	0.33
Minimum apron length, L_a (ft.)	12	12
Apron width at pipe outlet (ft.)	9	9
Apron shape		
Apron width at outlet end (ft.)	15	7.8



Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.495	0.495

Step 5. Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.7425	0.7425

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.

DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	HW4000
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	24
Tailwater depth (in.)	11
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	12.07
Velocity (ft./s)	8.07

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.4	
Minimum apron length, L_a (ft.)	12	
Apron width at pipe outlet (ft.)	6	6
Apron shape		
Apron width at outlet end (ft.)	14	2

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.6	0

Step 5. Determine the apron thickness:

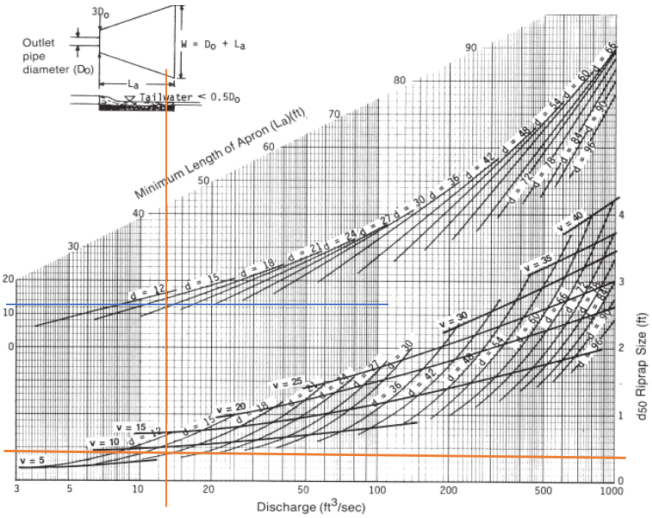
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.9	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	HW4020
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	24
Tailwater depth (in.)	11
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	5
Velocity (ft./s)	9.4

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.55	
Minimum apron length, L_a (ft.)	12	
Apron width at pipe outlet (ft.)	6	6
Apron shape		
Apron width at outlet end (ft.)	14	2

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.825	0

Step 5. Determine the apron thickness:

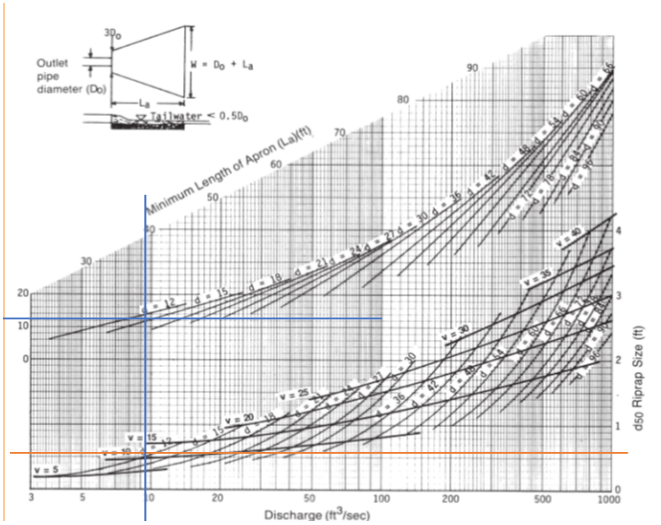
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.2375	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES4100
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	1.25
Velocity (ft./s)	6.88

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.33	
Minimum apron length, L_a (ft.)	12	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	13.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.495	0

Step 5. Determine the apron thickness:

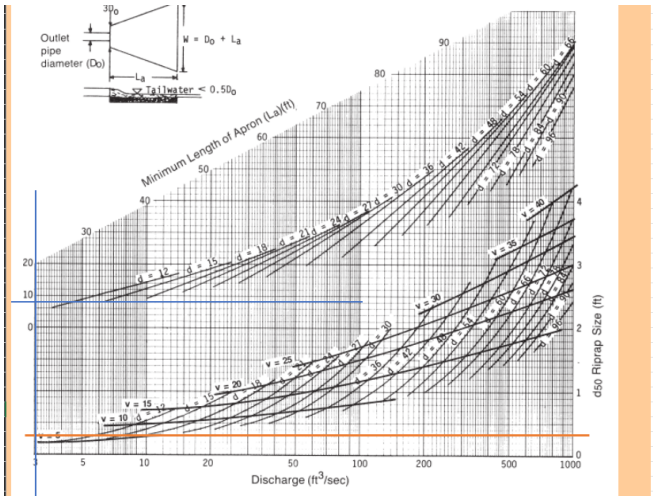
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.7425	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



OUTLET PROTECTION DESIGN	DATE 08/24/23	DESIGN PHASE
PROJECT NAME Parker Ridge	PROJECT NO 08430-03	PRELIM / CONSTR X / REVISION / RECORD / OTHER (SPECIFY)
LOCATION Rolesville, North Carolina	BY DF	
ADDITIONAL INFORMATION	CHECKED BY DF	

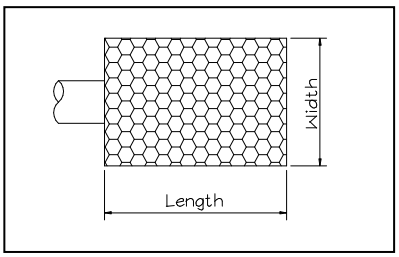
Storm Outlet Structure

FES No.=	CULVERT 1		# of Barrels	Q_{10}/Qfull =	1.49
Pipe Dia=	48	in	**3**	V/Vfull =	MAX
Q_{10} =	189.95	cfs		V =	9.73 fps
Qfull =	127.50	cfs			
Vfull =	10.15	fps			

Use **60in** for chart

From Fig. 8.06.b.1: Zone = 3

From Fig. 8.06.b.2:



D_{50}	=	10	in
D_{MAX}	=	15	in
Riprap Class	=	1	
Apron Thickness	=	22	in
Apron Length	=	40.0	ft
Apron Width 1 = 3xDia	=	12	ft
Apron Width 2 = Dia+Length	=	44	ft

Q10 is half of flow. For multiple barrels, Zone and length calcs include 1.25 factor of correction.

OUTLET PROTECTION DESIGN	DATE 08/24/23	DESIGN PHASE
PROJECT NAME Parker Ridge	PROJECT NO 08430-03	PRELIM / CONSTR X / REVISION / RECORD / OTHER (SPECIFY)
LOCATION Rolesville, North Carolina	BY DF	
ADDITIONAL INFORMATION	CHECKED BY DF	

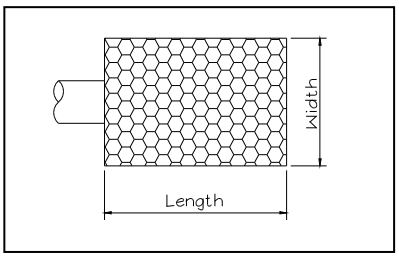
Storm Outlet Structure

FES No.=	CULVERT 2		# of Barrels	Q_{10}/Q_{full} =	0.25
Pipe Dia=	48	in	**2**	V/Vfull =	0.83
Q_{10} =	140.37	cfs		V =	5.7 fps
Qfull =	560.47	cfs			
Vfull =	44.62	fps			

Use **60in** for chart

From Fig. 8.06.b.1: Zone = 2

From Fig. 8.06.b.2:



D_{50}	=	8	in
D_{MAX}	=	12	in
Riprap Class	=	B	
Apron Thickness	=	18	in
Apron Length	=	30.0	ft
Apron Width 1 = 3xDia	=	12	ft
Apron Width 2 = Dia+Length	=	34	ft

OUTLET PROTECTION DESIGN	DATE 08/24/23	DESIGN PHASE
PROJECT NAME Parker Ridge	PROJECT NO 08430-03	PRELIM / CONSTR X / REVISION / RECORD / OTHER (SPECIFY)
LOCATION Rolesville, North Carolina	BY DF	
ADDITIONAL INFORMATION	CHECKED BY DF	

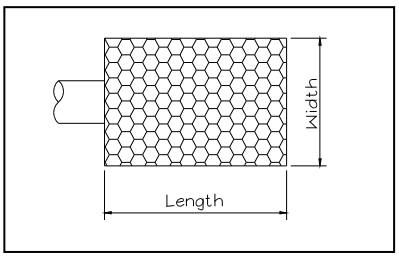
Storm Outlet Structure

FES No.=	CULVERT 3		# of Barrels	Q_{10}/Qfull =	1.22
Pipe Dia=	30	in	**2**	V/Vfull =	MAX
Q_{10} =	41.48	cfs		V =	7.9 fps
Qfull =	34.12	cfs			
Vfull =	6.95	fps			

Use **38in** for chart

From Fig. 8.06.b.1: Zone = 2

From Fig. 8.06.b.2:



D_{50}	=	8	in
D_{MAX}	=	12	in
Riprap Class	=	B	
Apron Thickness	=	18	in
Apron Length	=	18.8	ft
Apron Width 1 = 3xDia	=	7.5	ft
Apron Width 2 = Dia+Length	=	21.25	ft

OUTLET PROTECTION DESIGN	DATE 08/24/23	DESIGN PHASE
PROJECT NAME Parker Ridge	PROJECT NO 08430-03	PRELIM / CONSTR X / REVISION / RECORD / OTHER (SPECIFY)
LOCATION Rolesville, North Carolina	BY JM	
ADDITIONAL INFORMATION	CHECKED BY DF	

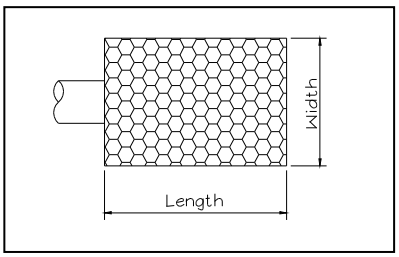
Storm Outlet Structure

FES No.=	CULVERT 4		# of Barrels	Q_{10}/Q_{full} =	3.17
Pipe Dia=	48	in	**2**	V/Vfull =	MAX
Q_{10} =	137.54	cfs		V =	7.9 fps
Qfull =	43.37	cfs			
Vfull =	3.45	fps			

Use **60in** for chart

From Fig. 8.06.b.1: Zone = 3

From Fig. 8.06.b.2:



D_{50}	=	10	in
D_{MAX}	=	15	in
Riprap Class	=	1	
Apron Thickness	=	18	in
Apron Length	=	40.0	ft
Apron Width 1 = 3xDia	=	12	ft
Apron Width 2 = Dia+Length	=	44	ft

DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FESB104
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	0.98
Velocity (ft./s)	2.97

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.25	
Minimum apron length, L_a (ft.)	8	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	9.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.375	0

Step 5. Determine the apron thickness:

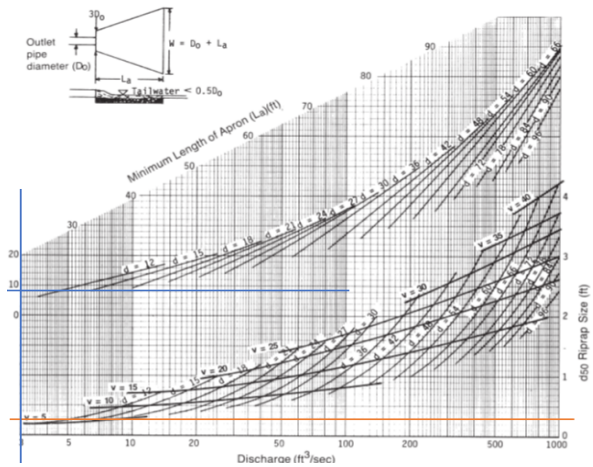
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.5625	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FESB106
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	0.77
Velocity (ft./s)	2.81

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.25	
Minimum apron length, L_a (ft.)	8	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	9.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.375	0

Step 5. Determine the apron thickness:

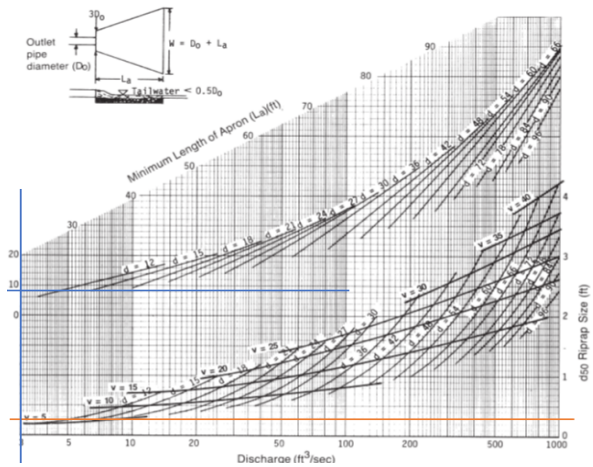
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.5625	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES606
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	0.77
Velocity (ft./s)	2.81

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.25	
Minimum apron length, L_a (ft.)	8	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	9.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.375	0

Step 5. Determine the apron thickness:

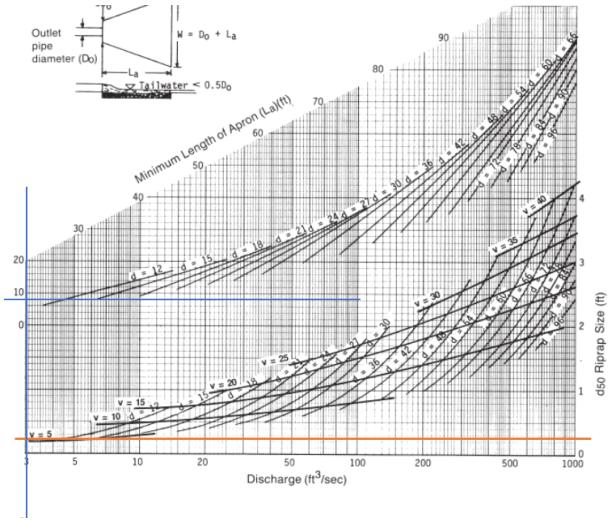
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.5625	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES609
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	0.1
Velocity (ft./s)	1.56

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.25	
Minimum apron length, L_a (ft.)	8	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	9.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.375	0

Step 5. Determine the apron thickness:

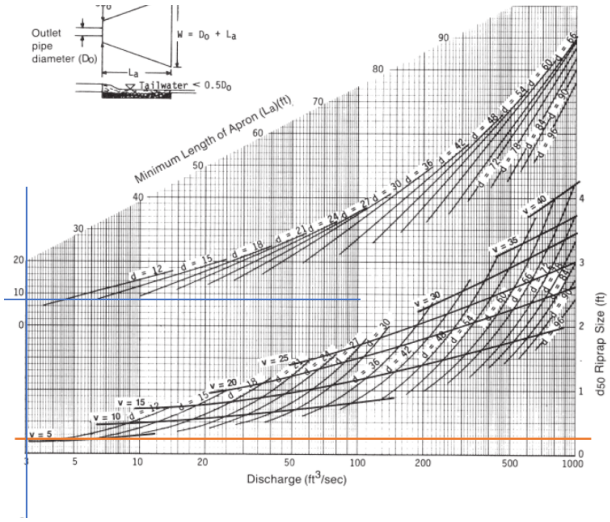
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.5625	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



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DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	PE600
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	0.55
Velocity (ft./s)	5.71

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.25	
Minimum apron length, L_a (ft.)	8	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	9.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.375	0

Step 5. Determine the apron thickness:

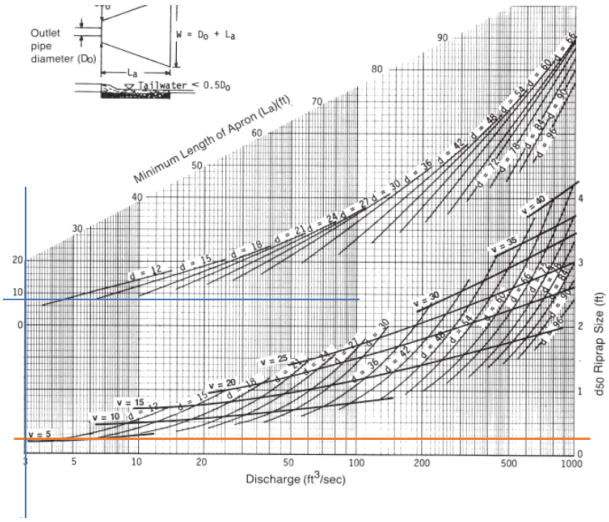
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.5625	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	PE6000
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	15
Tailwater depth (in.)	2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	0.21
Velocity (ft./s)	3.96

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.25	
Minimum apron length, L_a (ft.)	8	
Apron width at pipe outlet (ft.)	3.75	3.75
Apron shape		
Apron width at outlet end (ft.)	9.25	1.25

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.375	0

Step 5. Determine the apron thickness:

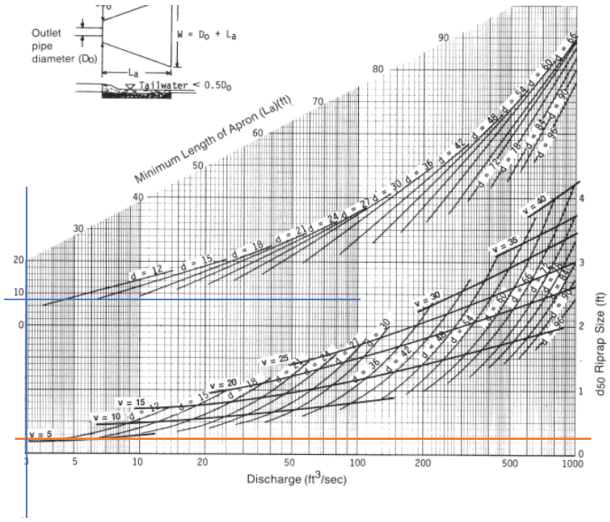
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.5625	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



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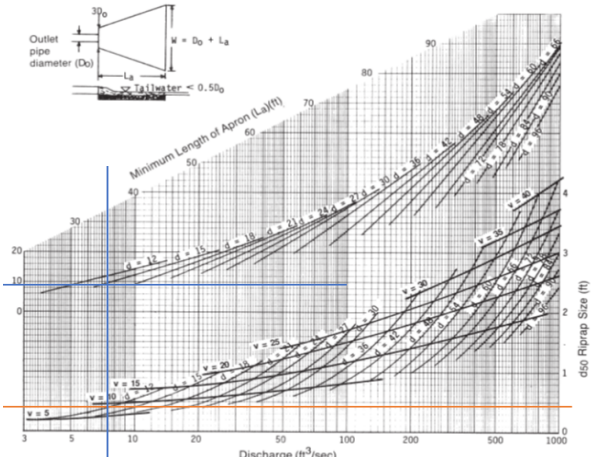
DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	HW1101
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	18
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	7.48
Velocity (ft./s)	6.95



Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.5	
Minimum apron length, L_a (ft.)	9	
Apron width at pipe outlet (ft.)	4.5	4.5
Apron shape		
Apron width at outlet end (ft.)	10.5	1.5

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.75	0

Step 5. Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.

DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES1300
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	18
Tailwater depth (in.)	6
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	7.03
Velocity (ft./s)	5.45

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.5	
Minimum apron length, L_a (ft.)	9	
Apron width at pipe outlet (ft.)	4.5	4.5
Apron shape		
Apron width at outlet end (ft.)	10.5	1.5

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.75	0

Step 5. Determine the apron thickness:

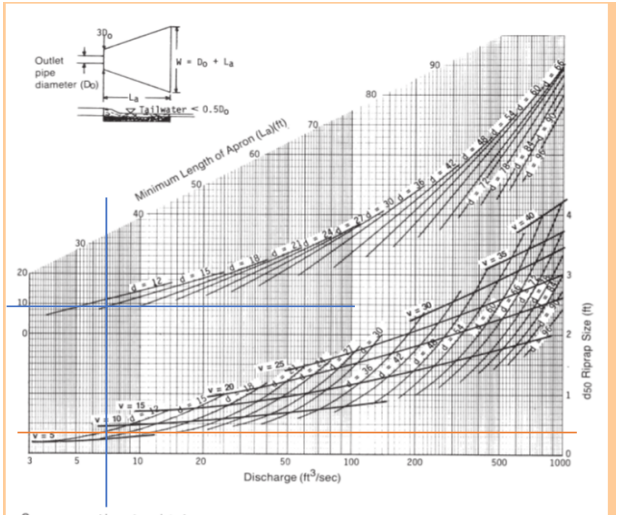
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	FES1400
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	24
Tailwater depth (in.)	2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	10.56
Velocity (ft./s)	5.44

Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.5	
Minimum apron length, L_a (ft.)	12	
Apron width at pipe outlet (ft.)	6	6
Apron shape		
Apron width at outlet end (ft.)	14	2

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.75	0

Step 5. Determine the apron thickness:

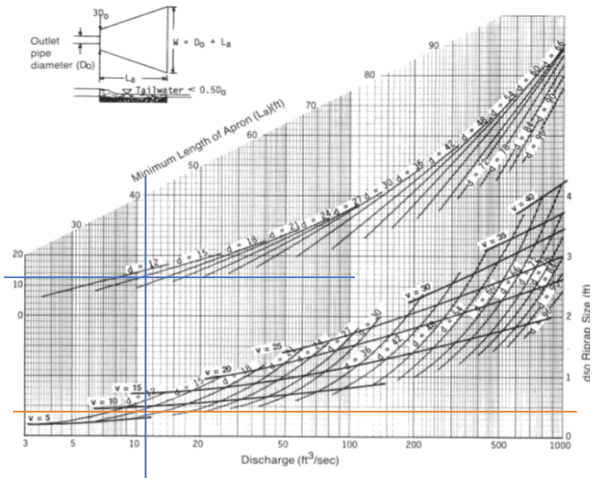
$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	1.125	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.



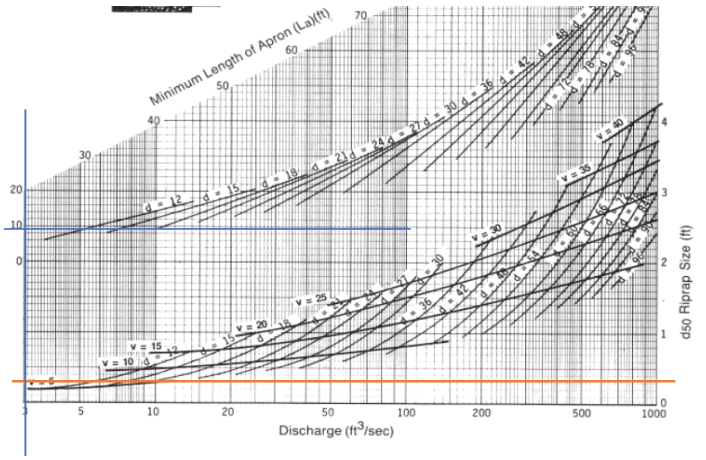
DESIGN OF RIPRAP OUTLET PROTECTION

User Input Data			
Calculated Value			
Reference Data			
Designed By:	JWM	**Date:**	8/1/2023
Checked By:		**Date:**	
Company:	BGE		
Project Name:	PARKER RIDGE		
Project No.:	8430-03		

Site Location (City/Town)	Raleigh
Culvert Id.	PE1500
Total Drainage Area (acres)	

Step 1. Determine the tailwater depth from channel characteristics below the pipe outlet for the design capacity of the pipe. If the tailwater depth is less than half the outlet pipe diameter, it is classified minimum tailwater condition. If it is greater than half the pipe diameter, it is classified maximum condition. Pipes that outlet onto wide flat areas with no defined channel are assumed to have a minimum tailwater condition unless reliable flood stage elevations show otherwise.

Outlet pipe diameter, D_o (in.)	18
Tailwater depth (in.)	2
Minimum/Maximum tailwater?	Min TW (Fig. 8.06a)
Discharge (cfs)	3.7
Velocity (ft./s)	4.62



Step 2. Based on the tailwater conditions determined in step 1, enter Figure 8.06a or Figure 8.06b, and determine d_{50} riprap size and minimum apron length (L_a). The d_{50} size is the median stone size in a well-graded riprap apron.

Step 3. Determine apron width at the pipe outlet, the apron shape, and the apron width at the outlet end from the same figure used in Step 2.

	Minimum TW	Maximum TW
	Figure 8.06a	Figure 8.06b
Riprap d_{50}, (ft.)	0.4	
Minimum apron length, L_a (ft.)	12	
Apron width at pipe outlet (ft.)	4.5	4.5
Apron shape		
Apron width at outlet end (ft.)	13.5	1.5

Step 4. Determine the maximum stone diameter:

$$d_{max} = 1.5 \times d_{50}$$

	Minimum TW	Maximum TW
Max Stone Diameter, dmax (ft.)	0.6	0

Step 5. Determine the apron thickness:

$$\text{Apron thickness} = 1.5 \times d_{max}$$

	Minimum TW	Maximum TW
Apron Thickness(ft.)	0.9	0

Step 6. Fit the riprap apron to the site by making it level for the minimum length, L_a, from Figure 8.06a or Figure 8.06b. Extend the apron farther downstream and along channel banks until stability is assured. Keep the apron as straight as possible and align it with the flow of the receiving stream. Make any necessary alignment bends near the pipe outlet so that the entrance into the receiving stream is straight.

Some locations may require lining of the entire channel cross section to assure stability.

It may be necessary to increase the size of riprap where protection of the channel side slopes is necessary (*Appendix 8.05*). Where overfalls exist at pipe outlets or flows are excessive, a plunge pool should be considered, see page 8.06.8.