V3-CID-23-06

PARKER RIDGE SUBDIVISION

REDFORD PLACE DRIVE
Rolesville, NC, 27571

DRAINAGE AND EROSION CONTROL CALCULATIONS

PREPARED FOR:

LENNAR CORPORATION
1100 Perimeter Park Drive, Suite 112
Morrisville, NC 27596

PREPARED BY:

BGE, INC.
5440 Wade Park Boulevard, Suite 102

NORTH CAROLINA PROFESSIONAL

PRELIMINARY

ENGINEER DEBRA M. FERM

Initial Submittal: 06/01/2023
Second Submittal: 08/01/2023
Third Submittal: 10/01/2023

NC License #C-4397

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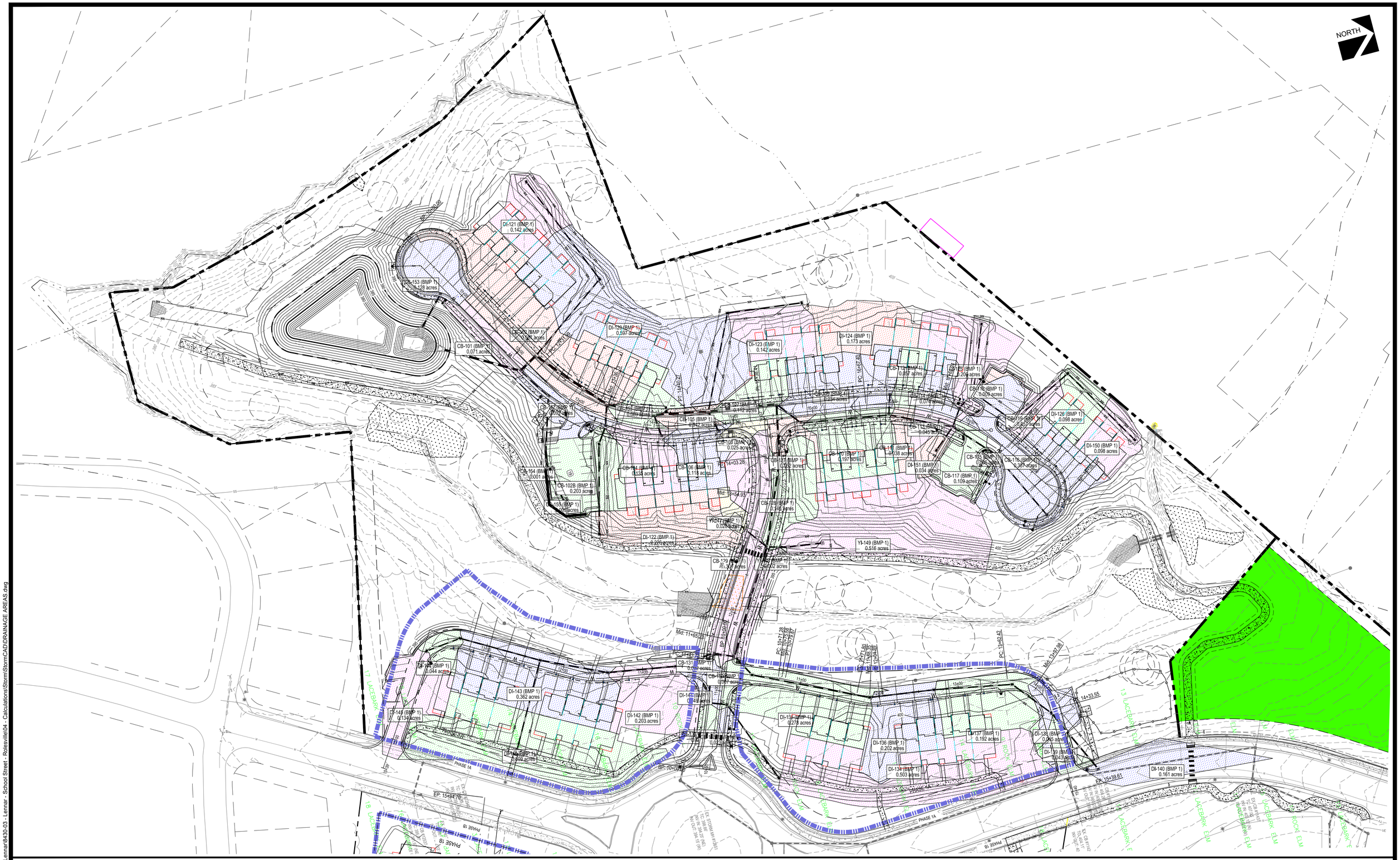

BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
www.bgeinc.com
NC LICENSE #C-4397

SCM 1 DRAINAGE MAP

DATE: 7/27/2023

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

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SCM 1 - 10 YR STORM

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-102B (BMP 1)	0.203	1.39	0.084	0.950
CB-101 (BMP 1)	0.071	0.49	0.084	0.950
CB-108 (BMP 1)	0.025	0.18	0.084	0.950
CB-133 (BMP 1)	0.023	0.16	0.084	0.950
CB-132 (BMP 1)	0.023	0.16	0.084	0.950
CB-118 (BMP 1)	0.009	0.06	0.084	0.950
CB-147 (BMP 1)	0.092	0.63	0.084	0.950
CB-153 (BMP 1)	0.128	0.88	0.084	0.950
CB-129 (BMP 1)	0.301	2.00	0.084	0.920
DI-139 (BMP 1)	0.043	0.28	0.084	0.920
CB-116 (BMP 1)	0.387	2.55	0.084	0.910
DI-140 (BMP 1)	0.161	1.05	0.084	0.900
CB-155 (BMP 1)	0.009	0.06	0.083	0.900
DI-138 (BMP 1)	0.045	0.29	0.084	0.890
CB-127 (BMP 1)	0.052	0.33	0.084	0.880
CB-117 (BMP 1)	0.109	0.69	0.084	0.870

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-106 (BMP 1)	0.118	0.74	0.084	0.870
CB-115 (BMP 1)	0.006	0.04	0.084	0.870
YI-147 (BMP 1)	0.028	0.18	0.084	0.870
DI-145 (BMP 1)	0.134	0.85	0.084	0.870
DI-144 (BMP 1)	0.044	0.28	0.084	0.870
DI-141 (BMP 1)	0.049	0.31	0.084	0.870
CB-131 (BMP 1)	0.002	0.01	0.084	0.870
CB-102 (BMP 1)	0.507	3.12	0.084	0.850
CB-103 (BMP 1)	0.089	0.55	0.084	0.850
CB-105 (BMP 1)	0.042	0.26	0.084	0.850
CB-107 (BMP 1)	0.112	0.69	0.084	0.850
DI-135 (BMP 1)	0.278	1.71	0.084	0.850
DI-136 (BMP 1)	0.202	1.24	0.084	0.850
DI-137 (BMP 1)	0.192	1.18	0.084	0.850
CB-110 (BMP 1)	0.197	1.15	0.084	0.810
CB-109 (BMP 1)	0.234	1.37	0.084	0.810

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-143 (BMP 1)	0.362	2.12	0.084	0.810
DI-142 (BMP 1)	0.203	1.19	0.084	0.810
CB-111 (BMP 1)	0.038	0.22	0.084	0.800
CB-113 (BMP 1)	0.045	0.26	0.084	0.800
CB-104 (BMP 1)	0.135	0.78	0.084	0.800
CB-112 (BMP 1)	0.057	0.33	0.084	0.790
CB-114 (BMP 1)	0.074	0.43	0.084	0.790
DI-150 (BMP 1)	0.106	0.59	0.084	0.770
DI-126 (BMP 1)	0.098	0.53	0.084	0.750
CB-130 (BMP 1)	0.007	0.04	0.084	0.700
DI-120 (BMP 1)	0.597	3.03	0.084	0.700
DI-121 (BMP 1)	0.142	0.72	0.084	0.700
CB-128 (BMP 1)	0.146	0.74	0.084	0.700
DI-134 (BMP 1)	0.503	2.36	0.084	0.650
YI-149 (BMP 1)	0.516	2.43	0.084	0.650
DI-123 (BMP 1)	0.142	0.62	0.084	0.600

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-125 (BMP 1)	0.200	0.87	0.084	0.600
DI-146 (BMP 1)	0.509	2.21	0.084	0.600
DI-124 (BMP 1)	0.173	0.75	0.084	0.600
DI-122 (BMP 1)	0.226	0.98	0.084	0.600
DI-151 (BMP 1)	0.034	0.15	0.084	0.600
CB-119 (BMP 1)	0.057	0.23	0.084	0.550
YI-148 (BMP 1)	0.002	0.01	0.084	0.500
CB-154 (BMP 1)	0.001	0.00	0.000	0.000

10-YR ANALYSIS

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-112 (BMP 1)	0.34	0.01	0.34	97.6	400.78	400.78	3.0	2.24	2.24
CB-111 (BMP 1)	0.22	0.00	6.29	99.9	395.62	395.62	3.0	5.06	4.71
DI-140 (BMP 1)	0.85	0.19	0.85	81.5	393.78	393.78	3.0	2.79	2.79
CB-113 (BMP 1)	0.26	0.00	5.85	99.4	396.17	396.17	3.0	3.27	4.68
DI-126 (BMP 1)	0.53	0.00	1.09	100.0	400.36	400.36	3.0	2.61	3.10
CB-114 (BMP 1)	0.41	0.02	2.51	95.5	398.88	398.88	3.0	3.81	3.90
CB-115 (BMP 1)	0.04	0.00	3.14	100.0	396.37	396.37	3.0	4.03	3.99
CB-117 (BMP 1)	0.61	0.08	0.61	88.8	399.85	399.85	3.0	2.55	2.55
CB-118 (BMP 1)	0.06	0.00	2.14	100.0	399.06	399.06	3.0	3.16	3.62
DI-125 (BMP 1)	0.87	0.00	0.87	100.0	399.34	399.34	3.0	2.83	2.83
CB-119 (BMP 1)	0.23	0.00	1.29	99.8	399.39	399.39	3.0	3.76	3.25
CB-110 (BMP 1)	0.92	0.23	7.02	79.7	394.95	394.95	3.0	5.21	4.87
CB-109 (BMP 1)	1.05	0.33	25.49	76.4	387.20	387.20	3.0	6.98	6.65
CB-116 (BMP 1)	2.55	0.00	2.55	100.0	397.02	397.02	3.0	3.62	3.62
DI-139 (BMP 1)	0.36	0.01	1.19	96.8	393.30	393.30	3.0	2.83	3.18
DI-124 (BMP 1)	0.66	0.10	0.66	87.3	395.35	395.35	3.0	2.69	2.69

10-YR ANALYSIS

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-108 (BMP 1)	0.18	0.00	0.18	100.0	392.65	392.65	3.0	1.84	1.84
CB-127 (BMP 1)	0.52	0.05	17.95	91.8	388.00	388.00	3.0	6.36	6.12
CB-107 (BMP 1)	0.83	0.18	27.16	82.1	386.83	386.83	3.0	6.45	6.52
DI-138 (BMP 1)	0.65	0.09	1.80	87.6	392.98	392.98	3.0	3.15	3.61
DI-137 (BMP 1)	1.21	0.45	2.91	72.9	392.46	392.46	3.0	3.19	4.23
DI-136 (BMP 1)	1.24	0.47	4.04	72.3	391.52	391.52	3.0	5.37	4.43
CB-132 (BMP 1)	0.16	0.00	1.84	100.0	390.01	390.01	3.0	3.18	3.47
CB-133 (BMP 1)	0.16	0.00	1.69	100.0	391.99	391.99	3.0	3.50	3.38
CB-106 (BMP 1)	0.65	0.09	0.65	87.5	392.80	392.80	3.0	2.59	2.59
CB-131 (BMP 1)	0.01	0.00	8.29	100.0	389.53	389.53	3.0	2.49	5.17
DI-123 (BMP 1)	0.56	0.06	1.20	90.5	392.01	392.01	3.0	2.49	3.13
CB-105 (BMP 1)	0.42	0.02	27.86	95.2	386.56	386.56	3.0	6.30	6.46
CB-130 (BMP 1)	0.04	0.00	13.16	100.0	389.30	389.30	3.0	5.55	5.67
DI-135 (BMP 1)	1.24	0.47	5.08	72.4	390.64	390.64	3.0	4.56	4.80
CB-128 (BMP 1)	0.68	0.11	17.75	86.5	388.70	388.70	3.0	5.84	5.96
CB-129 (BMP 1)	2.11	0.00	14.93	100.0	388.97	388.97	3.0	5.38	5.70

10-YR ANALYSIS

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)	1.57	0.80	1.57	66.3	392.82	392.82	3.0	3.45	3.45
DI-141 (BMP 1)	0.30	0.00	6.56	98.5	389.69	389.69	3.0	4.26	4.39
YI-148 (BMP 1)	0.01	0.00	2.42	100.0	389.34	389.34	3.0	8.83	3.76
CB-103 (BMP 1)	0.52	0.05	30.34	91.8	386.32	386.32	3.0	6.28	6.85
CB-104 (BMP 1)	0.74	0.13	2.53	84.7	386.32	386.32	3.0	3.13	2.02
YI-149 (BMP 1)	2.43	0.00	2.43	100.0	391.79	391.79	3.0	3.76	3.76
CB-102 (BMP 1)	3.17	0.00	35.77	100.0	385.62	385.62	3.0	7.37	7.34
DI-145 (BMP 1)	0.72	0.12	0.72	85.3	391.06	391.06	3.0	2.76	2.76
CB-102B (BMP 1)	1.06	0.33	1.06	76.2	386.48	386.48	3.0	2.97	2.97
DI-144 (BMP 1)	0.39	0.02	1.10	96.0	390.52	390.52	3.0	3.68	3.06
CB-101 (BMP 1)	0.46	0.03	36.77	93.9	385.52	385.52	3.0	7.20	7.38
DI-142 (BMP 1)	0.94	0.25	6.36	79.1	390.02	390.02	3.0	4.58	4.67
DI-146 (BMP 1)	2.21	0.00	2.21	100.0	390.76	390.76	3.0	3.65	3.65
DI-121 (BMP 1)	0.72	0.00	0.72	100.0	387.87	387.87	3.0	2.71	2.71
DI-120 (BMP 1)	3.03	0.00	3.60	100.0	387.61	387.61	3.0	0.82	4.13
DI-143 (BMP 1)	2.39	0.00	5.53	100.0	390.44	390.44	3.0	2.44	4.61

10-YR ANALYSIS

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)
YI-147 (BMP 1)	0.18	0.00	0.18	100.0	389.17	389.17	3.0	1.82	1.82
DI-122 (BMP 1)	0.81	0.17	0.81	82.7	386.84	386.84	3.0	2.75	2.75
DI-150 (BMP 1)	0.59	0.00	0.59	100.0	401.05	401.05	3.0	2.58	2.58
CB-147 (BMP 1)	0.80	0.00	0.79	100.0	387.53	387.53	3.0	0.61	2.83
DI-151 (BMP 1)	0.15	0.00	0.15	100.0	399.40	399.40	3.0	1.37	1.37
CB-153 (BMP 1)	0.74	0.13	0.74	84.7	0.48	0.48	3.0	1.54	1.54
CB-154 (BMP 1)	0.00	0.00	0.06	100.0	387.89	387.89	3.0	1.39	1.26
DI-156 (BMP 1)	0.00	0.00	0.79	100.0	386.32	386.32	3.0	1.87	1.10
CB-155 (BMP 1)	0.06	0.00	0.06	100.0	388.50	388.50	3.0	1.38	1.38

10-YR ANALYSIS

Conduit Results - Time: 0.00 hours

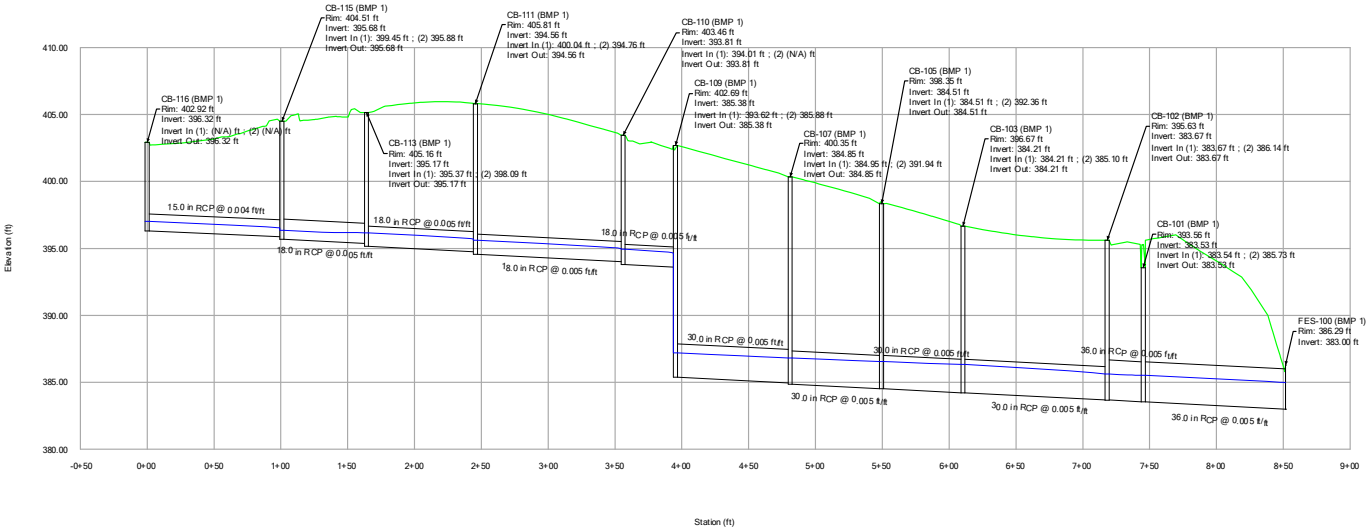
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-111 TO CB-112 (BMP 1)	15.0	0.019	2.24	3.46	0.34	8.85	400.78	400.21
CB-111 TO CB-113 (BMP 1)	18.0	0.005	4.68	5.06	5.85	7.46	396.17	395.69
DI-139 TO DI-140 (BMP 1)	15.0	0.005	2.79	2.83	0.85	4.64	393.78	393.31
CB-113 TO CB-115 (BMP 1)	18.0	0.005	3.99	3.27	3.14	7.35	396.37	396.17
CB-119 TO DI-126 (BMP 1)	15.0	0.009	3.10	3.76	1.09	6.11	400.36	399.50
CB-114 TO CB-118 (BMP 1)	15.0	0.005	3.62	3.81	2.14	4.50	399.06	398.91
CB-115 TO CB-117 (BMP 1)	18.0	0.007	2.55	2.80	0.61	8.53	399.85	399.72
CB-115 TO CB-116 (BMP 1)	15.0	0.004	3.62	4.03	2.55	4.25	397.02	396.52
CB-118 TO DI-125 (BMP 1)	15.0	0.005	2.83	1.87	0.87	4.49	399.34	399.06
CB-118 TO CB-119 (BMP 1)	15.0	0.005	3.25	3.16	1.29	4.79	399.39	399.06
CB-109 TO CB-110 (BMP 1)	18.0	0.005	4.87	5.45	7.02	7.43	394.95	394.64
CB-107 TO CB-109 (BMP 1)	30.0	0.005	6.65	6.45	25.49	29.00	387.20	386.83
CB-109 TO CB-127 (BMP 1)	24.0	0.005	6.12	6.98	17.95	16.19	388.00	387.41
DI-138 TO DI-139 (BMP 1)	15.0	0.005	3.18	3.15	1.19	4.69	393.30	392.98
DI-123 TO DI-124 (BMP 1)	15.0	0.036	2.69	2.49	0.66	12.20	395.35	392.01
CB-107 TO CB-108 (BMP 1)	18.0	0.019	1.84	2.81	0.18	14.66	392.65	392.05
CB-127 TO CB-128 (BMP 1)	24.0	0.005	5.96	6.36	17.75	16.11	388.70	388.00
CB-105 TO CB-107 (BMP 1)	30.0	0.005	6.52	6.30	27.16	28.96	386.83	386.56
CB-107 TO DI-123 (BMP 1)	15.0	0.005	3.13	3.19	1.20	4.55	392.01	391.38
DI-137 TO DI-138 (BMP 1)	15.0	0.006	3.61	3.19	1.80	4.96	392.98	392.46
DI-136 TO DI-137 (BMP 1)	15.0	0.011	4.23	5.37	2.91	6.87	392.46	391.42
DI-135 TO DI-136 (BMP 1)	18.0	0.006	4.43	4.56	4.04	8.04	391.52	390.62
CB-132 TO CB-133 (BMP 1)	18.0	0.083	3.38	3.18	1.69	30.30	391.99	390.01
CB-131 TO CB-132 (BMP 1)	18.0	0.010	3.47	2.49	1.84	10.49	390.01	389.53
CB-133 TO DI-134 (BMP 1)	15.0	0.006	3.45	3.50	1.57	4.80	392.82	392.19
CB-105 TO CB-106 (BMP 1)	18.0	0.005	2.59	2.59	0.65	7.43	392.80	392.66
CB-131 TO DI-141 (BMP 1)	18.0	0.005	4.39	4.11	6.56	7.43	389.69	389.53
CB-130 TO CB-131 (BMP 1)	18.0	0.005	5.17	5.55	8.29	7.43	389.53	389.30
CB-103 TO CB-105 (BMP 1)	30.0	0.005	6.46	6.28	27.86	29.00	386.56	386.32
CB-130 TO DI-135 (BMP 1)	18.0	0.008	4.80	5.51	5.08	9.67	390.64	390.28

10-YR ANALYSIS

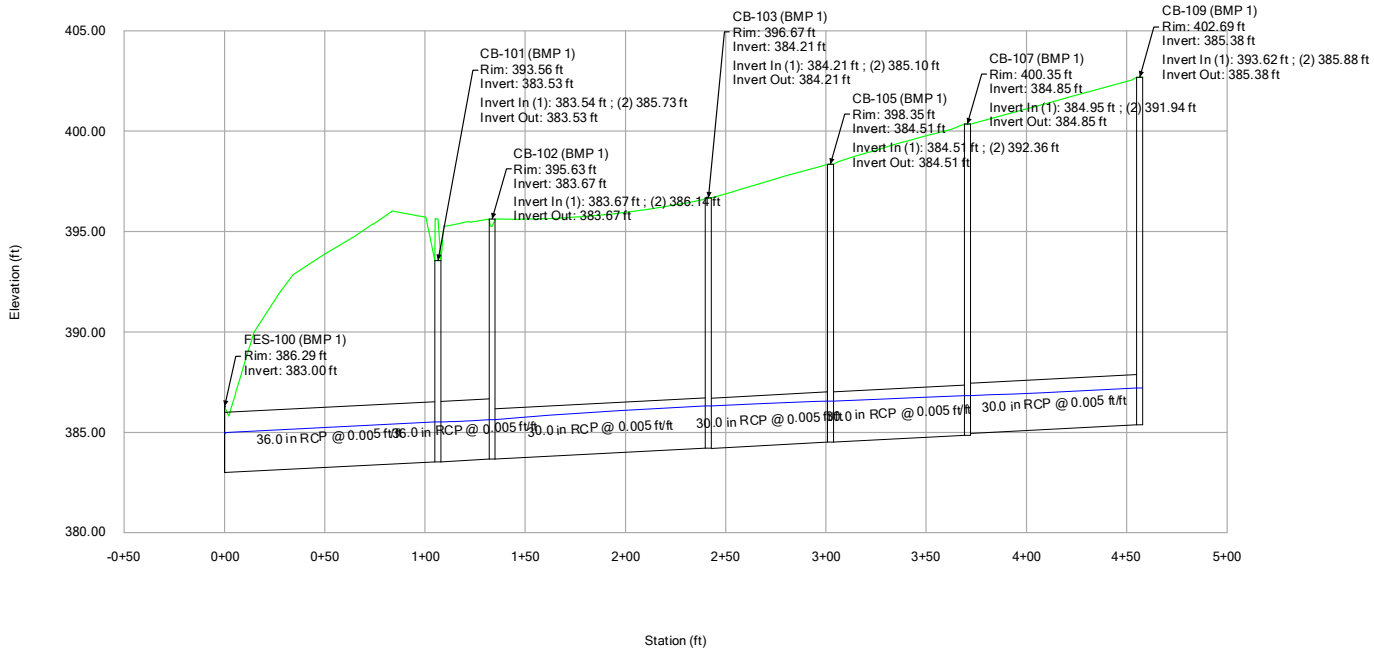
Conduit Results - Time: 0.00 hours

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-129 TO CB-130 (BMP 1)	24.0	0.005	5.67	5.38	13.16	16.00	389.30	388.97
CB-128 TO CB-129 (BMP 1)	24.0	0.005	5.70	5.54	14.93	16.00	388.97	388.70
CB-128 TO YI-148 (BMP 1)	18.0	0.019	3.76	5.84	2.42	14.38	389.34	388.68
DI-141 TO DI-142 (BMP 1)	18.0	0.005	4.67	4.26	6.36	7.43	390.02	389.69
YI-148 TO YI-149 (BMP 1)	18.0	0.054	3.76	8.83	2.43	24.44	391.79	389.17
CB-102 TO CB-103 (BMP 1)	30.0	0.005	6.85	7.37	30.34	29.00	386.32	385.62
CB-103 TO CB-104 (BMP 1)	18.0	0.008	2.02	1.64	2.53	9.43	386.32	386.32
CB-104 TO CB-102B (BMP 1)	18.0	0.006	2.97	3.13	1.06	7.96	386.48	386.32
CB-101 TO CB-102 (BMP 1)	36.0	0.005	7.34	7.20	35.77	47.16	385.62	385.52
CB-102 TO DI-120 (BMP 1)	15.0	0.005	4.13	4.57	3.60	4.57	387.61	386.91
DI-144 TO DI-145 (BMP 1)	15.0	0.012	2.76	3.68	0.72	6.99	391.06	390.47
CB-102B TO DI-122 (BMP 1)	18.0	0.005	2.75	1.87	0.81	7.79	386.84	386.32
DI-143 TO DI-144 (BMP 1)	15.0	0.005	3.06	1.22	1.10	4.57	390.52	390.44
FES-100 TO CB-101 (BMP 1)	36.0	0.005	7.38	7.46	36.77	47.16	385.52	384.97
DI-142 TO DI-143 (BMP 1)	18.0	0.005	4.61	4.58	5.53	7.43	390.44	390.02
DI-143 TO DI-146 (BMP 1)	15.0	0.005	3.65	2.44	2.21	4.50	390.76	390.44
DI-120 TO DI-121 (BMP 1)	15.0	0.005	2.71	0.82	0.72	4.57	387.87	387.61
CB-110 TO CB-111 (BMP 1)	18.0	0.005	4.71	5.21	6.29	7.43	395.62	394.98
CB-113 TO CB-114 (BMP 1)	15.0	0.005	3.90	4.01	2.51	4.71	398.88	398.73
Pipe - (340) (BMP 1)	15.0	0.005	2.58	2.61	0.59	4.60	401.05	400.45
CB-128 TO YI-147 (BMP 1)	15.0	0.005	1.82	1.89	0.18	4.65	389.17	388.91
CB-101 TO CB-147 (BMP 1)	15.0	0.030	2.83	5.29	0.79	11.25	387.53	385.95
Pipe - (341) (BMP 1)	15.0	0.003	1.37	1.80	0.15	3.37	399.40	399.27
CO-3 (BMP 1)	18.0	0.000	1.54	2.69	0.74	0.11	0.48	0.32
CB-102B TO DI-122 (1) (BMP 1)	18.0	0.007	1.10	0.82	0.79	8.57	386.32	386.32
Pipe - (348) (BMP 1)	15.0	0.005	1.26	0.61	0.06	4.66	387.89	387.53
Pipe - (349) (BMP 1)	15.0	0.007	1.38	1.39	0.06	5.32	388.50	388.09

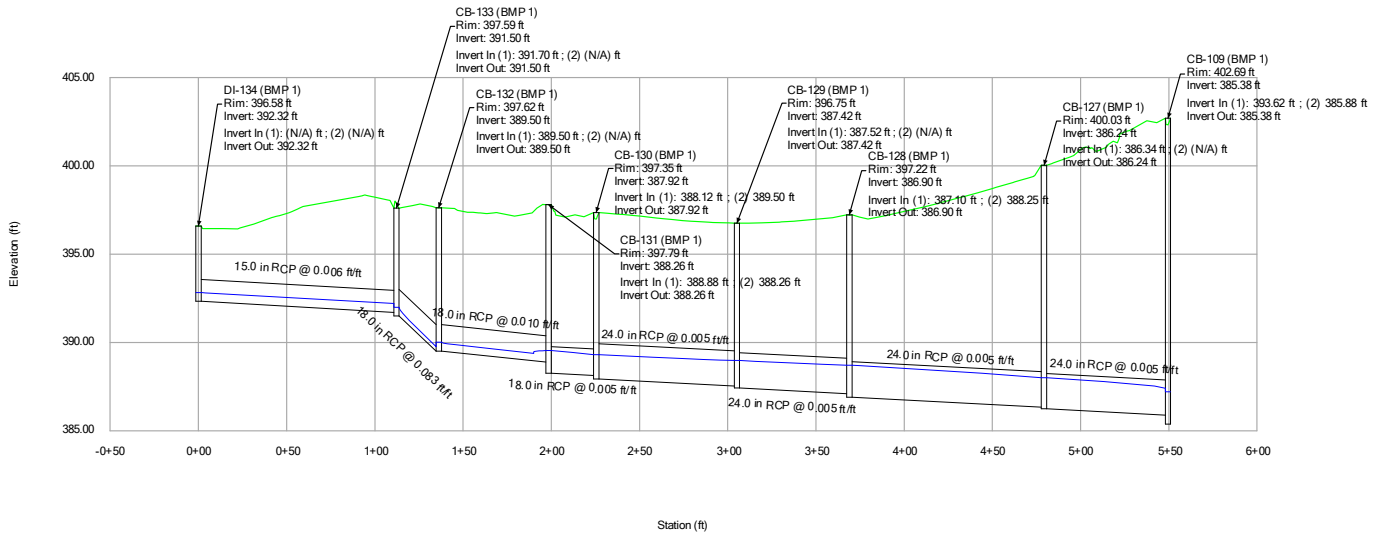
10-YR ANALYSIS



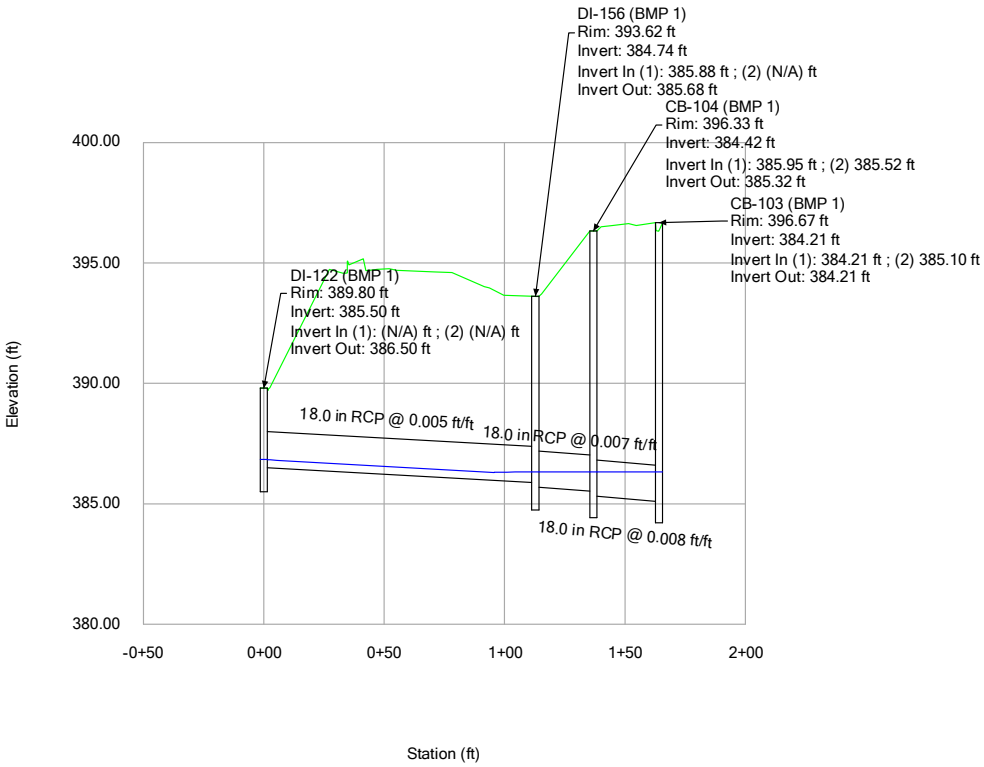
10-YR ANALYSIS



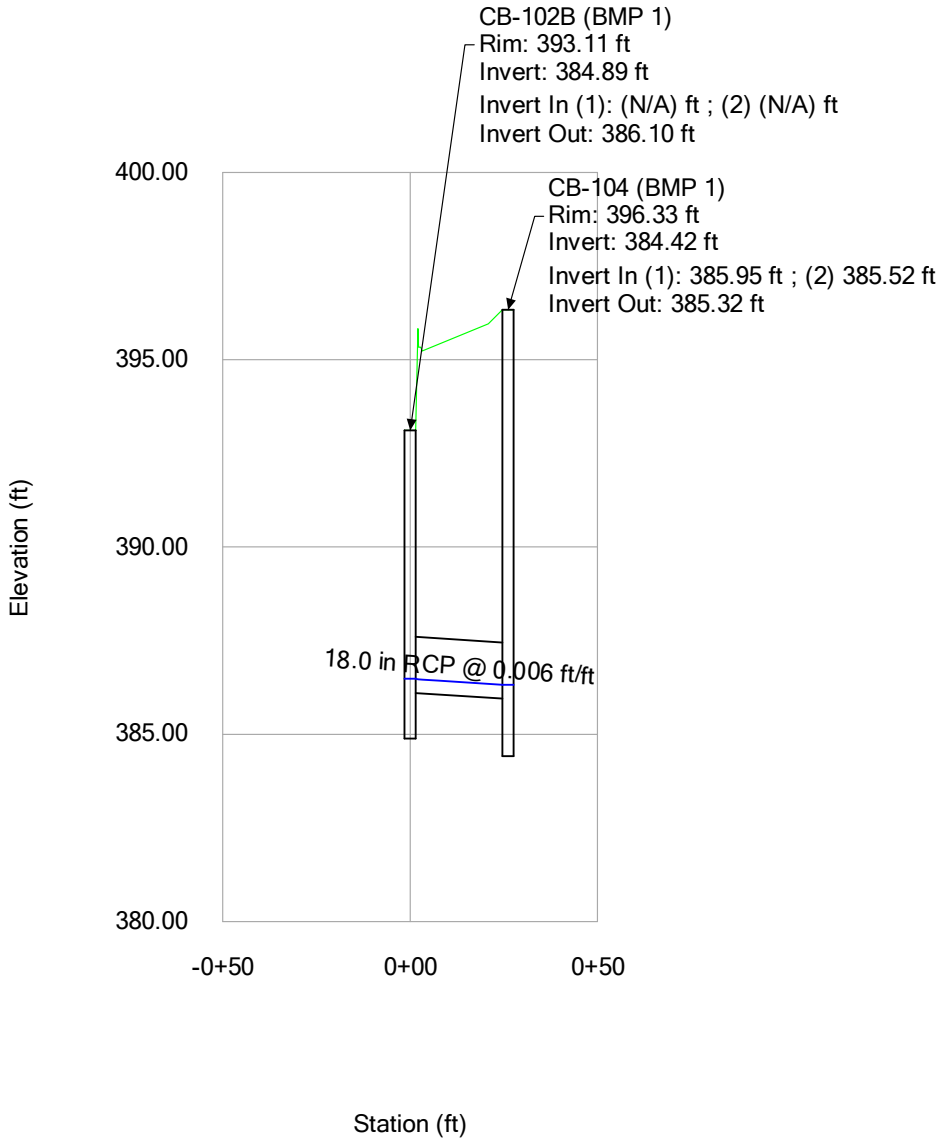
10-YR ANALYSIS



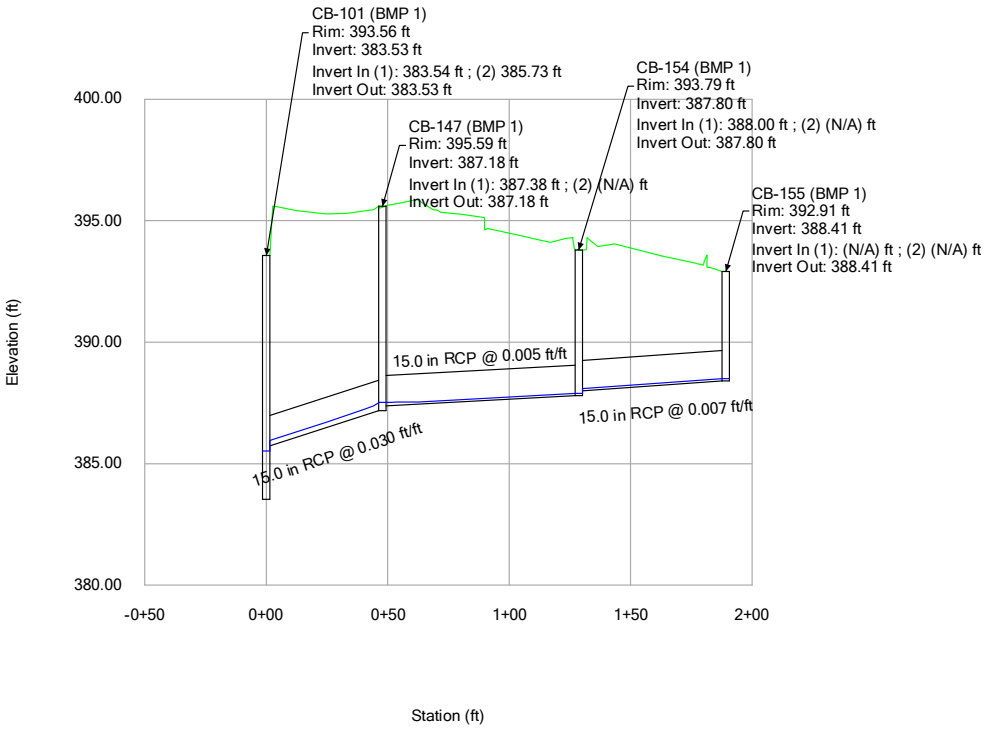
10-YR ANALYSIS



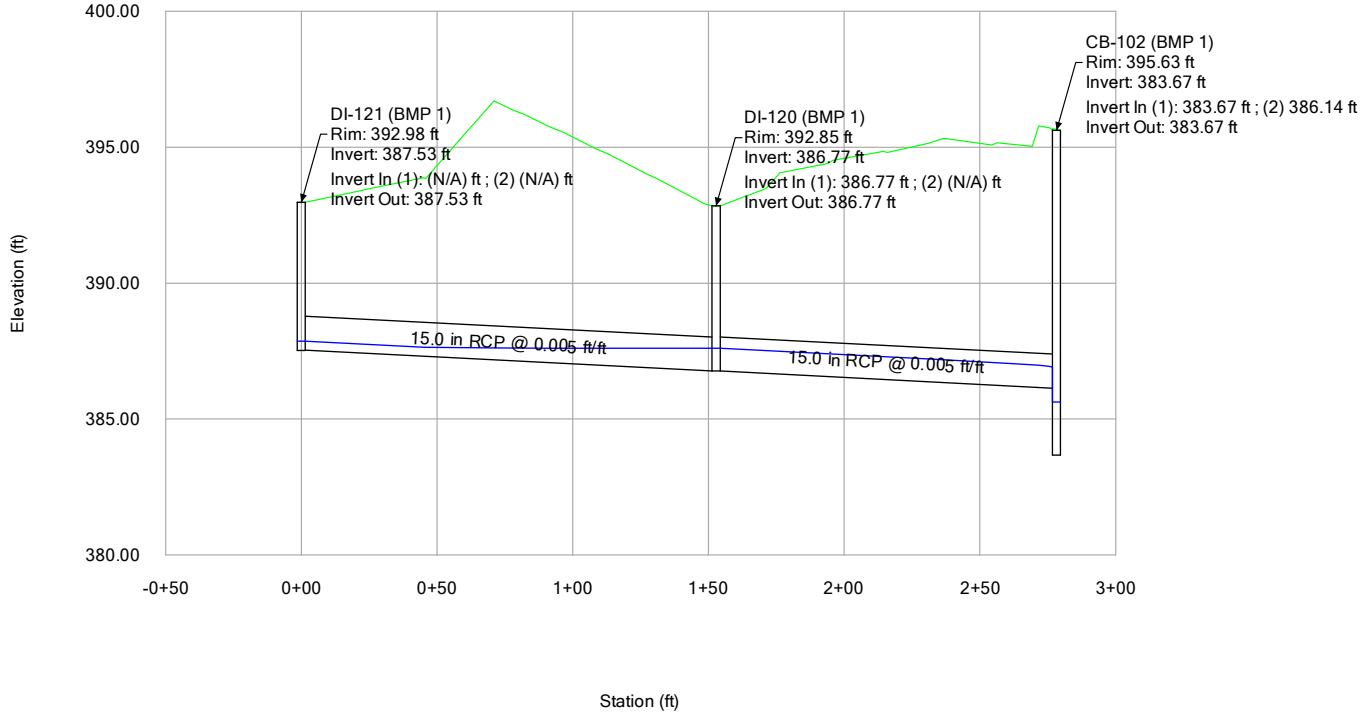
10-YR ANALYSIS



10-YR ANALYSIS



10-YR ANALYSIS



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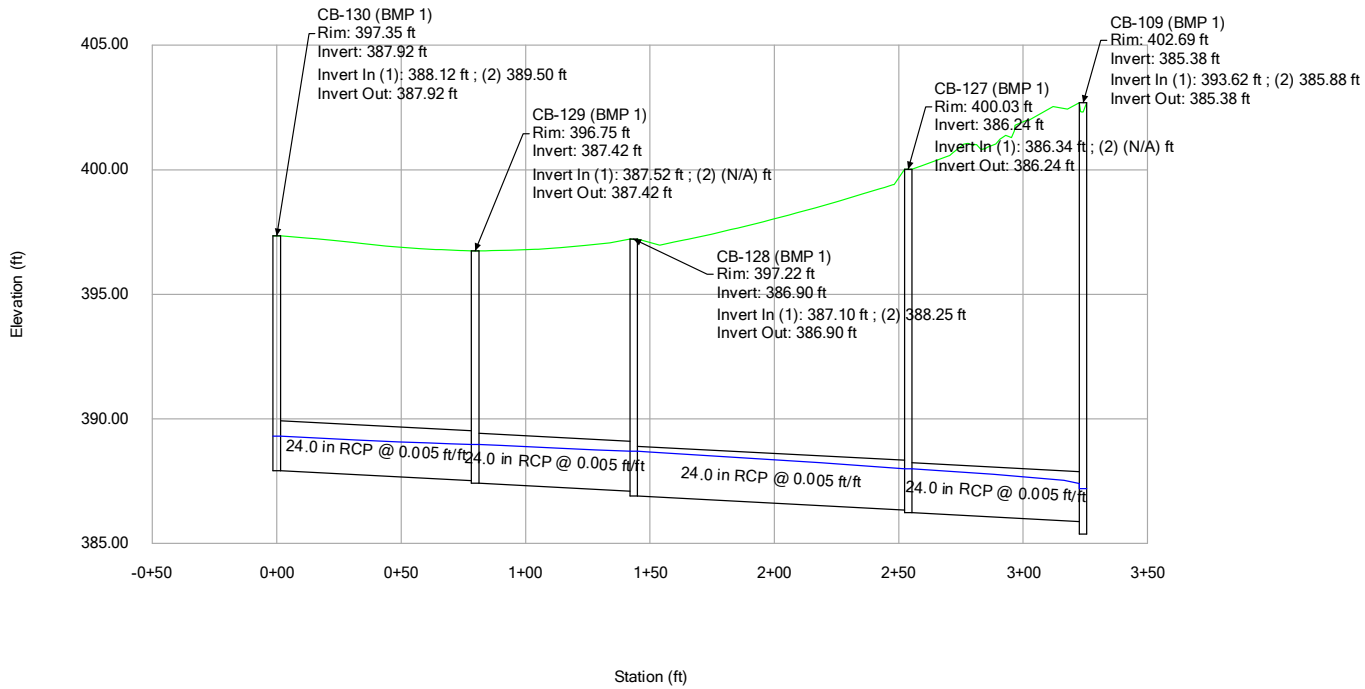
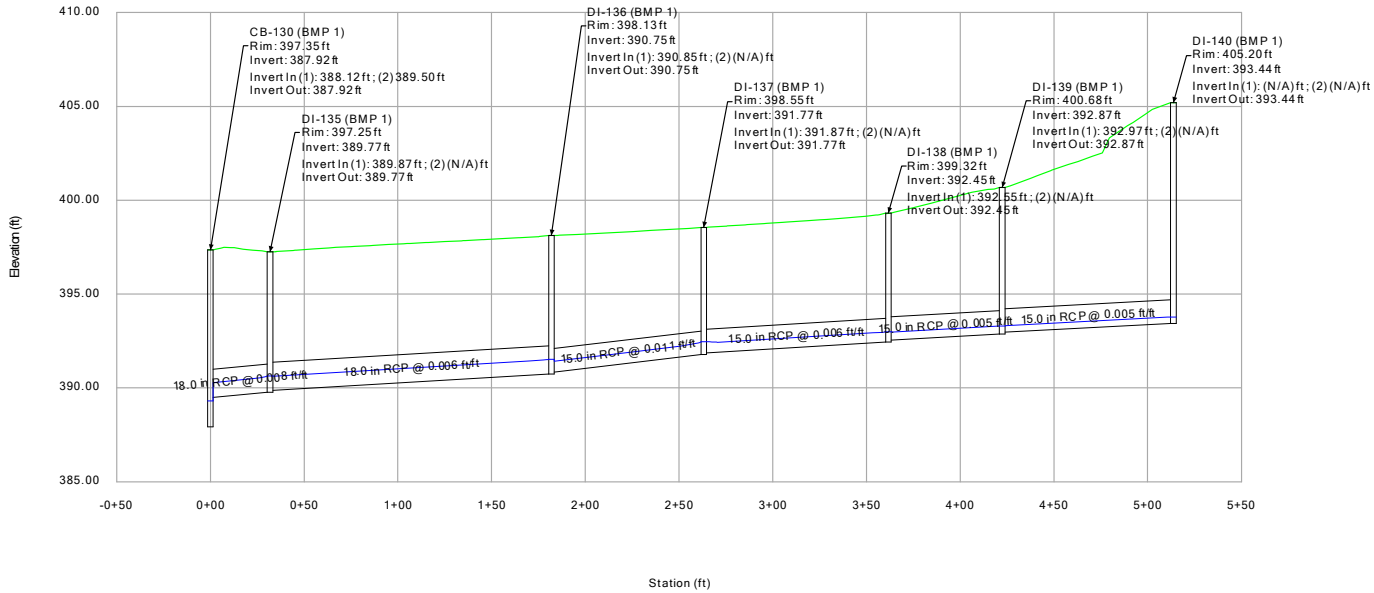


10-YR ANALYSIS



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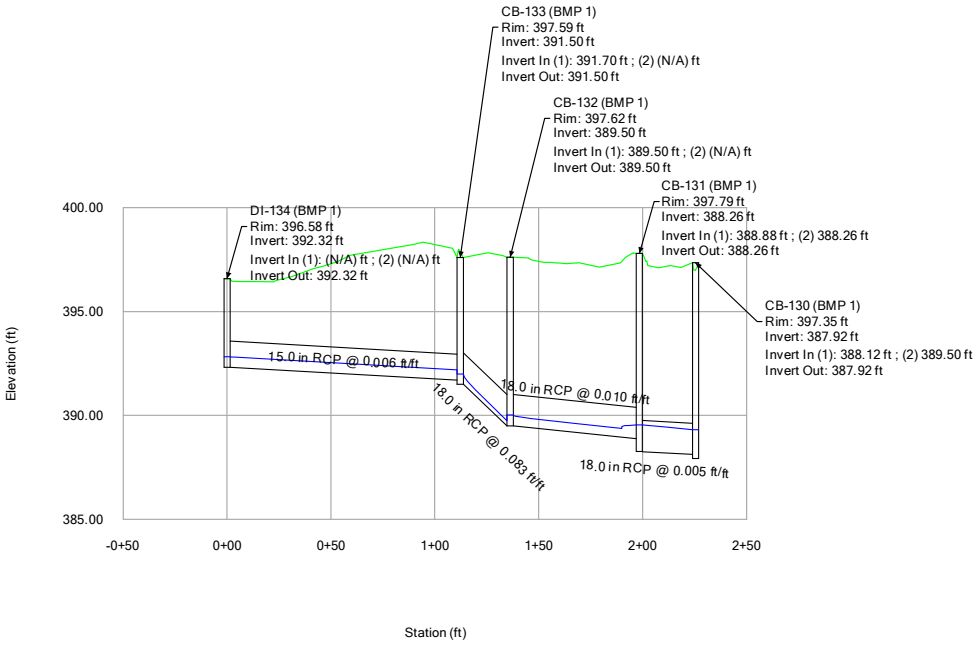
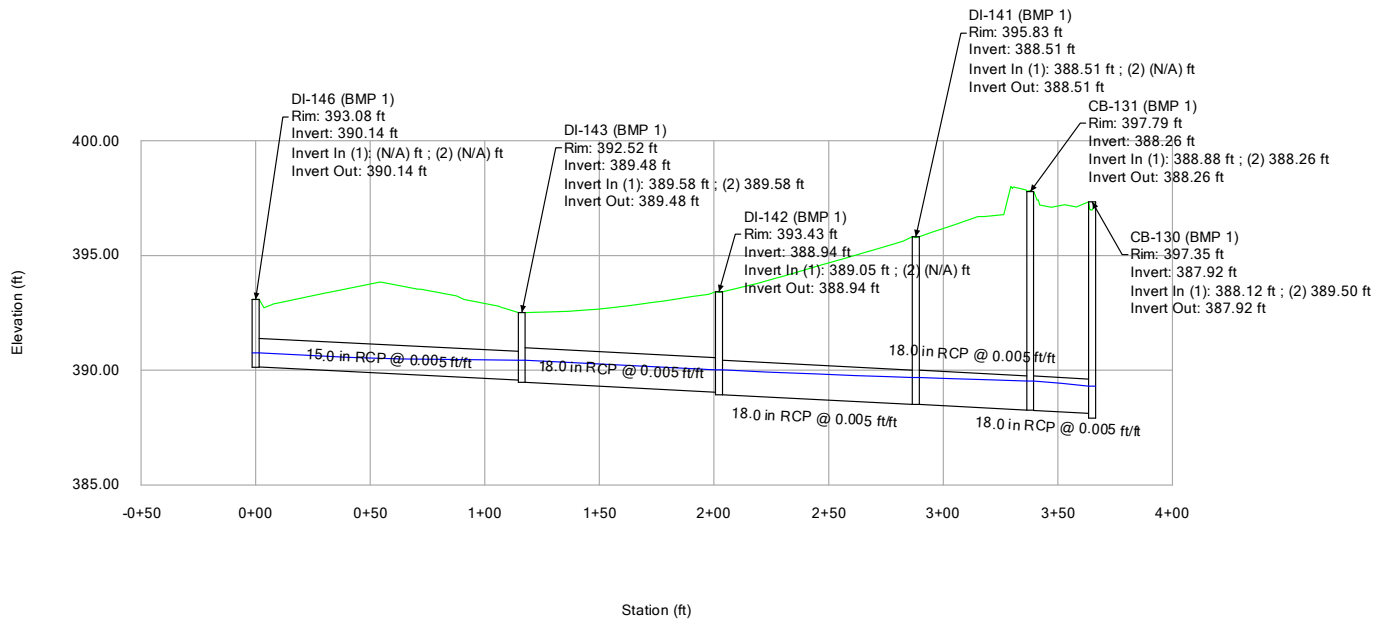
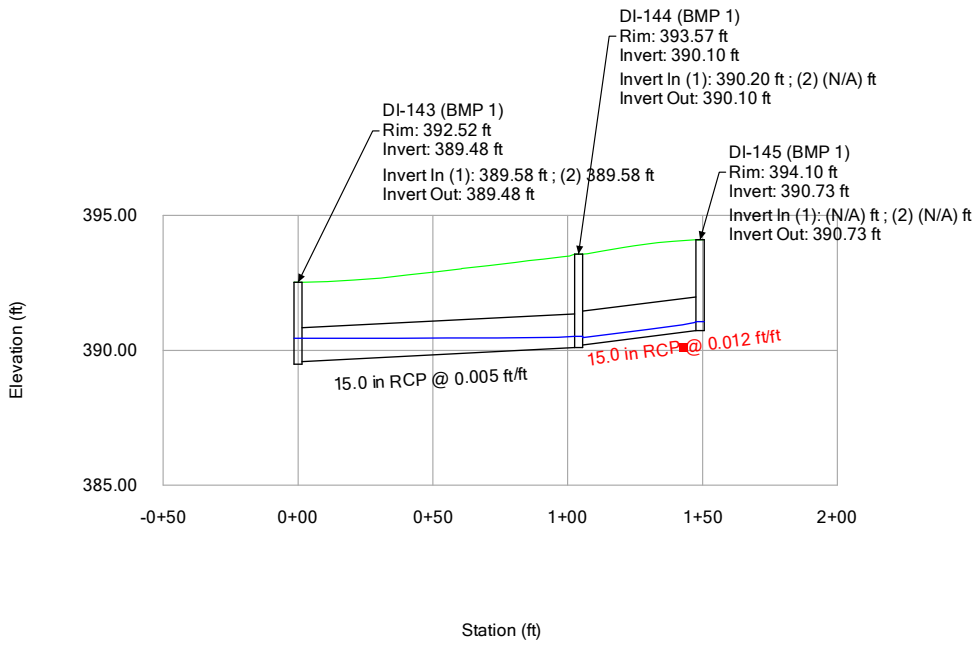


10-YR ANALYSIS



10-YR ANALYSIS



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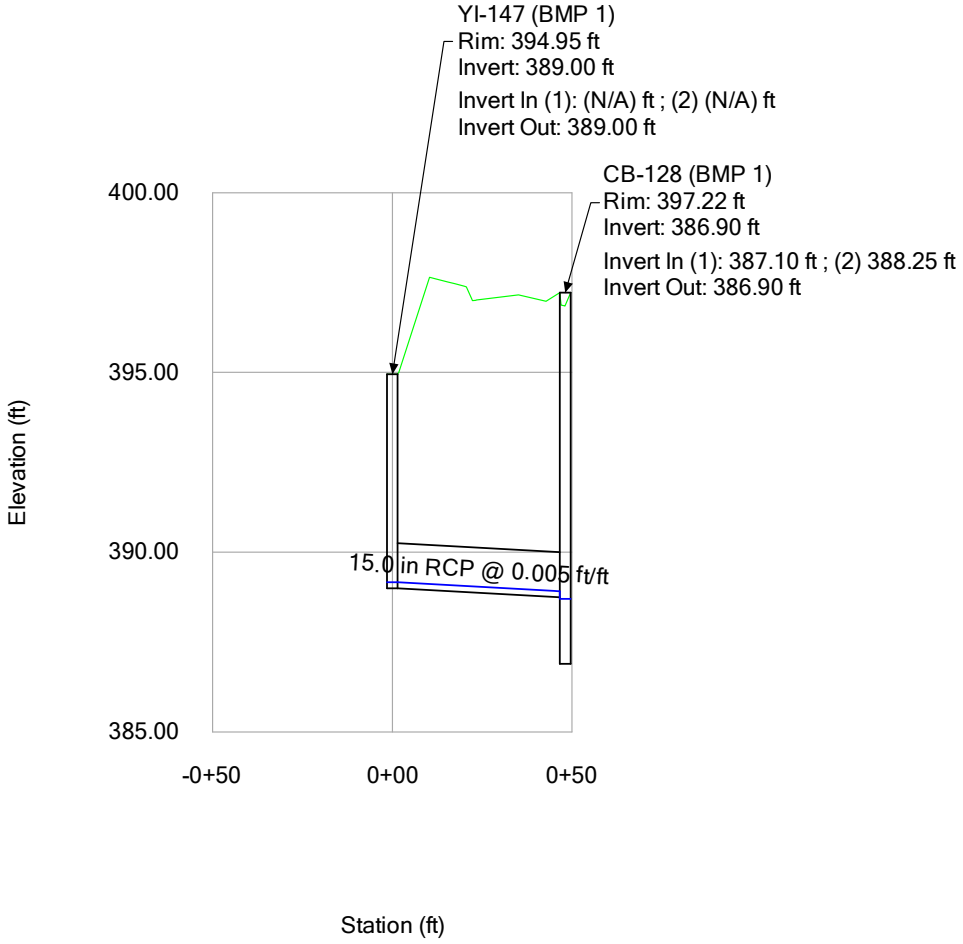
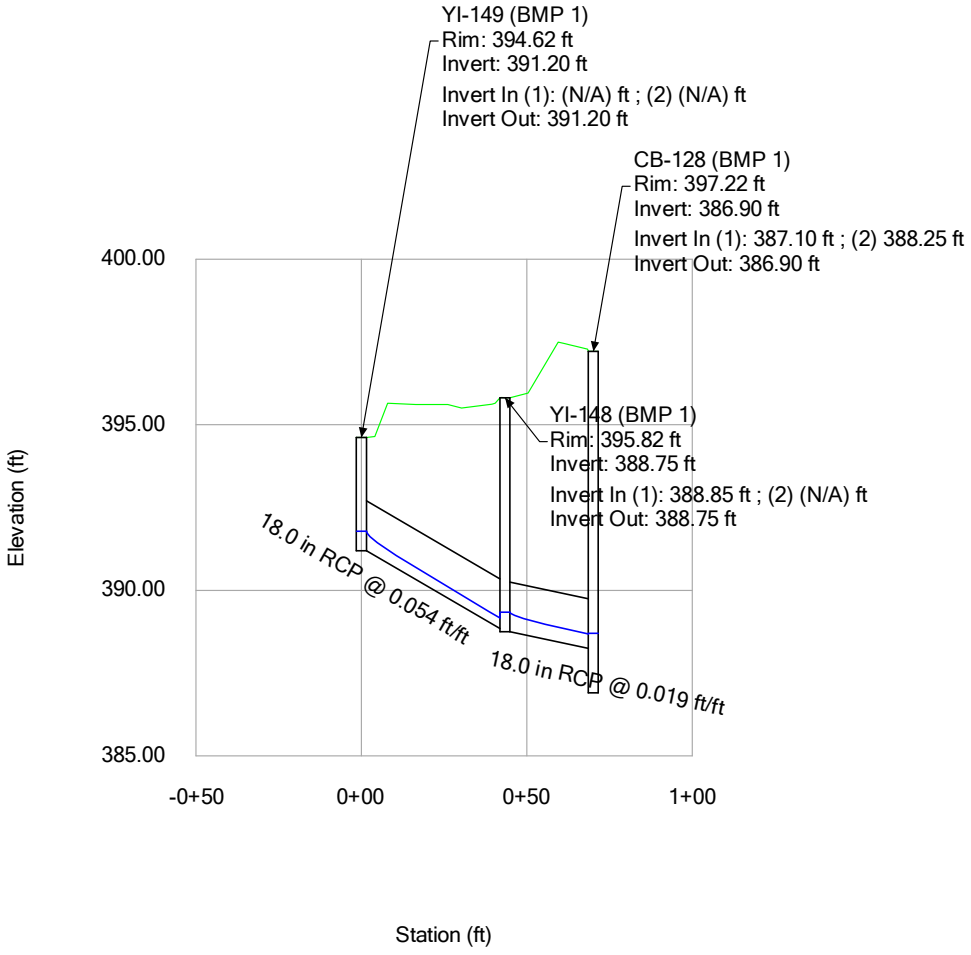
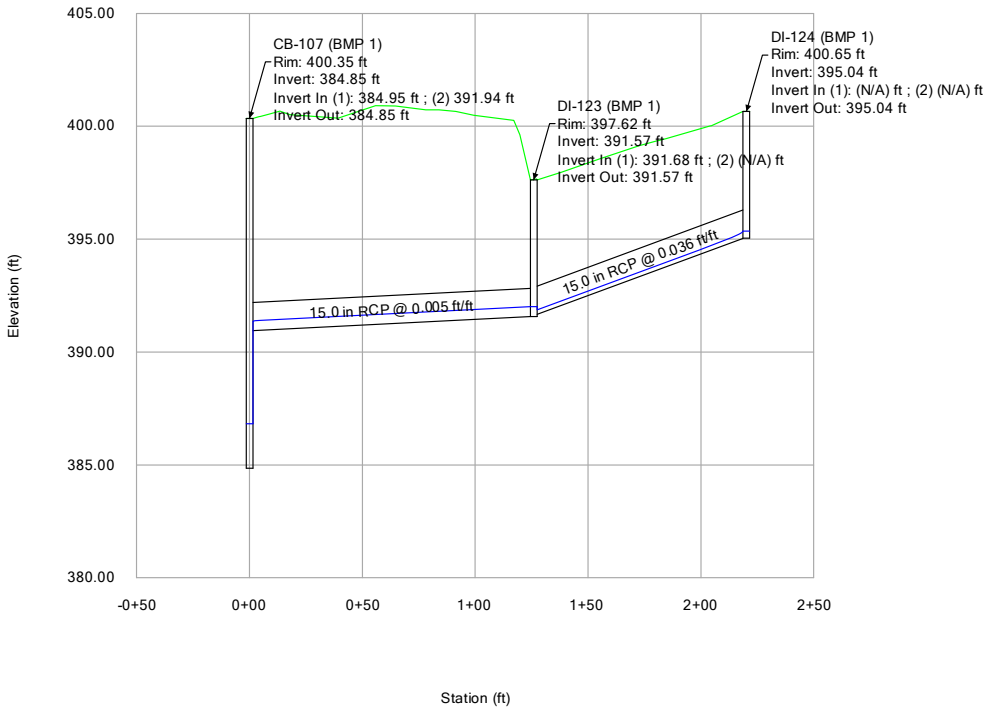


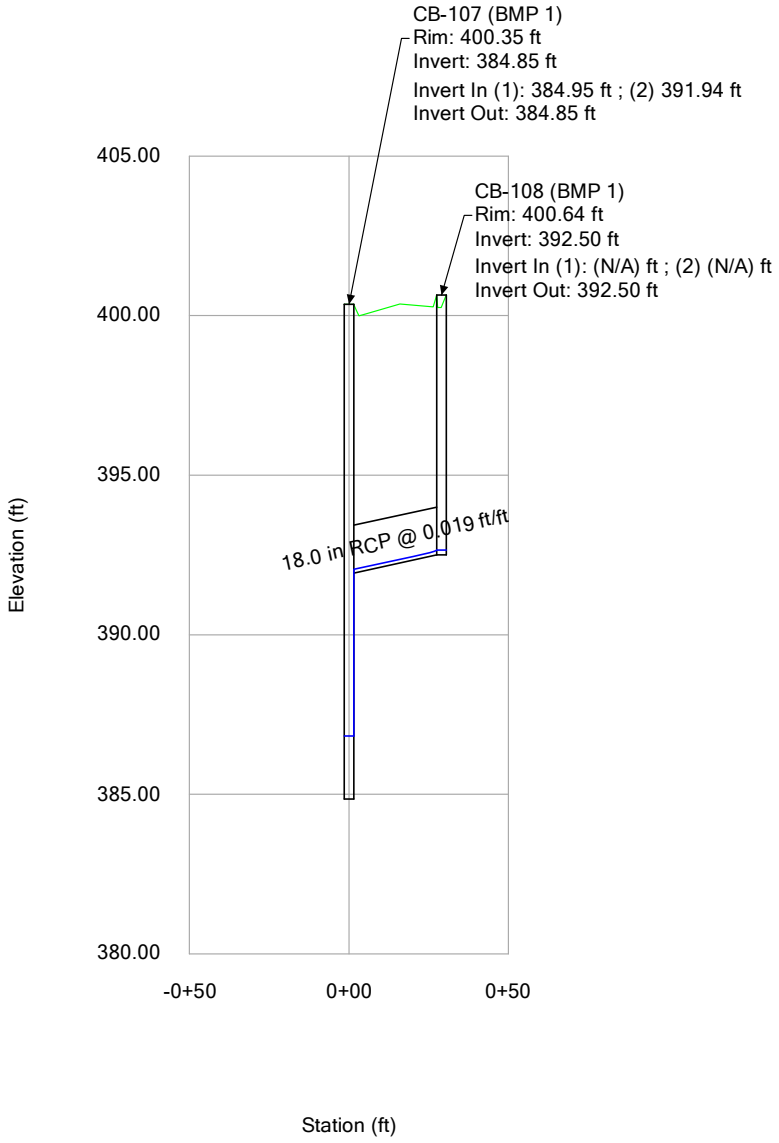
10-YR ANALYSIS



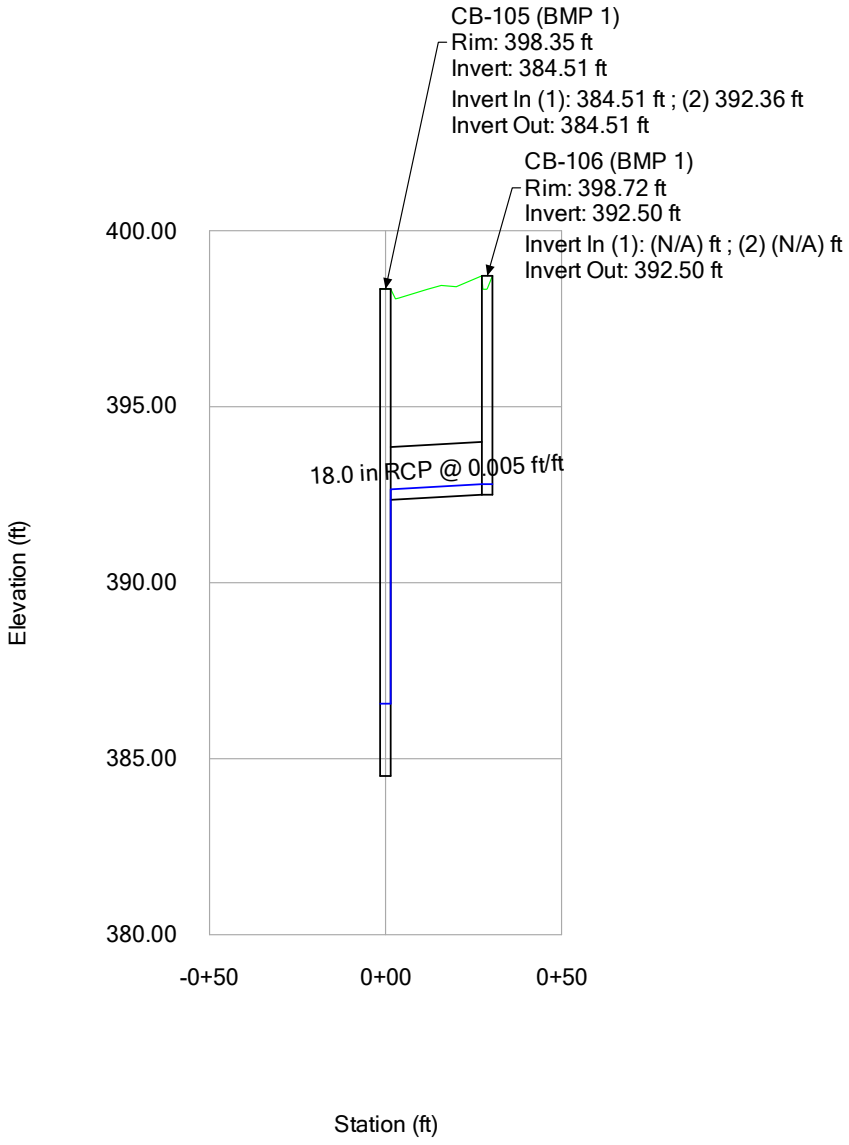
10-YR ANALYSIS



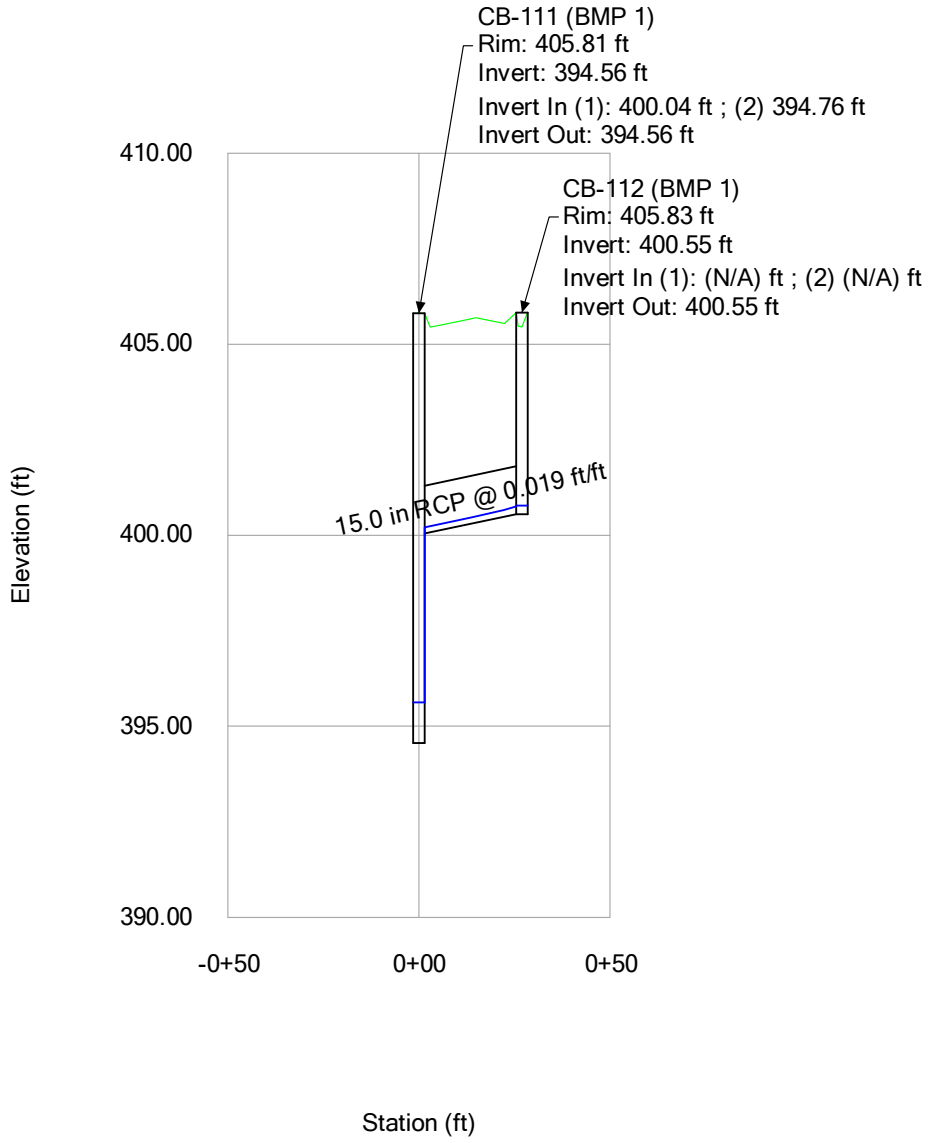
10-YR ANALYSIS



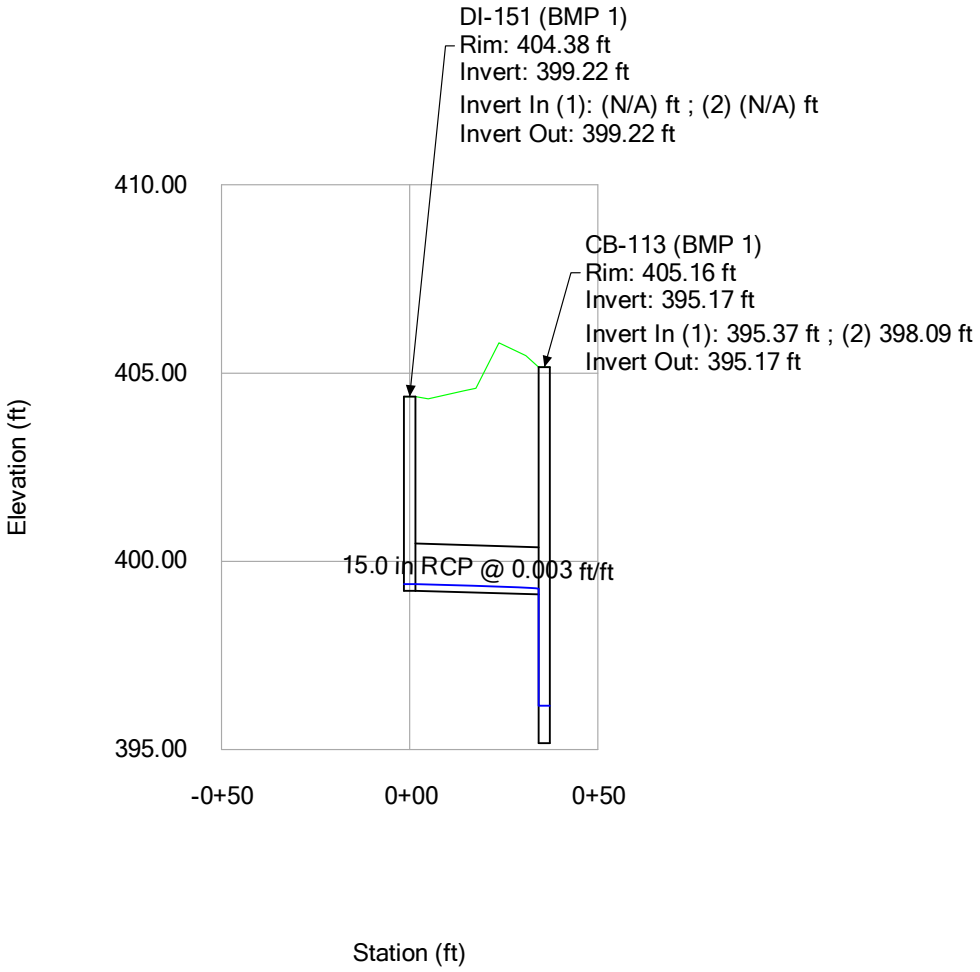
10-YR ANALYSIS



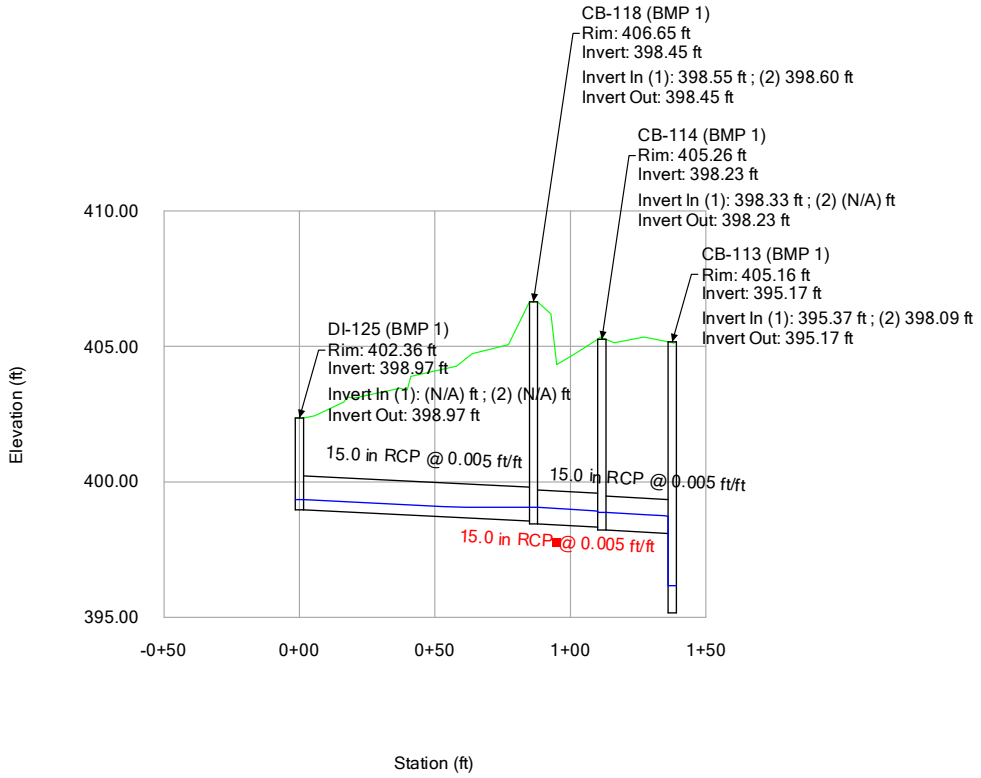
10-YR ANALYSIS



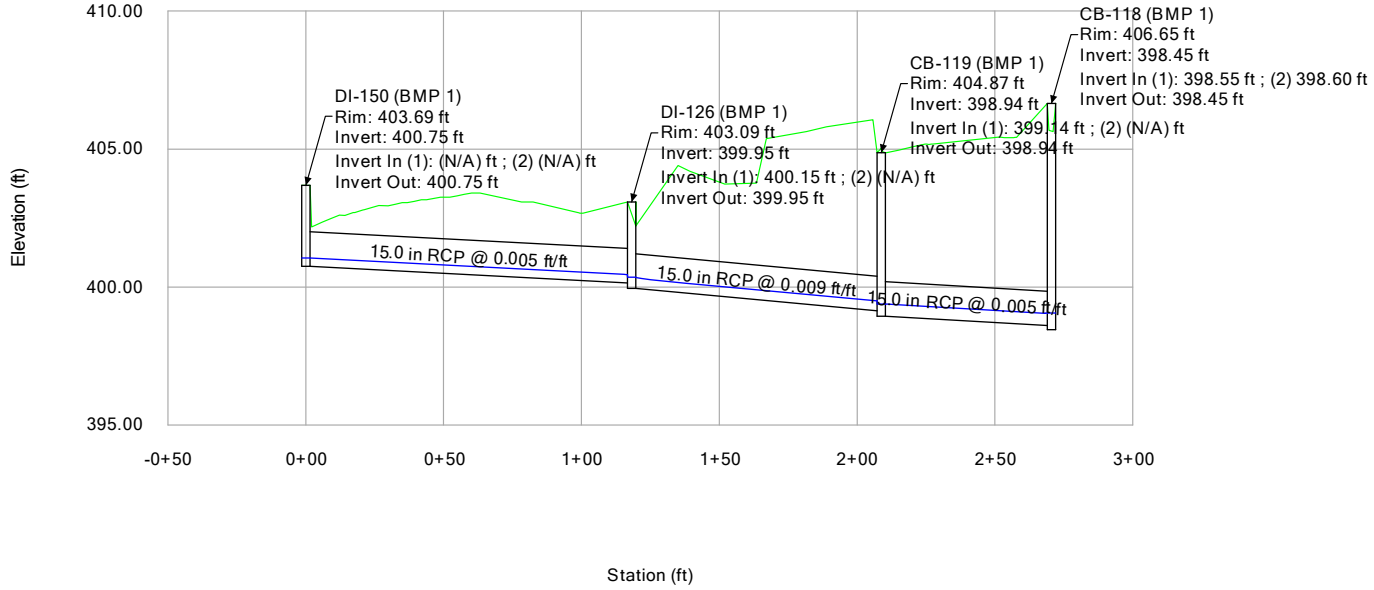
10-YR ANALYSIS



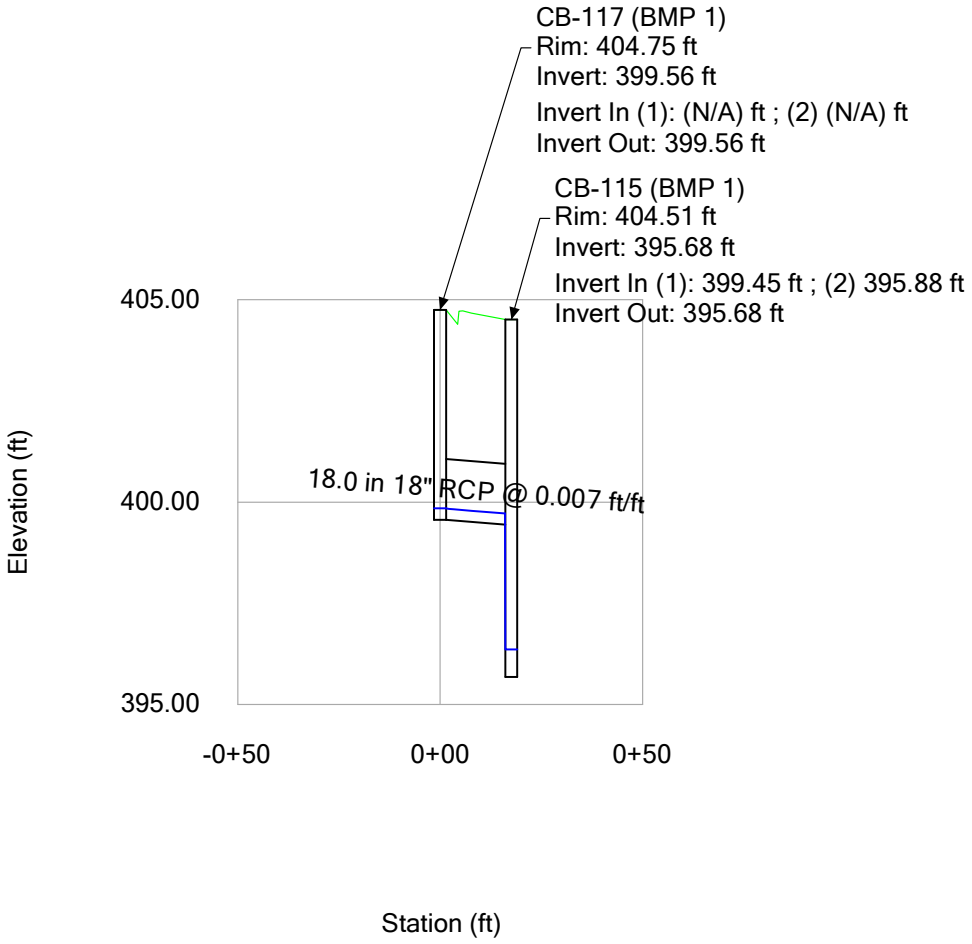
10-YR ANALYSIS



10-YR ANALYSIS



10-YR ANALYSIS



INLET SPREAD - 4IN/HR

SCM 1 - 25 YR STORM

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-102B (BMP 1)	0.203	1.55	0.084	0.950
CB-101 (BMP 1)	0.071	0.54	0.084	0.950
CB-108 (BMP 1)	0.025	0.19	0.084	0.950
CB-133 (BMP 1)	0.023	0.18	0.084	0.950
CB-132 (BMP 1)	0.023	0.17	0.084	0.950
CB-118 (BMP 1)	0.009	0.07	0.084	0.950
CB-147 (BMP 1)	0.092	0.70	0.084	0.950
CB-153 (BMP 1)	0.128	0.97	0.084	0.950
CB-129 (BMP 1)	0.301	2.22	0.084	0.920
DI-139 (BMP 1)	0.043	0.31	0.084	0.920
CB-116 (BMP 1)	0.387	2.83	0.084	0.910
DI-140 (BMP 1)	0.161	1.16	0.084	0.900
CB-155 (BMP 1)	0.009	0.06	0.083	0.900
DI-138 (BMP 1)	0.045	0.32	0.084	0.890
CB-127 (BMP 1)	0.052	0.37	0.084	0.880
CB-117 (BMP 1)	0.109	0.76	0.084	0.870

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-106 (BMP 1)	0.118	0.83	0.084	0.870
CB-115 (BMP 1)	0.006	0.04	0.084	0.870
YI-147 (BMP 1)	0.028	0.19	0.084	0.870
DI-145 (BMP 1)	0.134	0.94	0.084	0.870
DI-144 (BMP 1)	0.044	0.31	0.084	0.870
DI-141 (BMP 1)	0.049	0.34	0.084	0.870
CB-131 (BMP 1)	0.002	0.02	0.084	0.870
CB-102 (BMP 1)	0.507	3.46	0.084	0.850
CB-103 (BMP 1)	0.089	0.61	0.084	0.850
CB-105 (BMP 1)	0.042	0.28	0.084	0.850
CB-107 (BMP 1)	0.112	0.77	0.084	0.850
DI-135 (BMP 1)	0.278	1.90	0.084	0.850
DI-136 (BMP 1)	0.202	1.38	0.084	0.850
DI-137 (BMP 1)	0.192	1.31	0.084	0.850
CB-110 (BMP 1)	0.197	1.28	0.084	0.810
CB-109 (BMP 1)	0.234	1.52	0.084	0.810

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-143 (BMP 1)	0.362	2.35	0.084	0.810
DI-142 (BMP 1)	0.203	1.32	0.084	0.810
CB-111 (BMP 1)	0.038	0.24	0.084	0.800
CB-113 (BMP 1)	0.045	0.29	0.084	0.800
CB-104 (BMP 1)	0.135	0.87	0.084	0.800
CB-112 (BMP 1)	0.057	0.36	0.084	0.790
CB-114 (BMP 1)	0.074	0.47	0.084	0.790
DI-150 (BMP 1)	0.106	0.66	0.084	0.770
DI-126 (BMP 1)	0.098	0.59	0.084	0.750
CB-130 (BMP 1)	0.007	0.04	0.084	0.700
DI-120 (BMP 1)	0.597	3.36	0.084	0.700
DI-121 (BMP 1)	0.142	0.80	0.084	0.700
CB-128 (BMP 1)	0.146	0.82	0.084	0.700
DI-134 (BMP 1)	0.503	2.62	0.084	0.650
YI-149 (BMP 1)	0.516	2.69	0.084	0.650
DI-123 (BMP 1)	0.142	0.68	0.084	0.600

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-125 (BMP 1)	0.200	0.96	0.084	0.600
DI-146 (BMP 1)	0.509	2.45	0.084	0.600
DI-124 (BMP 1)	0.173	0.83	0.084	0.600
DI-122 (BMP 1)	0.226	1.09	0.084	0.600
DI-151 (BMP 1)	0.034	0.16	0.084	0.600
CB-119 (BMP 1)	0.057	0.25	0.084	0.550
YI-148 (BMP 1)	0.002	0.01	0.084	0.500
CB-154 (BMP 1)	0.001	0.00	0.000	0.000

25-YR ANALYSIS

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-112 (BMP 1)	0.38	0.01	0.38	96.5	400.79	400.79	3.0	2.31	2.31
CB-111 (BMP 1)	0.24	0.00	6.97	99.6	395.72	395.72	3.0	5.27	4.78
DI-140 (BMP 1)	0.93	0.24	0.93	79.6	393.82	393.82	3.0	2.95	2.95
CB-113 (BMP 1)	0.28	0.00	6.48	98.9	396.25	396.25	3.0	3.22	4.76
DI-126 (BMP 1)	0.59	0.00	1.21	100.0	400.38	400.38	3.0	2.69	3.20
CB-114 (BMP 1)	0.44	0.03	2.79	94.2	398.92	398.92	3.0	3.94	4.00
CB-115 (BMP 1)	0.04	0.00	3.47	100.0	396.41	396.41	3.0	4.18	4.10
CB-117 (BMP 1)	0.66	0.10	0.66	87.1	399.87	399.87	3.0	2.61	2.61
CB-118 (BMP 1)	0.07	0.00	2.38	100.0	399.10	399.10	3.0	3.14	3.72
DI-125 (BMP 1)	0.96	0.00	0.96	100.0	399.36	399.36	3.0	2.91	2.91
CB-119 (BMP 1)	0.25	0.00	1.43	99.5	399.41	399.41	3.0	3.87	3.36
CB-110 (BMP 1)	1.00	0.28	7.76	77.8	395.04	395.04	3.0	5.39	5.01
CB-109 (BMP 1)	1.14	0.39	28.28	74.4	387.49	387.49	3.0	7.35	6.39
CB-116 (BMP 1)	2.83	0.00	2.83	100.0	397.07	397.07	3.0	3.70	3.70
DI-139 (BMP 1)	0.43	0.02	1.32	94.8	393.32	393.32	3.0	2.96	3.28
DI-124 (BMP 1)	0.71	0.12	0.71	85.6	395.37	395.37	3.0	2.75	2.75

25-YR ANALYSIS

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-108 (BMP 1)	0.19	0.00	0.19	100.0	392.66	392.66	3.0	1.89	1.89
CB-127 (BMP 1)	0.58	0.07	19.93	89.7	388.18	388.18	3.0	6.51	6.40
CB-107 (BMP 1)	0.92	0.24	30.12	79.7	387.16	387.16	3.0	6.16	6.35
DI-138 (BMP 1)	0.75	0.14	2.03	84.6	393.02	393.02	3.0	3.16	3.74
DI-137 (BMP 1)	1.33	0.56	3.26	70.4	392.50	392.50	3.0	3.29	4.40
DI-136 (BMP 1)	1.36	0.58	4.50	70.0	391.56	391.56	3.0	5.53	4.59
CB-132 (BMP 1)	0.17	0.00	1.99	100.0	390.03	390.03	3.0	3.25	3.55
CB-133 (BMP 1)	0.18	0.00	1.83	100.0	392.01	392.01	3.0	3.57	3.46
CB-106 (BMP 1)	0.71	0.12	0.71	85.7	392.81	392.81	3.0	2.65	2.65
CB-131 (BMP 1)	0.02	0.00	9.16	100.0	389.74	389.74	3.0	1.89	5.19
DI-123 (BMP 1)	0.61	0.08	1.31	88.9	392.03	392.03	3.0	2.50	3.20
CB-105 (BMP 1)	0.48	0.04	30.90	93.0	386.85	386.85	3.0	6.30	6.46
CB-130 (BMP 1)	0.04	0.00	14.56	100.0	389.55	389.55	3.0	5.28	5.32
DI-135 (BMP 1)	1.34	0.56	5.62	70.4	390.68	390.68	3.0	4.59	4.98
CB-128 (BMP 1)	0.75	0.14	19.68	84.4	389.01	389.01	3.0	1.08	6.26
CB-129 (BMP 1)	2.36	0.00	16.54	100.0	389.29	389.29	3.0	4.95	5.41

25-YR ANALYSIS

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)	1.69	0.94	1.69	64.4	392.84	392.84	3.0	3.54	3.54
DI-141 (BMP 1)	0.33	0.01	7.29	97.7	389.95	389.95	3.0	4.05	4.18
YI-148 (BMP 1)	0.01	0.00	2.69	100.0	389.37	389.37	3.0	9.10	3.88
CB-103 (BMP 1)	0.58	0.07	33.61	89.9	386.56	386.56	3.0	6.45	7.02
CB-104 (BMP 1)	0.81	0.17	2.75	82.6	386.57	386.57	3.0	0.65	1.76
YI-149 (BMP 1)	2.69	0.00	2.69	100.0	391.82	391.82	3.0	3.89	3.89
CB-102 (BMP 1)	3.53	0.00	39.68	100.0	385.79	385.79	3.0	7.57	7.43
DI-145 (BMP 1)	0.78	0.16	0.78	83.5	391.07	391.07	3.0	2.82	2.82
CB-102B (BMP 1)	1.15	0.40	1.15	74.3	386.55	386.55	3.0	2.54	2.54
DI-144 (BMP 1)	0.44	0.03	1.21	94.4	390.58	390.58	3.0	2.53	2.84
CB-101 (BMP 1)	0.50	0.04	40.81	92.5	385.69	385.69	3.0	7.32	7.51
DI-142 (BMP 1)	1.02	0.30	7.07	77.1	390.26	390.26	3.0	4.03	4.28
DI-146 (BMP 1)	2.45	0.00	2.45	100.0	390.80	390.80	3.0	3.74	3.74
DI-121 (BMP 1)	0.80	0.00	0.80	100.0	387.89	387.89	3.0	2.80	2.80
DI-120 (BMP 1)	3.36	0.00	4.00	100.0	387.68	387.68	3.0	0.83	4.20
DI-143 (BMP 1)	2.68	0.00	6.16	100.0	390.54	390.54	3.0	2.41	4.60

25-YR ANALYSIS

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)
YI-147 (BMP 1)	0.19	0.00	0.19	100.0	389.17	389.17	3.0	1.87	1.87
DI-122 (BMP 1)	0.88	0.21	0.88	80.8	386.85	386.85	3.0	2.82	2.82
DI-150 (BMP 1)	0.66	0.00	0.66	100.0	401.07	401.07	3.0	2.66	2.66
CB-147 (BMP 1)	0.91	0.00	0.91	100.0	387.56	387.56	3.0	0.60	2.95
DI-151 (BMP 1)	0.16	0.00	0.16	100.0	399.41	399.41	3.0	1.41	1.41
CB-153 (BMP 1)	0.81	0.17	0.81	82.8	0.49	0.49	3.0	1.59	1.59
CB-154 (BMP 1)	0.00	0.00	0.06	100.0	387.90	387.90	3.0	1.47	1.33
DI-156 (BMP 1)	0.00	0.00	0.86	100.0	386.57	386.57	3.0	1.12	0.79
CB-155 (BMP 1)	0.06	0.00	0.06	100.0	388.51	388.51	3.0	1.45	1.45

25-YR ANALYSIS

Conduit Results - Time: 0.00 hours

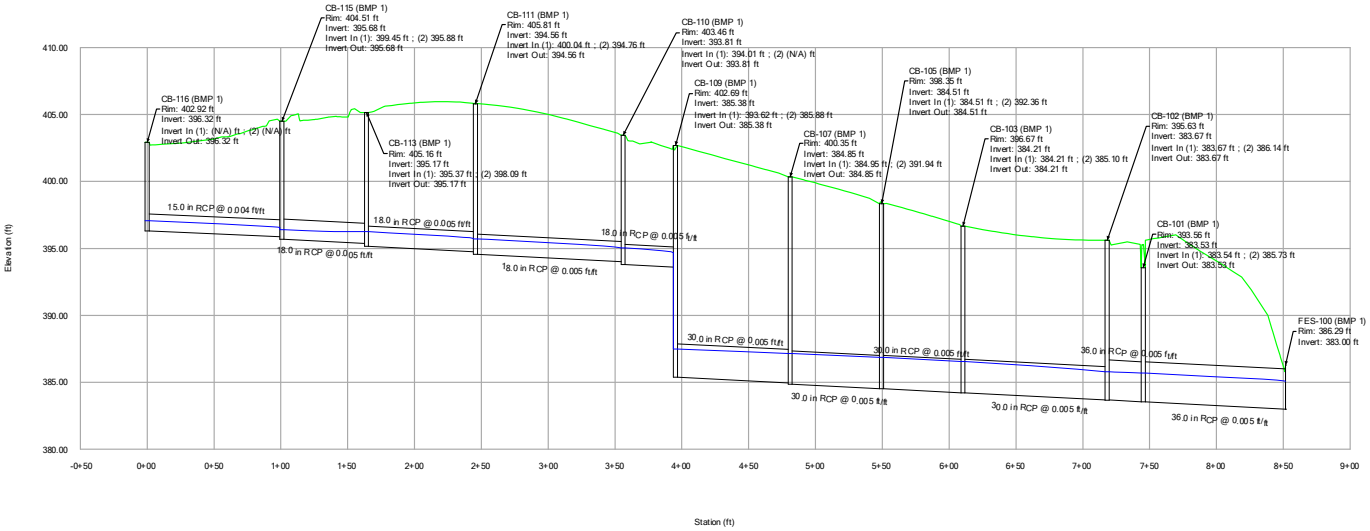
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-111 TO CB-112 (BMP 1)	15.0	0.019	2.31	3.58	0.38	8.85	400.79	400.22
CB-111 TO CB-113 (BMP 1)	18.0	0.005	4.76	5.27	6.48	7.46	396.25	395.74
DI-139 TO DI-140 (BMP 1)	15.0	0.005	2.95	2.96	0.93	4.64	393.82	393.35
CB-113 TO CB-115 (BMP 1)	18.0	0.005	4.10	3.22	3.47	7.35	396.41	396.25
CB-119 TO DI-126 (BMP 1)	15.0	0.009	3.20	3.87	1.21	6.11	400.38	399.52
CB-114 TO CB-118 (BMP 1)	15.0	0.005	3.72	3.94	2.38	4.50	399.10	398.95
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 CB-116 (BMP 1)	15.0	0.004	3.70	4.18	2.83	4.25	397.07	396.56
CB-118 TO DI-125 (BMP 1)	15.0	0.005	2.91	1.88	0.96	4.49	399.36	399.10
CB-118 TO CB-119 (BMP 1)	15.0	0.005	3.36	3.14	1.43	4.79	399.41	399.10
CB-109 TO CB-110 (BMP 1)	18.0	0.005	5.01	5.70	7.76	7.43	395.04	394.69
CB-107 TO CB-109 (BMP 1)	30.0	0.005	6.39	6.16	28.28	29.00	387.49	387.16
CB-109 TO CB-127 (BMP 1)	24.0	0.005	6.40	7.35	19.93	16.19	388.18	387.49
DI-138 TO DI-139 (BMP 1)	15.0	0.005	3.28	3.16	1.32	4.69	393.32	393.02
DI-123 TO DI-124 (BMP 1)	15.0	0.036	2.75	2.50	0.71	12.20	395.37	392.03
CB-107 TO CB-108 (BMP 1)	18.0	0.019	1.89	2.90	0.19	14.66	392.66	392.06
CB-127 TO CB-128 (BMP 1)	24.0	0.005	6.26	6.51	19.68	16.11	389.01	388.18
CB-105 TO CB-107 (BMP 1)	30.0	0.005	6.35	6.30	30.12	28.96	387.16	386.85
CB-107 TO DI-123 (BMP 1)	15.0	0.005	3.20	3.27	1.31	4.55	392.03	391.40
DI-137 TO DI-138 (BMP 1)	15.0	0.006	3.74	3.29	2.03	4.96	393.02	392.50
DI-136 TO DI-137 (BMP 1)	15.0	0.011	4.40	5.53	3.26	6.87	392.50	391.46
DI-135 TO DI-136 (BMP 1)	18.0	0.006	4.59	4.59	4.50	8.04	391.56	390.68
CB-132 TO CB-133 (BMP 1)	18.0	0.083	3.46	3.25	1.83	30.30	392.01	390.03
CB-131 TO CB-132 (BMP 1)	18.0	0.010	3.55	1.89	1.99	10.49	390.03	389.74
CB-133 TO DI-134 (BMP 1)	15.0	0.006	3.54	3.57	1.69	4.80	392.84	392.21
CB-105 TO CB-106 (BMP 1)	18.0	0.005	2.65	2.65	0.71	7.43	392.81	392.67
CB-131 TO DI-141 (BMP 1)	18.0	0.005	4.18	4.13	7.29	7.43	389.95	389.74
CB-130 TO CB-131 (BMP 1)	18.0	0.005	5.19	5.28	9.16	7.43	389.74	389.55
CB-103 TO CB-105 (BMP 1)	30.0	0.005	6.46	6.45	30.90	29.00	386.85	386.56
CB-130 TO DI-135 (BMP 1)	18.0	0.008	4.98	5.65	5.62	9.67	390.68	390.32

25-YR ANALYSIS

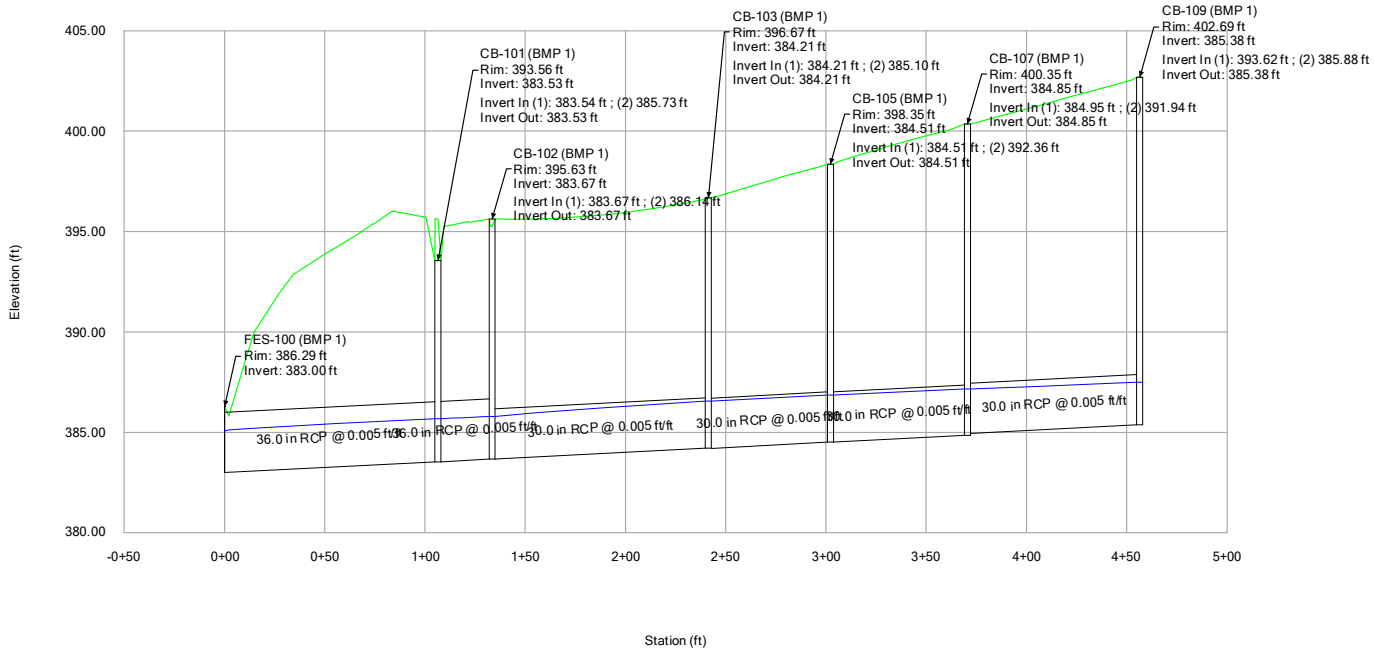
Conduit Results - Time: 0.00 hours

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-129 TO CB-130 (BMP 1)	24.0	0.005	5.32	4.95	14.56	16.00	389.55	389.29
CB-128 TO CB-129 (BMP 1)	24.0	0.005	5.41	5.36	16.54	16.00	389.29	389.01
CB-128 TO YI-148 (BMP 1)	18.0	0.019	3.88	3.01	2.69	14.38	389.37	389.01
DI-141 TO DI-142 (BMP 1)	18.0	0.005	4.28	4.05	7.07	7.43	390.26	389.95
YI-148 TO YI-149 (BMP 1)	18.0	0.054	3.89	9.10	2.69	24.44	391.82	389.19
CB-102 TO CB-103 (BMP 1)	30.0	0.005	7.02	7.57	33.61	29.00	386.56	385.79
CB-103 TO CB-104 (BMP 1)	18.0	0.008	1.76	1.57	2.75	9.43	386.57	386.56
CB-104 TO CB-102B (BMP 1)	18.0	0.006	2.54	1.68	1.15	7.96	386.55	386.57
CB-101 TO CB-102 (BMP 1)	36.0	0.005	7.43	7.32	39.68	47.16	385.79	385.69
CB-102 TO DI-120 (BMP 1)	15.0	0.005	4.20	4.76	4.00	4.57	387.68	386.95
DI-144 TO DI-145 (BMP 1)	15.0	0.012	2.82	2.53	0.78	6.99	391.07	390.58
CB-102B TO DI-122 (BMP 1)	18.0	0.005	2.82	1.12	0.88	7.79	386.85	386.57
DI-143 TO DI-144 (BMP 1)	15.0	0.005	2.84	1.20	1.21	4.57	390.58	390.54
FES-100 TO CB-101 (BMP 1)	36.0	0.005	7.51	7.80	40.81	47.16	385.69	385.08
DI-142 TO DI-143 (BMP 1)	18.0	0.005	4.60	4.03	6.16	7.43	390.54	390.26
DI-143 TO DI-146 (BMP 1)	15.0	0.005	3.74	2.41	2.45	4.50	390.80	390.54
DI-120 TO DI-121 (BMP 1)	15.0	0.005	2.80	0.83	0.80	4.57	387.89	387.68
CB-110 TO CB-111 (BMP 1)	18.0	0.005	4.78	5.39	6.97	7.43	395.72	395.04
CB-113 TO CB-114 (BMP 1)	15.0	0.005	4.00	4.16	2.79	4.71	398.92	398.76
Pipe - (340) (BMP 1)	15.0	0.005	2.66	2.69	0.66	4.60	401.07	400.47
CB-128 TO YI-147 (BMP 1)	15.0	0.005	1.87	1.08	0.19	4.65	389.17	389.01
CB-101 TO CB-147 (BMP 1)	15.0	0.030	2.95	5.51	0.91	11.25	387.56	385.97
Pipe - (341) (BMP 1)	15.0	0.003	1.41	1.85	0.16	3.37	399.41	399.28
CO-3 (BMP 1)	18.0	0.000	1.59	2.75	0.81	0.11	0.49	0.33
CB-102B TO DI-122 (1) (BMP 1)	18.0	0.007	0.79	0.65	0.86	8.57	386.57	386.57
Pipe - (348) (BMP 1)	15.0	0.005	1.33	0.60	0.06	4.66	387.90	387.56
Pipe - (349) (BMP 1)	15.0	0.007	1.45	1.47	0.06	5.32	388.51	388.10

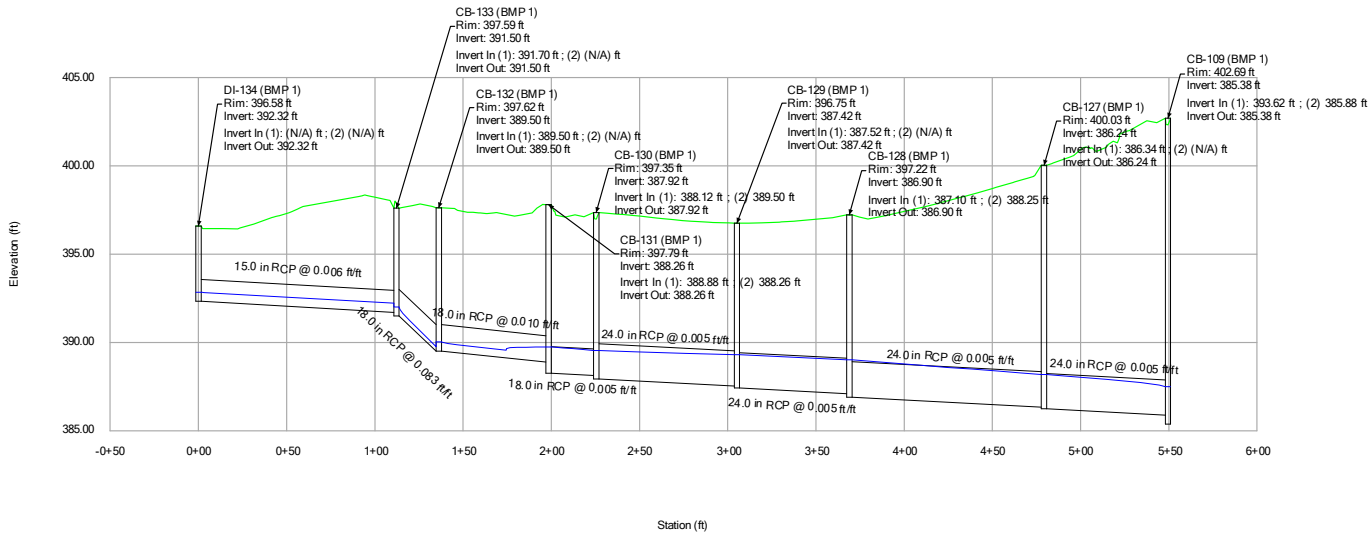
25-YR ANALYSIS



25-YR ANALYSIS



25-YR ANALYSIS



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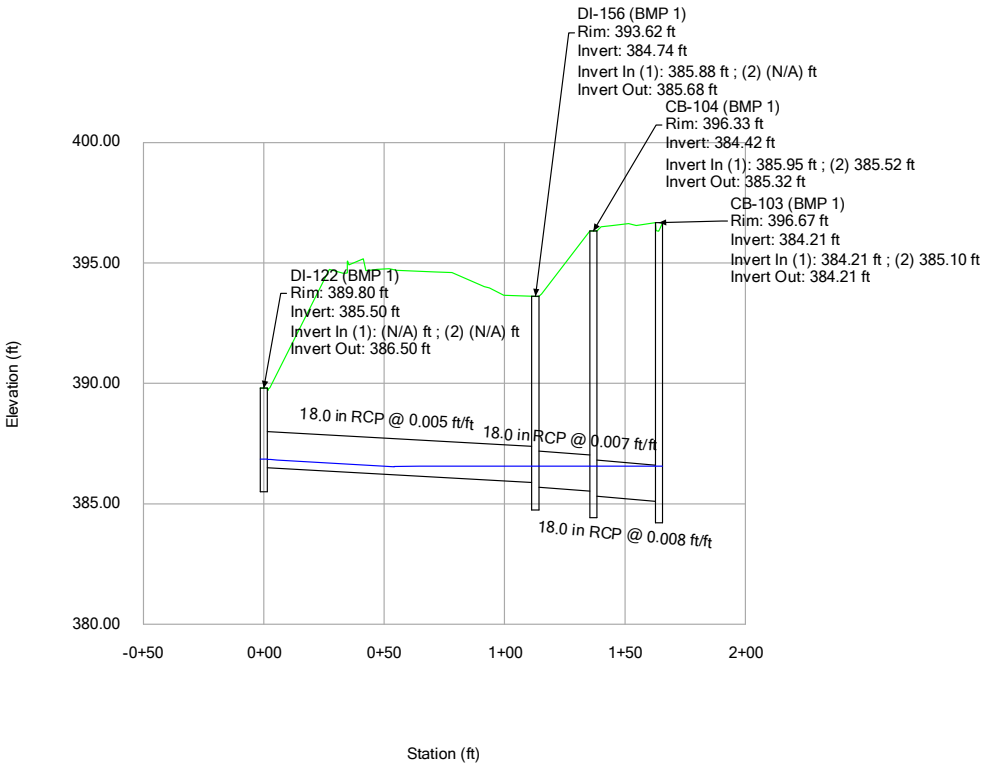

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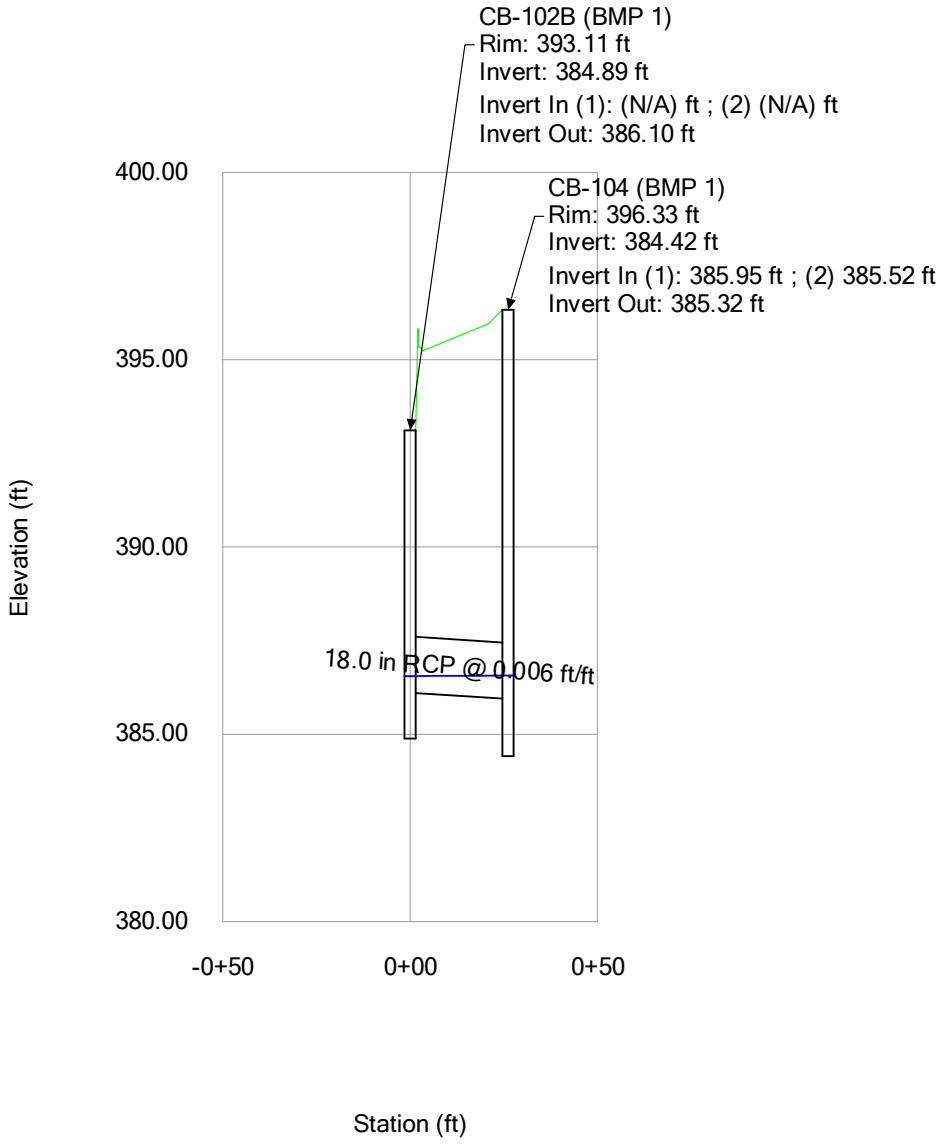

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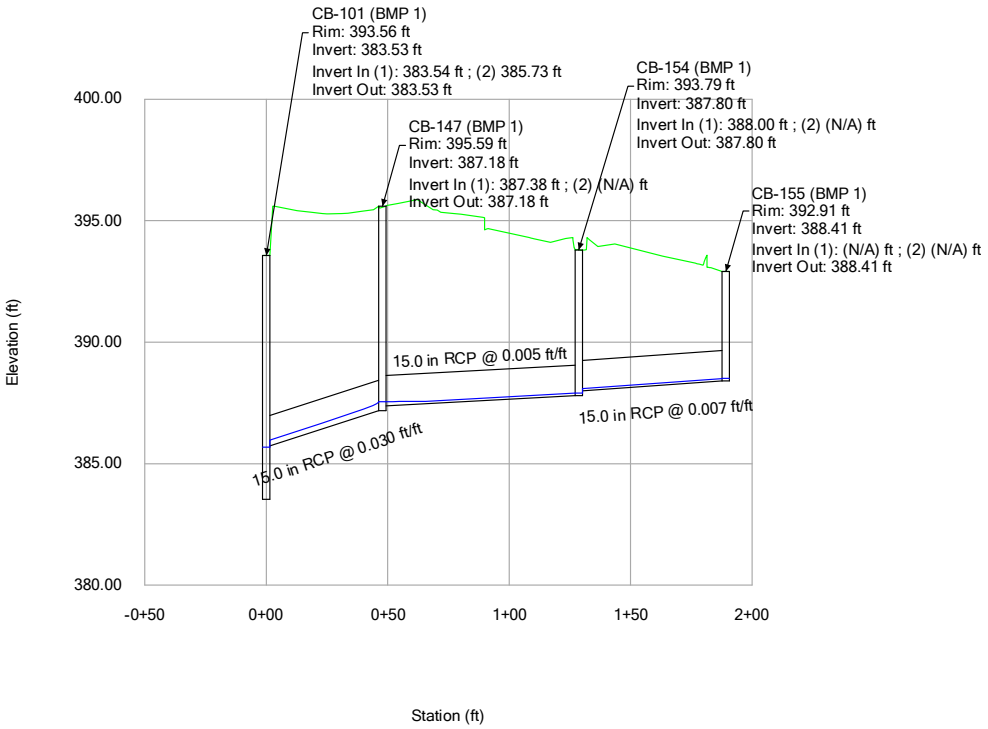

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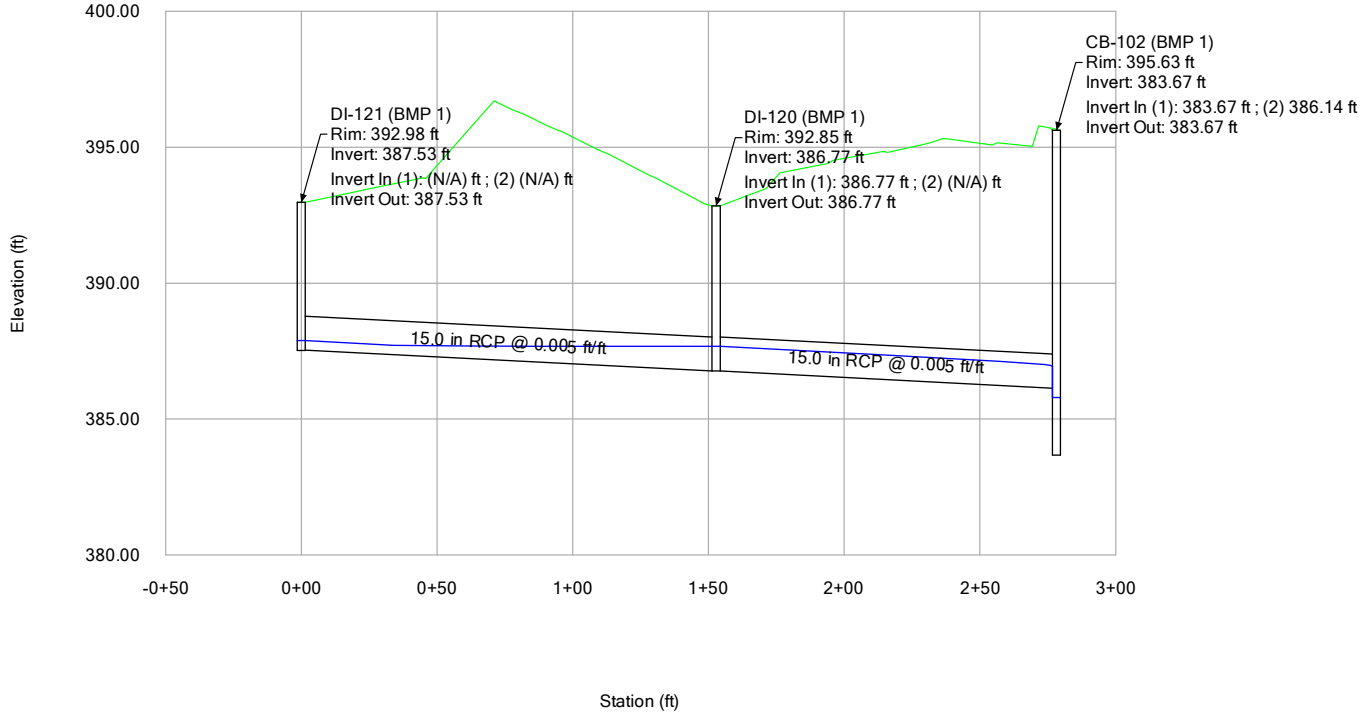

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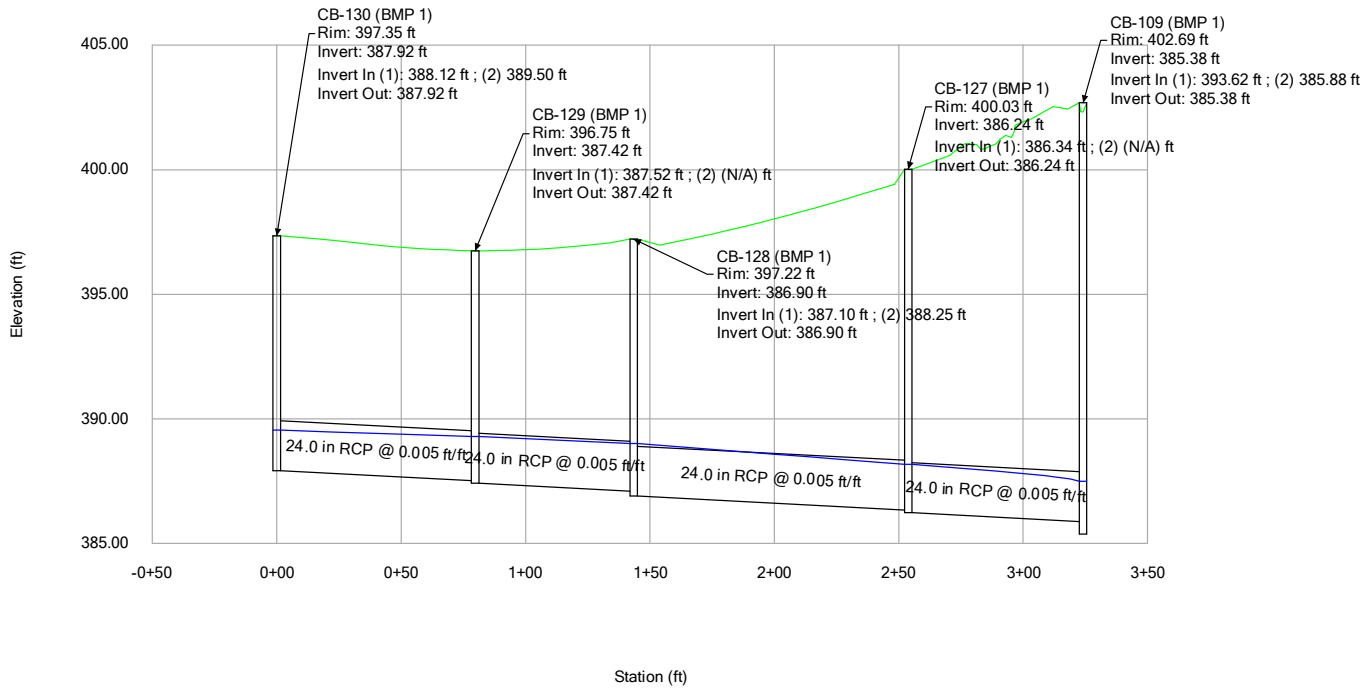

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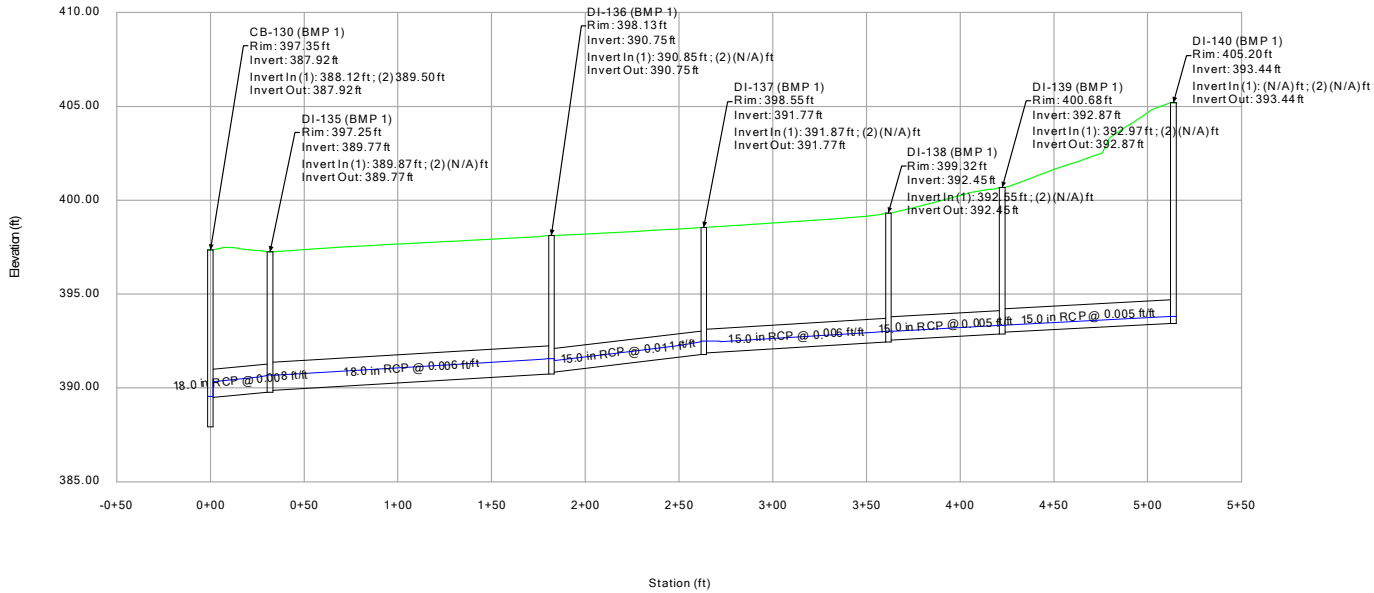

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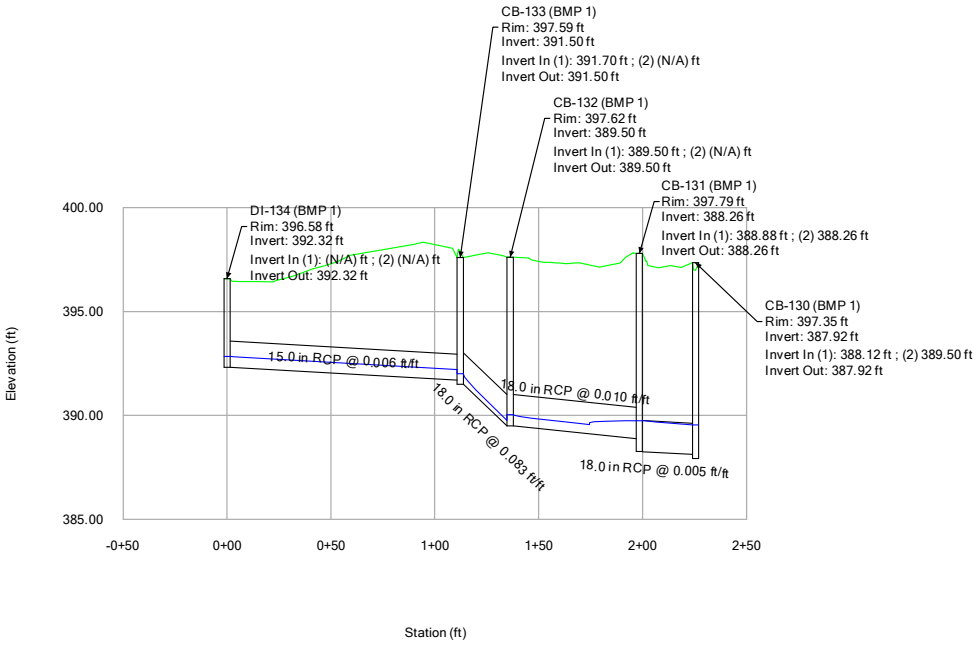

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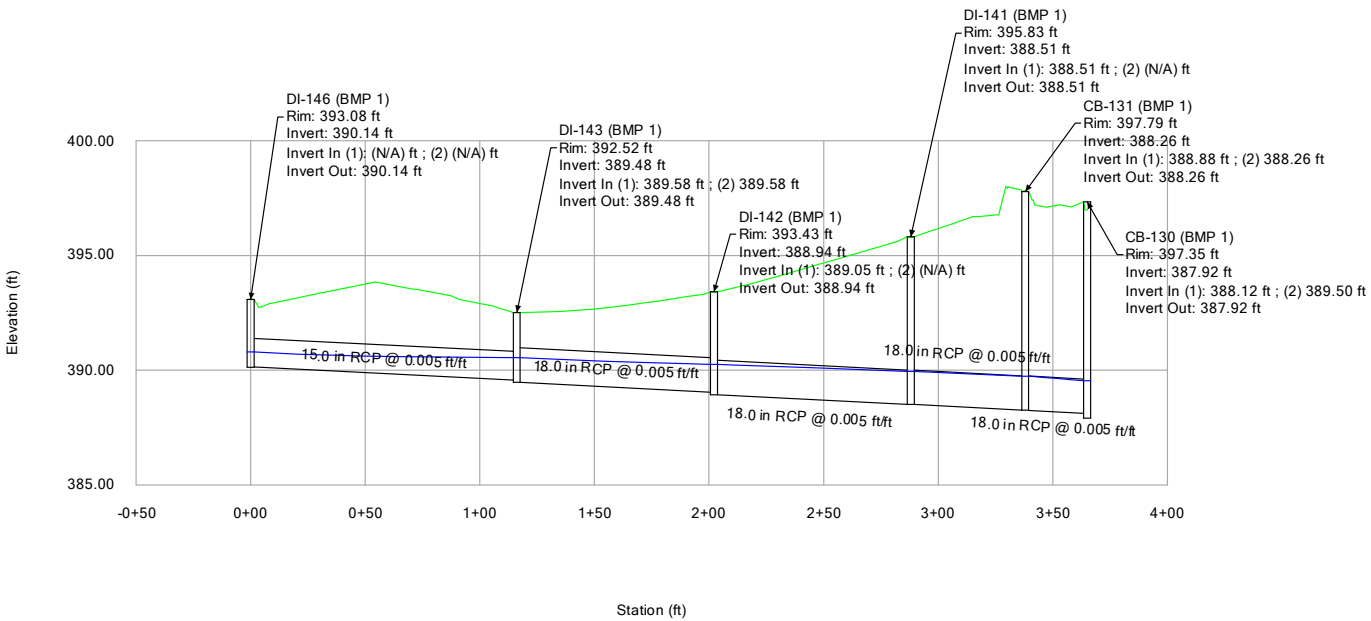

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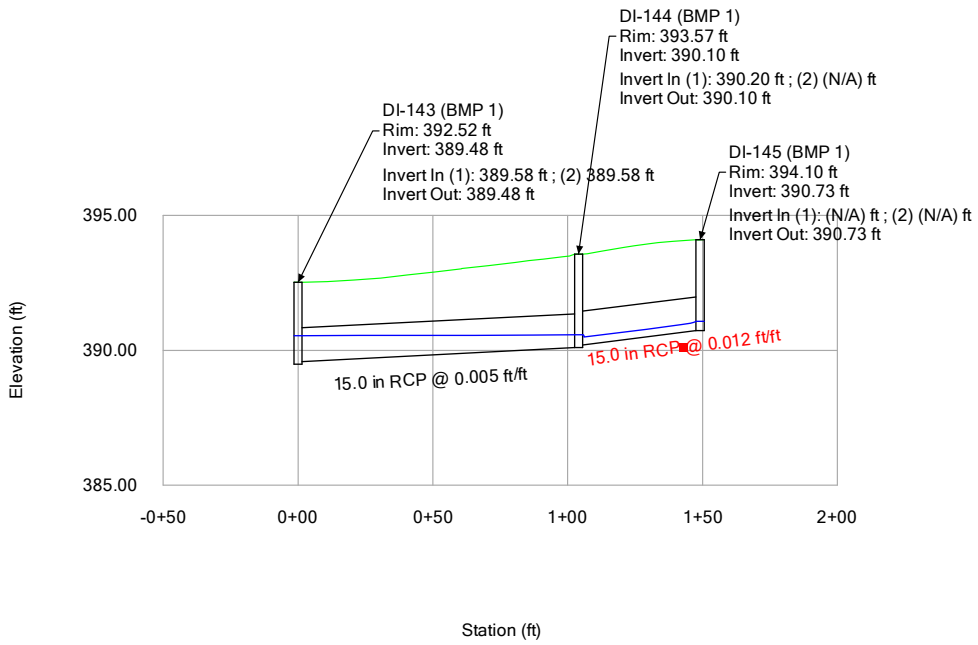

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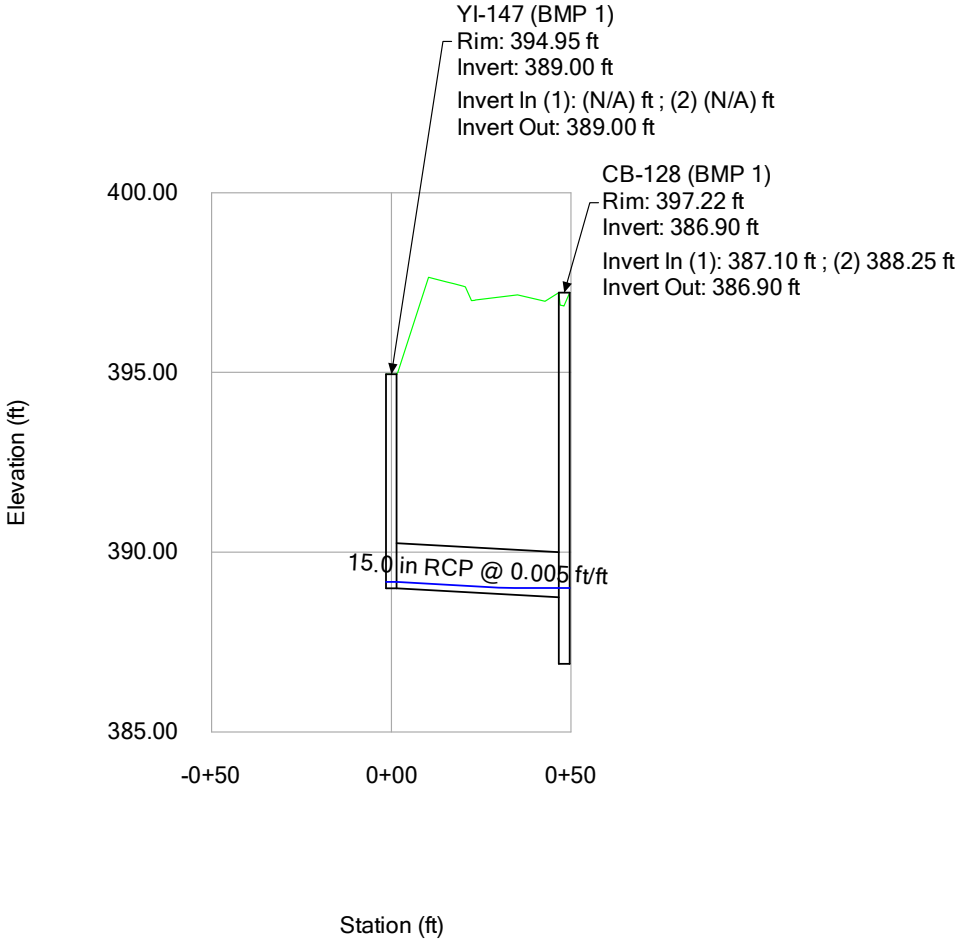

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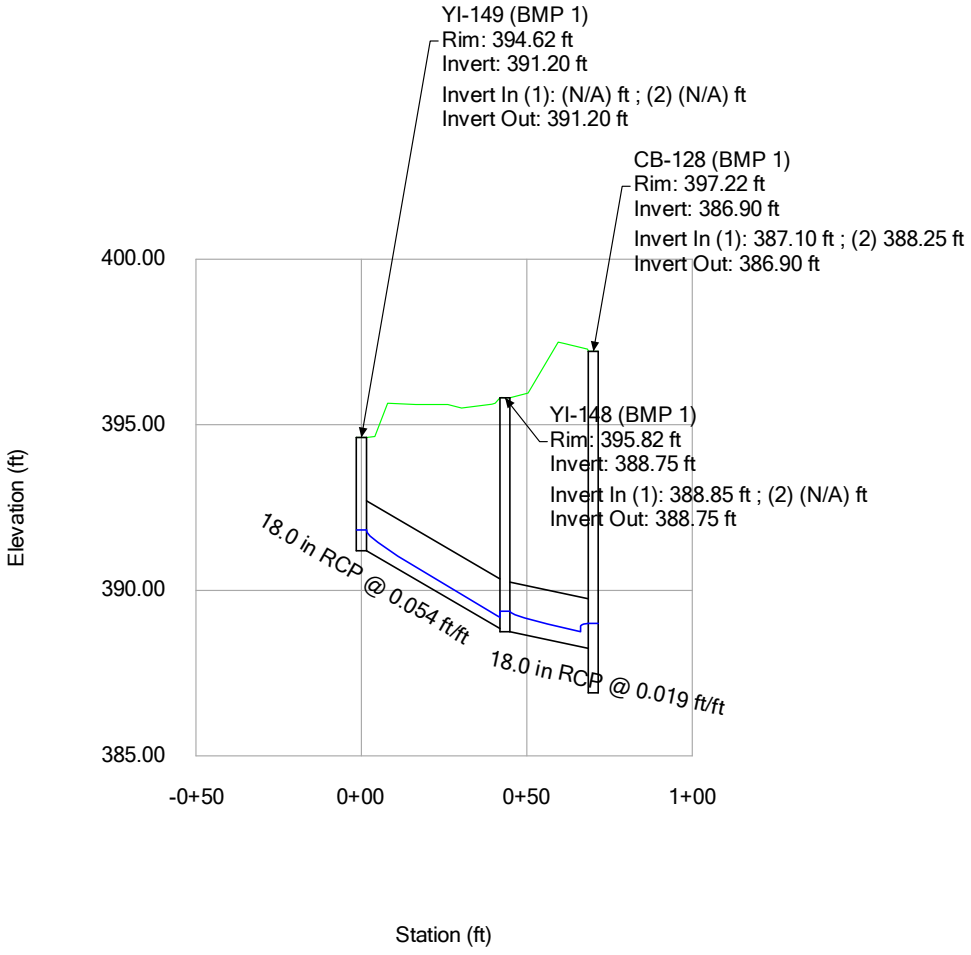

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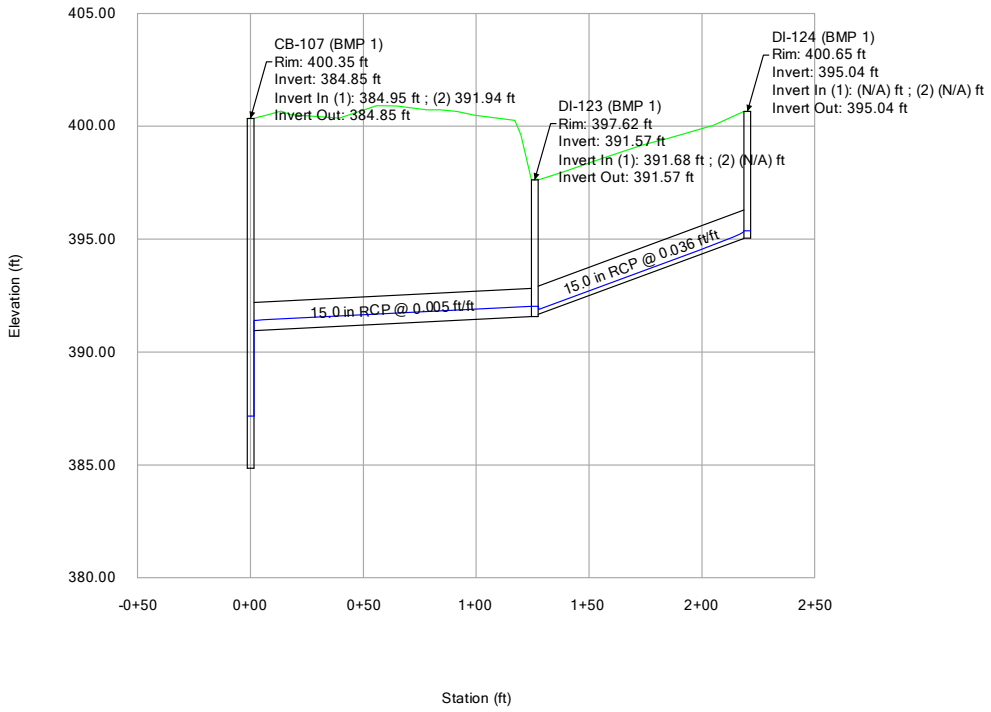

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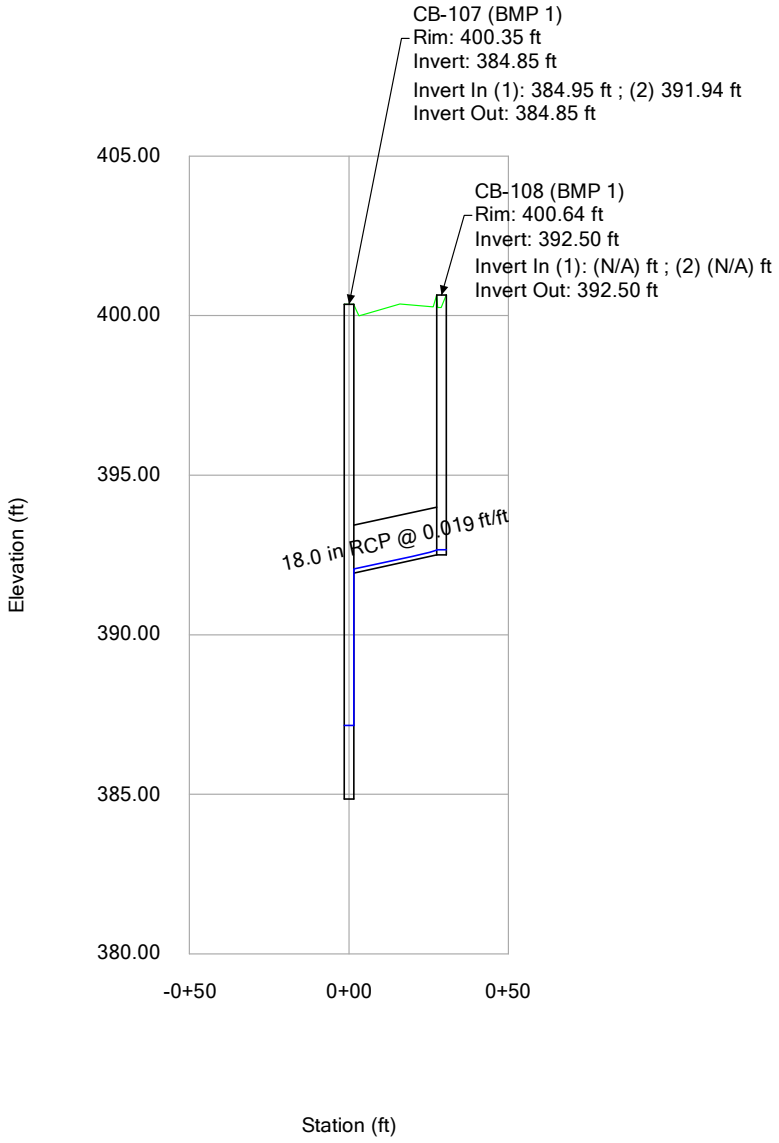

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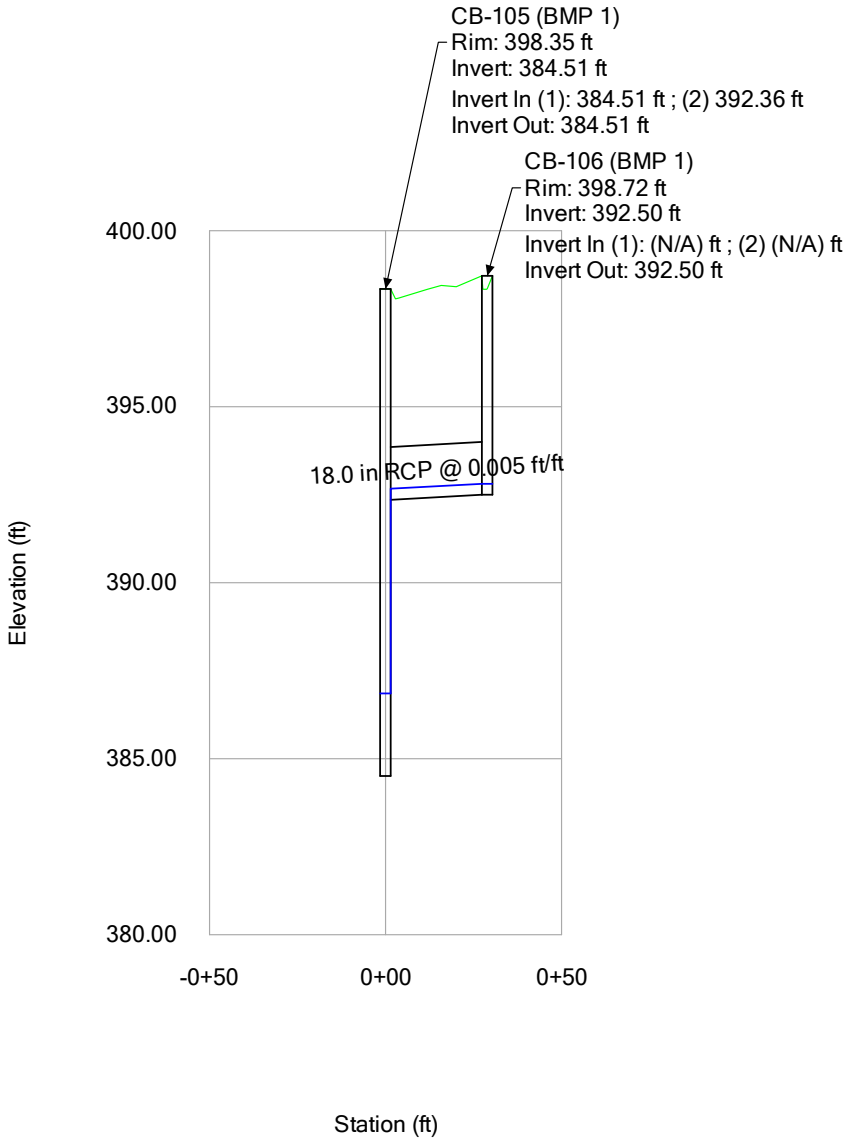

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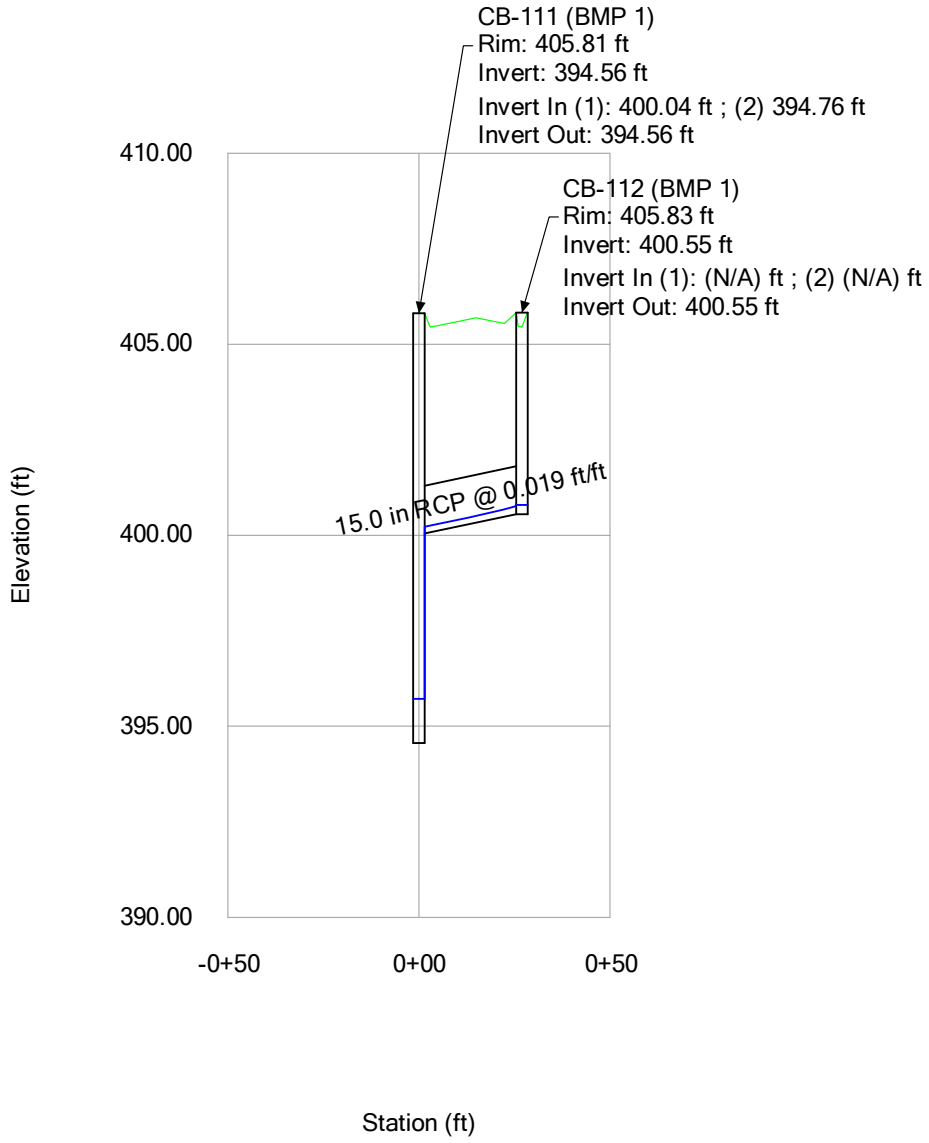

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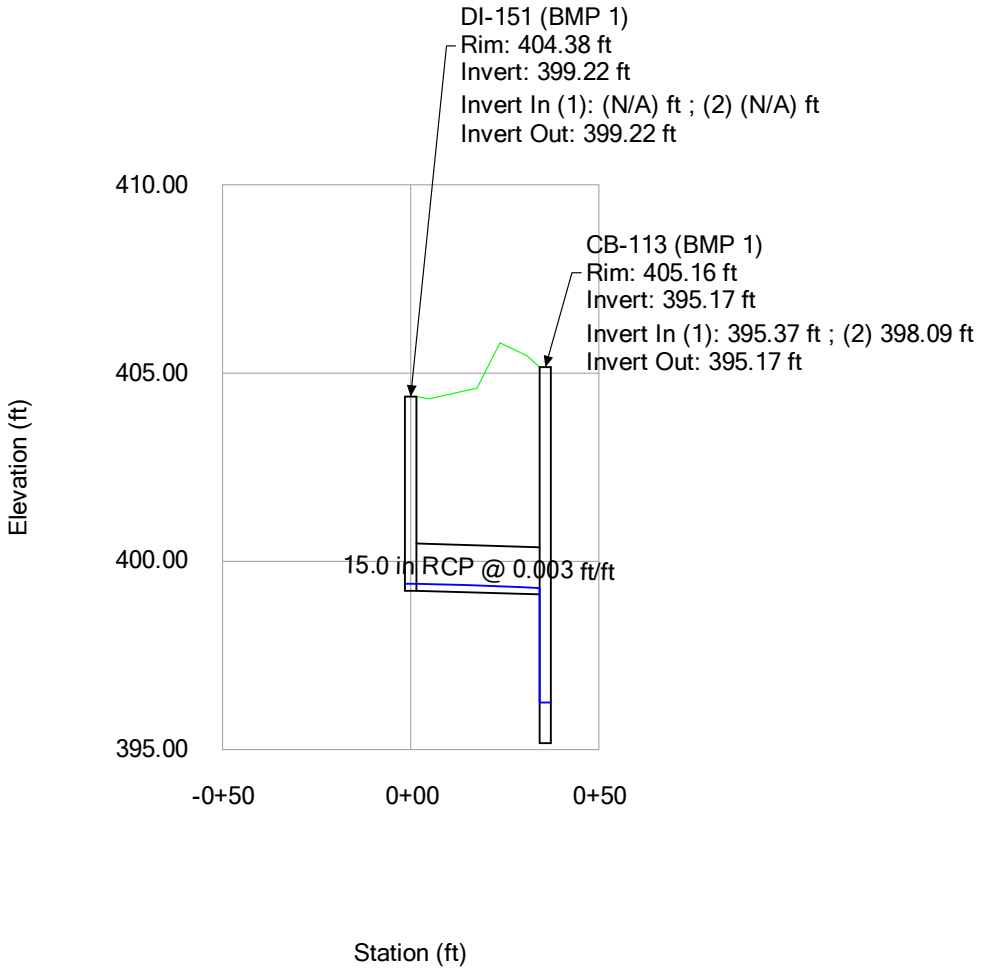

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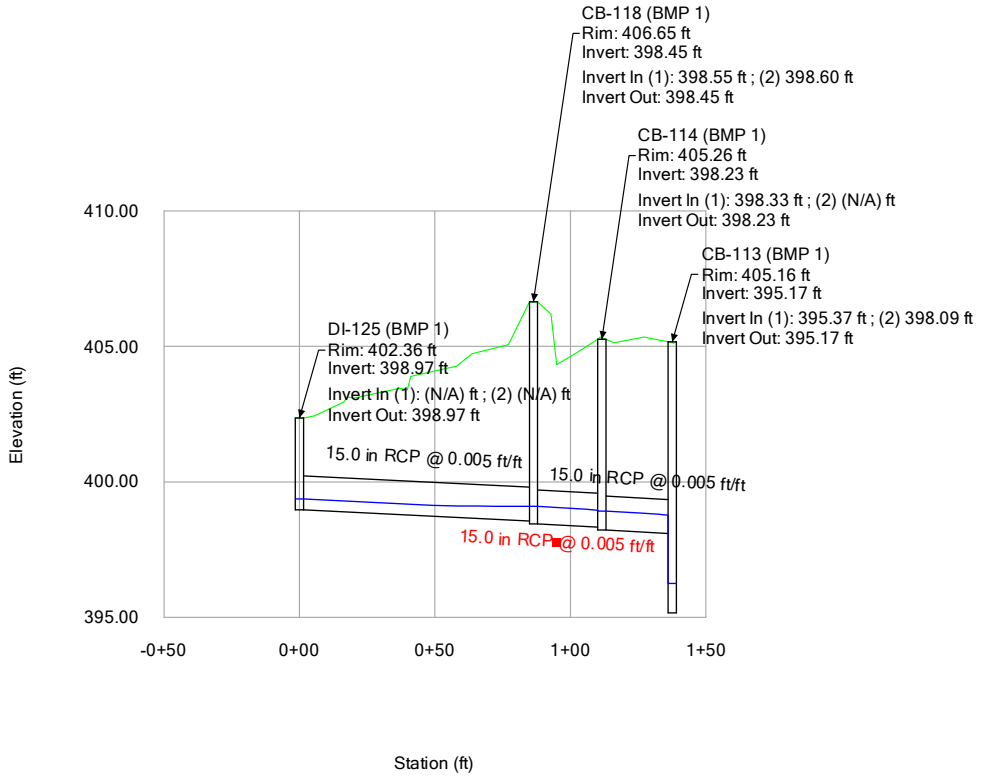

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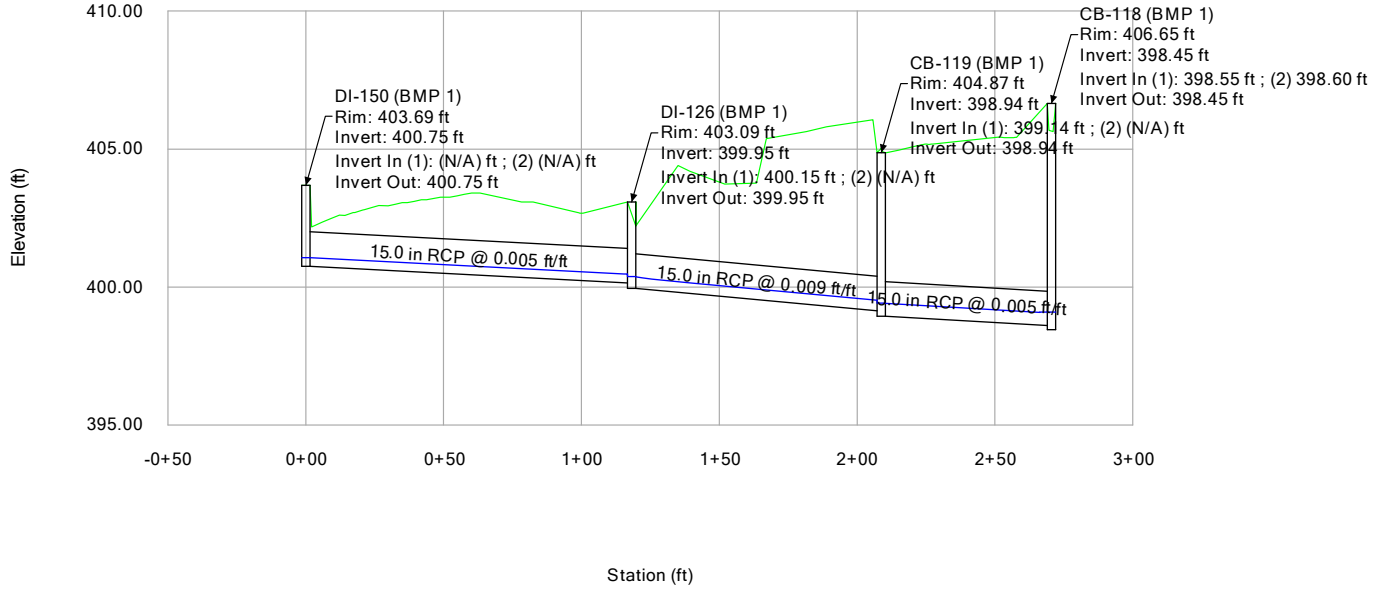

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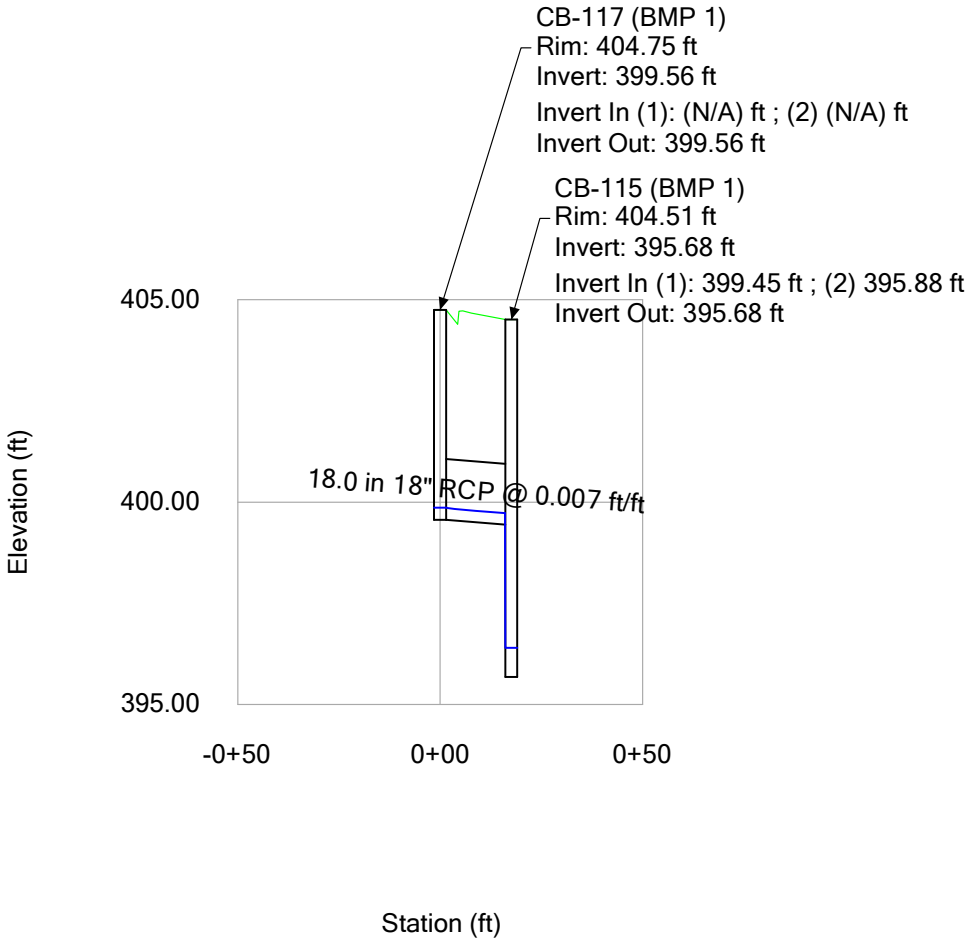


INLET SPREAD - 4IN/HR

SCM 1 – INLET SPREAD

INLET SPREAD - 4IN/HR

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-102 (BMP 1)	0.507	0.432	1.74	0.00	24.16	10.3	3.0
CB-116 (BMP 1)	0.387	0.352	1.42	0.00	1.42	9.1	2.7
CB-129 (BMP 1)	0.301	0.281	1.13	0.00	9.38	8.0	2.4
CB-102B (BMP 1)	0.203	0.167	0.67	0.10	0.67	4.7	1.6
CB-109 (BMP 1)	0.234	0.165	0.66	0.10	16.57	4.7	1.6
CB-110 (BMP 1)	0.197	0.143	0.58	0.07	4.42	4.3	1.5
CB-147 (BMP 1)	0.092	0.094	0.38	0.00	0.41	4.2	1.5
CB-153 (BMP 1)	0.128	0.114	0.46	0.03	0.46	3.7	1.4
CB-107 (BMP 1)	0.112	0.113	0.45	0.03	17.86	3.7	1.4
CB-104 (BMP 1)	0.135	0.107	0.43	0.02	1.61	3.6	1.3
CB-128 (BMP 1)	0.146	0.098	0.40	0.02	11.23	3.4	1.3
CB-106 (BMP 1)	0.118	0.098	0.40	0.02	0.40	3.4	1.3
CB-117 (BMP 1)	0.109	0.092	0.37	0.01	0.37	3.3	1.3
CB-103 (BMP 1)	0.089	0.074	0.30	0.00	20.34	2.9	1.2
CB-101 (BMP 1)	0.071	0.067	0.27	0.00	24.84	2.7	1.1
CB-127 (BMP 1)	0.052	0.061	0.25	0.00	11.48	2.5	1.1

INLET SPREAD - 4IN/HR

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-114 (BMP 1)	0.074	0.059	0.24	0.00	1.51	2.4	1.1
CB-112 (BMP 1)	0.057	0.045	0.18	0.00	0.18	2.0	1.0
CB-105 (BMP 1)	0.042	0.043	0.17	0.00	18.43	2.0	0.9
CB-113 (BMP 1)	0.045	0.036	0.14	0.00	3.54	1.8	0.9
CB-119 (BMP 1)	0.057	0.031	0.13	0.00	0.75	1.8	0.8
CB-111 (BMP 1)	0.038	0.030	0.12	0.00	3.85	1.7	0.8
CB-108 (BMP 1)	0.025	0.024	0.10	0.00	0.10	1.6	0.8
CB-133 (BMP 1)	0.023	0.022	0.09	0.00	1.11	1.5	0.7
CB-132 (BMP 1)	0.023	0.022	0.09	0.00	1.19	1.5	0.7
CB-118 (BMP 1)	0.009	0.008	0.03	0.00	1.27	1.1	0.5
CB-155 (BMP 1)	0.009	0.008	0.03	0.00	0.03	1.0	0.5
CB-115 (BMP 1)	0.006	0.006	0.02	0.00	1.81	0.9	0.4
CB-130 (BMP 1)	0.007	0.005	0.02	0.00	8.25	0.9	0.4
CB-131 (BMP 1)	0.002	0.002	0.01	0.00	5.07	0.6	0.3
CB-154 (BMP 1)	0.000	0.000	0.00	0.00	0.03	0.0	0.0

ATTACHMENT 2: DRAINAGE AREA MAPS – SCM 2

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

SCM 2 DRAINAGE MAP

DATE: 7/27/2023

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

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

SCM 2 – 10 YR STORM

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-287 (BMP 2)	0.181	2.96	0.083	0.950
CB-220 (BMP 2)	0.157	1.08	0.083	0.950
CB-226 (BMP 2)	0.076	0.53	0.083	0.950
CB-214 (BMP 2)	0.012	0.08	0.083	0.950
CB-273 (BMP 2)	0.025	0.16	0.083	0.910
CB-258 (BMP 2)	0.695	4.48	0.083	0.890
CB-272 (BMP 2)	0.113	0.72	0.083	0.880
CB-264 (BMP 2)	0.252	1.56	0.083	0.850
CB-280 (BMP 2)	0.124	0.76	0.083	0.850
CB-283 (BMP 2)	0.039	0.24	0.083	0.850
CB-284 (BMP 2)	0.206	1.27	0.083	0.850
CB-285 (BMP 2)	0.043	0.27	0.083	0.850
CB-286 (BMP 2)	0.315	1.94	0.083	0.850
DI-290 (BMP 2)	0.247	1.52	0.083	0.850
DI-291 (BMP 2)	0.146	0.90	0.083	0.850
DI-292 (BMP 2)	0.028	0.17	0.083	0.850

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-267 (BMP 2)	0.144	0.89	0.083	0.850
CB-281 (BMP 2)	0.143	0.88	0.083	0.850
DI-277 (BMP 2)	0.229	1.41	0.083	0.850
DI-276 (BMP 2)	0.185	1.14	0.083	0.850
CB-217 (BMP 2)	0.162	1.00	0.083	0.850
CB-216 (BMP 2)	0.001	0.00	0.083	0.850
CB-218 (BMP 2)	0.129	0.80	0.083	0.850
CB-219 (BMP 2)	0.079	0.49	0.083	0.850
CB-260 (BMP 2)	0.156	0.96	0.083	0.850
CB-259 (BMP 2)	0.168	1.04	0.083	0.850
CB-261 (BMP 2)	0.117	0.72	0.083	0.850
CB-262 (BMP 2)	0.143	0.88	0.083	0.850
CB-282 (BMP 2)	0.418	2.58	0.083	0.850
CB-223 (BMP 2)	0.747	4.60	0.083	0.850
CB-279 (BMP 2)	0.048	0.29	0.083	0.840
CB-221 (BMP 2)	0.254	1.54	0.083	0.840

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-278 (BMP 2)	0.265	1.57	0.083	0.820
DI-296 (BMP 2)	0.026	0.15	0.083	0.810
CB-289 (BMP 2)	0.036	0.21	0.083	0.810
CB-257 (BMP 2)	0.026	0.15	0.083	0.810
CB-263 (BMP 2)	0.000	0.00	0.083	0.810
CB-288 (BMP 2)	0.146	0.86	0.083	0.810
CB-213 (BMP 2)	0.129	0.75	0.083	0.810
CB-222 (BMP 2)	0.479	2.81	0.083	0.810
CB-210 (BMP 2)	0.388	2.28	0.083	0.810
CB-212 (BMP 2)	0.063	0.37	0.083	0.810
CB-215 (BMP 2)	0.120	0.71	0.083	0.810
DI-228 (BMP 2)	0.001	0.00	0.083	0.810
CB-202 (BMP 2)	0.363	2.13	0.083	0.810
CB-269 (BMP 2)	0.122	0.71	0.083	0.810
CB-271 (BMP 2)	0.203	1.19	0.083	0.810
CB-265 (BMP 2)	0.268	1.55	0.083	0.800

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-266 (BMP 2)	0.154	0.87	0.083	0.780
CB-227 (BMP 2)	0.209	1.17	0.083	0.770
CB-225 (BMP 2)	0.403	2.25	0.083	0.770
CB-254 (BMP 2)	0.053	0.30	0.083	0.770
CB-255 (BMP 2)	0.089	0.50	0.083	0.770
CB-256 (BMP 2)	0.087	0.49	0.083	0.770
CB-253 (BMP 2)	0.202	1.13	0.083	0.770
CB-252 (BMP 2)	0.225	1.25	0.083	0.770
CB-207 (BMP 2)	0.051	0.28	0.083	0.770
CB-205 (BMP 2)	0.178	0.99	0.083	0.770
CB-224 (BMP 2)	0.356	1.99	0.083	0.770
CB-204 (BMP 2)	0.243	1.35	0.083	0.770
CB-208 (BMP 2)	0.242	1.35	0.083	0.770
CB-206 (BMP 2)	0.217	1.21	0.083	0.770
CB-203 (BMP 2)	0.096	0.53	0.083	0.770
CB-268 (BMP 2)	0.383	2.14	0.083	0.770

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-270 (BMP 2)	0.320	1.79	0.083	0.770
CB-209 (BMP 2)	0.063	0.35	0.083	0.770
CB-211 (BMP 2)	0.134	0.75	0.083	0.770
DI-201 (BMP 2)	0.098	0.00	0.000	0.770
DI-2003	0.188	0.99	0.083	0.730
DI-2005	0.216	1.13	0.083	0.720
DI-2004	0.299	1.47	0.083	0.680
DI-235 (BMP 2)	0.203	0.96	0.083	0.650
DI-234 (BMP 2)	0.283	1.33	0.083	0.650
DI-2000 (BMP 2)	0.216	1.02	0.083	0.650
DI-297 (BMP 2)	0.264	1.24	0.083	0.650
DI-298 (BMP 2)	0.218	1.03	0.083	0.650
DI-2002	0.128	0.00	0.083	0.630
DI-2001	0.253	0.00	0.083	0.630
DI-274 (BMP 2)	0.188	0.85	0.083	0.620
DI-229 (BMP 2)	0.371	1.61	0.083	0.600
DI-230 (BMP 2)	0.325	1.41	0.083	0.600
DI-231 (BMP 2)	0.165	0.72	0.083	0.600

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-232 (BMP 2)	0.175	0.76	0.083	0.600
DI-233 (BMP 2)	0.065	0.28	0.083	0.600
DI-294 (BMP 2)	0.111	0.48	0.083	0.600
DI-295 (BMP 2)	0.099	0.43	0.083	0.600
DI-236 (BMP 2)	0.163	0.71	0.083	0.600
DI-238 (BMP 2)	0.091	0.40	0.083	0.600
DI-293 (BMP 2)	0.804	3.50	0.083	0.600
DI-237 (BMP 2)	0.134	0.58	0.083	0.600
DI-275 (BMP 2)	0.138	0.60	0.083	0.600
DI-251 (BMP 2)	0.255	1.11	0.083	0.600
DI-299 (BMP 2)	0.192	0.84	0.083	0.600

10-YR ANALYSIS

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)	0.38	0.01	0.38	96.2	398.73	398.73	3.0	2.25	2.25
CB-226 (BMP 2)	0.49	0.04	1.41	92.8	396.94	396.94	3.0	2.96	3.34
CB-220 (BMP 2)	0.88	0.21	0.88	80.9	396.78	396.78	3.0	2.92	2.92
CB-227 (BMP 2)	0.93	0.24	0.93	79.5	397.13	397.13	3.0	2.92	2.92
CB-219 (BMP 2)	0.46	0.03	1.33	93.8	396.62	396.62	3.0	2.17	3.29
DI-235 (BMP 2)	0.80	0.16	0.80	83.1	393.38	393.38	3.0	2.84	2.84
DI-278 (BMP 2)	1.16	0.41	1.16	73.9	394.53	394.53	3.0	3.16	3.16
CB-266 (BMP 2)	0.74	0.13	0.74	84.8	394.04	394.04	3.0	2.78	2.78
CB-265 (BMP 2)	1.15	0.40	1.88	74.2	393.97	393.97	3.0	1.43	3.65
DI-236 (BMP 2)	0.62	0.08	2.96	88.3	390.21	390.21	3.0	3.36	3.96
CB-289 (BMP 2)	0.21	0.00	0.21	99.9	392.79	392.79	3.0	1.99	1.99
CB-263 (BMP 2)	0.13	0.00	1.28	100.0	393.18	393.18	3.0	3.67	3.25
DI-296 (BMP 2)	0.15	0.00	0.15	100.0	392.69	392.69	3.0	1.82	1.82
CB-262 (BMP 2)	1.00	0.29	4.10	77.8	393.23	393.23	3.0	1.60	4.45
CB-218 (BMP 2)	0.71	0.12	1.98	85.7	392.65	392.65	3.0	5.20	3.54
DI-277 (BMP 2)	1.30	0.52	2.43	71.2	392.47	392.47	3.0	2.39	3.97

10-YR ANALYSIS

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-264 (BMP 2)	1.15	0.40	1.15	74.2	393.46	393.46	3.0	3.15	3.15
CB-216 (BMP 2)	0.12	0.00	3.00	100.0	391.46	391.46	3.0	2.65	4.02
CB-217 (BMP 2)	0.95	0.25	0.95	78.9	391.56	391.56	3.0	2.98	2.98
DI-237 (BMP 2)	0.53	0.05	2.01	91.4	390.44	390.44	3.0	3.31	3.56
CB-224 (BMP 2)	1.40	0.62	4.34	69.2	389.73	389.73	3.0	3.49	4.17
CB-214 (BMP 2)	0.08	0.00	16.81	100.0	388.13	388.13	3.0	5.83	6.75
CB-215 (BMP 2)	0.62	0.08	3.58	88.3	388.42	388.42	3.0	7.03	4.25
CB-225 (BMP 2)	1.63	0.86	1.63	65.3	390.77	390.77	3.0	3.41	3.41
DI-292 (BMP 2)	0.17	0.00	0.17	100.0	390.91	390.91	3.0	1.88	1.88
CB-261 (BMP 2)	0.83	0.18	4.88	82.3	390.71	390.71	3.0	8.61	4.73
CB-221 (BMP 2)	1.47	0.70	13.46	67.9	389.41	389.41	3.0	5.65	6.11
CB-222 (BMP 2)	2.94	2.89	8.00	50.5	389.72	389.72	3.0	4.12	5.11
CB-288 (BMP 2)	0.73	0.13	0.73	85.1	389.48	389.48	3.0	2.77	2.77
CB-257 (BMP 2)	0.15	0.00	0.15	100.0	387.68	387.68	3.0	1.76	1.76
DI-276 (BMP 2)	1.21	0.45	3.60	72.9	389.25	389.25	3.0	3.65	4.56
CB-223 (BMP 2)	2.53	2.15	5.29	54.1	389.87	389.87	3.0	2.93	4.56

10-YR ANALYSIS

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-234 (BMP 2)	1.03	0.31	1.79	77.0	385.91	385.91	3.0	6.10	3.60
CB-286 (BMP 2)	1.36	0.58	4.03	70.0	388.51	388.51	3.0	0.27	4.43
CB-287 (BMP 2)	1.84	1.12	2.56	62.2	388.75	388.75	3.0	1.41	3.98
CB-213 (BMP 2)	0.66	0.10	17.31	87.3	387.03	387.03	3.0	8.62	6.85
DI-295 (BMP 2)	0.41	0.02	0.55	95.4	388.27	388.27	3.0	1.31	2.55
CB-212 (BMP 2)	0.36	0.01	17.59	96.9	386.65	386.65	3.0	6.50	6.60
CB-256 (BMP 2)	0.46	0.03	4.17	93.8	386.13	386.13	3.0	0.18	4.12
CB-273 (BMP 2)	0.16	0.00	0.87	100.0	379.27	379.27	3.0	2.76	2.86
CB-272 (BMP 2)	0.63	0.09	1.48	88.1	379.06	379.06	3.0	2.91	3.32
CB-260 (BMP 2)	0.80	0.16	0.80	83.1	387.37	387.37	3.0	2.84	2.84
CB-259 (BMP 2)	0.96	0.26	6.56	78.8	387.36	387.36	3.0	4.46	5.30
DI-291 (BMP 2)	0.76	0.14	0.92	84.3	387.36	387.36	3.0	0.56	2.95
CB-255 (BMP 2)	0.49	0.04	13.74	92.7	385.62	385.62	3.0	1.87	6.17
CB-285 (BMP 2)	0.72	0.13	4.71	85.2	386.32	386.32	3.0	4.00	4.67
CB-258 (BMP 2)	2.72	2.47	9.17	52.4	386.23	386.23	3.0	8.61	5.29
CB-211 (BMP 2)	0.66	0.10	18.02	87.2	386.07	386.07	3.0	6.82	6.99

10-YR ANALYSIS

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-254 (BMP 2)	0.33	0.01	13.98	97.8	383.65	383.65	3.0	10.16	6.21
DI-294 (BMP 2)	0.45	0.03	0.97	94.0	385.53	385.53	3.0	4.36	3.00
CB-283 (BMP 2)	0.36	0.01	10.97	97.0	381.12	381.12	3.0	2.92	6.24
CB-284 (BMP 2)	1.58	0.81	1.58	66.1	385.06	385.06	3.0	3.46	3.46
CB-209 (BMP 2)	0.42	0.02	19.79	94.9	384.06	384.06	3.0	12.80	7.35
DI-290 (BMP 2)	1.21	0.45	2.10	72.9	384.11	384.11	3.0	1.65	3.78
CB-210 (BMP 2)	1.57	0.80	1.57	66.2	384.31	384.31	3.0	3.46	3.46
CB-282 (BMP 2)	1.94	1.25	3.98	60.8	381.55	381.55	3.0	2.50	4.75
DI-233 (BMP 2)	0.28	0.00	2.05	99.0	382.04	382.04	3.0	7.26	3.58
CB-253 (BMP 2)	0.91	0.23	14.71	80.1	380.79	380.79	3.0	6.03	6.35
CB-280 (BMP 2)	1.16	0.41	6.47	73.9	376.45	376.45	3.0	6.05	2.64
CB-279 (BMP 2)	0.30	0.00	17.35	98.5	376.44	376.44	3.0	2.43	6.14
CB-270 (BMP 2)	1.32	0.55	4.07	70.6	378.30	378.30	3.0	2.44	4.79
CB-281 (BMP 2)	1.45	0.68	5.37	68.2	380.46	380.46	3.0	4.25	4.90
CB-271 (BMP 2)	0.94	0.25	1.44	79.1	378.80	378.80	3.0	2.56	3.37
CB-208 (BMP 2)	1.46	0.69	1.46	68.0	381.40	381.40	3.0	3.34	3.34

10-YR ANALYSIS

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-207 (BMP 2)	0.30	0.00	21.29	98.5	380.25	380.25	3.0	13.71	7.67
DI-274 (BMP 2)	0.72	0.12	0.72	85.3	381.34	381.34	3.0	2.72	2.72
CB-252 (BMP 2)	1.11	0.37	40.35	75.1	375.22	375.22	3.0	6.18	9.03
CB-267 (BMP 2)	1.38	0.60	25.20	69.6	375.21	375.21	3.0	2.76	7.04
CB-269 (BMP 2)	1.03	0.31	1.03	77.1	375.19	375.19	3.0	0.97	0.97
CB-268 (BMP 2)	1.98	1.31	6.79	60.2	375.20	375.20	3.0	0.62	3.64
DI-293 (BMP 2)	2.07	1.43	4.65	59.2	381.21	381.21	3.0	1.87	3.73
CB-206 (BMP 2)	1.34	0.56	1.34	70.4	379.96	379.96	3.0	3.29	3.29
CB-205 (BMP 2)	0.82	0.18	23.13	82.4	376.88	376.88	3.0	13.66	8.09
DI-275 (BMP 2)	0.55	0.05	0.55	90.9	380.29	380.29	3.0	2.51	2.51
DI-232 (BMP 2)	0.80	0.16	2.80	83.0	376.04	376.04	3.0	8.49	3.93
CB-204 (BMP 2)	1.35	0.57	6.63	70.2	359.90	359.90	3.0	5.44	5.32
CB-203 (BMP 2)	0.63	0.08	31.94	88.2	359.03	359.03	3.0	8.06	7.87
CB-202 (BMP 2)	1.76	1.02	33.39	63.3	355.19	355.19	3.0	15.26	8.06
DI-228 (BMP 2)	0.00	0.00	5.52	100.0	360.96	360.96	3.0	4.96	4.95
DI-231 (BMP 2)	0.86	0.20	3.59	81.3	371.12	371.12	3.0	8.16	4.26

10-YR ANALYSIS

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-251 (BMP 2)	0.89	0.22	41.71	80.5	357.17	357.17	3.0	20.58	9.23
DI-230 (BMP 2)	1.07	0.34	4.58	76.0	362.25	362.25	3.0	4.05	4.42
DI-229 (BMP 2)	1.18	0.43	5.57	73.5	361.43	361.43	3.0	4.62	4.61
DI-201 (BMP 2)	0.00	0.00	33.36	100.0	353.97	353.97	3.0	12.47	8.06
DI-2000 (BMP 2)	0.83	0.18	0.83	82.0	397.84	397.84	3.0	2.77	2.77
DI-298 (BMP 2)	0.84	0.19	0.84	81.8	385.99	385.99	3.0	2.78	2.78
DI-299 (BMP 2)	0.72	0.12	1.52	85.5	391.96	391.96	3.0	5.76	3.28
DI-297 (BMP 2)	0.97	0.27	1.78	78.3	382.00	382.00	3.0	5.06	3.44
DI-2001	0.00	0.00	0.80	100.0	372.15	372.15	3.0	6.49	2.84
DI-2002	0.00	0.00	0.81	100.0	378.35	378.35	3.0	7.62	2.85
DI-2004	1.11	0.37	1.99	75.2	376.11	376.11	3.0	1.69	3.72
DI-2005	0.90	0.22	0.90	80.1	381.14	381.14	3.0	2.94	2.94
DI-2003	0.82	0.17	0.82	82.5	386.35	386.35	3.0	2.86	2.86

10-YR ANALYSIS

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	2.25	4.13	0.38	18.13	398.73	391.93
CB-226 TO CB-227 (BMP 2)	15.0	0.005	2.92	2.96	0.93	4.57	397.13	396.95
CB-224 TO CB-226 (BMP 2)	15.0	0.035	3.34	6.55	1.41	12.01	396.94	391.19
CB-219 TO CB-220 (BMP 2)	15.0	0.008	2.92	2.17	0.88	5.77	396.78	396.62
CB-218 TO CB-219 (BMP 2)	15.0	0.019	3.29	5.20	1.33	8.89	396.62	392.70
DI-234 TO DI-235 (BMP 2)	15.0	0.045	2.84	6.10	0.80	13.76	393.38	385.78
DI-277 TO DI-278 (BMP 2)	15.0	0.021	3.16	2.39	1.16	9.47	394.53	392.47
CB-265 TO CB-266 (BMP 2)	15.0	0.008	2.78	1.43	0.74	5.90	394.04	393.97
CB-262 TO CB-265 (BMP 2)	15.0	0.010	3.65	3.30	1.88	6.43	393.97	393.23
DI-236 TO DI-237 (BMP 2)	18.0	0.005	3.56	3.36	2.01	7.43	390.44	390.21
CB-223 TO DI-236 (BMP 2)	18.0	0.005	3.96	2.93	2.96	7.43	390.21	389.87
CB-286 TO CB-289 (BMP 2)	15.0	0.033	1.99	0.27	0.21	11.77	392.79	388.51
CB-263 TO CB-264 (BMP 2)	15.0	0.008	3.15	3.67	1.15	5.78	393.46	393.21
CB-262 TO CB-263 (BMP 2)	15.0	0.008	3.25	1.60	1.28	5.84	393.18	393.23
DI-295 TO DI-296 (BMP 2)	15.0	0.032	1.82	1.31	0.15	11.51	392.69	388.27
CB-261 TO CB-262 (BMP 2)	18.0	0.033	4.45	8.61	4.10	19.10	393.23	390.43
CB-216 TO CB-218 (BMP 2)	18.0	0.020	3.54	2.65	1.98	14.75	392.65	391.46
DI-276 TO DI-277 (BMP 2)	15.0	0.035	3.97	3.65	2.43	12.06	392.47	389.25
CB-216 TO CB-217 (BMP 2)	15.0	0.010	2.98	1.80	0.95	6.48	391.56	391.46
CB-215 TO CB-216 (BMP 2)	18.0	0.025	4.02	7.03	3.00	16.74	391.46	390.24
CB-224 TO CB-225 (BMP 2)	15.0	0.005	3.41	3.49	1.63	4.57	390.77	390.58
CB-221 TO CB-224 (BMP 2)	24.0	0.007	4.17	2.47	4.34	18.79	389.73	389.41
CB-213 TO CB-214 (BMP 2)	24.0	0.013	6.75	8.62	16.81	26.02	388.13	386.92
CB-214 TO CB-215 (BMP 2)	18.0	0.011	4.25	3.58	3.58	11.23	388.42	388.13
CB-214 TO CB-221 (BMP 2)	24.0	0.010	6.11	5.83	13.46	23.07	389.41	388.13
DI-291 TO DI-292 (BMP 2)	15.0	0.042	1.88	0.56	0.17	13.31	390.91	387.36
CB-259 TO CB-261 (BMP 2)	18.0	0.041	4.73	4.46	4.88	21.32	390.71	387.36
CB-221 TO CB-222 (BMP 2)	18.0	0.005	5.11	5.65	8.00	7.53	389.72	389.41
CB-222 TO CB-223 (BMP 2)	18.0	0.005	4.56	4.12	5.29	7.49	389.87	389.72
CB-287 TO CB-288 (BMP 2)	15.0	0.038	2.77	1.41	0.73	12.64	389.48	388.75

10-YR ANALYSIS

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-256 TO CB-257 (BMP 2)	18.0	0.027	1.76	0.18	0.15	17.26	387.68	386.13
CB-256 TO DI-276 (BMP 2)	15.0	0.026	4.56	7.71	3.60	10.42	389.25	387.17
DI-233 TO DI-234 (BMP 2)	15.0	0.038	3.60	7.26	1.79	12.56	385.91	382.07
CB-286 TO CB-287 (BMP 2)	15.0	0.006	3.98	4.04	2.56	4.81	388.75	388.59
CB-285 TO CB-286 (BMP 2)	18.0	0.030	4.43	4.00	4.03	18.32	388.51	386.32
CB-212 TO CB-213 (BMP 2)	24.0	0.013	6.85	6.50	17.31	25.74	387.03	386.65
DI-294 TO DI-295 (BMP 2)	15.0	0.024	2.55	4.36	0.55	10.00	388.27	385.44
CB-211 TO CB-212 (BMP 2)	24.0	0.006	6.60	6.82	17.59	18.21	386.65	386.07
CB-255 TO CB-256 (BMP 2)	24.0	0.018	4.12	1.87	4.17	30.62	386.13	385.62
CB-272 TO CB-273 (BMP 2)	15.0	0.005	2.86	2.91	0.87	4.57	379.27	379.13
CB-273 TO DI-274 (BMP 2)	15.0	0.005	2.72	2.76	0.72	4.57	381.34	380.94
CB-270 TO CB-272 (BMP 2)	15.0	0.005	3.32	2.44	1.48	4.57	379.06	378.30
CB-259 TO CB-260 (BMP 2)	15.0	0.019	2.84	0.76	0.80	8.91	387.37	387.36
CB-258 TO CB-259 (BMP 2)	18.0	0.027	5.30	8.61	6.56	17.31	387.36	385.92
DI-290 TO DI-291 (BMP 2)	15.0	0.050	2.95	1.65	0.92	14.46	387.36	384.11
CB-254 TO CB-255 (BMP 2)	24.0	0.024	6.17	10.16	13.74	35.14	385.62	383.29
CB-255 TO CB-258 (BMP 2)	24.0	0.009	5.29	6.32	9.17	20.94	386.23	385.79
CB-283 TO CB-285 (BMP 2)	18.0	0.035	4.67	9.13	4.71	19.63	386.32	383.57
CB-209 TO CB-211 (BMP 2)	24.0	0.057	6.99	12.80	18.02	53.86	386.07	383.47
CB-253 TO CB-254 (BMP 2)	24.0	0.022	6.21	6.03	13.98	33.18	383.65	380.79
DI-293 TO DI-294 (BMP 2)	15.0	0.064	3.00	1.63	0.97	16.37	385.53	381.21
CB-283 TO CB-284 (BMP 2)	15.0	0.055	3.46	7.83	1.58	15.13	385.06	383.35
CB-279 TO CB-283 (BMP 2)	18.0	0.009	6.24	6.88	10.97	9.85	381.12	380.13
CB-283 TO DI-293 (BMP 2)	18.0	0.005	3.73	2.92	4.65	7.43	381.21	381.12
CB-209 TO CB-210 (BMP 2)	15.0	0.010	3.46	3.01	1.57	6.46	384.31	384.06
CB-207 TO CB-209 (BMP 2)	24.0	0.044	7.35	13.71	19.79	47.34	384.06	379.64
CB-282 TO DI-290 (BMP 2)	15.0	0.080	3.78	2.50	2.10	18.27	384.11	381.55
CB-281 TO CB-282 (BMP 2)	15.0	0.020	4.75	4.25	3.98	9.06	381.55	380.46
DI-232 TO DI-233 (BMP 2)	18.0	0.056	3.58	8.49	2.05	24.83	382.04	375.79
CB-252 TO CB-253 (BMP 2)	24.0	0.023	6.35	10.42	14.71	34.05	380.79	377.71

10-YR ANALYSIS

Conduit Results - Time: 0.00 hours

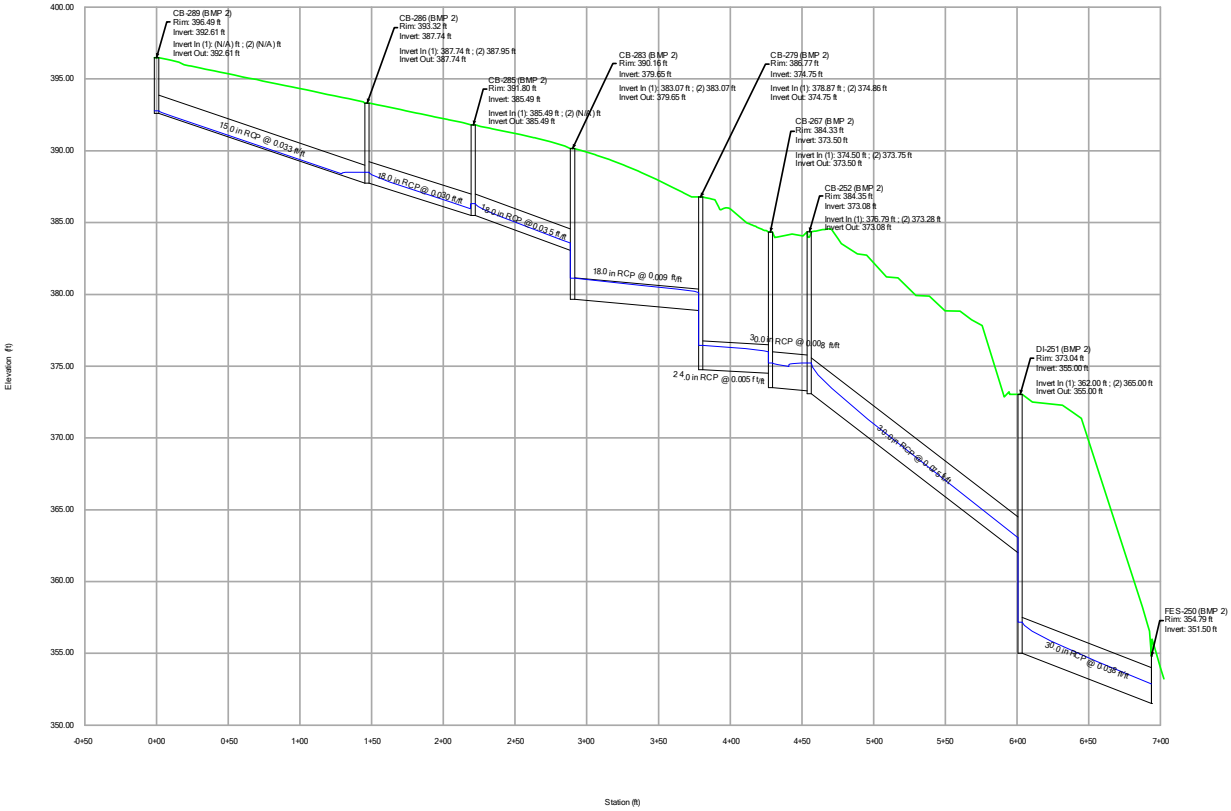
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-280 TO CB-281 (BMP 2)	18.0	0.010	4.90	6.05	5.37	10.75	380.46	379.85
CB-279 TO CB-280 (BMP 2)	24.0	0.005	2.64	2.43	6.47	16.00	376.45	376.44
CB-267 TO CB-279 (BMP 2)	24.0	0.005	6.14	6.86	17.35	16.22	376.44	376.00
CB-268 TO CB-270 (BMP 2)	15.0	0.010	4.79	5.61	4.07	6.54	378.30	376.96
CB-270 TO CB-271 (BMP 2)	15.0	0.007	3.37	3.80	1.44	5.56	378.80	378.55
CB-271 TO DI-275 (BMP 2)	15.0	0.005	2.51	2.56	0.55	4.58	380.29	379.62
CB-207 TO CB-208 (BMP 2)	15.0	0.005	3.34	3.39	1.46	4.62	381.40	381.26
CB-205 TO CB-207 (BMP 2)	24.0	0.043	7.67	13.66	21.29	47.05	380.25	376.27
CB-252 TO CB-267 (BMP 2)	30.0	0.008	7.04	6.18	25.20	37.00	375.21	375.22
DI-251 TO CB-252 (BMP 2)	30.0	0.075	9.03	20.58	40.35	112.60	375.22	363.05
CB-267 TO CB-268 (BMP 2)	24.0	0.007	3.64	2.76	6.79	18.34	375.20	375.21
CB-268 TO CB-269 (BMP 2)	24.0	0.011	0.97	0.62	1.03	23.86	375.19	375.20
CB-205 TO CB-206 (BMP 2)	15.0	0.015	3.29	4.78	1.34	7.90	379.96	379.42
CB-203 TO CB-205 (BMP 2)	24.0	0.050	8.09	14.78	23.13	50.55	376.88	372.00
DI-231 TO DI-232 (BMP 2)	18.0	0.039	3.93	8.16	2.80	20.62	376.04	370.87
CB-204 TO DI-228 (BMP 2)	18.0	0.008	4.95	5.44	5.52	9.20	360.96	359.84
CB-203 TO CB-204 (BMP 2)	18.0	0.025	5.32	8.06	6.63	16.45	359.90	358.90
CB-202 TO CB-203 (BMP 2)	30.0	0.049	7.87	15.26	31.94	91.19	359.03	354.43
DI-201 TO CB-202 (BMP 2)	30.0	0.050	8.06	12.47	33.39	91.65	355.19	353.44
DI-228 TO DI-229 (BMP 2)	18.0	0.005	4.61	4.96	5.57	7.43	361.43	361.06
DI-230 TO DI-231 (BMP 2)	18.0	0.072	4.26	4.05	3.59	28.25	371.12	362.25
FES-250 TO DI-251 (BMP 2)	30.0	0.038	9.23	15.12	41.71	80.13	357.17	352.87
DI-229 TO DI-230 (BMP 2)	18.0	0.005	4.42	4.62	4.58	7.43	362.25	361.48
FES-200 TO DI-201 (BMP 2)	30.0	0.008	8.06	8.66	33.36	37.78	353.97	353.33
Pipe - (346) (BMP 2)	18.0	0.039	2.77	5.76	0.83	20.87	397.84	391.91
Pipe - (344) (BMP 2)	18.0	0.027	2.78	5.06	0.84	17.28	385.99	381.93
Pipe - (345) (BMP 2)	18.0	0.005	3.28	3.31	1.52	7.43	391.96	391.56
Pipe - (343) (BMP 2)	18.0	0.012	3.44	1.87	1.78	11.26	382.00	381.21
CO-1	15.0	0.053	2.85	6.49	0.81	14.88	378.35	372.00
CO-2	15.0	0.059	2.84	6.71	0.80	15.71	372.15	365.19

10-YR ANALYSIS

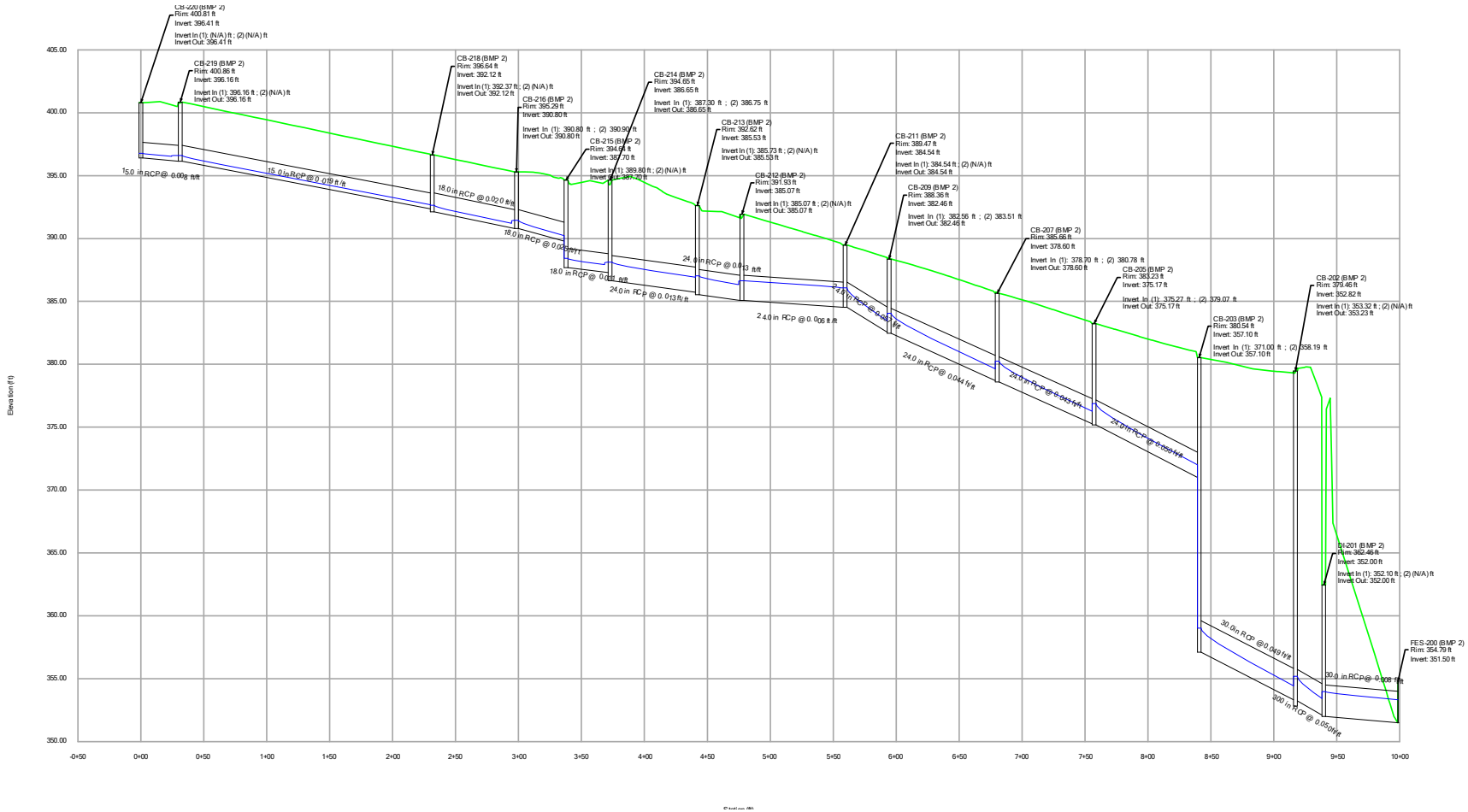
Conduit Results - Time: 0.00 hours

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)
CO-3	15.0	0.049	2.94	1.69	0.90	14.31	381.14	376.11
CO-5	15.0	0.006	3.72	3.78	1.99	4.89	376.11	375.40
CO-6	15.0	0.084	2.86	7.62	0.82	18.70	386.35	378.18

10-YR ANALYSIS



10-YR ANALYSIS



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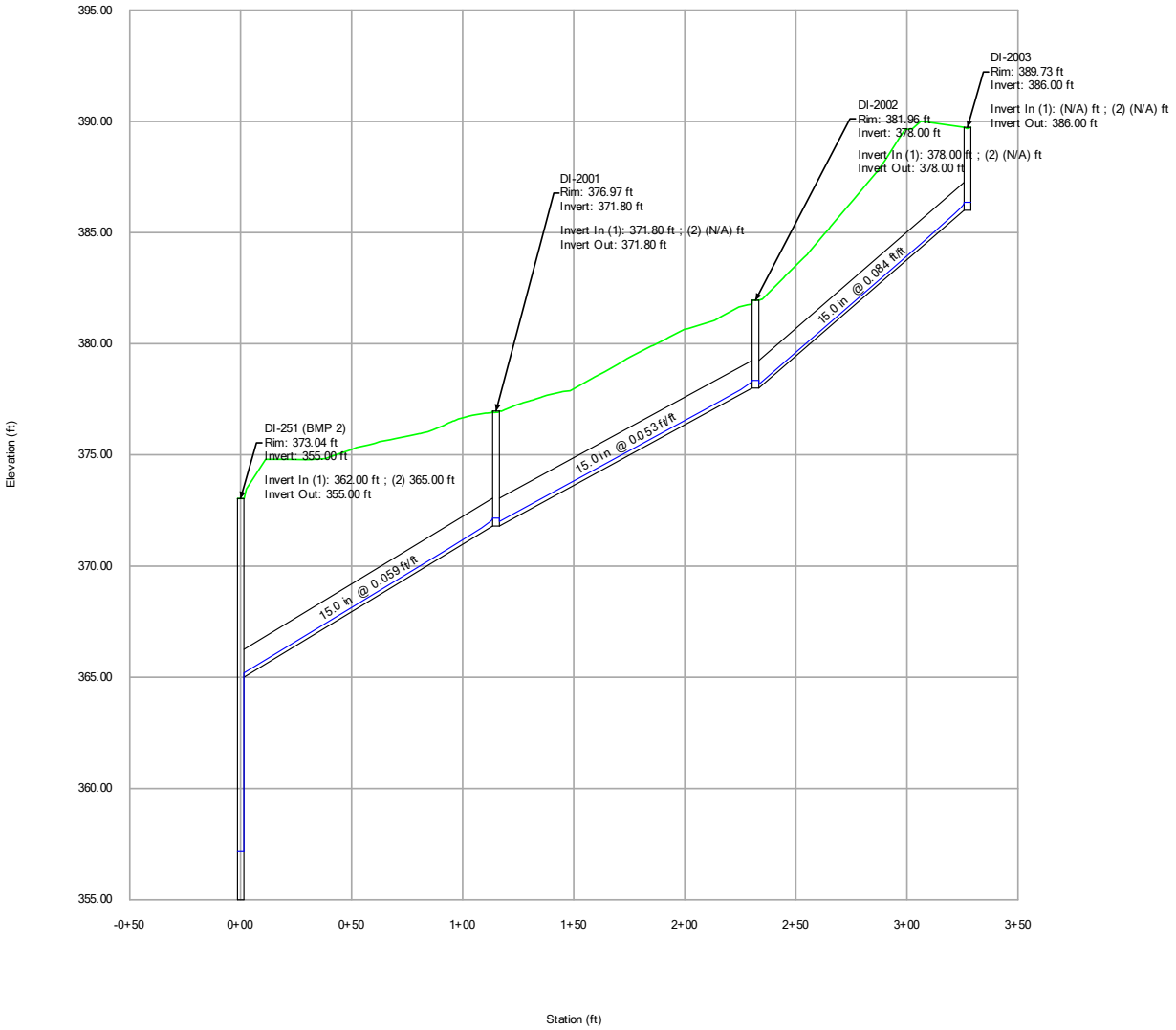

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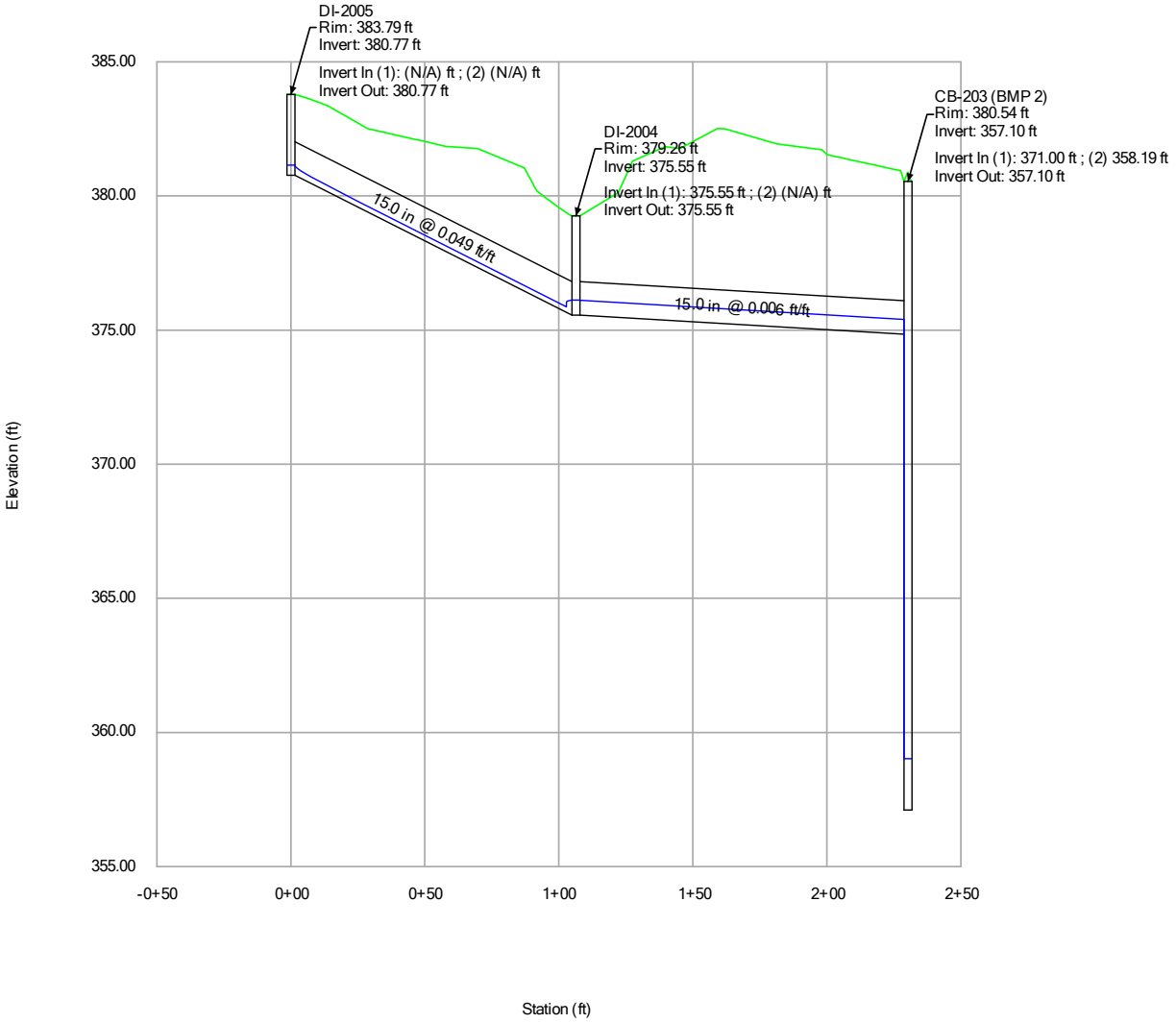

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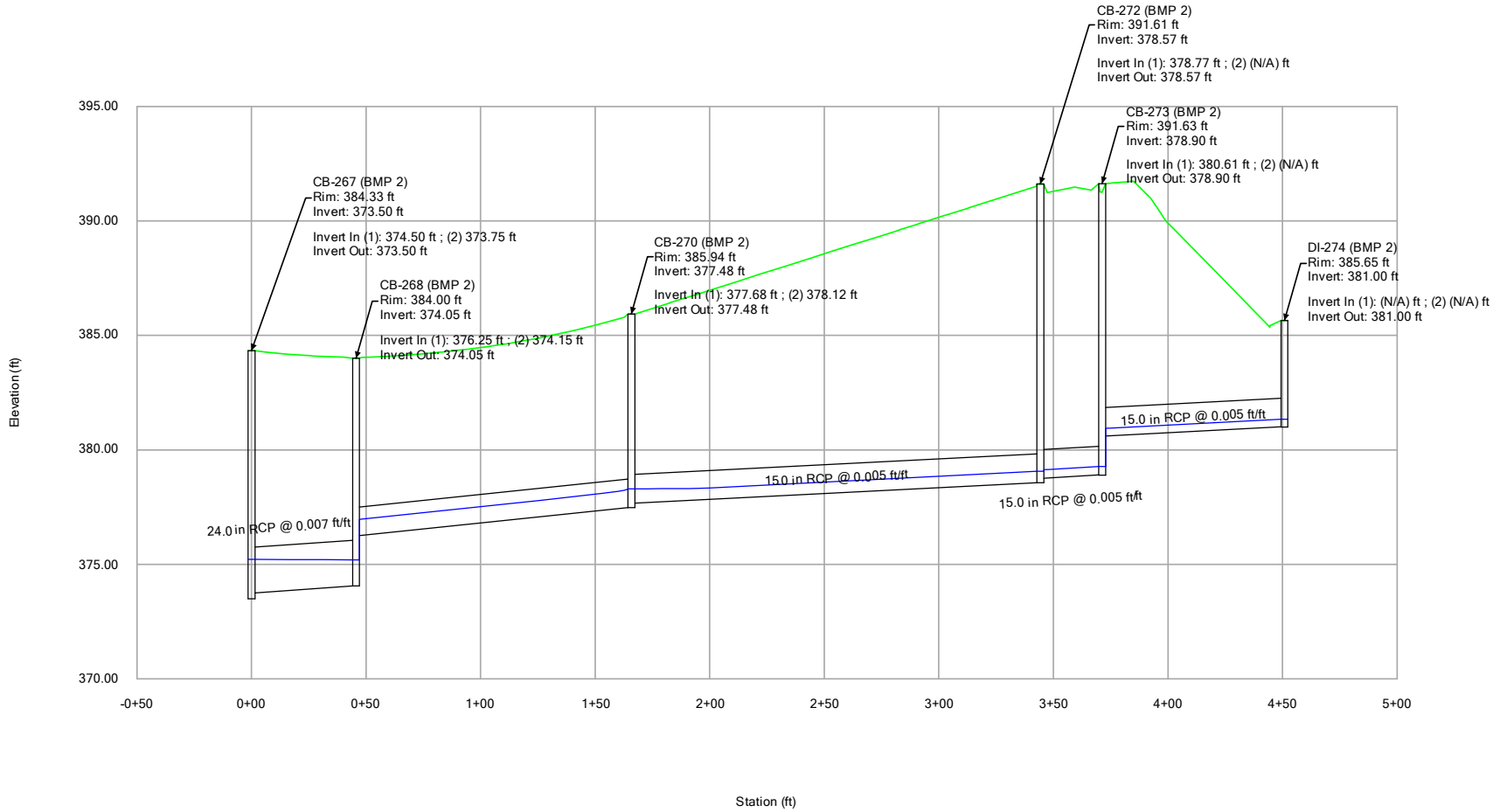

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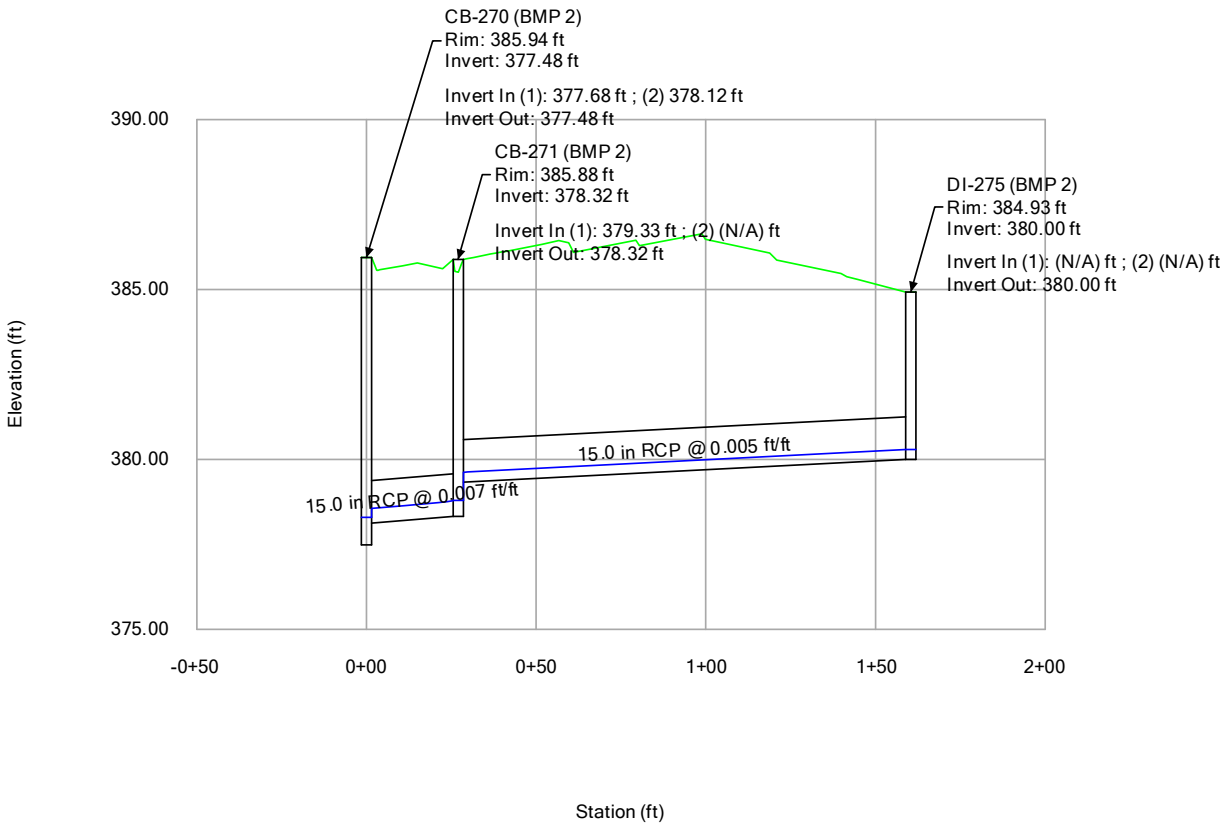

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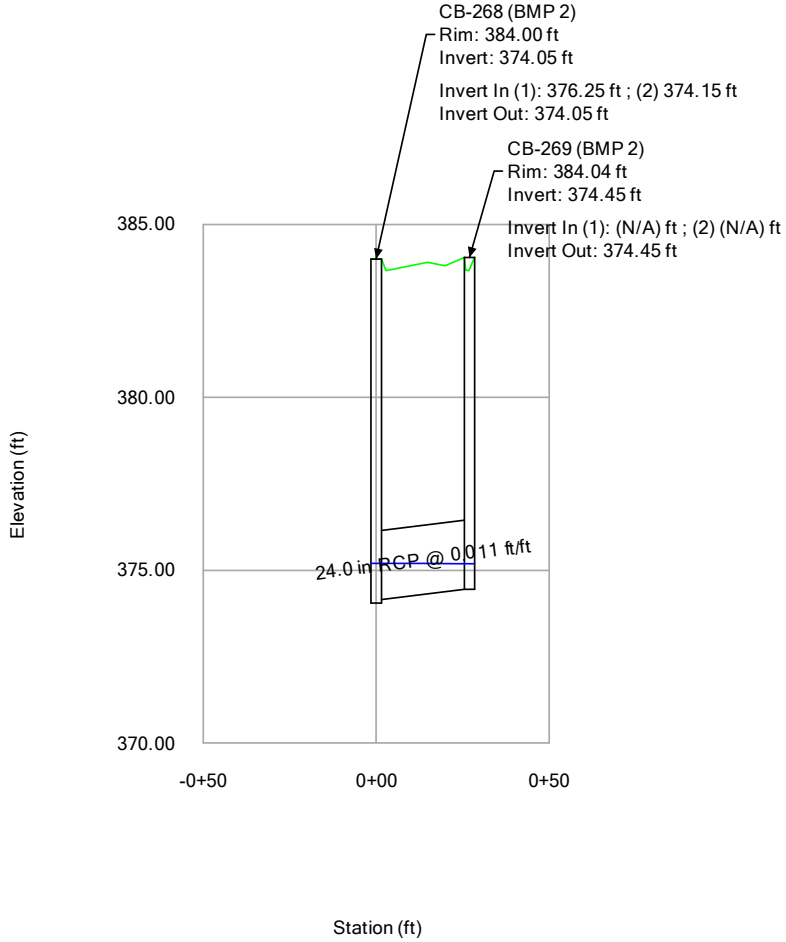

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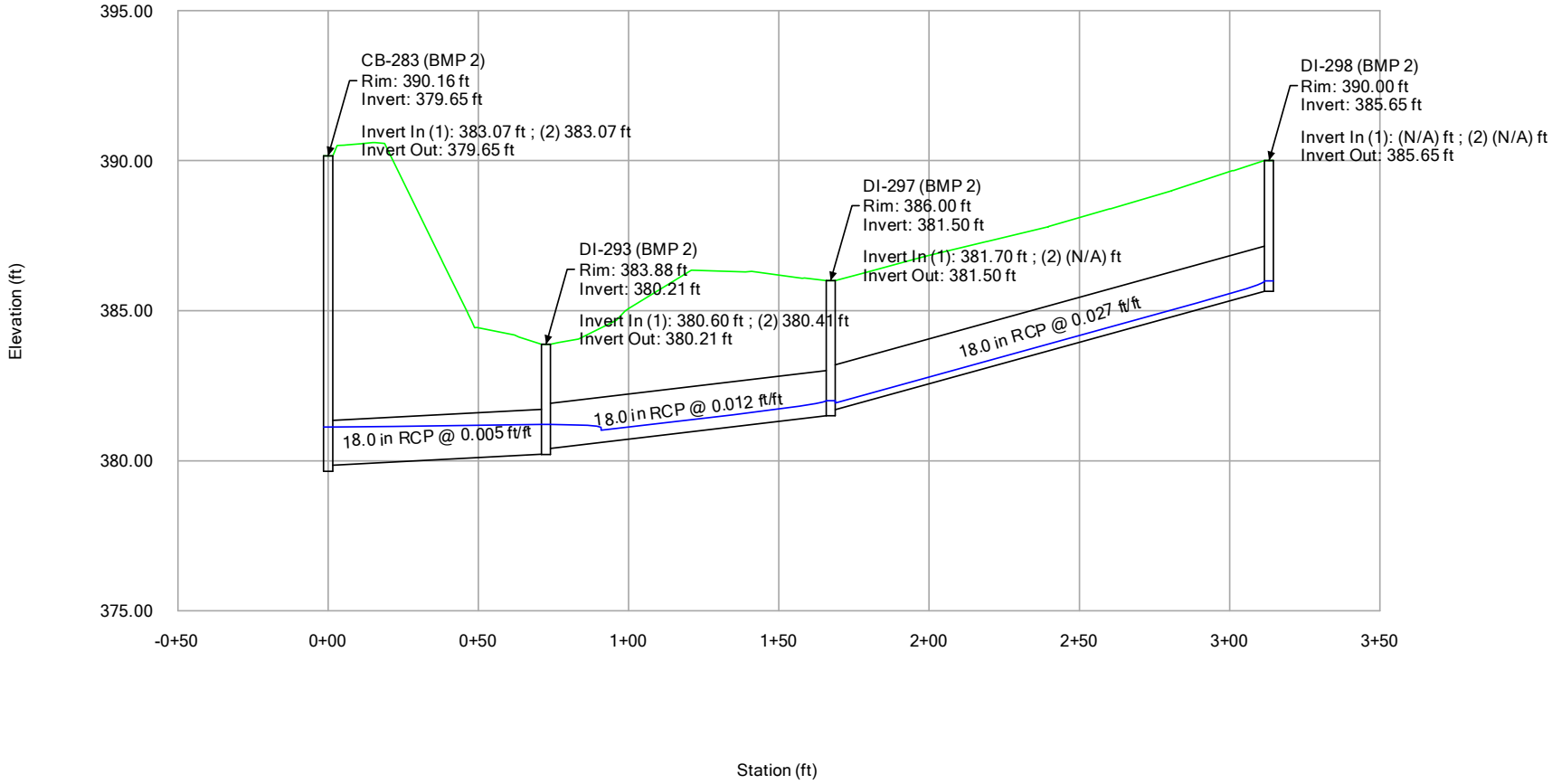

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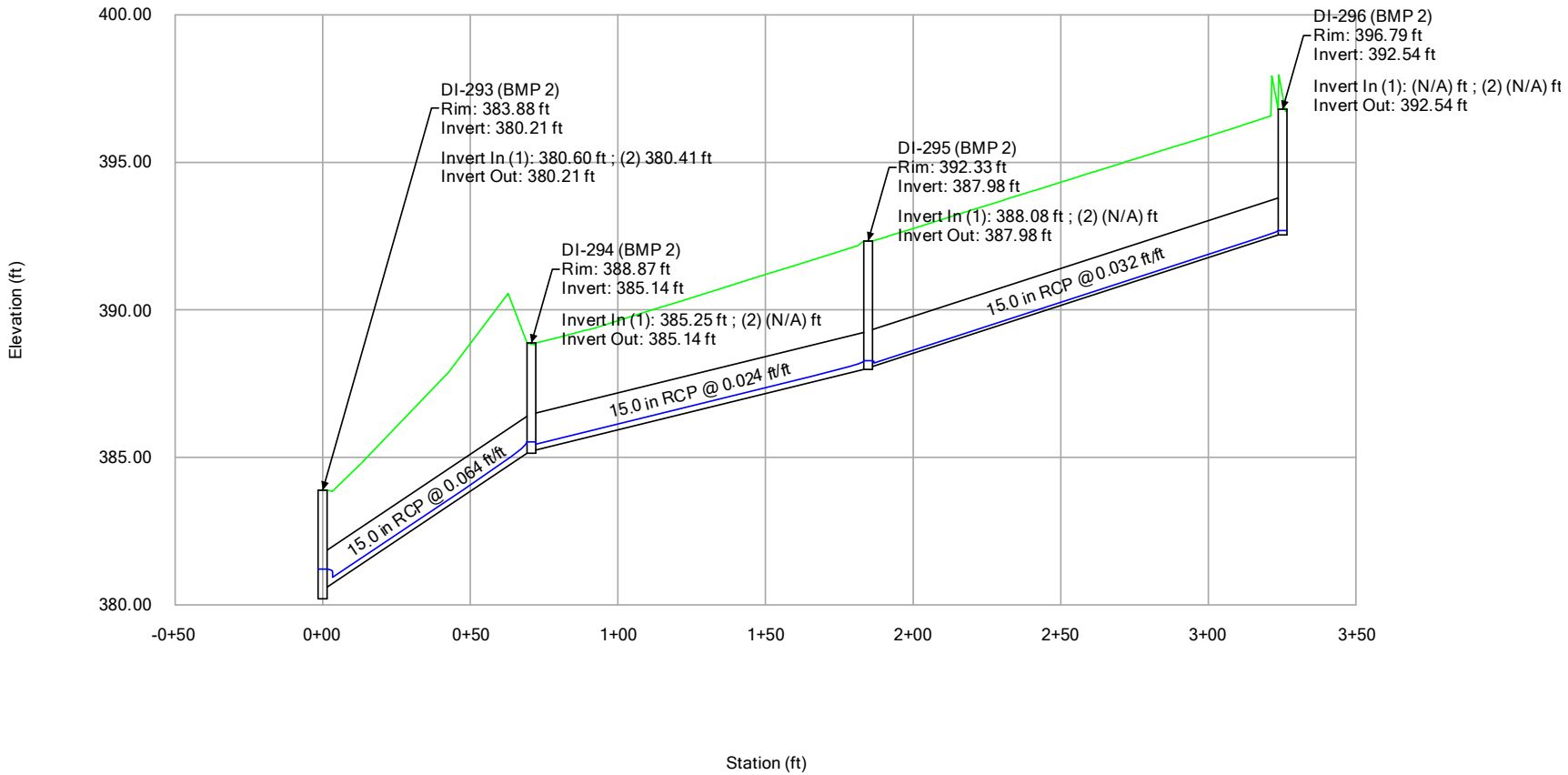

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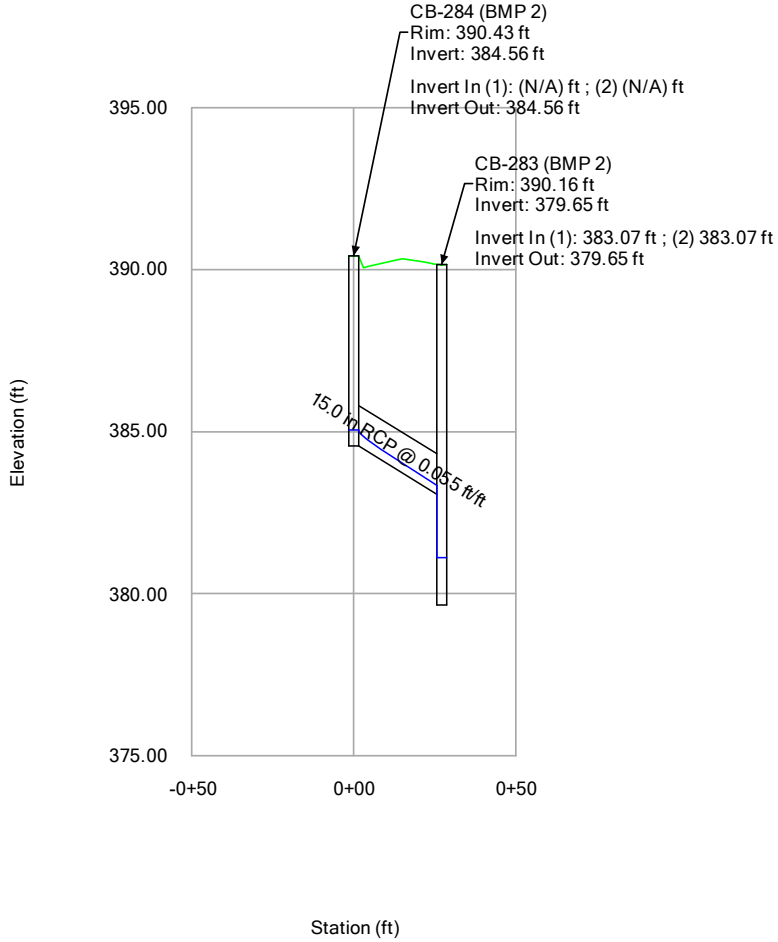

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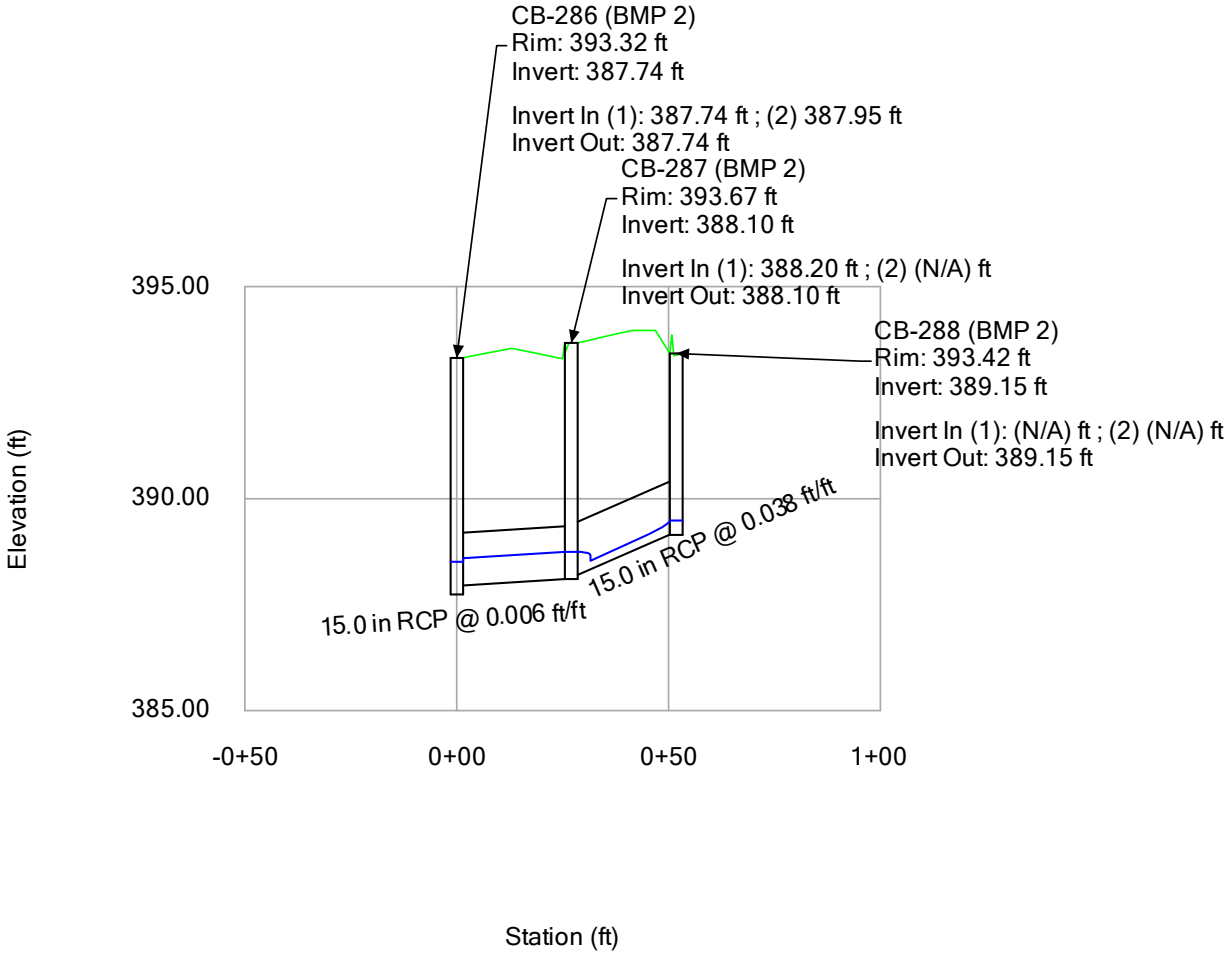

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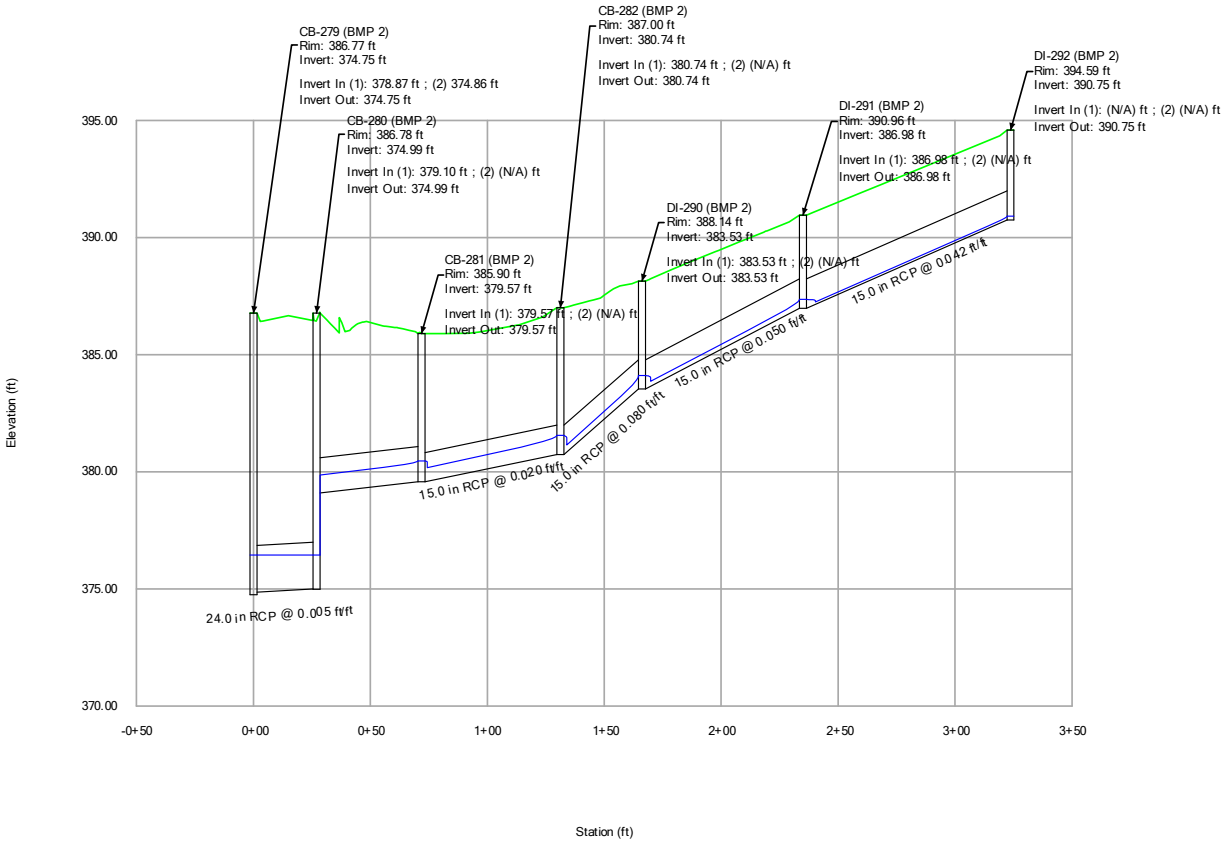

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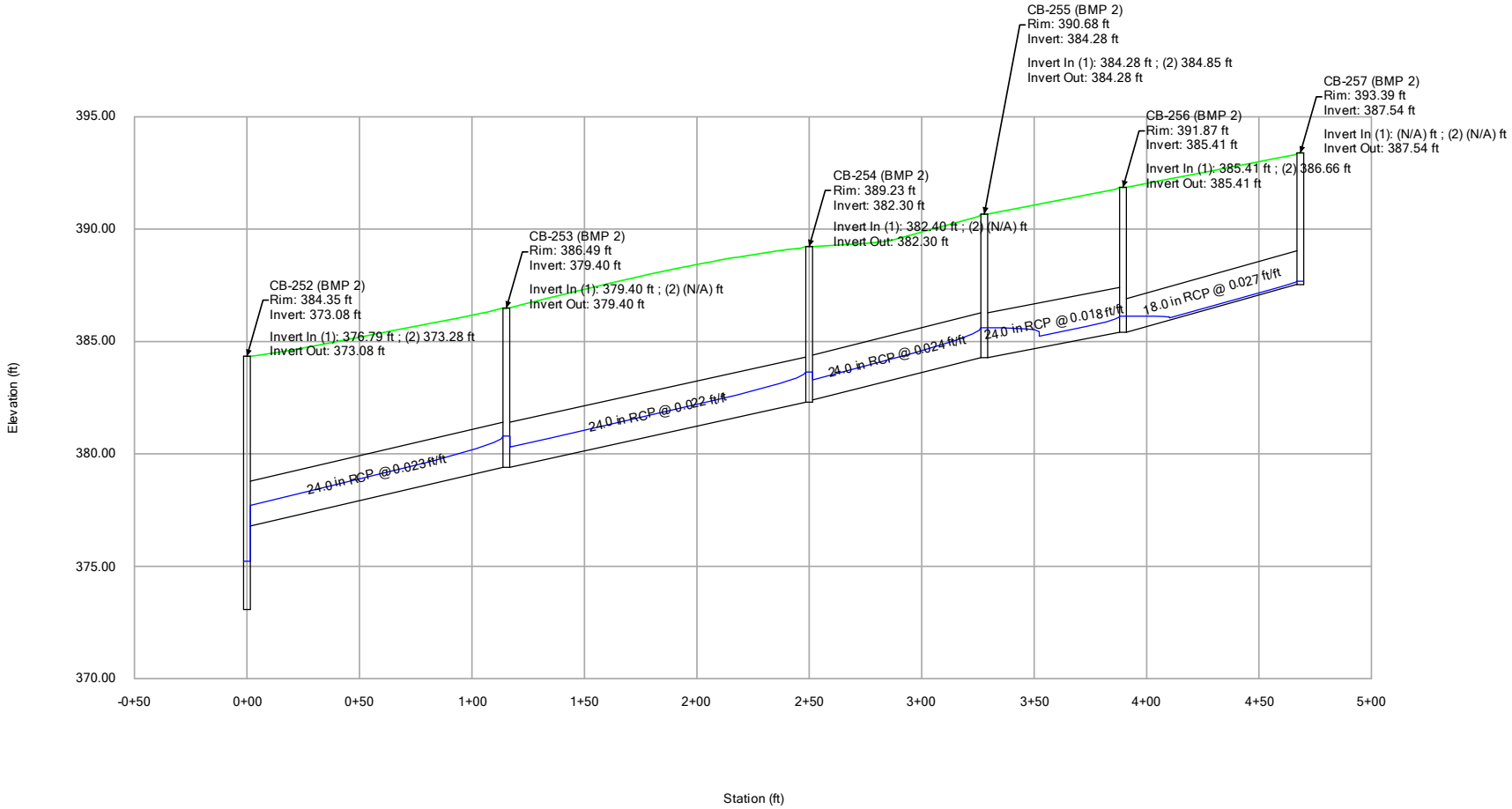

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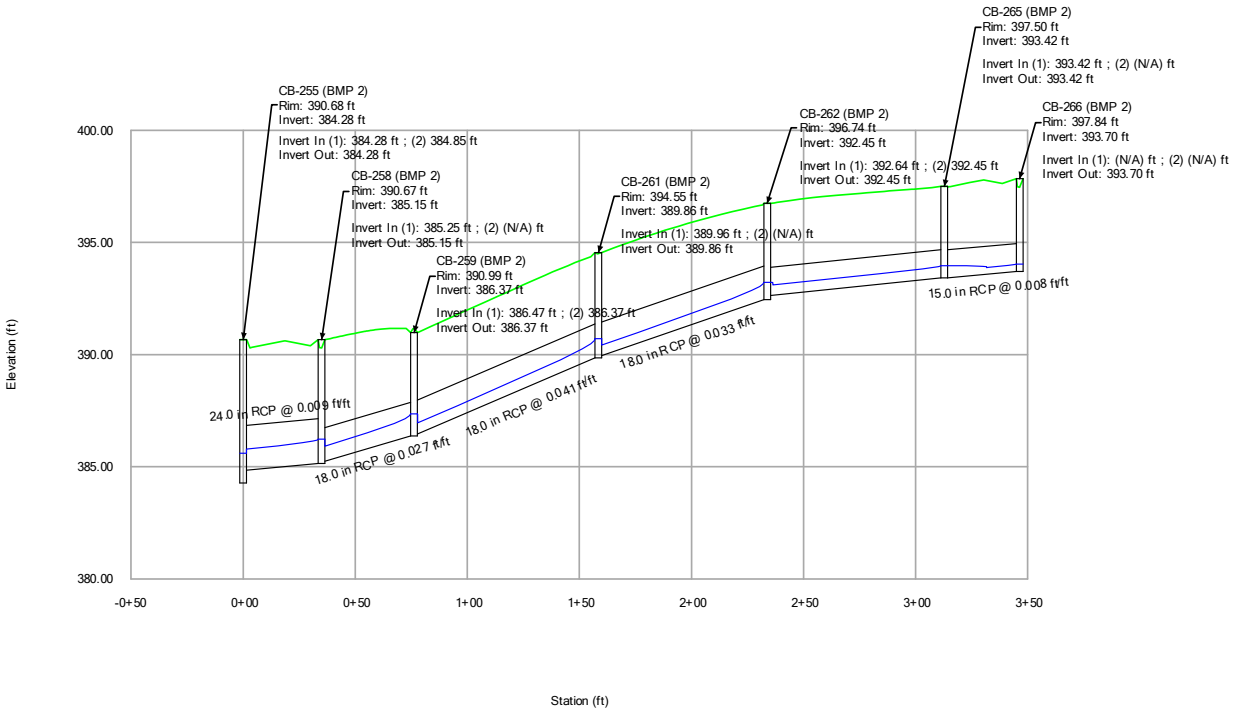

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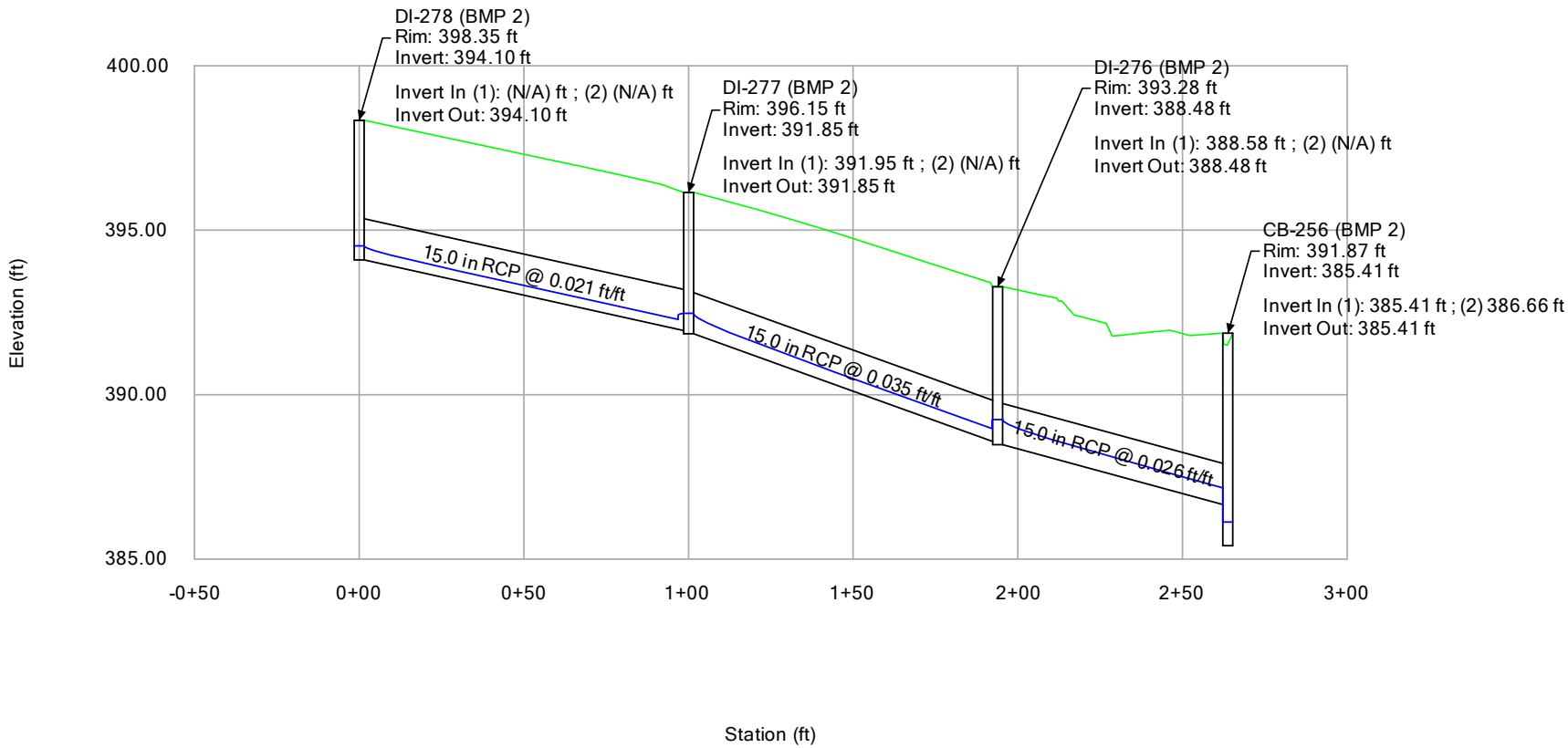

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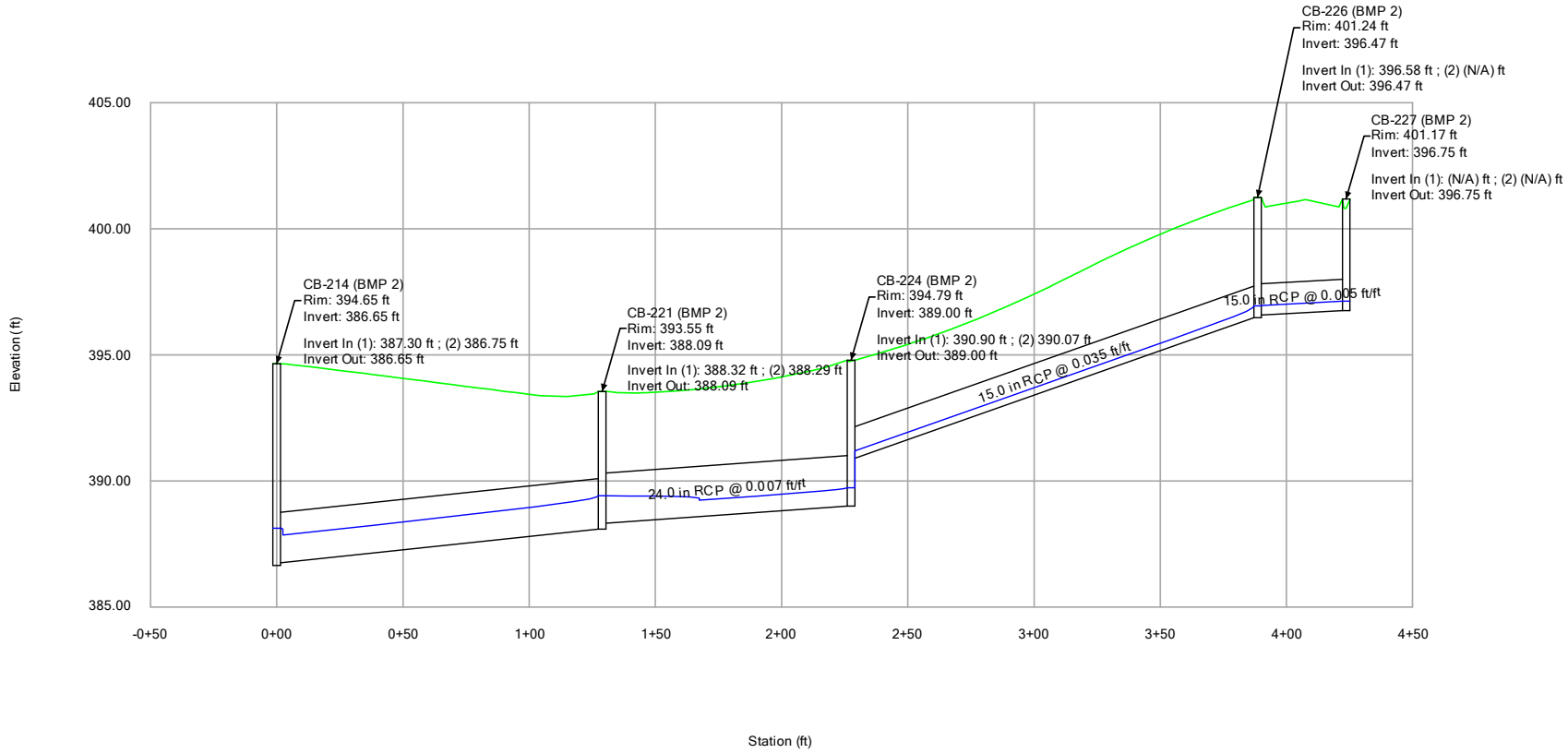

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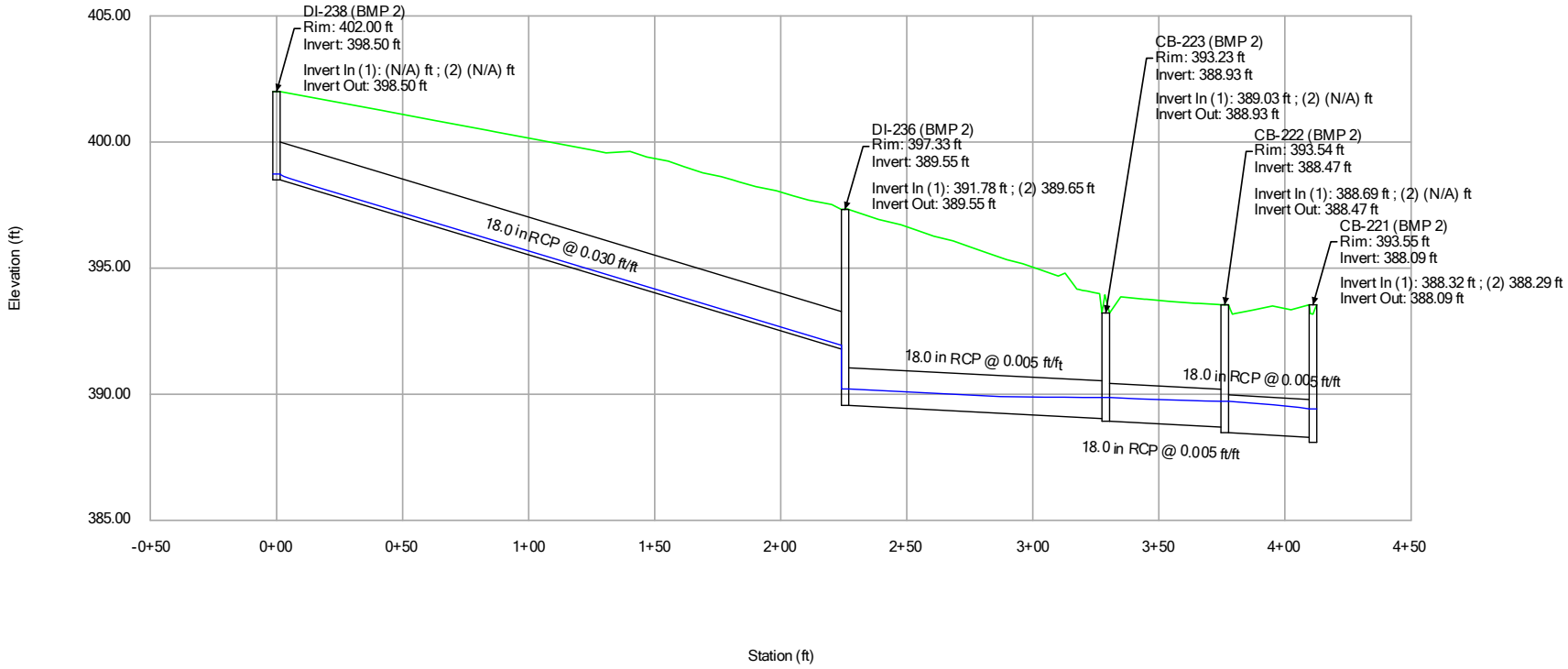

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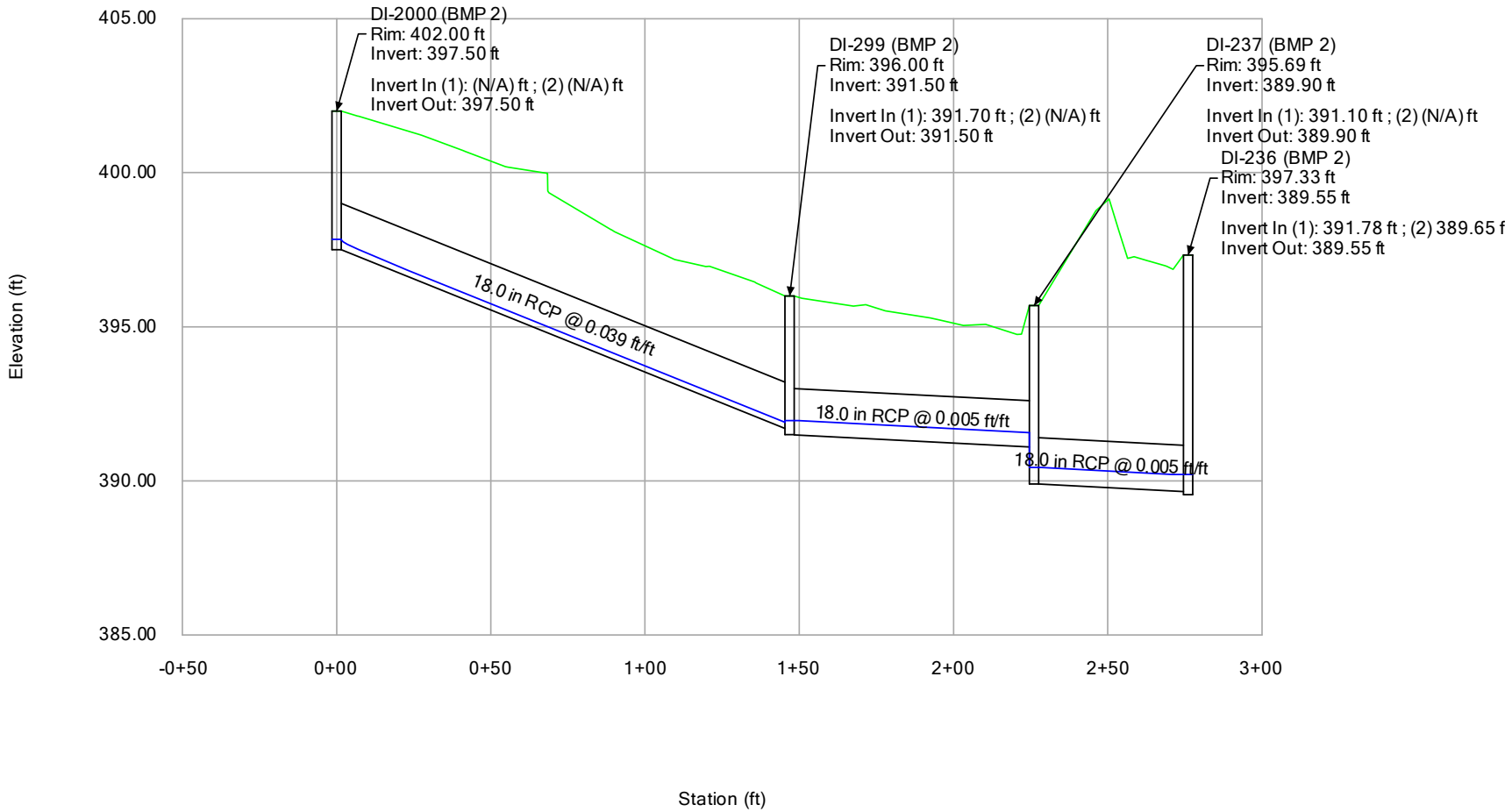

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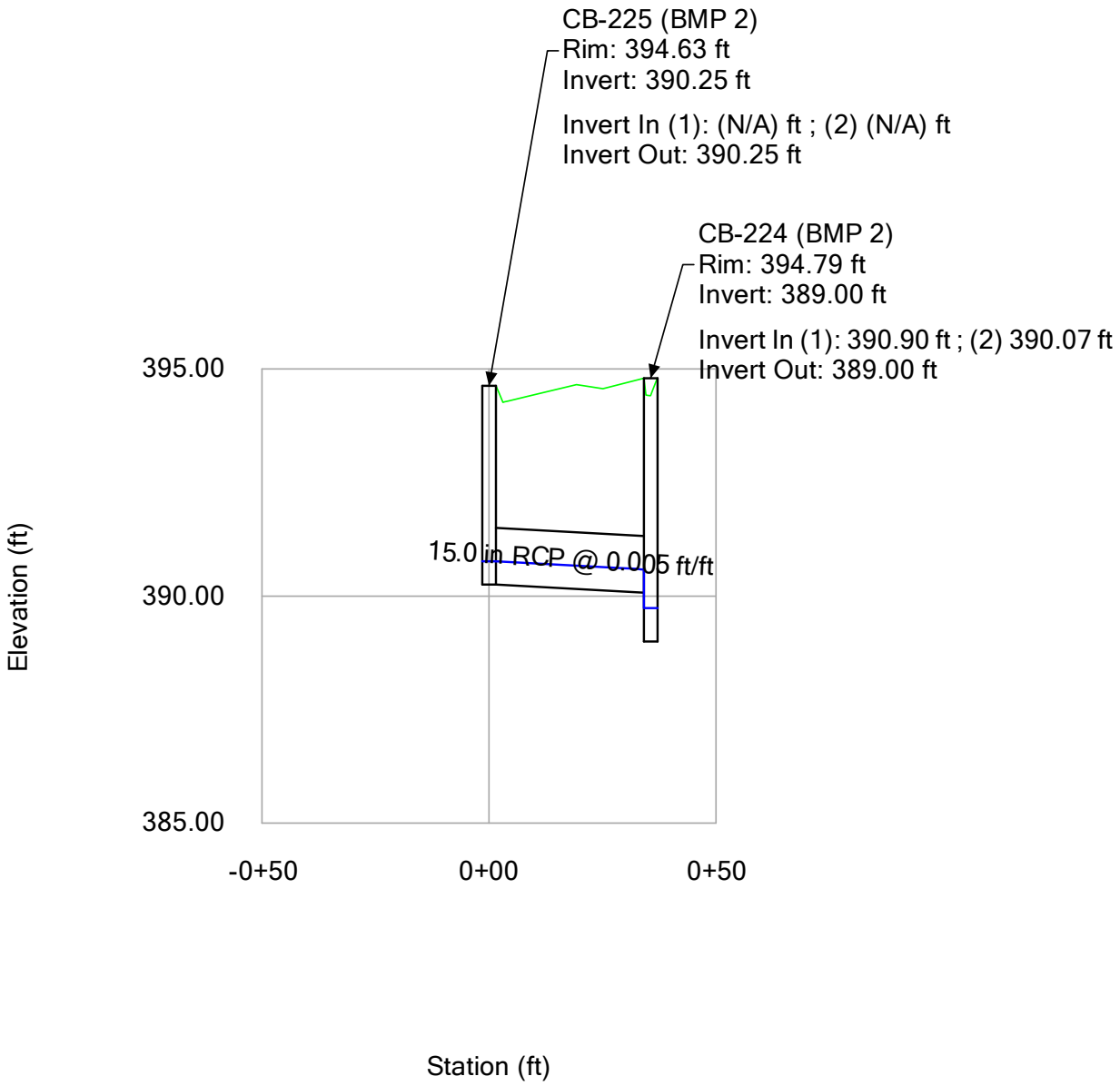

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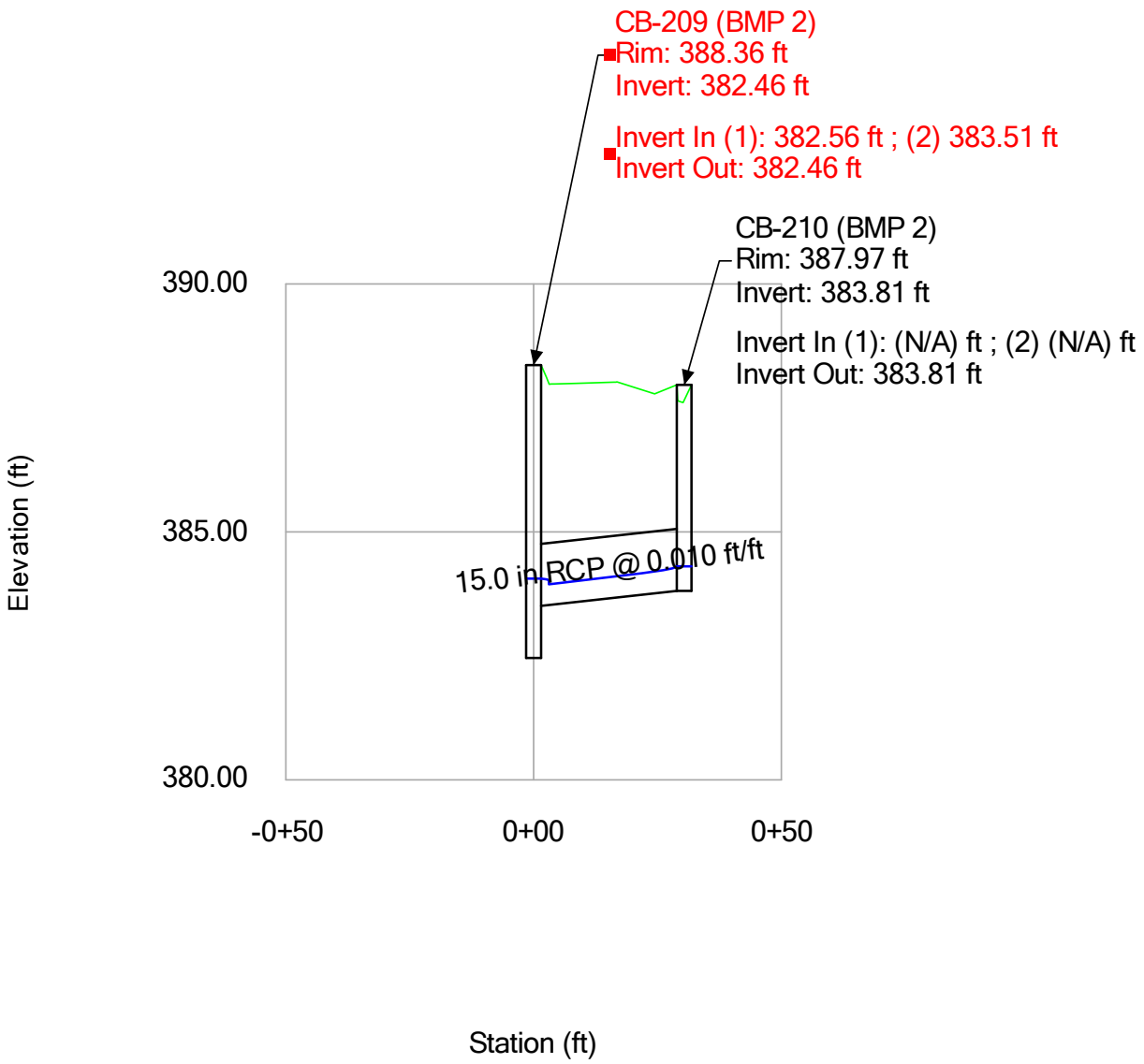

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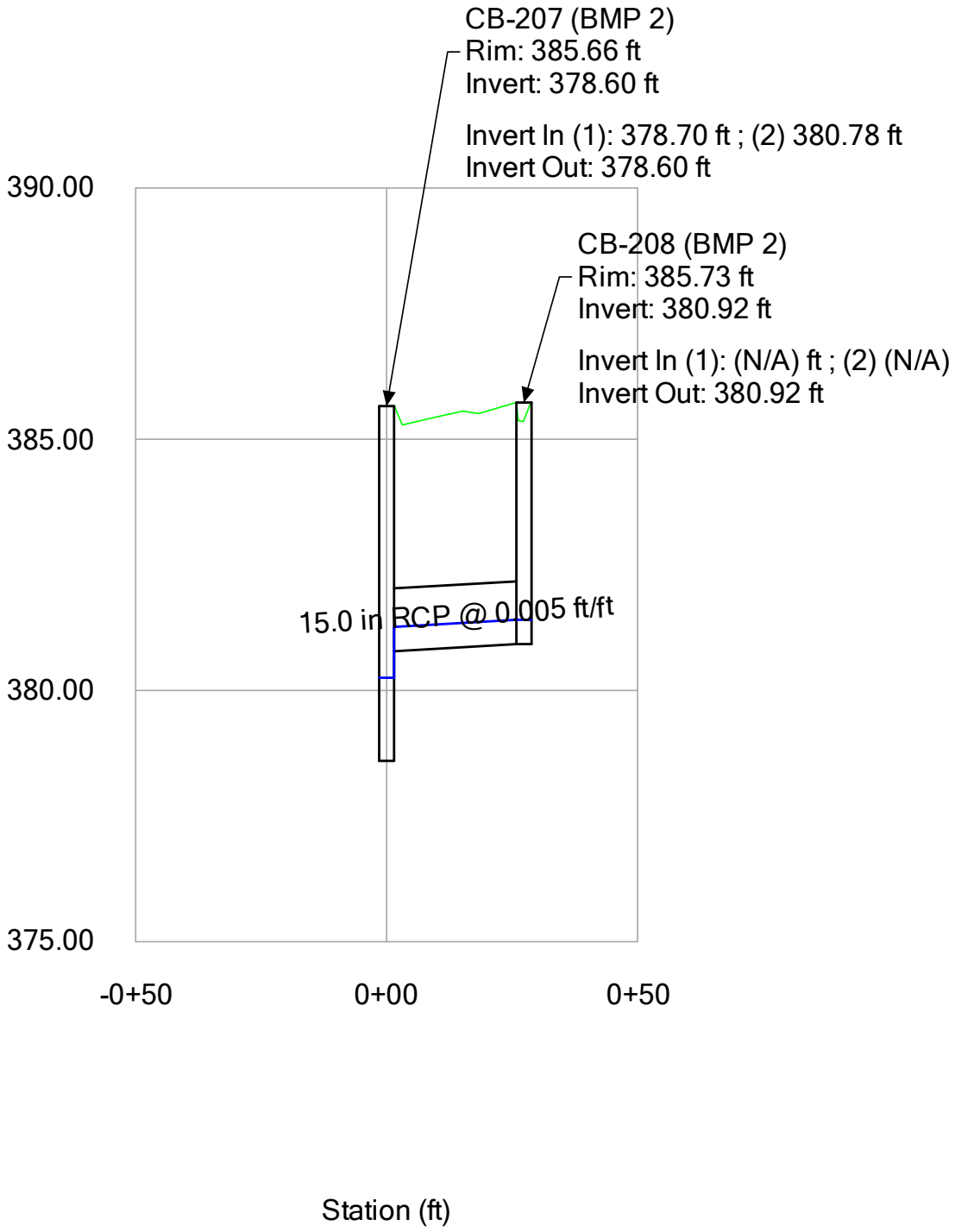

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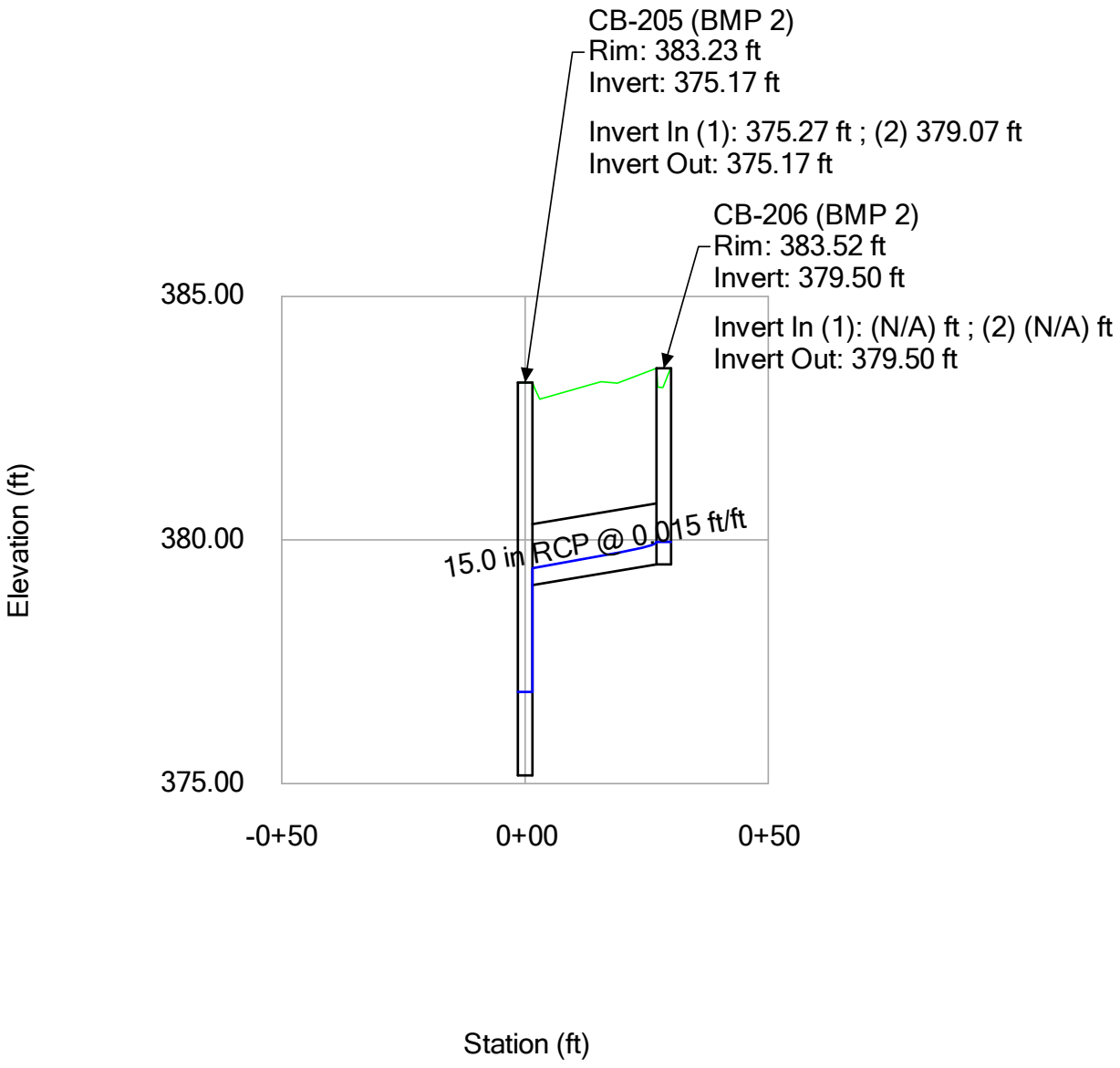


SCM 2 – 25 YR STORM

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-287 (BMP 2)	0.181	3.29	0.083	0.950
CB-220 (BMP 2)	0.157	1.20	0.083	0.950
CB-226 (BMP 2)	0.076	0.58	0.083	0.950
CB-214 (BMP 2)	0.012	0.09	0.083	0.950
CB-273 (BMP 2)	0.025	0.18	0.083	0.910
CB-258 (BMP 2)	0.695	4.97	0.083	0.890
CB-272 (BMP 2)	0.113	0.80	0.083	0.880
CB-264 (BMP 2)	0.252	1.73	0.083	0.850
CB-280 (BMP 2)	0.124	0.85	0.083	0.850
CB-283 (BMP 2)	0.039	0.27	0.083	0.850
CB-284 (BMP 2)	0.206	1.41	0.083	0.850
CB-285 (BMP 2)	0.043	0.30	0.083	0.850
CB-286 (BMP 2)	0.315	2.15	0.083	0.850
DI-290 (BMP 2)	0.247	1.69	0.083	0.850
DI-291 (BMP 2)	0.146	1.00	0.083	0.850
DI-292 (BMP 2)	0.028	0.19	0.083	0.850

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-267 (BMP 2)	0.144	0.99	0.083	0.850
CB-281 (BMP 2)	0.143	0.98	0.083	0.850
DI-277 (BMP 2)	0.229	1.56	0.083	0.850
DI-276 (BMP 2)	0.185	1.27	0.083	0.850
CB-217 (BMP 2)	0.162	1.11	0.083	0.850
CB-216 (BMP 2)	0.001	0.00	0.083	0.850
CB-218 (BMP 2)	0.129	0.88	0.083	0.850
CB-219 (BMP 2)	0.079	0.54	0.083	0.850
CB-260 (BMP 2)	0.156	1.07	0.083	0.850
CB-259 (BMP 2)	0.168	1.15	0.083	0.850
CB-261 (BMP 2)	0.117	0.80	0.083	0.850
CB-262 (BMP 2)	0.143	0.98	0.083	0.850
CB-282 (BMP 2)	0.418	2.86	0.083	0.850
CB-223 (BMP 2)	0.747	5.11	0.083	0.850
CB-279 (BMP 2)	0.048	0.32	0.083	0.840
CB-221 (BMP 2)	0.254	1.71	0.083	0.840

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-278 (BMP 2)	0.265	1.75	0.083	0.820
DI-296 (BMP 2)	0.026	0.17	0.083	0.810
CB-289 (BMP 2)	0.036	0.24	0.083	0.810
CB-257 (BMP 2)	0.026	0.17	0.083	0.810
CB-263 (BMP 2)	0.000	0.00	0.083	0.810
CB-288 (BMP 2)	0.146	0.95	0.083	0.810
CB-213 (BMP 2)	0.129	0.84	0.083	0.810
CB-222 (BMP 2)	0.479	3.12	0.083	0.810
CB-210 (BMP 2)	0.388	2.53	0.083	0.810
CB-212 (BMP 2)	0.063	0.41	0.083	0.810
CB-215 (BMP 2)	0.120	0.78	0.083	0.810
DI-228 (BMP 2)	0.001	0.00	0.083	0.810
CB-202 (BMP 2)	0.363	2.37	0.083	0.810
CB-269 (BMP 2)	0.122	0.79	0.083	0.810
CB-271 (BMP 2)	0.203	1.32	0.083	0.810
CB-265 (BMP 2)	0.268	1.72	0.083	0.800

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-266 (BMP 2)	0.154	0.96	0.083	0.780
CB-227 (BMP 2)	0.209	1.30	0.083	0.770
CB-225 (BMP 2)	0.403	2.50	0.083	0.770
CB-254 (BMP 2)	0.053	0.33	0.083	0.770
CB-255 (BMP 2)	0.089	0.55	0.083	0.770
CB-256 (BMP 2)	0.087	0.54	0.083	0.770
CB-253 (BMP 2)	0.202	1.25	0.083	0.770
CB-252 (BMP 2)	0.225	1.39	0.083	0.770
CB-207 (BMP 2)	0.051	0.32	0.083	0.770
CB-205 (BMP 2)	0.178	1.10	0.083	0.770
CB-224 (BMP 2)	0.356	2.20	0.083	0.770
CB-204 (BMP 2)	0.243	1.50	0.083	0.770
CB-208 (BMP 2)	0.242	1.50	0.083	0.770
CB-206 (BMP 2)	0.217	1.34	0.083	0.770
CB-203 (BMP 2)	0.096	0.59	0.083	0.770
CB-268 (BMP 2)	0.383	2.37	0.083	0.770

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-270 (BMP 2)	0.320	1.98	0.083	0.770
CB-209 (BMP 2)	0.063	0.39	0.083	0.770
CB-211 (BMP 2)	0.134	0.83	0.083	0.770
DI-201 (BMP 2)	0.098	0.00	0.000	0.770
DI-2003	0.188	1.10	0.083	0.730
DI-2005	0.216	1.25	0.083	0.720
DI-2004	0.299	1.64	0.083	0.680
DI-235 (BMP 2)	0.203	1.06	0.083	0.650
DI-234 (BMP 2)	0.283	1.48	0.083	0.650
DI-2000 (BMP 2)	0.216	1.13	0.083	0.650
DI-297 (BMP 2)	0.264	1.38	0.083	0.650
DI-298 (BMP 2)	0.218	1.14	0.083	0.650
DI-2002	0.128	0.00	0.083	0.630
DI-2001	0.253	0.00	0.083	0.630
DI-274 (BMP 2)	0.188	0.94	0.083	0.620
DI-229 (BMP 2)	0.371	1.79	0.083	0.600
DI-230 (BMP 2)	0.325	1.57	0.083	0.600
DI-231 (BMP 2)	0.165	0.80	0.083	0.600

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-232 (BMP 2)	0.175	0.84	0.083	0.600
DI-233 (BMP 2)	0.065	0.31	0.083	0.600
DI-294 (BMP 2)	0.111	0.53	0.083	0.600
DI-295 (BMP 2)	0.099	0.48	0.083	0.600
DI-236 (BMP 2)	0.163	0.79	0.083	0.600
DI-238 (BMP 2)	0.091	0.44	0.083	0.600
DI-293 (BMP 2)	0.804	3.88	0.083	0.600
DI-237 (BMP 2)	0.134	0.65	0.083	0.600
DI-275 (BMP 2)	0.138	0.67	0.083	0.600
DI-251 (BMP 2)	0.255	1.23	0.083	0.600
DI-299 (BMP 2)	0.192	0.93	0.083	0.600

25-YR ANALYSIS

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)	0.42	0.02	0.42	95.1	398.74	398.74	3.0	2.31	2.31
CB-226 (BMP 2)	0.53	0.05	1.53	91.3	396.96	396.96	3.0	3.03	3.43
CB-220 (BMP 2)	0.95	0.25	0.95	79.0	396.79	396.79	3.0	2.98	2.98
CB-227 (BMP 2)	1.00	0.29	1.00	77.6	397.15	397.15	3.0	2.99	2.99
CB-219 (BMP 2)	0.50	0.04	1.44	92.4	396.64	396.64	3.0	2.22	3.37
DI-235 (BMP 2)	0.86	0.20	0.86	81.2	393.40	393.40	3.0	2.90	2.90
DI-278 (BMP 2)	1.26	0.49	1.26	72.0	394.54	394.54	3.0	3.23	3.23
CB-266 (BMP 2)	0.80	0.16	0.80	83.0	394.05	394.05	3.0	2.84	2.84
CB-265 (BMP 2)	1.24	0.48	2.03	72.2	393.99	393.99	3.0	1.48	3.74
DI-236 (BMP 2)	0.68	0.11	3.22	86.6	390.24	390.24	3.0	3.39	4.06
CB-289 (BMP 2)	0.24	0.00	0.24	99.7	392.80	392.80	3.0	2.04	2.04
CB-263 (BMP 2)	0.17	0.00	1.41	100.0	393.20	393.20	3.0	3.76	3.35
DI-296 (BMP 2)	0.17	0.00	0.17	100.0	392.70	392.70	3.0	1.87	1.87
CB-262 (BMP 2)	1.10	0.36	4.48	75.4	393.26	393.26	3.0	1.67	4.58
CB-218 (BMP 2)	0.78	0.15	2.16	83.7	392.68	392.68	3.0	5.33	3.63
DI-277 (BMP 2)	1.42	0.64	2.64	68.9	392.50	392.50	3.0	2.41	4.08

25-YR ANALYSIS

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-264 (BMP 2)	1.25	0.48	1.25	72.2	393.48	393.48	3.0	3.23	3.23
CB-216 (BMP 2)	0.15	0.00	3.29	100.0	391.49	391.49	3.0	2.71	4.14
CB-217 (BMP 2)	1.04	0.32	1.04	76.6	391.57	391.57	3.0	3.06	3.06
DI-237 (BMP 2)	0.58	0.07	2.19	89.8	390.46	390.46	3.0	3.38	3.65
CB-224 (BMP 2)	1.51	0.74	4.70	67.2	389.76	389.76	3.0	3.58	4.27
CB-214 (BMP 2)	0.09	0.00	18.30	100.0	388.19	388.19	3.0	6.04	7.05
CB-215 (BMP 2)	0.68	0.11	3.93	86.6	388.46	388.46	3.0	7.18	4.39
CB-225 (BMP 2)	1.76	1.02	1.76	63.3	390.79	390.79	3.0	3.48	3.48
DI-292 (BMP 2)	0.19	0.00	0.19	100.0	390.92	390.92	3.0	1.94	1.94
CB-261 (BMP 2)	0.92	0.24	5.35	79.7	390.75	390.75	3.0	8.83	4.89
CB-221 (BMP 2)	1.61	0.84	14.62	65.6	389.47	389.47	3.0	5.84	6.33
CB-222 (BMP 2)	3.21	3.42	8.69	48.4	389.80	389.80	3.0	4.10	5.26
CB-288 (BMP 2)	0.79	0.16	0.79	83.2	389.50	389.50	3.0	2.83	2.83
CB-257 (BMP 2)	0.17	0.00	0.17	100.0	387.69	387.69	3.0	1.81	1.81
DI-276 (BMP 2)	1.34	0.56	3.93	70.3	389.28	389.28	3.0	3.72	4.72
CB-223 (BMP 2)	2.73	2.49	5.73	52.3	389.94	389.94	3.0	2.89	4.54

25-YR ANALYSIS

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-234 (BMP 2)	1.11	0.37	1.94	75.1	385.93	385.93	3.0	6.26	3.69
CB-286 (BMP 2)	1.47	0.69	4.36	68.0	388.54	388.54	3.0	0.28	4.54
CB-287 (BMP 2)	1.98	1.31	2.77	60.3	388.78	388.78	3.0	1.42	4.06
CB-213 (BMP 2)	0.72	0.12	18.85	85.5	387.09	387.09	3.0	8.79	7.16
DI-295 (BMP 2)	0.45	0.03	0.60	94.1	388.28	388.28	3.0	1.31	2.62
CB-212 (BMP 2)	0.40	0.02	19.16	95.8	386.80	386.80	3.0	6.54	6.64
CB-256 (BMP 2)	0.50	0.04	4.56	92.4	386.16	386.16	3.0	0.19	4.23
CB-273 (BMP 2)	0.18	0.00	0.95	100.0	379.29	379.29	3.0	2.82	2.94
CB-272 (BMP 2)	0.69	0.11	1.61	86.3	379.08	379.08	3.0	2.98	3.40
CB-260 (BMP 2)	0.87	0.20	0.87	81.2	387.39	387.39	3.0	2.91	2.91
CB-259 (BMP 2)	1.06	0.33	7.19	76.3	387.41	387.41	3.0	4.60	5.51
DI-291 (BMP 2)	0.82	0.18	1.00	82.4	387.37	387.37	3.0	0.59	3.03
CB-255 (BMP 2)	0.54	0.05	15.02	91.0	385.68	385.68	3.0	1.94	6.41
CB-285 (BMP 2)	0.81	0.17	5.12	82.6	386.36	386.36	3.0	4.09	4.81
CB-258 (BMP 2)	2.95	2.90	10.03	50.4	386.28	386.28	3.0	8.79	5.46
CB-211 (BMP 2)	0.72	0.12	19.63	85.3	386.13	386.13	3.0	7.14	7.32

25-YR ANALYSIS

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-254 (BMP 2)	0.37	0.01	15.30	96.6	383.71	383.71	3.0	10.36	6.46
DI-294 (BMP 2)	0.49	0.04	1.06	92.6	385.55	385.55	3.0	4.49	3.08
CB-283 (BMP 2)	0.42	0.02	11.96	95.1	381.41	381.41	3.0	2.85	6.77
CB-284 (BMP 2)	1.73	0.98	1.73	63.8	385.08	385.08	3.0	3.56	3.56
CB-209 (BMP 2)	0.48	0.03	21.56	93.2	384.12	384.12	3.0	13.02	7.73
DI-290 (BMP 2)	1.32	0.55	2.28	70.7	384.13	384.13	3.0	1.70	3.89
CB-210 (BMP 2)	1.70	0.95	1.70	64.2	384.33	384.33	3.0	3.54	3.54
CB-282 (BMP 2)	2.11	1.49	4.34	58.6	381.59	381.59	3.0	2.59	4.92
DI-233 (BMP 2)	0.31	0.01	2.22	98.3	382.06	382.06	3.0	7.43	3.67
CB-253 (BMP 2)	0.99	0.28	16.10	78.1	380.85	380.85	3.0	6.29	6.61
CB-280 (BMP 2)	1.30	0.53	7.11	71.1	376.58	376.58	3.0	6.18	2.66
CB-279 (BMP 2)	0.34	0.01	19.00	97.5	376.56	376.56	3.0	2.49	6.35
CB-270 (BMP 2)	1.44	0.66	4.42	68.6	378.33	378.33	3.0	2.48	4.96
CB-281 (BMP 2)	1.62	0.85	5.89	65.5	380.51	380.51	3.0	4.40	5.07
CB-271 (BMP 2)	1.02	0.30	1.56	77.2	378.82	378.82	3.0	2.62	3.45
CB-208 (BMP 2)	1.61	0.84	1.61	65.6	381.43	381.43	3.0	3.43	3.43

25-YR ANALYSIS

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-207 (BMP 2)	0.34	0.01	23.21	97.4	380.31	380.31	3.0	13.94	8.11
DI-274 (BMP 2)	0.78	0.16	0.78	83.5	381.35	381.35	3.0	2.78	2.78
CB-252 (BMP 2)	1.22	0.45	44.26	72.8	375.29	375.29	3.0	6.53	9.63
CB-267 (BMP 2)	1.57	0.80	27.67	66.2	375.29	375.29	3.0	2.87	7.34
CB-269 (BMP 2)	1.15	0.40	1.15	74.2	375.29	375.29	3.0	0.92	0.92
CB-268 (BMP 2)	2.21	1.63	7.46	57.5	375.29	375.29	3.0	0.62	3.65
DI-293 (BMP 2)	2.23	1.66	5.03	57.3	381.56	381.56	3.0	1.33	3.02
CB-206 (BMP 2)	1.48	0.71	1.48	67.7	379.98	379.98	3.0	3.40	3.40
CB-205 (BMP 2)	0.89	0.22	25.25	80.4	376.94	376.94	3.0	13.90	8.59
DI-275 (BMP 2)	0.60	0.07	0.60	89.2	380.31	380.31	3.0	2.58	2.58
DI-232 (BMP 2)	0.89	0.21	3.06	80.5	376.07	376.07	3.0	3.65	4.04
CB-204 (BMP 2)	1.49	0.72	7.26	67.6	359.94	359.94	3.0	5.55	5.53
CB-203 (BMP 2)	0.70	0.11	34.88	86.0	359.11	359.11	3.0	8.22	8.26
CB-202 (BMP 2)	1.94	1.25	36.48	60.8	355.27	355.27	3.0	15.53	8.48
DI-228 (BMP 2)	0.00	0.00	6.02	100.0	361.00	361.00	3.0	5.13	5.12
DI-231 (BMP 2)	0.95	0.25	3.94	78.9	371.16	371.16	3.0	8.37	4.39

25-YR ANALYSIS

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-251 (BMP 2)	0.97	0.26	45.73	78.6	357.24	357.24	3.0	20.94	9.87
DI-230 (BMP 2)	1.16	0.41	5.01	74.0	362.30	362.30	3.0	4.10	4.51
DI-229 (BMP 2)	1.28	0.51	6.08	71.5	361.49	361.49	3.0	4.77	4.69
DI-201 (BMP 2)	0.00	0.00	36.45	100.0	354.05	354.05	3.0	12.74	8.47
DI-2000 (BMP 2)	0.90	0.22	0.90	80.1	397.86	397.86	3.0	2.84	2.84
DI-298 (BMP 2)	0.91	0.23	0.91	79.9	386.01	386.01	3.0	2.84	2.84
DI-299 (BMP 2)	0.78	0.15	1.65	83.7	391.98	391.98	3.0	5.89	3.36
DI-297 (BMP 2)	1.06	0.33	1.93	76.4	382.02	382.02	3.0	5.18	3.52
DI-2001	0.00	0.00	0.87	100.0	372.17	372.17	3.0	6.64	2.91
DI-2002	0.00	0.00	0.88	100.0	378.37	378.37	3.0	7.82	2.92
DI-2004	1.20	0.44	2.16	73.2	376.14	376.14	3.0	1.74	3.82
DI-2005	0.98	0.27	0.98	78.2	381.16	381.16	3.0	3.01	3.01
DI-2003	0.89	0.21	0.89	80.6	386.37	386.37	3.0	2.93	2.93

25-YR ANALYSIS

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	2.31	4.24	0.42	18.13	398.74	391.94
CB-226 TO CB-227 (BMP 2)	15.0	0.005	2.99	3.03	1.00	4.57	397.15	396.97
CB-224 TO CB-226 (BMP 2)	15.0	0.035	3.43	6.71	1.53	12.01	396.96	391.20
CB-219 TO CB-220 (BMP 2)	15.0	0.008	2.98	2.22	0.95	5.77	396.79	396.64
CB-218 TO CB-219 (BMP 2)	15.0	0.019	3.37	5.33	1.44	8.89	396.64	392.71
DI-234 TO DI-235 (BMP 2)	15.0	0.045	2.90	6.26	0.86	13.76	393.40	385.79
DI-277 TO DI-278 (BMP 2)	15.0	0.021	3.23	2.41	1.26	9.47	394.54	392.50
CB-265 TO CB-266 (BMP 2)	15.0	0.008	2.84	1.48	0.80	5.90	394.05	393.99
CB-262 TO CB-265 (BMP 2)	15.0	0.010	3.74	3.31	2.03	6.43	393.99	393.26
DI-236 TO DI-237 (BMP 2)	18.0	0.005	3.65	3.39	2.19	7.43	390.46	390.24
CB-223 TO DI-236 (BMP 2)	18.0	0.005	4.06	2.89	3.22	7.43	390.24	389.94
CB-286 TO CB-289 (BMP 2)	15.0	0.033	2.04	0.28	0.24	11.77	392.80	388.54
CB-263 TO CB-264 (BMP 2)	15.0	0.008	3.23	3.76	1.25	5.78	393.48	393.22
CB-262 TO CB-263 (BMP 2)	15.0	0.008	3.35	1.67	1.41	5.84	393.20	393.26
DI-295 TO DI-296 (BMP 2)	15.0	0.032	1.87	1.31	0.17	11.51	392.70	388.28
CB-261 TO CB-262 (BMP 2)	18.0	0.033	4.58	8.83	4.48	19.10	393.26	390.45
CB-216 TO CB-218 (BMP 2)	18.0	0.020	3.63	2.71	2.16	14.75	392.68	391.49
DI-276 TO DI-277 (BMP 2)	15.0	0.035	4.08	3.72	2.64	12.06	392.50	389.28
CB-216 TO CB-217 (BMP 2)	15.0	0.010	3.06	1.82	1.04	6.48	391.57	391.49
CB-215 TO CB-216 (BMP 2)	18.0	0.025	4.14	7.18	3.29	16.74	391.49	390.26
CB-224 TO CB-225 (BMP 2)	15.0	0.005	3.48	3.58	1.76	4.57	390.79	390.60
CB-221 TO CB-224 (BMP 2)	24.0	0.007	4.27	2.52	4.70	18.79	389.76	389.47
CB-213 TO CB-214 (BMP 2)	24.0	0.013	7.05	8.79	18.30	26.02	388.19	386.99
CB-214 TO CB-215 (BMP 2)	18.0	0.011	4.39	3.60	3.93	11.23	388.46	388.19
CB-214 TO CB-221 (BMP 2)	24.0	0.010	6.33	6.04	14.62	23.07	389.47	388.19
DI-291 TO DI-292 (BMP 2)	15.0	0.042	1.94	0.59	0.19	13.31	390.92	387.37
CB-259 TO CB-261 (BMP 2)	18.0	0.041	4.89	4.60	5.35	21.32	390.75	387.41
CB-221 TO CB-222 (BMP 2)	18.0	0.005	5.26	5.84	8.69	7.53	389.80	389.47
CB-222 TO CB-223 (BMP 2)	18.0	0.005	4.54	4.10	5.73	7.49	389.94	389.80
CB-287 TO CB-288 (BMP 2)	15.0	0.038	2.83	1.42	0.79	12.64	389.50	388.78

25-YR ANALYSIS

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-256 TO CB-257 (BMP 2)	18.0	0.027	1.81	0.19	0.17	17.26	387.69	386.16
CB-256 TO DI-276 (BMP 2)	15.0	0.026	4.72	7.90	3.93	10.42	389.28	387.19
DI-233 TO DI-234 (BMP 2)	15.0	0.038	3.69	7.43	1.94	12.56	385.93	382.08
CB-286 TO CB-287 (BMP 2)	15.0	0.006	4.06	4.15	2.77	4.81	388.78	388.62
CB-285 TO CB-286 (BMP 2)	18.0	0.030	4.54	4.09	4.36	18.32	388.54	386.36
CB-212 TO CB-213 (BMP 2)	24.0	0.013	7.16	6.54	18.85	25.74	387.09	386.80
DI-294 TO DI-295 (BMP 2)	15.0	0.024	2.62	4.49	0.60	10.00	388.28	385.45
CB-211 TO CB-212 (BMP 2)	24.0	0.006	6.64	7.14	19.16	18.21	386.80	386.13
CB-255 TO CB-256 (BMP 2)	24.0	0.018	4.23	1.94	4.56	30.62	386.16	385.68
CB-272 TO CB-273 (BMP 2)	15.0	0.005	2.94	2.98	0.95	4.57	379.29	379.15
CB-273 TO DI-274 (BMP 2)	15.0	0.005	2.78	2.82	0.78	4.57	381.35	380.95
CB-270 TO CB-272 (BMP 2)	15.0	0.005	3.40	2.48	1.61	4.57	379.08	378.33
CB-259 TO CB-260 (BMP 2)	15.0	0.019	2.91	0.79	0.87	8.91	387.39	387.41
CB-258 TO CB-259 (BMP 2)	18.0	0.027	5.51	8.79	7.19	17.31	387.41	385.96
DI-290 TO DI-291 (BMP 2)	15.0	0.050	3.03	1.70	1.00	14.46	387.37	384.13
CB-254 TO CB-255 (BMP 2)	24.0	0.024	6.41	10.36	15.02	35.14	385.68	383.34
CB-255 TO CB-258 (BMP 2)	24.0	0.009	5.46	6.46	10.03	20.94	386.28	385.84
CB-283 TO CB-285 (BMP 2)	18.0	0.035	4.81	9.35	5.12	19.63	386.36	383.59
CB-209 TO CB-211 (BMP 2)	24.0	0.057	7.32	13.02	19.63	53.86	386.13	383.52
CB-253 TO CB-254 (BMP 2)	24.0	0.022	6.46	6.29	15.30	33.18	383.71	380.85
DI-293 TO DI-294 (BMP 2)	15.0	0.064	3.08	1.05	1.06	16.37	385.55	381.56
CB-283 TO CB-284 (BMP 2)	15.0	0.055	3.56	7.99	1.73	15.13	385.08	383.36
CB-279 TO CB-283 (BMP 2)	18.0	0.009	6.77	7.29	11.96	9.85	381.41	380.18
CB-283 TO DI-293 (BMP 2)	18.0	0.005	3.02	2.85	5.03	7.43	381.56	381.41
CB-209 TO CB-210 (BMP 2)	15.0	0.010	3.54	2.83	1.70	6.46	384.33	384.12
CB-207 TO CB-209 (BMP 2)	24.0	0.044	7.73	13.94	21.56	47.34	384.12	379.69
CB-282 TO DI-290 (BMP 2)	15.0	0.080	3.89	2.59	2.28	18.27	384.13	381.59
CB-281 TO CB-282 (BMP 2)	15.0	0.020	4.92	4.40	4.34	9.06	381.59	380.51
DI-232 TO DI-233 (BMP 2)	18.0	0.056	3.67	3.65	2.22	24.83	382.06	376.07
CB-252 TO CB-253 (BMP 2)	24.0	0.023	6.61	10.62	16.10	34.05	380.85	377.76

25-YR ANALYSIS

Conduit Results - Time: 0.00 hours

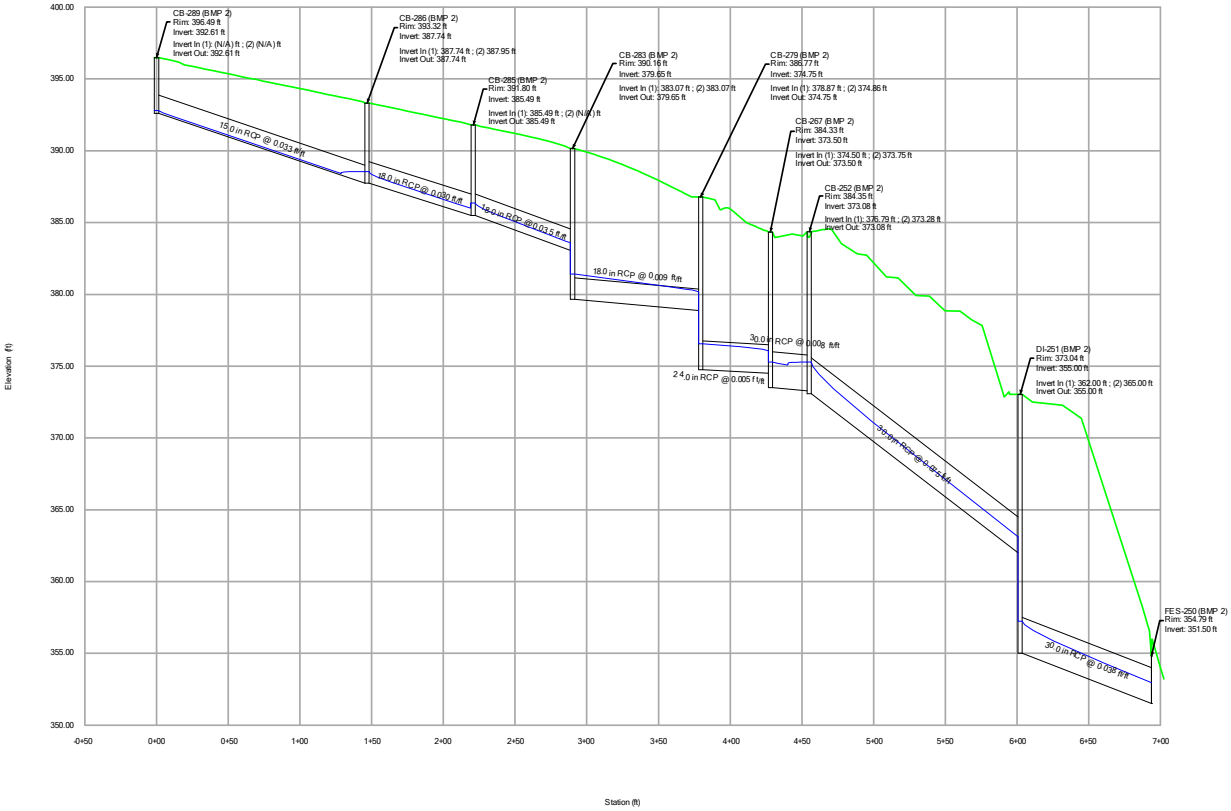
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-280 TO CB-281 (BMP 2)	18.0	0.010	5.07	6.18	5.89	10.75	380.51	379.90
CB-279 TO CB-280 (BMP 2)	24.0	0.005	2.66	2.49	7.11	16.00	376.58	376.56
CB-267 TO CB-279 (BMP 2)	24.0	0.005	6.35	7.19	19.00	16.22	376.56	376.07
CB-268 TO CB-270 (BMP 2)	15.0	0.010	4.96	5.72	4.42	6.54	378.33	377.00
CB-270 TO CB-271 (BMP 2)	15.0	0.007	3.45	3.89	1.56	5.56	378.82	378.57
CB-271 TO DI-275 (BMP 2)	15.0	0.005	2.58	2.62	0.60	4.58	380.31	379.63
CB-207 TO CB-208 (BMP 2)	15.0	0.005	3.43	3.48	1.61	4.62	381.43	381.28
CB-205 TO CB-207 (BMP 2)	24.0	0.043	8.11	13.90	23.21	47.05	380.31	376.32
CB-252 TO CB-267 (BMP 2)	30.0	0.008	7.34	6.53	27.67	37.00	375.29	375.29
DI-251 TO CB-252 (BMP 2)	30.0	0.075	9.63	20.94	44.26	112.60	375.29	363.11
CB-267 TO CB-268 (BMP 2)	24.0	0.007	3.65	2.87	7.46	18.34	375.29	375.29
CB-268 TO CB-269 (BMP 2)	24.0	0.011	0.92	0.62	1.15	23.86	375.29	375.29
CB-205 TO CB-206 (BMP 2)	15.0	0.015	3.40	4.91	1.48	7.90	379.98	379.44
CB-203 TO CB-205 (BMP 2)	24.0	0.050	8.59	15.04	25.25	50.55	376.94	372.06
DI-231 TO DI-232 (BMP 2)	18.0	0.039	4.04	8.37	3.06	20.62	376.07	370.89
CB-204 TO DI-228 (BMP 2)	18.0	0.008	5.12	5.55	6.02	9.20	361.00	359.89
CB-203 TO CB-204 (BMP 2)	18.0	0.025	5.53	8.22	7.26	16.45	359.94	358.94
CB-202 TO CB-203 (BMP 2)	30.0	0.049	8.26	15.53	34.88	91.19	359.11	354.49
DI-201 TO CB-202 (BMP 2)	30.0	0.050	8.48	12.74	36.48	91.65	355.27	353.51
DI-228 TO DI-229 (BMP 2)	18.0	0.005	4.69	5.13	6.08	7.43	361.49	361.10
DI-230 TO DI-231 (BMP 2)	18.0	0.072	4.39	4.10	3.94	28.25	371.16	362.30
FES-250 TO DI-251 (BMP 2)	30.0	0.038	9.87	15.43	45.73	80.13	357.24	352.96
DI-229 TO DI-230 (BMP 2)	18.0	0.005	4.51	4.77	5.01	7.43	362.30	361.52
FES-200 TO DI-201 (BMP 2)	30.0	0.008	8.47	8.77	36.45	37.78	354.05	353.47
Pipe - (346) (BMP 2)	18.0	0.039	2.84	5.89	0.90	20.87	397.86	391.91
Pipe - (344) (BMP 2)	18.0	0.027	2.84	5.18	0.91	17.28	386.01	381.93
Pipe - (345) (BMP 2)	18.0	0.005	3.36	3.38	1.65	7.43	391.98	391.58
Pipe - (343) (BMP 2)	18.0	0.012	3.52	1.33	1.93	11.26	382.02	381.56
CO-1	15.0	0.053	2.92	6.64	0.88	14.88	378.37	372.01
CO-2	15.0	0.059	2.91	6.88	0.87	15.71	372.17	365.20

25-YR ANALYSIS

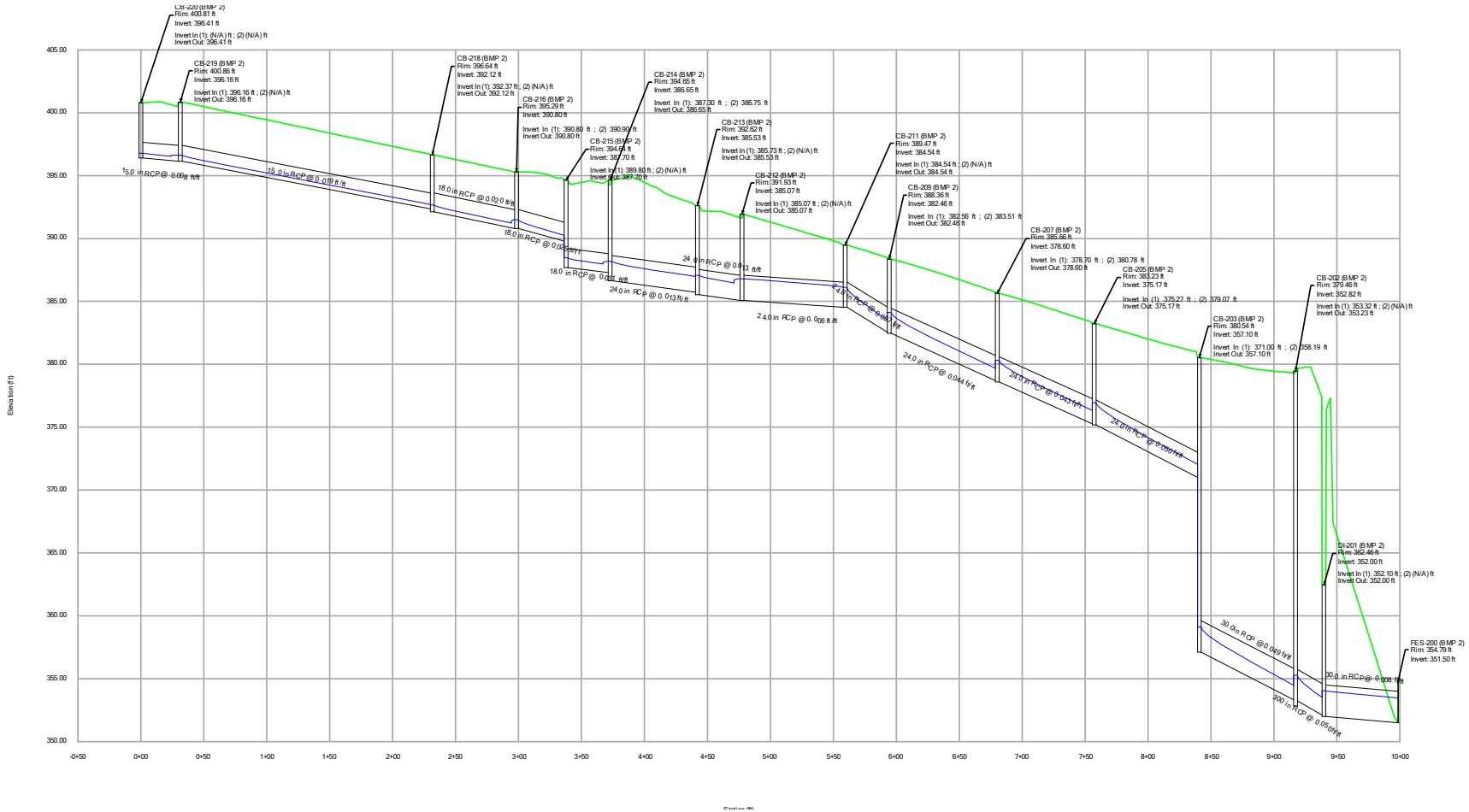
Conduit Results - Time: 0.00 hours

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)
CO-3	15.0	0.049	3.01	1.74	0.98	14.31	381.16	376.14
CO-5	15.0	0.006	3.82	3.86	2.16	4.89	376.14	375.42
CO-6	15.0	0.084	2.93	7.82	0.89	18.70	386.37	378.19

25-YR ANALYSIS



25-YR ANALYSIS



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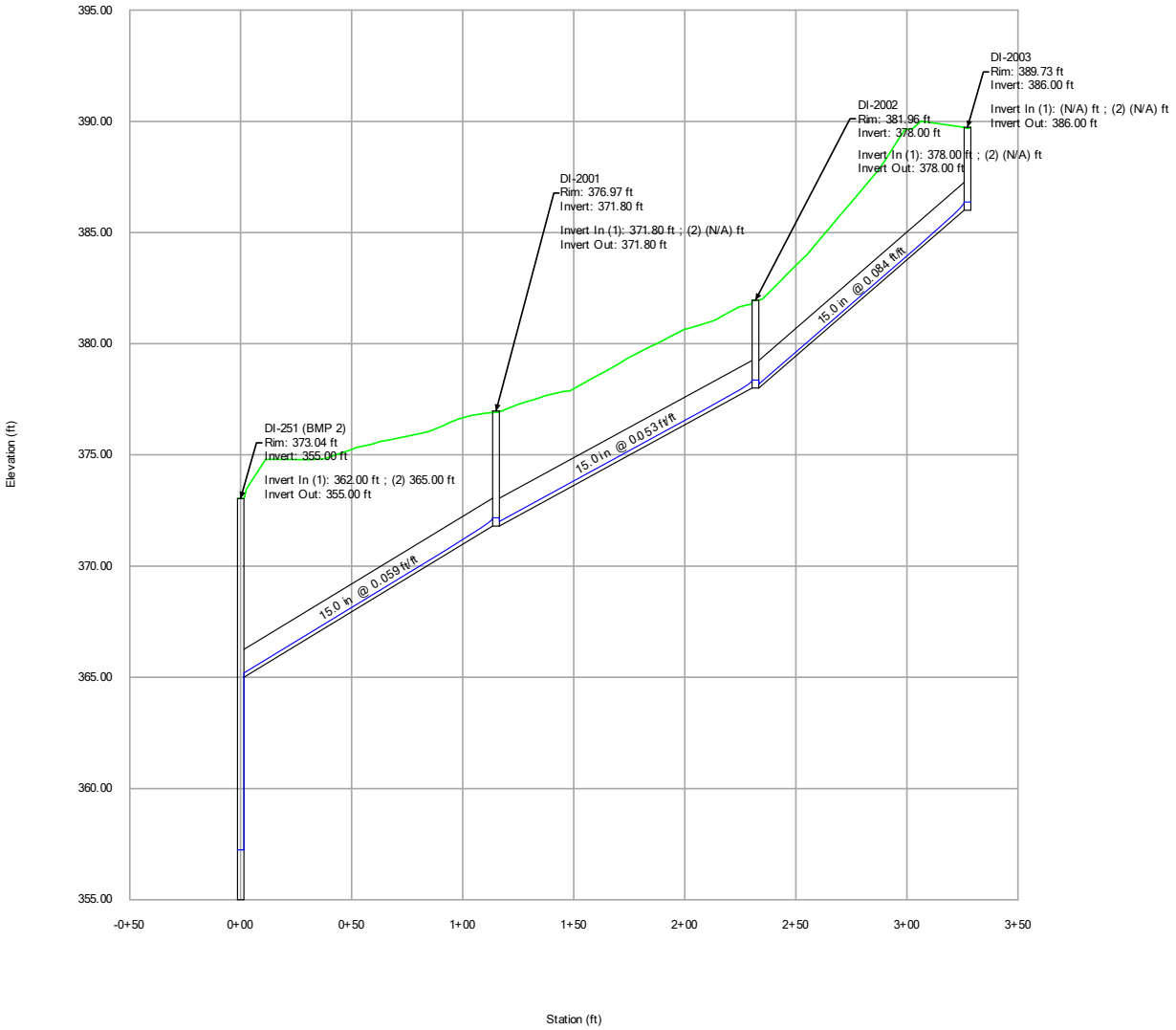

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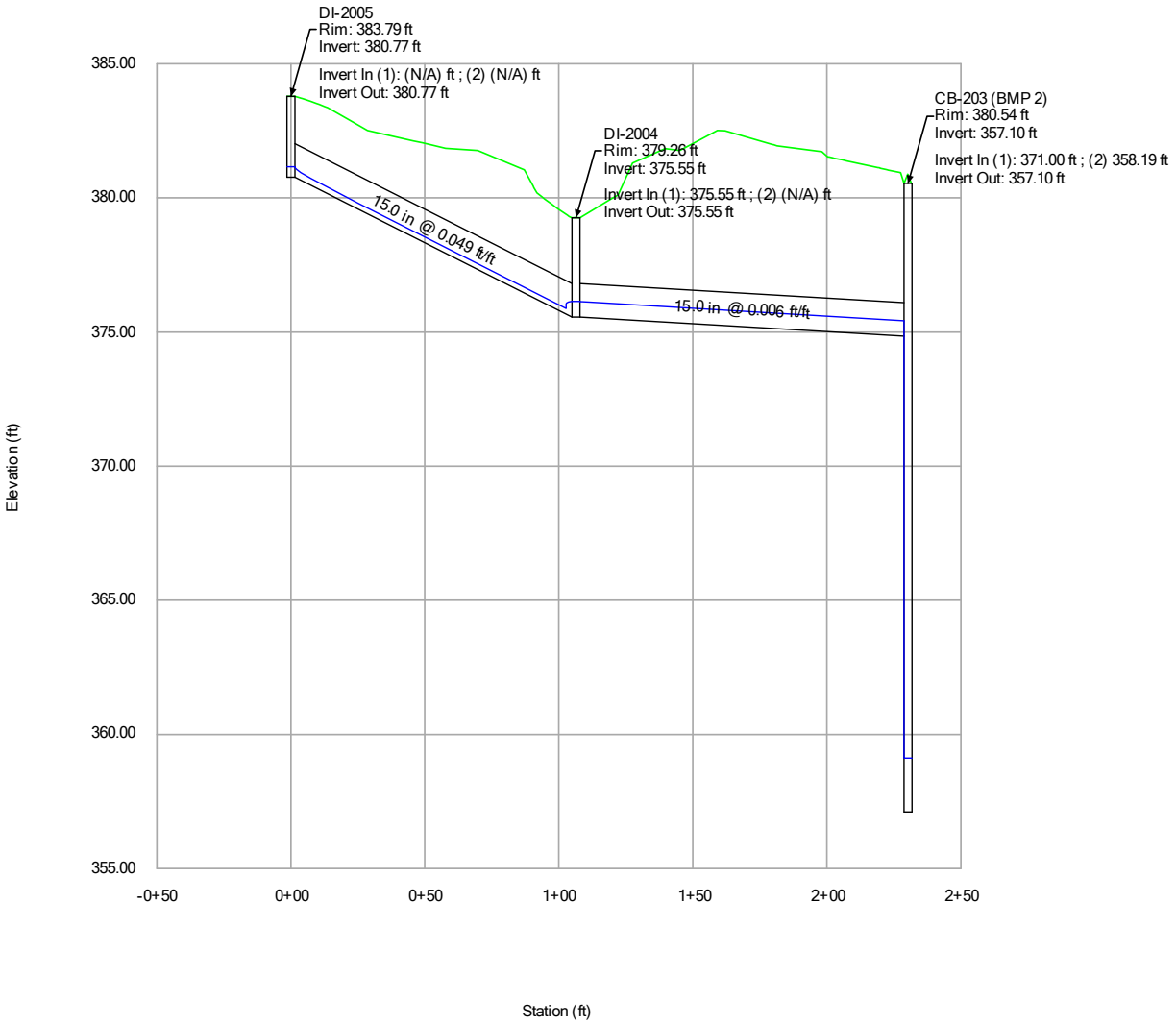

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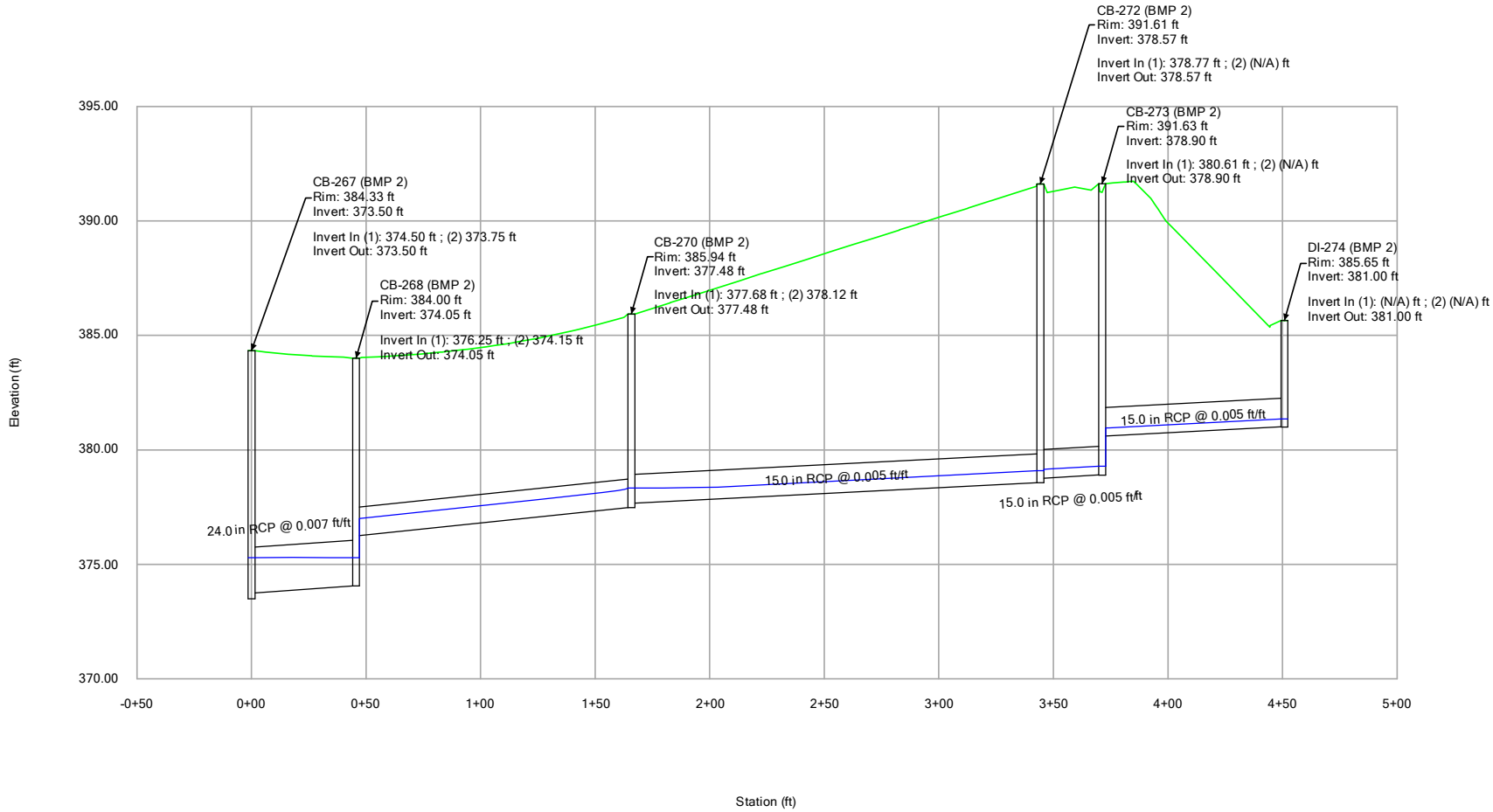

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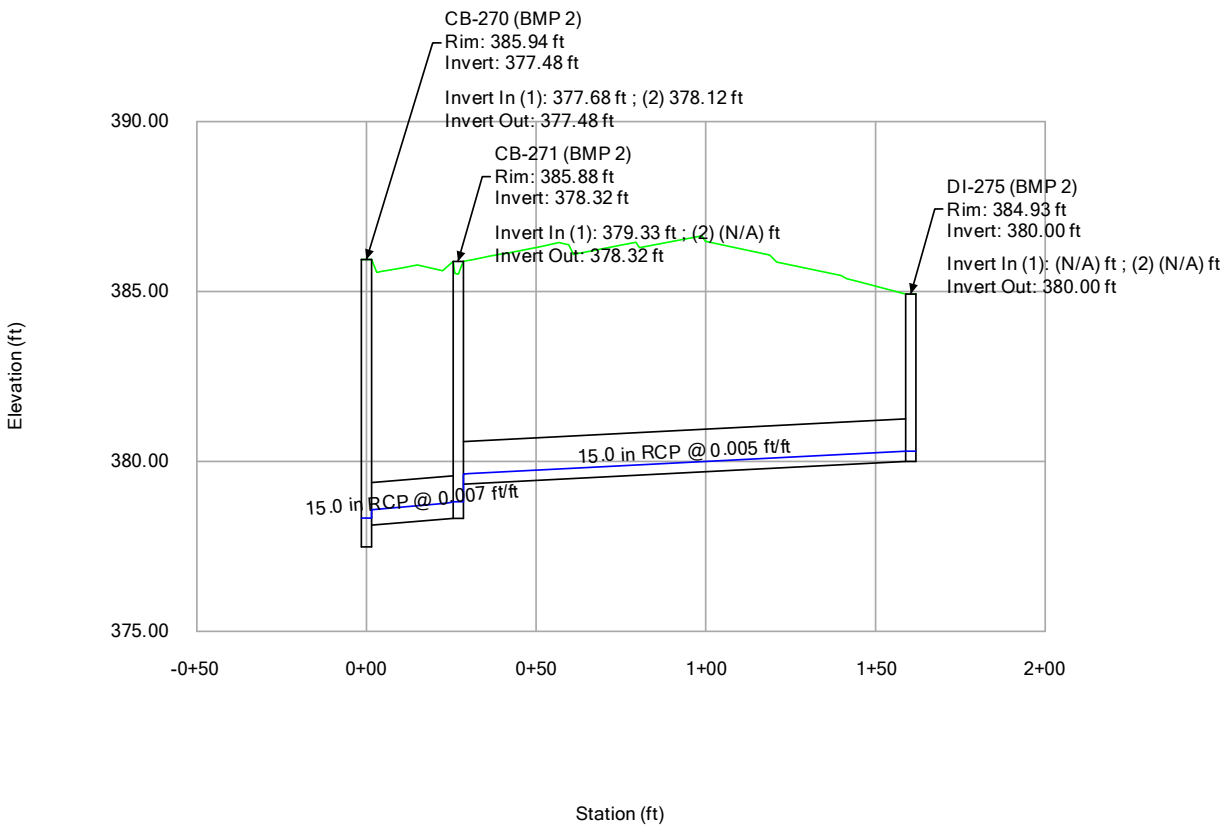

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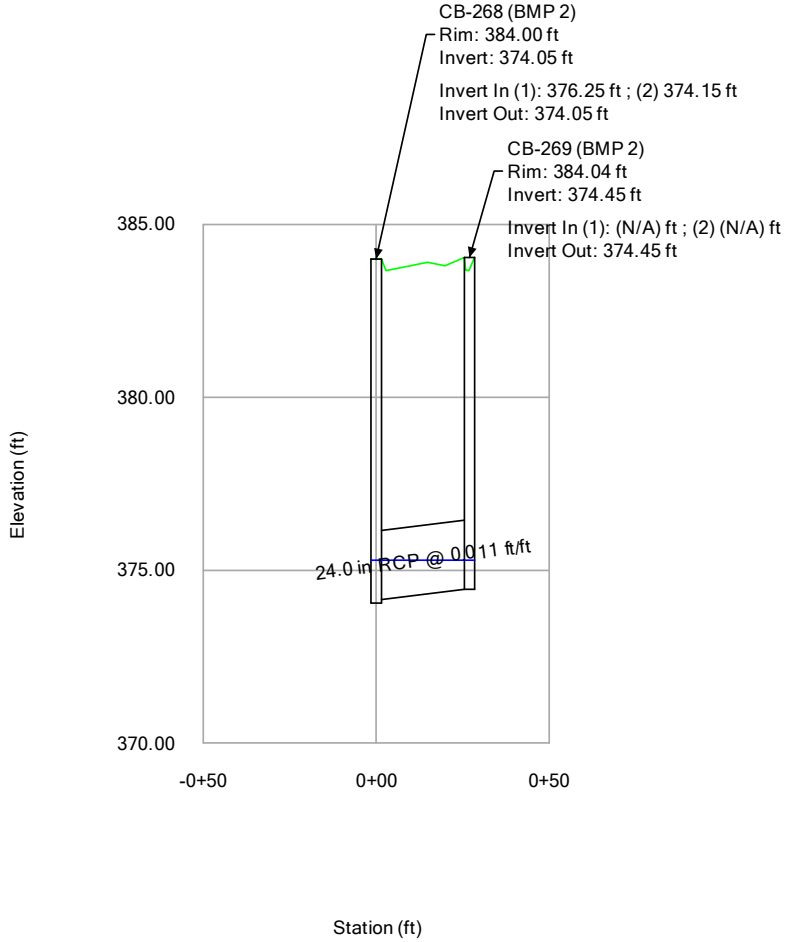

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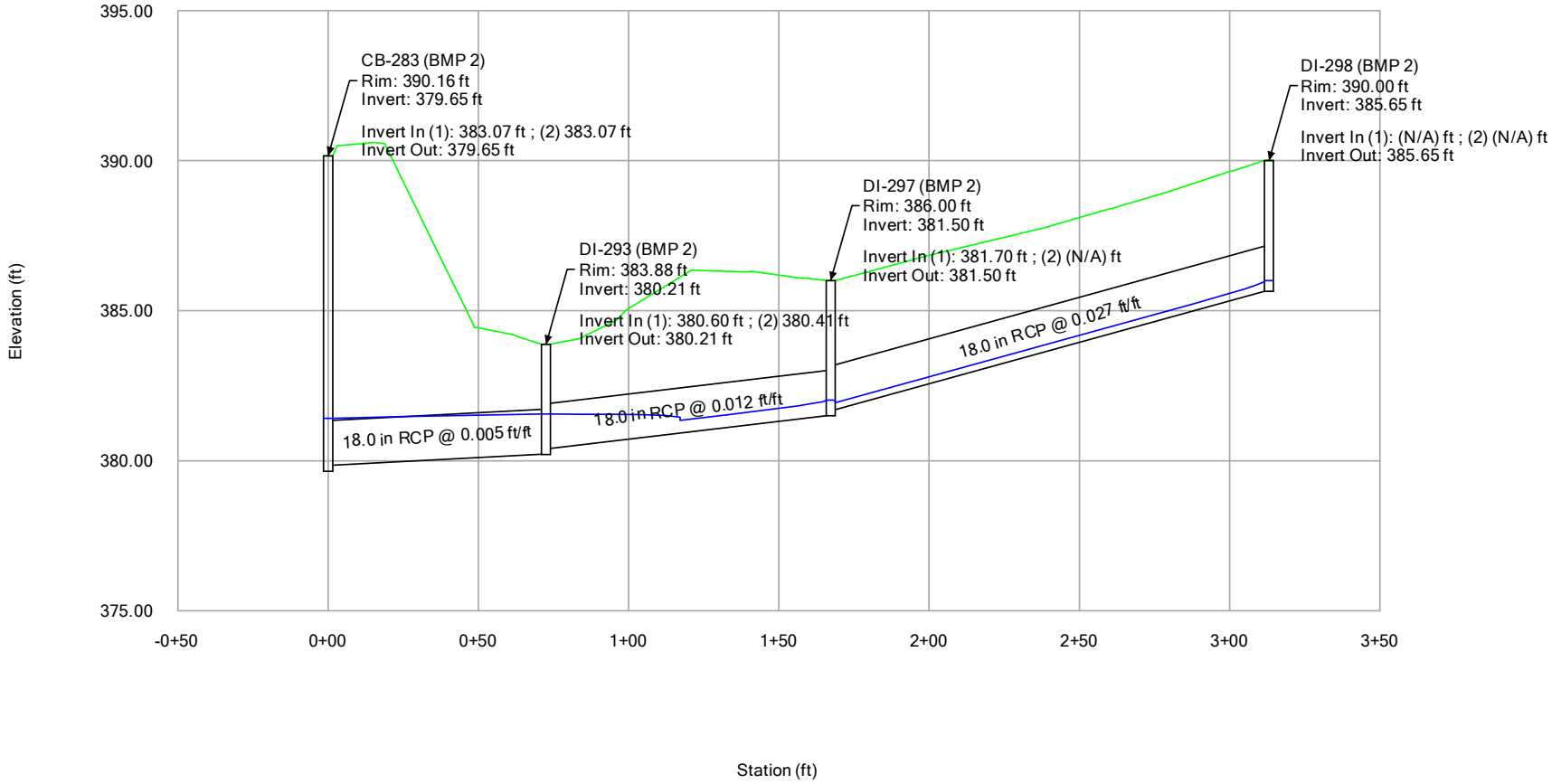

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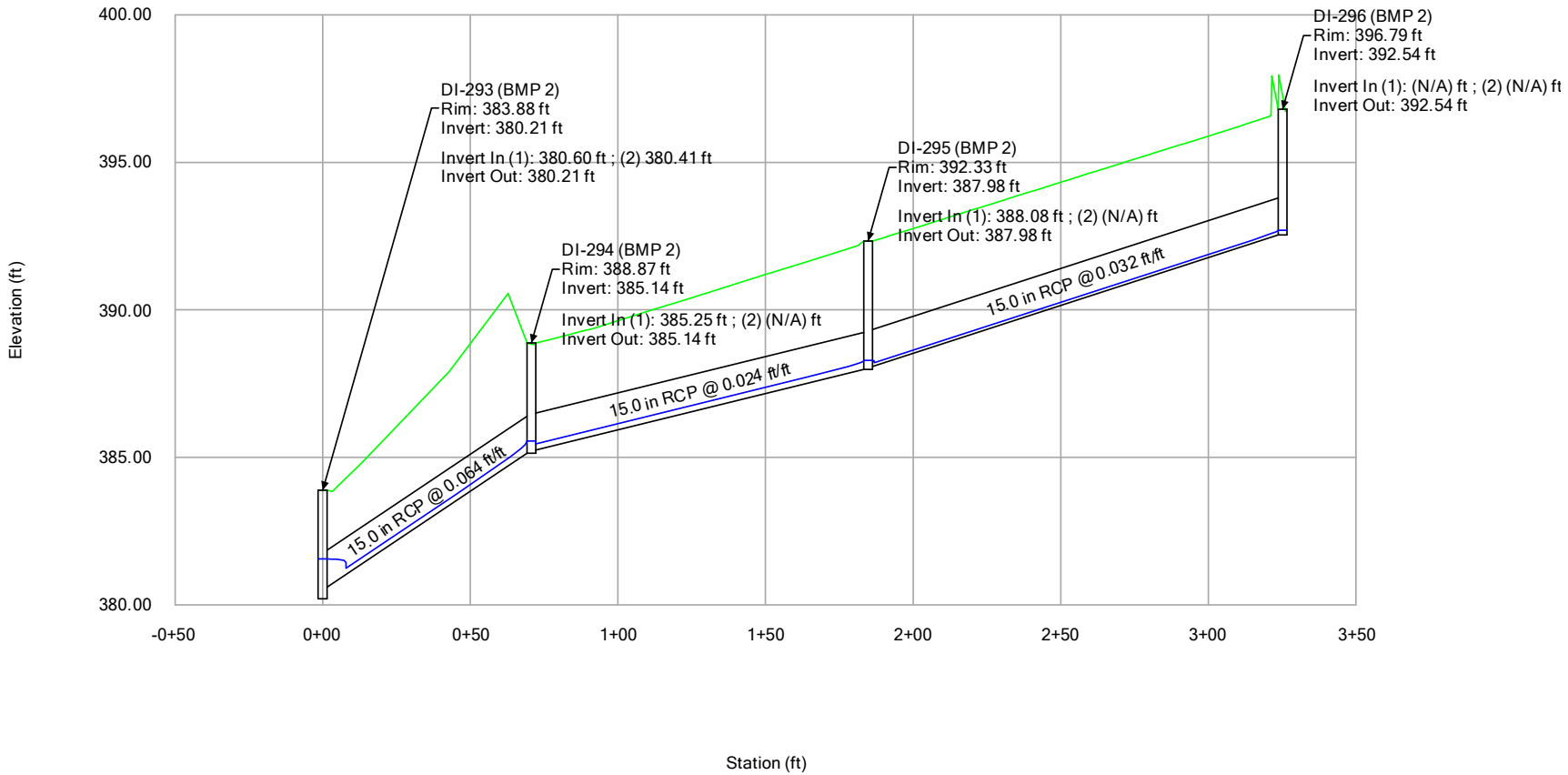

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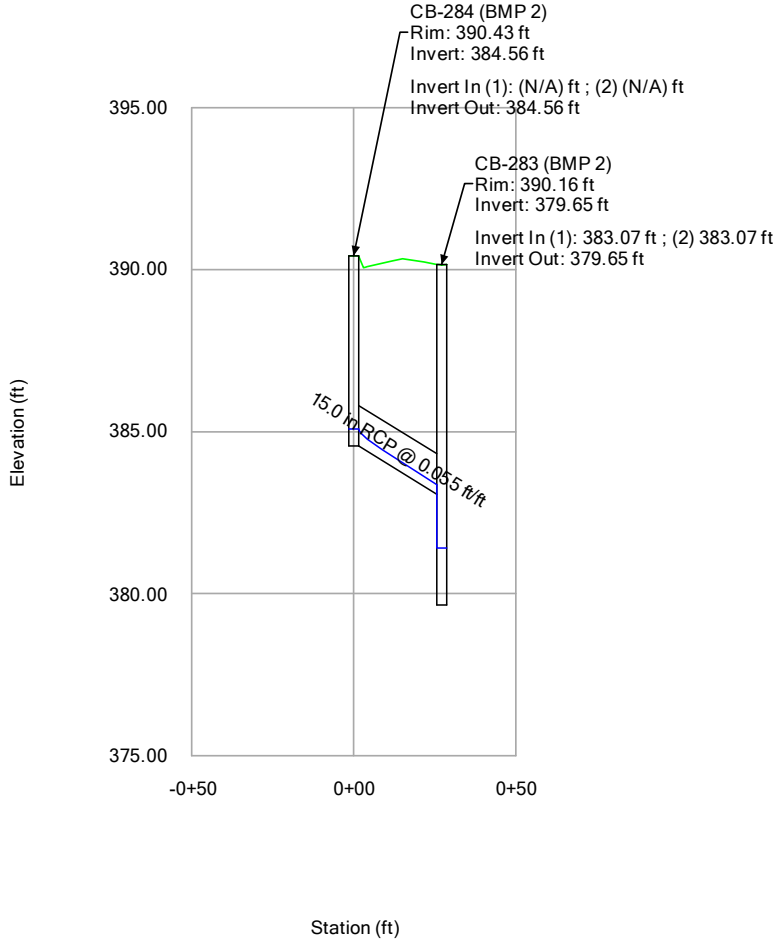

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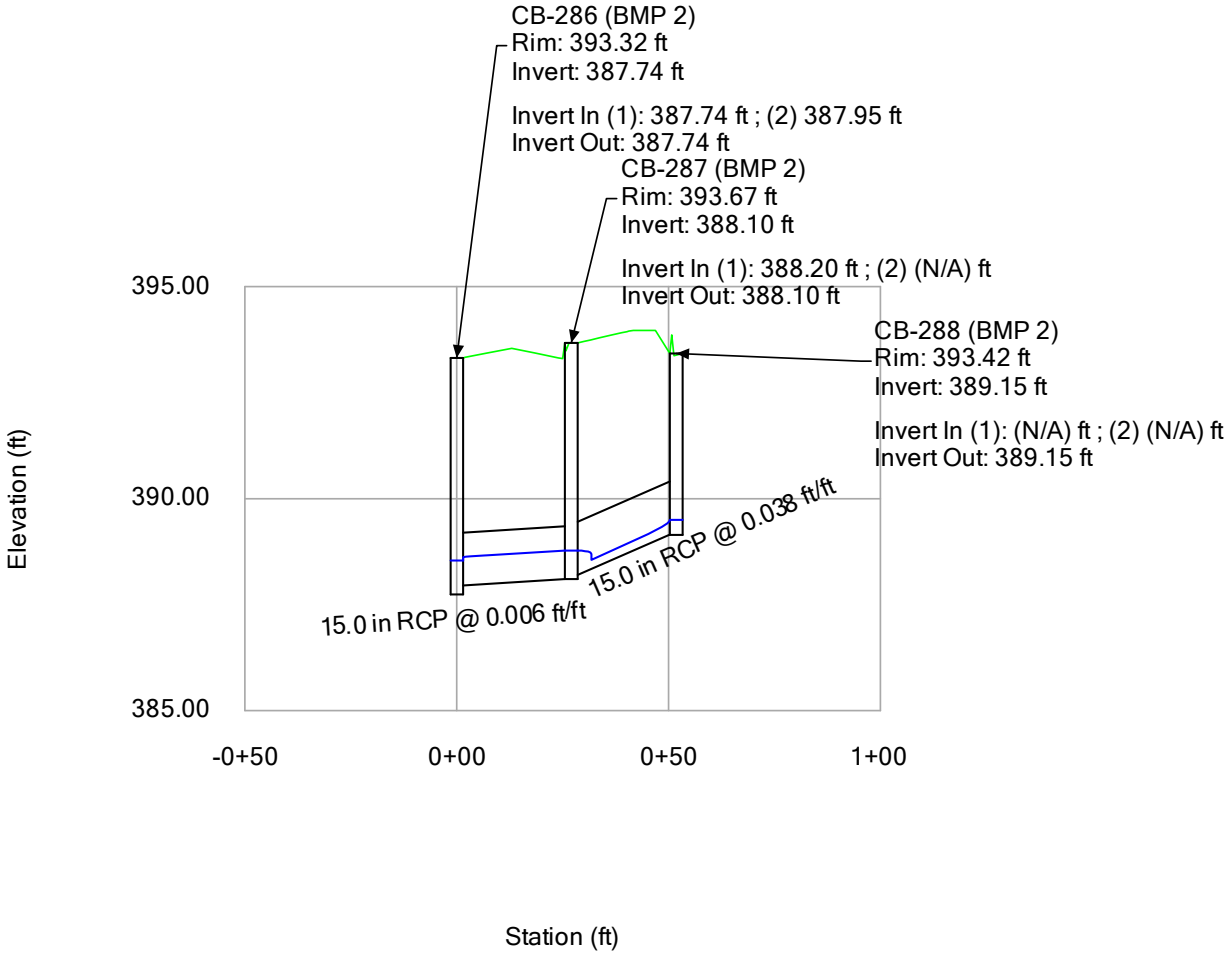

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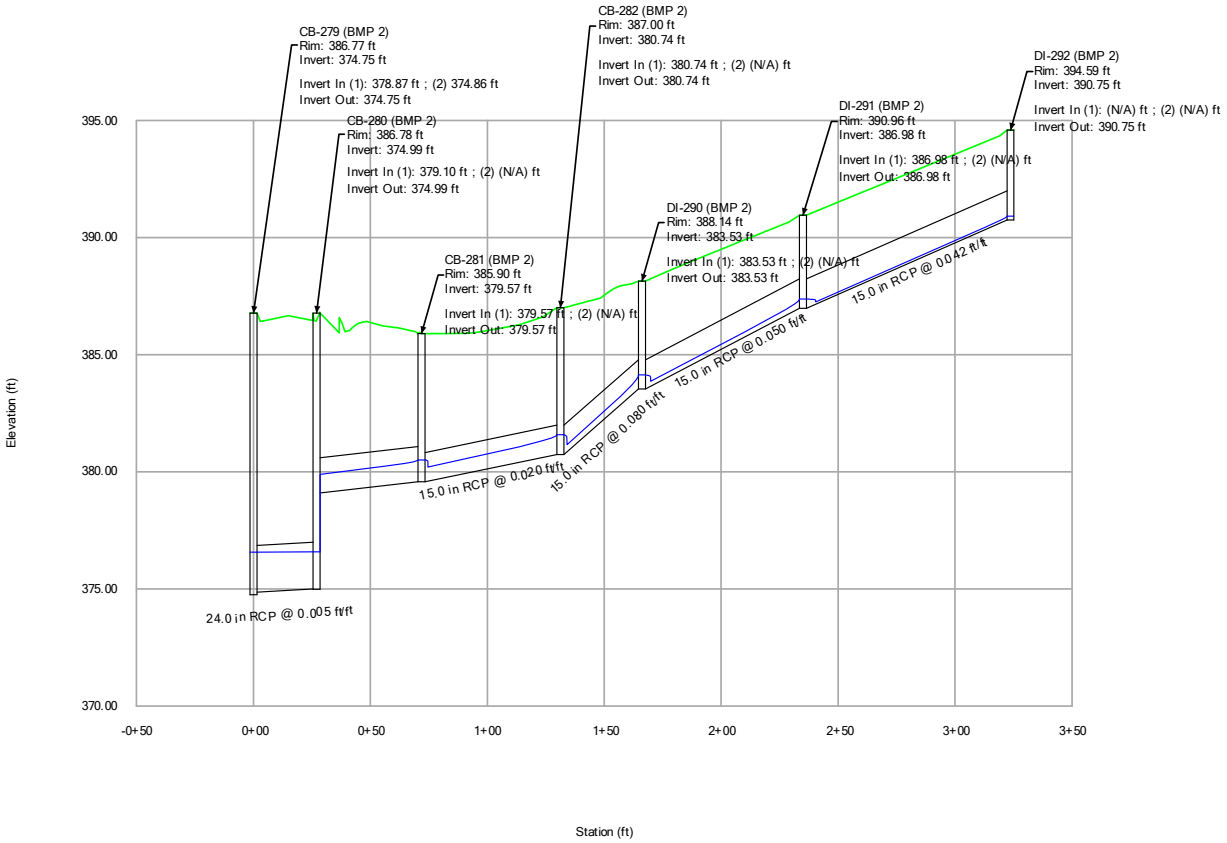

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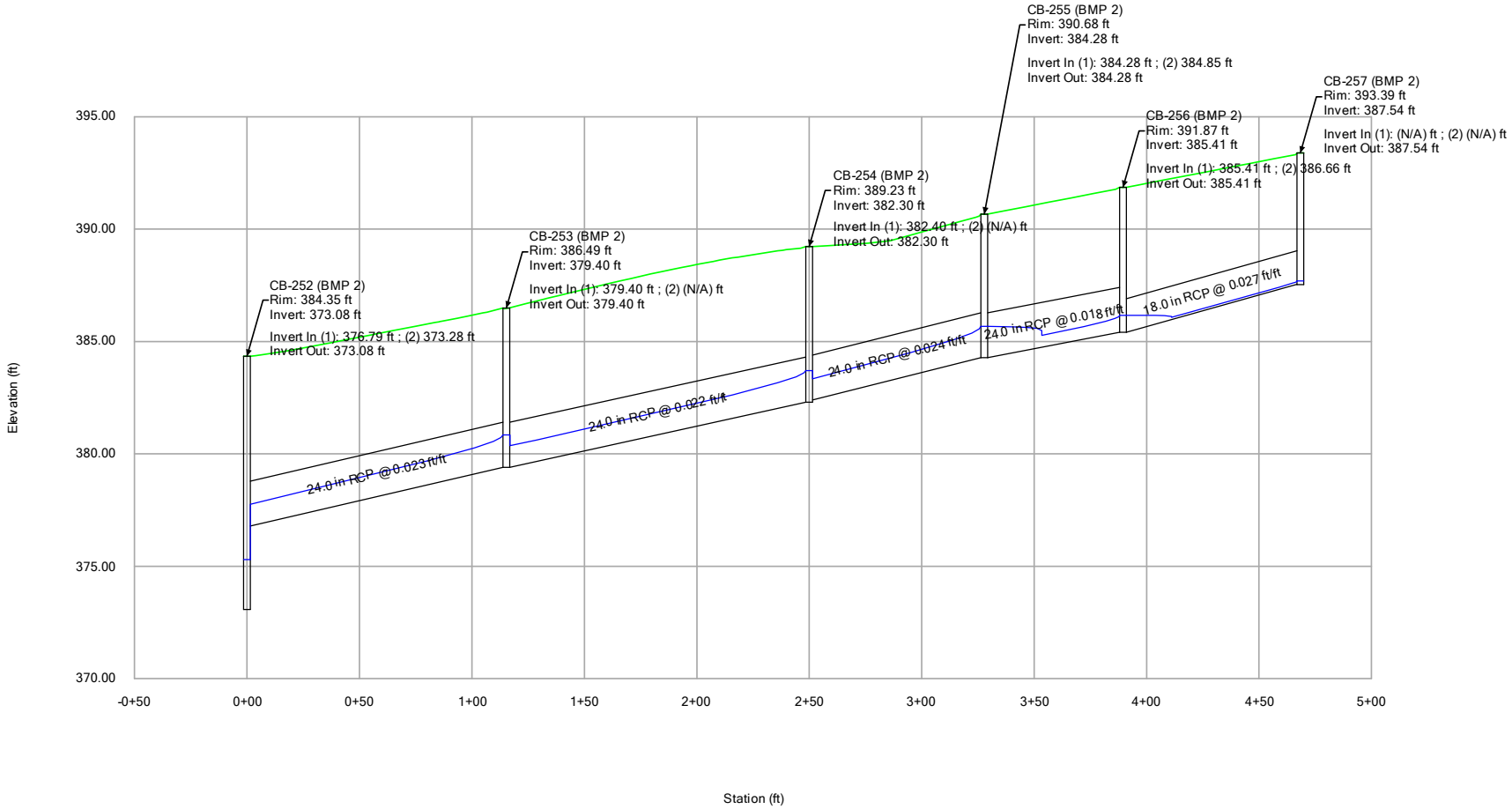

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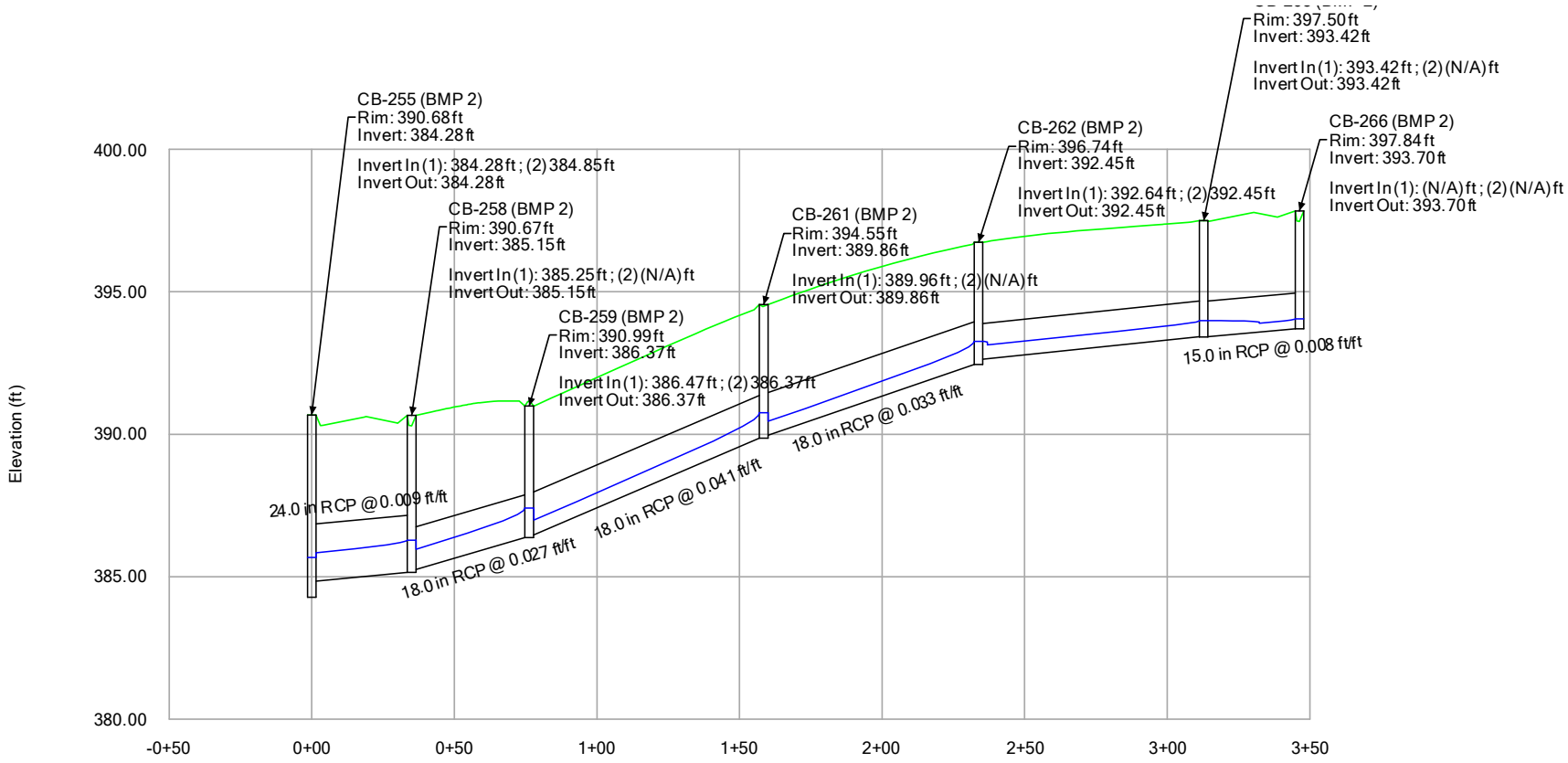

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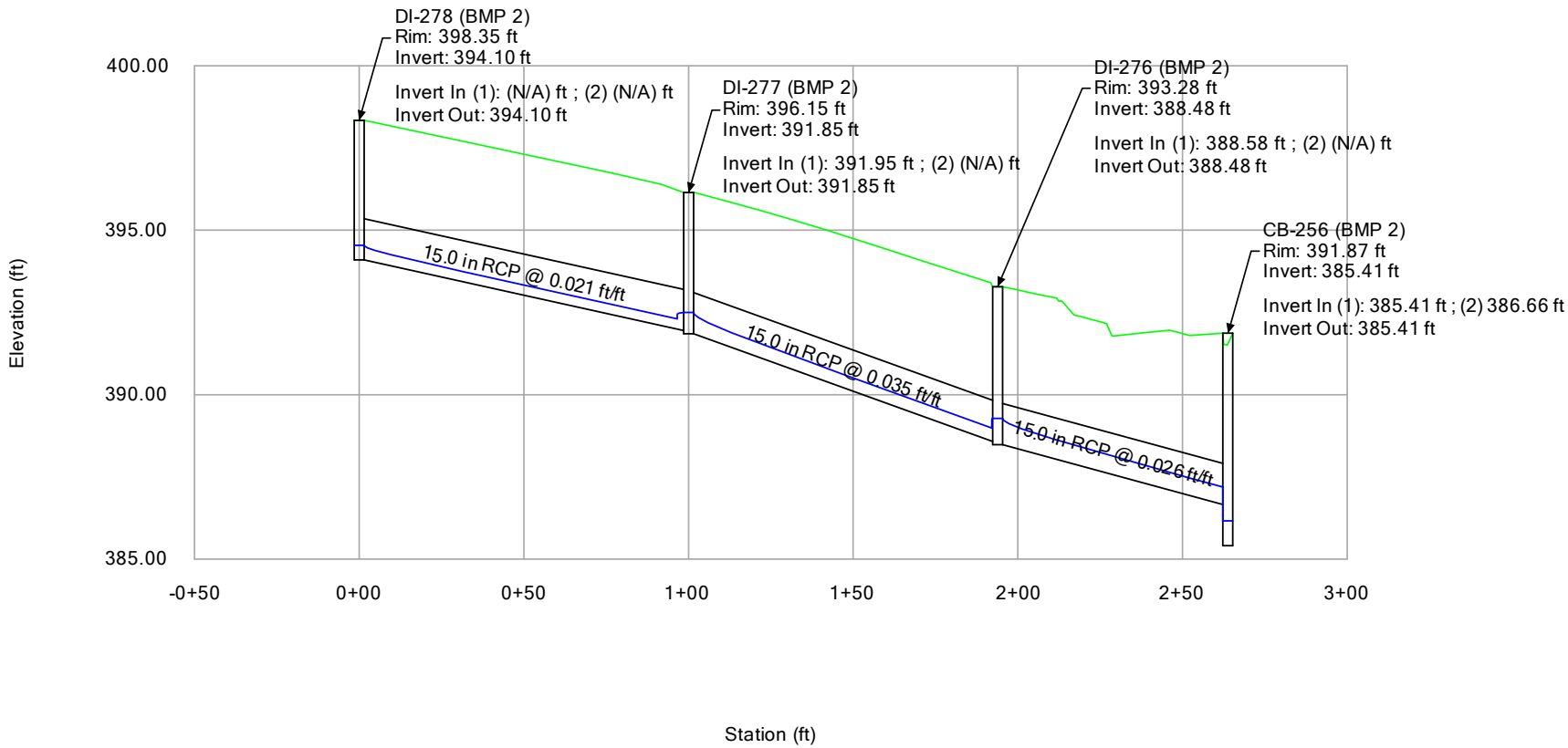

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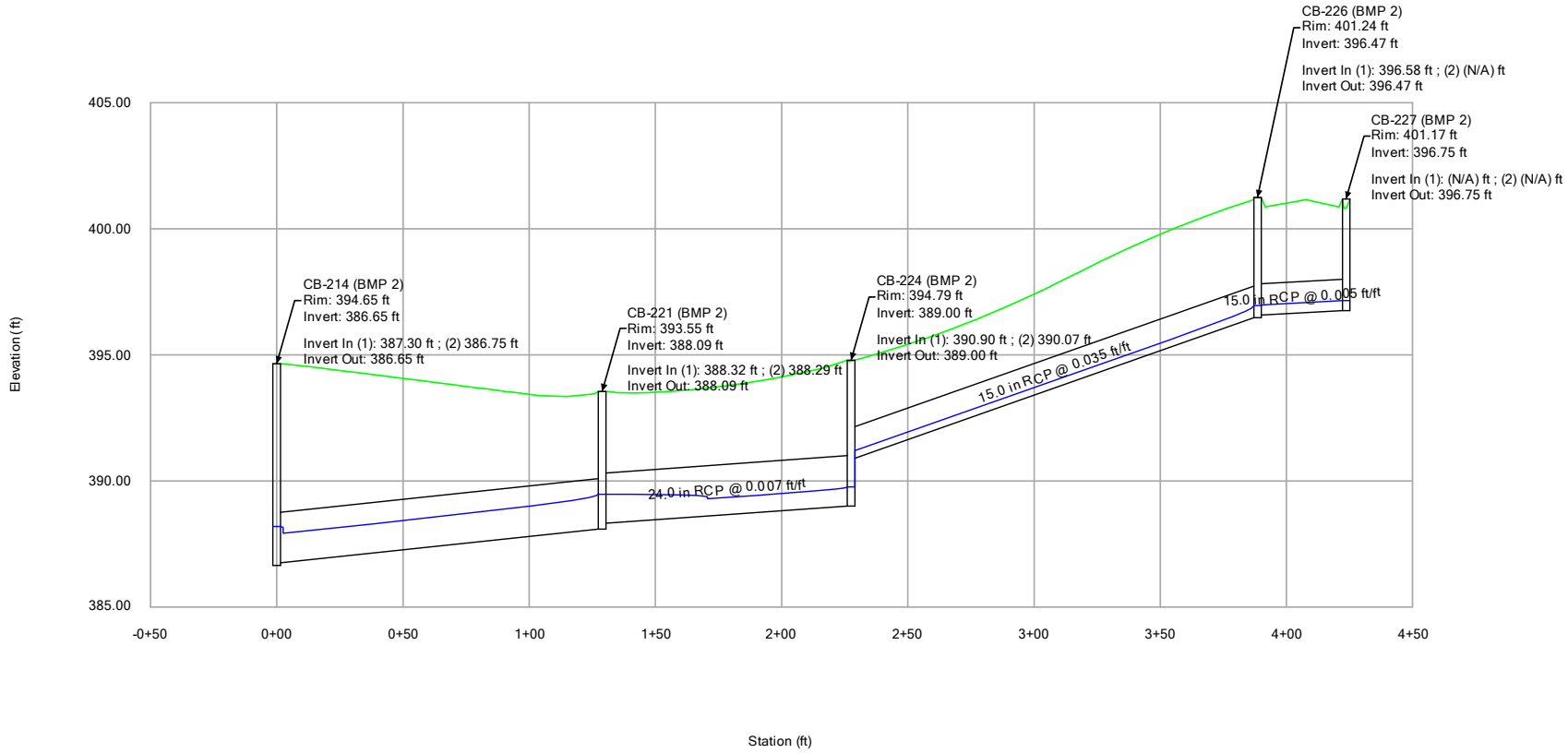

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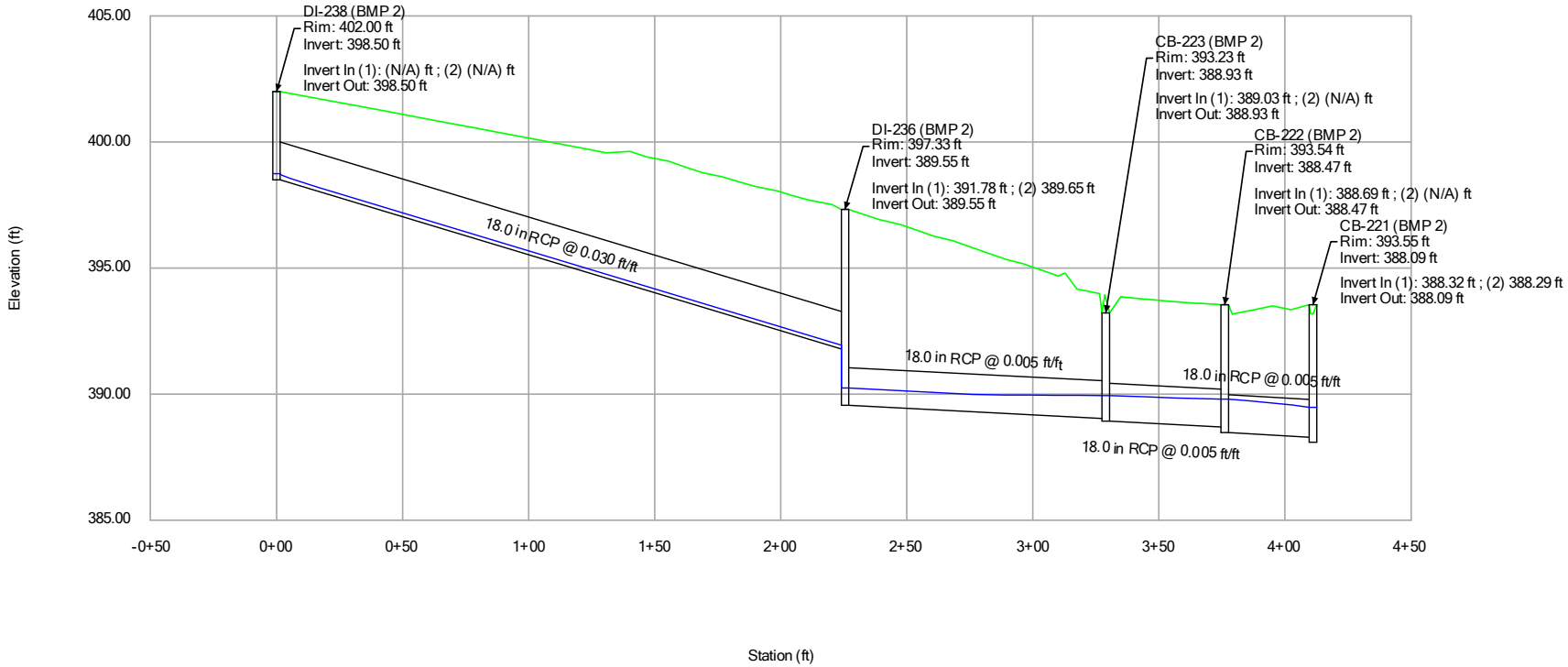

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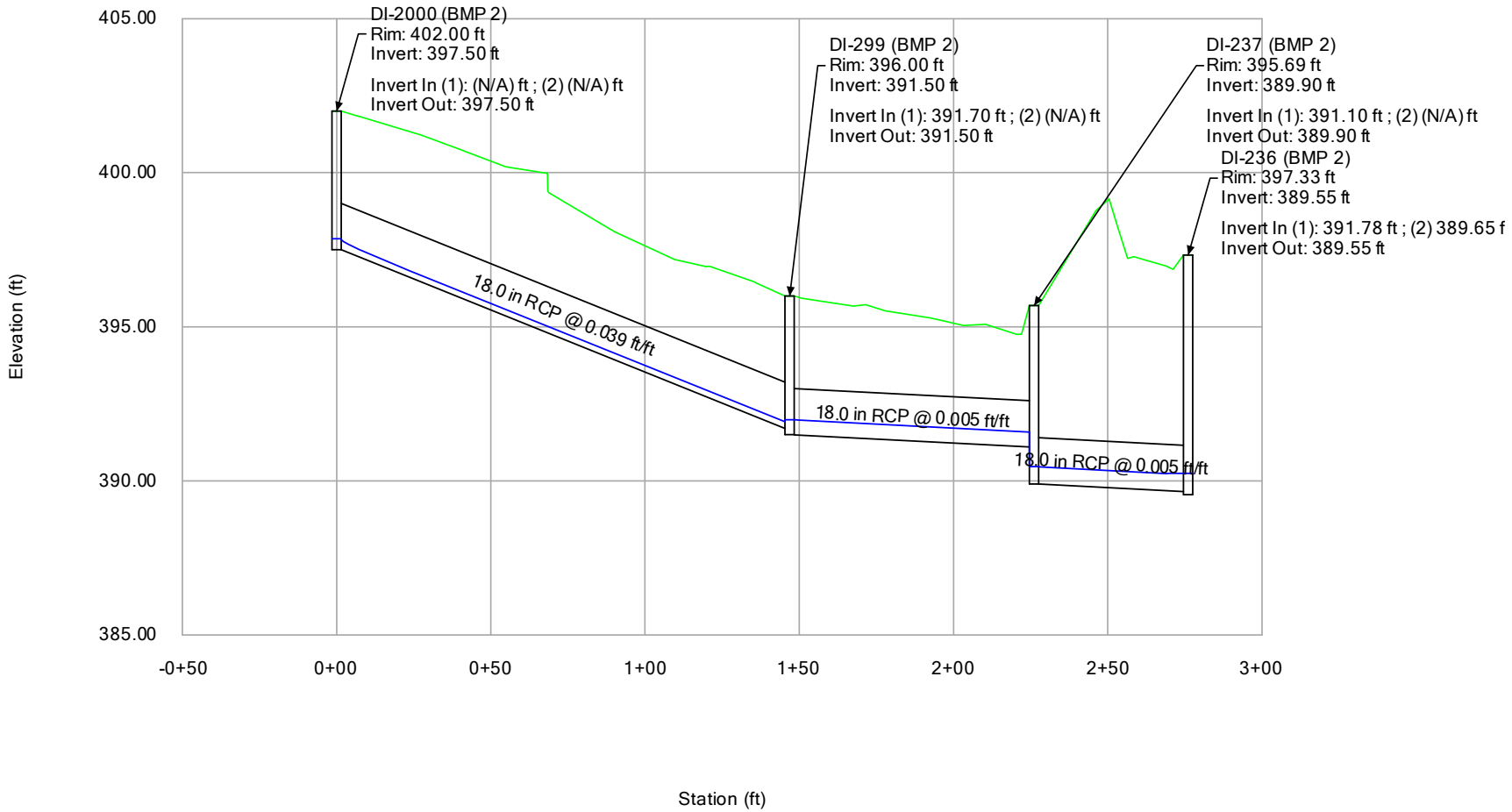

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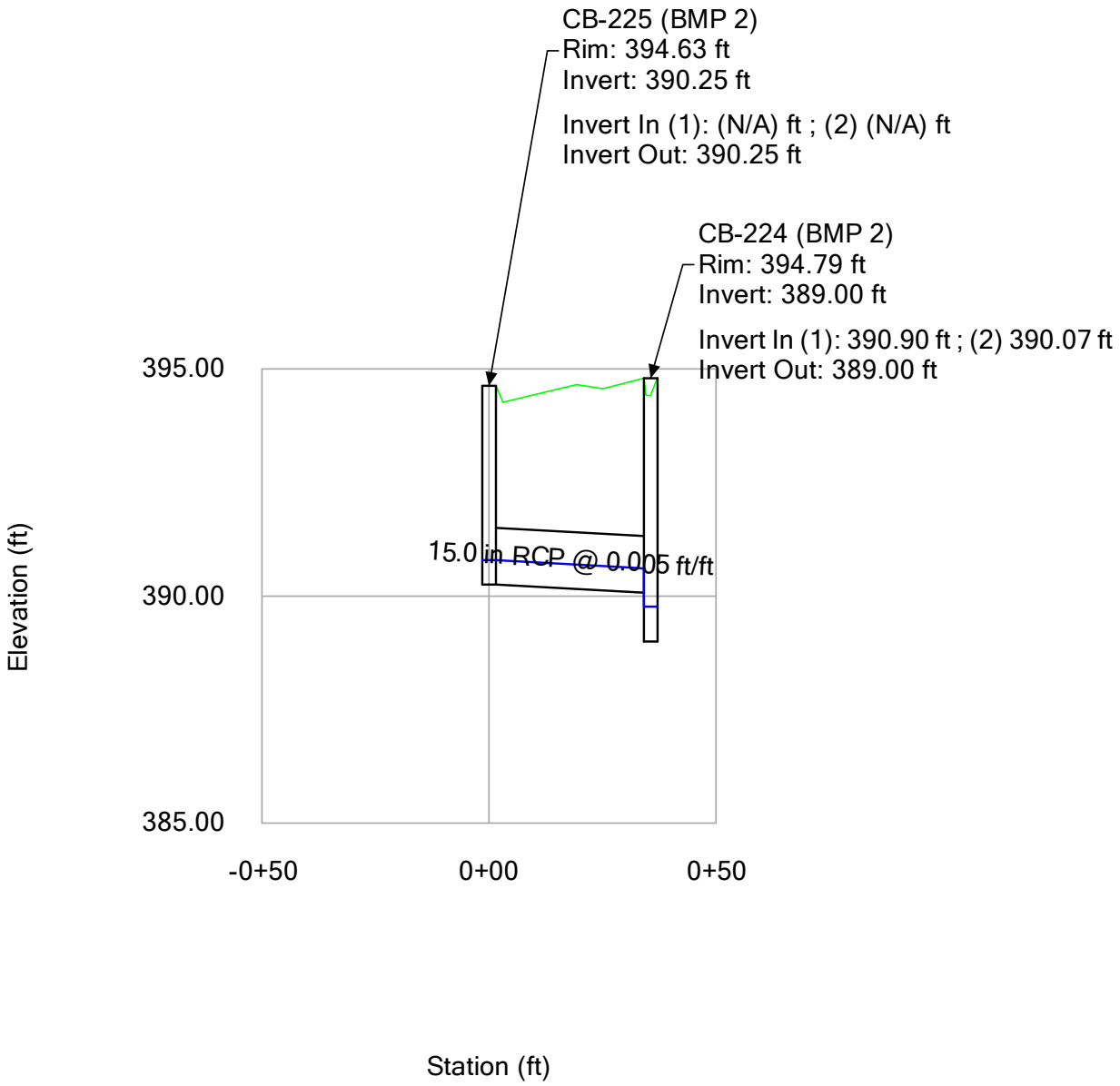

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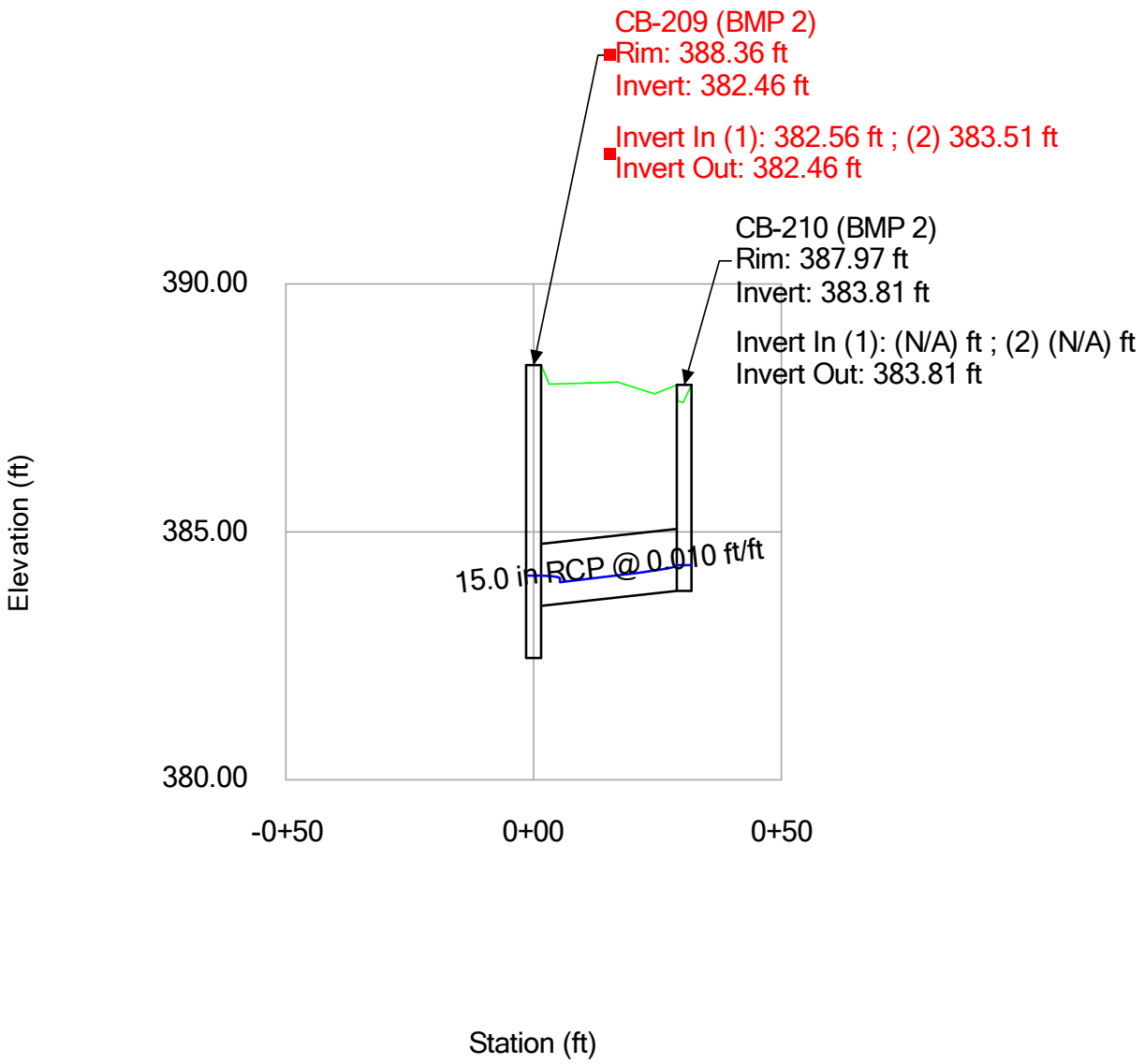

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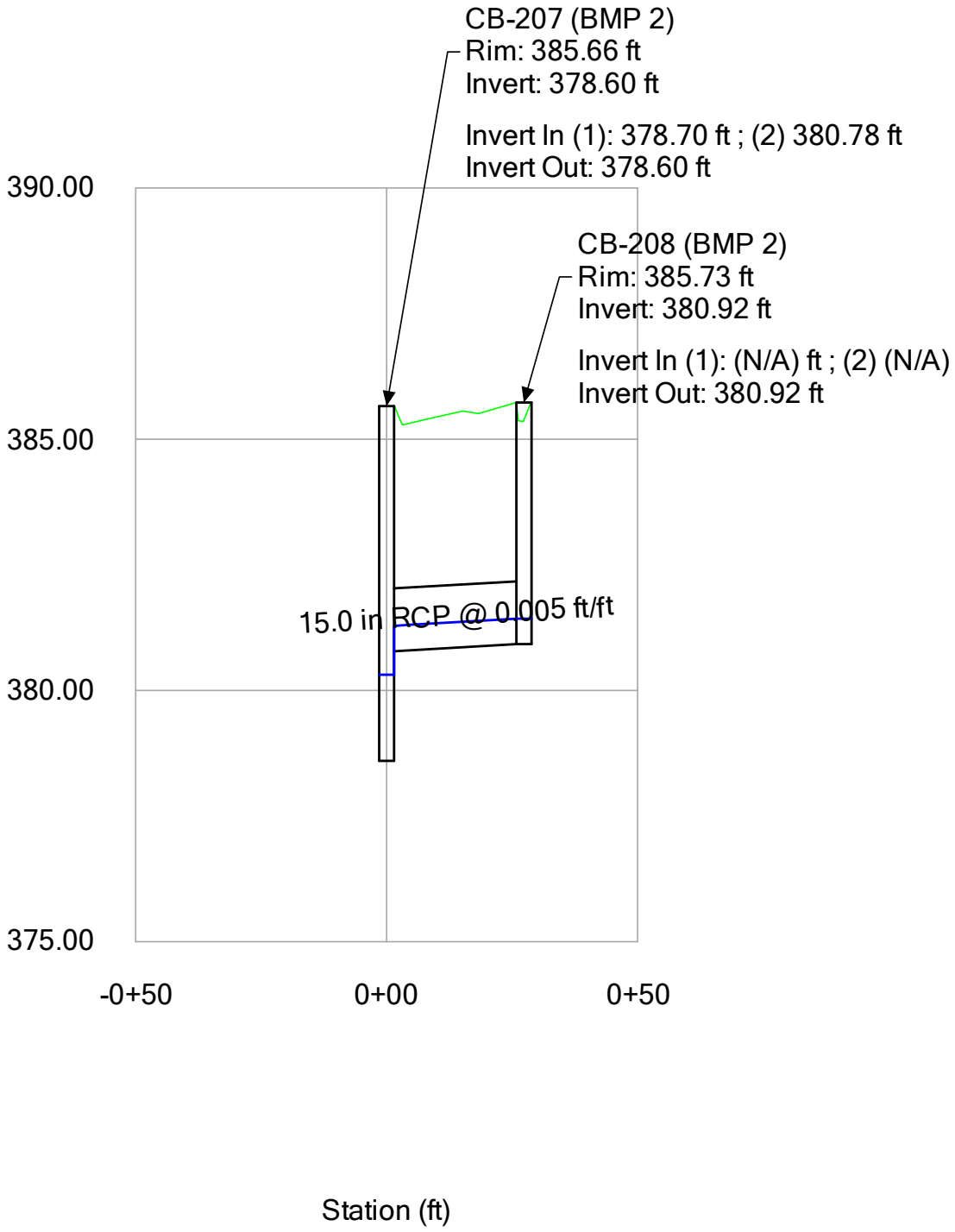

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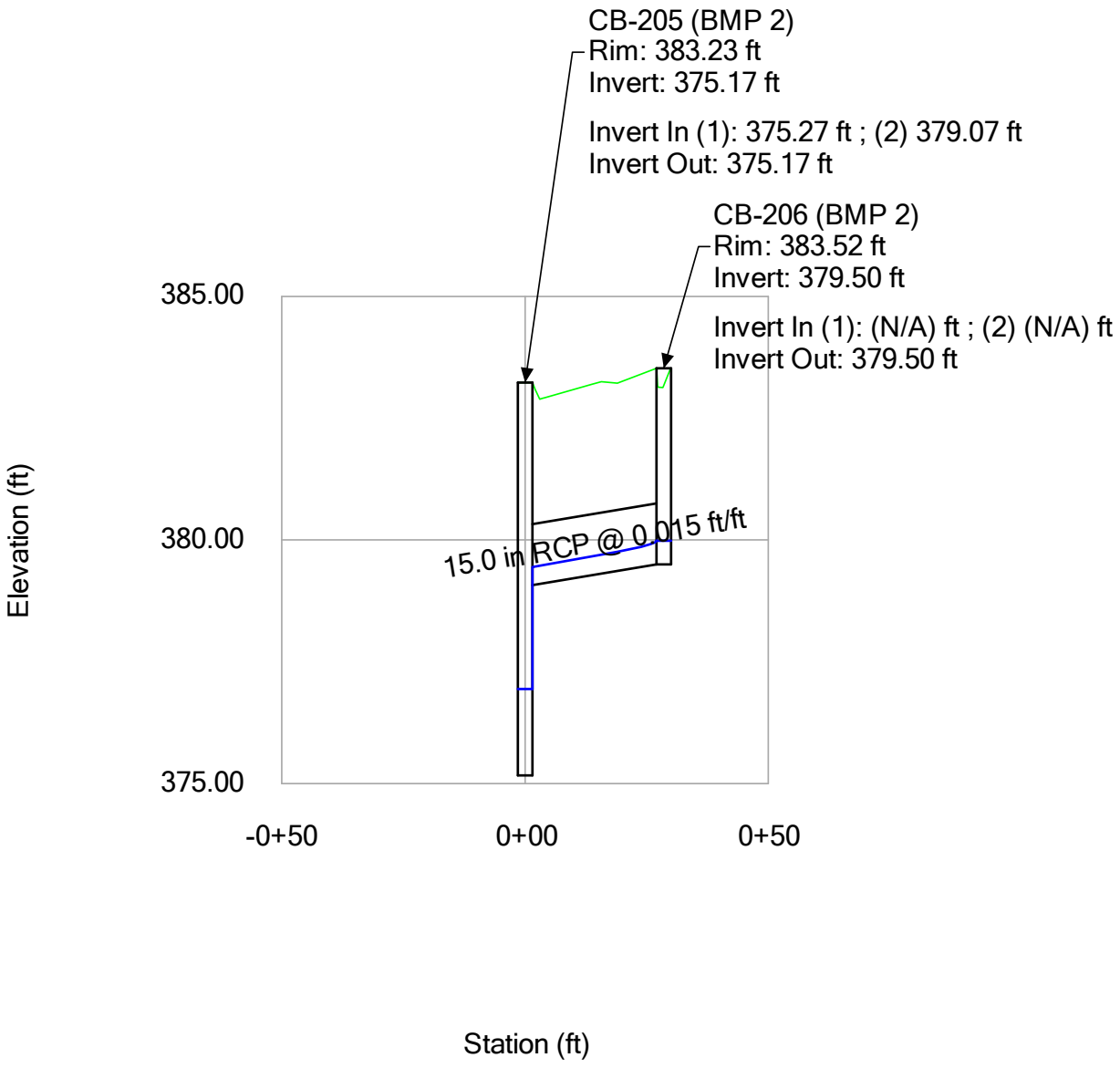


SCM 2 – INLET SPREAD

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-222 (BMP 2)	0.479	0.436	1.76	1.02	5.30	8.2	2.5
CB-258 (BMP 2)	0.695	0.422	1.70	0.95	5.69	8.1	2.4
CB-223 (BMP 2)	0.747	0.413	1.67	0.91	3.54	8.0	2.4
CB-287 (BMP 2)	0.430	0.298	1.20	0.44	1.65	6.6	2.1
CB-282 (BMP 2)	0.418	0.293	1.18	0.43	2.49	6.5	2.0
CB-268 (BMP 2)	0.383	0.272	1.10	0.36	4.28	6.3	2.0
CB-225 (BMP 2)	0.403	0.253	1.02	0.30	1.02	6.0	1.9
CB-210 (BMP 2)	0.388	0.248	1.00	0.29	1.00	5.9	1.9
CB-284 (BMP 2)	0.206	0.227	0.92	0.23	0.92	5.6	1.8
CB-224 (BMP 2)	0.356	0.221	0.89	0.22	2.78	5.5	1.8
CB-286 (BMP 2)	0.315	0.217	0.87	0.21	2.65	5.5	1.8
CB-221 (BMP 2)	0.254	0.216	0.87	0.20	8.95	5.5	1.8
CB-208 (BMP 2)	0.242	0.210	0.85	0.19	0.85	5.4	1.8
CB-270 (BMP 2)	0.320	0.206	0.83	0.18	2.67	5.3	1.8
CB-281 (BMP 2)	0.143	0.191	0.77	0.15	3.26	5.1	1.7
CB-204 (BMP 2)	0.243	0.185	0.75	0.14	4.39	5.0	1.7

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-206 (BMP 2)	0.217	0.182	0.73	0.13	0.73	5.0	1.7
CB-265 (BMP 2)	0.268	0.182	0.73	0.13	1.19	4.9	1.7
CB-252 (BMP 2)	0.225	0.164	0.66	0.10	25.97	4.7	1.6
CB-267 (BMP 2)	0.144	0.155	0.63	0.08	16.06	4.5	1.6
CB-271 (BMP 2)	0.203	0.147	0.59	0.07	0.92	4.4	1.5
CB-280 (BMP 2)	0.124	0.146	0.59	0.07	3.85	4.3	1.5
CB-227 (BMP 2)	0.209	0.144	0.58	0.07	0.58	4.3	1.5
CB-253 (BMP 2)	0.202	0.140	0.57	0.06	9.25	4.2	1.5
CB-262 (BMP 2)	0.143	0.139	0.56	0.06	2.51	4.2	1.5
CB-217 (BMP 2)	0.162	0.137	0.55	0.06	0.55	4.2	1.5
CB-220 (BMP 2)	0.157	0.136	0.55	0.06	0.55	4.2	1.5
CB-259 (BMP 2)	0.168	0.136	0.55	0.06	3.99	4.2	1.5
CB-269 (BMP 2)	0.122	0.129	0.52	0.05	0.52	4.0	1.4
CB-205 (BMP 2)	0.178	0.126	0.51	0.04	15.66	4.0	1.4
CB-260 (BMP 2)	0.156	0.123	0.49	0.04	0.49	3.9	1.4
CB-266 (BMP 2)	0.154	0.113	0.45	0.03	0.45	3.7	1.4

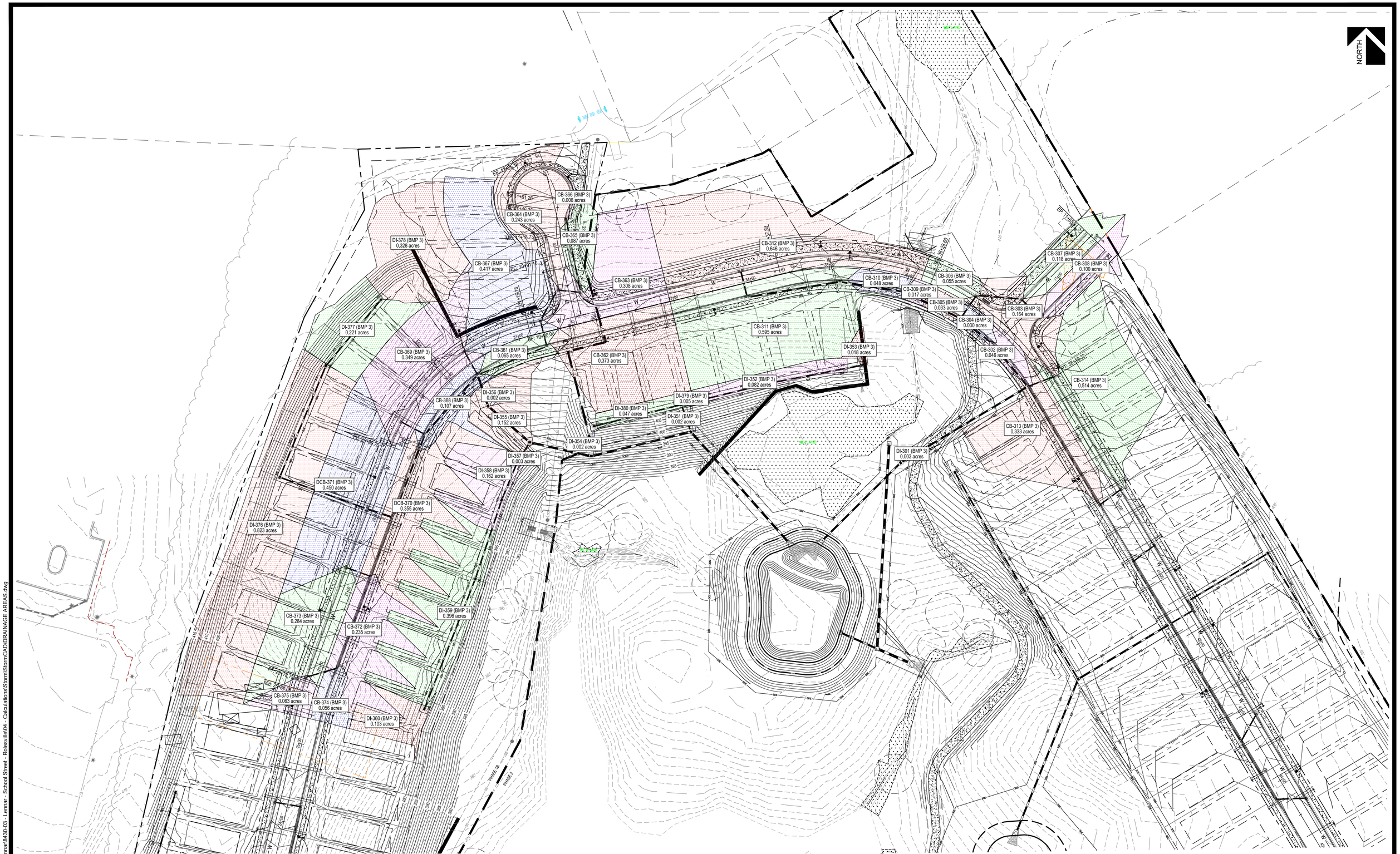
Inlet Spread - Time: 0.00 hours

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-261 (BMP 2)	0.117	0.108	0.44	0.03	2.95	3.6	1.3
CB-218 (BMP 2)	0.129	0.105	0.42	0.02	1.24	3.6	1.3
CB-213 (BMP 2)	0.129	0.100	0.40	0.02	11.60	3.4	1.3
CB-211 (BMP 2)	0.134	0.099	0.40	0.02	12.20	3.4	1.3
CB-272 (BMP 2)	0.113	0.095	0.38	0.02	0.92	3.4	1.3
CB-215 (BMP 2)	0.120	0.094	0.38	0.01	2.20	3.3	1.3
CB-285 (BMP 2)	0.043	0.086	0.35	0.01	2.99	3.1	1.2
CB-203 (BMP 2)	0.096	0.083	0.33	0.01	21.66	3.1	1.2
CB-226 (BMP 2)	0.076	0.072	0.29	0.00	0.87	2.8	1.1
CB-255 (BMP 2)	0.089	0.069	0.28	0.00	8.51	2.7	1.1
CB-219 (BMP 2)	0.079	0.067	0.27	0.00	0.82	2.7	1.1
CB-256 (BMP 2)	0.087	0.067	0.27	0.00	2.54	2.7	1.1
CB-209 (BMP 2)	0.063	0.053	0.21	0.00	13.41	2.3	1.0
CB-212 (BMP 2)	0.063	0.051	0.21	0.00	11.81	2.2	1.0
CB-254 (BMP 2)	0.053	0.042	0.17	0.00	8.68	2.0	0.9
CB-279 (BMP 2)	0.048	0.040	0.16	0.00	11.15	1.9	0.9

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-207 (BMP 2)	0.051	0.039	0.16	0.00	14.42	1.9	0.9
CB-283 (BMP 2)	0.039	0.036	0.14	0.00	7.14	1.8	0.9
CB-289 (BMP 2)	0.036	0.029	0.12	0.00	0.12	1.7	0.8
CB-273 (BMP 2)	0.025	0.023	0.09	0.00	0.53	1.6	0.7
CB-257 (BMP 2)	0.026	0.021	0.08	0.00	0.08	1.5	0.7
CB-214 (BMP 2)	0.012	0.012	0.05	0.00	11.20	1.2	0.6
CB-263 (BMP 2)	0.000	0.008	0.03	0.00	0.77	1.0	0.5
CB-216 (BMP 2)	0.001	0.006	0.02	0.00	1.82	0.9	0.5

ATTACHMENT 3: DRAINAGE AREA MAPS – SCM 3



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

SCM 3 DRAINAGE MAP

DATE: 7/27/2023

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

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

SCM 3 – 10 YR STORM

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-302 (BMP 3)	0.046	0.32	0.083	0.950
CB-304 (BMP 3)	0.030	0.20	0.083	0.950
CB-308 (BMP 3)	0.100	0.69	0.083	0.950
CB-307 (BMP 3)	0.118	0.82	0.083	0.950
CB-306 (BMP 3)	0.055	0.38	0.083	0.950
CB-305 (BMP 3)	0.033	0.23	0.083	0.950
CB-309 (BMP 3)	0.017	0.12	0.083	0.950
CB-310 (BMP 3)	0.048	0.33	0.083	0.950
CB-363 (BMP 3)	0.308	2.12	0.083	0.950
CB-366 (BMP 3)	0.006	0.04	0.083	0.950
CB-303 (BMP 3)	0.164	1.09	0.083	0.920
CB-368 (BMP 3)	0.107	0.70	0.083	0.900
CB-374 (BMP 3)	0.056	0.34	0.083	0.850
CB-375 (BMP 3)	0.063	0.39	0.083	0.850
CB-361 (BMP 3)	0.065	0.39	0.083	0.830
DI-356 (BMP 3)	0.002	0.01	0.083	0.830

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-301 (BMP 3)	0.003	0.02	0.083	0.830
CB-365 (BMP 3)	0.087	0.51	0.083	0.800
CB-364 (BMP 3)	0.243	1.41	0.083	0.800
CB-369 (BMP 3)	0.349	1.97	0.083	0.780
CB-362 (BMP 3)	0.373	2.08	0.083	0.770
CB-314 (BMP 3)	0.514	2.87	0.083	0.770
CB-313 (BMP 3)	0.333	1.86	0.083	0.770
CB-311 (BMP 3)	0.595	3.32	0.083	0.770
CB-367 (BMP 3)	0.417	2.33	0.083	0.770
DI-378 (BMP 3)	0.328	1.83	0.083	0.770
DCB-371 (BMP 3)	0.450	2.51	0.083	0.770
DCB-370 (BMP 3)	0.355	1.98	0.083	0.770
CB-372 (BMP 3)	0.235	1.31	0.083	0.770
CB-373 (BMP 3)	0.284	1.59	0.083	0.770
DI-358 (BMP 3)	0.162	0.76	0.083	0.650
DI-359 (BMP 3)	0.396	1.87	0.083	0.650

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-360 (BMP 3)	0.103	0.49	0.083	0.650
DI-377 (BMP 3)	0.221	1.04	0.083	0.650
DI-376 (BMP 3)	0.823	3.88	0.083	0.650
DI-380 (BMP 3)	0.047	0.22	0.083	0.650
DI-379 (BMP 3)	0.005	0.02	0.083	0.650
DI-352 (BMP 3)	0.082	0.39	0.083	0.650
DI-357 (BMP 3)	0.003	0.01	0.083	0.600
DI-355 (BMP 3)	0.152	0.60	0.083	0.550
CB-312 (BMP 3)	0.646	2.48	0.083	0.530
DI-353 (BMP 3)	0.018	0.07	0.083	0.500
DI-354 (BMP 3)	0.002	0.01	0.083	0.350
DI-351 (BMP 3)	0.002	0.01	0.083	0.350

10-YR ANALYSIS

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-366 (BMP 3)	0.04	0.00	0.04	100.0	403.83	403.83	3.0	1.28	1.28
CB-309 (BMP 3)	0.12	0.00	6.05	100.0	398.34	398.34	3.0	5.64	4.16
CB-305 (BMP 3)	0.23	0.00	13.79	99.8	398.34	398.34	3.0	2.71	6.18
CB-306 (BMP 3)	0.37	0.01	8.77	96.7	401.14	401.14	3.0	5.90	5.26
CB-310 (BMP 3)	0.33	0.01	5.99	97.9	398.97	398.97	3.0	4.68	4.60
CB-304 (BMP 3)	0.20	0.00	13.91	100.0	397.34	397.34	3.0	6.14	6.20
DI-353 (BMP 3)	0.07	0.00	0.07	100.0	401.19	401.19	3.0	1.43	1.43
CB-307 (BMP 3)	0.74	0.13	8.51	84.7	401.93	401.93	3.0	10.02	5.96
CB-308 (BMP 3)	0.76	0.14	0.76	84.1	401.91	401.91	3.0	1.56	1.56
DI-352 (BMP 3)	0.36	0.02	0.41	94.1	400.10	400.10	3.0	1.61	2.29
CB-364 (BMP 3)	1.07	0.34	1.53	76.0	400.12	400.12	3.0	1.52	3.43
CB-365 (BMP 3)	0.47	0.03	0.50	93.3	400.18	400.18	3.0	0.37	2.49
CB-311 (BMP 3)	3.33	0.00	5.78	100.0	399.68	399.68	3.0	3.79	4.55
CB-312 (BMP 3)	2.48	0.00	2.48	100.0	400.10	400.10	3.0	3.78	3.78
CB-302 (BMP 3)	0.31	0.01	17.45	98.3	389.97	389.97	3.0	3.58	6.88
CB-363 (BMP 3)	1.63	0.86	3.07	65.3	399.91	399.91	3.0	2.57	4.28

10-YR ANALYSIS

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)	1.06	0.33	1.06	76.3	399.41	399.41	3.0	3.07	3.07
CB-362 (BMP 3)	1.43	0.65	4.42	68.7	399.65	399.65	3.0	4.30	4.96
CB-375 (BMP 3)	0.37	0.01	0.37	96.5	397.94	397.94	3.0	2.30	2.30
CB-367 (BMP 3)	1.94	1.25	1.94	60.8	395.74	395.74	3.0	3.69	3.69
CB-361 (BMP 3)	0.85	0.19	23.56	81.6	390.85	390.85	3.0	6.79	6.62
CB-374 (BMP 3)	0.33	0.01	0.70	97.6	397.37	397.37	3.0	2.92	2.74
DI-378 (BMP 3)	1.32	0.51	1.32	72.2	397.90	397.90	3.0	3.15	3.15
DI-360 (BMP 3)	0.45	0.04	0.45	91.6	395.75	395.75	3.0	2.35	2.35
DI-357 (BMP 3)	0.01	0.00	2.32	100.0	390.68	390.68	3.0	4.91	3.72
DI-356 (BMP 3)	0.01	0.00	23.47	100.0	390.62	390.62	3.0	6.71	6.68
CB-368 (BMP 3)	0.75	0.14	17.01	84.5	391.98	391.98	3.0	5.36	5.90
DI-377 (BMP 3)	0.85	0.20	2.14	81.2	394.95	394.95	3.0	2.94	3.62
CB-369 (BMP 3)	1.95	1.27	1.95	60.6	392.00	392.00	3.0	2.31	2.31
CB-373 (BMP 3)	1.18	0.42	1.18	73.6	392.69	392.69	3.0	2.94	2.94
CB-372 (BMP 3)	1.02	0.30	2.83	77.3	392.67	392.67	3.0	1.48	3.92
DI-358 (BMP 3)	0.65	0.11	2.33	85.8	391.33	391.33	3.0	4.37	3.72

10-YR ANALYSIS

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)
DCB-370 (BMP 3)	2.42	0.00	14.65	100.0	392.33	392.33	6.0	4.03	5.67
DCB-371 (BMP 3)	4.20	0.00	9.68	100.0	392.37	392.37	6.0	5.04	5.39
DI-359 (BMP 3)	1.34	0.52	1.73	71.9	392.38	392.38	3.0	1.81	3.40
DI-351 (BMP 3)	0.01	0.00	26.18	100.0	386.47	386.47	3.0	12.36	6.96
DI-376 (BMP 3)	3.88	0.00	5.81	100.0	394.40	394.40	3.0	2.38	4.81
CB-314 (BMP 3)	1.94	1.25	1.94	60.8	390.77	390.77	3.0	3.53	3.53
CB-313 (BMP 3)	1.32	0.54	3.24	70.8	390.77	390.77	3.0	2.45	4.09
DI-355 (BMP 3)	0.54	0.07	26.00	88.9	390.35	390.35	3.0	4.76	6.59
DI-301 (BMP 3)	0.02	0.00	17.25	100.0	388.00	388.00	3.0	8.12	6.84
DI-354 (BMP 3)	0.01	0.00	25.77	100.0	389.83	389.83	3.0	7.14	7.11
DI-379 (BMP 3)	0.02	0.00	0.63	100.0	389.47	389.47	3.0	6.13	2.58
DI-380 (BMP 3)	0.22	0.00	0.22	100.0	400.30	400.30	3.0	1.95	1.95

10-YR ANALYSIS

Conduit Results - Time: 0.00 hours

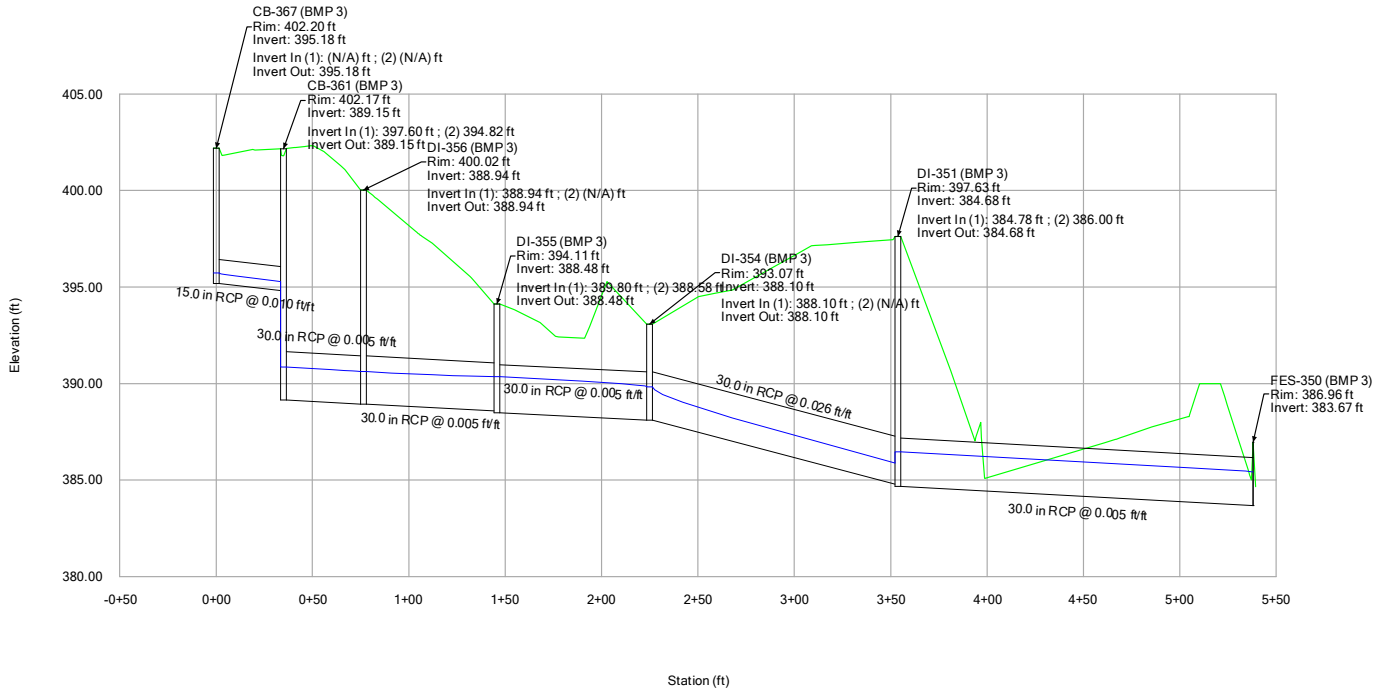
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-365 TO CB-366 (BMP 3)	15.0	0.040	1.28	0.37	0.04	12.92	403.83	400.18
CB-309 TO CB-310 (BMP 3)	24.0	0.008	4.60	5.64	5.99	20.37	398.97	398.24
CB-305 TO CB-309 (BMP 3)	24.0	0.005	4.16	2.71	6.05	16.06	398.34	398.34
CB-305 TO CB-306 (BMP 3)	18.0	0.005	5.26	6.05	8.77	7.43	401.14	400.77
CB-304 TO CB-305 (BMP 3)	24.0	0.020	6.18	6.14	13.79	31.97	398.34	397.34
CB-306 TO CB-307 (BMP 3)	18.0	0.014	5.96	5.90	8.51	12.55	401.93	401.14
CB-310 TO CB-311 (BMP 3)	24.0	0.005	4.55	4.68	5.78	15.98	399.68	399.04
CB-302 TO CB-304 (BMP 3)	24.0	0.020	6.20	9.49	13.91	32.04	397.34	395.53
DI-352 TO DI-353 (BMP 3)	18.0	0.009	1.43	1.61	0.07	10.06	401.19	400.15
CB-307 TO CB-308 (BMP 3)	18.0	0.012	1.56	0.66	0.76	11.64	401.91	401.93
DI-351 TO DI-352 (BMP 3)	18.0	0.087	2.29	6.13	0.41	31.04	400.10	389.49
CB-364 TO CB-365 (BMP 3)	15.0	0.006	2.49	1.52	0.50	4.93	400.18	400.12
CB-363 TO CB-364 (BMP 3)	15.0	0.008	3.43	2.57	1.53	5.62	400.12	399.91
CB-311 TO CB-312 (BMP 3)	18.0	0.005	3.78	3.79	2.48	7.43	400.10	399.92
CB-302 TO CB-303 (BMP 3)	15.0	0.008	3.07	3.65	1.06	5.93	399.41	399.06
CB-302 TO CB-313 (BMP 3)	15.0	0.005	4.09	3.58	3.24	4.64	390.77	389.97
DI-301 TO CB-302 (BMP 3)	24.0	0.011	6.88	8.12	17.45	23.22	389.97	387.79
CB-362 TO CB-363 (BMP 3)	15.0	0.006	4.28	4.30	3.07	4.99	399.91	399.71
CB-361 TO CB-362 (BMP 3)	15.0	0.013	4.96	6.23	4.42	7.30	399.65	398.30
CB-374 TO CB-375 (BMP 3)	15.0	0.011	2.30	2.92	0.37	6.65	397.94	397.44
CB-361 TO CB-367 (BMP 3)	15.0	0.010	3.69	4.64	1.94	6.53	395.74	395.29
CB-361 TO CB-368 (BMP 3)	24.0	0.005	5.90	6.79	17.01	16.00	391.98	391.14
DI-356 TO CB-361 (BMP 3)	30.0	0.005	6.62	6.71	23.56	29.22	390.85	390.62
CB-372 TO CB-374 (BMP 3)	15.0	0.040	2.74	1.48	0.70	12.90	397.37	392.67
DI-377 TO DI-378 (BMP 3)	18.0	0.028	3.15	2.94	1.32	17.42	397.90	394.95
DI-359 TO DI-360 (BMP 3)	18.0	0.020	2.35	1.81	0.45	14.67	395.75	392.38
DI-355 TO DI-357 (BMP 3)	18.0	0.010	3.72	4.76	2.32	10.52	390.68	390.28
DI-357 TO DI-358 (BMP 3)	18.0	0.011	3.72	4.91	2.33	10.92	391.33	390.67
DI-355 TO DI-356 (BMP 3)	30.0	0.005	6.68	6.30	23.47	29.55	390.62	390.35
CB-368 TO CB-369 (BMP 3)	15.0	0.005	2.31	1.90	1.95	4.57	392.00	391.98

10-YR ANALYSIS

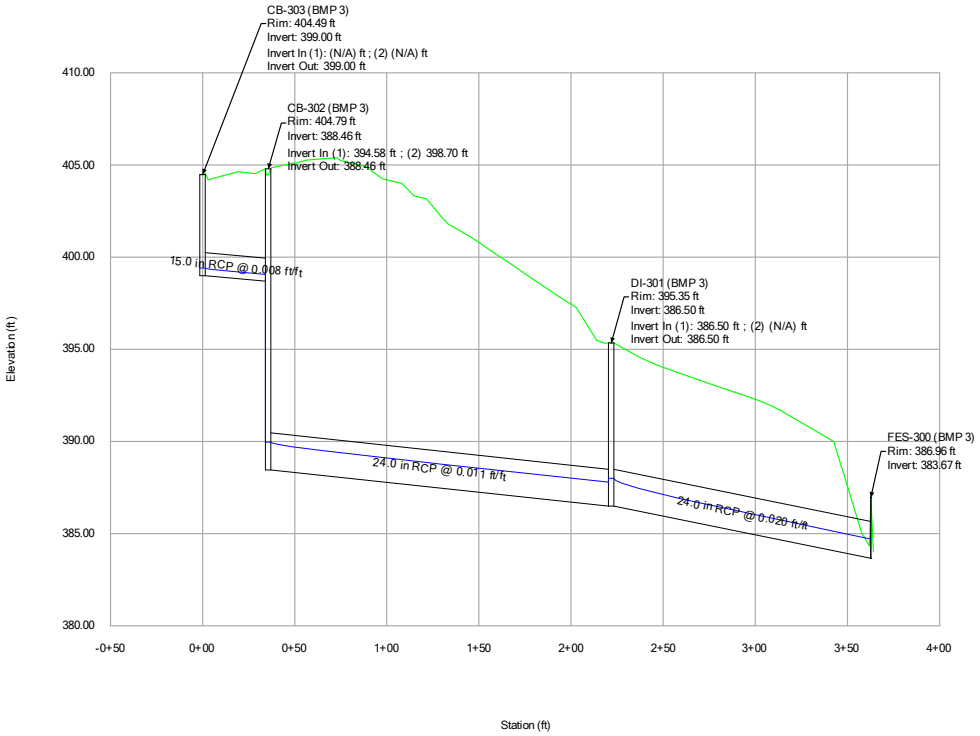
Conduit Results - Time: 0.00 hours

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-368 TO DCB-370 (BMP 3)	24.0	0.005	5.67	5.36	14.65	16.00	392.33	391.98
DI-376 TO DI-377 (BMP 3)	18.0	0.005	3.62	2.38	2.14	7.45	394.95	394.40
CB-372 TO CB-373 (BMP 3)	15.0	0.005	2.94	1.97	1.18	4.57	392.69	392.67
DCB-370 TO CB-372 (BMP 3)	15.0	0.005	3.92	3.53	2.83	4.57	392.67	392.33
DI-358 TO DI-359 (BMP 3)	18.0	0.010	3.40	4.37	1.73	10.44	392.38	391.26
DCB-370 TO DCB-371 (BMP 3)	24.0	0.010	5.39	4.03	9.68	22.62	392.37	392.33
DCB-371 TO DI-376 (BMP 3)	18.0	0.005	4.81	5.04	5.81	7.76	394.40	393.73
DI-351 TO DI-354 (BMP 3)	30.0	0.026	7.11	12.36	25.77	65.85	389.83	385.88
FES-350 TO DI-351 (BMP 3)	30.0	0.005	6.96	7.16	26.18	30.35	386.47	385.42
CB-313 TO CB-314 (BMP 3)	15.0	0.006	3.53	2.45	1.94	4.87	390.77	390.77
DI-354 TO DI-355 (BMP 3)	30.0	0.005	6.59	7.14	26.00	28.41	390.35	389.84
FES-300 TO DI-301 (BMP 3)	24.0	0.020	6.84	10.40	17.25	32.08	388.00	384.71
Pipe - (336) (BMP 3)	18.0	0.016	1.95	2.83	0.22	13.38	400.30	398.43
Pipe - (337) (BMP 3)	18.0	0.087	2.58	1.33	0.63	31.06	389.47	386.47

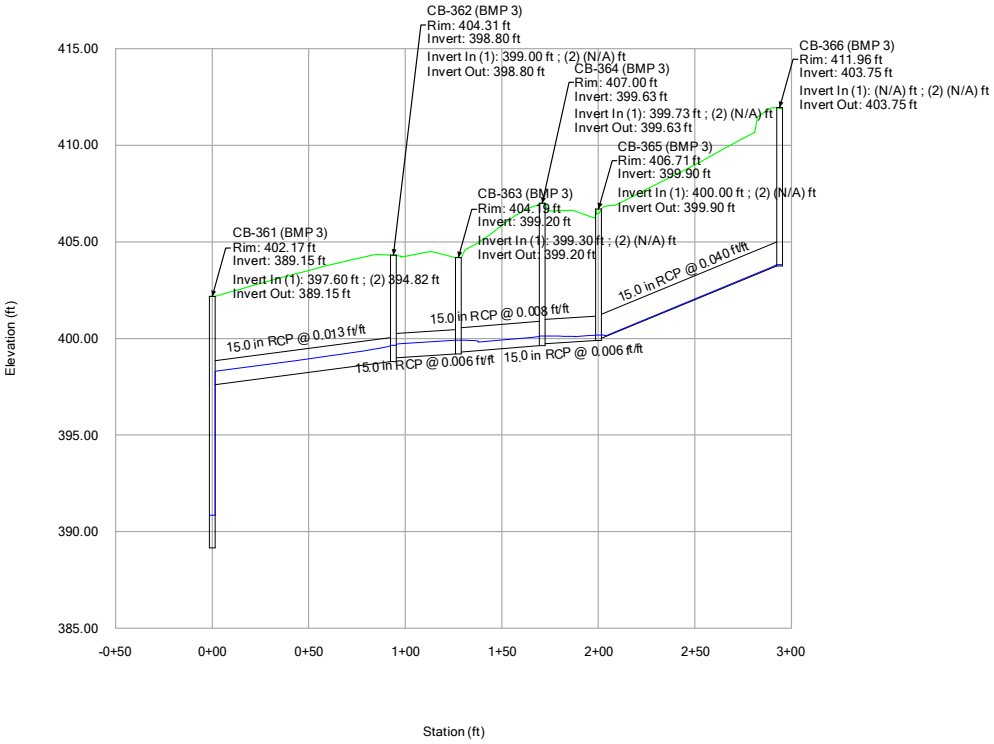
10-YR ANALYSIS



10-YR ANALYSIS



10-YR ANALYSIS



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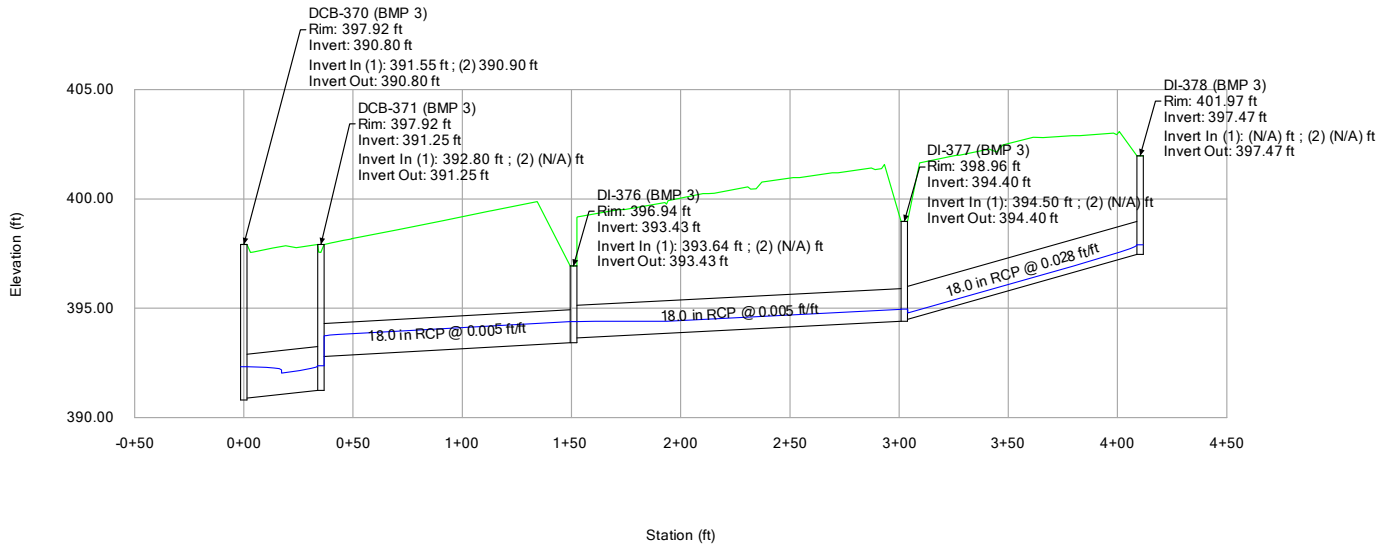

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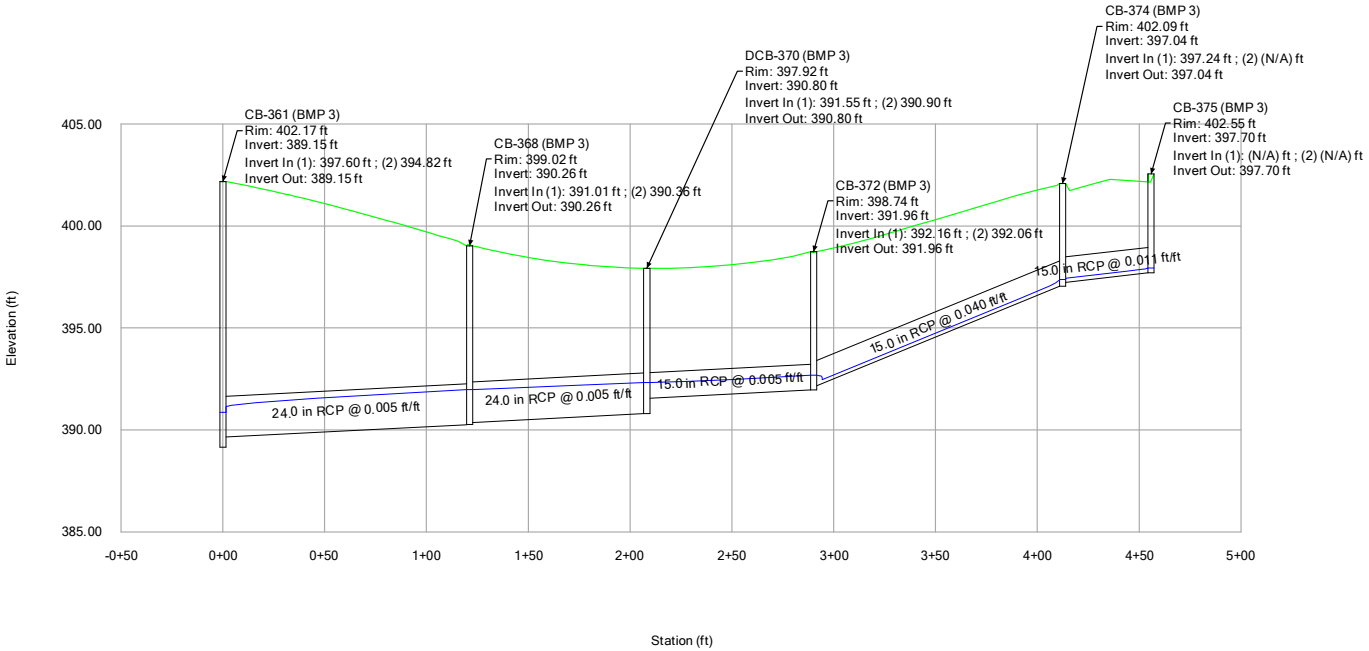
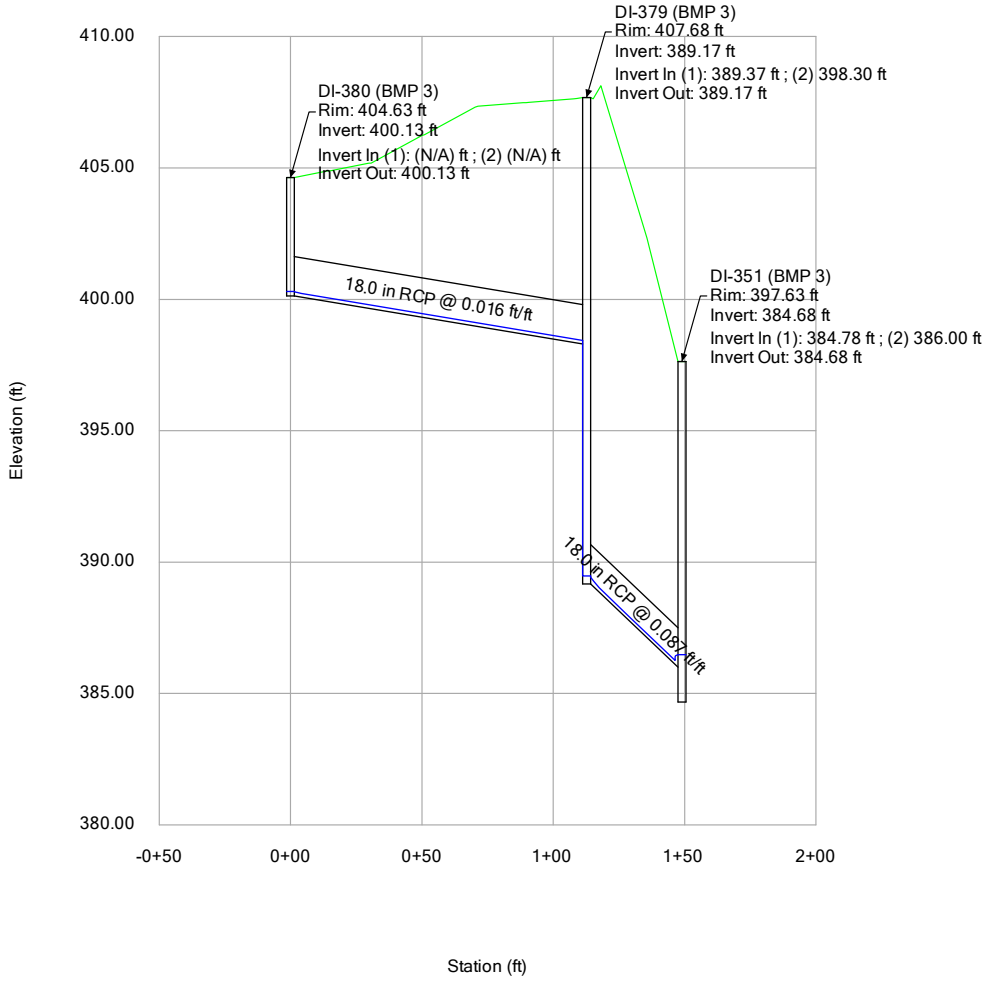


10-YR ANALYSIS



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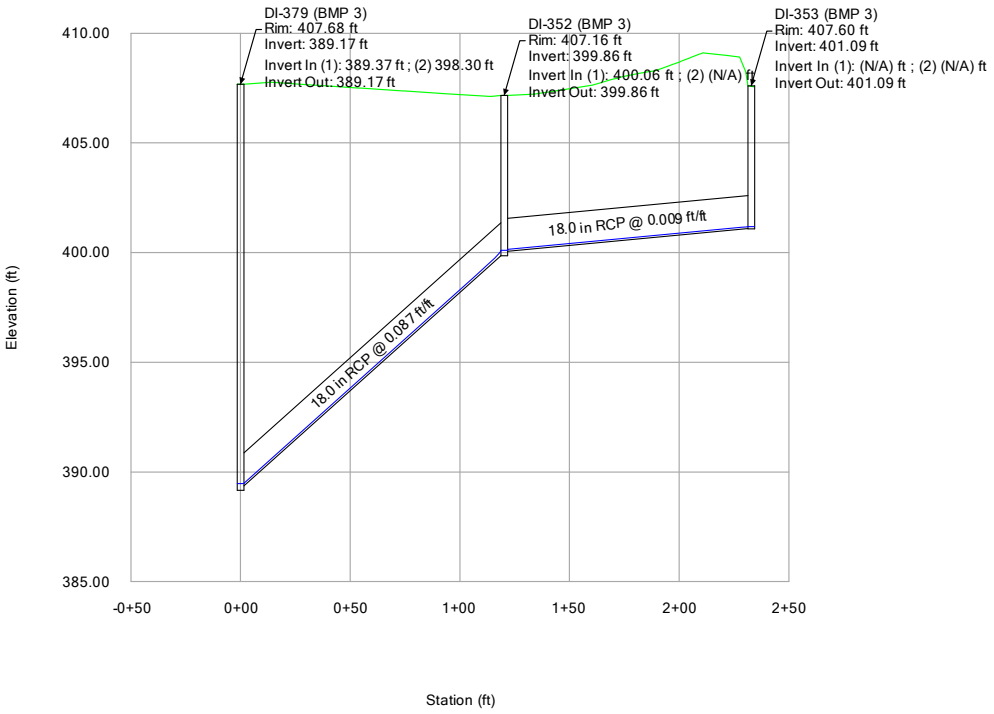
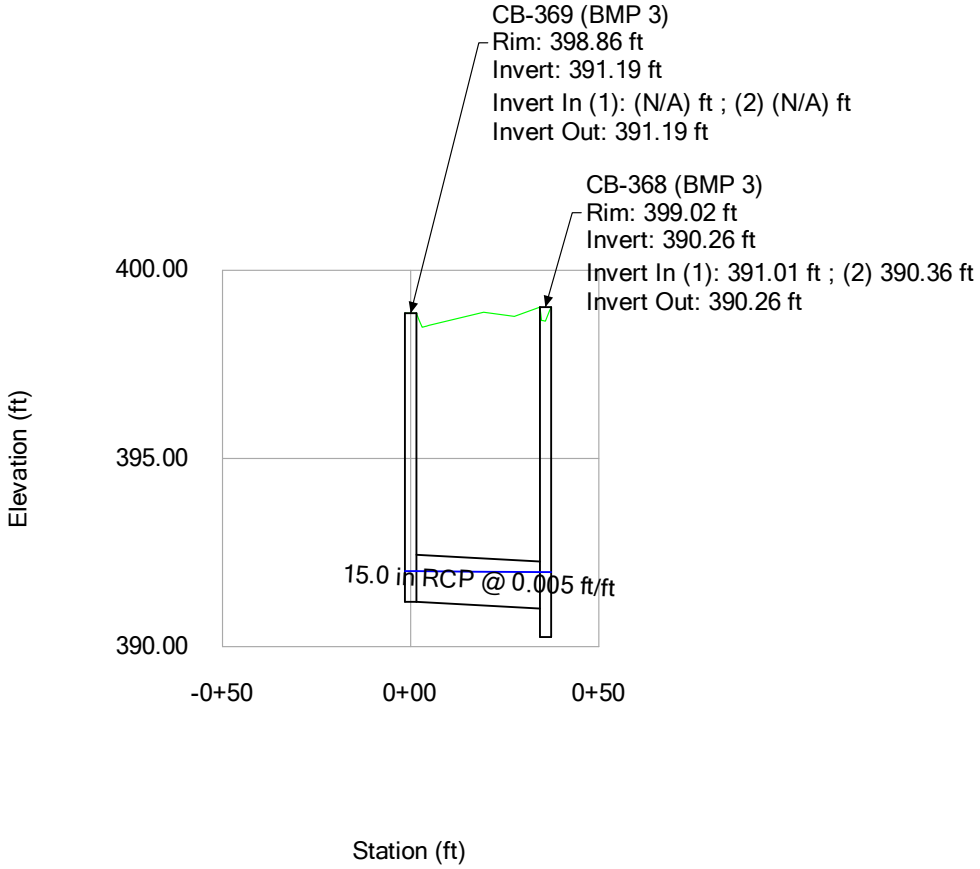


10-YR ANALYSIS



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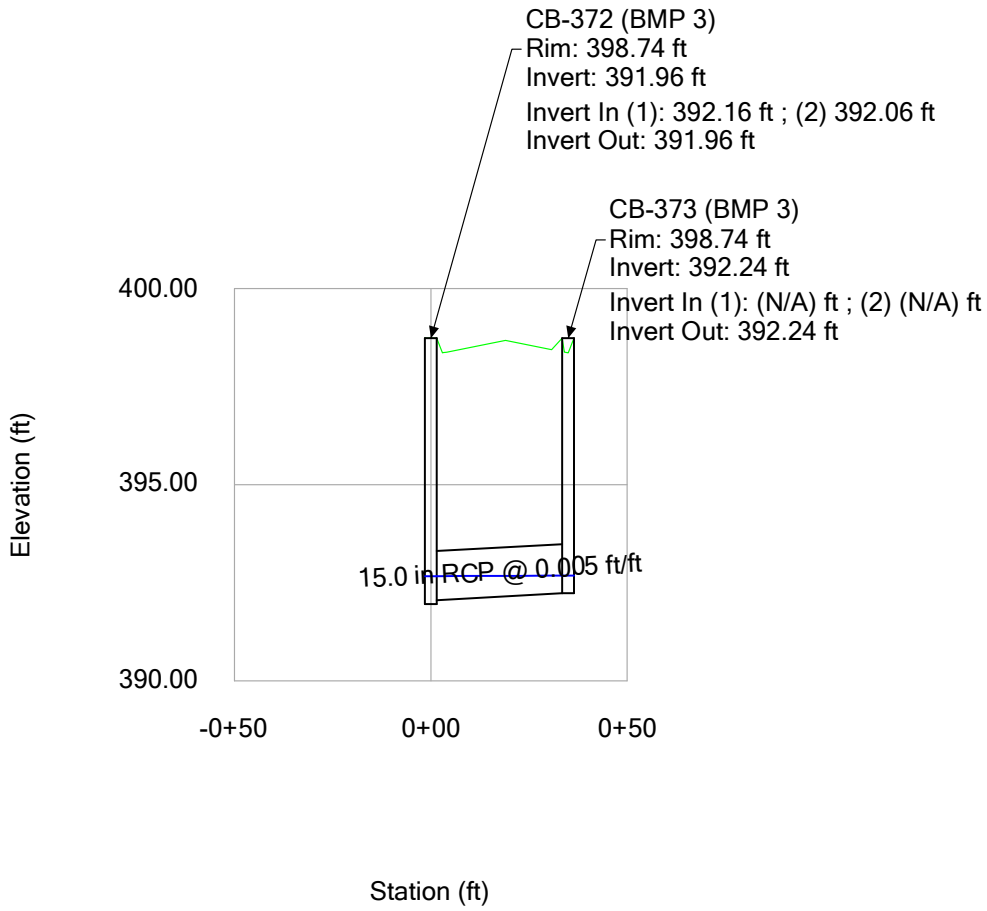
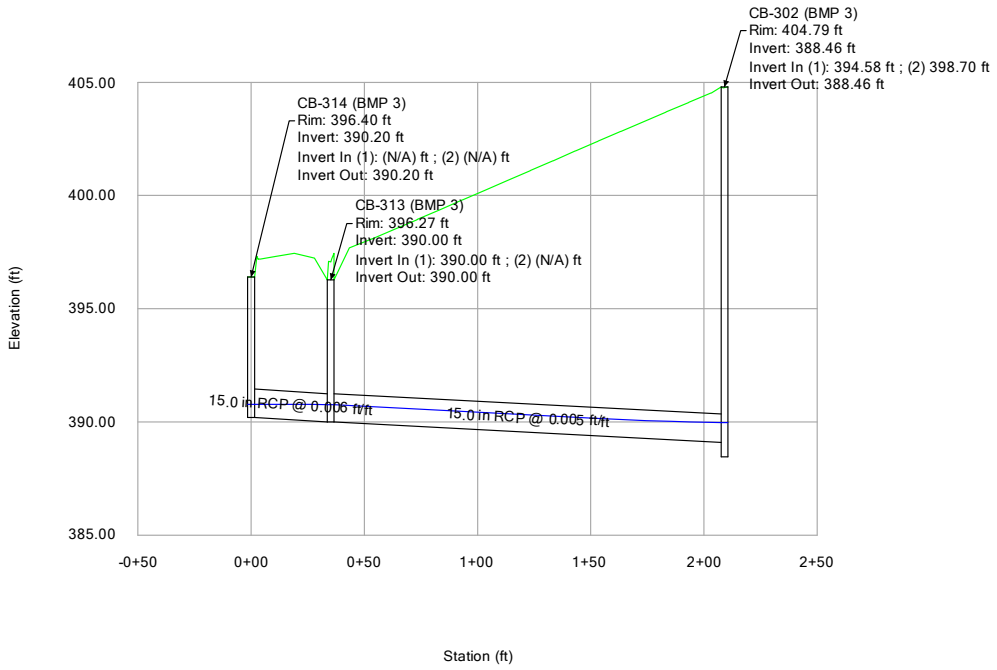
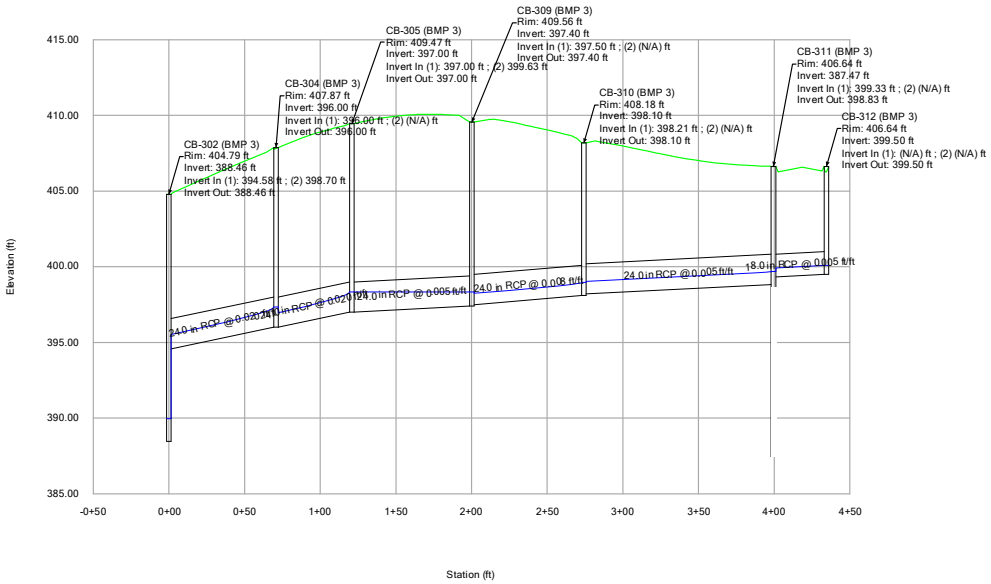


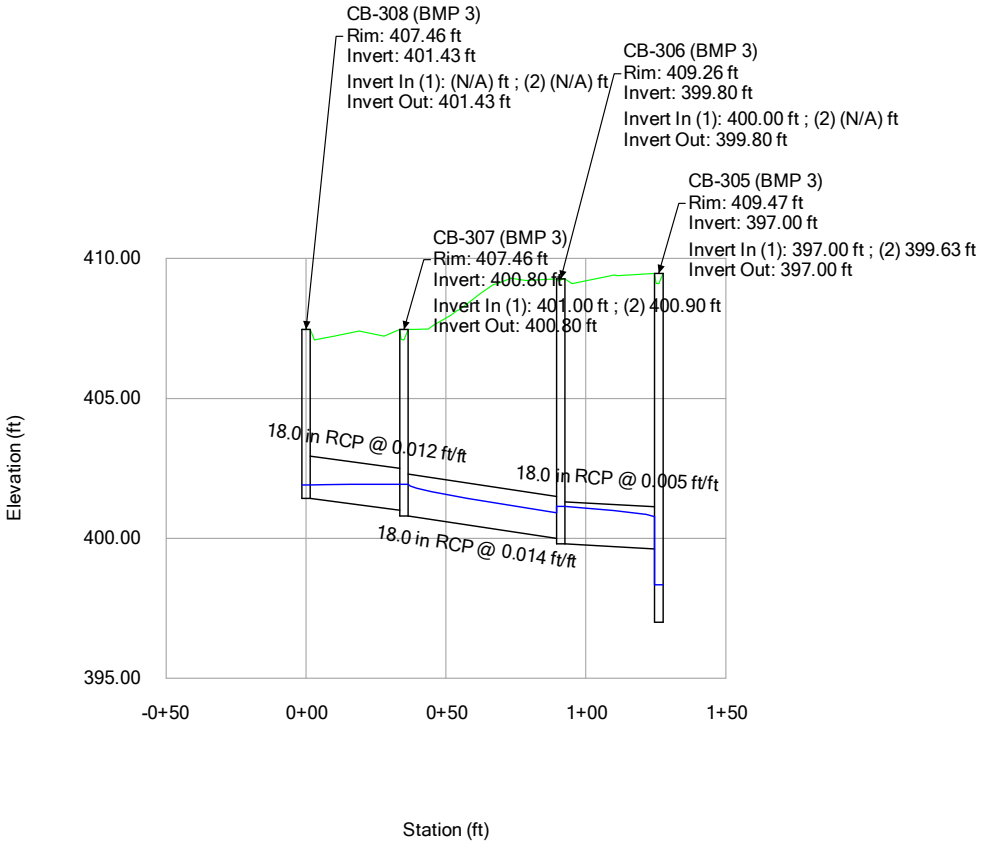
10-YR ANALYSIS



10-YR ANALYSIS



10-YR ANALYSIS



SCM 3 – 25 YR STORM

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-302 (BMP 3)	0.046	0.35	0.083	0.950
CB-304 (BMP 3)	0.030	0.23	0.083	0.950
CB-308 (BMP 3)	0.100	0.76	0.083	0.950
CB-307 (BMP 3)	0.118	0.91	0.083	0.950
CB-306 (BMP 3)	0.055	0.42	0.083	0.950
CB-305 (BMP 3)	0.033	0.26	0.083	0.950
CB-309 (BMP 3)	0.017	0.13	0.083	0.950
CB-310 (BMP 3)	0.048	0.37	0.083	0.950
CB-363 (BMP 3)	0.308	2.35	0.083	0.950
CB-366 (BMP 3)	0.006	0.04	0.083	0.950
CB-303 (BMP 3)	0.164	1.21	0.083	0.920
CB-368 (BMP 3)	0.107	0.77	0.083	0.900
CB-374 (BMP 3)	0.056	0.38	0.083	0.850
CB-375 (BMP 3)	0.063	0.43	0.083	0.850
CB-361 (BMP 3)	0.065	0.43	0.083	0.830
DI-356 (BMP 3)	0.002	0.02	0.083	0.830

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-301 (BMP 3)	0.003	0.02	0.083	0.830
CB-365 (BMP 3)	0.087	0.56	0.083	0.800
CB-364 (BMP 3)	0.243	1.56	0.083	0.800
CB-369 (BMP 3)	0.349	2.19	0.083	0.780
CB-362 (BMP 3)	0.373	2.31	0.083	0.770
CB-314 (BMP 3)	0.514	3.19	0.083	0.770
CB-313 (BMP 3)	0.333	2.06	0.083	0.770
CB-311 (BMP 3)	0.595	3.68	0.083	0.770
CB-367 (BMP 3)	0.417	2.58	0.083	0.770
DI-378 (BMP 3)	0.328	2.03	0.083	0.770
DCB-371 (BMP 3)	0.450	2.79	0.083	0.770
DCB-370 (BMP 3)	0.355	2.20	0.083	0.770
CB-372 (BMP 3)	0.235	1.45	0.083	0.770
CB-373 (BMP 3)	0.284	1.76	0.083	0.770
DI-358 (BMP 3)	0.162	0.85	0.083	0.650
DI-359 (BMP 3)	0.396	2.07	0.083	0.650

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-360 (BMP 3)	0.103	0.54	0.083	0.650
DI-377 (BMP 3)	0.221	1.16	0.083	0.650
DI-376 (BMP 3)	0.823	4.30	0.083	0.650
DI-380 (BMP 3)	0.047	0.24	0.083	0.650
DI-379 (BMP 3)	0.005	0.03	0.083	0.650
DI-352 (BMP 3)	0.082	0.43	0.083	0.650
DI-357 (BMP 3)	0.003	0.02	0.083	0.600
DI-355 (BMP 3)	0.152	0.67	0.083	0.550
CB-312 (BMP 3)	0.646	2.75	0.083	0.530
DI-353 (BMP 3)	0.018	0.07	0.083	0.500
DI-354 (BMP 3)	0.002	0.01	0.083	0.350
DI-351 (BMP 3)	0.002	0.01	0.083	0.350

25-YR ANALYSIS

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-366 (BMP 3)	0.04	0.00	0.04	100.0	403.83	403.83	3.0	1.30	1.30
CB-309 (BMP 3)	0.13	0.00	6.72	100.0	398.42	398.42	3.0	4.70	4.16
CB-305 (BMP 3)	0.25	0.00	15.19	99.4	398.41	398.41	3.0	2.85	6.44
CB-306 (BMP 3)	0.40	0.02	9.61	95.6	401.24	401.24	3.0	5.98	5.51
CB-310 (BMP 3)	0.36	0.01	6.65	96.9	399.02	399.02	3.0	4.81	4.75
CB-304 (BMP 3)	0.23	0.00	15.33	99.8	397.41	397.41	3.0	6.41	6.47
DI-353 (BMP 3)	0.07	0.00	0.07	100.0	401.19	401.19	3.0	1.46	1.46
CB-307 (BMP 3)	0.82	0.17	9.33	82.5	401.98	401.98	3.0	10.26	6.25
CB-308 (BMP 3)	0.85	0.19	0.85	81.6	401.97	401.97	3.0	1.50	1.50
DI-352 (BMP 3)	0.40	0.03	0.45	93.0	400.11	400.11	3.0	1.66	2.35
CB-364 (BMP 3)	1.16	0.40	1.66	74.1	400.14	400.14	3.0	1.55	3.51
CB-365 (BMP 3)	0.52	0.05	0.54	91.9	400.19	400.19	3.0	0.37	2.55
CB-311 (BMP 3)	3.70	0.00	6.42	100.0	399.73	399.73	3.0	3.91	4.70
CB-312 (BMP 3)	2.75	0.00	2.75	100.0	400.13	400.13	3.0	3.89	3.89
CB-302 (BMP 3)	0.34	0.01	19.20	97.4	390.04	390.04	3.0	3.57	7.23
CB-363 (BMP 3)	1.77	1.03	3.34	63.2	399.95	399.95	3.0	2.58	4.36

25-YR ANALYSIS

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)	1.18	0.42	1.18	73.6	399.43	399.43	3.0	3.17	3.17
CB-362 (BMP 3)	1.54	0.77	4.80	66.7	399.69	399.69	3.0	4.44	5.14
CB-375 (BMP 3)	0.41	0.02	0.41	95.4	397.95	397.95	3.0	2.36	2.36
CB-367 (BMP 3)	2.12	1.50	2.12	58.6	395.76	395.76	3.0	3.80	3.80
CB-361 (BMP 3)	0.95	0.25	26.13	79.0	390.99	390.99	3.0	7.18	6.73
CB-374 (BMP 3)	0.37	0.01	0.77	96.7	397.38	397.38	3.0	3.00	2.81
DI-378 (BMP 3)	1.43	0.60	1.43	70.5	397.92	397.92	3.0	3.22	3.22
DI-360 (BMP 3)	0.49	0.05	0.49	90.4	395.76	395.76	3.0	2.40	2.40
DI-357 (BMP 3)	0.02	0.00	2.53	100.0	390.70	390.70	3.0	5.03	3.81
DI-356 (BMP 3)	0.02	0.00	26.02	100.0	390.78	390.78	3.0	6.75	6.72
CB-368 (BMP 3)	0.84	0.19	18.98	81.9	392.21	392.21	3.0	5.40	6.08
DI-377 (BMP 3)	0.92	0.24	2.33	79.5	394.98	394.98	3.0	2.96	3.72
CB-369 (BMP 3)	2.15	1.54	2.15	58.2	392.23	392.23	3.0	1.96	1.96
CB-373 (BMP 3)	1.27	0.51	1.27	71.6	392.76	392.76	3.0	2.63	2.63
CB-372 (BMP 3)	1.10	0.36	3.08	75.3	392.75	392.75	3.0	1.36	3.79
DI-358 (BMP 3)	0.71	0.13	2.53	84.3	391.35	391.35	3.0	4.48	3.81

25-YR ANALYSIS

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)
DCB-370 (BMP 3)	2.75	0.00	16.37	100.0	392.59	392.59	6.0	3.84	5.52
DCB-371 (BMP 3)	4.83	0.00	10.86	100.0	392.43	392.43	6.0	5.24	5.62
DI-359 (BMP 3)	1.45	0.62	1.88	70.2	392.40	392.40	3.0	1.79	3.49
DI-351 (BMP 3)	0.01	0.00	28.98	100.0	386.63	386.63	3.0	0.98	7.04
DI-376 (BMP 3)	4.30	0.00	6.40	100.0	394.47	394.47	3.0	2.32	4.90
CB-314 (BMP 3)	2.11	1.49	2.11	58.6	390.83	390.83	3.0	3.44	3.44
CB-313 (BMP 3)	1.42	0.65	3.52	68.8	390.81	390.81	3.0	2.50	4.16
DI-355 (BMP 3)	0.59	0.08	28.78	87.6	390.51	390.51	3.0	6.40	6.74
DI-301 (BMP 3)	0.02	0.00	18.99	100.0	388.07	388.07	3.0	8.26	7.19
DI-354 (BMP 3)	0.01	0.00	28.53	100.0	389.92	389.92	3.0	7.48	7.45
DI-379 (BMP 3)	0.03	0.00	0.70	100.0	389.48	389.48	3.0	6.29	2.65
DI-380 (BMP 3)	0.24	0.00	0.24	100.0	400.31	400.31	3.0	2.00	2.00

25-YR ANALYSIS

Conduit Results - Time: 0.00 hours

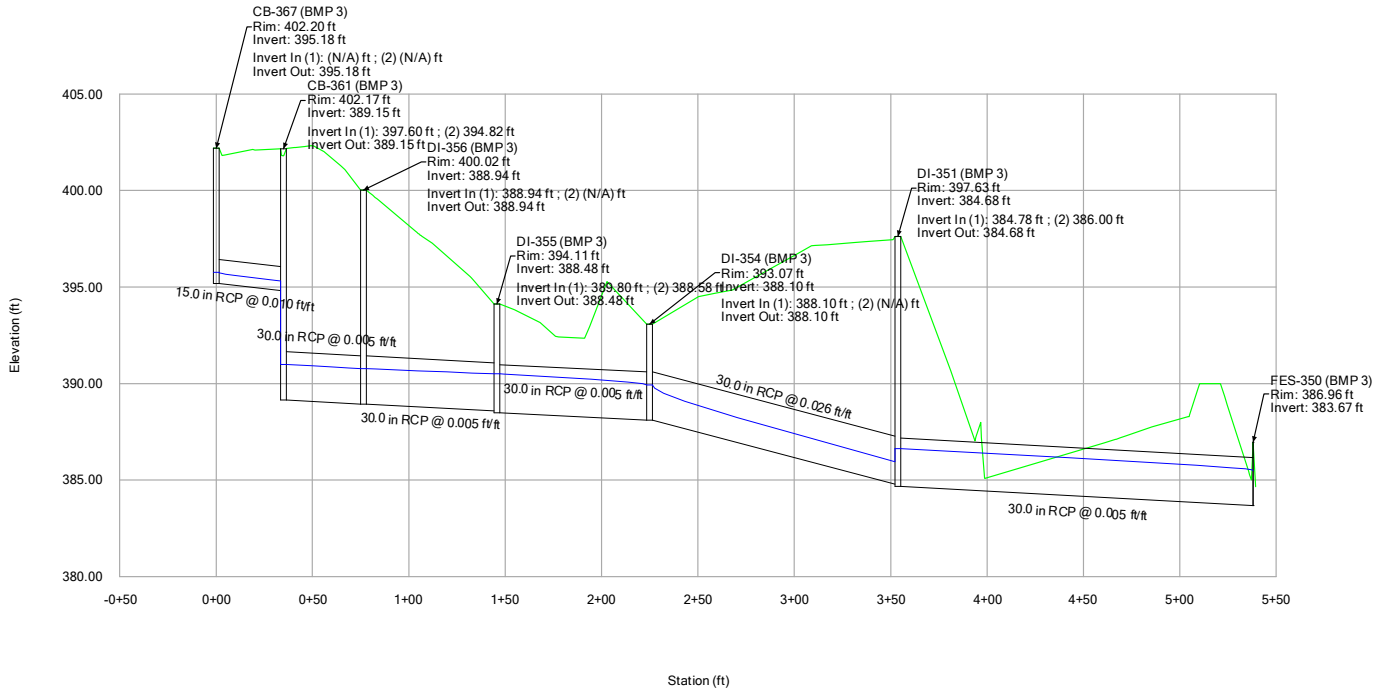
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
CB-365 TO CB-366 (BMP 3)	15.0	0.040	1.30	0.37	0.04	12.92	403.83	400.19
CB-309 TO CB-310 (BMP 3)	24.0	0.008	4.75	4.70	6.65	20.37	399.02	398.42
CB-305 TO CB-309 (BMP 3)	24.0	0.005	4.16	2.85	6.72	16.06	398.42	398.41
CB-305 TO CB-306 (BMP 3)	18.0	0.005	5.51	6.35	9.61	7.43	401.24	400.82
CB-304 TO CB-305 (BMP 3)	24.0	0.020	6.44	6.41	15.19	31.97	398.41	397.41
CB-306 TO CB-307 (BMP 3)	18.0	0.014	6.25	5.98	9.33	12.55	401.98	401.24
CB-310 TO CB-311 (BMP 3)	24.0	0.005	4.70	4.81	6.42	15.98	399.73	399.09
CB-302 TO CB-304 (BMP 3)	24.0	0.020	6.47	9.70	15.33	32.04	397.41	395.59
DI-352 TO DI-353 (BMP 3)	18.0	0.009	1.46	1.66	0.07	10.06	401.19	400.15
CB-307 TO CB-308 (BMP 3)	18.0	0.012	1.50	0.69	0.85	11.64	401.97	401.98
DI-351 TO DI-352 (BMP 3)	18.0	0.087	2.35	6.29	0.45	31.04	400.11	389.49
CB-364 TO CB-365 (BMP 3)	15.0	0.006	2.55	1.55	0.54	4.93	400.19	400.14
CB-363 TO CB-364 (BMP 3)	15.0	0.008	3.51	2.58	1.66	5.62	400.14	399.95
CB-311 TO CB-312 (BMP 3)	18.0	0.005	3.89	3.91	2.75	7.43	400.13	399.96
CB-302 TO CB-303 (BMP 3)	15.0	0.008	3.17	3.76	1.18	5.93	399.43	399.08
CB-302 TO CB-313 (BMP 3)	15.0	0.005	4.16	3.57	3.52	4.64	390.81	390.04
DI-301 TO CB-302 (BMP 3)	24.0	0.011	7.23	8.26	19.20	23.22	390.04	387.89
CB-362 TO CB-363 (BMP 3)	15.0	0.006	4.36	4.44	3.34	4.99	399.95	399.74
CB-361 TO CB-362 (BMP 3)	15.0	0.013	5.14	6.35	4.80	7.30	399.69	398.34
CB-374 TO CB-375 (BMP 3)	15.0	0.011	2.36	3.00	0.41	6.65	397.95	397.45
CB-361 TO CB-367 (BMP 3)	15.0	0.010	3.80	4.75	2.12	6.53	395.76	395.31
CB-361 TO CB-368 (BMP 3)	24.0	0.005	6.08	7.18	18.98	16.00	392.21	391.22
DI-356 TO CB-361 (BMP 3)	30.0	0.005	6.73	6.75	26.13	29.22	390.99	390.78
CB-372 TO CB-374 (BMP 3)	15.0	0.040	2.81	1.36	0.77	12.90	397.38	392.75
DI-377 TO DI-378 (BMP 3)	18.0	0.028	3.22	2.96	1.43	17.42	397.92	394.98
DI-359 TO DI-360 (BMP 3)	18.0	0.020	2.40	1.79	0.49	14.67	395.76	392.40
DI-355 TO DI-357 (BMP 3)	18.0	0.010	3.81	3.06	2.53	10.52	390.70	390.51
DI-357 TO DI-358 (BMP 3)	18.0	0.011	3.81	5.03	2.53	10.92	391.35	390.69
DI-355 TO DI-356 (BMP 3)	30.0	0.005	6.72	6.40	26.02	29.55	390.78	390.51
CB-368 TO CB-369 (BMP 3)	15.0	0.005	1.96	1.77	2.15	4.57	392.23	392.21

25-YR ANALYSIS

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-368 TO DCB-370 (BMP 3)	24.0	0.005	5.52	5.40	16.37	16.00	392.59	392.21
DI-376 TO DI-377 (BMP 3)	18.0	0.005	3.72	2.32	2.33	7.45	394.98	394.47
CB-372 TO CB-373 (BMP 3)	15.0	0.005	2.63	1.85	1.27	4.57	392.76	392.75
DCB-370 TO CB-372 (BMP 3)	15.0	0.005	3.79	2.83	3.08	4.57	392.75	392.59
DI-358 TO DI-359 (BMP 3)	18.0	0.010	3.49	4.48	1.88	10.44	392.40	391.28
DCB-370 TO DCB-371 (BMP 3)	24.0	0.010	5.62	3.84	10.86	22.62	392.43	392.59
DCB-371 TO DI-376 (BMP 3)	18.0	0.005	4.90	5.24	6.40	7.76	394.47	393.78
DI-351 TO DI-354 (BMP 3)	30.0	0.026	7.45	7.31	28.53	65.85	389.92	386.63
FES-350 TO DI-351 (BMP 3)	30.0	0.005	7.04	7.50	28.98	30.35	386.63	385.51
CB-313 TO CB-314 (BMP 3)	15.0	0.006	3.44	2.50	2.11	4.87	390.83	390.81
DI-354 TO DI-355 (BMP 3)	30.0	0.005	6.74	7.48	28.78	28.41	390.51	389.93
FES-300 TO DI-301 (BMP 3)	24.0	0.020	7.19	10.64	18.99	32.08	388.07	384.77
Pipe - (336) (BMP 3)	18.0	0.016	2.00	2.91	0.24	13.38	400.31	398.44
Pipe - (337) (BMP 3)	18.0	0.087	2.65	0.98	0.70	31.06	389.48	386.63

25-YR ANALYSIS



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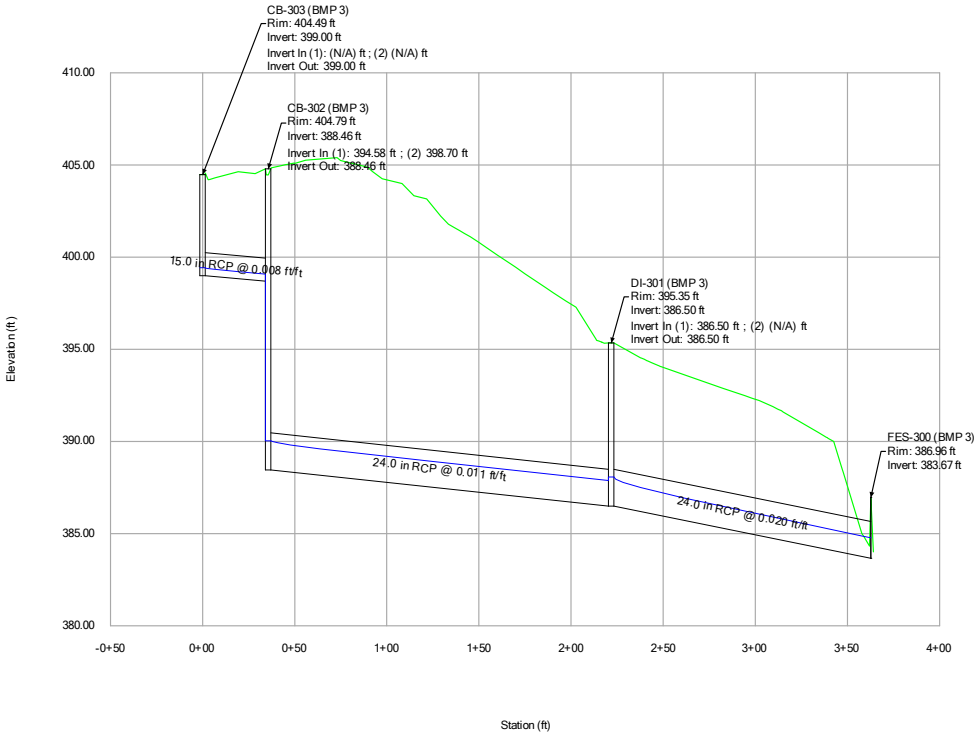

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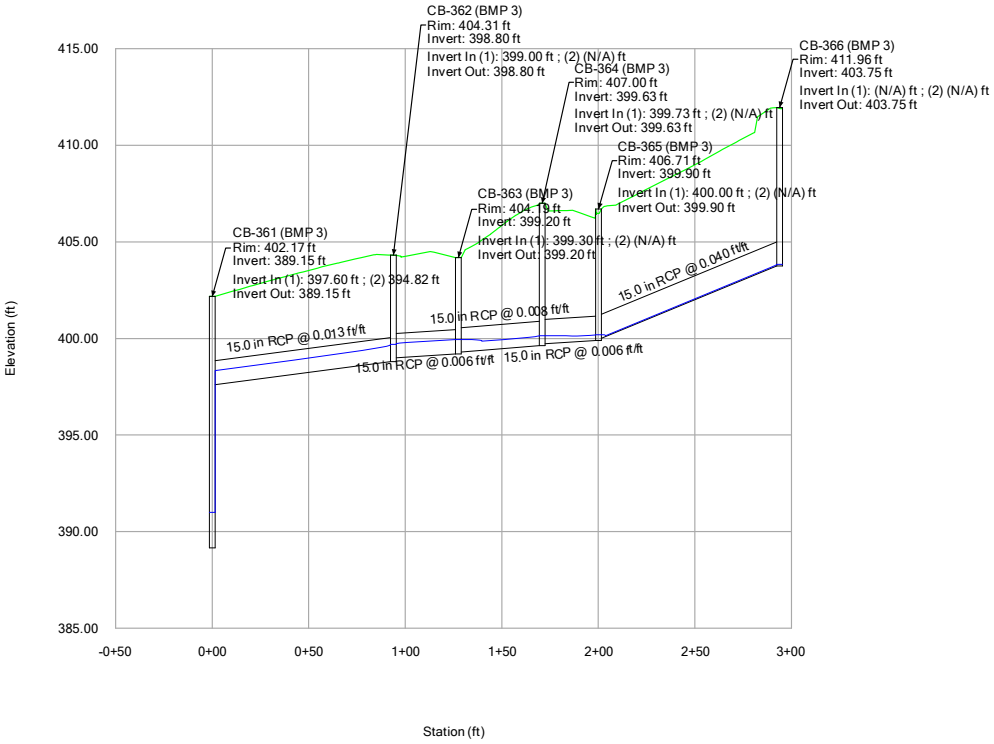

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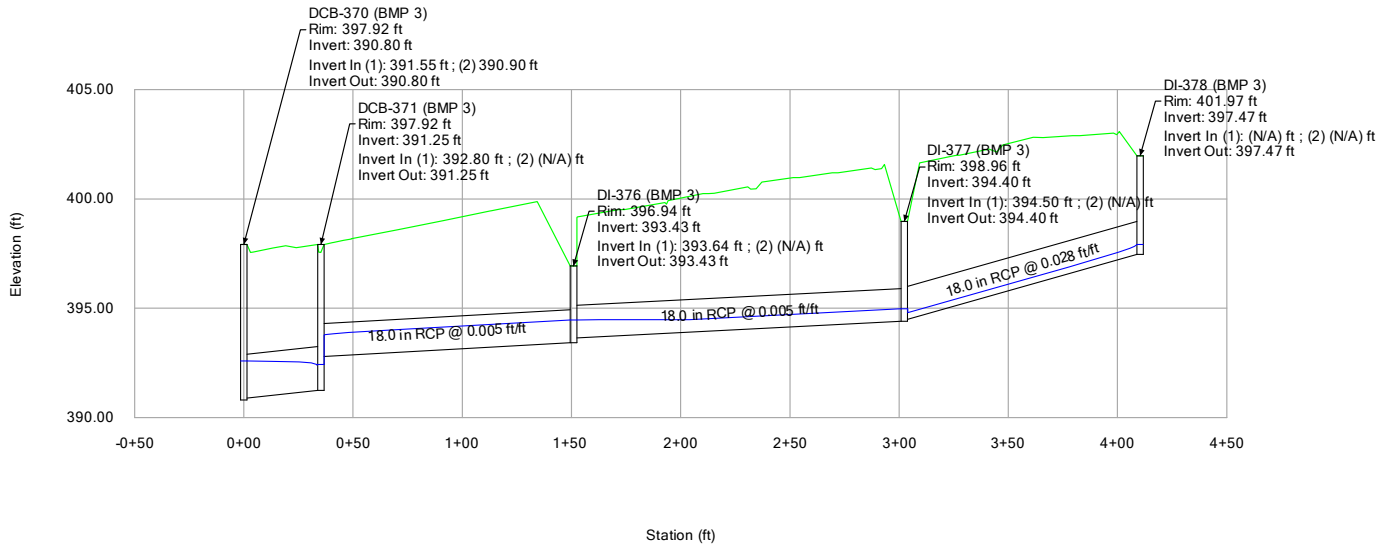

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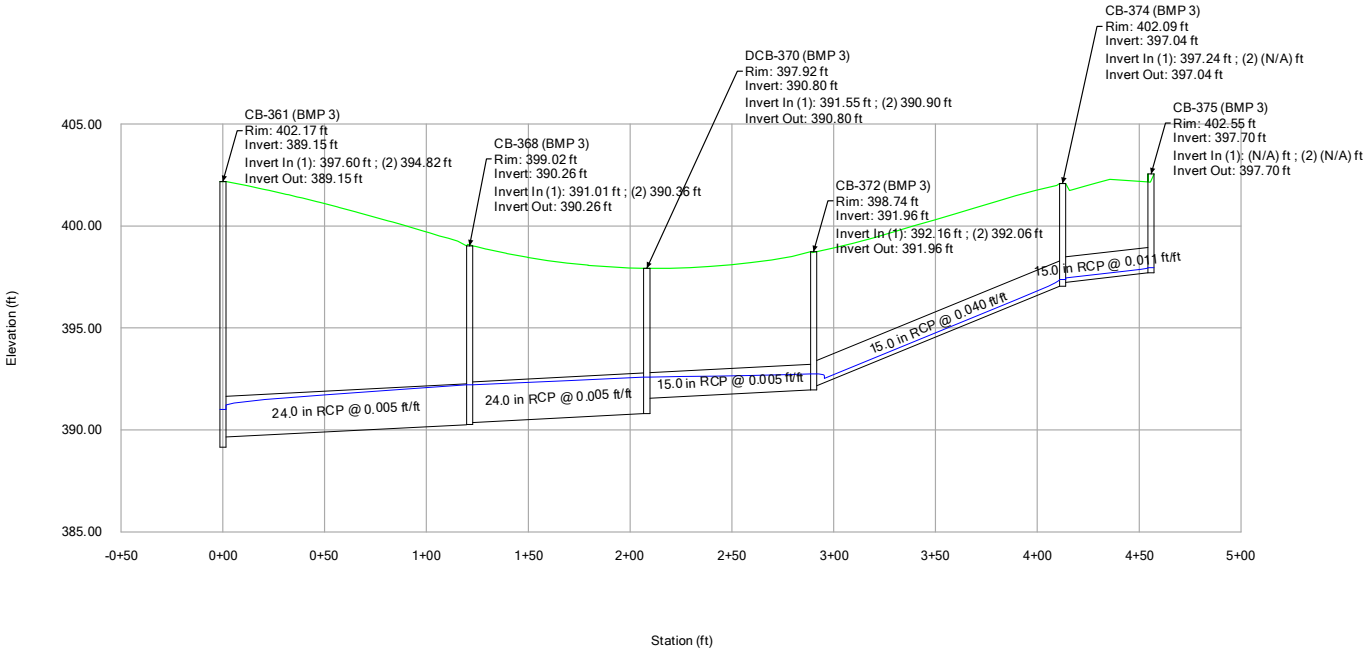

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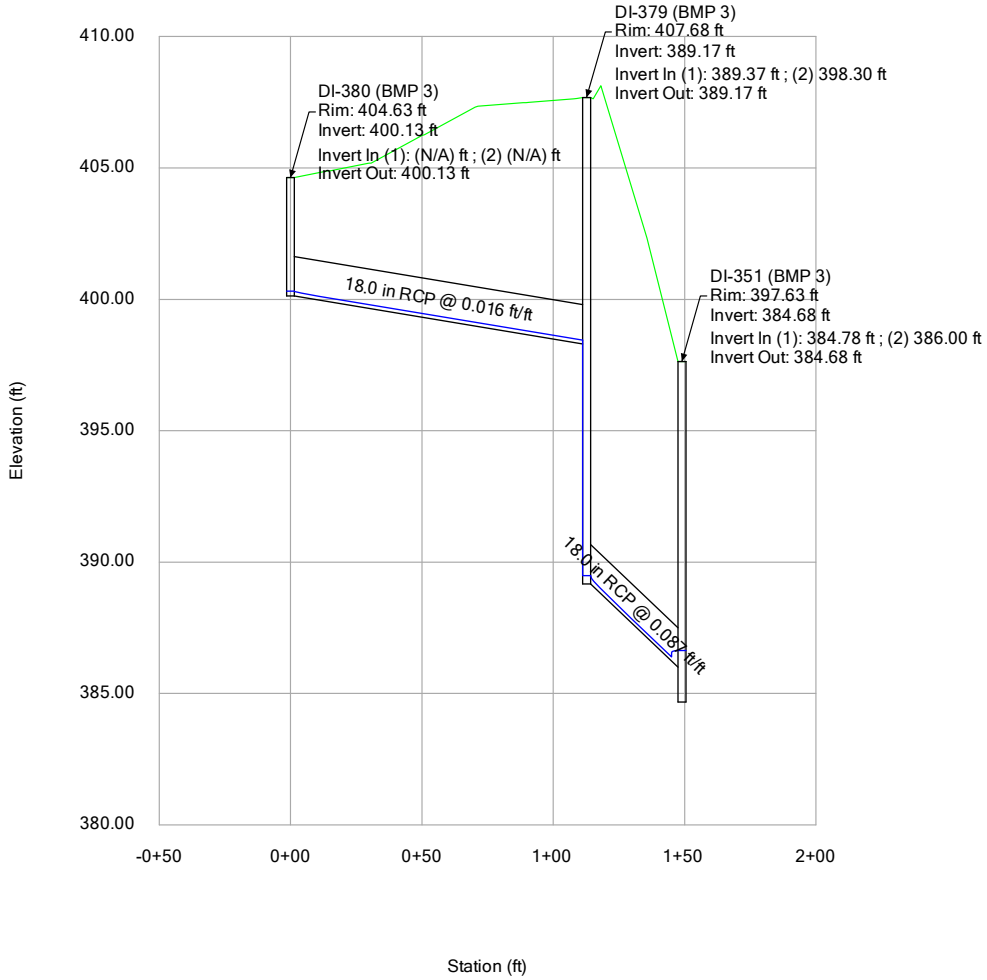

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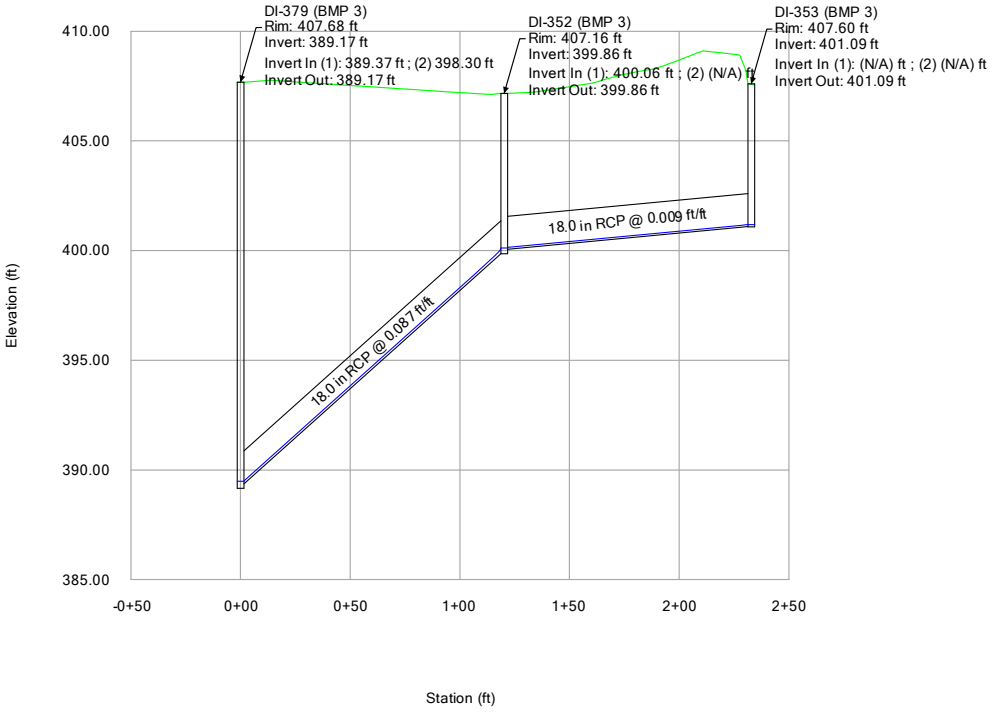

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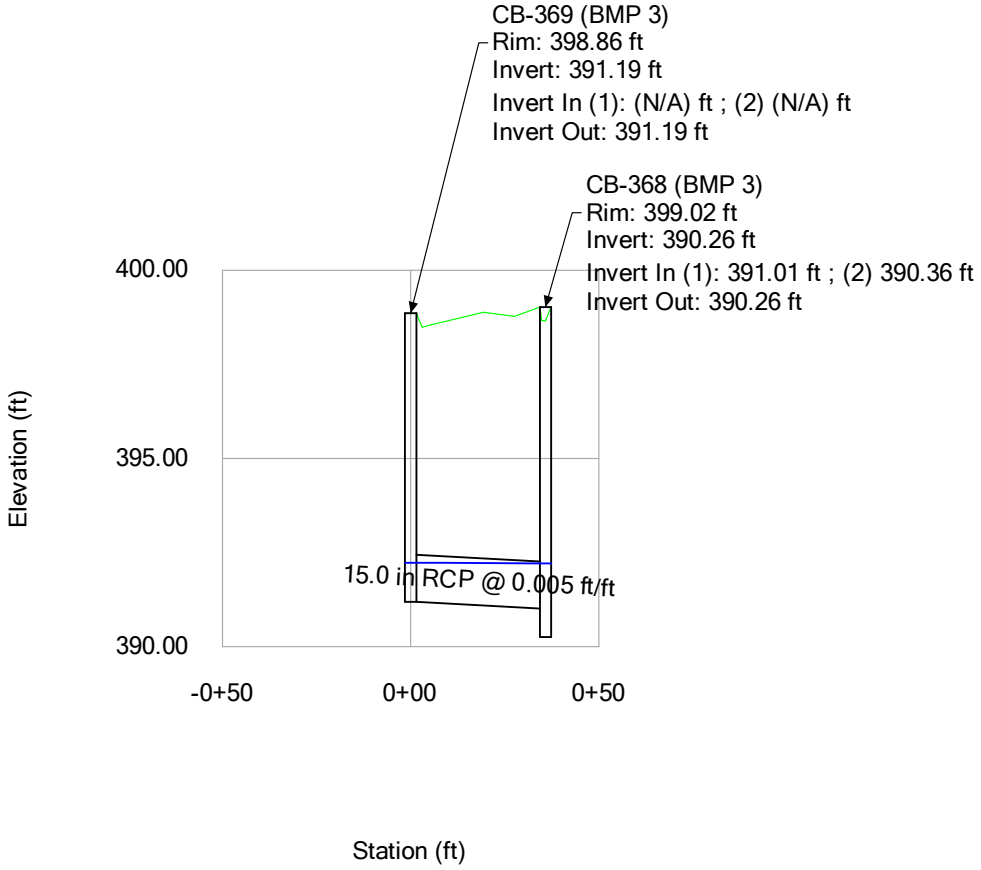

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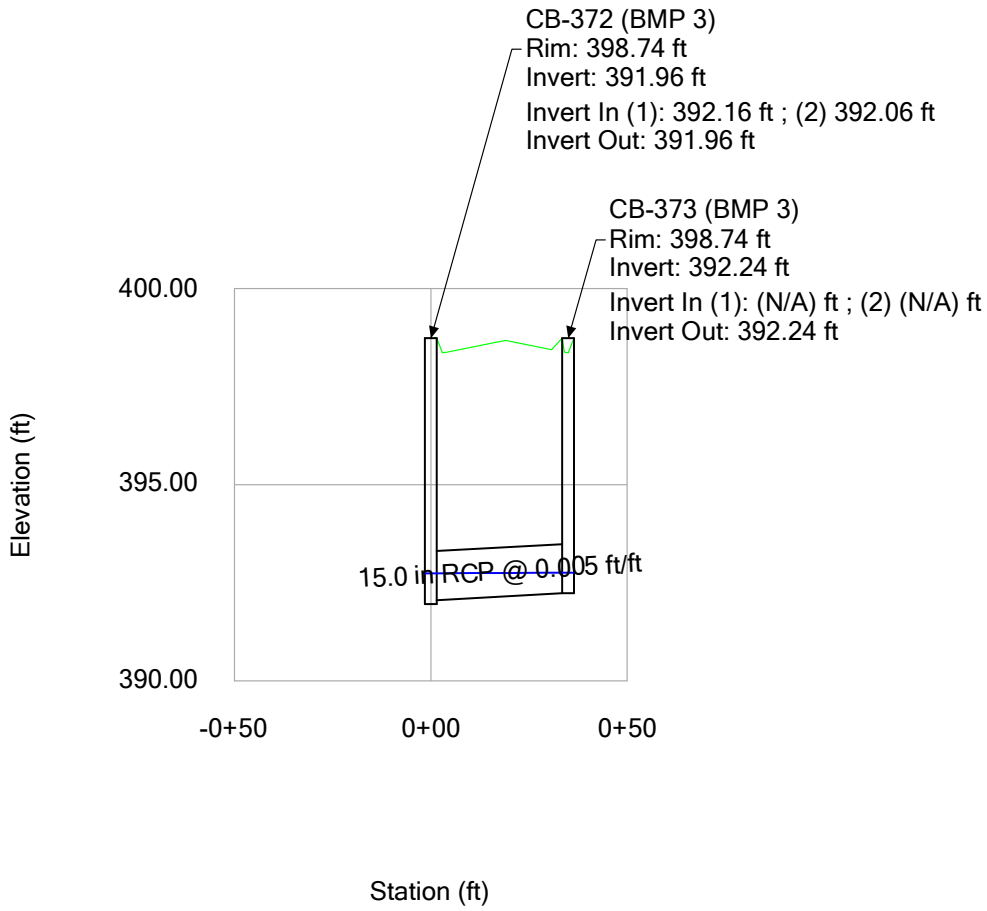

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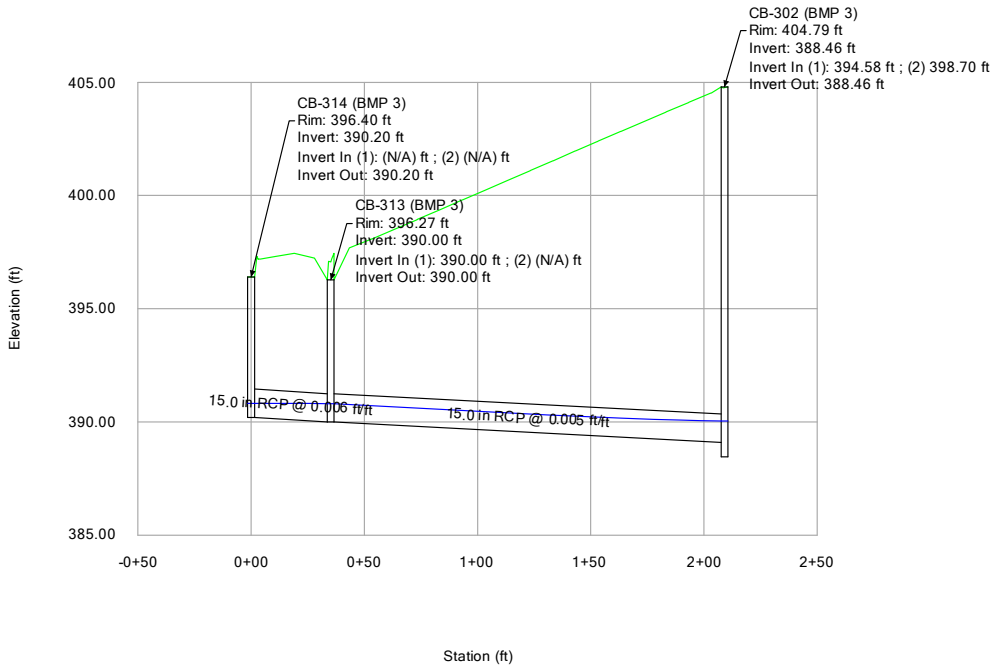

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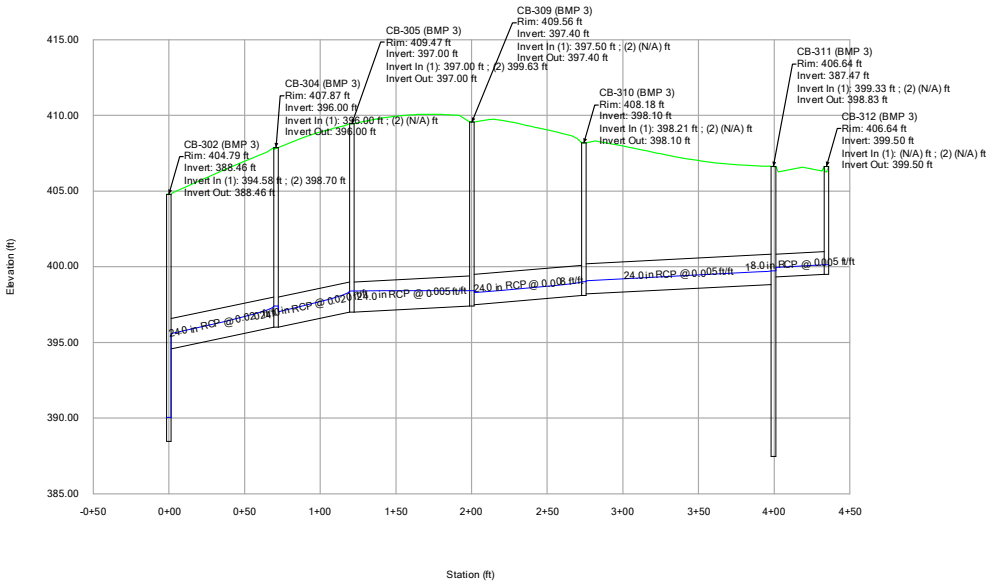

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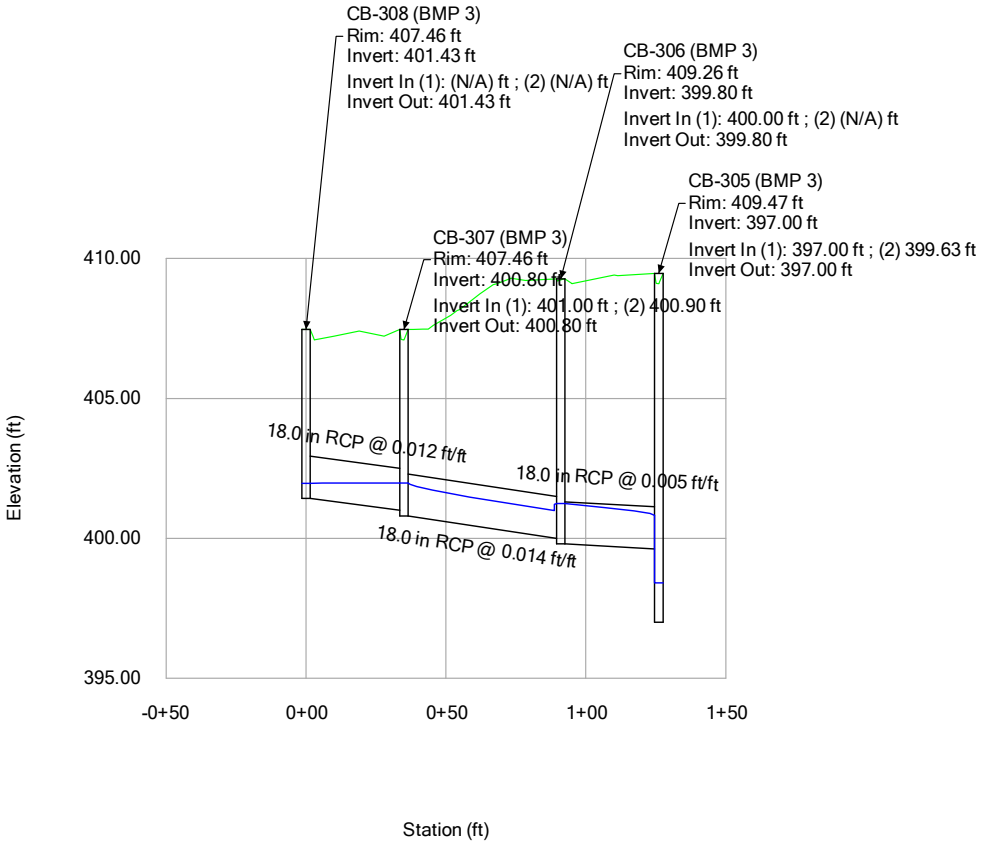


SCM 3 – INLET SPREAD

INLET SPREAD - 4IN/HR

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)
DI-376 (BMP 3)	0.823	0.535	2.16	0.00	3.51	11.7	2.8
CB-311 (BMP 3)	0.595	0.458	1.85	0.00	3.23	10.7	3.1
CB-312 (BMP 3)	0.646	0.342	1.38	0.00	1.38	9.0	2.6
DCB-371 (BMP 3)	0.450	0.475	1.91	0.00	5.42	7.7	3.3
DCB-370 (BMP 3)	0.355	0.299	1.21	0.00	8.42	5.7	2.9
CB-369 (BMP 3)	0.349	0.280	1.13	0.38	1.13	6.4	2.0
CB-314 (BMP 3)	0.514	0.301	1.21	0.45	1.21	6.6	2.1
CB-367 (BMP 3)	0.417	0.289	1.17	0.41	1.17	6.5	2.0
CB-363 (BMP 3)	0.308	0.248	1.00	0.29	1.98	5.9	1.9
DI-359 (BMP 3)	0.396	0.209	0.84	0.19	1.11	5.9	1.4
DI-378 (BMP 3)	0.328	0.206	0.83	0.19	0.83	5.9	1.4
CB-362 (BMP 3)	0.373	0.229	0.92	0.24	2.90	5.7	1.8
CB-313 (BMP 3)	0.333	0.209	0.84	0.19	2.06	5.4	1.8
CB-373 (BMP 3)	0.284	0.185	0.75	0.14	0.75	5.0	1.7
CB-364 (BMP 3)	0.243	0.168	0.68	0.10	0.98	4.7	1.6
CB-303 (BMP 3)	0.164	0.145	0.59	0.07	0.59	4.3	1.5

INLET SPREAD - 4IN/HR

Inlet Spread - Time: 0.00 hours

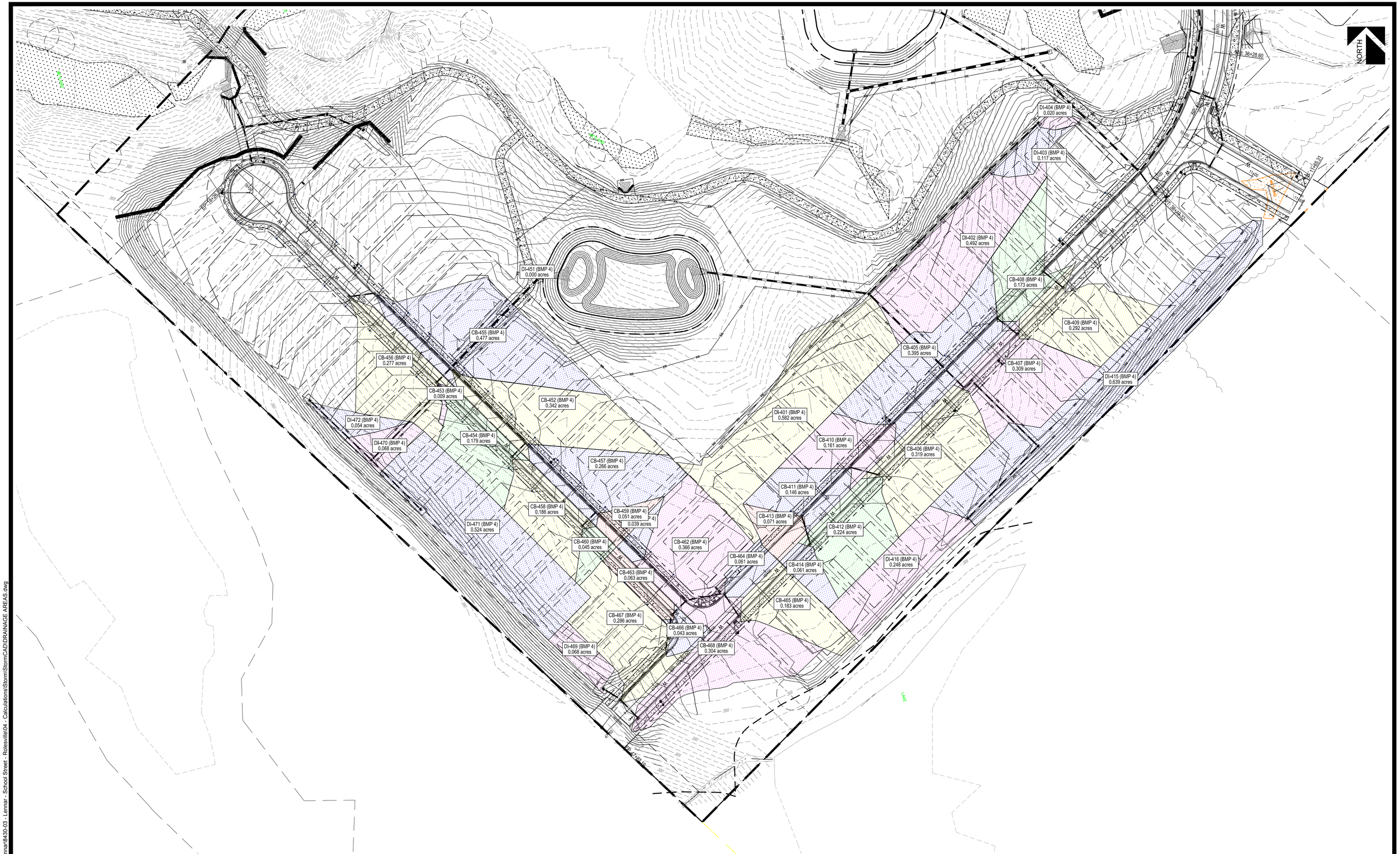
Label	Inlet Drainage Area (acres)	Intercepted CA (acres)	Flow (Captured) (cfs)	Flow (Total Bypassed) (cfs)	Flow (Total Out) (cfs)	Spread / Top Width (ft)	Depth (Gutter) (in)
CB-372 (BMP 3)	0.235	0.159	0.64	0.09	1.79	4.6	1.6
DI-377 (BMP 3)	0.221	0.129	0.52	0.06	1.35	4.8	1.1
CB-361 (BMP 3)	0.065	0.106	0.43	0.02	14.44	3.6	1.3
DI-358 (BMP 3)	0.162	0.098	0.40	0.03	1.50	4.2	1.0
CB-308 (BMP 3)	0.100	0.102	0.41	0.02	0.41	3.5	1.3
CB-368 (BMP 3)	0.107	0.098	0.39	0.02	9.94	3.4	1.3
CB-307 (BMP 3)	0.118	0.108	0.43	0.02	6.42	3.6	1.3
DI-355 (BMP 3)	0.152	0.080	0.32	0.02	16.27	3.9	0.9
DI-360 (BMP 3)	0.103	0.065	0.26	0.01	0.26	3.6	0.9
DI-352 (BMP 3)	0.082	0.053	0.21	0.00	0.25	3.3	0.8
CB-365 (BMP 3)	0.087	0.069	0.28	0.00	0.30	2.7	1.1
CB-375 (BMP 3)	0.063	0.053	0.21	0.00	0.21	2.3	1.0
CB-306 (BMP 3)	0.055	0.052	0.21	0.00	6.63	2.3	1.0
CB-374 (BMP 3)	0.056	0.047	0.19	0.00	0.41	2.1	1.0
CB-310 (BMP 3)	0.048	0.046	0.19	0.00	3.41	2.1	1.0
CB-302 (BMP 3)	0.046	0.044	0.18	0.00	13.17	2.0	1.0

INLET SPREAD - 4IN/HR

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-305 (BMP 3)	0.033	0.032	0.13	0.00	10.23	1.8	0.8
DI-380 (BMP 3)	0.047	0.030	0.12	0.00	0.12	1.7	0.8
CB-304 (BMP 3)	0.030	0.028	0.11	0.00	10.35	1.7	0.8
DI-353 (BMP 3)	0.018	0.009	0.04	0.00	0.04	1.7	0.4
CB-309 (BMP 3)	0.017	0.016	0.06	0.00	3.48	1.4	0.7
DI-301 (BMP 3)	0.003	0.003	0.01	0.00	13.18	1.1	0.3
DI-356 (BMP 3)	0.002	0.002	0.01	0.00	14.44	0.9	0.2
DI-357 (BMP 3)	0.003	0.002	0.01	0.00	1.51	0.9	0.2
CB-366 (BMP 3)	0.006	0.005	0.02	0.00	0.02	0.9	0.4
DI-379 (BMP 3)	0.005	0.003	0.01	0.00	0.38	0.8	0.4
DI-351 (BMP 3)	0.002	0.001	0.00	0.00	16.66	0.7	0.2
DI-354 (BMP 3)	0.002	0.001	0.00	0.00	16.28	0.7	0.2

ATTACHMENT 4: DRAINAGE AREA MAPS – SCM 4



BGE
5440 WADE PARK BLVD, SUITE 102
RALEIGH NC 27607
www.bgeinc.com
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SCM 4 DRAINAGE MAP

DATE: 7/27/2023

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

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SCM 4 – 10 YR STORM

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-463 (BMP 4)	0.063	0.41	0.083	0.900
CB-466 (BMP 4)	0.043	0.28	0.083	0.900
CB-407 (BMP 4)	0.309	1.72	0.083	0.770
CB-406 (BMP 4)	0.319	1.78	0.083	0.770
CB-412 (BMP 4)	0.224	1.25	0.083	0.770
CB-409 (BMP 4)	0.292	1.63	0.083	0.770
CB-408 (BMP 4)	0.173	0.97	0.083	0.770
CB-405 (BMP 4)	0.395	2.21	0.083	0.770
CB-414 (BMP 4)	0.061	0.34	0.083	0.770
CB-465 (BMP 4)	0.183	1.02	0.083	0.770
CB-410 (BMP 4)	0.161	0.90	0.083	0.770
CB-411 (BMP 4)	0.146	0.81	0.083	0.770
CB-413 (BMP 4)	0.071	0.40	0.083	0.770
CB-464 (BMP 4)	0.061	0.34	0.083	0.770
CB-462 (BMP 4)	0.366	2.04	0.083	0.770
CB-467 (BMP 4)	0.286	1.60	0.083	0.770

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-461 (BMP 4)	0.039	0.22	0.083	0.770
CB-460 (BMP 4)	0.045	0.25	0.083	0.770
CB-459 (BMP 4)	0.051	0.28	0.083	0.770
CB-458 (BMP 4)	0.186	1.04	0.083	0.770
CB-457 (BMP 4)	0.266	1.48	0.083	0.770
CB-454 (BMP 4)	0.179	1.00	0.083	0.770
CB-456 (BMP 4)	0.277	1.55	0.083	0.770
CB-453 (BMP 4)	0.009	0.05	0.083	0.770
CB-452 (BMP 4)	0.342	1.91	0.083	0.770
CB-455 (BMP 4)	0.477	2.66	0.083	0.770
DI-471 (BMP 4)	0.524	2.73	0.083	0.720
CB-468 (BMP 4)	0.304	1.54	0.083	0.700
DI-415 (BMP 4)	0.639	3.01	0.083	0.650
DI-416 (BMP 4)	0.248	1.17	0.083	0.650
DI-403 (BMP 4)	0.117	0.55	0.083	0.650
DI-402 (BMP 4)	0.492	2.32	0.083	0.650

10-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-401 (BMP 4)	0.582	2.74	0.083	0.650
DI-469 (BMP 4)	0.068	0.32	0.083	0.650
DI-470 (BMP 4)	0.068	0.32	0.083	0.650
DI-472 (BMP 4)	0.054	0.26	0.083	0.650
DI-404 (BMP 4)	0.020	0.09	0.083	0.600
DI-451 (BMP 4)	0.000	0.00	0.083	0.350

10-YR ANALYSIS

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)	0.09	0.00	0.09	100.0	397.43	397.43	3.0	1.54	1.54
CB-414 (BMP 4)	0.33	0.01	0.33	97.7	391.22	391.22	3.0	2.23	2.23
CB-413 (BMP 4)	0.38	0.01	0.71	96.3	388.33	388.33	3.0	1.29	2.75
CB-461 (BMP 4)	0.22	0.00	6.51	99.9	385.65	385.65	3.0	5.17	4.74
CB-460 (BMP 4)	0.25	0.00	0.25	99.5	391.88	391.88	3.0	1.99	1.99
CB-459 (BMP 4)	0.28	0.00	6.93	98.9	385.11	385.11	3.0	5.28	5.28
CB-464 (BMP 4)	0.33	0.01	1.16	97.7	390.43	390.43	3.0	3.71	3.16
CB-465 (BMP 4)	0.84	0.18	0.84	81.9	392.11	392.11	3.0	2.88	2.88
DI-403 (BMP 4)	0.51	0.04	0.58	92.2	393.12	393.12	3.0	3.19	2.52
CB-462 (BMP 4)	1.41	0.63	6.37	69.0	386.14	386.14	3.0	3.81	4.70
CB-463 (BMP 4)	0.39	0.02	3.89	95.9	386.23	386.23	3.0	4.11	3.98
CB-411 (BMP 4)	0.71	0.12	2.36	85.7	387.23	387.23	3.0	1.45	3.85
CB-412 (BMP 4)	0.98	0.27	0.98	78.2	387.39	387.39	3.0	3.01	3.01
DI-416 (BMP 4)	0.93	0.24	0.93	79.5	388.43	388.43	3.0	2.86	2.86
CB-458 (BMP 4)	0.85	0.19	0.85	81.6	388.38	388.38	3.0	2.85	2.85
CB-457 (BMP 4)	1.12	0.37	8.65	75.0	383.84	383.84	3.0	5.42	5.18

10-YR ANALYSIS

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-466 (BMP 4)	0.78	0.16	3.54	83.5	386.46	386.46	3.0	3.82	4.12
CB-410 (BMP 4)	0.84	0.18	3.14	82.0	386.69	386.69	3.0	3.93	4.34
CB-409 (BMP 4)	1.20	0.44	1.20	73.2	391.23	391.23	3.0	3.19	3.19
CB-408 (BMP 4)	0.80	0.16	1.99	83.0	386.72	386.72	3.0	4.02	3.72
DI-415 (BMP 4)	1.86	1.15	2.74	61.9	386.43	386.43	3.0	1.66	3.88
DI-469 (BMP 4)	0.31	0.01	0.31	98.2	389.37	389.37	3.0	2.20	2.20
CB-405 (BMP 4)	1.66	0.90	12.31	64.9	385.10	385.10	3.0	4.31	5.90
CB-406 (BMP 4)	1.74	1.00	5.76	63.5	385.23	385.23	3.0	4.45	4.55
CB-407 (BMP 4)	1.47	0.69	4.09	68.0	385.92	385.92	3.0	3.43	4.31
DI-401 (BMP 4)	1.74	1.00	16.24	63.6	384.23	384.23	3.0	4.63	5.77
CB-467 (BMP 4)	1.26	0.49	2.80	71.9	386.94	386.94	3.0	2.28	4.17
CB-454 (BMP 4)	0.94	0.25	3.06	79.2	383.54	383.54	3.0	2.91	4.00
CB-452 (BMP 4)	1.53	0.75	16.05	67.0	381.35	381.35	3.0	2.01	5.92
DI-402 (BMP 4)	2.01	1.35	2.52	59.9	387.19	387.19	3.0	1.54	3.81
CB-453 (BMP 4)	0.29	0.00	3.33	98.7	383.42	383.42	3.0	4.04	4.15
DI-470 (BMP 4)	0.31	0.01	2.22	98.2	384.08	384.08	3.0	0.61	3.67

10-YR ANALYSIS

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-471 (BMP 4)	1.74	0.99	1.74	63.6	386.32	386.32	3.0	3.57	3.57
CB-468 (BMP 4)	1.25	0.48	1.25	72.2	387.03	387.03	3.0	3.23	3.23
DI-472 (BMP 4)	0.25	0.00	0.25	99.4	384.33	384.33	3.0	1.96	1.96
DI-451 (BMP 4)	0.00	0.00	15.77	100.0	380.25	380.25	3.0	6.57	5.88
CB-455 (BMP 4)	2.04	1.38	3.17	59.6	381.56	381.56	3.0	3.10	4.09
CB-456 (BMP 4)	1.15	0.40	1.15	74.2	381.73	381.73	3.0	3.10	3.10

10-YR ANALYSIS

Conduit Results - Time: 0.00 hours

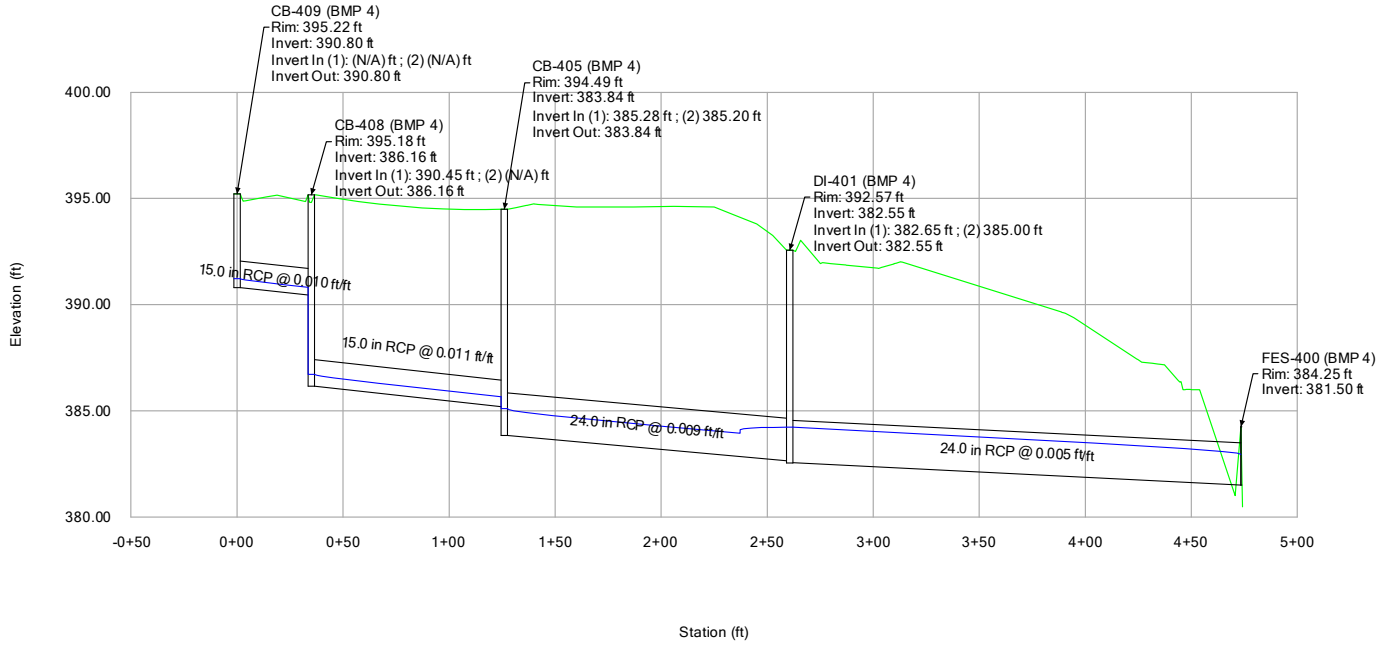
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-403 TO DI-404 (BMP 4)	18.0	-0.051	1.54	3.19	0.09	23.64	397.43	393.11
CB-413 TO CB-414 (BMP 4)	15.0	0.075	2.23	1.29	0.33	17.70	391.22	388.33
CB-411 TO CB-413 (BMP 4)	15.0	0.015	2.75	1.45	0.71	8.03	388.33	387.23
CB-459 TO CB-461 (BMP 4)	18.0	0.005	4.74	5.28	6.51	7.43	385.65	385.16
CB-461 TO CB-462 (BMP 4)	18.0	0.005	4.70	5.17	6.37	7.39	386.14	385.65
CB-459 TO CB-460 (BMP 4)	15.0	0.005	1.99	2.08	0.25	4.57	391.88	391.74
CB-457 TO CB-459 (BMP 4)	18.0	0.006	5.28	5.42	6.93	8.34	385.11	384.31
CB-464 TO CB-465 (BMP 4)	15.0	0.011	2.88	3.71	0.84	6.66	392.11	391.67
CB-462 TO CB-464 (BMP 4)	15.0	0.101	3.16	1.13	1.16	20.56	390.43	386.14
DI-402 TO DI-403 (BMP 4)	18.0	-0.047	2.52	1.54	0.58	22.80	393.12	387.19
CB-462 TO CB-463 (BMP 4)	15.0	0.005	3.98	3.81	3.89	4.57	386.23	386.14
CB-463 TO CB-466 (BMP 4)	15.0	0.005	4.12	4.11	3.54	4.58	386.46	386.23
CB-411 TO CB-412 (BMP 4)	15.0	0.007	3.01	2.00	0.98	5.57	387.39	387.23
CB-410 TO CB-411 (BMP 4)	15.0	0.005	3.85	3.93	2.36	4.71	387.23	386.79
DI-415 TO DI-416 (BMP 4)	18.0	0.017	2.86	1.66	0.93	13.77	388.43	386.43
CB-457 TO CB-458 (BMP 4)	15.0	0.005	2.85	2.89	0.85	4.57	388.38	388.24
CB-452 TO CB-457 (BMP 4)	24.0	0.006	5.18	5.41	8.65	16.87	383.84	383.07
CB-466 TO CB-467 (BMP 4)	15.0	0.006	4.17	3.82	2.80	5.20	386.94	386.46
CB-405 TO CB-410 (BMP 4)	15.0	0.007	4.34	4.69	3.14	5.59	386.69	385.95
CB-405 TO CB-408 (BMP 4)	15.0	0.011	3.72	4.72	1.99	6.64	386.72	385.67
CB-407 TO DI-415 (BMP 4)	18.0	0.005	3.88	3.43	2.74	7.42	386.43	385.92
CB-467 TO DI-469 (BMP 4)	15.0	0.070	2.20	5.34	0.31	17.05	389.37	387.62
CB-405 TO CB-406 (BMP 4)	18.0	0.005	4.55	4.31	5.76	7.43	385.23	385.10
DI-401 TO CB-405 (BMP 4)	24.0	0.009	5.90	4.63	12.31	21.27	385.10	384.23
CB-406 TO CB-407 (BMP 4)	18.0	0.005	4.31	4.45	4.09	7.43	385.92	385.83
FES-400 TO DI-401 (BMP 4)	24.0	0.005	5.77	6.64	16.24	15.89	384.23	382.95
DI-401 TO DI-402 (BMP 4)	18.0	-0.018	3.81	6.01	2.52	14.02	387.19	385.43
CB-467 TO CB-468 (BMP 4)	15.0	0.006	3.23	2.28	1.25	5.06	387.03	386.94
CB-454 TO DI-470 (BMP 4)	18.0	0.005	3.67	2.91	2.22	7.56	384.08	383.54
CB-453 TO CB-454 (BMP 4)	18.0	0.005	4.00	4.04	3.06	7.44	383.54	383.49

10-YR ANALYSIS

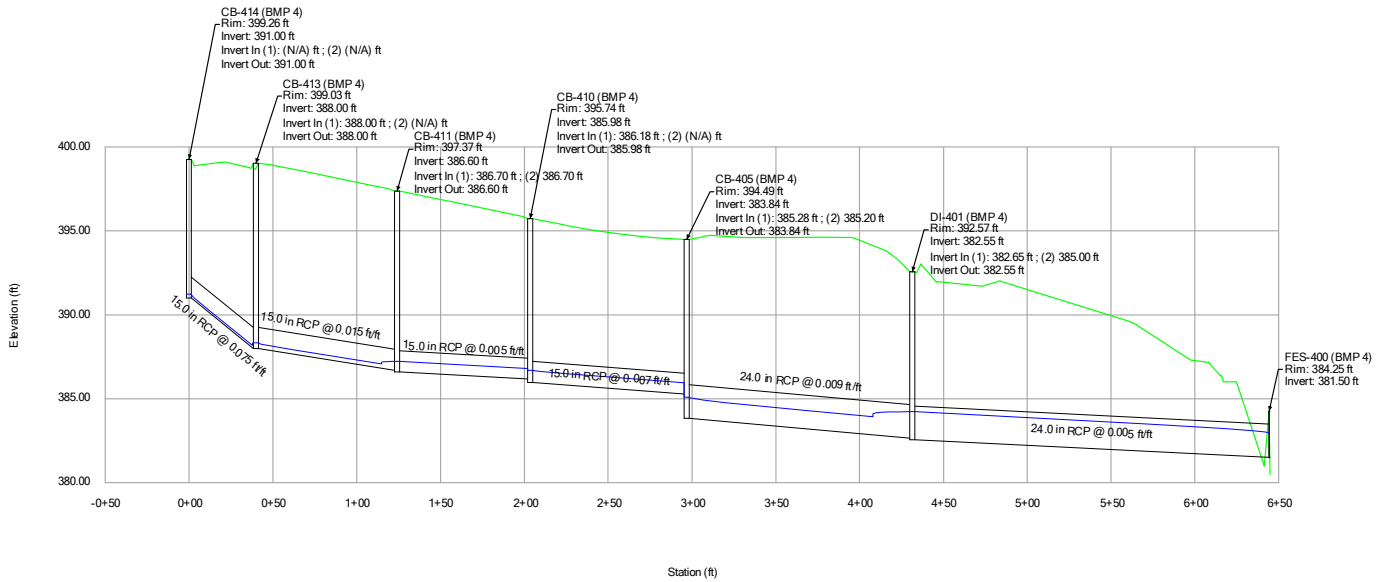
Conduit Results - Time: 0.00 hours

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-452 TO CB-455 (BMP 4)	18.0	0.006	4.09	2.01	3.17	8.03	381.56	381.35
CB-452 TO CB-453 (BMP 4)	18.0	0.008	4.15	4.87	3.33	9.48	383.42	383.12
DI-451 TO CB-452 (BMP 4)	30.0	0.006	5.92	6.57	16.05	32.31	381.35	380.26
DI-470 TO DI-471 (BMP 4)	15.0	0.018	3.57	5.48	1.74	8.57	386.32	384.65
DI-470 TO DI-472 (BMP 4)	15.0	0.005	1.96	0.61	0.25	4.43	384.33	384.08
FES-450 TO DI-451 (BMP 4)	30.0	0.009	5.88	6.99	15.77	38.88	380.25	379.89
CB-455 TO CB-456 (BMP 4)	15.0	0.005	3.10	3.10	1.15	4.57	381.73	381.56
CB-408 TO CB-409 (BMP 4)	15.0	0.010	3.19	4.02	1.20	6.46	391.23	390.81

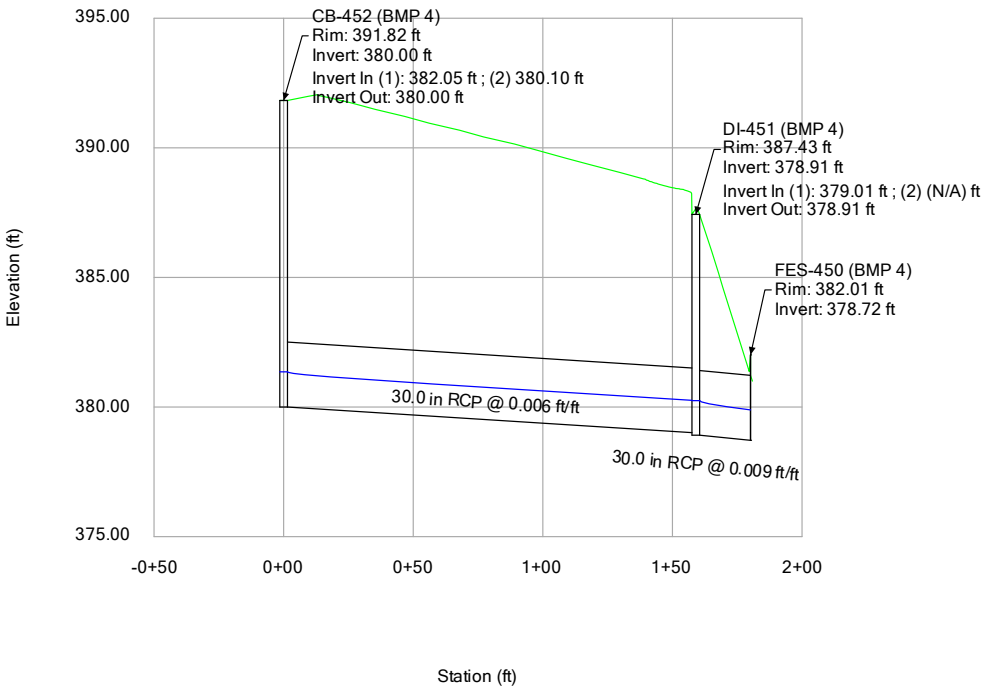
10-YR ANALYSIS



10-YR ANALYSIS



10-YR ANALYSIS



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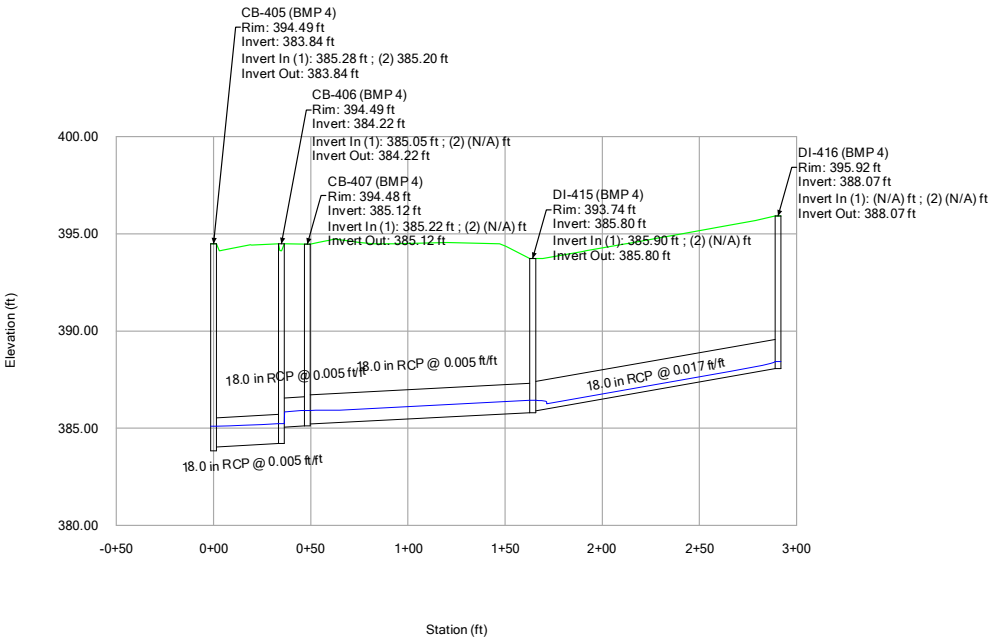
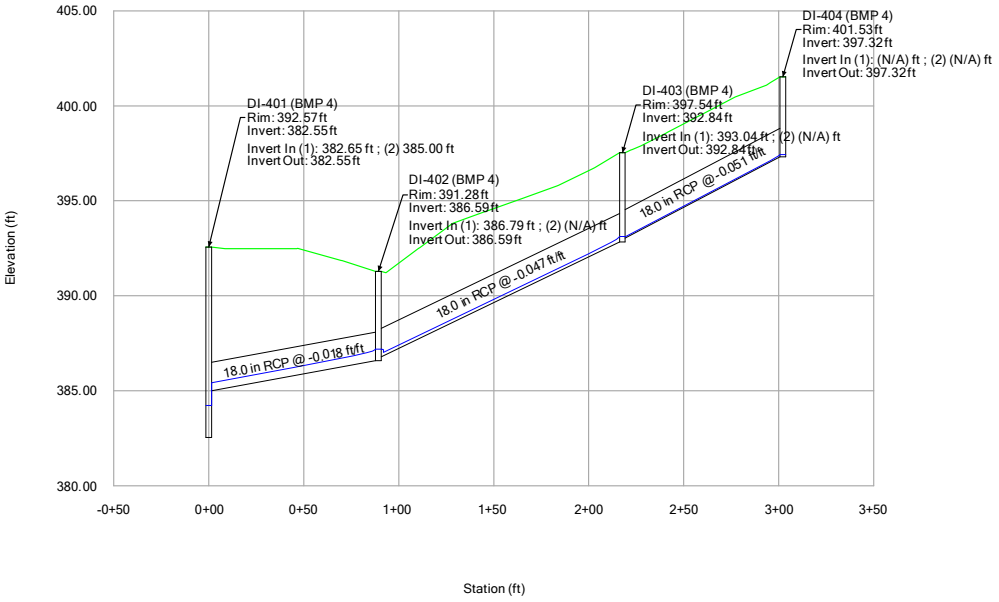
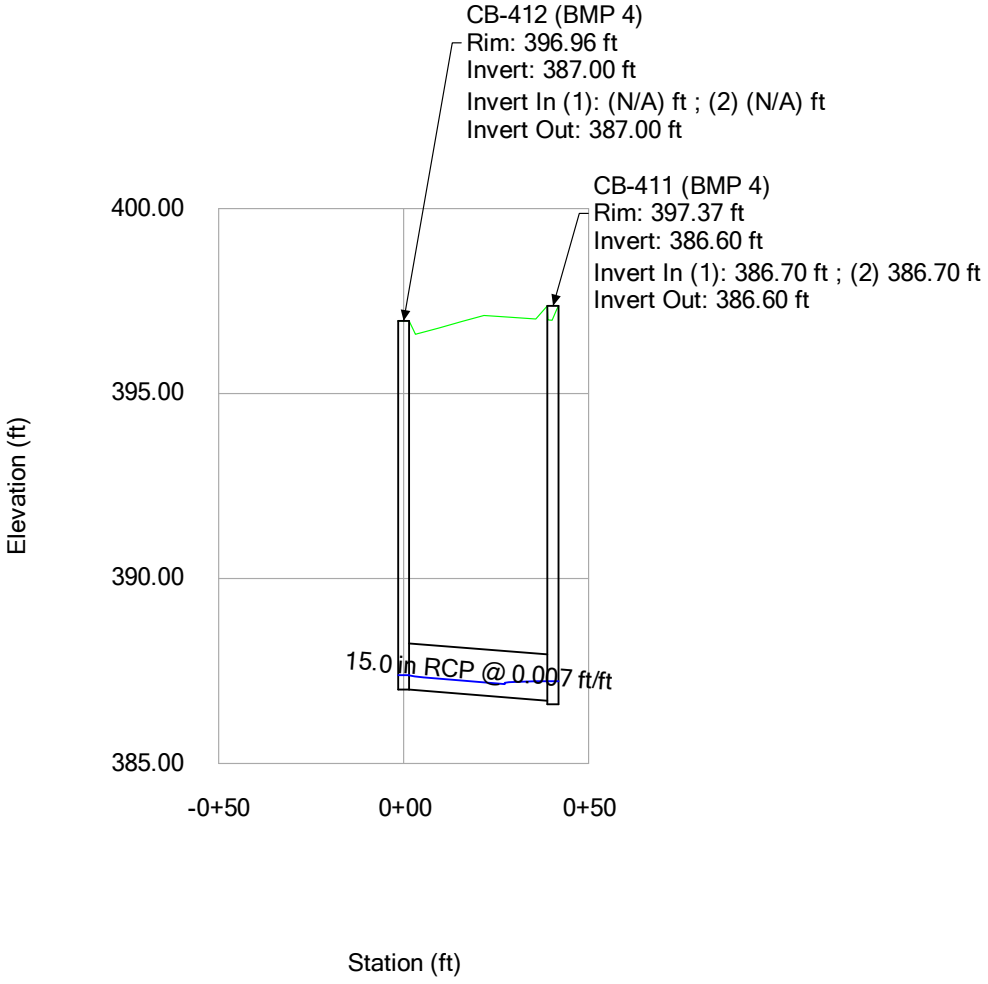


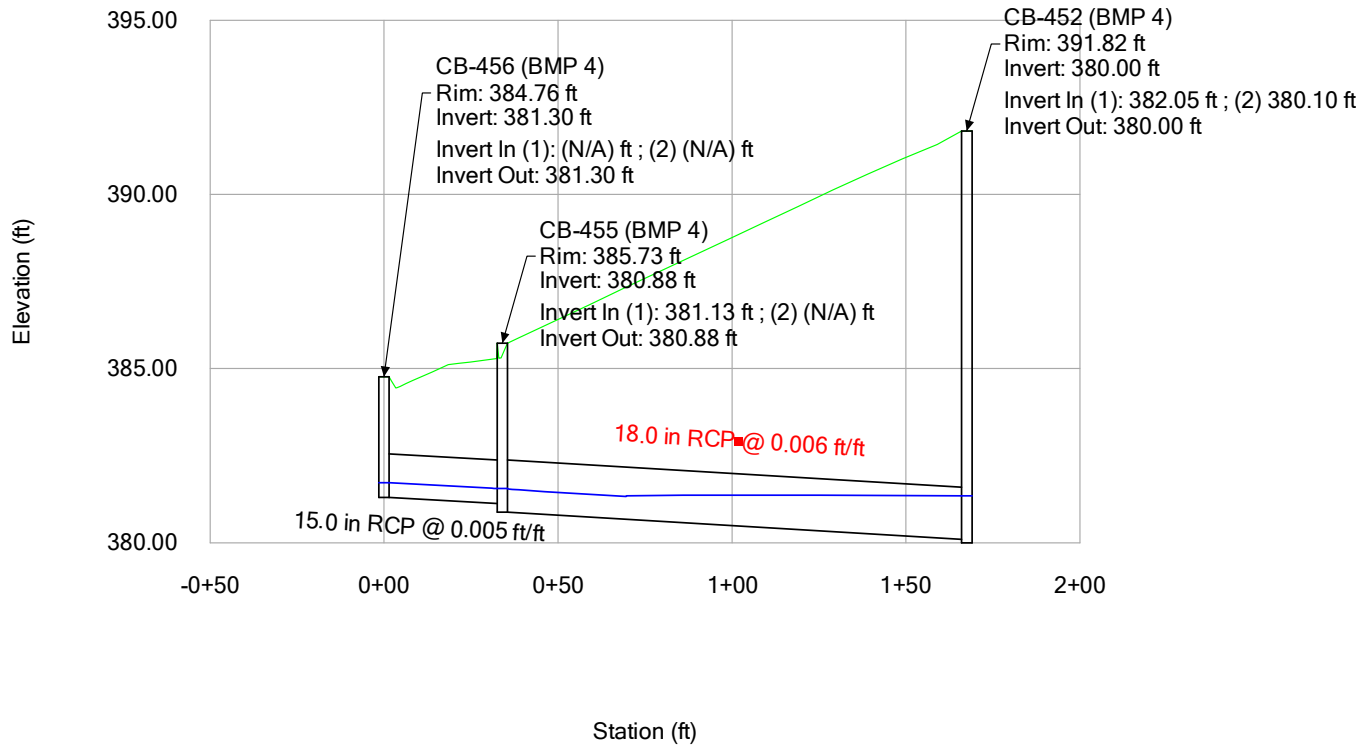
10-YR ANALYSIS



10-YR ANALYSIS



10-YR ANALYSIS



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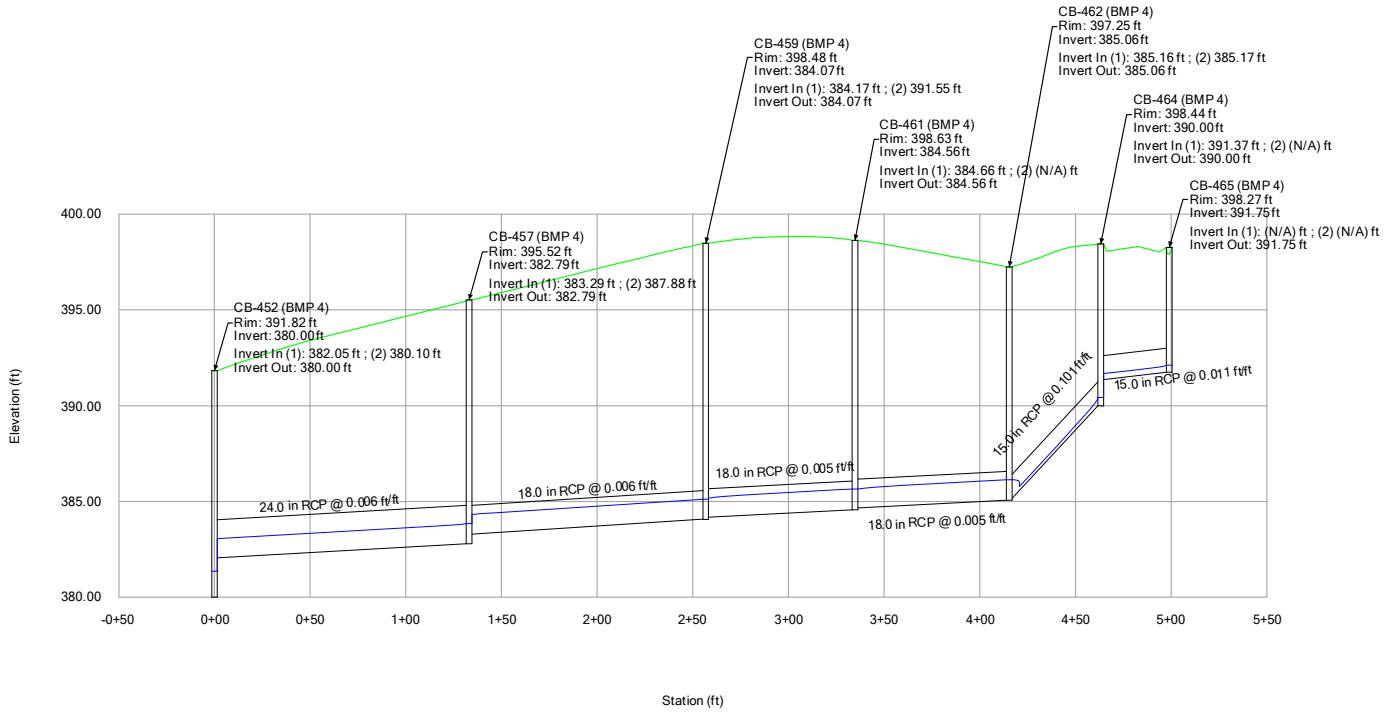

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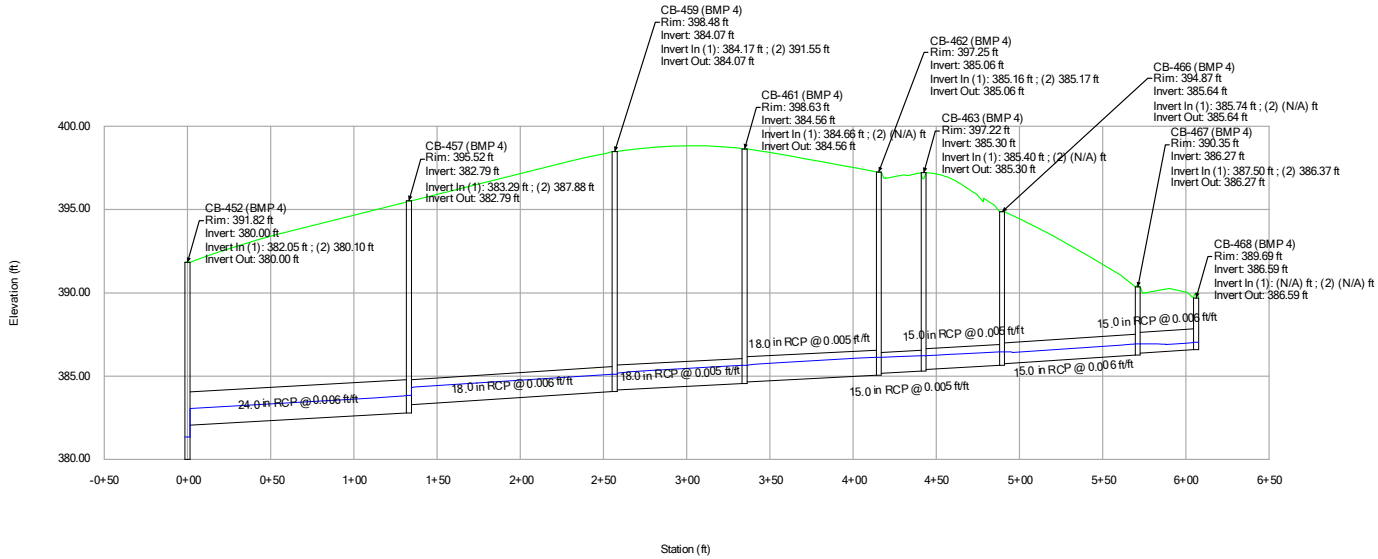
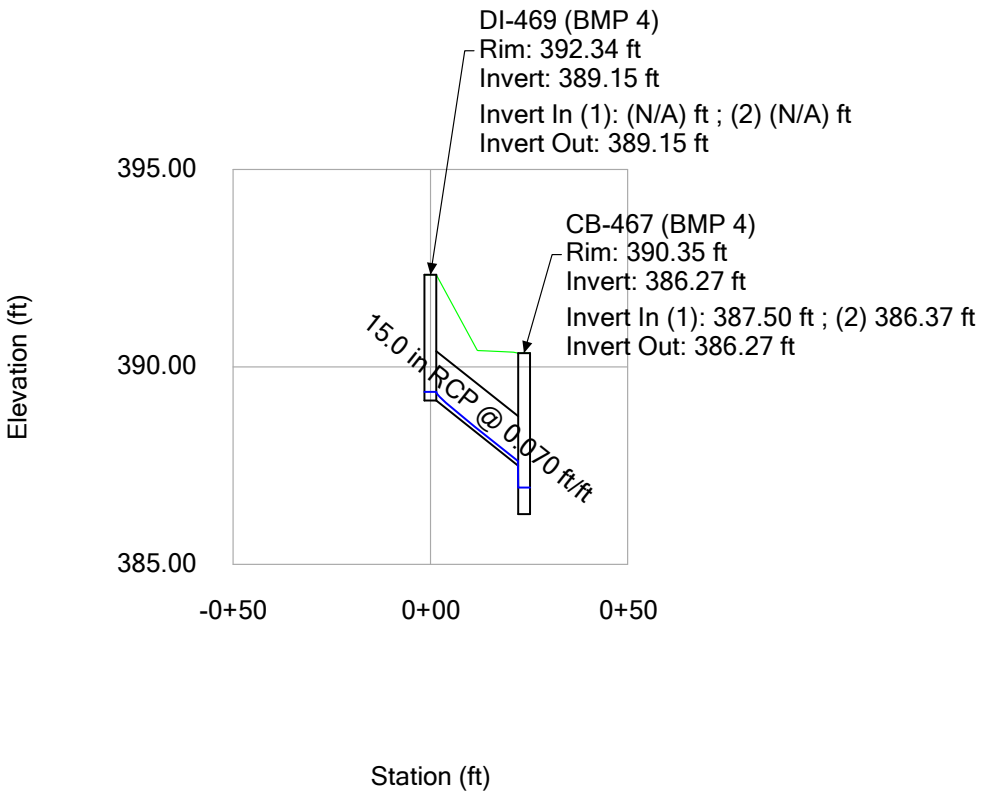
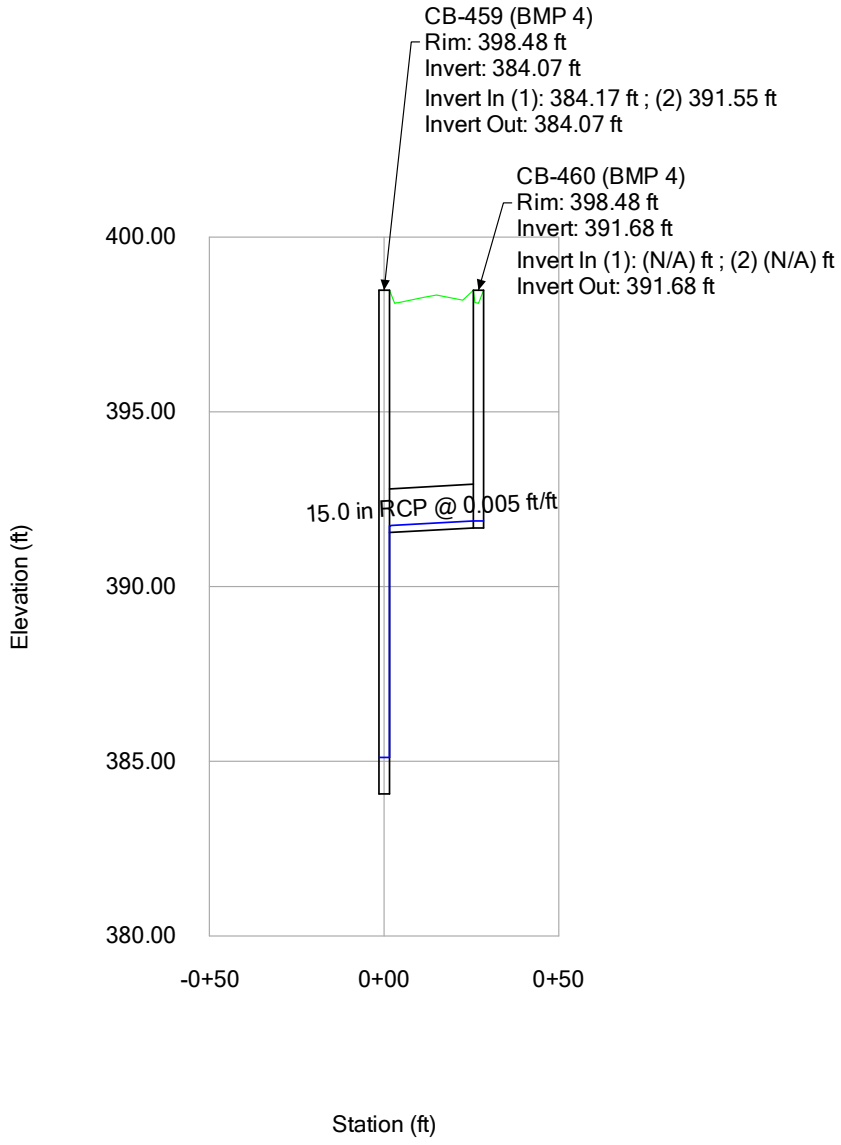


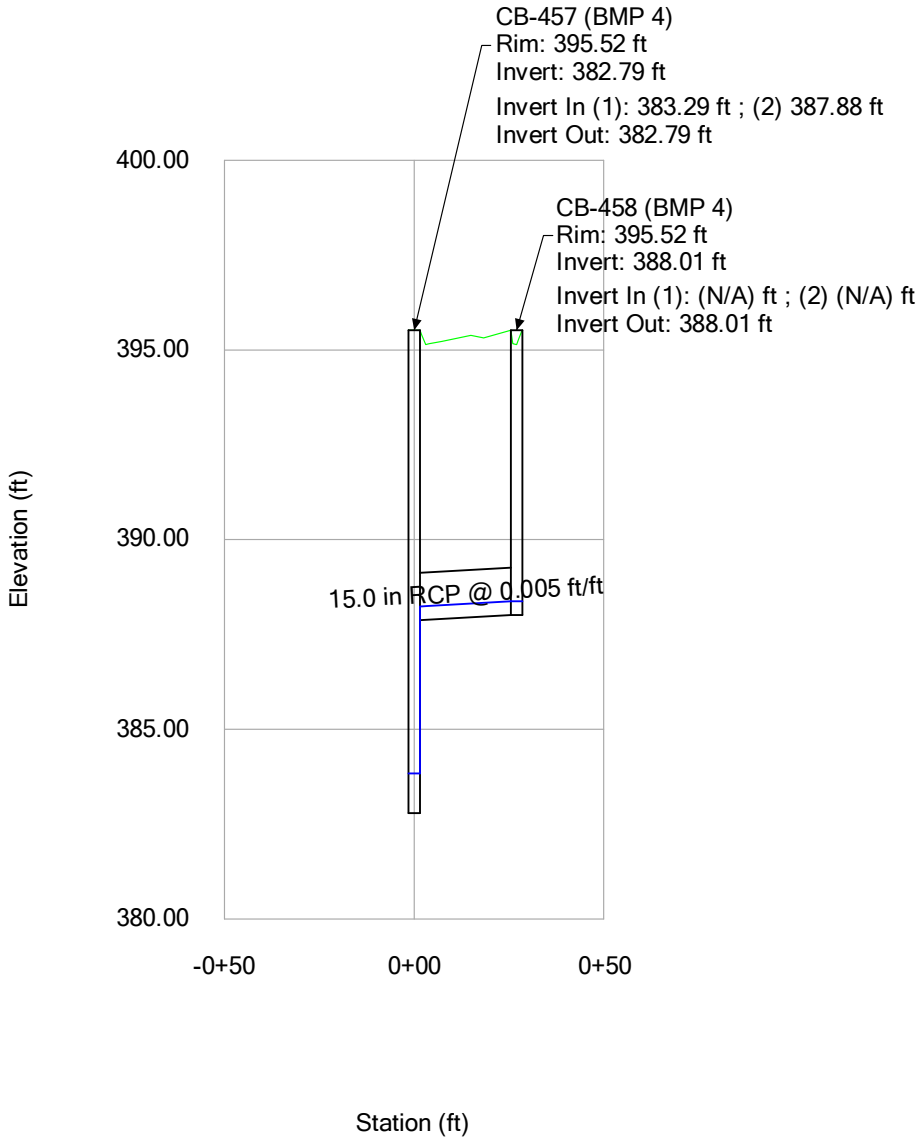
10-YR ANALYSIS



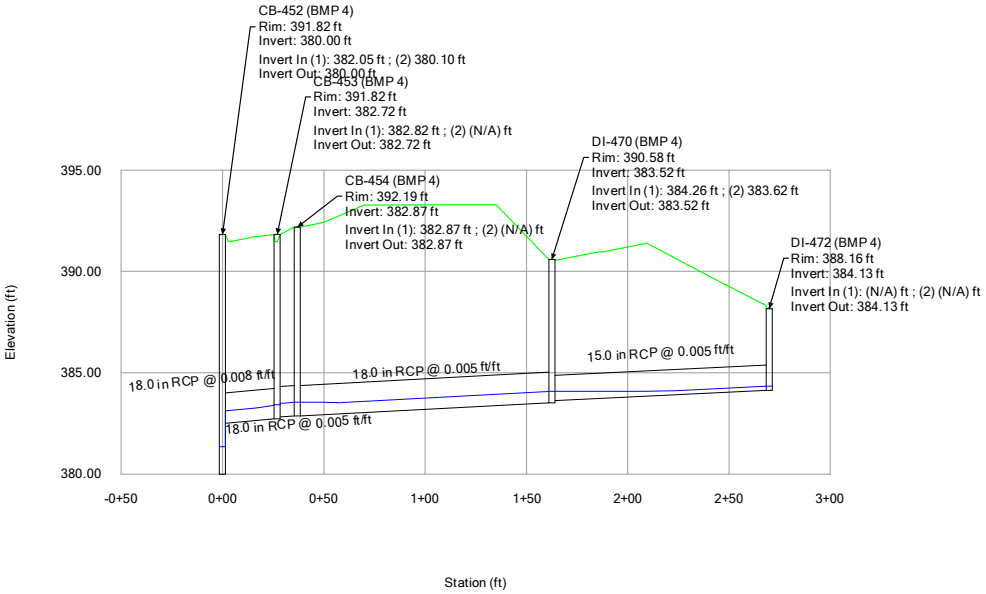
10-YR ANALYSIS



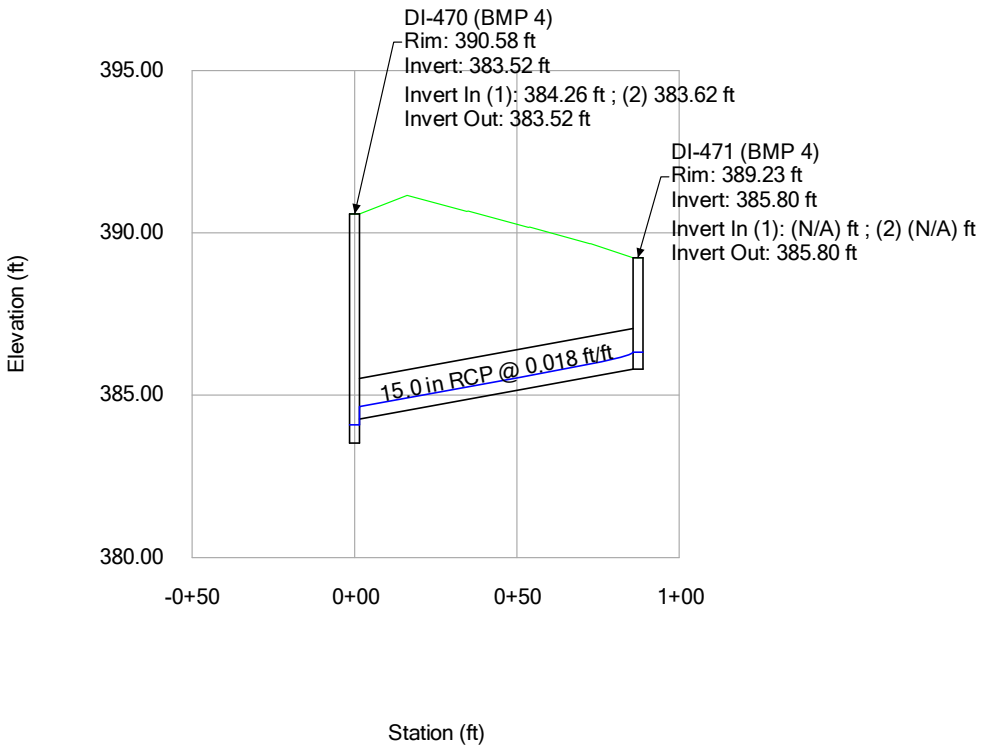
10-YR ANALYSIS



10-YR ANALYSIS



10-YR ANALYSIS



SCM 4 – 25 YR STORM

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-463 (BMP 4)	0.063	0.45	0.083	0.900
CB-466 (BMP 4)	0.043	0.31	0.083	0.900
CB-407 (BMP 4)	0.309	1.91	0.083	0.770
CB-406 (BMP 4)	0.319	1.97	0.083	0.770
CB-412 (BMP 4)	0.224	1.39	0.083	0.770
CB-409 (BMP 4)	0.292	1.81	0.083	0.770
CB-408 (BMP 4)	0.173	1.07	0.083	0.770
CB-405 (BMP 4)	0.395	2.45	0.083	0.770
CB-414 (BMP 4)	0.061	0.38	0.083	0.770
CB-465 (BMP 4)	0.183	1.14	0.083	0.770
CB-410 (BMP 4)	0.161	1.00	0.083	0.770
CB-411 (BMP 4)	0.146	0.90	0.083	0.770
CB-413 (BMP 4)	0.071	0.44	0.083	0.770
CB-464 (BMP 4)	0.061	0.38	0.083	0.770
CB-462 (BMP 4)	0.366	2.27	0.083	0.770
CB-467 (BMP 4)	0.286	1.77	0.083	0.770

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
CB-461 (BMP 4)	0.039	0.24	0.083	0.770
CB-460 (BMP 4)	0.045	0.28	0.083	0.770
CB-459 (BMP 4)	0.051	0.32	0.083	0.770
CB-458 (BMP 4)	0.186	1.15	0.083	0.770
CB-457 (BMP 4)	0.266	1.65	0.083	0.770
CB-454 (BMP 4)	0.179	1.11	0.083	0.770
CB-456 (BMP 4)	0.277	1.72	0.083	0.770
CB-453 (BMP 4)	0.009	0.06	0.083	0.770
CB-452 (BMP 4)	0.342	2.12	0.083	0.770
CB-455 (BMP 4)	0.477	2.96	0.083	0.770
DI-471 (BMP 4)	0.524	3.03	0.083	0.720
CB-468 (BMP 4)	0.304	1.71	0.083	0.700
DI-415 (BMP 4)	0.639	3.34	0.083	0.650
DI-416 (BMP 4)	0.248	1.30	0.083	0.650
DI-403 (BMP 4)	0.117	0.61	0.083	0.650
DI-402 (BMP 4)	0.492	2.57	0.083	0.650

25-YR ANALYSIS

CATCHMENTS - Time: 0.00 hours

Outflow Element	Scaled Area (acres)	Flow (Total Out) (cfs)	Time of Concentration (hours)	Runoff Coefficient (Rational)
DI-401 (BMP 4)	0.582	3.04	0.083	0.650
DI-469 (BMP 4)	0.068	0.35	0.083	0.650
DI-470 (BMP 4)	0.068	0.35	0.083	0.650
DI-472 (BMP 4)	0.054	0.28	0.083	0.650
DI-404 (BMP 4)	0.020	0.10	0.083	0.600
DI-451 (BMP 4)	0.000	0.00	0.083	0.350

25-YR ANALYSIS

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)	0.10	0.00	0.10	100.0	397.44	397.44	3.0	1.58	1.58
CB-414 (BMP 4)	0.37	0.01	0.37	96.7	391.24	391.24	3.0	2.29	2.29
CB-413 (BMP 4)	0.42	0.02	0.78	95.1	388.35	388.35	3.0	1.32	2.82
CB-461 (BMP 4)	0.24	0.00	7.12	99.7	385.73	385.73	3.0	5.18	4.82
CB-460 (BMP 4)	0.28	0.00	0.28	99.0	391.89	391.89	3.0	2.06	2.06
CB-459 (BMP 4)	0.31	0.01	7.59	98.3	385.19	385.19	3.0	5.48	5.35
CB-464 (BMP 4)	0.37	0.01	1.27	96.7	390.45	390.45	3.0	3.80	3.24
CB-465 (BMP 4)	0.91	0.23	0.91	80.0	392.12	392.12	3.0	2.95	2.95
DI-403 (BMP 4)	0.55	0.06	0.64	90.7	393.14	393.14	3.0	3.27	2.58
CB-462 (BMP 4)	1.52	0.75	6.97	67.1	386.21	386.21	3.0	3.90	4.78
CB-463 (BMP 4)	0.43	0.02	4.28	94.7	386.32	386.32	3.0	4.05	4.00
CB-411 (BMP 4)	0.77	0.15	2.58	83.7	387.26	387.26	3.0	1.47	3.93
CB-412 (BMP 4)	1.06	0.33	1.06	76.2	387.41	387.41	3.0	3.08	3.08
DI-416 (BMP 4)	1.01	0.29	1.01	77.6	388.44	388.44	3.0	2.92	2.92
CB-458 (BMP 4)	0.92	0.23	0.92	79.7	388.39	388.39	3.0	2.91	2.91
CB-457 (BMP 4)	1.21	0.45	9.45	73.0	383.89	383.89	3.0	5.64	5.34

25-YR ANALYSIS

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-466 (BMP 4)	0.88	0.21	3.89	80.7	386.53	386.53	3.0	3.76	4.17
CB-410 (BMP 4)	0.92	0.23	3.43	79.8	386.73	386.73	3.0	4.05	4.48
CB-409 (BMP 4)	1.29	0.52	1.29	71.3	391.25	391.25	3.0	3.26	3.26
CB-408 (BMP 4)	0.87	0.20	2.15	81.1	386.75	386.75	3.0	4.11	3.81
DI-415 (BMP 4)	2.00	1.34	2.95	60.0	386.46	386.46	3.0	1.68	3.96
DI-469 (BMP 4)	0.34	0.01	0.34	97.4	389.38	389.38	3.0	2.25	2.25
CB-405 (BMP 4)	1.81	1.08	13.40	62.6	385.16	385.16	3.0	4.44	6.10
CB-406 (BMP 4)	1.92	1.22	6.27	61.1	385.29	385.29	3.0	4.57	4.61
CB-407 (BMP 4)	1.60	0.83	4.43	65.8	385.95	385.95	3.0	3.44	4.39
DI-401 (BMP 4)	1.88	1.17	17.67	61.7	384.42	384.42	3.0	4.57	5.79
CB-467 (BMP 4)	1.38	0.60	3.06	69.6	386.97	386.97	3.0	2.31	4.30
CB-454 (BMP 4)	1.03	0.31	3.33	76.9	383.57	383.57	3.0	2.97	4.09
CB-452 (BMP 4)	1.66	0.90	17.53	64.8	381.42	381.42	3.0	2.09	6.11
DI-402 (BMP 4)	2.19	1.61	2.75	57.7	387.22	387.22	3.0	1.53	3.91
CB-453 (BMP 4)	0.36	0.01	3.66	97.1	383.45	383.45	3.0	4.15	4.28
DI-470 (BMP 4)	0.35	0.01	2.41	97.3	384.11	384.11	3.0	0.63	3.76

25-YR ANALYSIS

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-471 (BMP 4)	1.87	1.16	1.87	61.7	386.35	386.35	3.0	3.65	3.65
CB-468 (BMP 4)	1.36	0.58	1.36	70.0	387.05	387.05	3.0	3.31	3.31
DI-472 (BMP 4)	0.28	0.00	0.28	98.9	384.34	384.34	3.0	2.02	2.02
DI-451 (BMP 4)	0.00	0.00	17.22	100.0	380.31	380.31	3.0	6.72	6.07
CB-455 (BMP 4)	2.22	1.64	3.44	57.4	381.59	381.59	3.0	3.06	4.20
CB-456 (BMP 4)	1.25	0.48	1.25	72.2	381.75	381.75	3.0	3.17	3.17

25-YR ANALYSIS

Conduit Results - Time: 0.00 hours

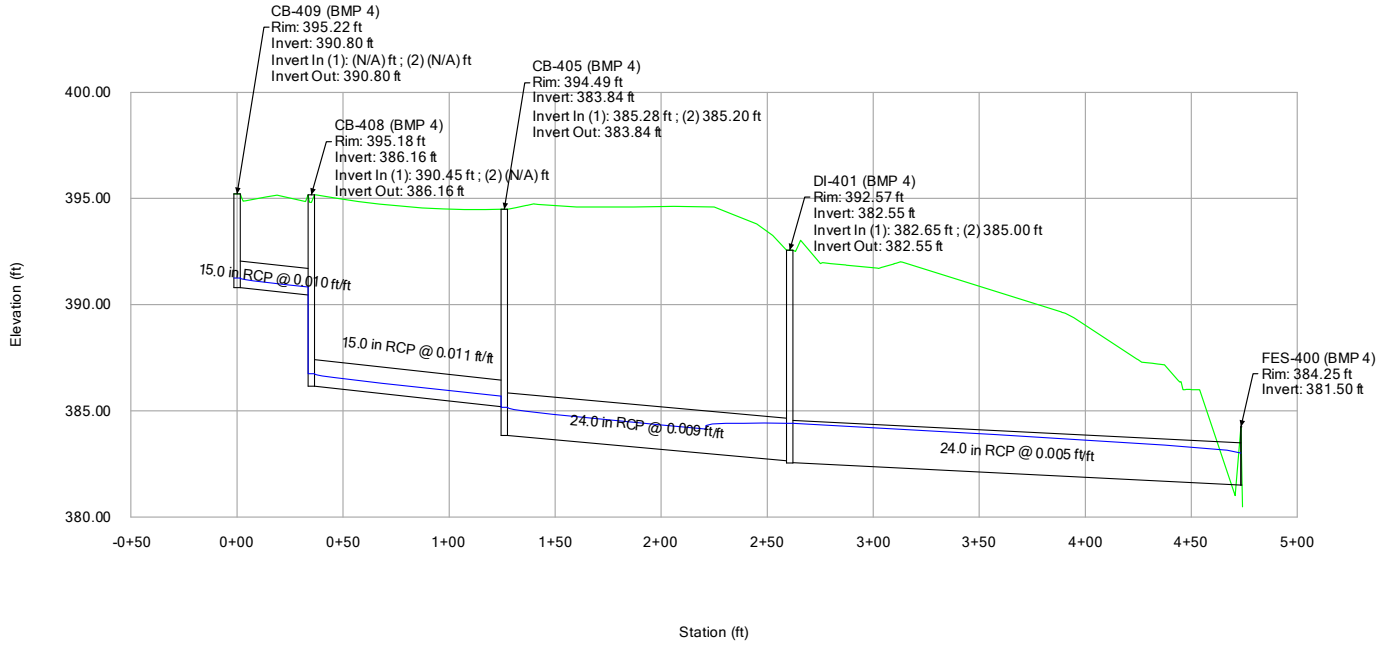
Label	Diameter (in)	Slope (Calculated) (ft/ft)	Velocity (In) (ft/s)	Velocity (Out) (ft/s)	Flow (cfs)	Capacity (Full Flow) (cfs)	Hydraulic Grade Line (In) (ft)	Hydraulic Grade Line (Out) (ft)
DI-403 TO DI-404 (BMP 4)	18.0	-0.051	1.58	3.27	0.10	23.64	397.44	393.11
CB-413 TO CB-414 (BMP 4)	15.0	0.075	2.29	1.32	0.37	17.70	391.24	388.35
CB-411 TO CB-413 (BMP 4)	15.0	0.015	2.82	1.47	0.78	8.03	388.35	387.26
CB-459 TO CB-461 (BMP 4)	18.0	0.005	4.82	5.48	7.12	7.43	385.73	385.20
CB-461 TO CB-462 (BMP 4)	18.0	0.005	4.78	5.18	6.97	7.39	386.21	385.73
CB-459 TO CB-460 (BMP 4)	15.0	0.005	2.06	2.13	0.28	4.57	391.89	391.75
CB-457 TO CB-459 (BMP 4)	18.0	0.006	5.35	5.64	7.59	8.34	385.19	384.36
CB-464 TO CB-465 (BMP 4)	15.0	0.011	2.95	3.80	0.91	6.66	392.12	391.68
CB-462 TO CB-464 (BMP 4)	15.0	0.101	3.24	1.15	1.27	20.56	390.45	386.21
DI-402 TO DI-403 (BMP 4)	18.0	-0.047	2.58	1.53	0.64	22.80	393.14	387.22
CB-462 TO CB-463 (BMP 4)	15.0	0.005	4.00	3.90	4.28	4.57	386.32	386.21
CB-463 TO CB-466 (BMP 4)	15.0	0.005	4.17	4.05	3.89	4.58	386.53	386.32
CB-411 TO CB-412 (BMP 4)	15.0	0.007	3.08	2.00	1.06	5.57	387.41	387.26
CB-410 TO CB-411 (BMP 4)	15.0	0.005	3.93	4.05	2.58	4.71	387.26	386.82
DI-415 TO DI-416 (BMP 4)	18.0	0.017	2.92	1.68	1.01	13.77	388.44	386.46
CB-457 TO CB-458 (BMP 4)	15.0	0.005	2.91	2.96	0.92	4.57	388.39	388.25
CB-452 TO CB-457 (BMP 4)	24.0	0.006	5.34	5.52	9.45	16.87	383.89	383.12
CB-466 TO CB-467 (BMP 4)	15.0	0.006	4.30	3.76	3.06	5.20	386.97	386.53
CB-405 TO CB-410 (BMP 4)	15.0	0.007	4.48	4.79	3.43	5.59	386.73	385.99
CB-405 TO CB-408 (BMP 4)	15.0	0.011	3.81	4.83	2.15	6.64	386.75	385.69
CB-407 TO DI-415 (BMP 4)	18.0	0.005	3.96	3.44	2.95	7.42	386.46	385.95
CB-467 TO DI-469 (BMP 4)	15.0	0.070	2.25	5.51	0.34	17.05	389.38	387.62
CB-405 TO CB-406 (BMP 4)	18.0	0.005	4.61	4.44	6.27	7.43	385.29	385.16
DI-401 TO CB-405 (BMP 4)	24.0	0.009	6.10	4.57	13.40	21.27	385.16	384.42
CB-406 TO CB-407 (BMP 4)	18.0	0.005	4.39	4.57	4.43	7.43	385.95	385.86
FES-400 TO DI-401 (BMP 4)	24.0	0.005	5.79	6.92	17.67	15.89	384.42	383.02
DI-401 TO DI-402 (BMP 4)	18.0	-0.018	3.91	6.16	2.75	14.02	387.22	385.45
CB-467 TO CB-468 (BMP 4)	15.0	0.006	3.31	2.31	1.36	5.06	387.05	386.97
CB-454 TO DI-470 (BMP 4)	18.0	0.005	3.76	2.97	2.41	7.56	384.11	383.57
CB-453 TO CB-454 (BMP 4)	18.0	0.005	4.09	4.15	3.33	7.44	383.57	383.52

25-YR ANALYSIS

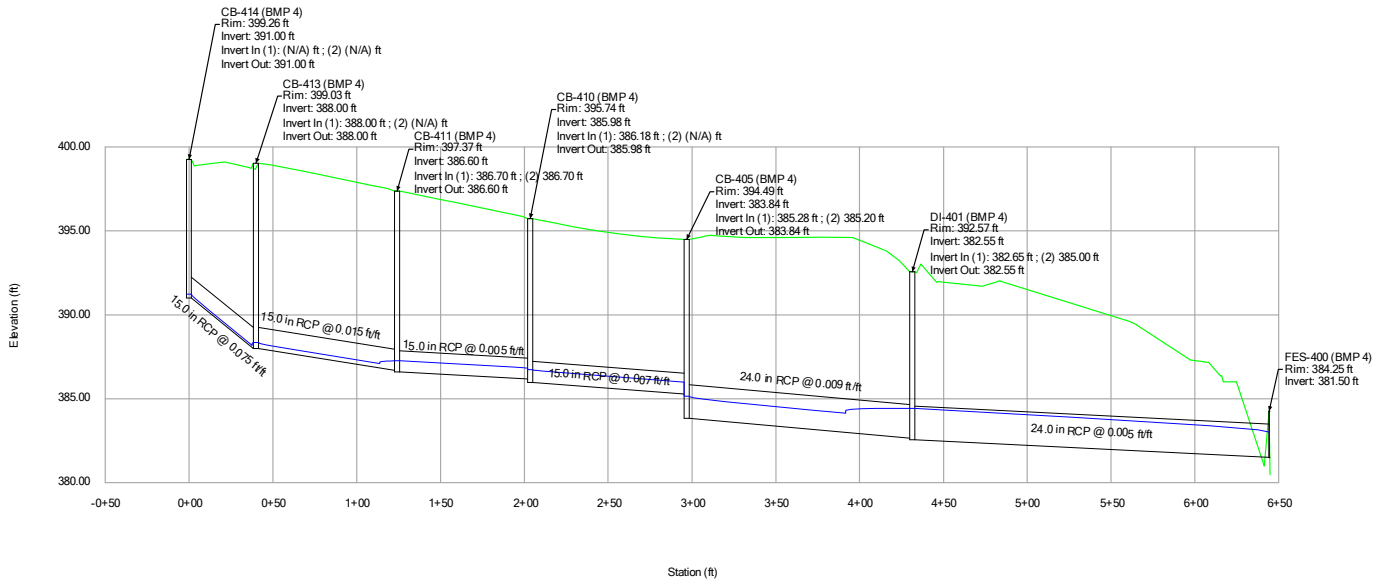
Conduit Results - Time: 0.00 hours

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-452 TO CB-455 (BMP 4)	18.0	0.006	4.20	2.09	3.44	8.03	381.59	381.42
CB-452 TO CB-453 (BMP 4)	18.0	0.008	4.28	4.99	3.66	9.48	383.45	383.15
DI-451 TO CB-452 (BMP 4)	30.0	0.006	6.11	6.72	17.53	32.31	381.42	380.33
DI-470 TO DI-471 (BMP 4)	15.0	0.018	3.65	5.59	1.87	8.57	386.35	384.66
DI-470 TO DI-472 (BMP 4)	15.0	0.005	2.02	0.63	0.28	4.43	384.34	384.11
FES-450 TO DI-451 (BMP 4)	30.0	0.009	6.07	7.16	17.22	38.88	380.31	379.95
CB-455 TO CB-456 (BMP 4)	15.0	0.005	3.17	3.06	1.25	4.57	381.75	381.59
CB-408 TO CB-409 (BMP 4)	15.0	0.010	3.26	4.11	1.29	6.46	391.25	390.83

25-YR ANALYSIS



25-YR ANALYSIS



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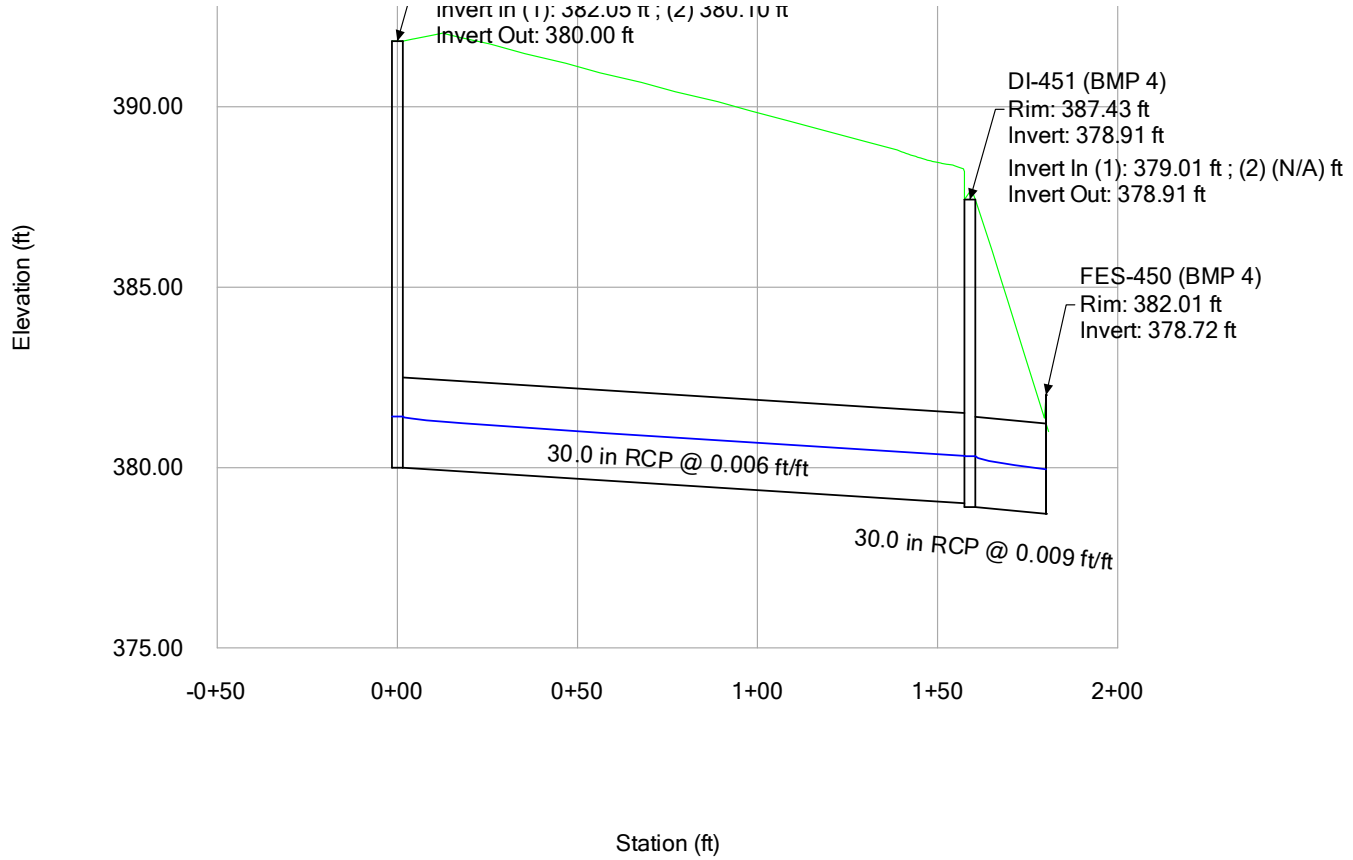

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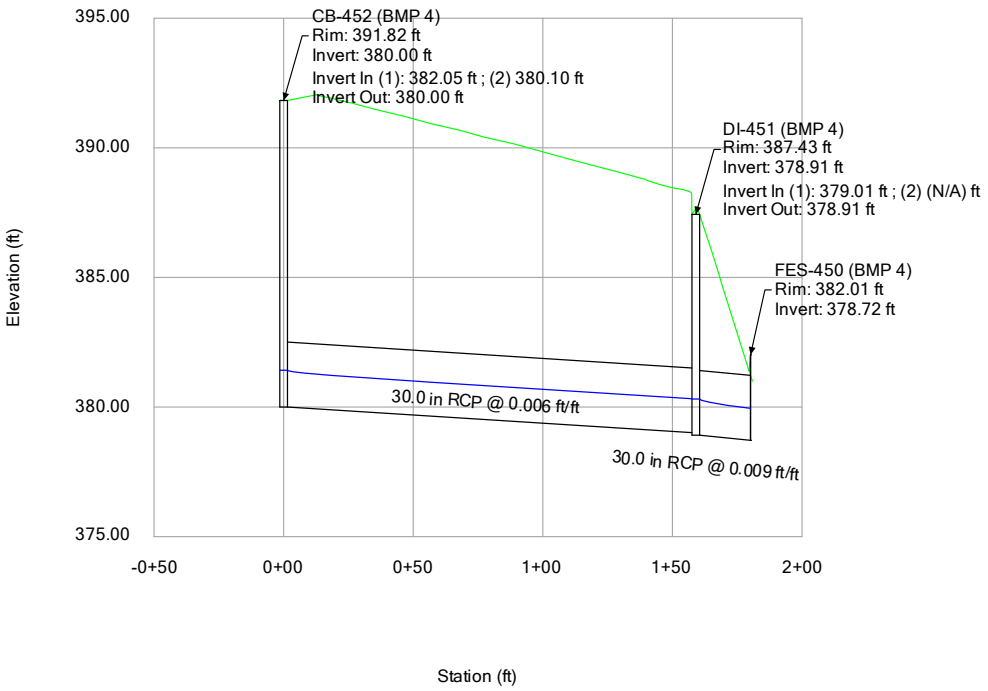

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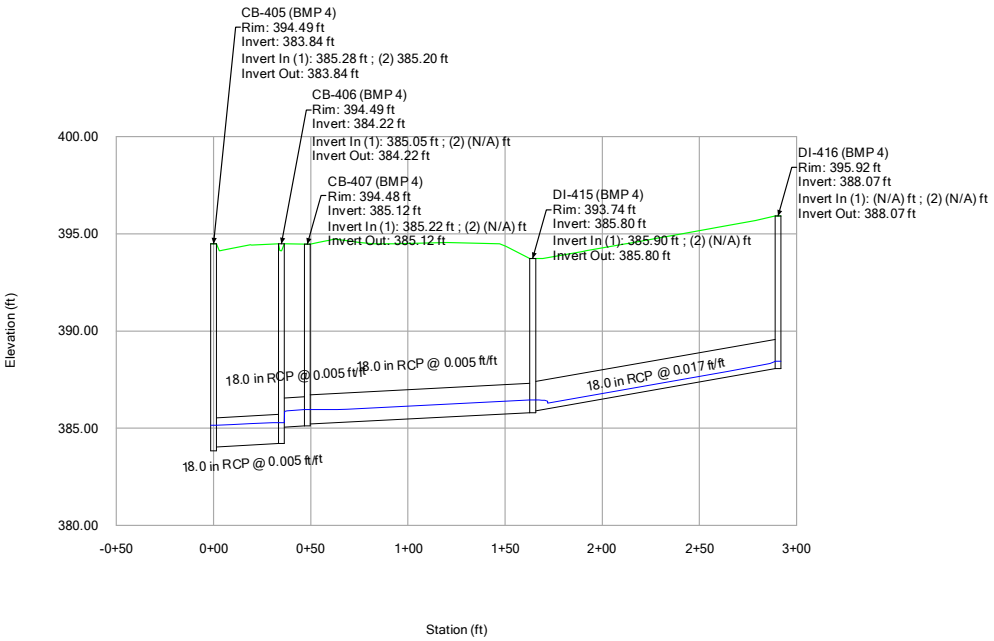

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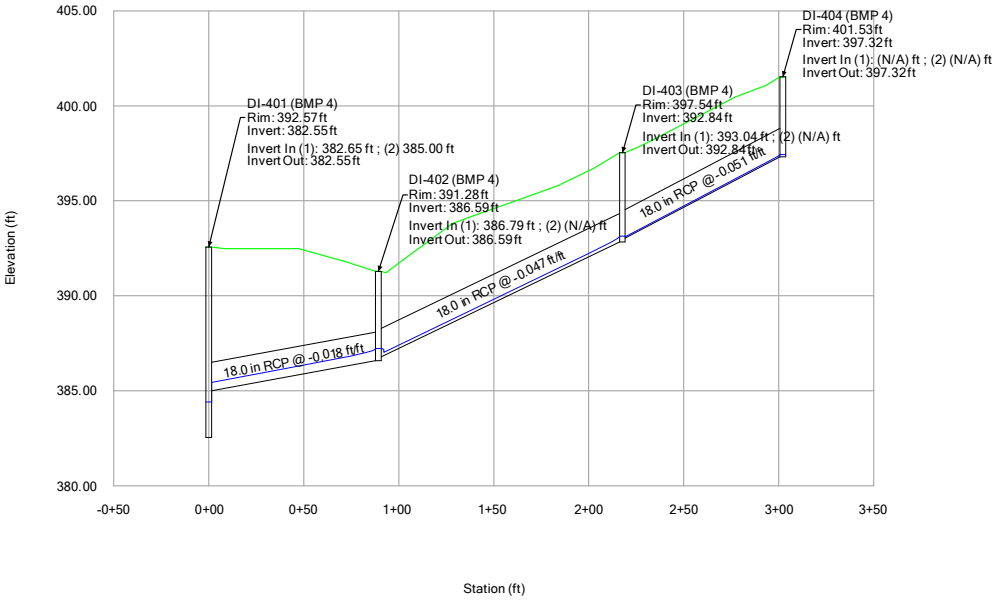

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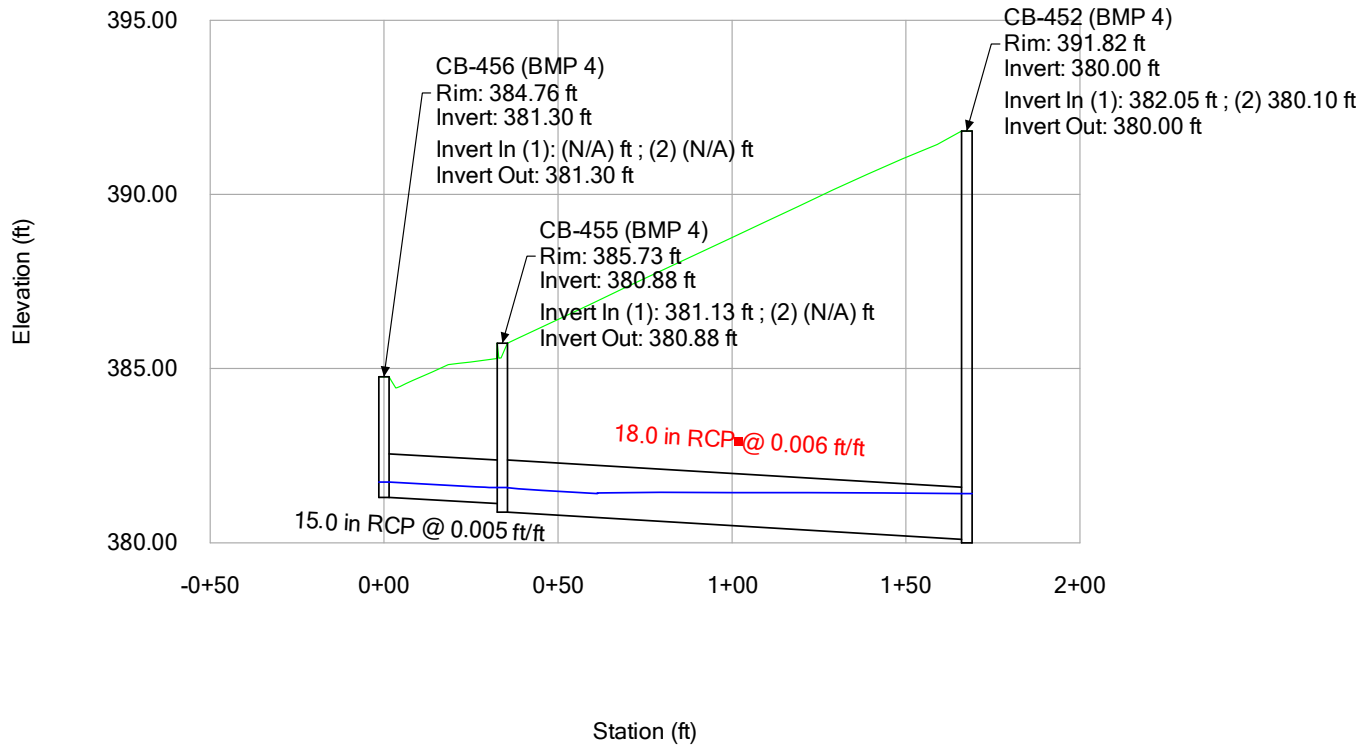

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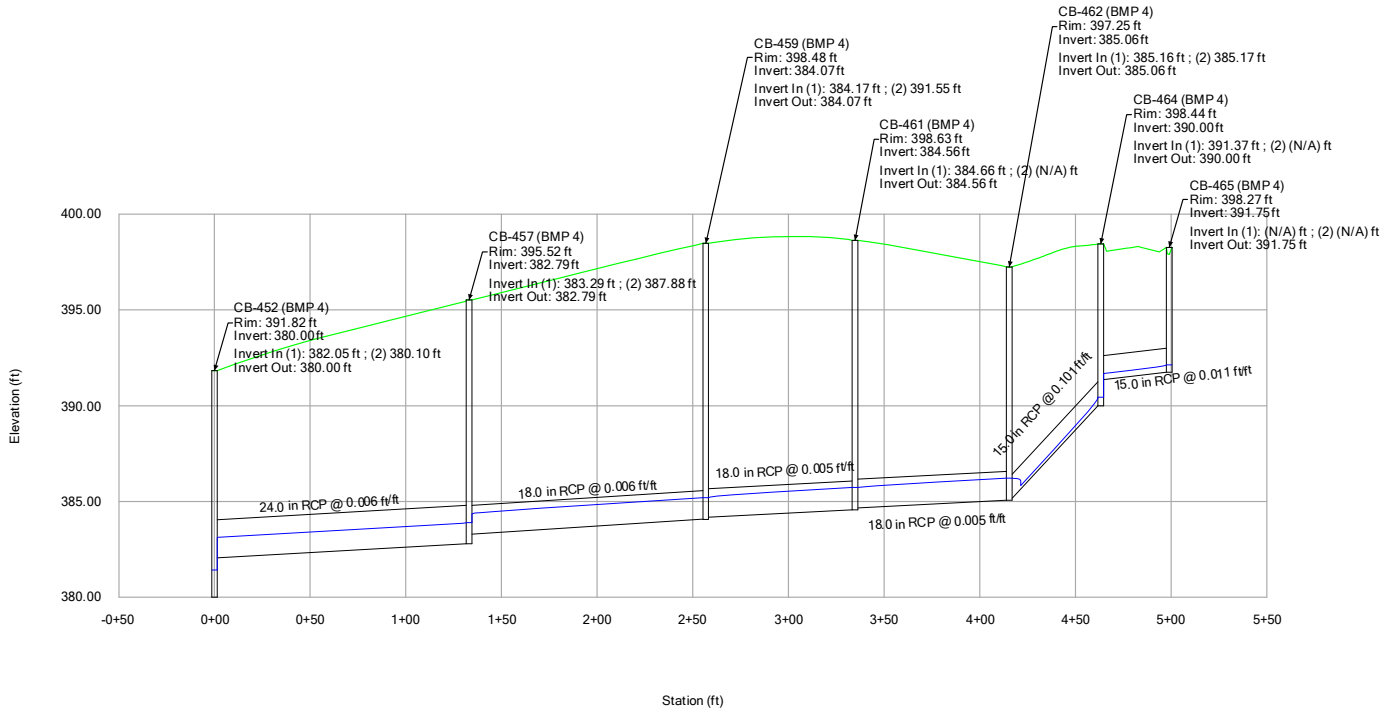

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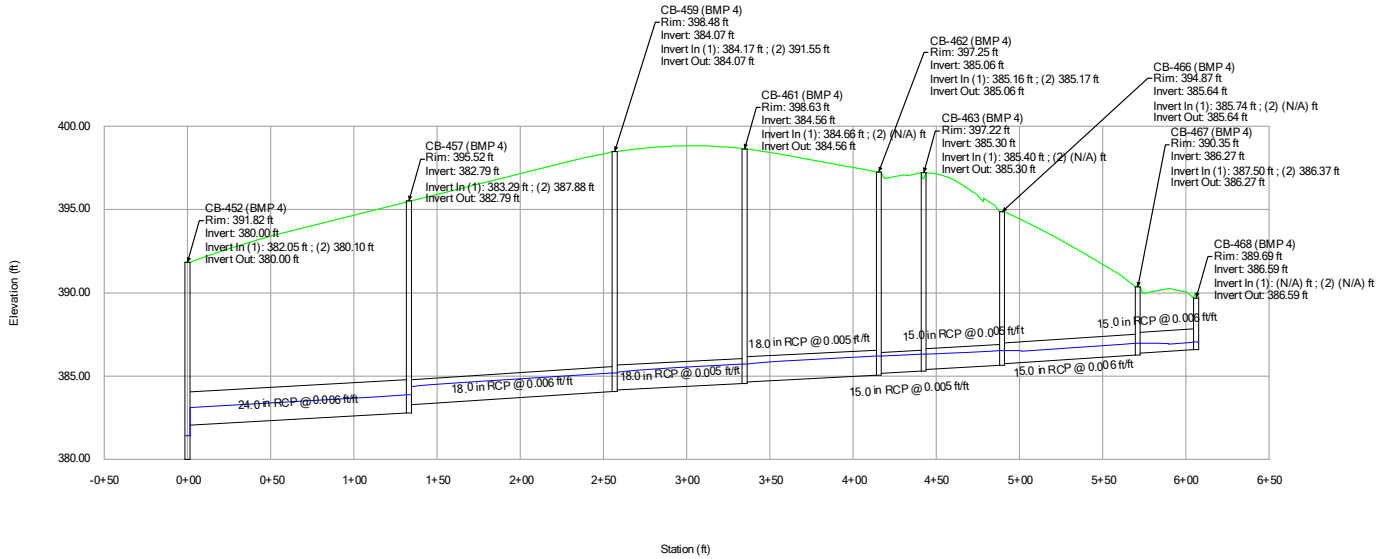

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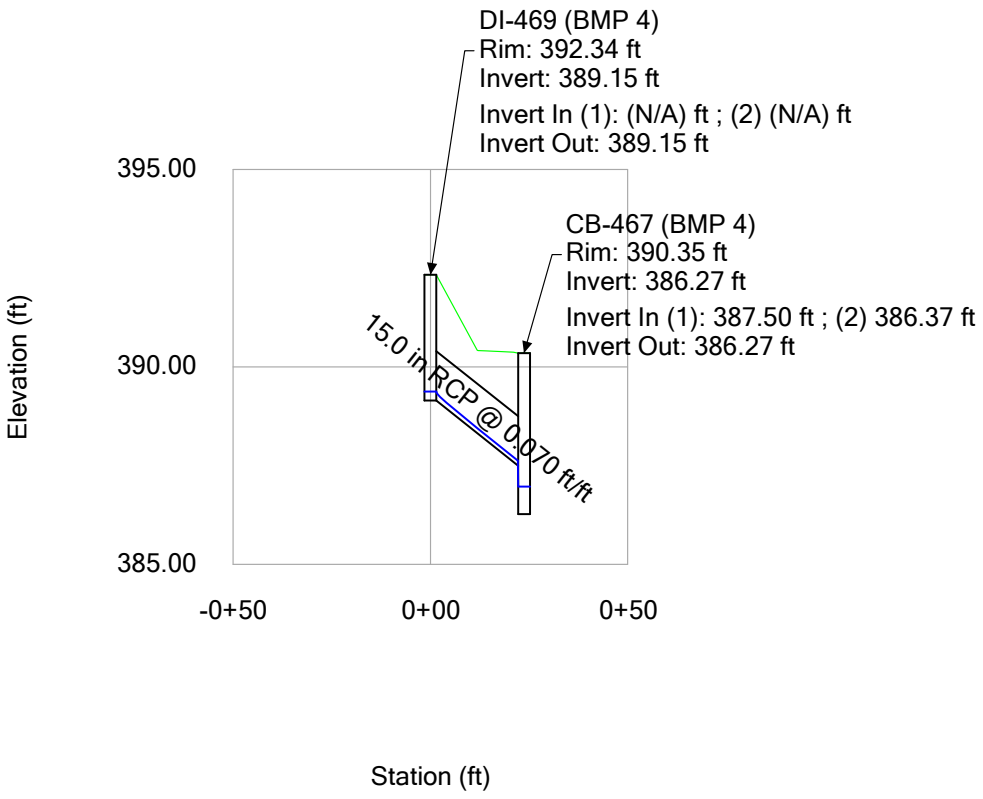

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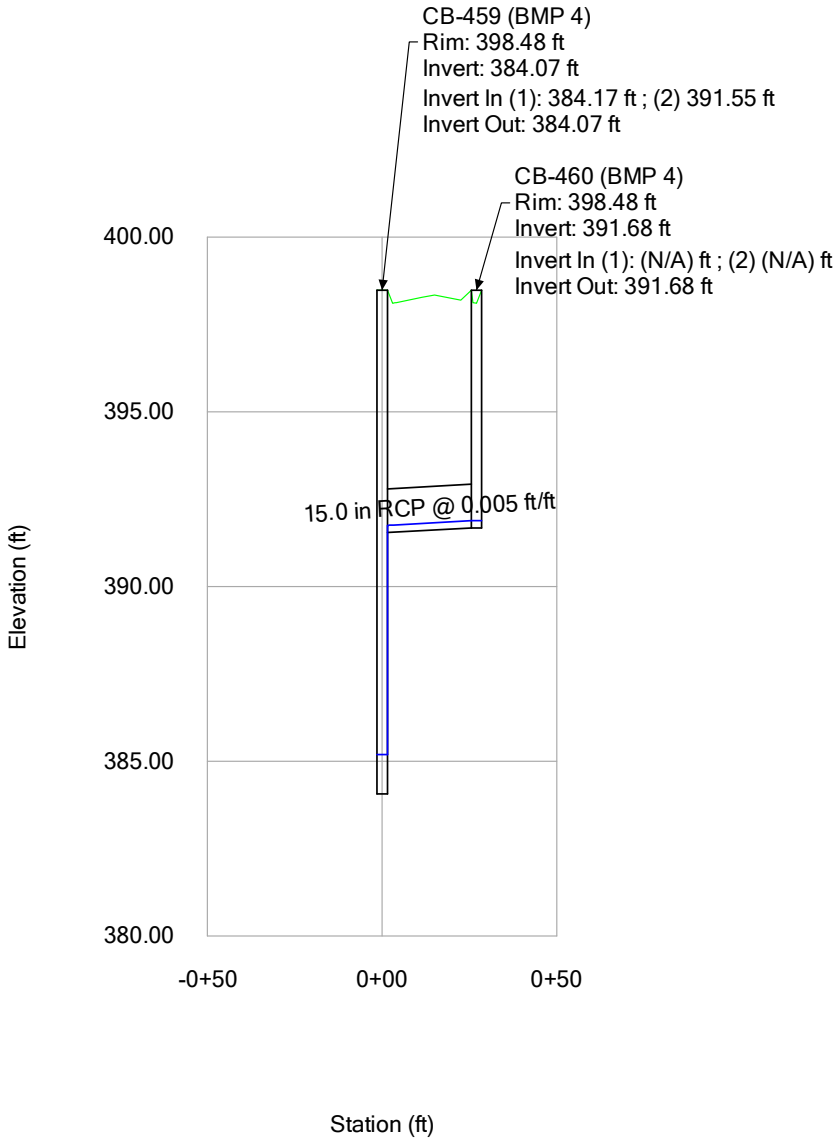

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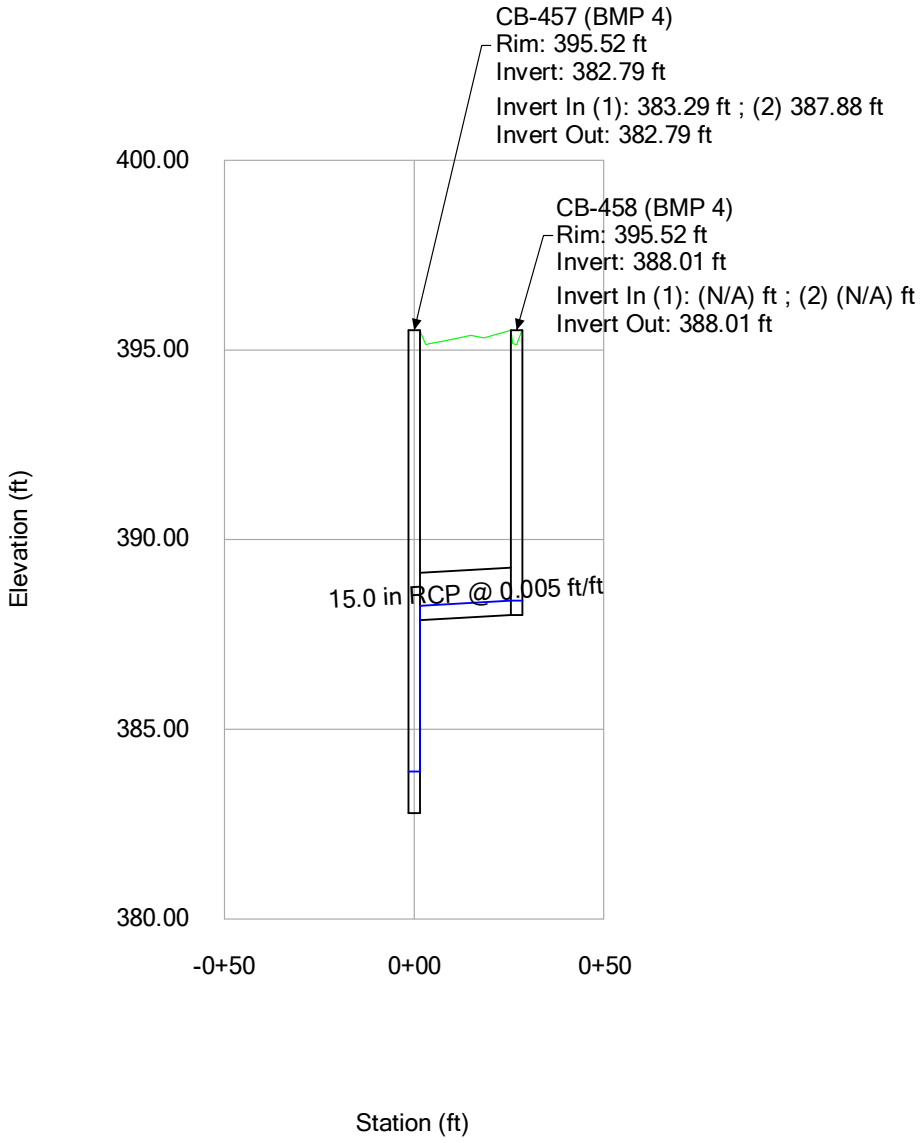

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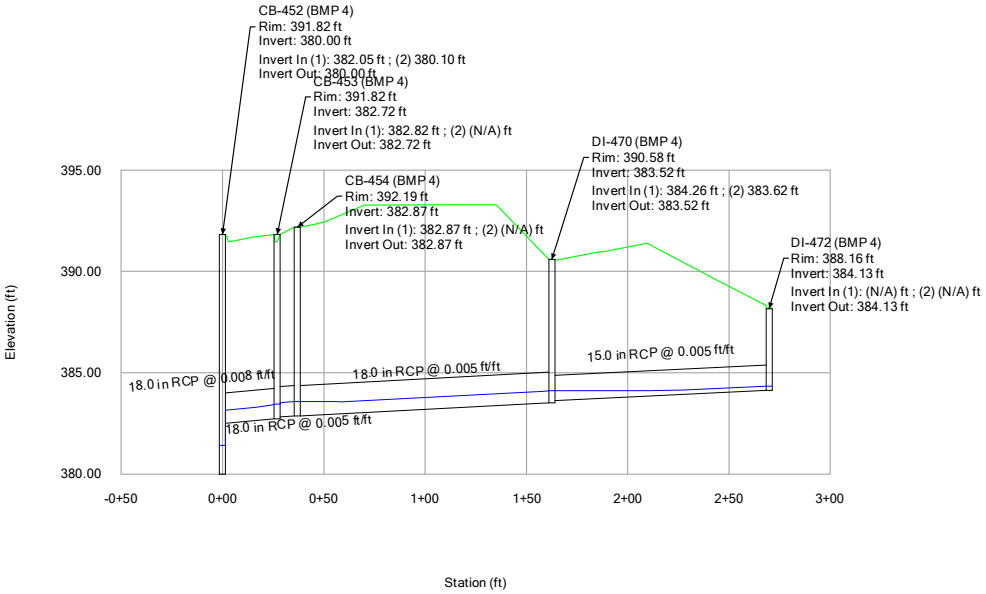
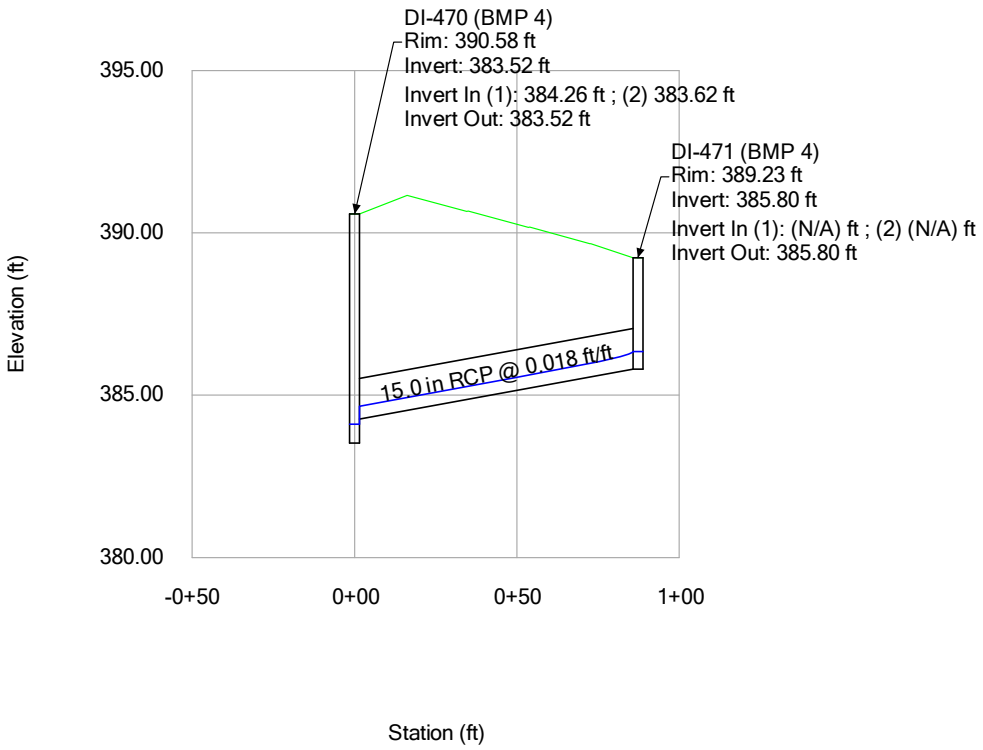


25-YR ANALYSIS



SCM 4 – INLET SPREAD

INLET SPREAD - 4IN/HR

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-455 (BMP 4)	0.477	0.309	1.25	0.48	1.98	6.7	2.1
DI-402 (BMP 4)	0.492	0.303	1.22	0.46	1.57	6.7	2.1
DI-415 (BMP 4)	0.639	0.302	1.22	0.46	1.80	6.6	2.1
CB-406 (BMP 4)	0.319	0.247	1.00	0.29	3.69	5.9	1.9
DI-401 (BMP 4)	0.582	0.282	1.14	0.39	10.61	6.4	2.0
DI-471 (BMP 4)	0.524	0.281	1.13	0.39	1.13	6.4	2.0
CB-405 (BMP 4)	0.395	0.251	1.01	0.29	7.90	6.0	1.9
CB-452 (BMP 4)	0.342	0.232	0.94	0.24	10.57	5.7	1.8
CB-407 (BMP 4)	0.309	0.220	0.89	0.21	2.69	5.5	1.8
CB-462 (BMP 4)	0.366	0.225	0.91	0.23	3.92	5.6	1.8
CB-467 (BMP 4)	0.286	0.188	0.76	0.14	1.70	5.0	1.7
CB-468 (BMP 4)	0.304	0.189	0.76	0.14	0.76	5.1	1.7
CB-409 (BMP 4)	0.292	0.189	0.76	0.14	0.76	5.1	1.7
CB-456 (BMP 4)	0.277	0.182	0.73	0.13	0.73	4.9	1.7
CB-457 (BMP 4)	0.266	0.176	0.71	0.12	5.57	4.8	1.6
CB-412 (BMP 4)	0.224	0.153	0.62	0.08	0.62	4.5	1.6

INLET SPREAD - 4IN/HR

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-454 (BMP 4)	0.179	0.136	0.55	0.06	2.00	4.2	1.5
DI-416 (BMP 4)	0.248	0.145	0.58	0.07	0.58	4.3	1.5
CB-458 (BMP 4)	0.186	0.131	0.53	0.05	0.53	4.1	1.5
CB-465 (BMP 4)	0.183	0.129	0.52	0.05	0.52	4.0	1.4
CB-410 (BMP 4)	0.161	0.121	0.49	0.04	1.94	3.9	1.4
CB-408 (BMP 4)	0.173	0.123	0.50	0.04	1.26	3.9	1.4
CB-466 (BMP 4)	0.043	0.092	0.37	0.01	2.07	3.3	1.3
CB-411 (BMP 4)	0.146	0.106	0.43	0.02	1.45	3.6	1.3
DI-403 (BMP 4)	0.117	0.075	0.30	0.00	0.35	2.9	1.2
CB-463 (BMP 4)	0.063	0.056	0.23	0.00	2.30	2.4	1.0
CB-413 (BMP 4)	0.071	0.055	0.22	0.00	0.41	2.3	1.0
CB-414 (BMP 4)	0.061	0.047	0.19	0.00	0.19	2.1	1.0
CB-464 (BMP 4)	0.061	0.047	0.19	0.00	0.71	2.1	1.0
DI-470 (BMP 4)	0.068	0.044	0.18	0.00	1.45	2.0	1.0
DI-469 (BMP 4)	0.068	0.044	0.18	0.00	0.18	2.0	1.0
CB-453 (BMP 4)	0.009	0.021	0.08	0.00	2.09	1.5	0.7

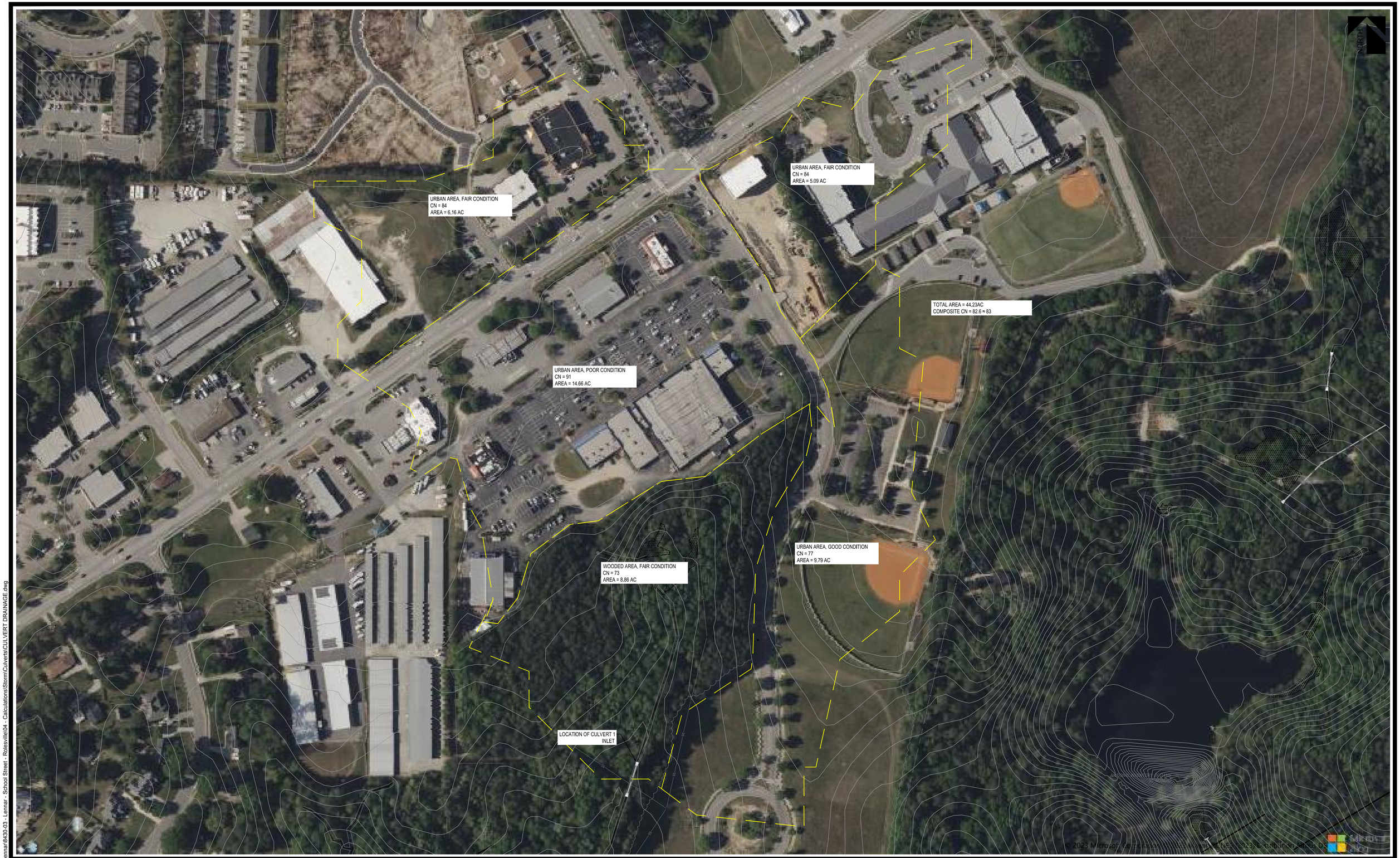
INLET SPREAD - 4IN/HR

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-459 (BMP 4)	0.051	0.039	0.16	0.00	4.33	1.9	0.9
DI-472 (BMP 4)	0.054	0.035	0.14	0.00	0.14	1.8	0.9
CB-460 (BMP 4)	0.045	0.035	0.14	0.00	0.14	1.8	0.9
CB-461 (BMP 4)	0.039	0.030	0.12	0.00	4.04	1.7	0.8
DI-404 (BMP 4)	0.020	0.012	0.05	0.00	0.05	1.2	0.6
DI-451 (BMP 4)	0.000	0.000	0.00	0.00	10.57	0.2	0.1

CULVERT CALCULATIONS

CULVERT 1



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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

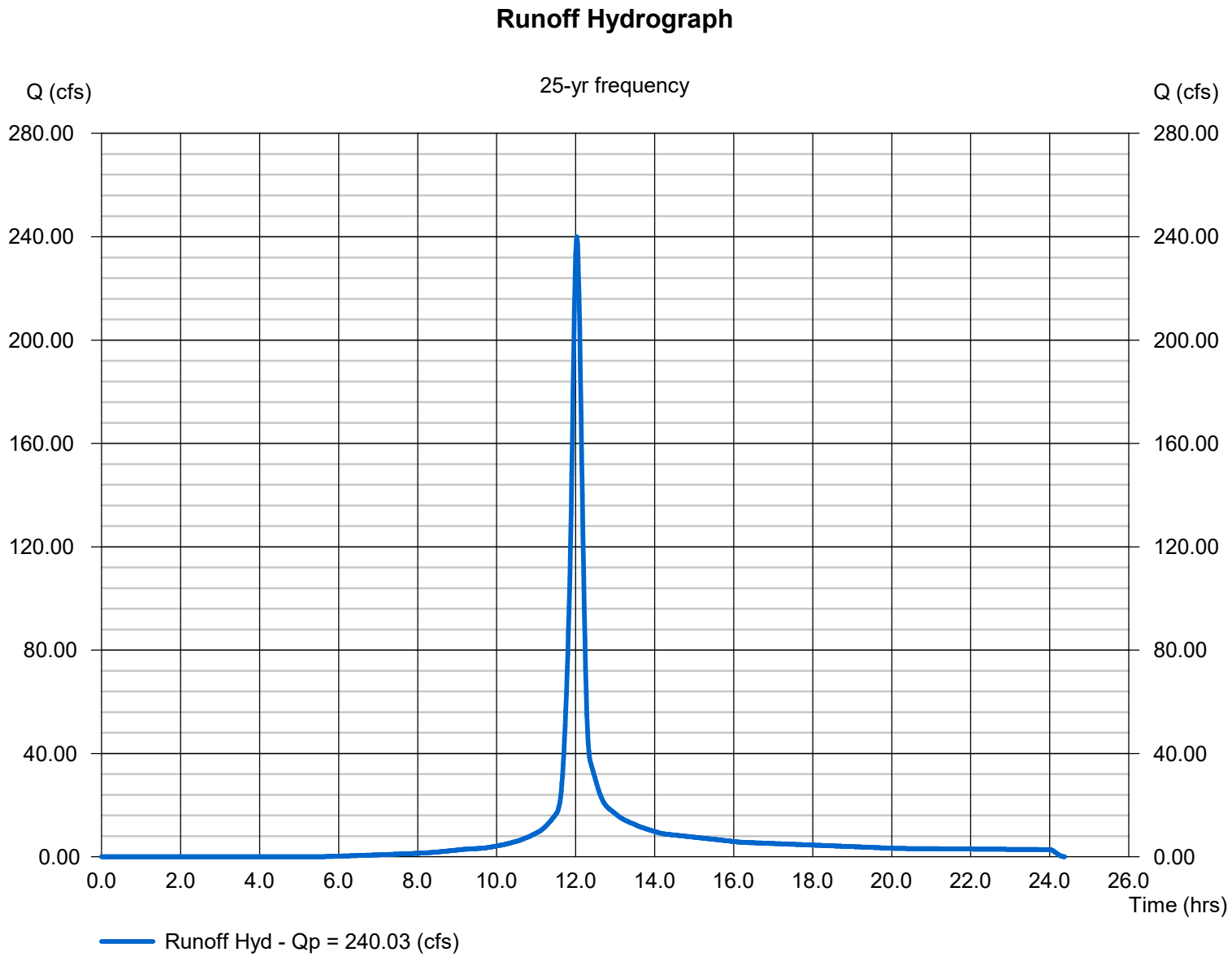
Hydrology Report

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)



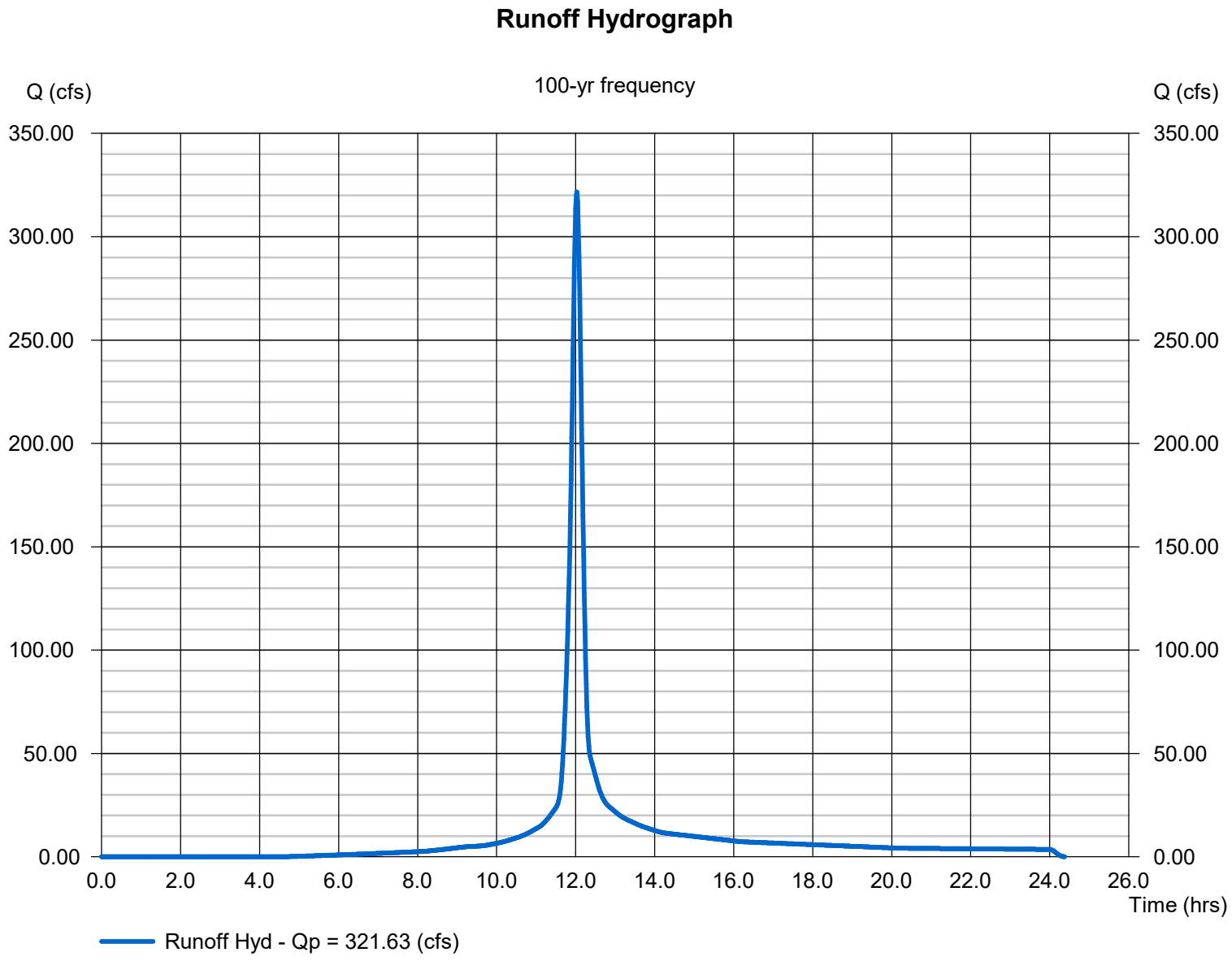
Hydrology Report

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

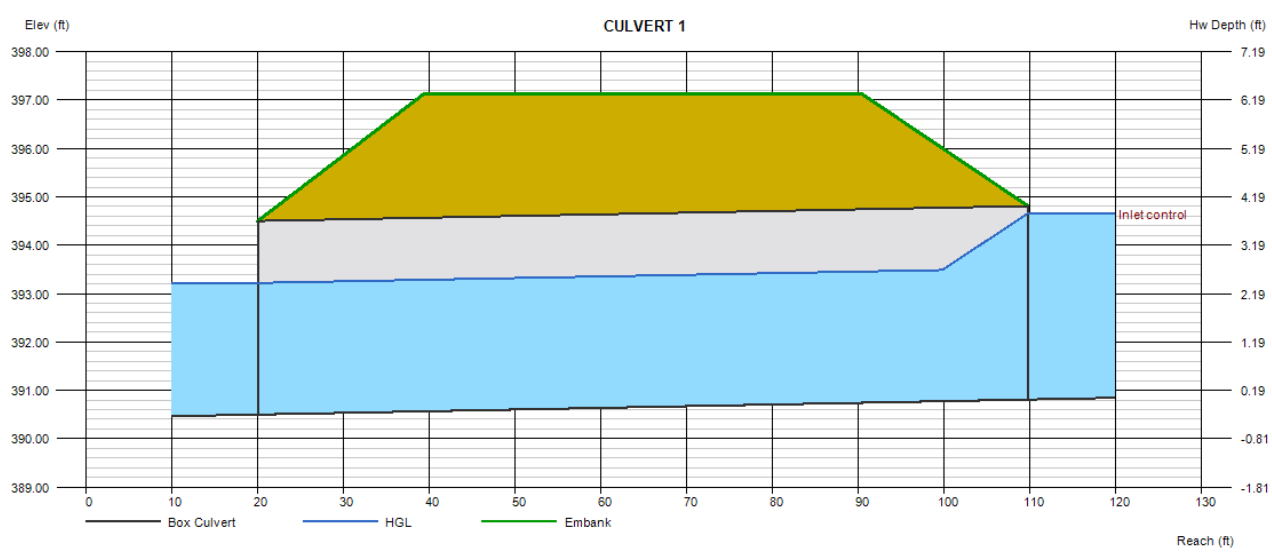
Top Elevation (ft)	=	397.13
Top Width (ft)	=	51.00
Crest Width (ft)	=	120.00

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

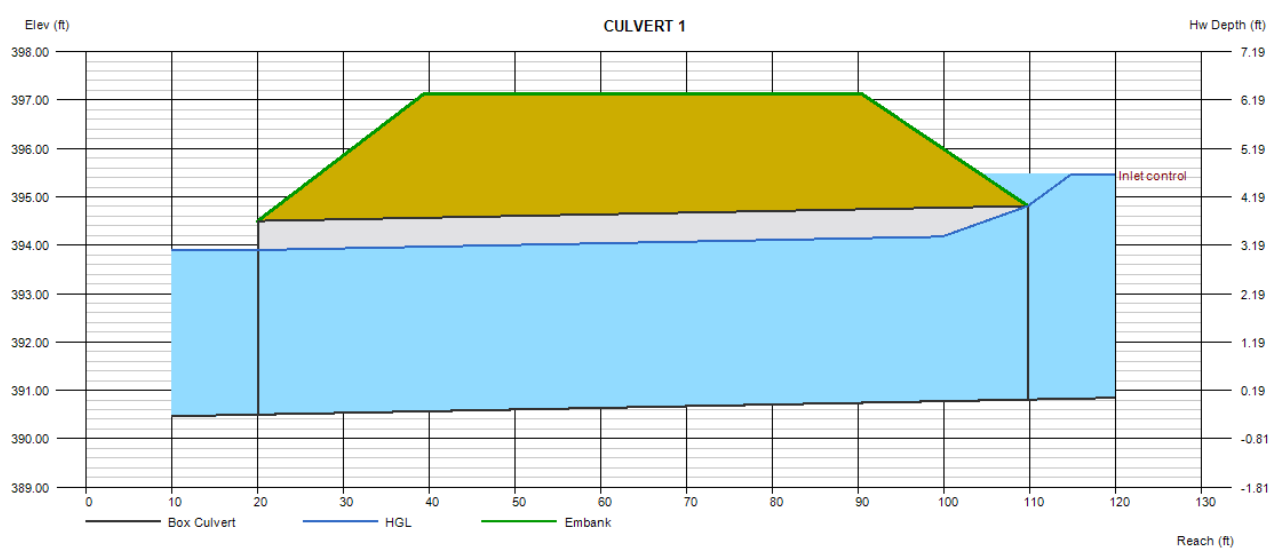
Top Elevation (ft)	=	397.13
Top Width (ft)	=	51.00
Crest Width (ft)	=	120.00

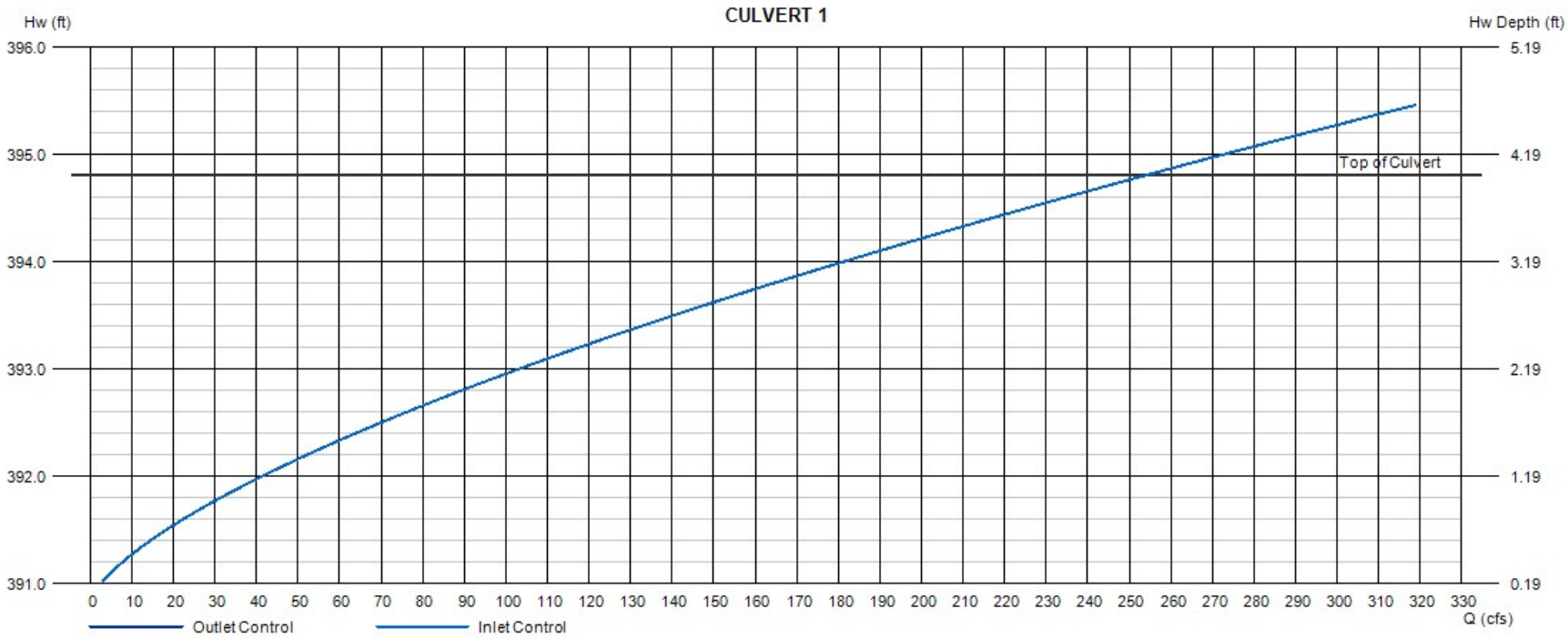
Calculations

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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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

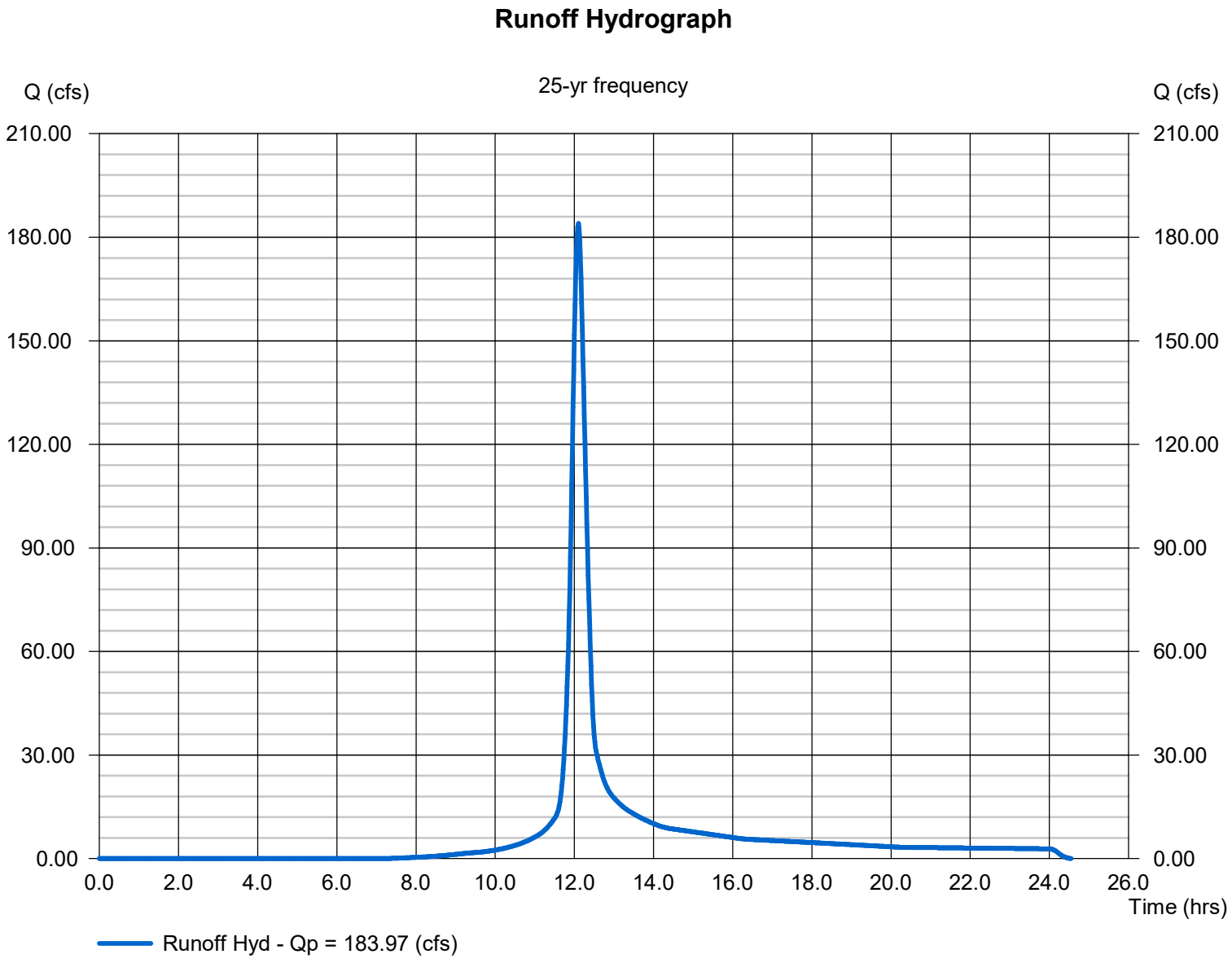
Hydrology Report

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)



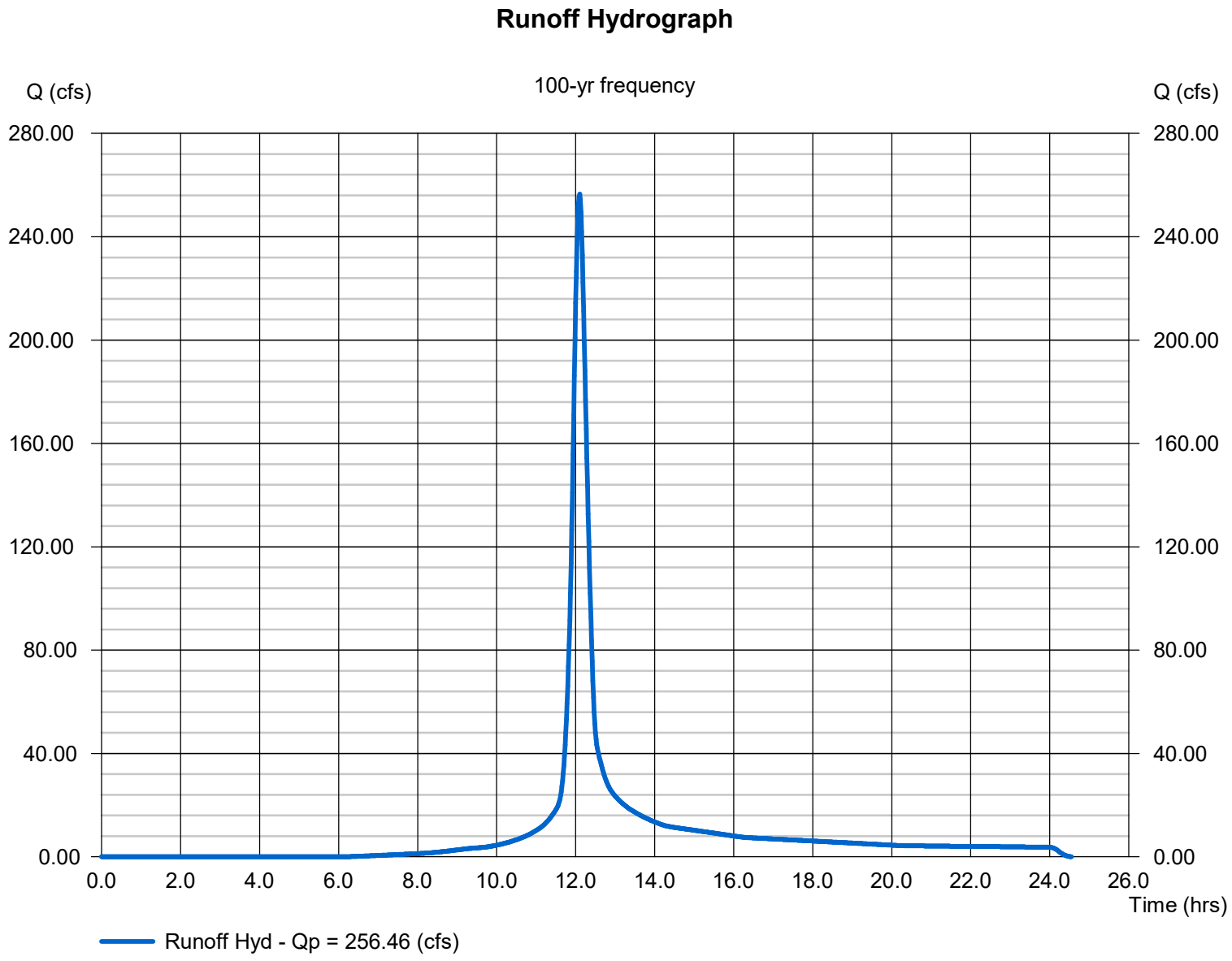
Hydrology Report

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

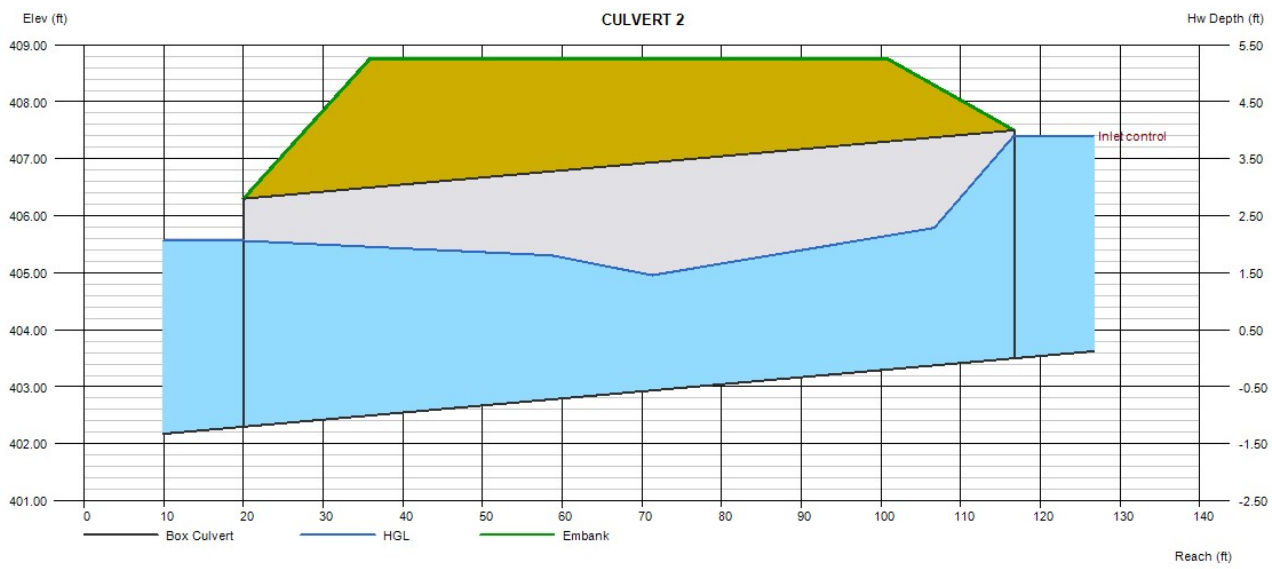
Top Elevation (ft)	=	408.75
Top Width (ft)	=	65.00
Crest Width (ft)	=	110.00

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

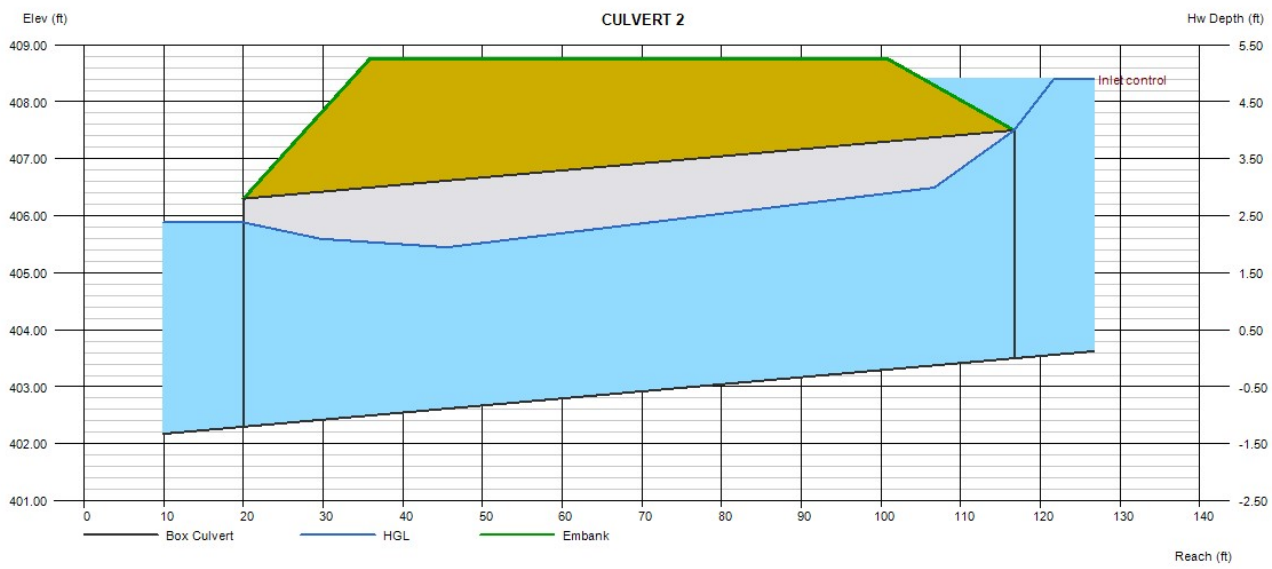
Top Elevation (ft)	=	408.75
Top Width (ft)	=	65.00
Crest Width (ft)	=	110.00

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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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

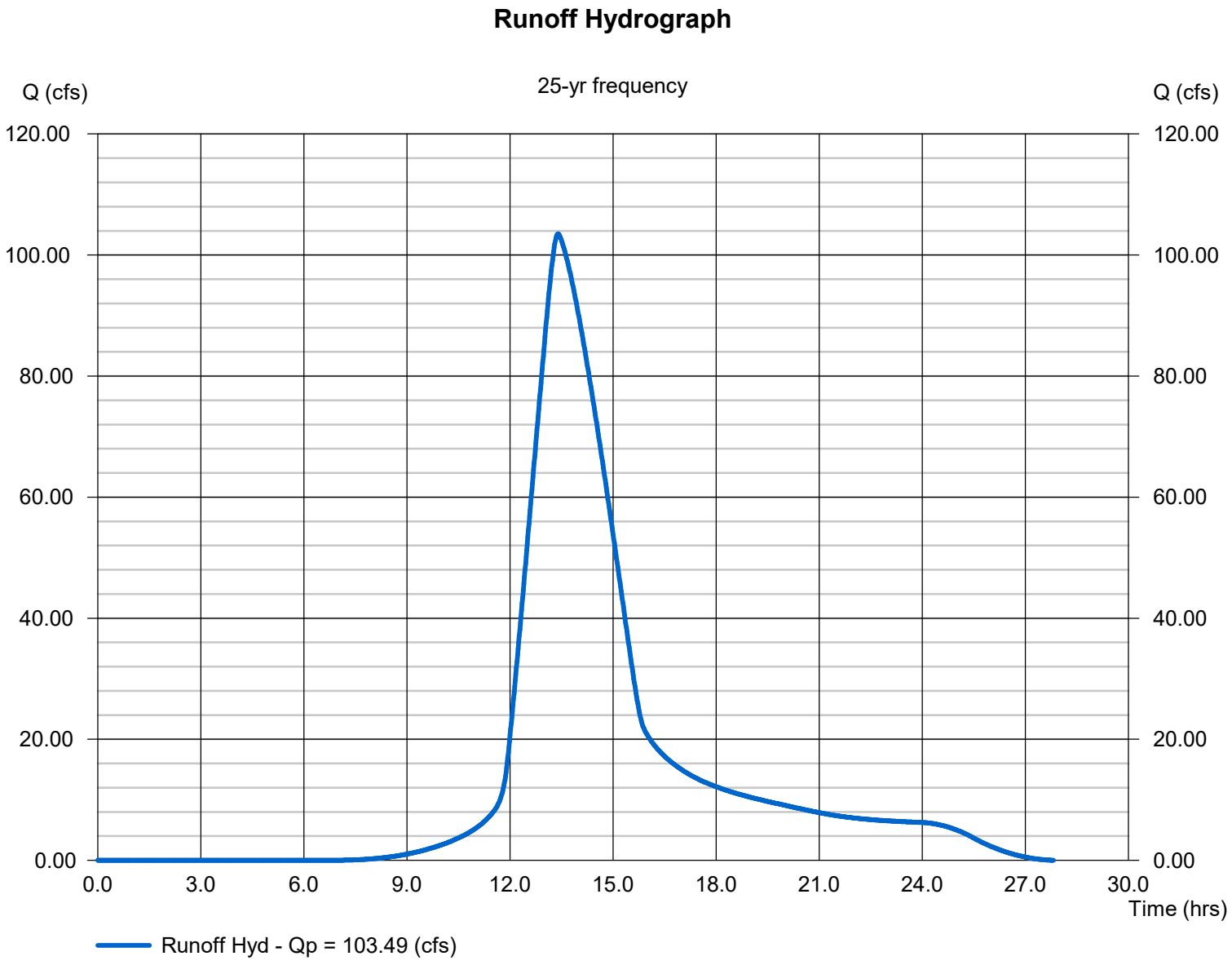
Hydrology Report

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)



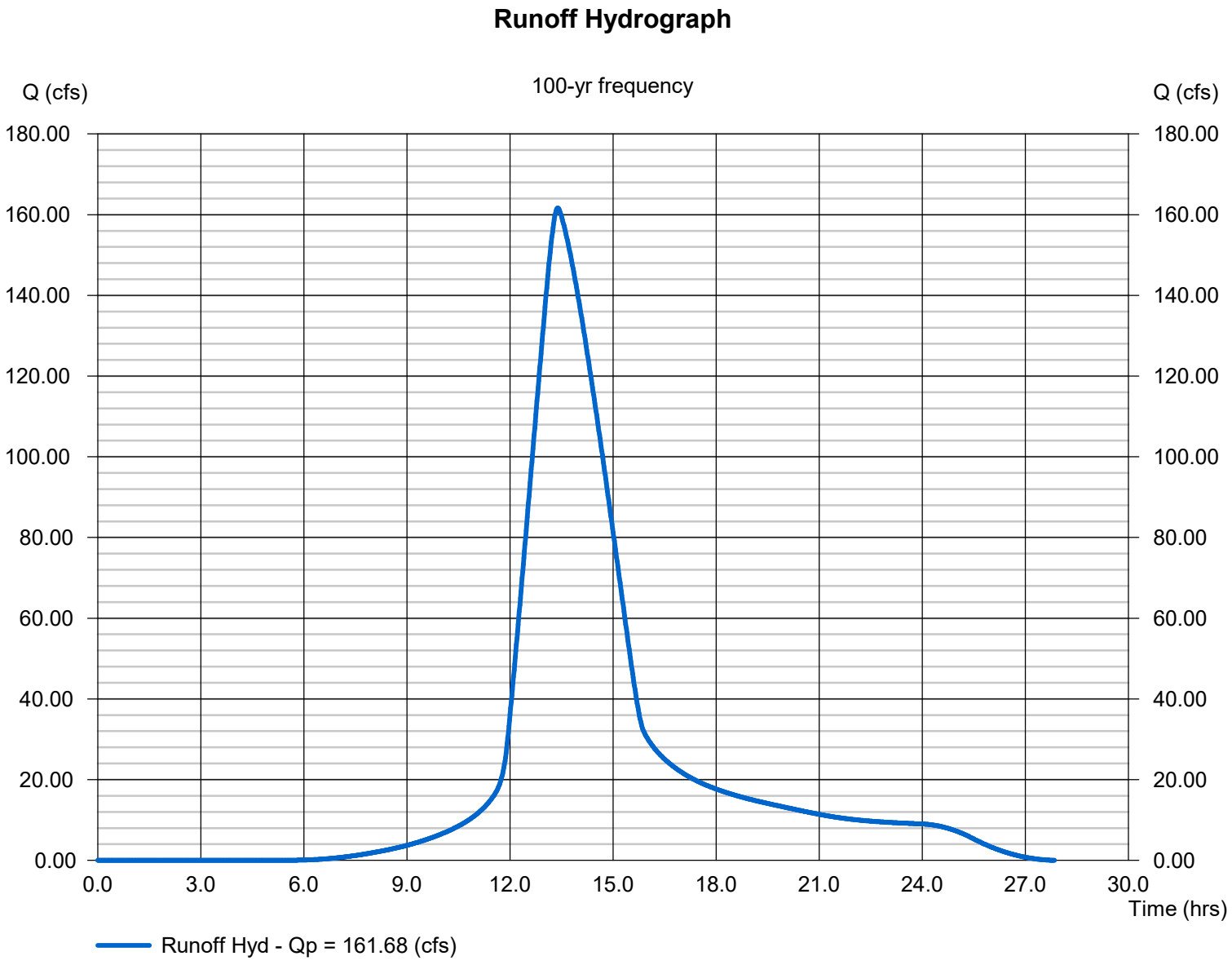
Hydrology Report

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

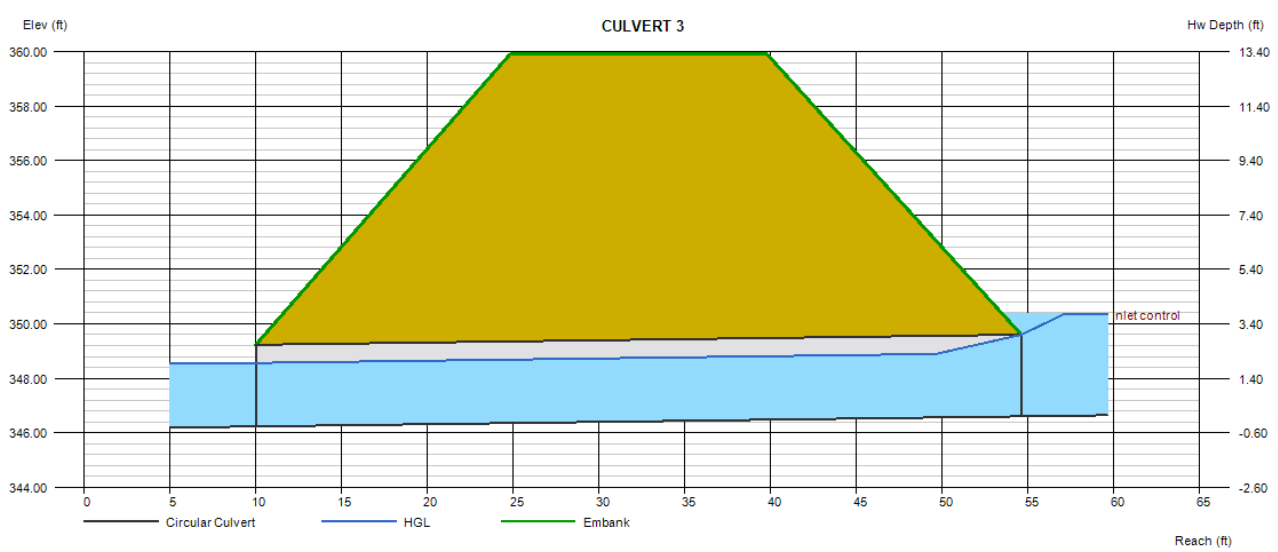
Top Elevation (ft)	=	359.90
Top Width (ft)	=	15.00
Crest Width (ft)	=	40.00

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

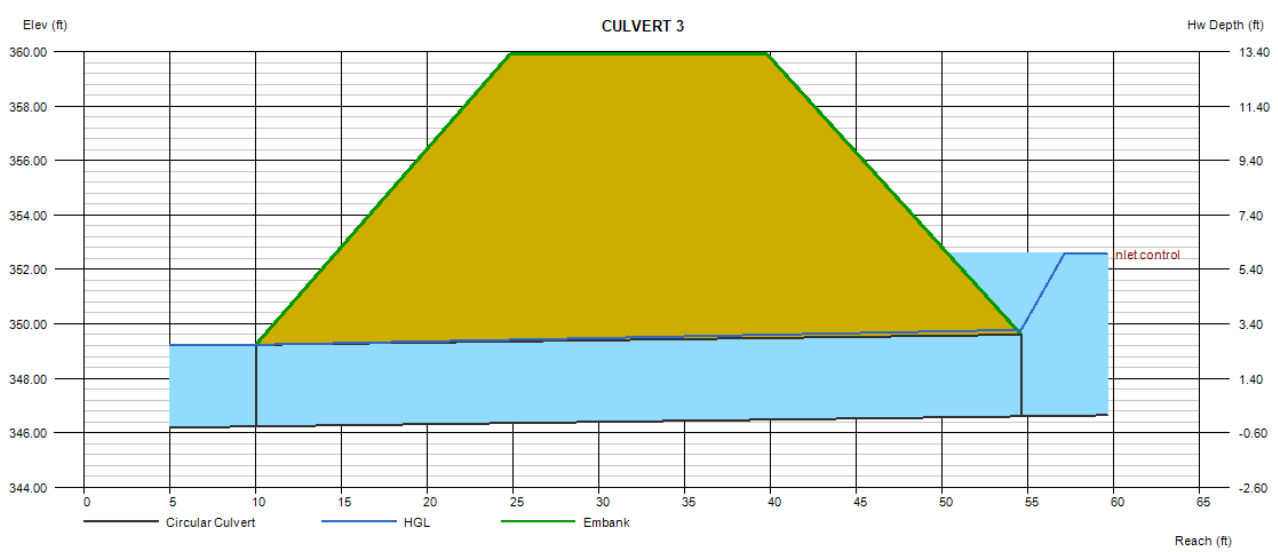
Top Elevation (ft)	=	359.90
Top Width (ft)	=	15.00
Crest Width (ft)	=	40.00

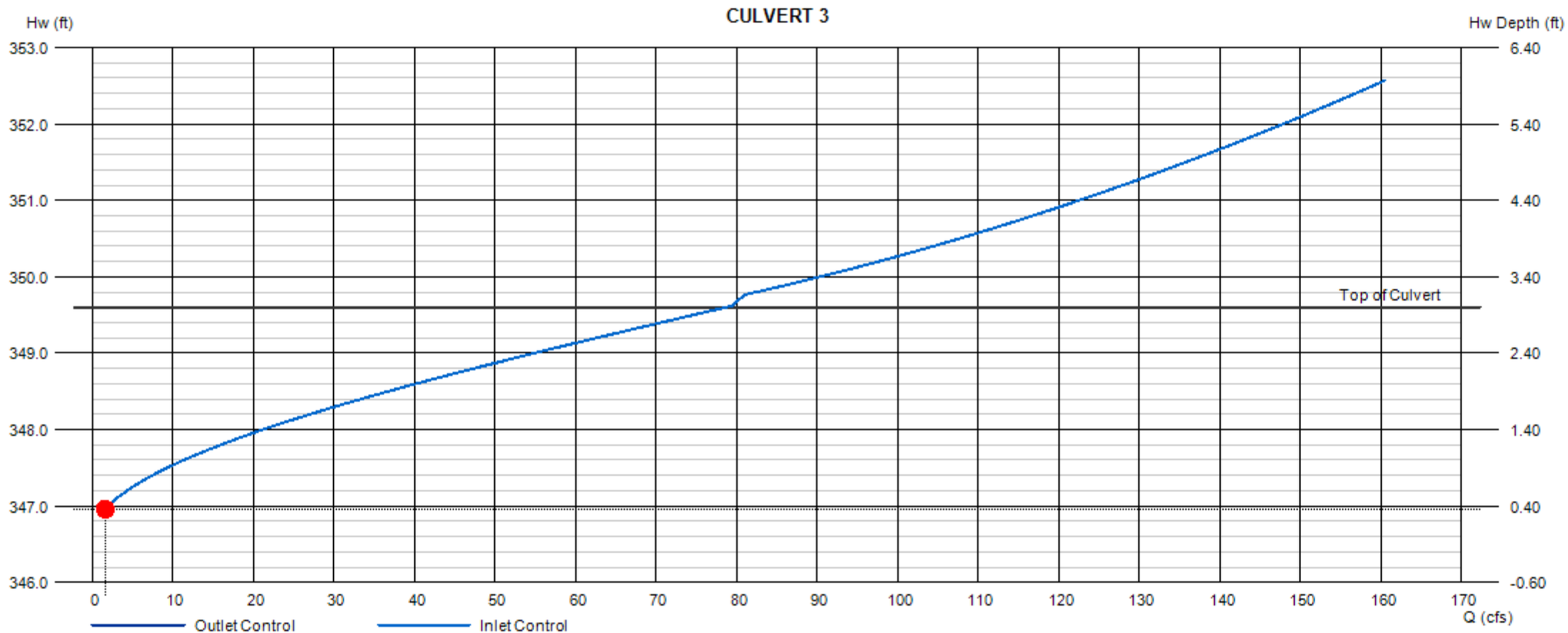
Calculations

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

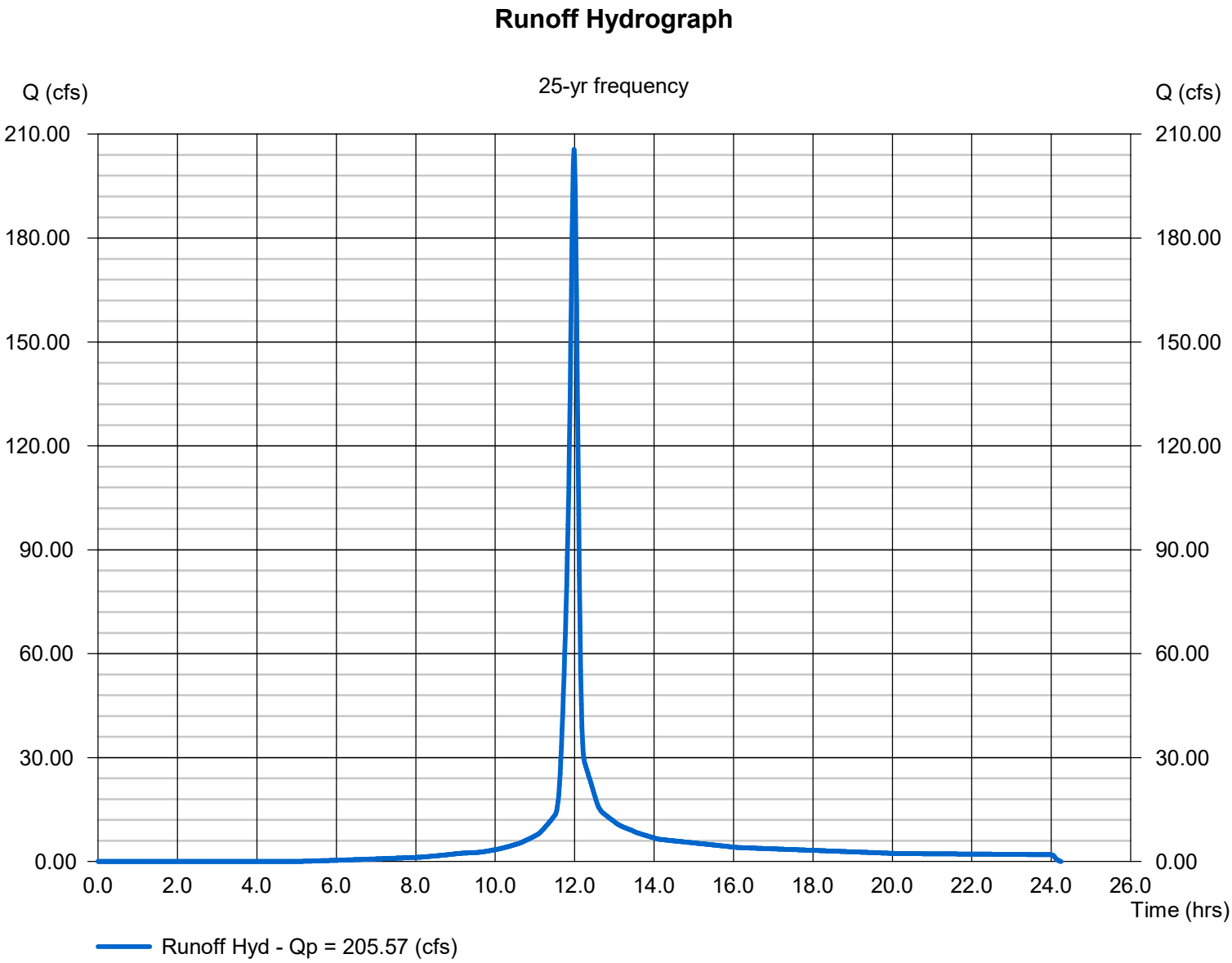
Hydrology Report

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)



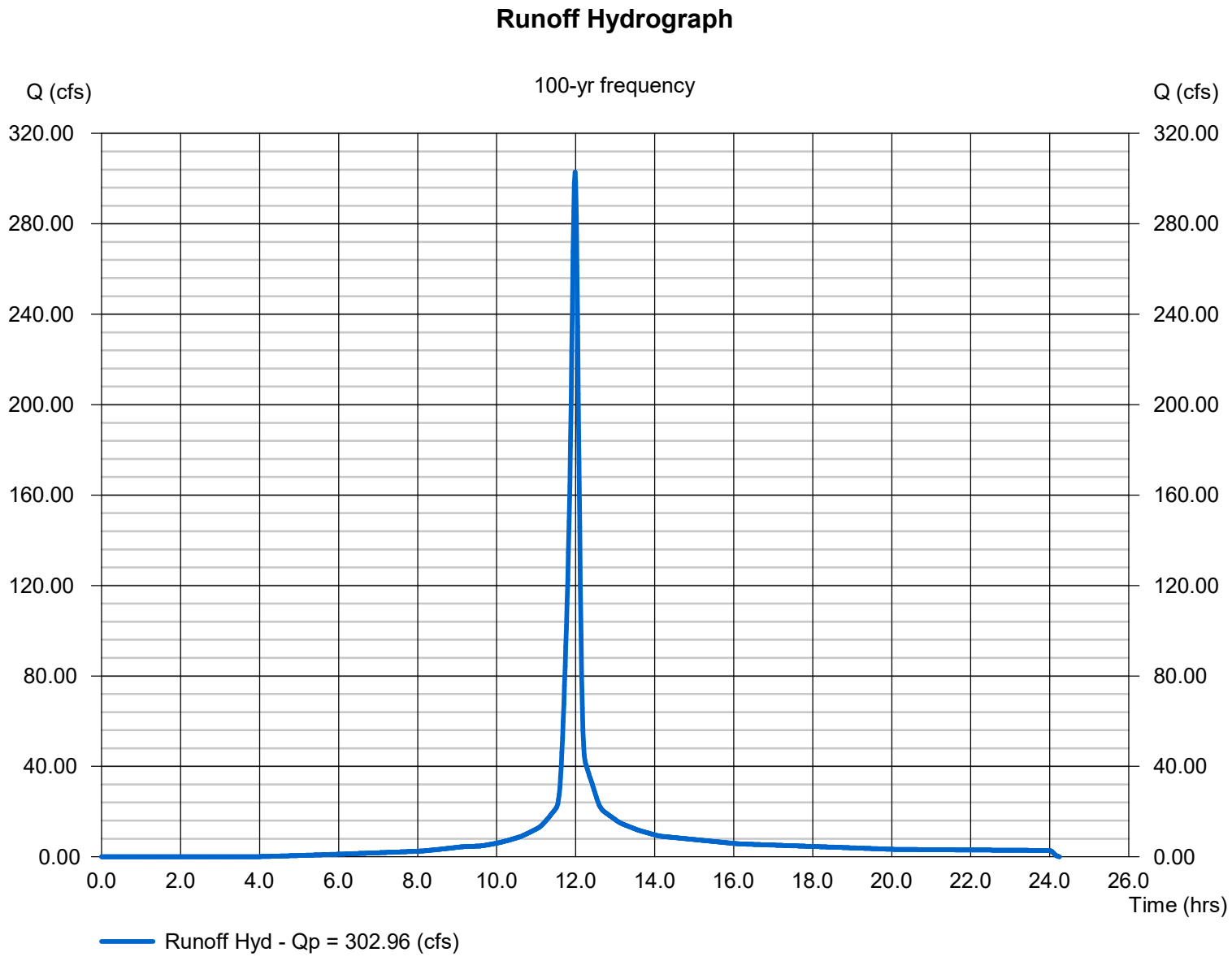
Hydrology Report

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

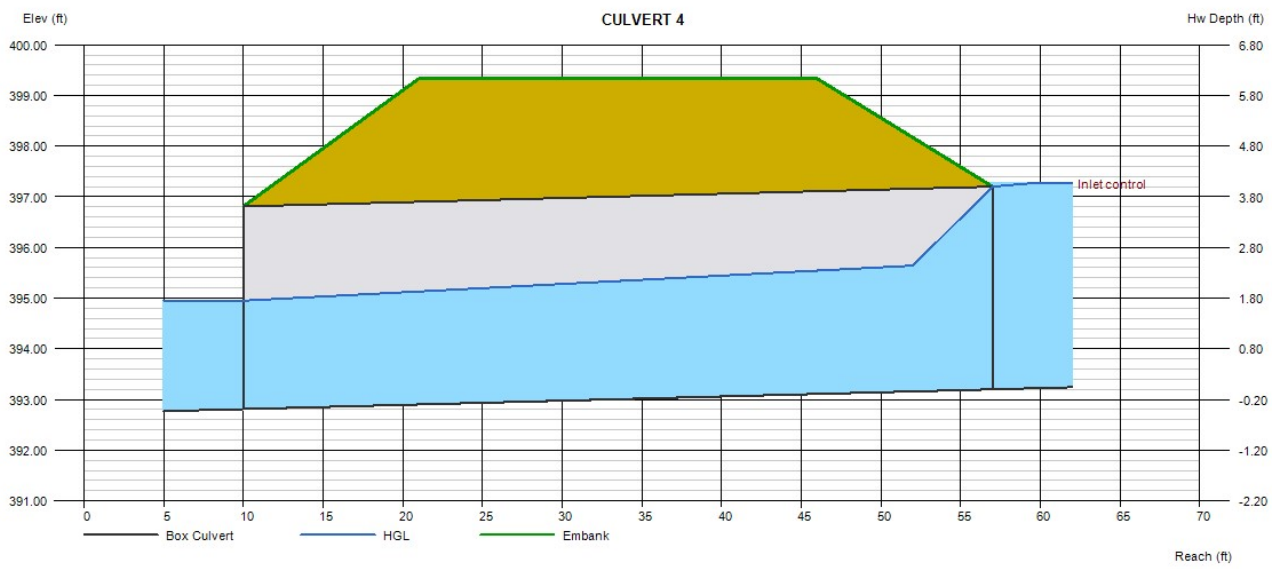
Top Elevation (ft)	=	399.33
Top Width (ft)	=	25.00
Crest Width (ft)	=	62.00

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

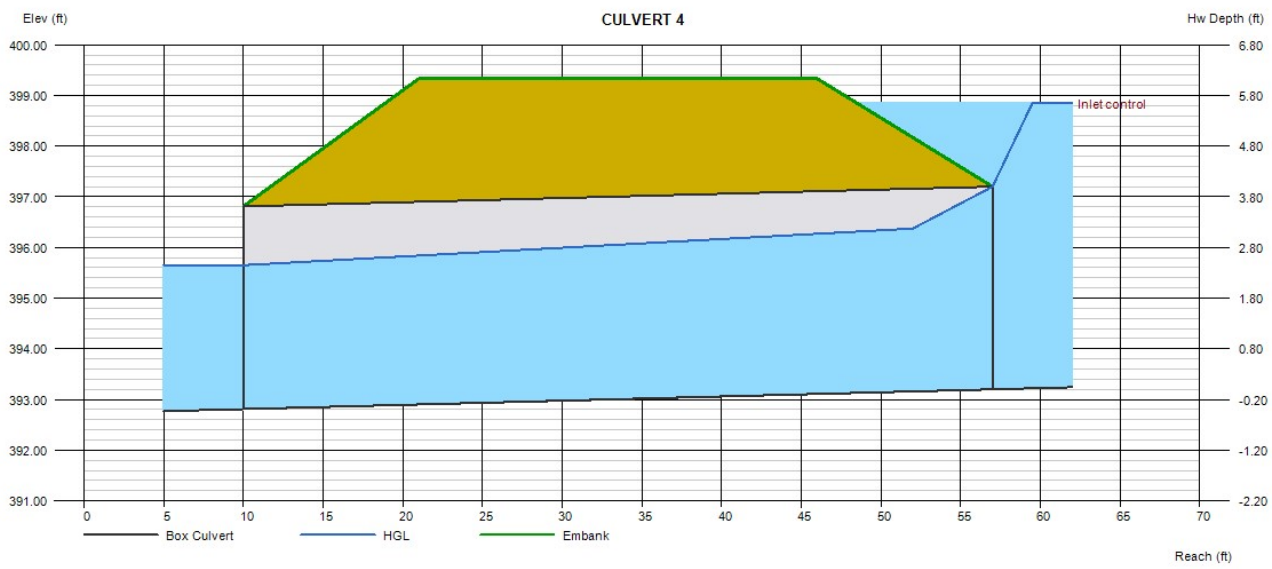
Top Elevation (ft)	=	399.33
Top Width (ft)	=	25.00
Crest Width (ft)	=	62.00

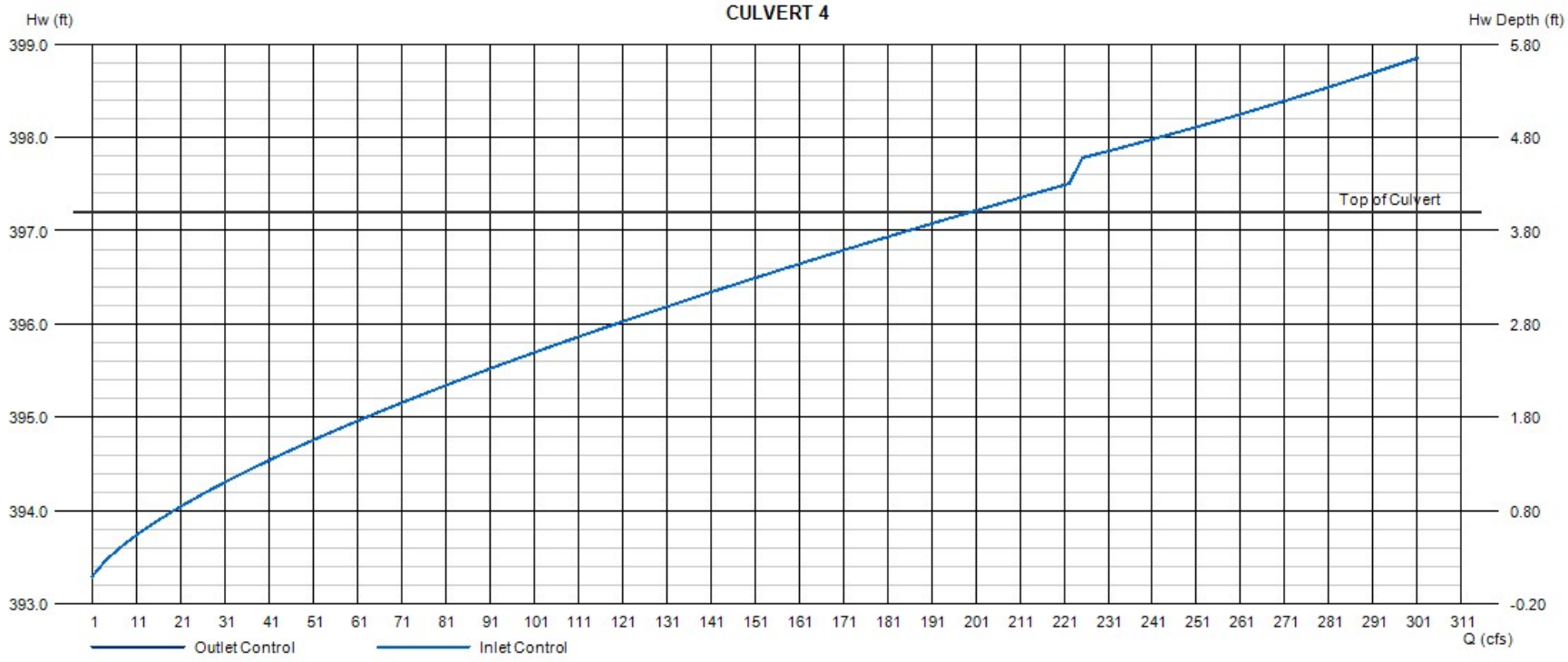
Calculations

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 CALCULATIONS

TEMPORARY DIVERSIONS

DISSIPATORS