THE POINT – NORTH

ROLESVILLE, NORTH CAROLINA

STORM DRAINAGE CALCULATIONS

PROJECT NUMBER: AWH-20000
DESIGNED BY: W. T. O'DANIEL, PE

DATE: OCTOBER 26, 2022

Todd O'Daniel
Oct 27 2022 1:56 PM

MCADAMS
2905 MERIDIAN PARKWAY
DURHAM, NORTH CAROLINA 27713
NC LIC. # C-0293

THE POINT – NORTH

STORM DRAINAGE SYSTEM CALCULATIONS

GENERAL DESCRIPTION

The Point site is located along NC HWY 401 (Louisburg Road) and west of East Young Street in Rolesville, North Carolina. The proposed development at The Point is approximately 300 acres, divided into two sections with one to the north of NC HWY 401 (The Point – North) and another to the south of NC HWY 401 (The Point - South) This storm drainage analysis includes The Point – North only. The total development will consist of approximately 804 lots, a mixture of townhomes and various types of single-family housing, thirteen stormwater control measures, sidewalks, roadways, greenway trail, and associated infrastructure and various amenities.

The Point – North development is located within the Neuse River basin with the site's stormwater runoff draining into Harris Creek. The proposed development shall be subject to storm drainage requirements set forth in the Rolesville Unified Development Ordinance.

CALCULATION METHODOLOGY

- Rainfall data for the Wendell, NC region was taken from NOAA Atlas 14. This data describes a depth-duration-frequency (DDF) table describing rainfall depth versus time for varying return periods in the Rolesville, NC area. These rainfall depths are entered into Stormwater Studio to determine design flows associated with the storm drainage system. Please reference the rainfall data section within this report for additional information.
- The time of concentration was calculated using the Kirpich Method.
- The existing on-site topography used in the analysis is from a field survey by Bateman Civil Survey and local GIS data.
- For each individual storm drainage inlet, a drainage area was measured as well as assigning impervious surface percentage. From this impervious percentage, a rational c factor was calculated based on 0.95 for impervious areas. For drainage areas with a combination of both pervious (Open Space and Lawns, C=0.35) and impervious areas, a composite "c" factor was interpolated.
- The pipes were sized using Stormwater Studio 2022. This program accepts the input data from each inlet, as well as physical characteristics of the storm system to be designed and calculates flow rates and pipe sizes throughout the system. The final results of this program as well as calculated pipe sizes and hydraulic grade lines may be found in the appropriate section of this report. The minimum pipe size was 12" unless otherwise shown on the plans. Pipe material is RCP in streets and HDPE in private areas as noted on the plans.

- The inlet types included for this project are primarily NCDOT type combination catch basins with curb inlets and grates. The calculations include an analysis to determine gutter spread at these inlets based on a 4-in per hour rainfall intensity.

- The storm water network was analyzed for the 10-year storm event using a starting time of concentration of 5 minutes.

- The various inlet types are shown on the stormwater detail sheets, within the plan set. Flared end sections or Endwalls are used at discharge points. Headwalls or structures are used at inlet points. Velocity dissipators are provided at discharge points to prevent erosion and scour in these areas. The dissipators have been sized using the NYDOT method.

PRECIPITATION FREQUENCY DATA TABLES

The Point – North
AWH-20000

NOAA Atlas 14, Volume 2, Version 3
Location name: Wake Forest, North Carolina, USA*
Latitude: 35.9088°, Longitude: -78.4485°
Elevation: 405.98 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**4.84** (4.43-5.29)	**5.62** (5.15-6.14)	**6.41** (5.87-6.98)	**7.19** (6.58-7.85)	**7.98** (7.27-8.70)	**8.62** (7.81-9.40)	**9.18** (8.28-10.0)	**9.68** (8.68-10.6)	**10.2** (9.10-11.2)	**10.7** (9.46-11.7)
10-min	**3.86** (3.54-4.23)	**4.49** (4.12-4.91)	**5.13** (4.70-5.59)	**5.75** (5.26-6.28)	**6.36** (5.80-6.94)	**6.86** (6.22-7.48)	**7.29** (6.58-7.95)	**7.67** (6.88-8.37)	**8.09** (7.19-8.84)	**8.45** (7.45-9.25)
15-min	**3.22** (2.95-3.52)	**3.77** (3.45-4.12)	**4.32** (3.96-4.72)	**4.85** (4.44-5.29)	**5.38** (4.90-5.86)	**5.79** (5.25-6.31)	**6.14** (5.54-6.70)	**6.45** (5.78-7.04)	**6.79** (6.04-7.42)	**7.07** (6.23-7.74)
30-min	**2.21** (2.02-2.42)	**2.60** (2.38-2.84)	**3.07** (2.81-3.35)	**3.51** (3.21-3.83)	**3.98** (3.63-4.34)	**4.36** (3.96-4.75)	**4.71** (4.24-5.13)	**5.02** (4.50-5.48)	**5.40** (4.80-5.90)	**5.73** (5.05-6.27)
60-min	**1.38** (1.26-1.51)	**1.63** (1.50-1.78)	**1.97** (1.80-2.15)	**2.29** (2.09-2.50)	**2.65** (2.41-2.89)	**2.96** (2.68-3.22)	**3.24** (2.92-3.53)	**3.52** (3.16-3.84)	**3.88** (3.45-4.23)	**4.18** (3.68-4.57)
2-hr	**0.805** (0.732-0.888)	**0.957** (0.874-1.05)	**1.17** (1.06-1.28)	**1.37** (1.25-1.50)	**1.61** (1.46-1.77)	**1.83** (1.64-2.00)	**2.03** (1.81-2.22)	**2.24** (1.99-2.45)	**2.52** (2.21-2.75)	**2.76** (2.40-3.02)
3-hr	**0.568** (0.516-0.629)	**0.676** (0.617-0.746)	**0.828** (0.753-0.913)	**0.980** (0.889-1.08)	**1.16** (1.05-1.28)	**1.33** (1.19-1.46)	**1.49** (1.33-1.64)	**1.66** (1.47-1.82)	**1.89** (1.65-2.08)	**2.10** (1.81-2.31)
6-hr	**0.342** (0.312-0.378)	**0.407** (0.372-0.448)	**0.499** (0.455-0.548)	**0.591** (0.537-0.648)	**0.705** (0.637-0.772)	**0.808** (0.726-0.884)	**0.912** (0.811-0.996)	**1.02** (0.900-1.11)	**1.17** (1.02-1.27)	**1.31** (1.12-1.43)
12-hr	**0.200** (0.183-0.221)	**0.238** (0.219-0.262)	**0.293** (0.269-0.322)	**0.350** (0.319-0.383)	**0.420** (0.381-0.459)	**0.485** (0.436-0.528)	**0.551** (0.490-0.599)	**0.622** (0.547-0.675)	**0.719** (0.622-0.781)	**0.809** (0.690-0.880)
24-hr	**0.119** (0.111-0.128)	**0.144** (0.134-0.155)	**0.181** (0.168-0.195)	**0.210** (0.195-0.227)	**0.251** (0.232-0.270)	**0.283** (0.261-0.304)	**0.316** (0.290-0.340)	**0.350** (0.321-0.378)	**0.398** (0.362-0.429)	**0.436** (0.395-0.471)
2-day	**0.069** (0.064-0.074)	**0.083** (0.078-0.090)	**0.104** (0.097-0.112)	**0.120** (0.111-0.129)	**0.142** (0.132-0.153)	**0.160** (0.147-0.172)	**0.178** (0.164-0.192)	**0.197** (0.180-0.212)	**0.223** (0.203-0.241)	**0.243** (0.220-0.263)
3-day	**0.049** (0.046-0.052)	**0.059** (0.055-0.063)	**0.073** (0.068-0.078)	**0.084** (0.078-0.090)	**0.099** (0.092-0.107)	**0.112** (0.103-0.120)	**0.124** (0.114-0.133)	**0.137** (0.126-0.147)	**0.155** (0.141-0.167)	**0.169** (0.154-0.183)
4-day	**0.039** (0.036-0.041)	**0.046** (0.043-0.050)	**0.057** (0.054-0.061)	**0.066** (0.062-0.071)	**0.078** (0.072-0.083)	**0.088** (0.081-0.094)	**0.097** (0.090-0.104)	**0.107** (0.099-0.115)	**0.121** (0.111-0.130)	**0.132** (0.120-0.142)
7-day	**0.026** (0.024-0.027)	**0.031** (0.029-0.033)	**0.037** (0.035-0.040)	**0.043** (0.040-0.046)	**0.050** (0.047-0.054)	**0.056** (0.052-0.060)	**0.062** (0.057-0.066)	**0.068** (0.063-0.073)	**0.077** (0.070-0.082)	**0.084** (0.076-0.090)
10-day	**0.020** (0.019-0.022)	**0.024** (0.023-0.026)	**0.029** (0.027-0.031)	**0.033** (0.031-0.035)	**0.039** (0.036-0.041)	**0.043** (0.040-0.046)	**0.047** (0.044-0.050)	**0.051** (0.047-0.055)	**0.057** (0.053-0.061)	**0.062** (0.057-0.066)
20-day	**0.014** (0.013-0.015)	**0.016** (0.015-0.017)	**0.019** (0.018-0.020)	**0.022** (0.020-0.023)	**0.025** (0.023-0.026)	**0.027** (0.025-0.029)	**0.030** (0.028-0.032)	**0.032** (0.030-0.035)	**0.036** (0.033-0.038)	**0.039** (0.036-0.041)
30-day	**0.011** (0.011-0.012)	**0.013** (0.013-0.014)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.020** (0.018-0.021)	**0.021** (0.020-0.023)	**0.023** (0.022-0.025)	**0.025** (0.023-0.026)	**0.027** (0.025-0.029)	**0.029** (0.027-0.031)
45-day	**0.010** (0.009-0.010)	**0.011** (0.011-0.012)	**0.013** (0.012-0.014)	**0.014** (0.013-0.015)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.018** (0.017-0.019)	**0.020** (0.018-0.021)	**0.021** (0.020-0.023)	**0.022** (0.021-0.024)
60-day	**0.009** (0.008-0.009)	**0.010** (0.010-0.011)	**0.011** (0.011-0.012)	**0.013** (0.012-0.013)	**0.014** (0.013-0.015)	**0.015** (0.014-0.016)	**0.016** (0.015-0.017)	**0.017** (0.016-0.018)	**0.018** (0.017-0.019)	**0.019** (0.018-0.020)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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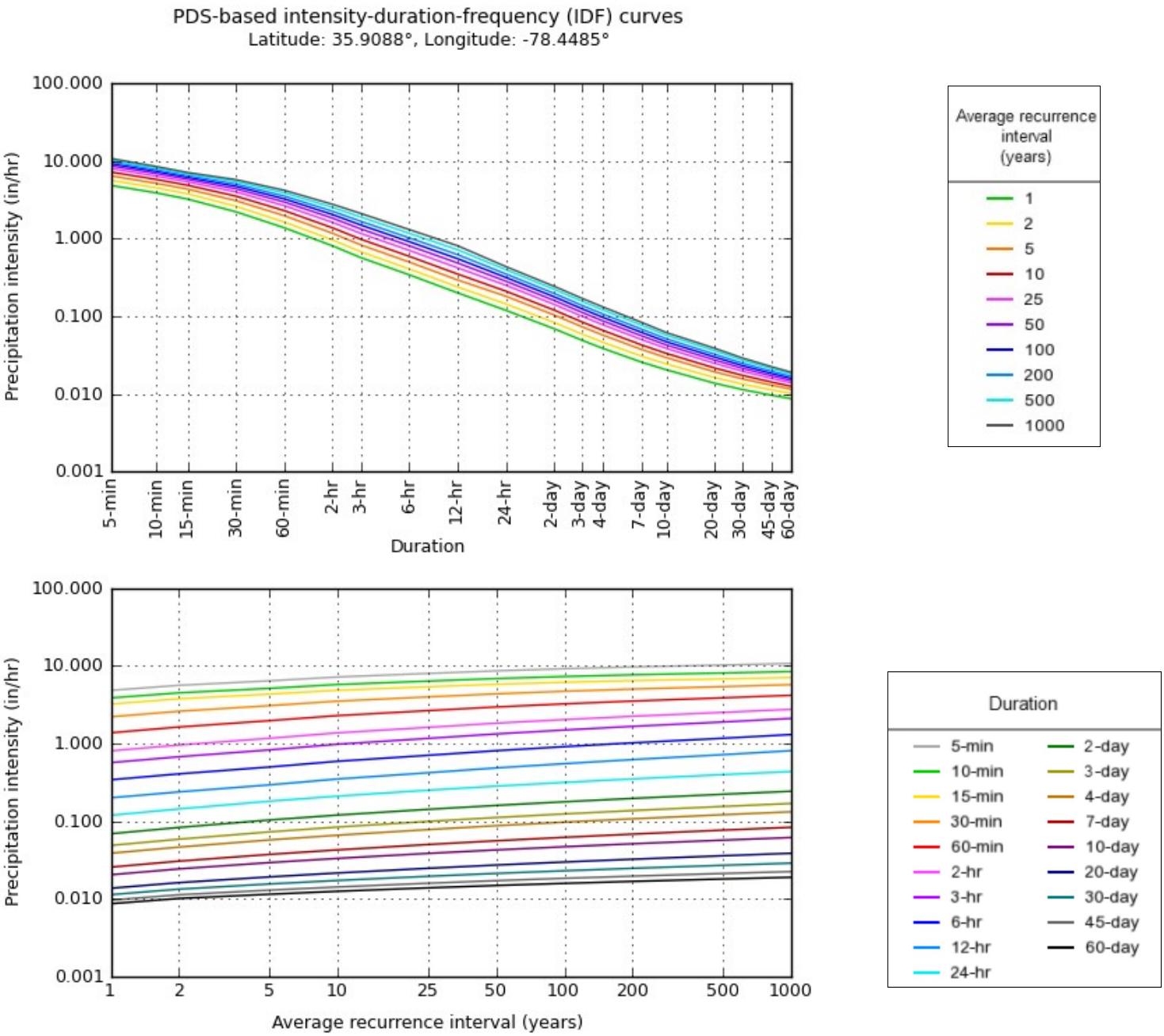
PF graphical



NOAA Atlas 14, Volume 2, Version 3

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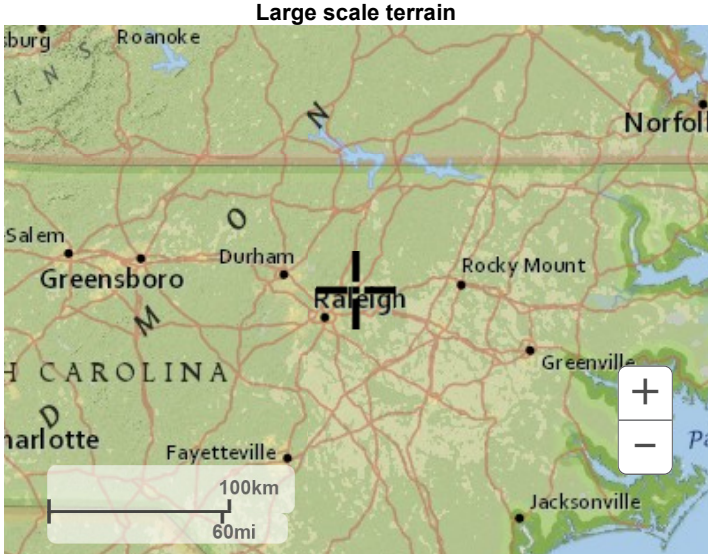
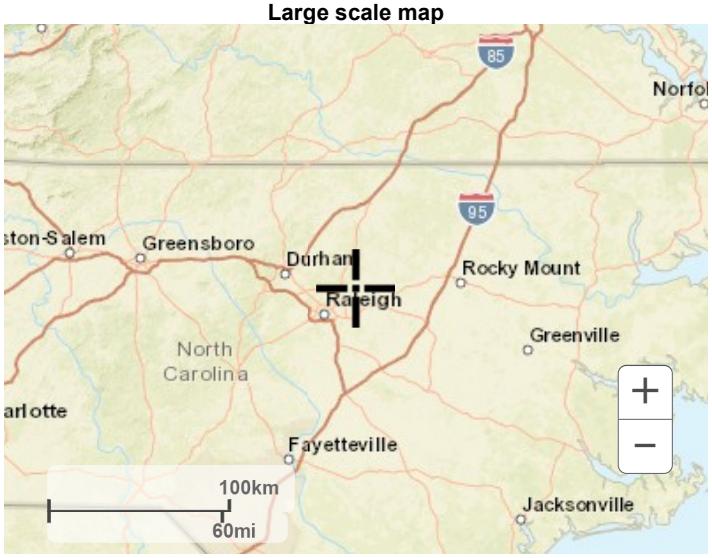
Maps & aerials

Small scale terrain

Large scale terrain



Large scale map



Large scale aerial

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National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

IDF Report

IDF filename: The Point - North.IDF

Stormwater Studio 2022 v 3.0.0.29

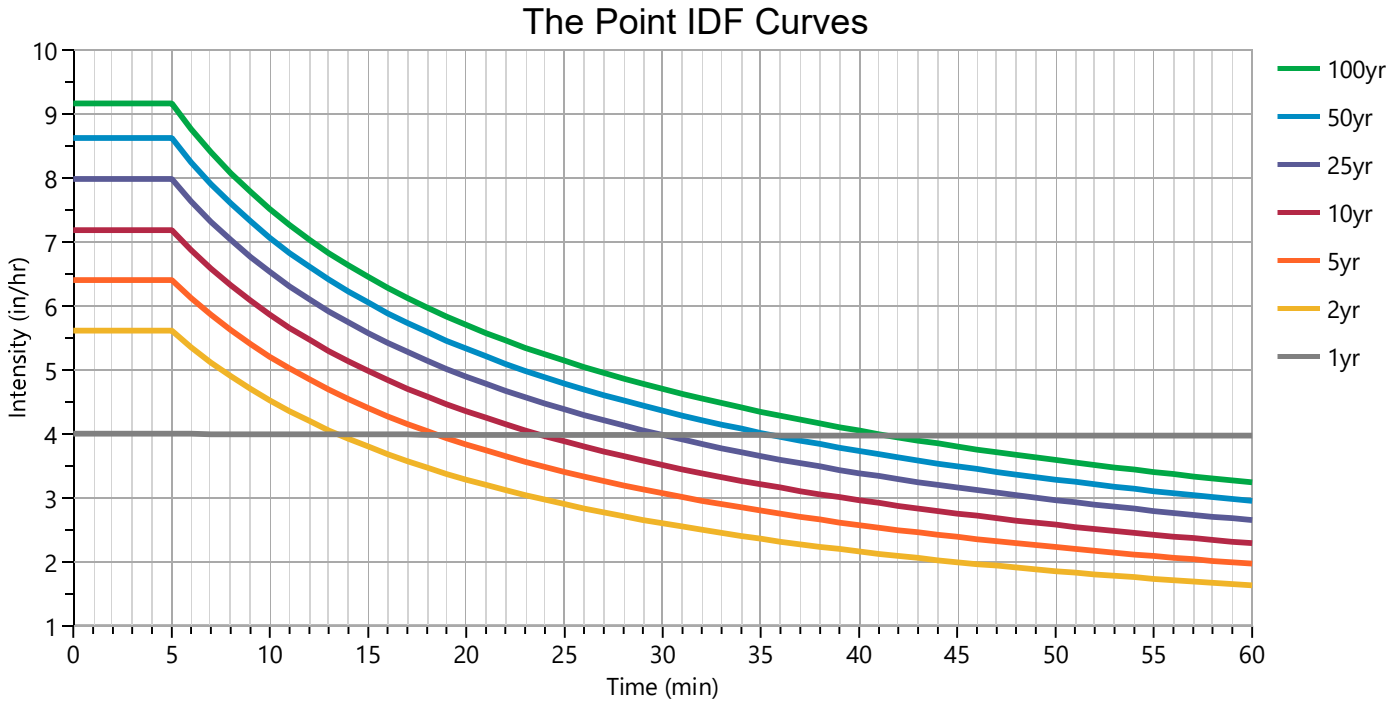
10-26-2022

Equation Coefficients	Intensity = B / (Tc + D)^E (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
B	4.0388	71.2172	0.0000	69.6788	67.8360	62.7327	58.0339	51.2218	
D	5.5000	12.9000	0.0000	12.6000	12.0000	11.1000	10.2000	9.0000	
E	0.0041	0.8806	0.0000	0.8322	0.7923	0.7421	0.7008	0.6520	

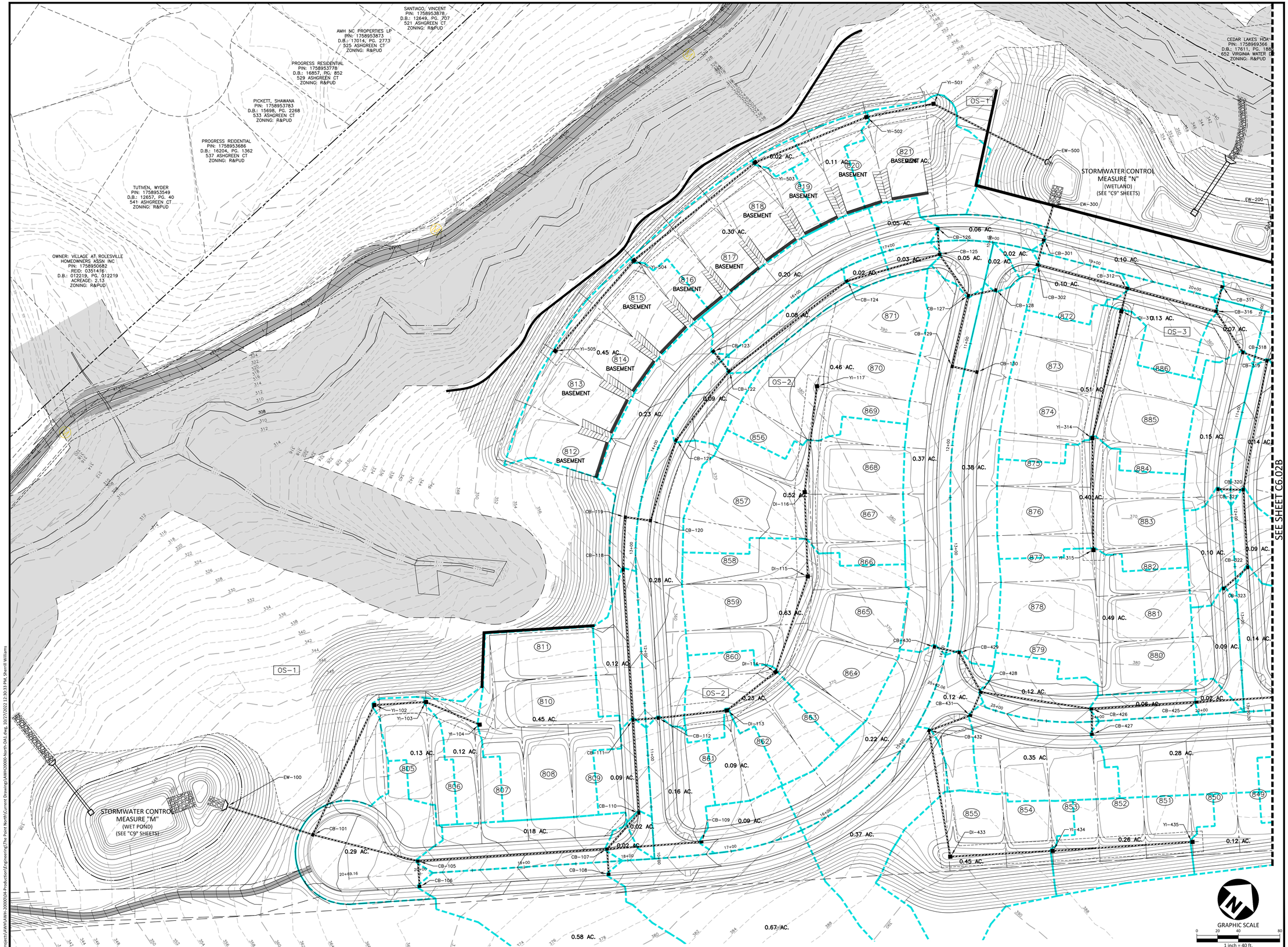
Minimum Tc = 5 minutes

Tc (min)	Intensity Values (in/hr)								
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr	
Cf	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
5	4.00	5.61	0	6.41	7.19	7.98	8.62	9.17	
10	3.99	4.52	0	5.20	5.86	6.53	7.06	7.51	
15	3.99	3.80	0	4.41	4.98	5.57	6.05	6.45	
20	3.99	3.28	0	3.84	4.35	4.89	5.33	5.70	
25	3.98	2.90	0	3.41	3.88	4.38	4.79	5.14	
30	3.98	2.60	0	3.07	3.51	3.98	4.36	4.70	
35	3.98	2.36	0	2.80	3.21	3.65	4.02	4.34	
40	3.98	2.16	0	2.58	2.96	3.39	3.73	4.05	
45	3.97	2.00	0	2.39	2.76	3.16	3.49	3.80	
50	3.97	1.86	0	2.23	2.58	2.97	3.29	3.59	
55	3.97	1.74	0	2.09	2.42	2.80	3.11	3.40	
60	3.97	1.63	0	1.97	2.29	2.65	2.95	3.24	

Cf = Correction Factor applied to Rational Method runoff coefficient.



DRAINAGE AREA MAP



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THE POINT
PHASES 11-13
CONSTRUCTION DRAWINGS
EAST YOUNG STREET
TOWN OF ROLESVILLE, WAKE FOREST TOWNSHIP,
WAKE COUNTY, NORTH CAROLINA

CD XX-XX

REVISIONS

NO.	DATE

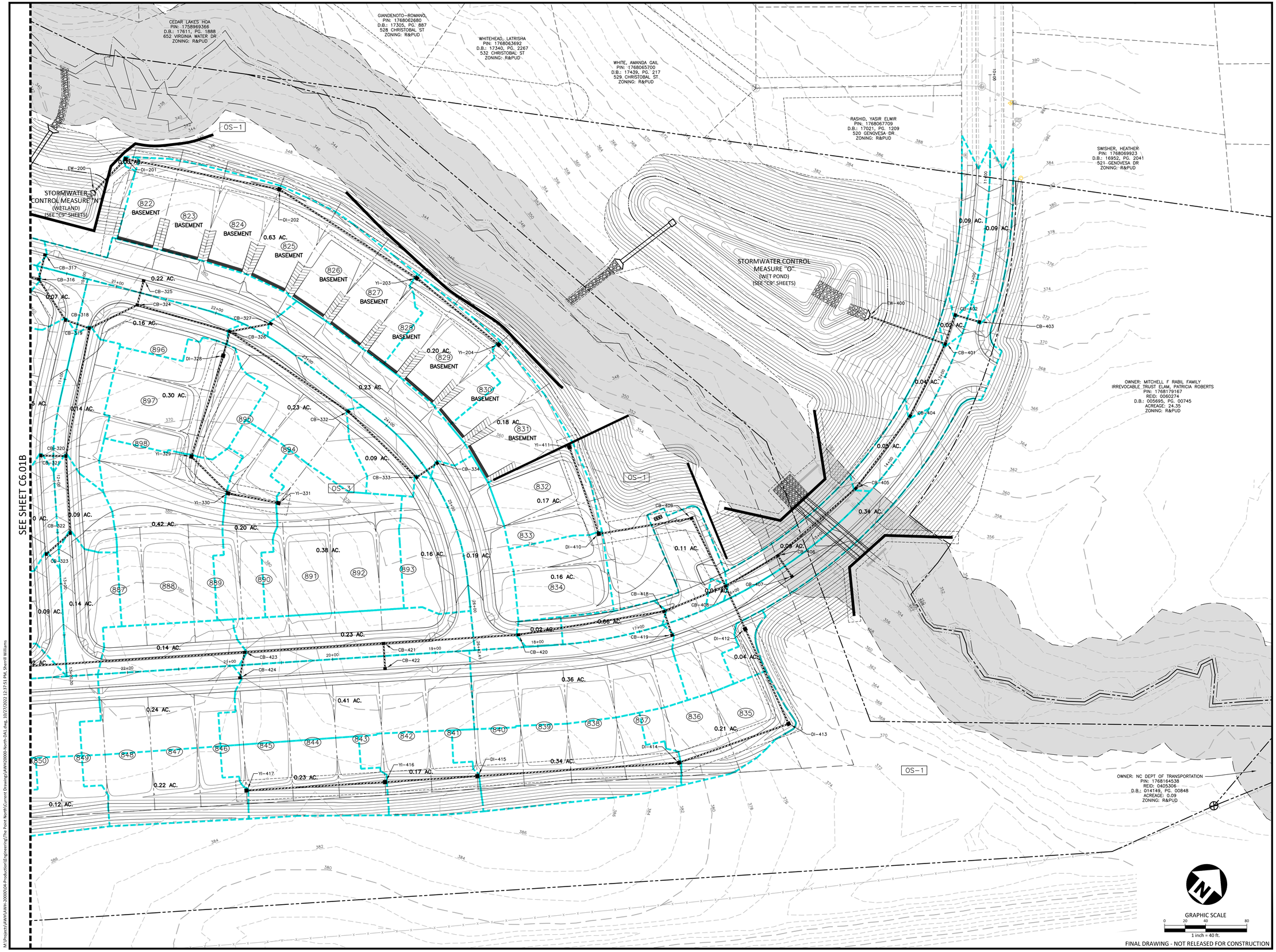
PLAN INFORMATION

PROJECT NO.	AWH-20000
FILENAME	AWH20000-NORTH-DA1
CHECKED BY	.
DRAWN BY	.
SCALE	1"=40'
DATE	10. 27. 2022

SHEET

DRAINAGE AREA MAP
AREA "A"

1 OF 2



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THE POINT PHASES 11-13

CONSTRUCTION DRAWINGS
EAST YOUNG STREET
TOWN OF ROLESVILLE, WAKE FOREST TOWNSHIP,
WAKE COUNTY, NORTH CAROLINA

CD XX-XX

REVISIONS

NO.	DATE

PLAN INFORMATION

PROJECT NO.	AWH-20000
FILENAME	AWH20000-NORTH-DA1
CHECKED BY	.
DRAWN BY	.
SCALE	1"=40'
DATE	10. 27. 2022

SHEET

DRAINAGE AREA MAP
AREA "B"

2 OF 2

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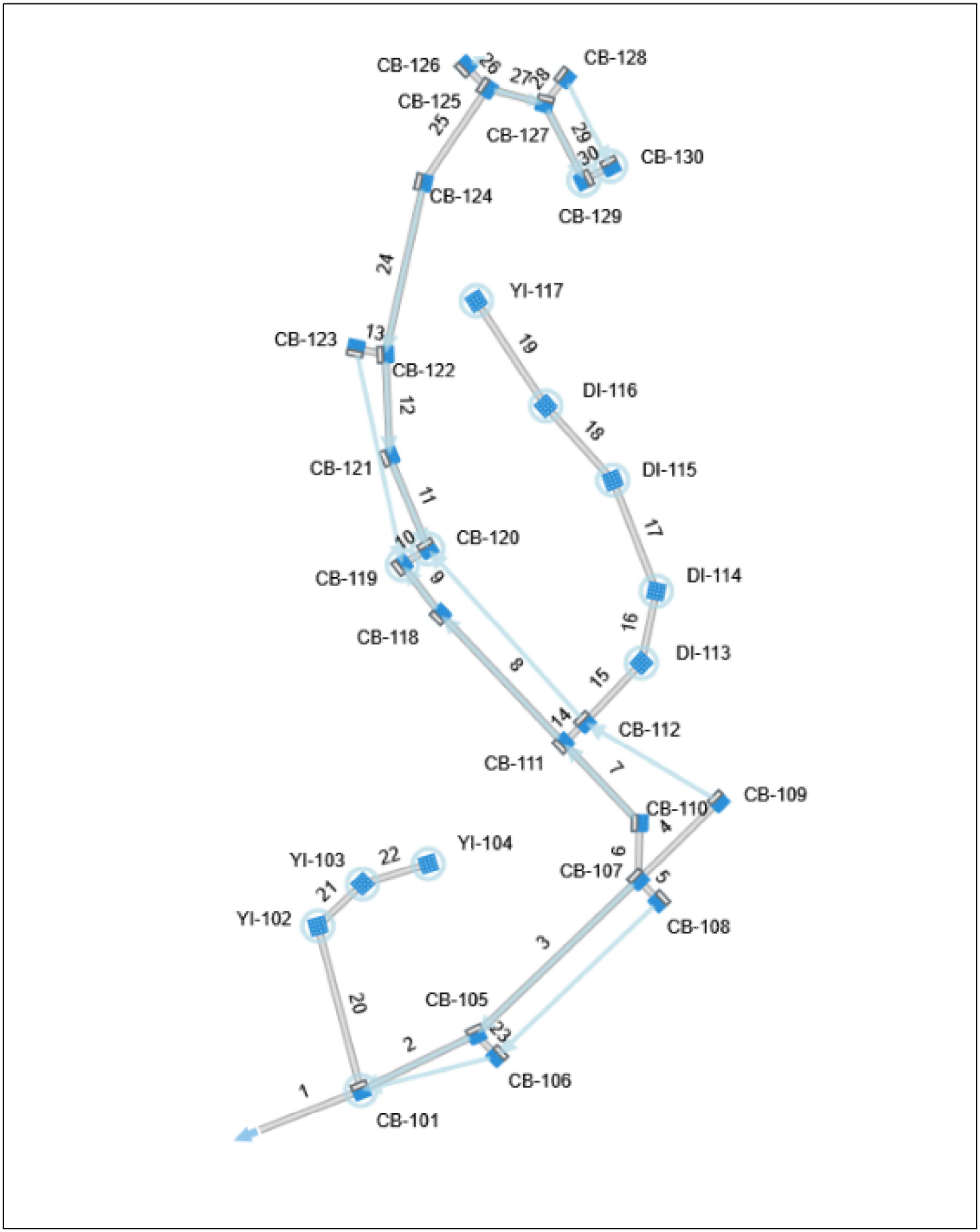
SYSTEM 100 – REPORTS AND PROFILES

Plan View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-26-2022



Project File: Storm System 100.sws

Storm Sewer Tabulation

Project Name: Storm System 100

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
100-101	87.18	0.290	6.650	0.76	0.22	4.10	5.0	8.48	6.20	25.44	129.17	6.20	30	9.92	348.65	340.00	350.33	343.65	364.55	343.00	1
101-105	104.43	0.180	5.660	0.72	0.13	3.45	5.0	8.30	6.24	21.53	53.04	7.87	30	1.67	357.70	355.95	359.25	357.17	367.58	364.55	2
105-107	182.58	0.020	4.900	0.65	0.01	3.07	5.0	7.84	6.36	19.52	31.88	6.58	30	0.60	358.90	357.80	360.38	359.23	372.61	367.58	3
107-109	91.37	0.090	0.090	0.75	0.07	0.07	5.0	5.00	7.19	0.49	10.68	3.29	15	2.73	370.35	367.85	370.63	368.04	375.13	372.61	4
107-108	24.47	0.670	0.670	0.42	0.28	0.28	5.0	5.00	7.19	2.02	5.79	3.86	15	0.80	367.85	367.65	368.42	368.19	372.61	372.61	5
107-110	46.36	0.020	4.120	0.95	0.02	2.71	5.0	7.72	6.39	17.30	32.89	5.25	30	0.64	359.30	359.00	360.74	360.80	373.01	372.61	6
110-111	89.85	0.090	4.100	0.75	0.07	2.69	5.0	7.49	6.45	17.34	32.06	5.76	30	0.61	359.95	359.40	361.34	360.97	371.36	373.01	7
111-118	145.00	0.120	1.920	0.75	0.09	1.36	5.0	7.06	6.56	8.95	17.82	4.50	24	0.62	361.25	360.35	362.31	361.78	369.28	371.36	8
118-119	50.87	0.230	1.800	0.72	0.17	1.27	5.0	6.92	6.60	8.41	20.18	5.41	24	0.80	361.75	361.35	362.78	362.31	369.12	369.28	9
119-120	24.50	0.280	1.570	0.67	0.19	1.11	5.0	6.85	6.62	7.34	10.54	5.79	18	1.01	362.60	362.35	363.64	363.34	369.12	369.12	10
120-121	81.37	0.090	1.290	0.62	0.06	0.92	5.0	6.58	6.70	6.17	8.21	4.44	18	0.61	363.20	362.70	364.18	363.97	369.60	369.12	11
121-122	83.69	0.080	1.200	0.80	0.06	0.86	5.0	6.33	6.77	5.86	9.28	4.61	18	0.78	363.95	363.30	364.88	364.43	371.06	369.60	12
122-123	24.56	0.200	0.200	0.71	0.14	0.14	5.0	5.00	7.19	1.02	5.79	3.13	15	0.80	366.40	366.20	366.80	366.58	371.10	371.06	13
111-112	24.50	0.160	2.090	0.73	0.12	1.26	5.0	6.39	6.75	8.49	22.74	5.45	24	1.01	361.50	361.25	362.53	362.21	371.36	371.36	14
112-113	66.43	0.090	1.930	0.68	0.06	1.14	5.0	6.20	6.81	7.77	9.10	5.79	18	0.75	362.55	362.05	363.61	363.11	372.69	371.36	15
113-114	59.90	0.230	1.840	0.53	0.12	1.08	5.0	6.01	6.87	7.41	8.58	4.66	18	0.67	363.05	362.65	364.23	364.03	369.55	372.69	16
114-115	97.22	0.630	1.610	0.59	0.37	0.96	5.0	5.72	6.96	6.66	8.93	5.45	18	0.72	363.85	363.15	364.84	364.12	367.36	369.55	17
115-116	81.36	0.520	0.980	0.64	0.33	0.59	5.0	5.44	7.04	4.13	8.66	2.79	18	0.68	364.40	363.85	365.42	365.34	368.03	367.36	18
116-117	102.77	0.460	0.460	0.55	0.25	0.25	5.0	5.00	7.19	1.82	5.31	2.78	15	0.68	365.40	364.70	365.94	365.57	368.83	368.03	19
101-102	138.39	0.130	0.700	0.63	0.08	0.43	5.0	5.30	7.09	3.07	5.07	4.32	15	0.62	362.05	361.20	362.76	361.90	365.44	364.55	20
102-103	50.00	0.120	0.570	0.60	0.07	0.35	5.0	5.15	7.14	2.50	7.64	3.43	15	1.40	362.85	362.15	363.49	362.99	366.22	365.44	21
103-104	56.04	0.450	0.450	0.62	0.28	0.28	5.0	5.00	7.19	2.01	9.43	4.61	15	2.13	364.15	362.95	364.72	363.38	367.42	366.22	22

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 100.sws

Storm Sewer Tabulation

Project Name: Storm System 100

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
105-106	24.50	0.580	0.580	0.43	0.25	0.25	5.0	5.00	7.19	1.79	5.00	3.60	15	0.60	362.85	362.70	363.39	363.23	367.58	367.58	23
122-124	143.11	0.020	0.920	0.95	0.02	0.66	5.0	5.83	6.92	4.56	5.26	4.80	15	0.66	365.15	364.20	366.02	365.13	373.52	371.06	24
124-125	92.79	0.030	0.900	0.75	0.02	0.64	5.0	5.52	7.02	4.49	5.40	4.68	15	0.70	365.90	365.25	366.75	366.24	373.41	373.52	25
125-126	24.97	0.050	0.050	0.71	0.04	0.04	5.0	5.00	7.19	0.26	5.78	2.12	15	0.80	368.65	368.45	368.85	368.64	373.50	373.41	26
125-127	48.40	0.050	0.820	0.83	0.04	0.58	5.0	5.36	7.07	4.11	5.87	4.33	15	0.83	366.40	366.00	367.21	367.04	371.93	373.41	27
127-128	26.90	0.020	0.020	0.95	0.02	0.02	5.0	5.00	7.19	0.14	5.57	0.29	15	0.74	367.15	366.95	367.58	367.58	371.96	371.93	28
127-129	70.04	0.370	0.750	0.69	0.26	0.52	5.0	5.11	7.15	3.73	5.18	4.32	15	0.64	366.95	366.50	367.73	367.39	371.46	371.93	29
129-130	24.50	0.380	0.380	0.70	0.27	0.27	5.0	5.00	7.19	1.91	5.06	1.71	15	0.61	367.20	367.05	368.21	368.20	371.46	371.46	30

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 100.sws

Energy Grade Line Calculations

Project Name: Storm System 100

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	30	25.44	340.00	2.50	4.91	343.65	5.18	0.42	344.07	87.18	348.65	1.69²	3.52	350.33	7.22	0.81	351.15	0.013	7.077	350.33	351.15	0.00
2	30	21.53	355.95	1.22‡	2.39	357.17	9.01	1.26	358.21	104.43	357.70	1.55²	3.20	359.25	6.73	0.70	359.95	0.013	1.747	359.25	359.95	0.00
3	30	19.52	357.80	1.44‡	2.92	359.23	6.69	0.70	360.06	182.58	358.90	1.48²	3.02	360.38	6.47	0.65	361.03	0.013	0.964	360.38	361.03	0.00
4	15	0.49	367.85	0.19‡	0.12	368.04	4.21	0.28	368.22	91.37	370.35	0.28²	0.20	370.63	2.38	0.09	370.72	0.013	2.499	370.63	370.72	0.00
5	15	2.02	367.65	0.54‡	0.50	368.19	4.01	0.25	368.44	24.47	367.85	0.57²	0.54	368.42	3.72	0.21	368.63	0.013	0.197	368.42	368.63	0.00
6	30	17.30	359.00	1.79	3.77	360.80	4.59	0.33	361.12	46.36	359.30	1.44	2.93	360.74	5.91	0.54	361.28	0.013	0.159	360.77	361.31	0.03
7	30	17.34	359.40	1.57	3.25	360.97	5.34	0.44	361.41	89.85	359.95	1.39²	2.81	361.34	6.18	0.59	361.93	0.013	0.520	361.34	361.93	0.00
8	24	8.95	360.35	1.44	2.41	361.78	3.71	0.21	362.00	145.00	361.25	1.06²	1.69	362.31	5.30	0.44	362.75	0.013	0.747	362.31	362.75	0.00
9	24	8.41	361.35	0.96‡	1.49	362.31	5.65	0.50	362.81	50.87	361.75	1.03²	1.63	362.78	5.18	0.42	363.20	0.013	0.385	362.78	363.20	0.00
10	18	7.34	362.35	0.99‡	1.24	363.34	5.94	0.55	363.88	24.50	362.60	1.03²	1.30	363.64	5.65	0.50	364.13	0.013	0.247	363.64	364.13	0.00
11	18	6.17	362.70	1.27	1.60	363.97	3.87	0.23	364.20	81.37	363.20	0.98	1.23	364.18	5.02	0.39	364.57	0.013	0.371	364.23	364.62	0.05
12	18	5.86	363.30	1.13	1.43	364.43	4.09	0.26	364.69	83.69	363.95	0.92²	1.14	364.88	5.13	0.41	365.28	0.013	0.592	364.88	365.28	0.00
13	15	1.02	366.20	0.38‡	0.31	366.58	3.29	0.17	366.74	24.56	366.40	0.40²	0.34	366.80	2.97	0.14	366.94	0.013	0.198	366.80	366.94	0.00
14	24	8.49	361.25	0.96‡	1.49	362.21	5.70	0.51	362.70	24.50	361.50	1.03²	1.63	362.53	5.19	0.42	362.95	0.013	0.248	362.53	362.95	0.00
15	18	7.77	362.05	1.06‡	1.34	363.11	5.81	0.52	363.63	66.43	362.55	1.07	1.34	363.61	5.78	0.52	364.13	0.013	0.498	363.70	364.22	0.08
16	18	7.41	362.65	1.38	1.70	364.03	4.36	0.29	364.32	59.90	363.05	1.18	1.50	364.23	4.96	0.38	364.61	0.013	0.289	364.31	364.69	0.08
17	18	6.66	363.15	0.97‡	1.21	364.12	5.50	0.47	364.77	97.22	363.85	0.99	1.24	364.84	5.39	0.45	365.29	0.013	0.516	364.94	365.39	0.10
18	18	4.13	363.85	1.49	1.77	365.34	2.34	0.08	365.42	81.36	364.40	1.02	1.28	365.42	3.24	0.16	365.58	0.013	0.158	365.45	365.62	0.04
19	15	1.82	364.70	0.87	0.92	365.57	1.98	0.06	365.64	102.77	365.40	0.54²	0.51	365.94	3.58	0.20	366.14	0.013	0.500	365.94	366.14	0.00
20	15	3.07	361.20	0.70³	0.71	361.90	4.33	0.29	362.19	138.39	362.05	0.70	0.71	362.76	4.31	0.29	363.05	0.013	0.854	362.80	363.09	0.04
21	15	2.50	362.15	0.84	0.88	362.99	2.85	0.13	363.12	50.00	362.85	0.63²	0.62	363.49	4.01	0.25	363.74	0.013	0.617	363.49	363.74	0.00
22	15	2.01	362.95	0.42‡	0.36	363.38	5.50	0.47	363.77	56.04	364.15	0.57²	0.54	364.72	3.71	0.21	364.93	0.013	1.164	364.72	364.93	0.00

Notes: Return Period = 10-yrs. ² Critical depth. ³ Normal depth. ‡ Supercritical.

Energy Grade Line Calculations

Project Name: Storm System 100

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
23	15	1.79	362.70	0.52‡	0.49	363.23	3.67	0.21	363.44	24.50	362.85	0.54	0.51	363.39	3.54	0.19	363.58	0.013	0.147	363.51	363.70	0.12
24	15	4.56	364.20	0.93	0.98	365.13	4.64	0.33	365.47	143.11	365.15	0.87	0.92	366.02	4.97	0.38	366.41	0.013	0.941	366.07	366.45	0.04
25	15	4.49	365.25	0.99	1.04	366.24	4.32	0.29	366.53	92.79	365.90	0.85	0.89	366.75	5.05	0.40	367.15	0.013	0.619	366.80	367.19	0.04
26	15	0.26	368.45	0.19‡	0.11	368.64	2.25	0.08	368.71	24.97	368.65	0.20²	0.13	368.85	1.98	0.06	368.91	0.013	0.200	368.85	368.91	0.00
27	15	4.11	366.00	1.04	1.09	367.04	3.78	0.22	367.26	48.40	366.40	0.81²	0.84	367.21	4.88	0.37	367.58	0.013	0.323	367.21	367.58	0.00
28	15	0.14	366.95	0.63	0.62	367.58	0.22	0.00	367.58	26.90	367.15	0.43	0.37	367.58	0.37	0.00	367.58	0.013	0.000	367.58	367.58	0.00
29	15	3.73	366.50	0.89	0.94	367.39	3.97	0.25	367.64	70.04	366.95	0.78	0.80	367.73	4.66	0.34	368.06	0.013	0.425	367.88	368.22	0.16
30	15	1.91	367.05	1.15	1.18	368.20	1.62	0.04	368.24	24.50	367.20	1.01	1.06	368.21	1.81	0.05	368.26	0.013	0.020	368.23	368.28	0.03

Notes: Return Period = 10-yrs. ² Critical depth. ‡ Supercritical.

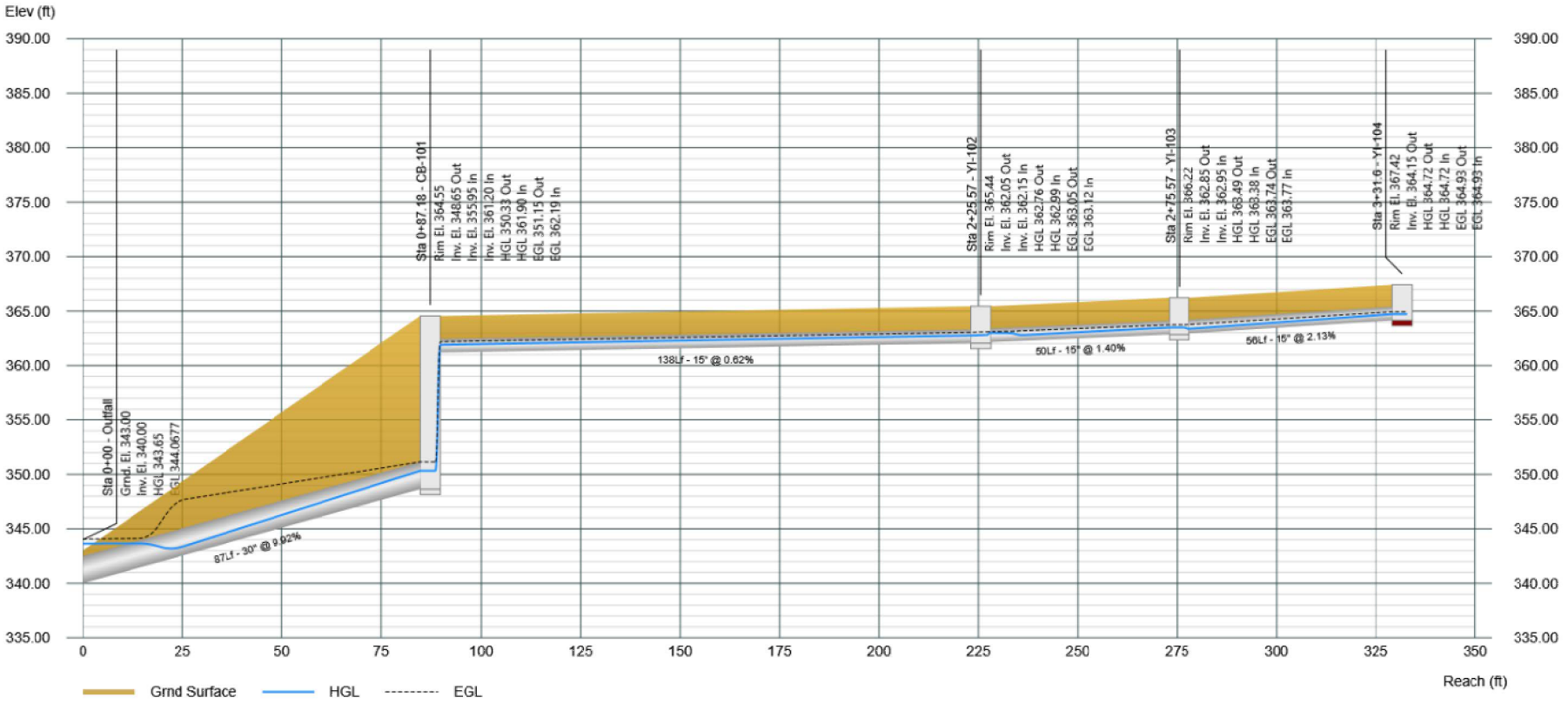
Project File: Storm System 100.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-26-2022

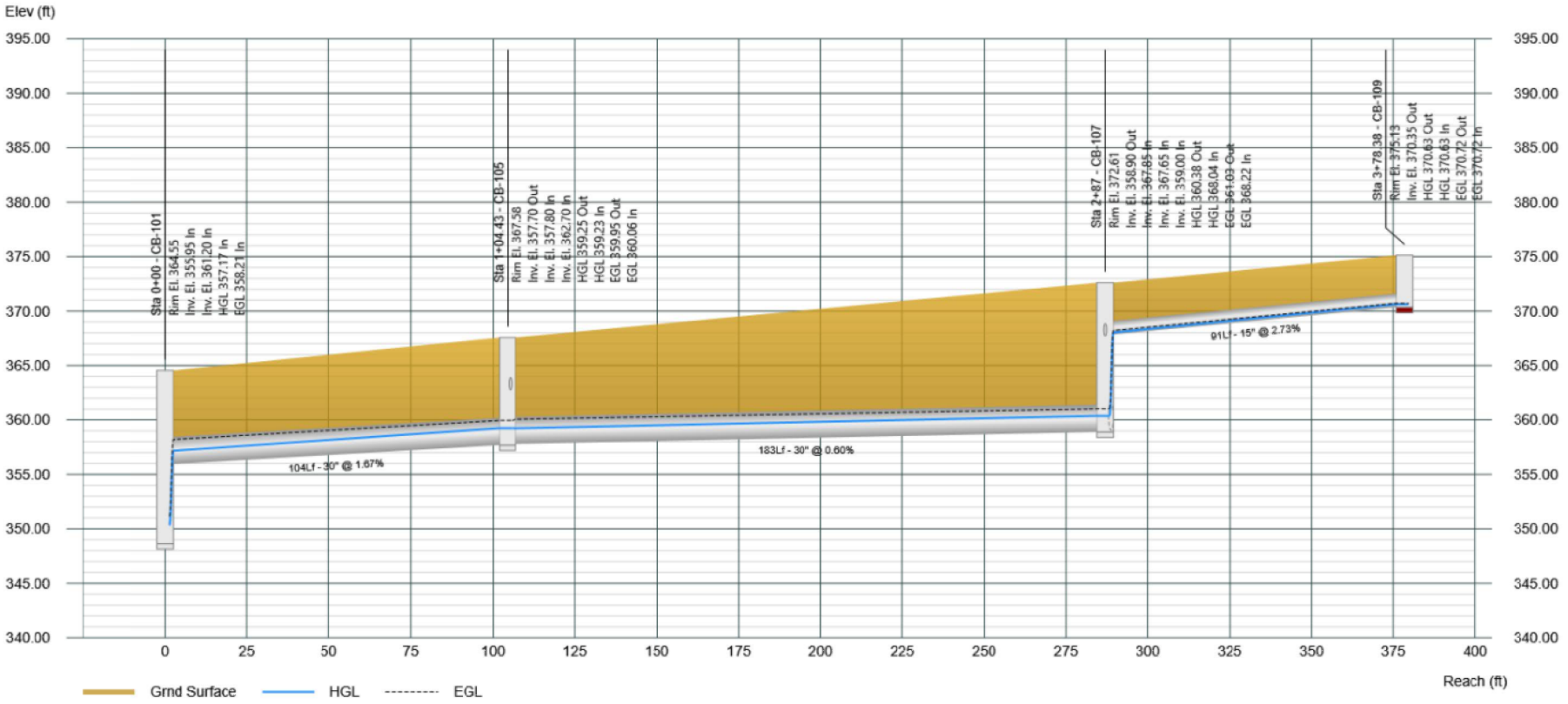


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-26-2022

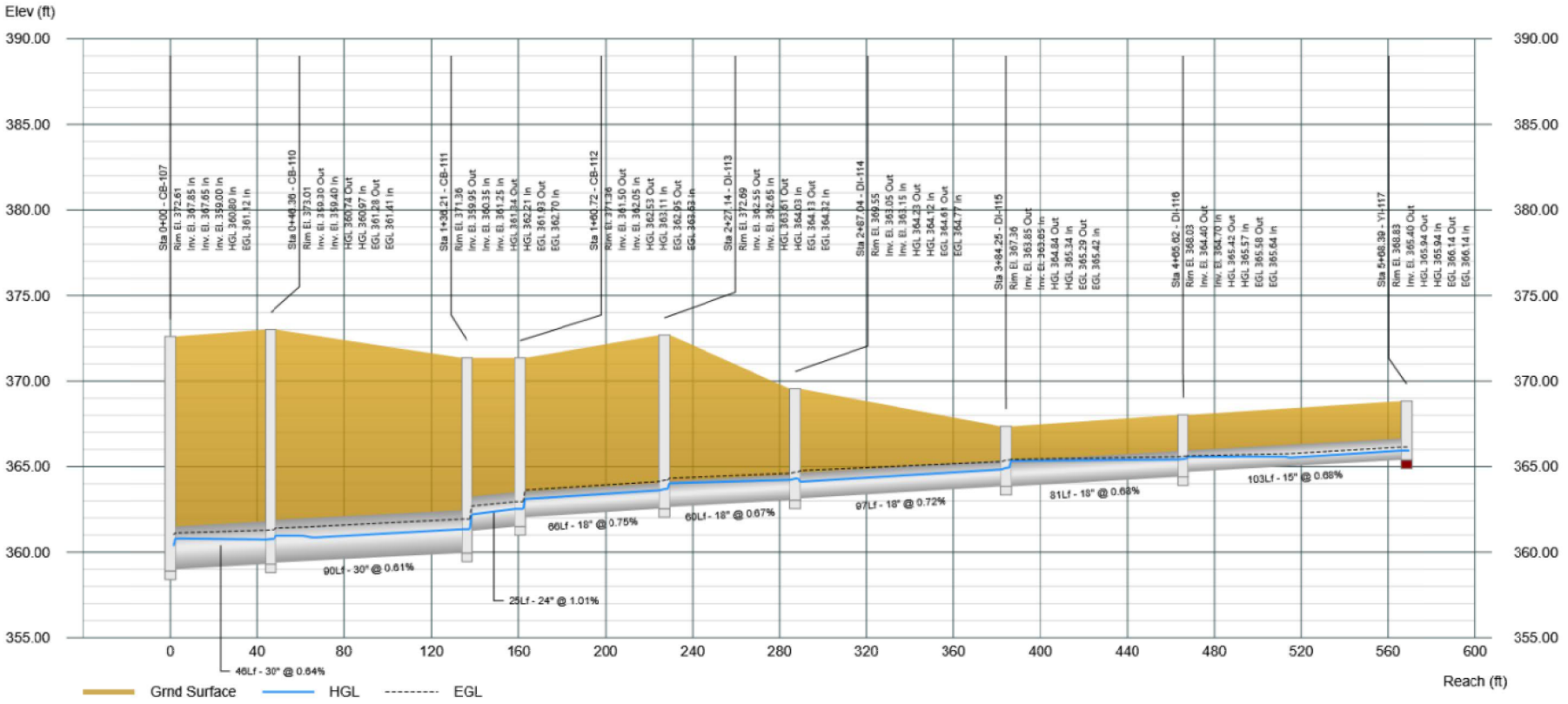


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-26-2022

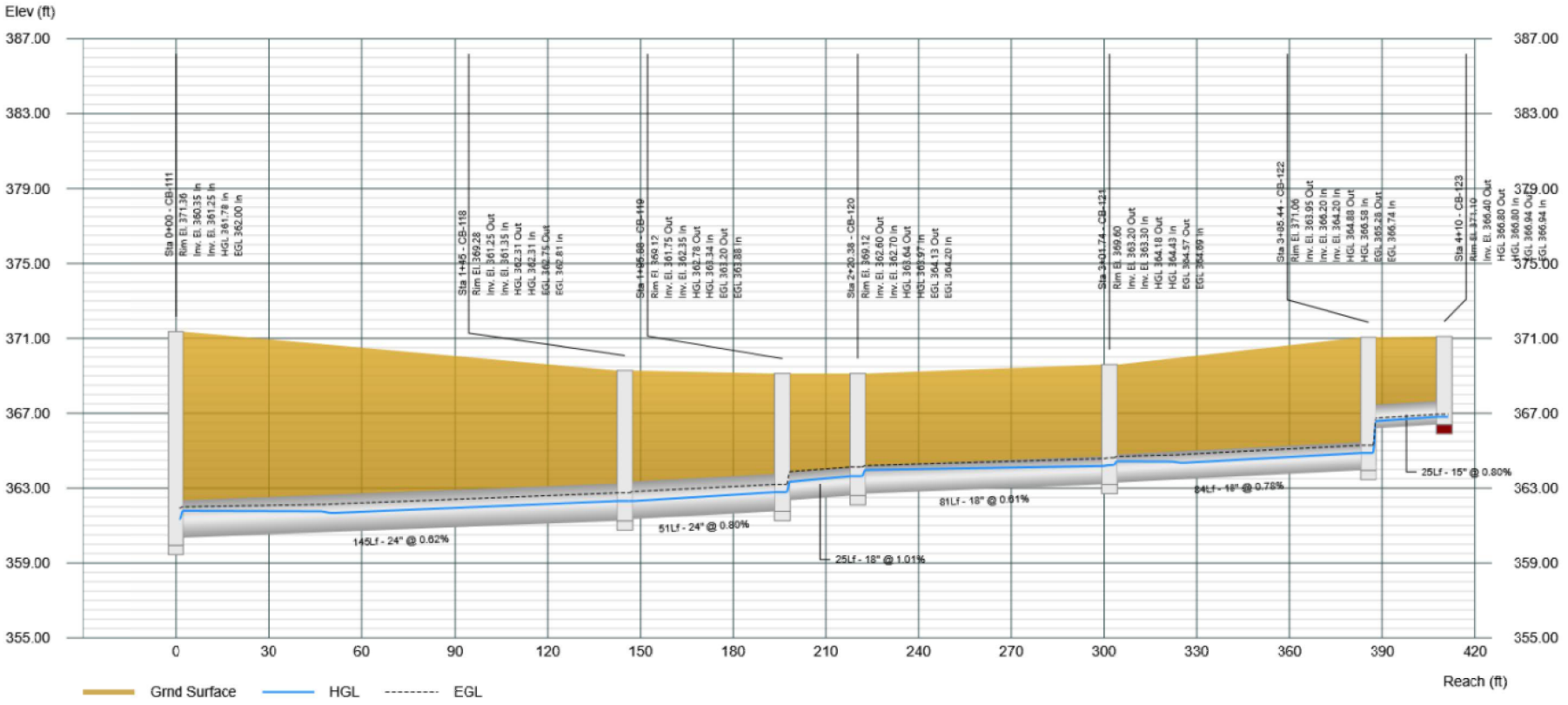


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-26-2022

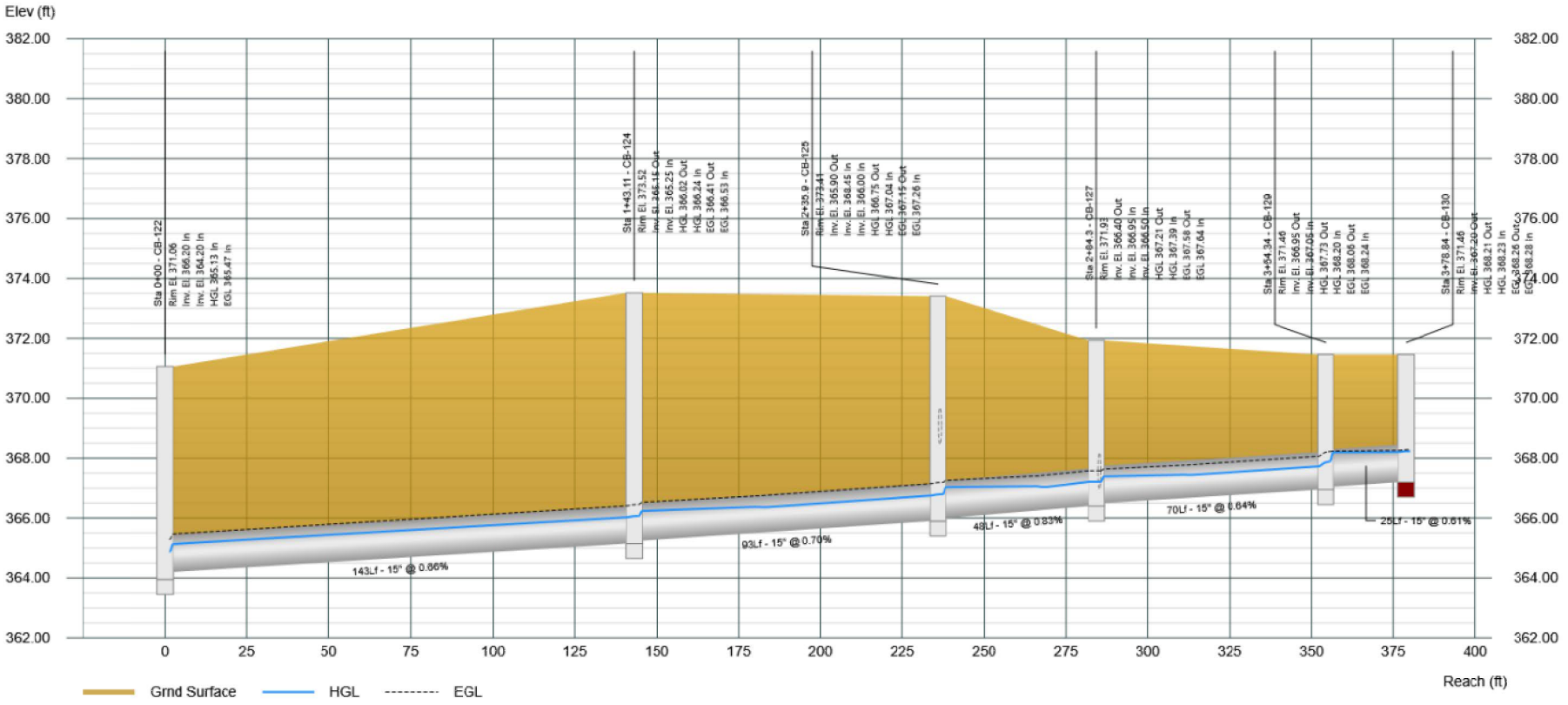


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-26-2022



Project File: Storm System 100.sws

SYSTEM 200 – REPORTS AND PROFILES

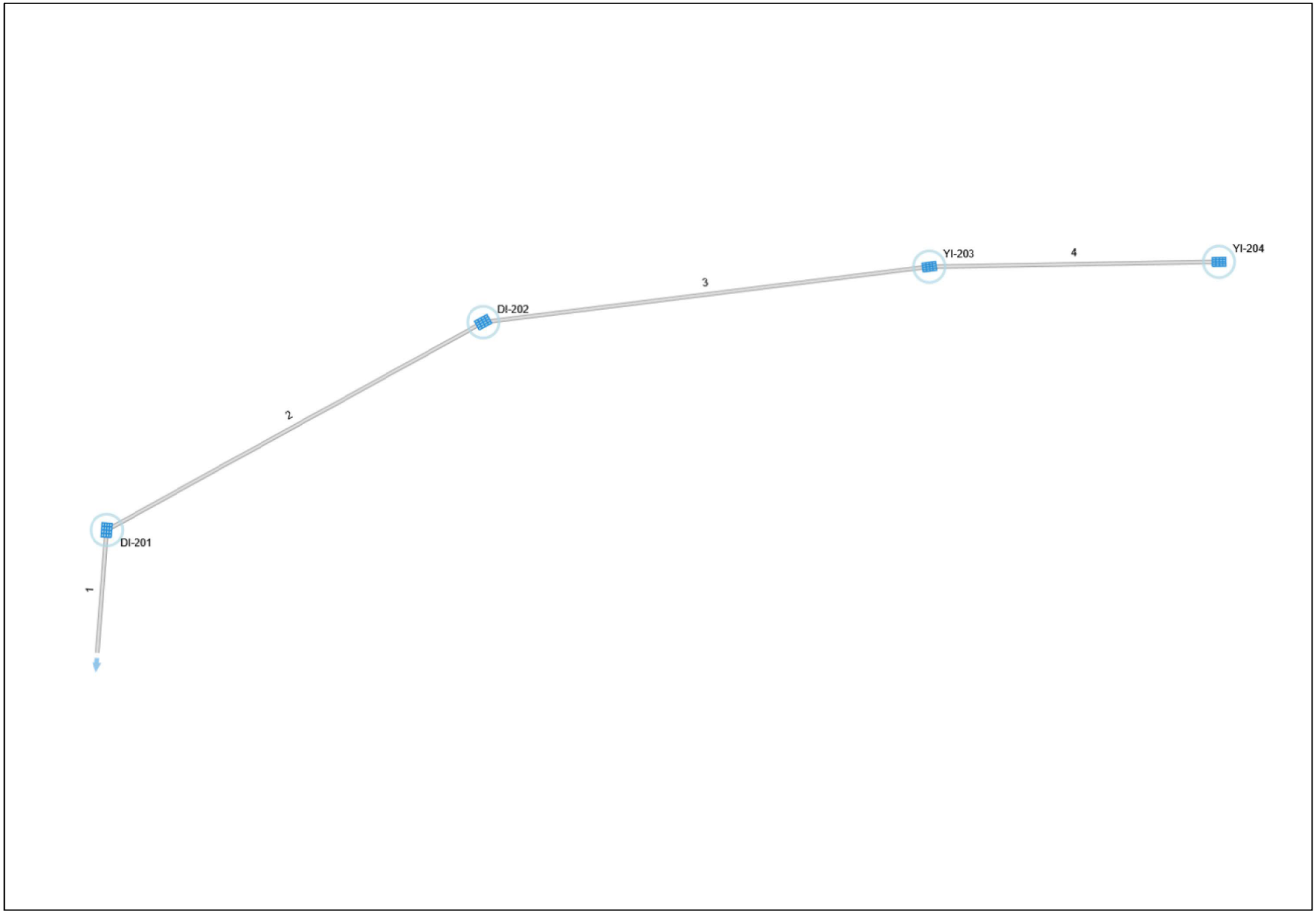
The Point – North
AWH-20000

Plan View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 200

10-26-2022



Storm Sewer Tabulation

Project Name: Storm System 200

10-26-2022

Stormwater Studio 2022 v 3.0.0.29

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
200-201	43.24	0.000	1.010	0.00	0.00	0.64	5.0	6.37	6.76	4.31	31.14	3.50	18	8.79	349.80	346.00	350.59	349.61	356.30	347.50	1
201-202	152.35	0.630	1.010	0.65	0.41	0.64	5.0	5.84	6.92	4.41	8.51	4.70	18	0.66	350.90	349.90	351.70	350.67	354.42	356.30	2
202-203	159.21	0.200	0.380	0.62	0.12	0.23	5.0	5.37	7.07	1.61	5.01	4.62	12	1.98	354.55	351.40	355.09	351.80	357.69	354.42	3
203-204	102.64	0.180	0.180	0.58	0.10	0.10	5.0	5.00	7.19	0.75	5.09	2.15	12	2.04	356.75	354.65	357.11	355.28	359.78	357.69	4

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 200.sws

Energy Grade Line Calculations

Project Name: Storm System 200

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	18	4.31	346.00	1.50	1.77	349.61	2.44	0.09	349.70	43.24	349.80	0.79²	0.95	350.59	4.55	0.32	350.92	0.013	1.213	350.59	350.92	0.00
2	18	4.41	349.90	0.77‡	0.92	350.67	4.82	0.36	351.05	152.35	350.90	0.80²	0.96	351.70	4.59	0.33	352.03	0.013	0.982	351.70	352.03	0.00
3	12	1.61	351.40	0.40‡	0.29	351.80	5.50	0.47	352.16	159.21	354.55	0.54²	0.43	355.09	3.74	0.22	355.31	0.013	3.150	355.09	355.31	0.00
4	12	0.75	354.65	0.63	0.53	355.28	1.43	0.03	355.32	102.64	356.75	0.37²	0.26	357.11	2.87	0.13	357.24	0.013	1.925	357.11	357.24	0.00

Notes: Return Period = 10-yrs. ² Critical depth. ‡ Supercritical.

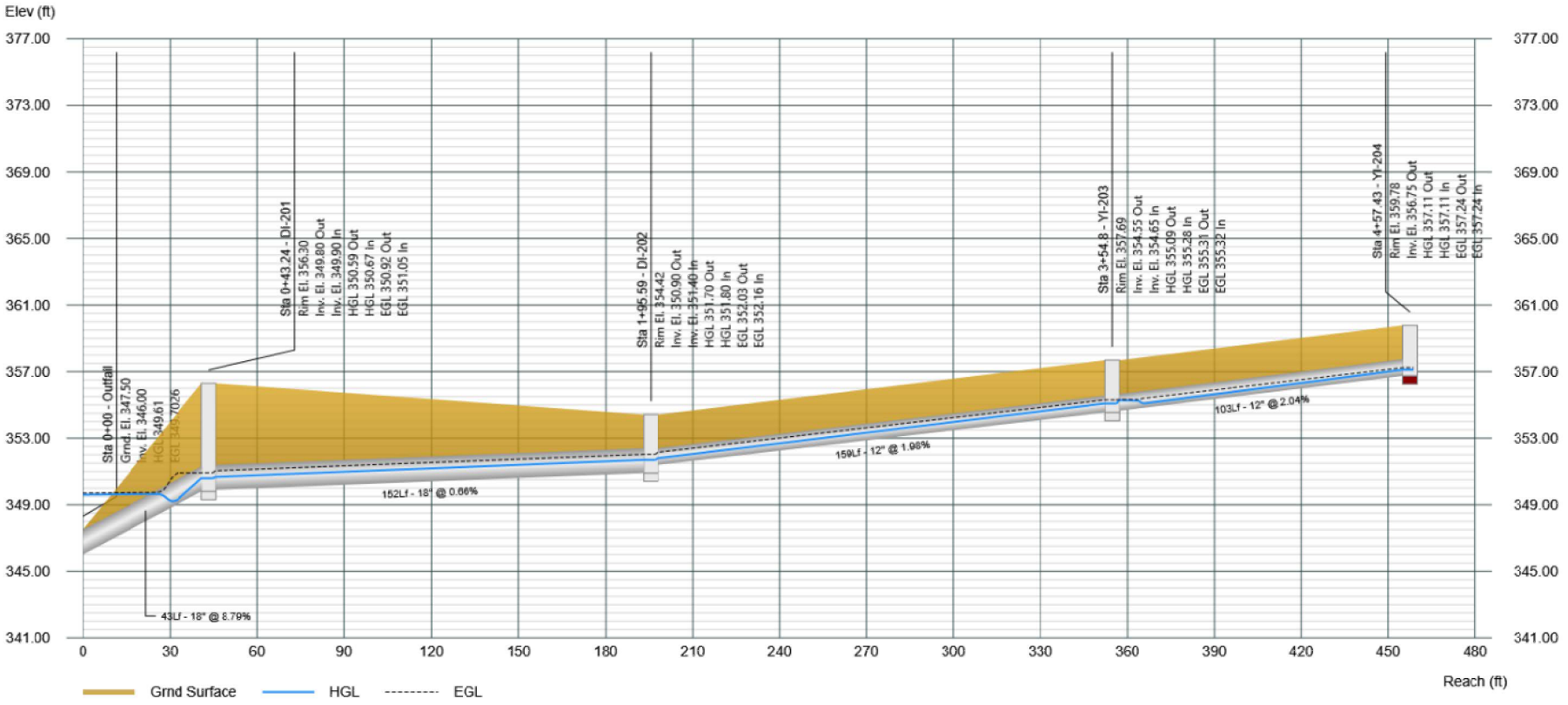
Project File: Storm System 200.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 200

10-26-2022



SYSTEM 300 – REPORTS AND PROFILES

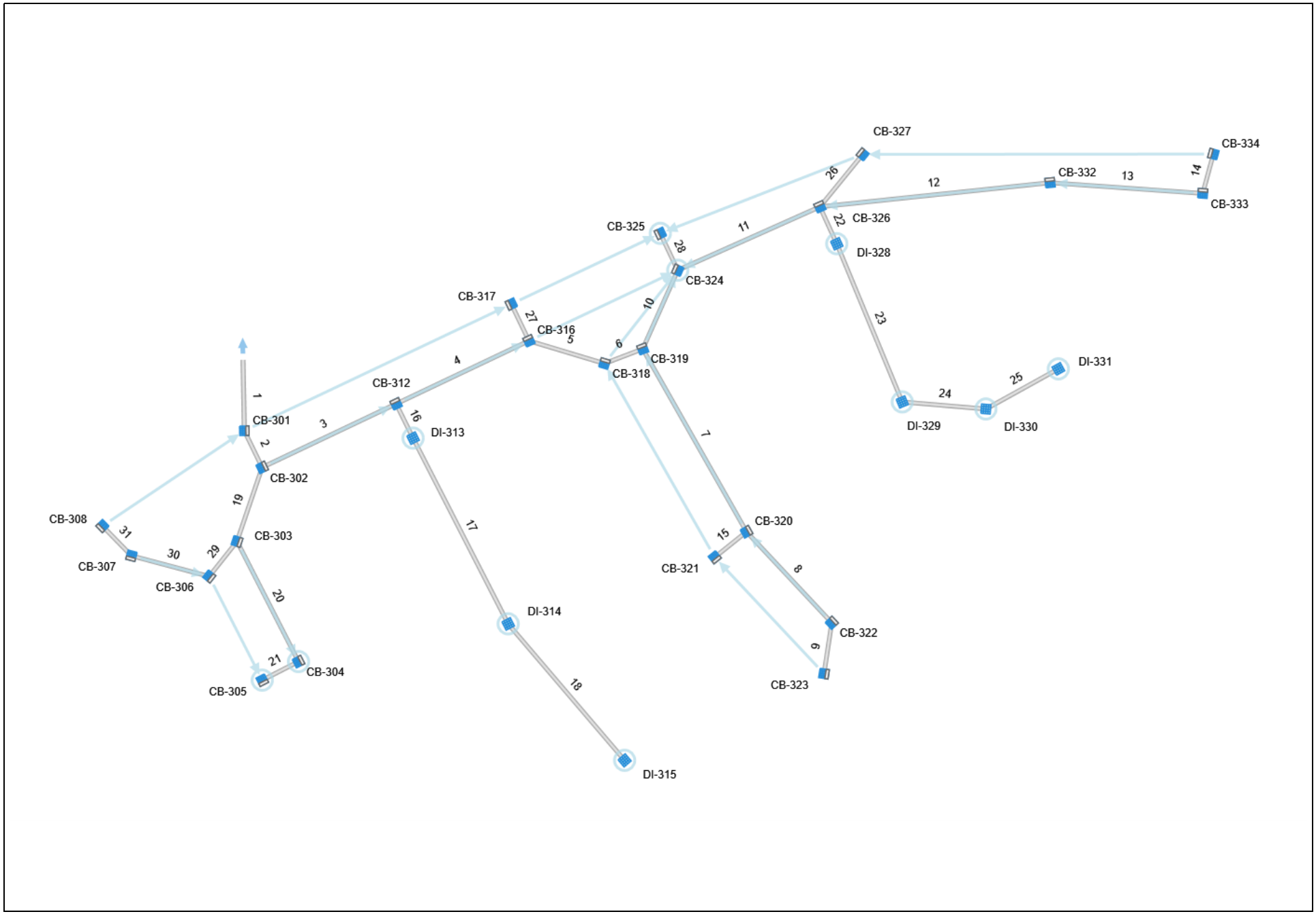
The Point – North
AWH-20000

Plan View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 300

08-18-2022



Project File: Storm System 300.sws

Storm Sewer Tabulation

Project Name: Storm System 300

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
300-301	35.75	0.060	5.100	0.85	0.05	3.33	5.0	6.96	6.59	21.95	208.67	4.68	36	9.79	349.50	346.00	350.99	349.61	372.02	350.00	1
301-302	24.50	0.020	5.040	0.95	0.02	3.28	5.0	6.91	6.60	21.66	41.64	6.97	30	1.03	356.15	355.90	357.71	357.37	372.02	372.02	2
302-312	89.21	0.100	5.020	0.71	0.07	3.26	5.0	6.70	6.66	21.73	31.99	6.80	30	0.61	357.10	356.55	358.66	358.09	370.50	372.02	3
312-316	88.44	0.130	3.520	0.63	0.08	2.30	5.0	6.47	6.73	15.45	32.36	4.32	30	0.62	357.75	357.20	359.25	359.23	369.57	370.50	4
316-318	47.44	0.150	3.290	0.67	0.10	2.13	5.0	6.35	6.76	14.41	35.46	5.98	30	0.75	358.20	357.85	359.47	359.05	369.62	369.57	5
318-319	24.65	0.140	3.140	0.69	0.10	2.03	5.0	6.28	6.78	13.77	31.76	5.72	30	0.60	358.45	358.30	359.70	359.52	369.49	369.62	6
319-320	126.37	0.090	0.420	0.55	0.05	0.29	5.0	5.34	7.07	2.06	9.36	4.79	15	2.10	367.35	364.70	367.93	365.11	372.39	369.49	7
320-322	74.98	0.140	0.230	0.74	0.10	0.17	5.0	5.13	7.14	1.22	11.29	4.37	15	3.05	369.89	367.60	370.33	367.89	374.74	372.39	8
322-323	30.95	0.090	0.090	0.75	0.07	0.07	5.0	5.00	7.19	0.49	8.88	1.74	15	1.89	370.58	369.99	370.85	370.47	375.33	374.74	9
319-324	51.76	0.160	2.580	0.76	0.12	1.64	5.0	6.15	6.82	11.20	19.90	5.95	24	0.77	361.85	361.45	363.04	362.58	369.21	369.49	10
324-326	93.65	0.230	2.200	0.64	0.15	1.37	5.0	5.88	6.91	9.43	18.13	5.53	24	0.64	362.55	361.95	363.64	363.00	369.54	369.21	11
326-332	139.21	0.090	0.440	0.62	0.06	0.30	5.0	5.42	7.05	2.14	7.14	4.35	15	1.22	366.45	364.75	367.04	365.23	371.30	369.54	12
332-333	92.11	0.160	0.350	0.65	0.10	0.25	5.0	5.13	7.14	1.77	7.97	4.24	15	1.52	367.95	366.55	368.49	366.97	373.04	371.30	13
333-334	24.50	0.190	0.190	0.76	0.14	0.14	5.0	5.00	7.19	1.04	5.00	2.22	15	0.60	368.20	368.05	368.65	368.65	373.04	373.04	14
320-321	24.50	0.100	0.100	0.71	0.07	0.07	5.0	5.00	7.19	0.51	5.00	0.87	15	0.60	367.60	367.45	368.14	368.14	372.38	372.39	15
312-313	22.98	0.510	1.400	0.64	0.33	0.90	5.0	5.59	7.00	6.26	10.91	5.48	18	1.08	363.00	362.75	363.95	363.64	366.58	370.50	16
313-314	125.44	0.400	0.890	0.65	0.26	0.57	5.0	5.30	7.09	4.03	9.04	5.81	15	1.96	365.70	363.25	366.51	363.85	369.05	366.58	17
314-315	107.86	0.490	0.490	0.63	0.31	0.31	5.0	5.00	7.19	2.22	9.00	2.95	15	1.94	367.90	365.80	368.49	366.82	371.17	369.05	18
326-328	24.40	0.300	1.300	0.61	0.18	0.76	5.0	5.52	7.02	5.30	9.42	5.03	18	0.80	363.10	362.90	363.98	363.75	366.51	369.54	19
328-329	102.89	0.420	1.000	0.54	0.23	0.57	5.0	5.28	7.10	4.06	8.66	5.72	15	1.80	365.20	363.35	366.01	363.98	368.57	366.51	20
329-330	50.52	0.200	0.580	0.59	0.12	0.35	5.0	5.15	7.14	2.47	5.24	5.25	12	2.17	366.65	365.55	367.31	366.07	369.78	368.57	21
330-331	49.83	0.380	0.380	0.60	0.23	0.23	5.0	5.00	7.19	1.64	4.94	3.08	12	1.92	367.70	366.75	368.25	367.56	370.75	369.78	22

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 300.sws

Storm Sewer Tabulation

Project Name: Storm System 300

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
326-327	40.70	0.230	0.230	0.69	0.16	0.16	5.0	5.00	7.19	1.14	5.58	3.25	15	0.75	365.70	365.40	366.13	365.80	369.81	369.54	23
316-317	24.50	0.100	0.100	0.83	0.08	0.08	5.0	5.00	7.19	0.60	5.33	2.64	15	0.68	364.82	364.65	365.13	364.94	369.57	369.57	24
324-325	24.50	0.220	0.220	0.70	0.15	0.15	5.0	5.00	7.19	1.11	5.79	3.22	15	0.80	364.95	364.75	365.37	365.14	369.21	369.21	25

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 300.sws

Energy Grade Line Calculations

Project Name: Storm System 300

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	36	21.95	346.00	3.00	7.07	349.61	3.11	0.15	349.76	35.75	349.50	1.49²	3.51	350.99	6.25	0.61	351.60	0.013	1.840	350.99	351.60	0.00
2	30	21.66	355.90	1.47‡	3.01	357.37	7.20	0.81	358.17	24.50	356.15	1.56²	3.21	357.71	6.75	0.71	358.42	0.013	0.253	357.71	358.42	0.00
3	30	21.73	356.55	1.54‡	3.17	358.09	6.85	0.73	358.82	89.21	357.10	1.56²	3.22	358.66	6.76	0.71	359.37	0.013	0.544	358.66	359.37	0.00
4	30	15.45	357.20	2.04	4.28	359.23	3.61	0.20	359.44	88.44	357.75	1.50	3.07	359.25	5.03	0.39	359.64	0.013	0.204	359.27	359.67	0.03
5	30	14.41	357.85	1.20‡	2.33	359.05	6.19	0.60	359.75	47.44	358.20	1.27²	2.50	359.47	5.76	0.52	359.99	0.013	0.241	359.47	359.99	0.00
6	30	13.77	358.30	1.22‡	2.37	359.52	5.80	0.52	360.07	24.65	358.45	1.25	2.45	359.70	5.63	0.49	360.19	0.013	0.119	359.73	360.22	0.03
7	15	2.06	364.70	0.41‡	0.35	365.11	5.83	0.53	365.49	126.37	367.35	0.57²	0.55	367.93	3.74	0.22	368.15	0.013	2.653	367.93	368.15	0.00
8	15	1.22	367.60	0.29‡	0.22	367.89	5.59	0.49	368.20	74.98	369.89	0.44²	0.39	370.33	3.14	0.15	370.49	0.013	2.290	370.33	370.49	0.00
9	15	0.49	369.99	0.48	0.44	370.47	1.11	0.02	370.49	30.95	370.58	0.28²	0.20	370.85	2.38	0.09	370.94	0.013	0.451	370.85	370.94	0.00
10	24	11.20	361.45	1.13‡	1.83	362.58	6.13	0.58	363.15	51.76	361.85	1.19²	1.94	363.04	5.78	0.52	363.56	0.013	0.401	363.04	363.56	0.00
11	24	9.43	361.95	1.05‡	1.67	363.00	5.65	0.50	363.62	93.65	362.55	1.09²	1.75	363.64	5.40	0.45	364.09	0.013	0.470	363.64	364.09	0.00
12	15	2.14	364.75	0.48‡	0.44	365.23	4.91	0.38	365.56	139.21	366.45	0.59²	0.56	367.04	3.80	0.22	367.26	0.013	1.700	367.04	367.26	0.00
13	15	1.77	366.55	0.42‡	0.36	366.97	4.92	0.38	367.28	92.11	367.95	0.53²	0.50	368.49	3.56	0.20	368.68	0.013	1.400	368.49	368.68	0.00
14	15	1.04	368.05	0.59	0.57	368.65	1.81	0.05	368.70	24.50	368.20	0.45	0.39	368.65	2.64	0.11	368.75	0.013	0.058	368.71	368.82	0.06
15	15	0.51	367.45	0.69	0.69	368.14	0.74	0.01	368.15	24.50	367.60	0.54	0.51	368.14	1.00	0.02	368.16	0.013	0.009	368.15	368.17	0.01
16	18	6.26	362.75	0.89‡	1.10	363.64	5.70	0.50	364.13	22.98	363.00	0.96²	1.19	363.95	5.27	0.43	364.38	0.013	0.248	363.95	364.38	0.00
17	15	4.03	363.25	0.61‡	0.59	363.85	6.79	0.72	364.44	125.44	365.70	0.80²	0.83	366.51	4.84	0.36	366.87	0.013	2.424	366.51	366.87	0.00
18	15	2.22	365.80	1.02	1.08	366.82	2.06	0.07	366.89	107.86	367.90	0.60²	0.58	368.49	3.84	0.23	368.72	0.013	1.833	368.49	368.72	0.00
19	18	5.30	362.90	0.85‡	1.03	363.75	5.13	0.41	364.16	24.40	363.10	0.88²	1.08	363.98	4.93	0.38	364.36	0.013	0.196	363.98	364.36	0.00
20	15	4.06	363.35	0.63‡	0.62	363.98	6.59	0.67	364.53	102.89	365.20	0.81²	0.84	366.01	4.85	0.37	366.37	0.013	1.847	366.01	366.37	0.00
21	12	2.47	365.55	0.51‡	0.41	366.07	6.06	0.57	366.53	50.52	366.65	0.67²	0.56	367.31	4.44	0.31	367.62	0.013	1.092	367.31	367.62	0.00
22	12	1.64	366.75	0.81	0.68	367.56	2.40	0.09	367.65	49.83	367.70	0.54²	0.44	368.25	3.76	0.22	368.47	0.013	0.821	368.25	368.47	0.00

Notes: Return Period = 10-yrs. ² Critical depth. ‡ Supercritical.

Project File: Storm System 300.sws

Energy Grade Line Calculations

Project Name: Storm System 300

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
23	15	1.14	365.40	0.40‡	0.33	365.80	3.42	0.18	365.97	40.70	365.70	0.43²	0.37	366.13	3.08	0.15	366.28	0.013	0.304	366.13	366.28	0.00
24	15	0.60	364.65	0.29‡	0.22	364.94	2.76	0.12	365.06	24.50	364.82	0.31²	0.24	365.13	2.52	0.10	365.23	0.013	0.167	365.13	365.23	0.00
25	15	1.11	364.75	0.39‡	0.33	365.14	3.39	0.18	365.32	24.50	364.95	0.42²	0.36	365.37	3.05	0.14	365.52	0.013	0.197	365.37	365.52	0.00

Notes: Return Period = 10-yrs. ² Critical depth. ‡ Supercritical.

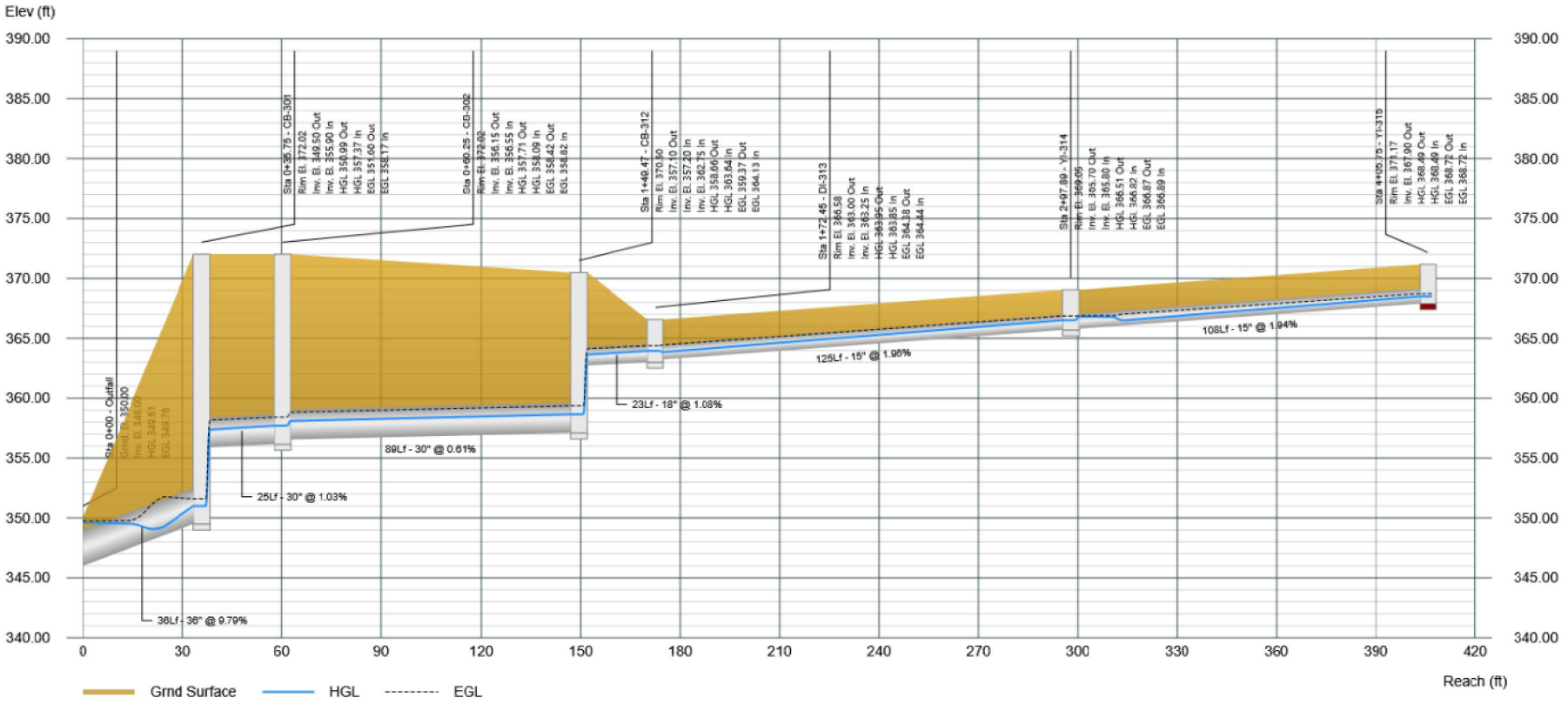
Project File: Storm System 300.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 300

10-26-2022

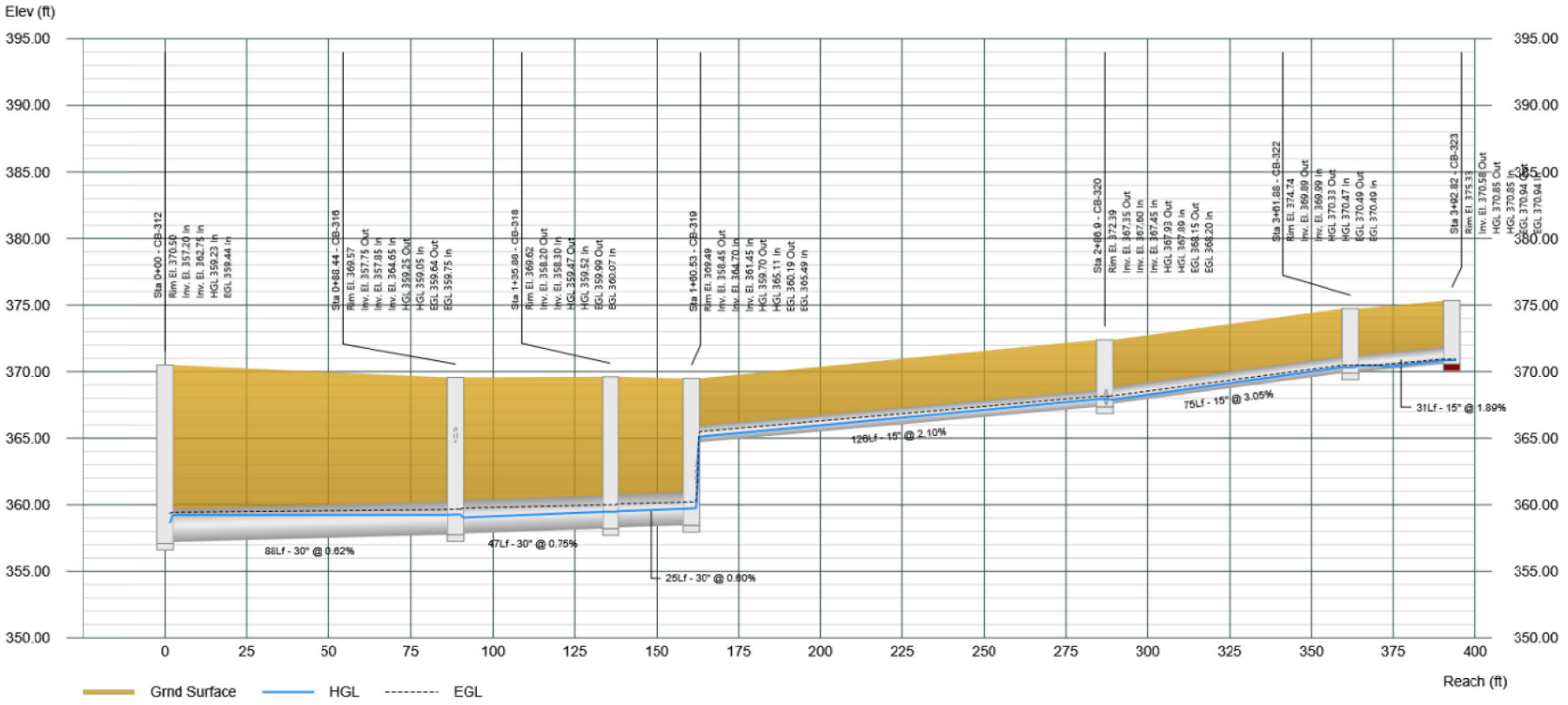


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 300

10-26-2022

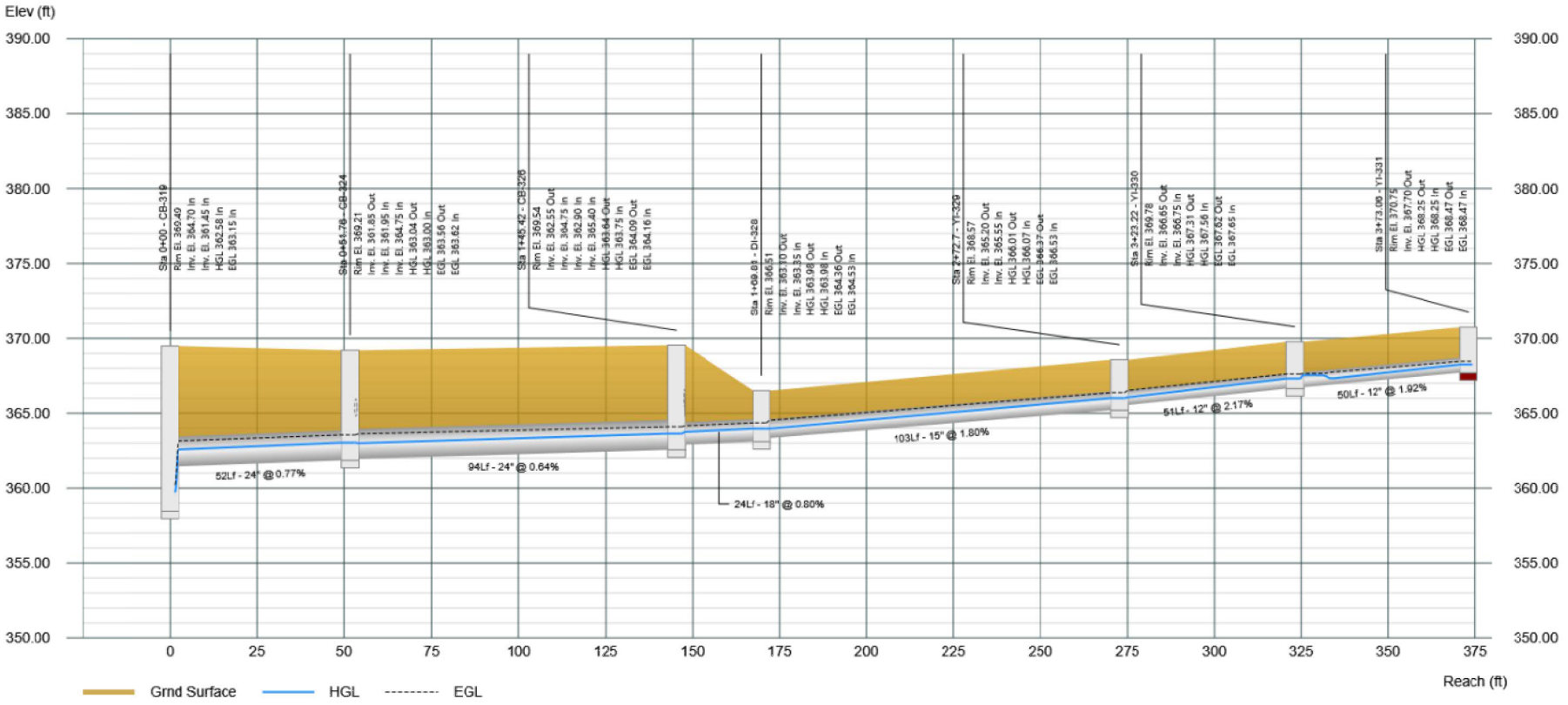


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 300

10-26-2022

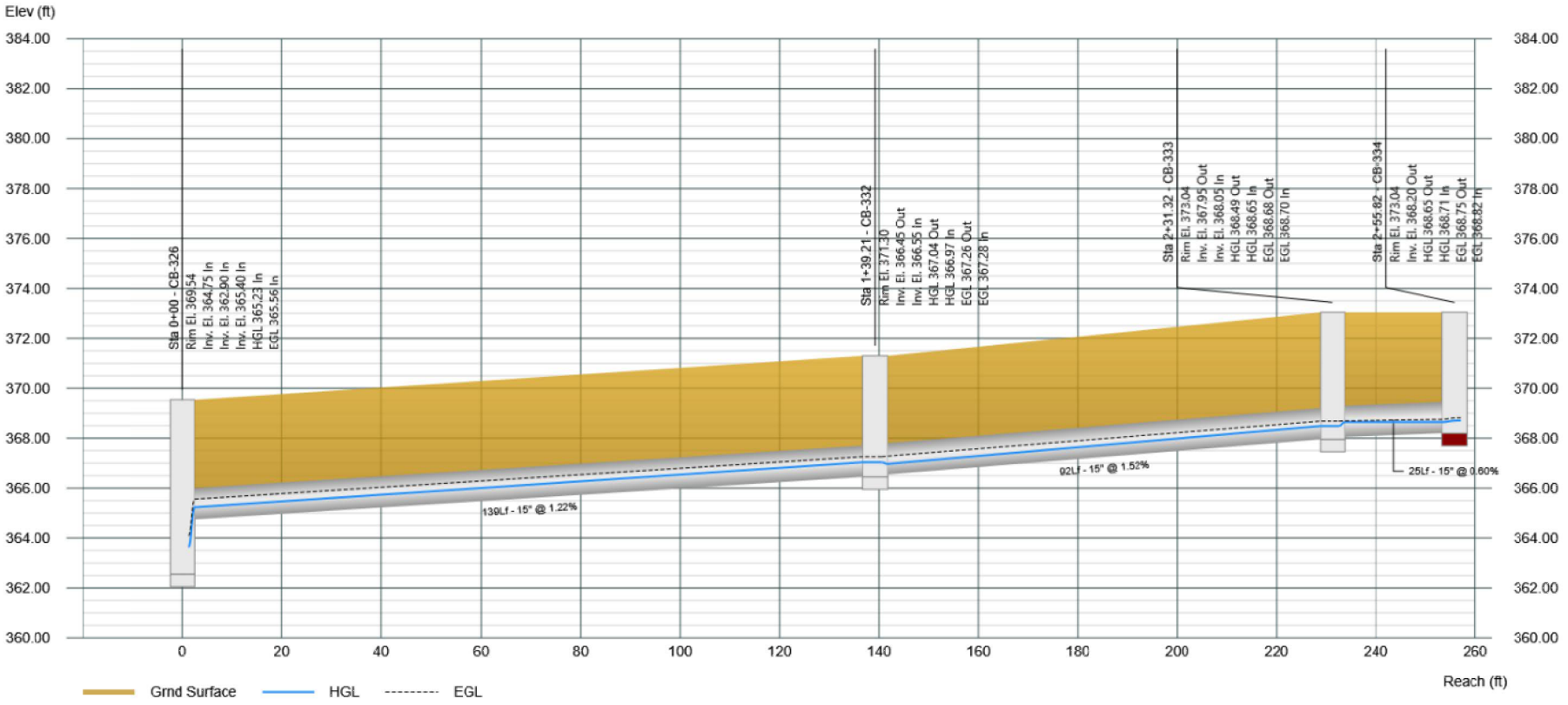


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 300

10-26-2022



SYSTEM 400 – REPORTS AND PROFILES

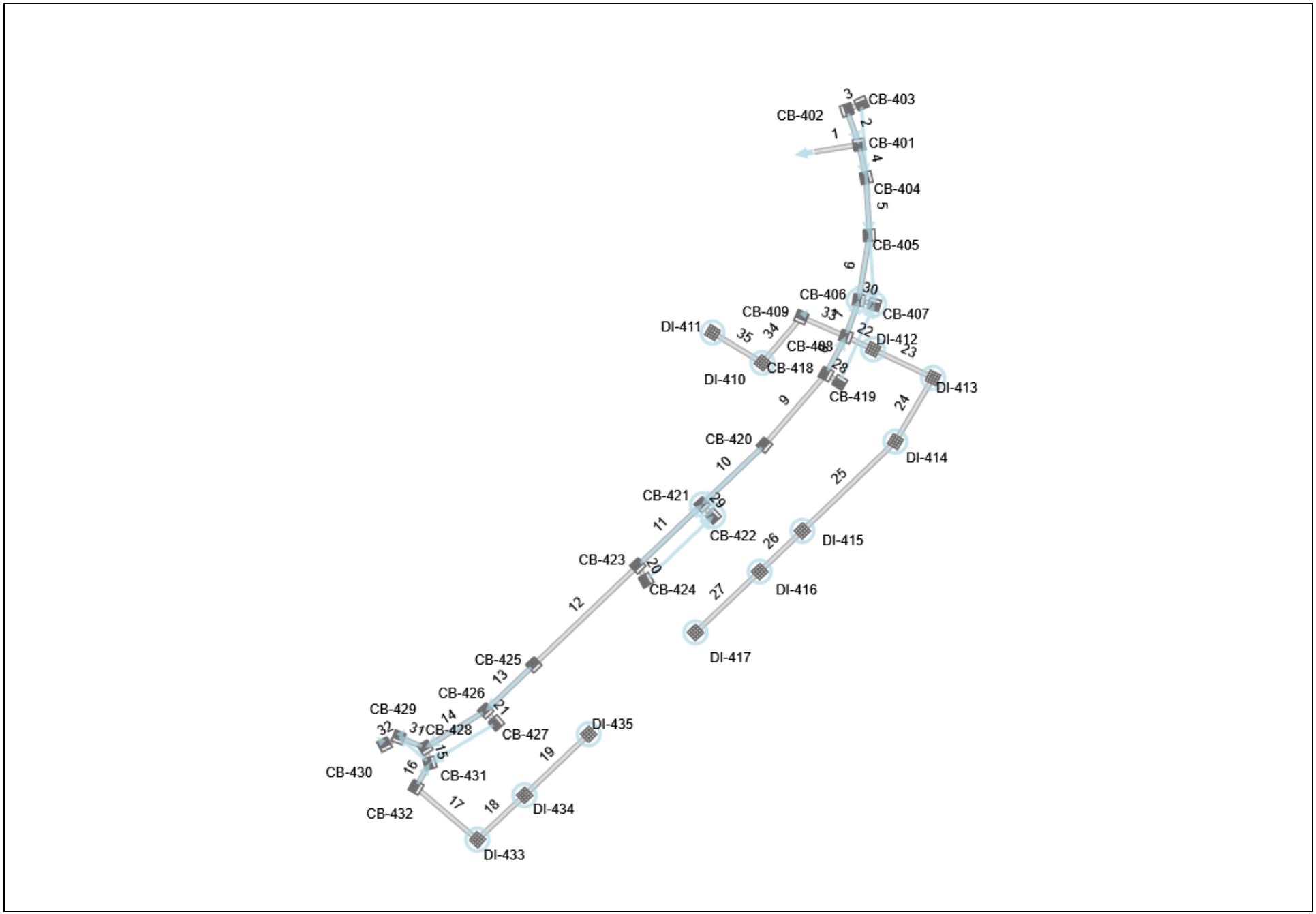
The Point – North
AWH-20000

Plan View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

08-18-2022



Project File: Storm System 400.sws

Storm Sewer Tabulation

Project Name: Storm System 400

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
400-401	78.90	0.030	6.210	0.95	0.03	3.95	5.0	10.06	5.85	23.07	82.25	3.57	36	1.52	358.20	357.00	360.56	360.53	379.69	360.00	1
401-402	29.04	0.090	0.180	0.75	0.07	0.14	5.0	5.15	7.14	1.01	15.12	4.43	15	5.49	375.70	374.11	376.10	374.36	380.72	379.69	2
402-403	24.50	0.090	0.090	0.82	0.07	0.07	5.0	5.00	7.19	0.53	5.00	2.52	15	0.60	375.95	375.80	376.24	376.08	380.73	380.72	3
401-404	78.58	0.030	6.000	0.75	0.02	3.78	5.0	9.88	5.88	22.22	34.27	5.86	30	0.70	358.95	358.40	360.54	360.55	377.49	379.69	4
404-405	88.08	0.050	5.970	0.83	0.04	3.75	5.0	9.66	5.93	22.27	32.36	6.87	30	0.62	359.60	359.05	361.18	360.61	375.91	377.49	5
405-406	100.30	0.090	5.920	0.82	0.07	3.71	5.0	9.42	5.98	22.22	31.76	6.35	30	0.60	360.30	359.70	361.88	361.50	375.29	375.91	6
407-408	58.84	0.010	5.490	0.95	0.01	3.37	5.0	9.27	6.02	20.28	33.53	6.66	30	0.67	360.80	360.40	362.31	361.87	375.50	375.29	7
408-418	64.71	0.060	3.830	0.75	0.05	2.44	5.0	9.10	6.06	14.77	17.74	6.23	24	0.62	361.69	361.30	363.06	362.76	376.21	375.50	8
418-420	143.35	0.020	3.410	0.95	0.02	2.12	5.0	8.70	6.15	13.05	17.92	5.28	24	0.63	362.70	361.79	363.98	363.57	376.81	376.21	9
420-421	131.50	0.230	3.390	0.72	0.17	2.10	5.0	8.34	6.23	13.12	17.74	5.68	24	0.62	363.60	362.80	364.89	364.29	375.91	376.81	10
421-423	135.41	0.140	2.750	0.69	0.10	1.63	5.0	7.95	6.33	10.33	17.84	4.69	24	0.62	364.55	363.70	365.68	365.33	376.99	375.91	11
424-425	219.02	0.020	2.370	0.95	0.02	1.35	5.0	7.28	6.50	8.81	17.45	5.39	24	0.60	365.95	364.65	367.00	365.66	377.94	376.99	12
425-426	101.49	0.060	2.350	0.75	0.05	1.34	5.0	6.98	6.59	8.80	18.09	5.40	24	0.64	366.70	366.05	367.75	367.06	376.47	377.94	13
426-428	107.84	0.120	2.010	0.70	0.08	1.08	5.0	6.63	6.68	7.24	8.13	5.20	18	0.60	367.85	367.20	368.95	368.30	374.74	376.47	14
428-431	24.57	0.350	1.550	0.59	0.21	0.77	5.0	6.56	6.70	5.14	10.75	3.27	18	1.05	368.20	367.95	369.35	369.35	374.71	374.74	15
431-432	42.57	0.370	1.200	0.46	0.17	0.56	5.0	6.41	6.75	3.78	5.38	4.70	15	0.69	368.75	368.45	369.53	369.23	374.88	374.71	16
432-433	123.20	0.450	0.830	0.44	0.20	0.39	5.0	5.91	6.89	2.69	5.04	4.13	15	0.61	369.60	368.85	370.26	369.50	372.28	374.88	17
433-434	98.81	0.260	0.380	0.53	0.14	0.19	5.0	5.59	6.99	1.34	4.68	2.99	12	1.72	371.55	369.85	372.04	370.50	374.20	372.28	18
434-435	135.00	0.120	0.120	0.45	0.05	0.05	5.0	5.00	7.19	0.39	5.04	1.59	12	2.00	374.35	371.65	374.62	372.23	376.88	374.20	19
423-424	25.24	0.240	0.240	0.75	0.18	0.18	5.0	5.00	7.19	1.29	5.00	3.26	15	0.60	372.30	372.15	372.76	372.59	377.08	376.99	20
426-427	24.53	0.280	0.280	0.74	0.21	0.21	5.0	5.00	7.19	1.49	5.00	3.41	15	0.60	371.70	371.55	372.19	372.03	376.45	376.47	21
408-412	45.84	0.040	1.210	0.50	0.02	0.65	5.0	7.49	6.45	4.17	5.27	4.75	15	0.66	365.60	365.30	366.44	366.14	373.06	375.50	22

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 400.sws

Storm Sewer Tabulation

Project Name: Storm System 400

10-26-2022

Stormwater Studio 2022 v 3.0.0.29

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
412-413	101.39	0.210	1.170	0.52	0.11	0.63	5.0	7.13	6.55	4.10	5.16	4.67	15	0.64	367.85	367.20	368.69	368.04	372.65	373.06	23
413-414	113.05	0.340	0.960	0.53	0.18	0.52	5.0	6.70	6.66	3.45	5.07	4.53	15	0.62	368.65	367.95	369.39	368.69	374.83	372.65	24
414-415	196.58	0.170	0.620	0.53	0.09	0.34	5.0	5.87	6.91	2.33	2.78	4.31	12	0.61	370.10	368.90	370.75	369.55	375.20	374.83	25
415-416	90.00	0.230	0.450	0.56	0.13	0.25	5.0	5.48	7.03	1.74	2.91	3.07	12	0.67	370.80	370.20	371.36	371.11	373.43	375.20	26
416-417	135.00	0.220	0.220	0.54	0.12	0.12	5.0	5.00	7.19	0.85	4.89	2.18	12	1.89	373.45	370.90	373.84	371.64	375.98	373.43	27
418-419	24.50	0.360	0.360	0.75	0.27	0.27	5.0	5.00	7.19	1.94	5.00	3.70	15	0.60	371.45	371.30	372.01	371.85	376.21	376.21	28
421-422	24.50	0.410	0.410	0.75	0.31	0.31	5.0	5.00	7.19	2.21	5.00	3.86	15	0.60	371.15	371.00	371.75	371.59	375.91	375.91	29
406-407	24.50	0.340	0.340	0.79	0.27	0.27	5.0	5.00	7.19	1.93	5.00	3.70	15	0.60	370.50	370.35	371.06	370.90	375.29	375.29	30
428-429	43.54	0.120	0.340	0.75	0.09	0.23	5.0	5.13	7.14	1.66	5.37	3.61	15	0.69	369.05	368.75	369.57	369.24	374.06	374.74	31
429-430	24.50	0.220	0.220	0.65	0.14	0.14	5.0	5.00	7.19	1.03	5.00	3.02	15	0.60	369.30	369.15	369.71	369.54	374.05	374.06	32
408-409	73.89	0.110	0.440	0.90	0.10	0.28	5.0	5.96	6.88	1.90	5.00	3.70	15	0.60	366.55	366.10	367.10	366.64	374.18	375.50	33
409-410	91.56	0.160	0.330	0.54	0.09	0.18	5.0	5.51	7.02	1.24	5.00	3.26	15	0.60	367.20	366.65	367.64	367.07	373.05	374.18	34
410-411	88.90	0.170	0.170	0.53	0.09	0.09	5.0	5.00	7.19	0.65	2.81	2.83	12	0.62	368.00	367.45	368.34	367.77	370.00	373.05	35

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 400.sws

Energy Grade Line Calculations

Project Name: Storm System 400

Stormwater Studio 2022 v 3.0.0.29

10-26-2022

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	36	23.07	357.00	3.00	7.07	360.53	3.26	0.17	360.70	78.90	358.20	2.36	5.97	360.56	3.87	0.23	360.79	0.013	0.097	360.57	360.80	0.01
2	15	1.01	374.11	0.25‡	0.17	374.36	5.89	0.54	374.65	29.04	375.70	0.40²	0.34	376.10	2.96	0.14	376.24	0.013	1.593	376.10	376.24	0.00
3	15	0.53	375.80	0.28‡	0.20	376.08	2.62	0.11	376.25	24.50	375.95	0.29	0.22	376.24	2.41	0.09	376.33	0.013	0.086	376.31	376.40	0.06
4	30	22.22	358.40	2.14	4.47	360.55	4.97	0.38	360.93	78.58	358.95	1.59	3.29	360.54	6.76	0.71	361.25	0.013	0.322	360.59	361.30	0.05
5	30	22.27	359.05	1.56‡	3.22	360.61	6.92	0.74	361.43	88.08	359.60	1.58²	3.26	361.18	6.82	0.72	361.90	0.013	0.472	361.18	361.90	0.00
6	30	22.22	359.70	1.80	3.77	361.50	5.89	0.54	362.04	100.30	360.30	1.58²	3.26	361.88	6.82	0.72	362.60	0.013	0.565	361.88	362.60	0.00
7	30	20.28	360.40	1.47‡	2.99	361.87	6.77	0.71	362.72	58.84	360.80	1.51	3.10	362.31	6.54	0.66	362.97	0.013	0.256	362.34	363.01	0.03
8	24	14.77	361.30	1.46	2.46	362.76	6.00	0.56	363.32	64.71	361.69	1.37	2.29	363.06	6.46	0.65	363.71	0.013	0.391	363.12	363.77	0.06
9	24	13.05	361.79	1.78	2.95	363.57	4.43	0.30	363.88	143.35	362.70	1.28	2.13	363.98	6.12	0.58	364.56	0.013	0.687	364.02	364.60	0.04
10	24	13.12	362.80	1.50	2.53	364.29	5.19	0.42	364.71	131.50	363.60	1.28²	2.13	364.89	6.16	0.59	365.48	0.013	0.764	364.89	365.48	0.00
11	24	10.33	363.70	1.62	2.73	365.33	3.78	0.22	365.55	135.41	364.55	1.14²	1.85	365.68	5.59	0.49	366.17	0.013	0.621	365.68	366.17	0.00
12	24	8.81	364.65	1.01‡	1.60	365.66	5.51	0.47	366.24	219.02	365.95	1.05²	1.67	367.00	5.27	0.43	367.43	0.013	1.195	367.00	367.43	0.00
13	24	8.80	366.05	1.01‡	1.59	367.06	5.54	0.48	367.53	101.49	366.70	1.05²	1.67	367.75	5.26	0.43	368.18	0.013	0.649	367.75	368.18	0.00
14	18	7.24	367.20	1.10³	1.39	368.30	5.20	0.42	368.72	107.84	367.85	1.10	1.39	368.95	5.20	0.42	369.37	0.013	0.647	369.02	369.44	0.07
15	18	5.14	367.95	1.40	1.72	369.35	2.99	0.14	369.49	24.57	368.20	1.15	1.45	369.35	3.54	0.19	369.55	0.013	0.060	369.40	369.59	0.04
16	15	3.78	368.45	0.78‡	0.80	369.23	4.72	0.35	369.65	42.57	368.75	0.78	0.81	369.53	4.68	0.34	369.87	0.013	0.225	369.66	370.00	0.13
17	15	2.69	368.85	0.65³	0.64	369.50	4.17	0.27	370.03	123.20	369.60	0.66	0.66	370.26	4.09	0.26	370.52	0.013	0.491	370.31	370.57	0.05
18	12	1.34	369.85	0.65	0.54	370.50	2.48	0.10	370.60	98.81	371.55	0.49²	0.38	372.04	3.49	0.19	372.23	0.013	1.638	372.04	372.23	0.00
19	12	0.39	371.65	0.57	0.47	372.23	0.83	0.01	372.24	135.00	374.35	0.26²	0.17	374.62	2.34	0.09	374.70	0.013	2.465	374.62	374.70	0.00
20	15	1.29	372.15	0.44‡	0.39	372.59	3.36	0.18	372.76	25.24	372.30	0.46	0.41	372.76	3.17	0.16	372.91	0.013	0.152	372.84	373.00	0.08
21	15	1.49	371.55	0.47‡	0.43	372.03	3.50	0.19	372.22	24.53	371.70	0.49	0.45	372.19	3.32	0.17	372.36	0.013	0.147	372.28	372.45	0.09
22	15	4.17	365.30	0.84³	0.88	366.14	4.76	0.35	366.49	45.84	365.60	0.84	0.88	366.44	4.75	0.35	366.79	0.013	0.305	366.48	366.83	0.04

Notes: Return Period = 10-yrs. ² Critical depth. ³ Normal depth. ‡ Supercritical.

Project File: Storm System 400.sws

Energy Grade Line Calculations

Project Name: Storm System 400

10-26-2022

Stormwater Studio 2022 v 3.0.0.29

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
23	15	4.10	367.20	0.84[3]	0.88	368.04	4.67	0.34	368.38	101.39	367.85	0.84	0.88	368.69	4.68	0.34	369.03	0.013	0.648	368.77	369.11	0.08
24	15	3.45	367.95	0.74‡	0.76	368.69	4.54	0.32	369.16	113.05	368.65	0.75	0.76	369.39	4.51	0.32	369.71	0.013	0.549	369.55	369.87	0.16
25	12	2.33	368.90	0.65[1]	0.54	369.55	4.34	0.29	369.92	196.58	370.10	0.65	0.55	370.75	4.28	0.28	371.04	0.013	1.116	370.88	371.16	0.13
26	12	1.74	370.20	0.91	0.75	371.11	2.32	0.08	371.19	90.00	370.80	0.56	0.45	371.36	3.83	0.23	371.59	0.013	0.397	371.43	371.66	0.07
27	12	0.85	370.90	0.74	0.62	371.64	1.37	0.03	371.67	135.00	373.45	0.39[2]	0.29	373.84	2.99	0.14	373.98	0.013	2.313	373.84	373.98	0.00
28	15	1.94	371.30	0.55‡	0.52	371.85	3.76	0.22	372.07	24.50	371.45	0.56	0.53	372.01	3.64	0.21	372.22	0.013	0.147	372.11	372.31	0.09
29	15	2.21	371.00	0.59‡	0.57	371.59	3.90	0.24	371.83	24.50	371.15	0.60	0.58	371.75	3.81	0.23	371.97	0.013	0.147	371.92	372.14	0.17
30	15	1.93	370.35	0.54‡	0.51	370.90	3.77	0.22	371.12	24.50	370.50	0.56	0.53	371.06	3.63	0.21	371.26	0.013	0.147	371.24	371.44	0.18
31	15	1.66	368.75	0.49‡	0.44	369.24	3.75	0.22	369.46	43.54	369.05	0.52[2]	0.48	369.57	3.48	0.19	369.76	0.013	0.298	369.57	369.76	0.00
32	15	1.03	369.15	0.39‡	0.33	369.54	3.15	0.15	369.77	24.50	369.30	0.41	0.36	369.71	2.89	0.13	369.84	0.013	0.072	369.79	369.92	0.07
33	15	1.90	366.10	0.54‡	0.50	366.64	3.76	0.22	366.86	73.89	366.55	0.55	0.52	367.10	3.64	0.21	367.30	0.013	0.443	367.10	367.30	0.00
34	15	1.24	366.65	0.42[3]	0.37	367.07	3.37	0.18	367.32	91.56	367.20	0.45[2]	0.39	367.64	3.16	0.16	367.80	0.013	0.477	367.64	367.80	0.00
35	12	0.65	367.45	0.33‡	0.22	367.77	2.92	0.13	367.90	88.90	368.00	0.34[2]	0.24	368.34	2.74	0.12	368.46	0.013	0.553	368.34	368.46	0.00

Notes: Return Period = 10-yrs. [1] Critical depth. [2] Critical depth. [3] Normal depth. ‡ Supercritical.

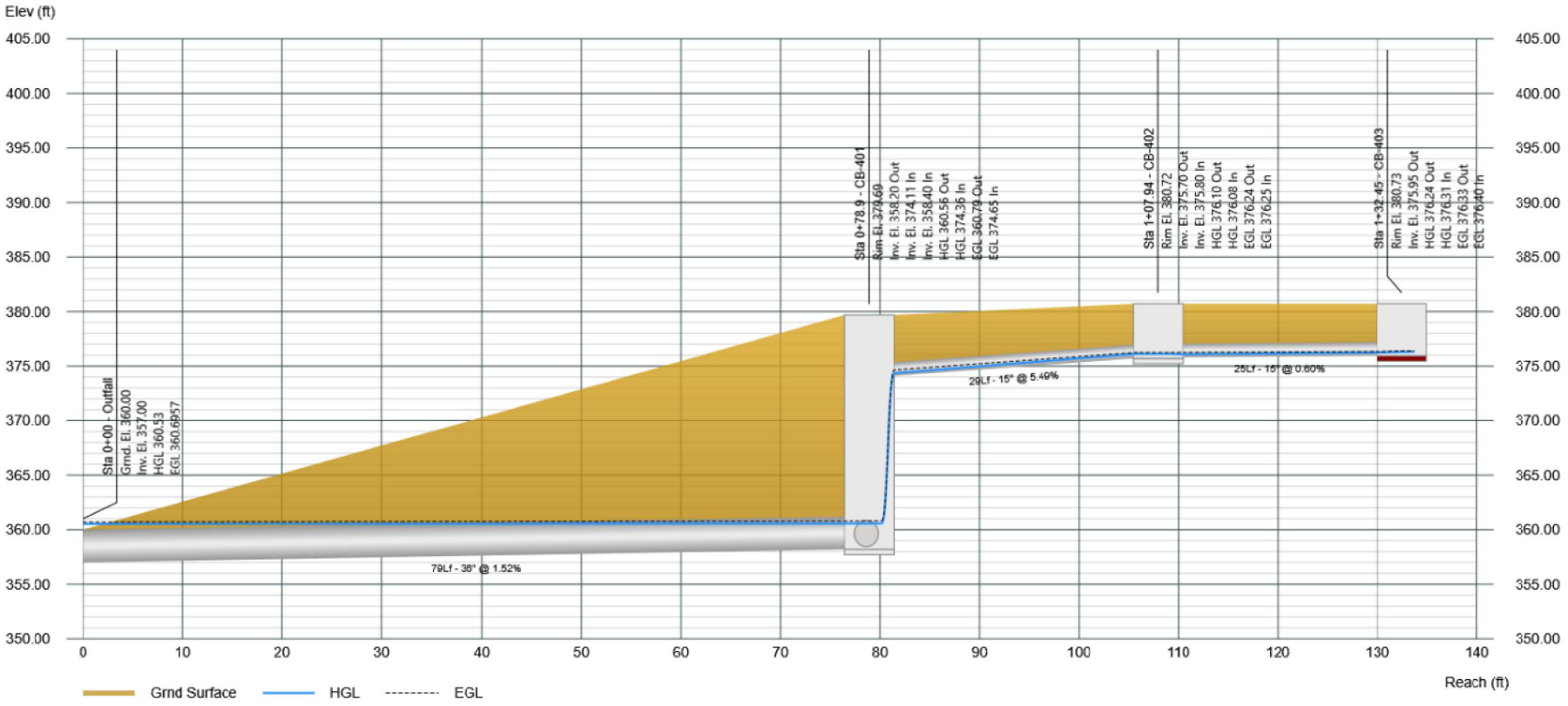
Project File: Storm System 400.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022

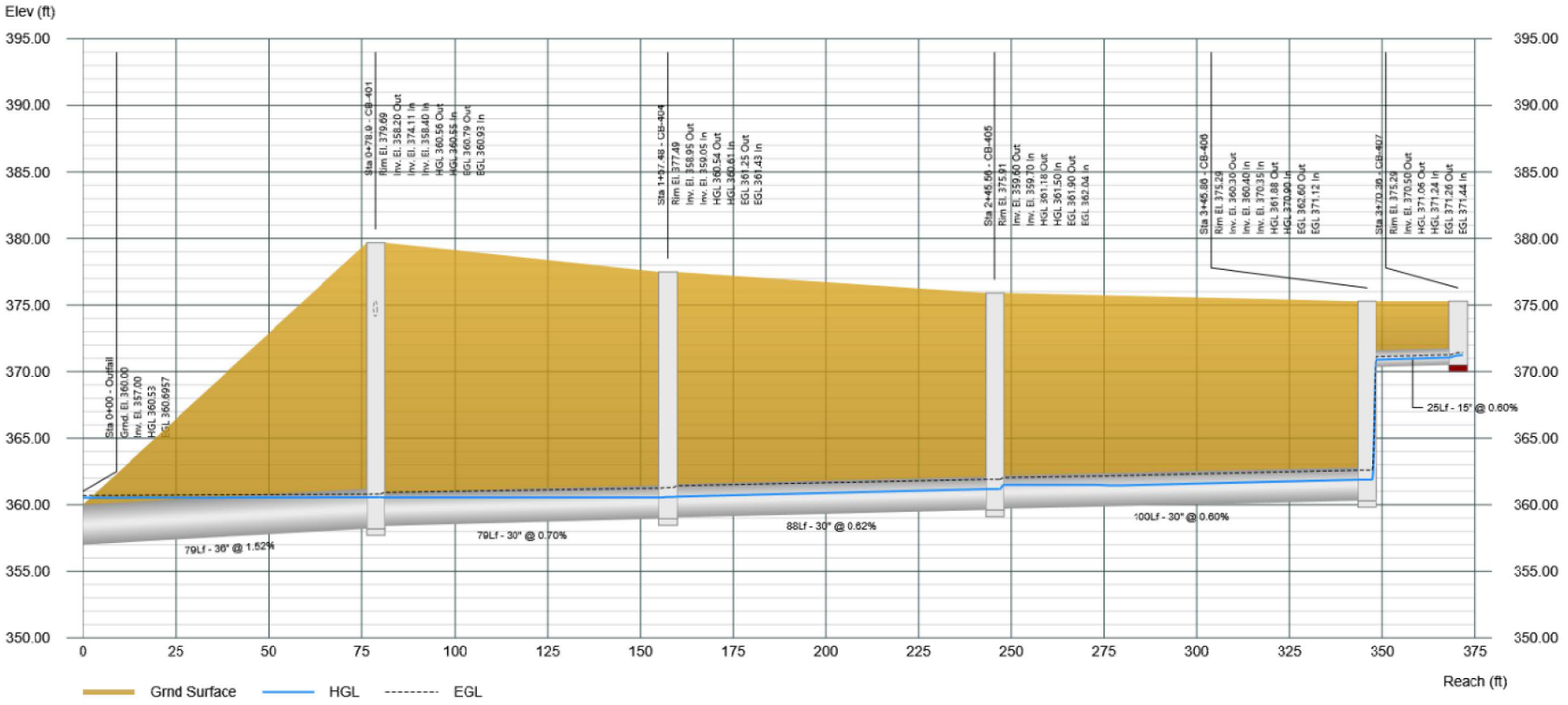


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022



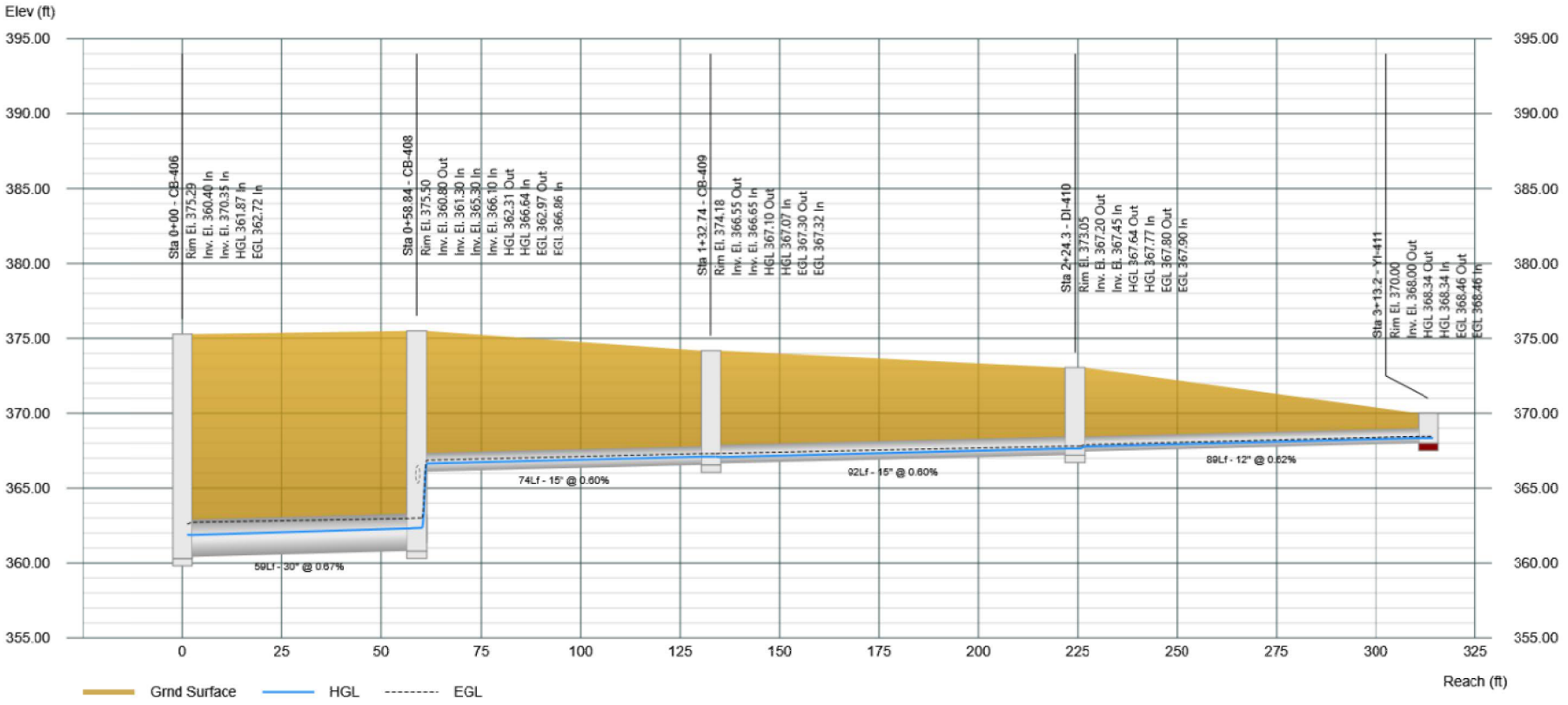
Project File: Storm System 400.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022

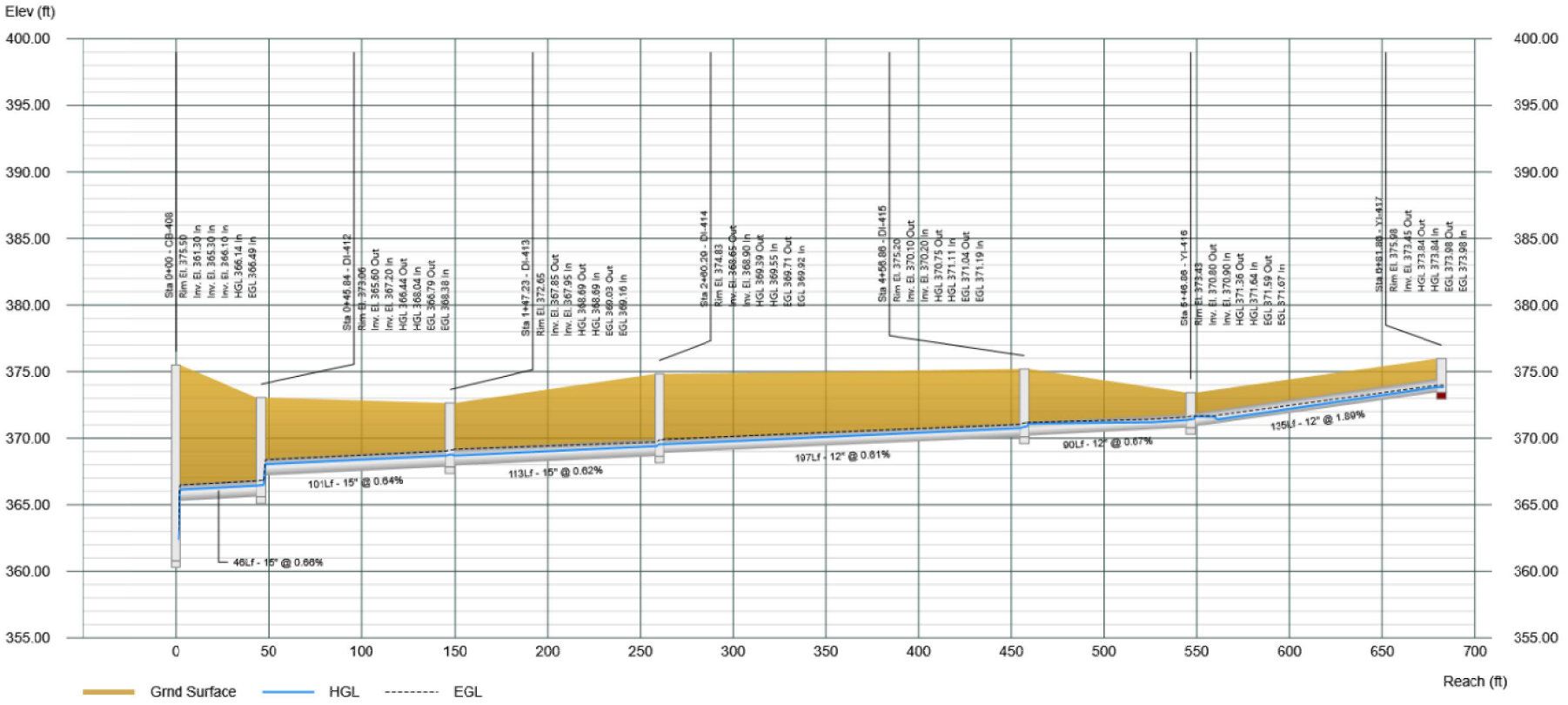


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022

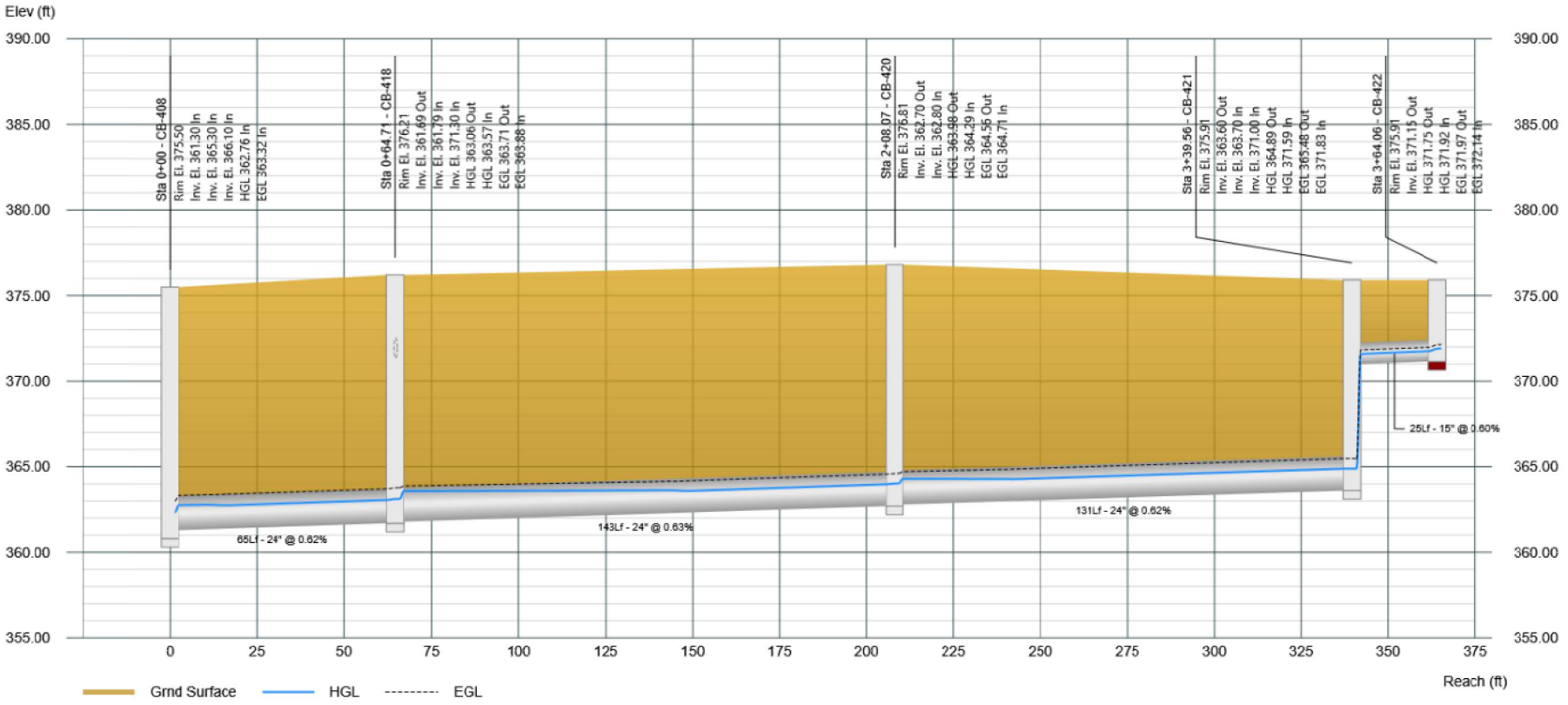


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022



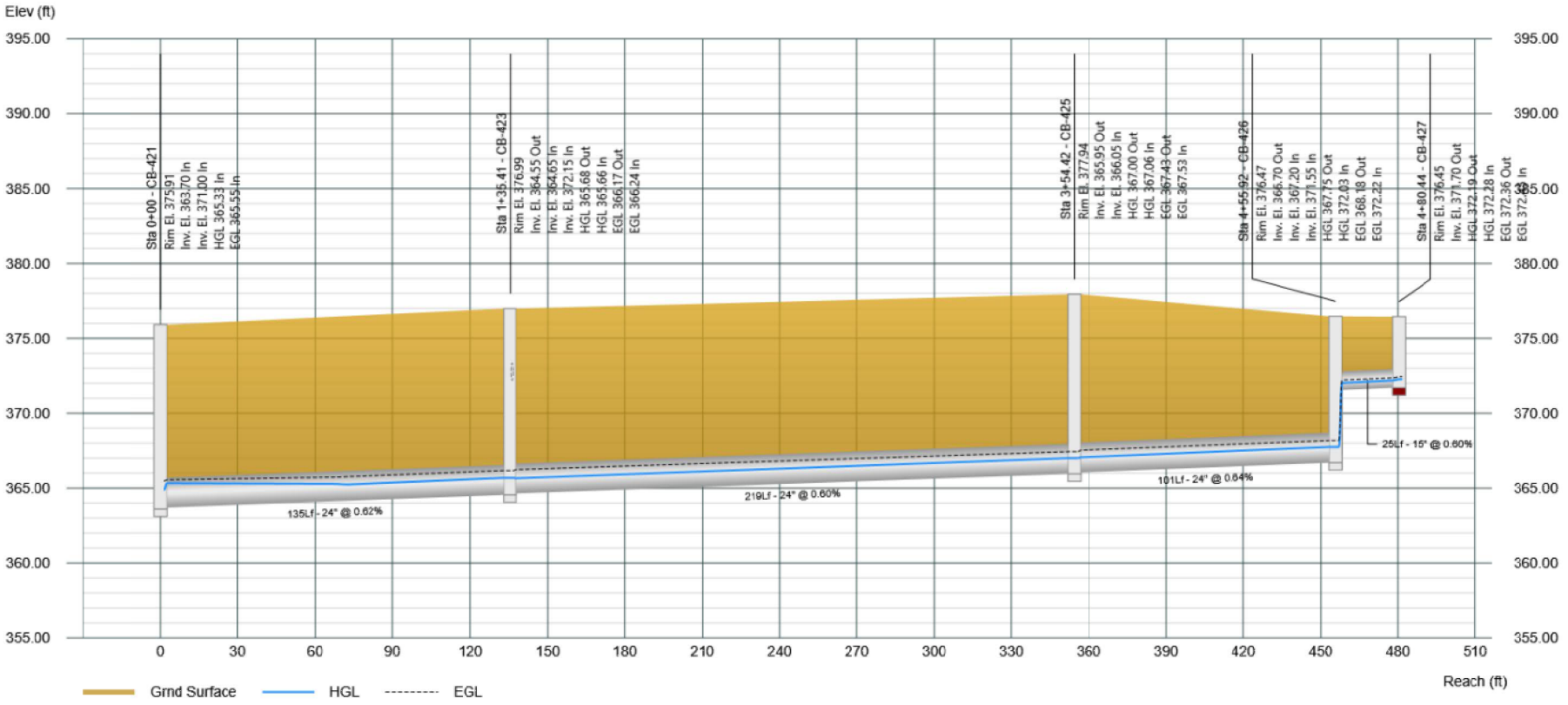
Project File: Storm System 400.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022



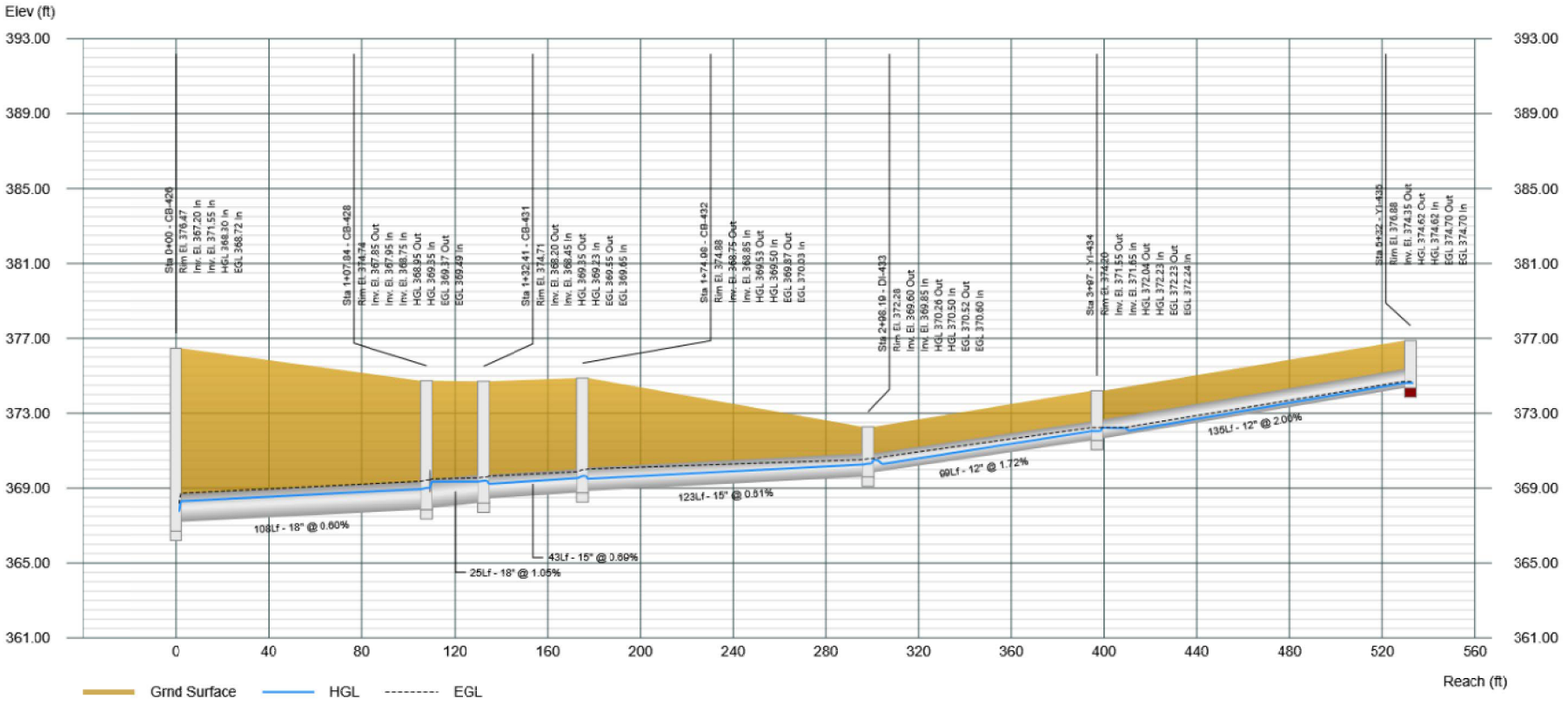
Project File: Storm System 400.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022

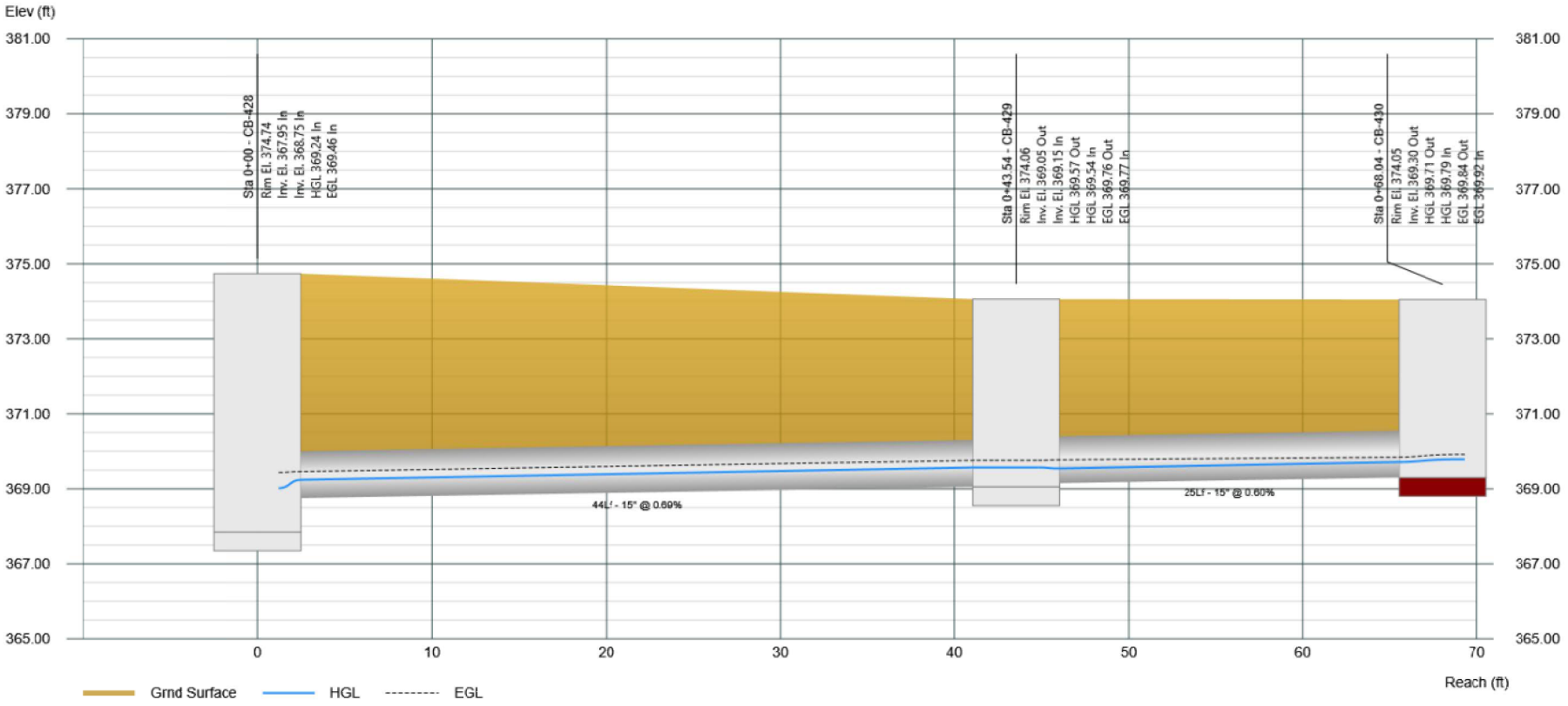


Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-26-2022



SYSTEM 500 – REPORTS AND PROFILES

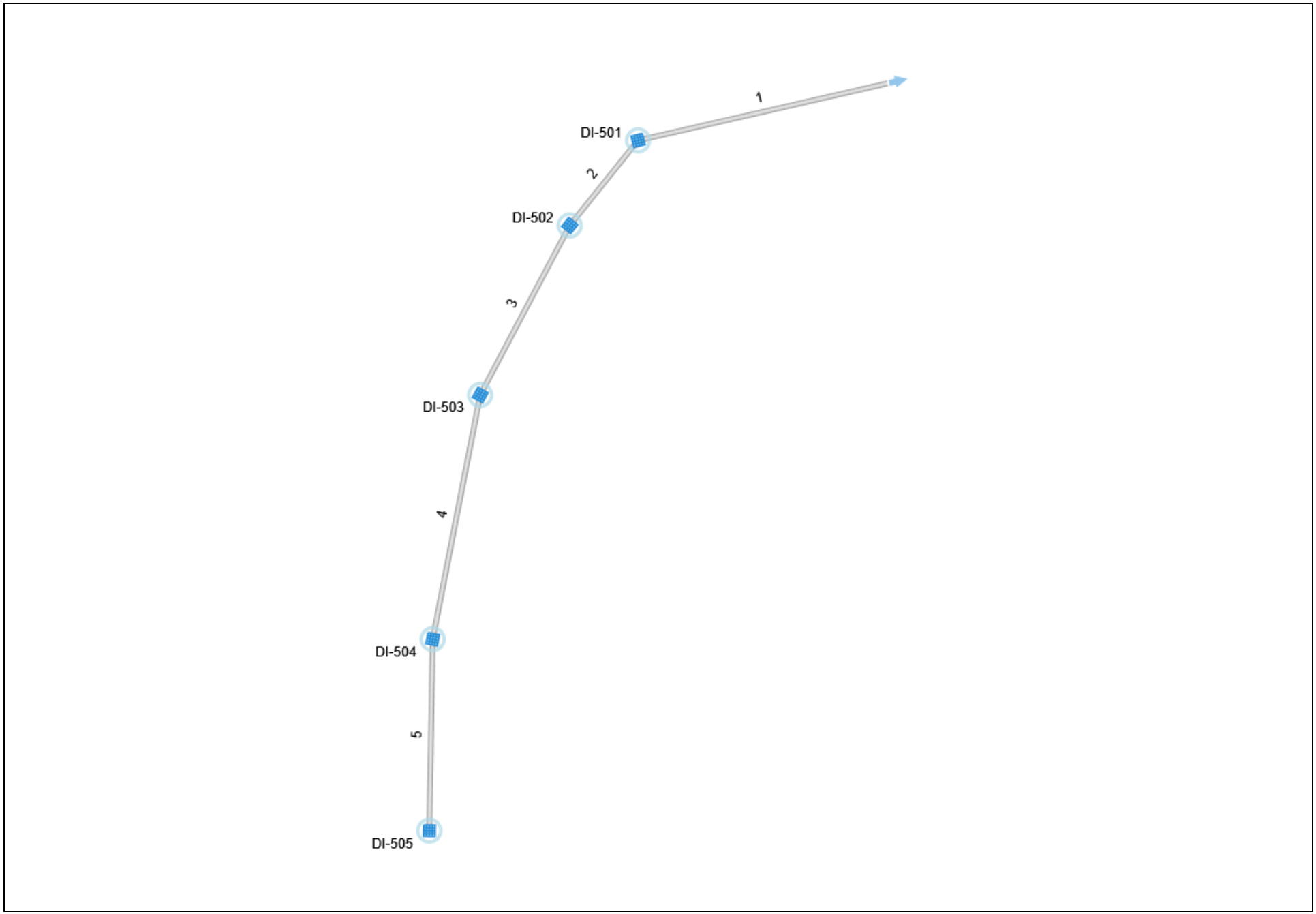
The Point – North
AWH-20000

Plan View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 500

08-18-2022



Storm Sewer Tabulation

Project Name: Storm System 500

10-26-2022

Stormwater Studio 2022 v 3.0.0.29

Line ID	Length	Drng Area		Rational	C x A		Tc		Intensity	Total Q	Capacity	Velocity	Line		Invert Elev		HGL Elev		Surface Elev		Line No
		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Up	Dn	Up	Dn	Up	Dn	
	(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
500-501	121.40	0.260	1.140	0.51	0.13	0.68	5.0	6.77	6.65	4.55	13.37	4.40	15	4.29	351.20	346.00	352.06	349.61	359.85	347.50	1
501-502	65.93	0.110	0.880	0.62	0.07	0.55	5.0	6.52	6.72	3.71	5.00	3.90	15	0.60	351.70	351.30	352.51	352.33	361.38	359.85	2
502-503	115.70	0.020	0.770	0.35	0.01	0.48	5.0	6.07	6.85	3.31	5.04	3.78	15	0.61	352.50	351.80	353.23	352.82	361.82	361.38	3
503-504	150.18	0.300	0.750	0.63	0.19	0.48	5.0	5.50	7.02	3.35	5.00	4.49	15	0.60	353.50	352.60	354.24	353.33	358.80	361.82	4
504-505	115.67	0.450	0.450	0.64	0.29	0.29	5.0	5.00	7.19	2.07	2.76	4.11	12	0.60	354.45	353.75	355.06	354.36	356.45	358.80	5

Notes: IDF File = The Point - North.IDF, Return Period = 10-yrs.

Project File: Storm System 500.sws

Energy Grade Line Calculations

Project Name: Storm System 500

10-26-2022

Stormwater Studio 2022 v 3.0.0.29

Line No	Line Size	Q	Downstream							Length	Upstream							Pipe		Junction		
			Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev		Invert Elev	Depth	Area	HGL Elev	Vel	Vel Head	EGL Elev	n Value	Enrgy Loss	HGLa Elev	EGLa Elev	Enrgy Loss
	(in)	(cfs)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)	(ft)	(ft)	(ft)	(sqft)	(ft)	(ft/s)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
1	15	4.55	346.00	1.25	1.23	349.61	3.71	0.21	349.82	121.40	351.20	0.85²	0.89	352.06	5.10	0.40	352.46	0.013	2.636	352.06	352.46	0.00
2	15	3.71	351.30	1.03	1.08	352.33	3.43	0.18	352.51	65.93	351.70	0.82	0.85	352.51	4.37	0.30	352.81	0.013	0.296	352.62	352.92	0.11
3	15	3.31	351.80	1.02	1.07	352.82	3.09	0.15	352.97	115.70	352.50	0.73²	0.74	353.23	4.46	0.31	353.54	0.013	0.575	353.23	353.54	0.00
4	15	3.35	352.60	0.73‡	0.74	353.33	4.50	0.31	353.67	150.18	353.50	0.73²	0.75	354.24	4.48	0.31	354.55	0.013	0.882	354.24	354.55	0.00
5	12	2.07	353.75	0.61‡	0.50	354.36	4.13	0.27	354.65	115.67	354.45	0.62	0.51	355.06	4.08	0.26	355.32	0.013	0.673	355.16	355.42	0.10

Notes: Return Period = 10-yrs. ² Critical depth. ‡ Supercritical.

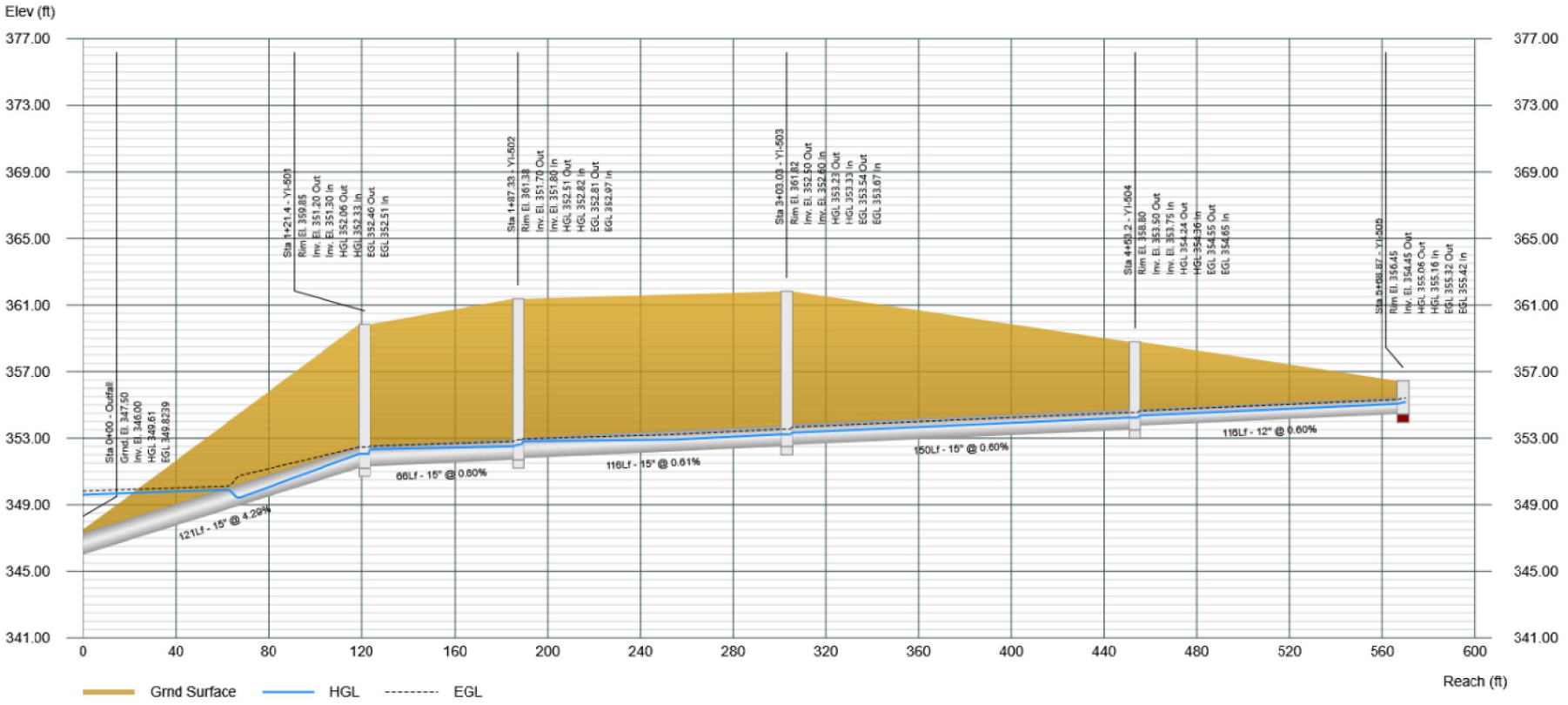
Project File: Storm System 500.sws

Profile View

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 500

10-26-2022



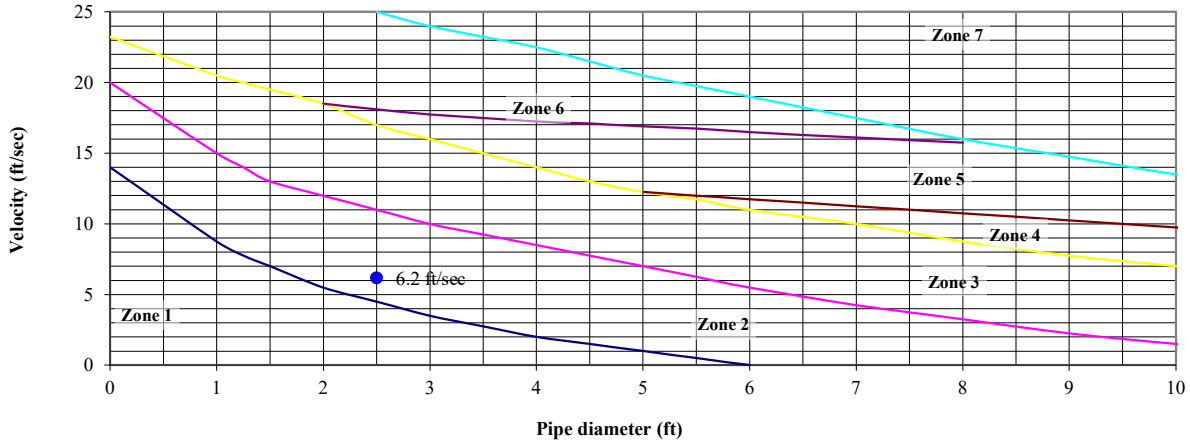
VELOCITY DISSIPATOR CALCULATIONS

DESIGN OF RIPRAP OUTLET PROTECTION WORKSHEET

Project:	The Point - North	Date:	8/18/2022
Project Number:	AWH20000	Calculated By:	WTO
Outlet Number:	EW-100		

Outlet flowrate =	25.44	cfs
Pipe diameter =	30	inches
Number of pipes =	1	
Pipe separation =	0	feet
Outlet Velocity =	6.2	ft/sec

Figure 8.06.b.1



Zone from graph above = 2

Outlet pipe diameter	30 in.	Length =	15.0 ft.
Outlet flowrate	25.4 cfs	Width =	8.5 ft.
Outlet velocity	6.2 ft/sec	Stone diameter =	6 in.
Material =	Class B	Thickness =	18 in.

Zone	Material	Diameter	Thickness	Length	Width
1	Class A	3	12	4 x D(o)	3 x D(o)
2	Class B	6	18	6 x D(o)	3 x D(o)
3	Class I	13	24	8 x D(o)	3 x D(o)
4	Class I	13	24	8 x D(o)	3 x D(o)
5	Class II	23	36	10 x D(o)	3 x D(o)
6	Class II	23	36	10 x D(o)	3 x D(o)
7	Special study required				

1. Calculations based on NY DOT method - Pages 8.06.05 through 8.06.06 in NC Erosion Control Manual

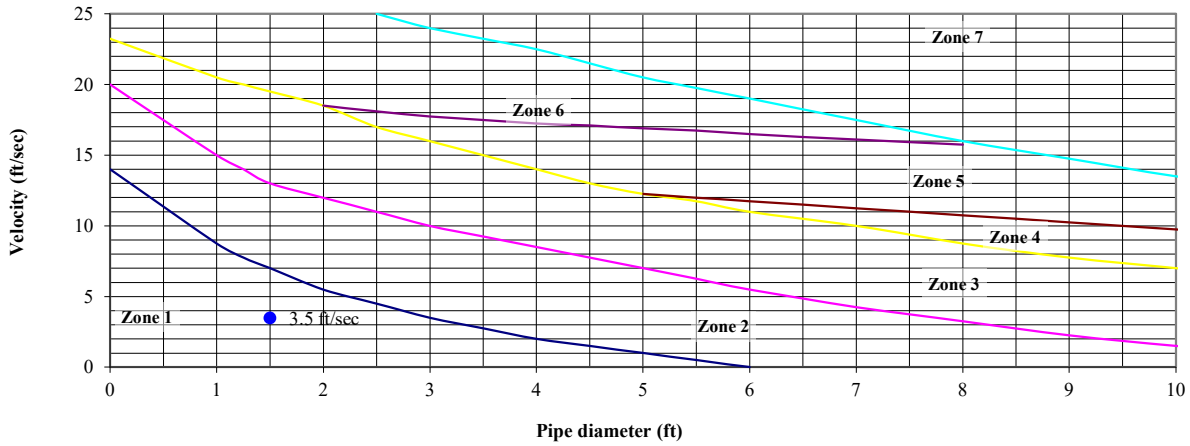
2. Outlet velocity based on full-flow velocity

DESIGN OF RIPRAP OUTLET PROTECTION WORKSHEET

Project:	The Point - North	Date:	8/18/2022
Project Number:	AWH20000	Calculated By:	WTO
Outlet Number:	EW-200		

Outlet flowrate =	4.31	cfs
Pipe diameter =	18	inches
Number of pipes =	1	
Pipe separation =	0	feet
Outlet Velocity =	3.5	ft/sec

Figure 8.06.b.1



Zone from graph above = 1

Outlet pipe diameter	18 in.	Length =	6.0 ft.
Outlet flowrate	4.3 cfs	Width =	3.9 ft.
Outlet velocity	3.5 ft/sec	Stone diameter =	3 in.
Material =	Class A	Thickness =	12 in.

Zone	Material	Diameter	Thickness	Length	Width
1	Class A	3	12	4 x D(o)	3 x D(o)
2	Class B	6	18	6 x D(o)	3 x D(o)
3	Class I	13	24	8 x D(o)	3 x D(o)
4	Class I	13	24	8 x D(o)	3 x D(o)
5	Class II	23	36	10 x D(o)	3 x D(o)
6	Class II	23	36	10 x D(o)	3 x D(o)
7	Special study required				

1. Calculations based on NY DOT method - Pages 8.06.05 through 8.06.06 in NC Erosion Control Manual

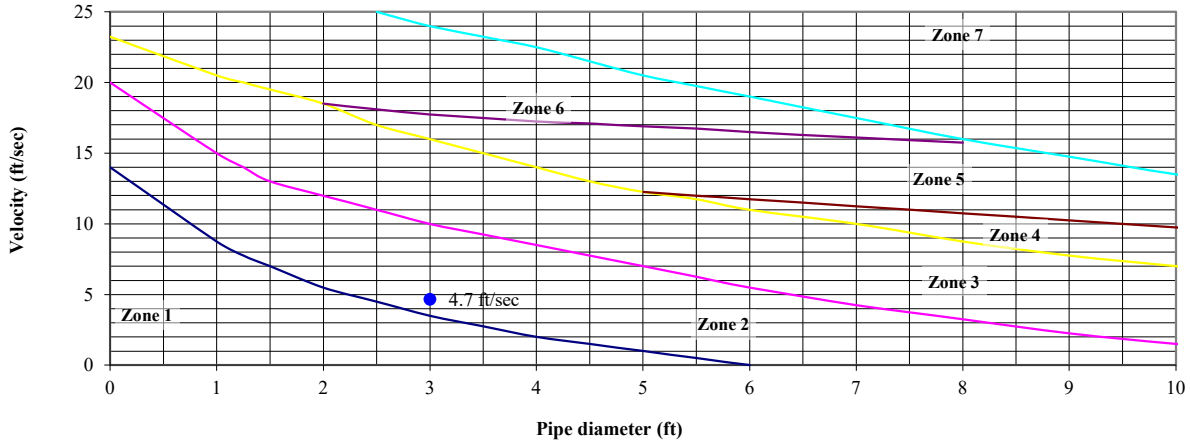
2. Outlet velocity based on full-flow velocity

DESIGN OF RIPRAP OUTLET PROTECTION WORKSHEET

Project:	The Point - North	Date:	8/18/2022
Project Number:	AWH20000	Calculated By:	WTO
Outlet Number:	EW-300		

Outlet flowrate =	21.95	cfs
Pipe diameter =	36	inches
Number of pipes =	1	
Pipe separation =	0	feet
Outlet Velocity =	4.68	ft/sec

Figure 8.06.b.1



Zone from graph above = 2

Outlet pipe diameter	36 in.	Length =	18.0 ft.
Outlet flowrate	22.0 cfs	Width =	10.2 ft.
Outlet velocity	4.7 ft/sec	Stone diameter =	6 in.
Material =	Class B	Thickness =	18 in.

Zone	Material	Diameter	Thickness	Length	Width
1	Class A	3	12	4 x D(o)	3 x D(o)
2	Class B	6	18	6 x D(o)	3 x D(o)
3	Class I	13	24	8 x D(o)	3 x D(o)
4	Class I	13	24	8 x D(o)	3 x D(o)
5	Class II	23	36	10 x D(o)	3 x D(o)
6	Class II	23	36	10 x D(o)	3 x D(o)
7	Special study required				

1. Calculations based on NY DOT method - Pages 8.06.05 through 8.06.06 in NC Erosion Control Manual

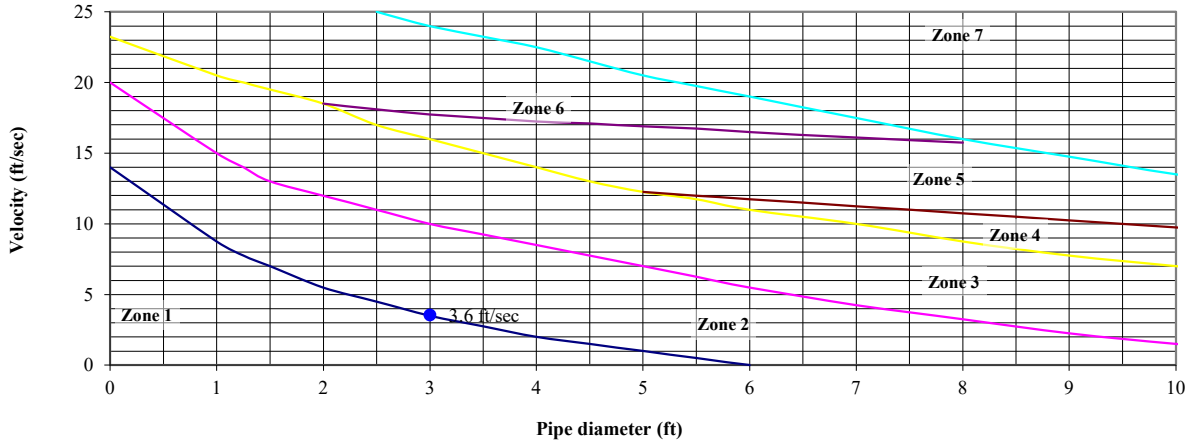
2. Outlet velocity based on full-flow velocity

DESIGN OF RIPRAP OUTLET PROTECTION WORKSHEET

Project:	The Point - North	Date:	8/18/2022
Project Number:	AWH20000	Calculated By:	WTO
Outlet Number:	EW-400		

Outlet flowrate =	23.07	cfs
Pipe diameter =	36	inches
Number of pipes =	1	
Pipe separation =	0	feet
Outlet Velocity =	3.57	ft/sec

Figure 8.06.b.1



Zone from graph above = 2

Outlet pipe diameter	36 in.	Length =	18.0 ft.
Outlet flowrate	23.1 cfs	Width =	10.2 ft.
Outlet velocity	3.6 ft/sec	Stone diameter =	6 in.
Material =	Class B	Thickness =	18 in.

Zone	Material	Diameter	Thickness	Length	Width
1	Class A	3	12	4 x D(o)	3 x D(o)
2	Class B	6	18	6 x D(o)	3 x D(o)
3	Class I	13	24	8 x D(o)	3 x D(o)
4	Class I	13	24	8 x D(o)	3 x D(o)
5	Class II	23	36	10 x D(o)	3 x D(o)
6	Class II	23	36	10 x D(o)	3 x D(o)
7	Special study required				

1. Calculations based on NY DOT method - Pages 8.06.05 through 8.06.06 in NC Erosion Control Manual

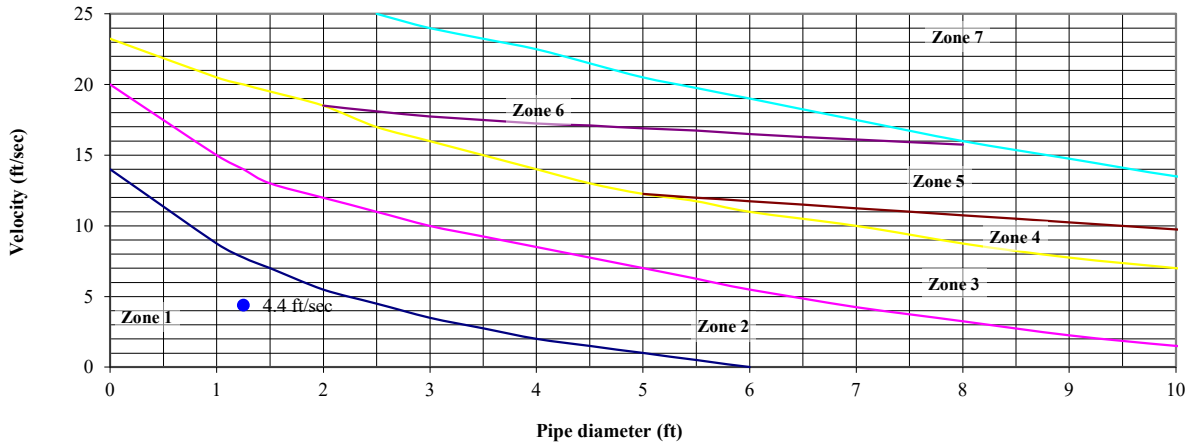
2. Outlet velocity based on full-flow velocity

DESIGN OF RIPRAP OUTLET PROTECTION WORKSHEET

Project:	The Point - North	Date:	8/18/2022
Project Number:	AWH20000	Calculated By:	WTO
Outlet Number:	EW-500		

Outlet flowrate =	4.55	cfs
Pipe diameter =	15	inches
Number of pipes =	1	
Pipe separation =	0	feet
Outlet Velocity =	4.4	ft/sec

Figure 8.06.b.1



Zone from graph above = 1

Outlet pipe diameter	15 in.	Length =	5.0 ft.
Outlet flowrate	4.6 cfs	Width =	3.3 ft.
Outlet velocity	4.4 ft/sec	Stone diameter =	3 in.
Material =	Class A	Thickness =	12 in.

Zone	Material	Diameter	Thickness	Length	Width
1	Class A	3	12	4 x D(o)	3 x D(o)
2	Class B	6	18	6 x D(o)	3 x D(o)
3	Class I	13	24	8 x D(o)	3 x D(o)
4	Class I	13	24	8 x D(o)	3 x D(o)
5	Class II	23	36	10 x D(o)	3 x D(o)
6	Class II	23	36	10 x D(o)	3 x D(o)
7	Special study required				

1. Calculations based on NY DOT method - Pages 8.06.05 through 8.06.06 in NC Erosion Control Manual

2. Outlet velocity based on full-flow velocity

INLET/GUTTER SPREAD REPORTS

Inlet Report

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-11-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	CB-101	Combination	0.88	0.24	1.12	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.14	4.79	0.30	4.79	2.5	0
2	CB-105	Combination	0.52	0.00	0.50	0.02	3.0	3.00	3.00	2.00	-	0.028	2.00	0.040	0.020	0.013	0.11	3.55	0.17	1.38	2.5	1
3	CB-107	Combination	0.05	0.00	0.05	0.00	3.0	3.00	3.00	2.00	-	0.028	2.00	0.040	0.020	0.013	0.05	1.20	0.07	0.59	2.5	2
4	CB-109	Combination	0.27	0.00	0.27	0.00	3.0	3.00	3.00	2.00	-	0.025	2.00	0.040	0.020	0.013	0.09	2.50	0.14	1.10	2.5	14
5	CB-108	Combination	1.13	0.00	0.93	0.19	3.0	3.00	3.00	2.00	-	0.028	2.00	0.040	0.020	0.013	0.14	5.20	0.23	1.84	2.5	23
6	CB-110	Combination	0.08	0.00	0.08	0.00	3.0	3.00	3.00	2.00	-	0.018	2.00	0.040	0.020	0.013	0.06	1.47	0.09	0.73	2.5	7
7	CB-111	Combination	0.27	0.00	0.27	0.00	3.0	3.00	3.00	2.00	-	0.018	2.00	0.040	0.020	0.013	0.10	2.75	0.15	1.17	2.5	8
8	CB-118	Combination	0.36	0.00	0.34	0.02	3.0	3.00	3.00	2.00	-	0.006	2.00	0.040	0.020	0.013	0.13	4.35	0.20	1.59	2.5	9
9	CB-119	Combination	0.66	0.07	0.73	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.10	2.79	0.26	2.79	2.5	0
10	CB-120	Combination	0.75	0.03	0.78	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.10	2.79	0.26	2.79	2.5	0
11	CB-121	Combination	0.22	0.00	0.22	0.00	3.0	3.00	3.00	2.00	-	0.011	2.00	0.040	0.020	0.013	0.10	2.85	0.15	1.19	2.5	10
12	CB-122	Combination	0.26	0.00	0.26	0.00	3.0	3.00	3.00	2.00	-	0.020	2.00	0.040	0.020	0.013	0.09	2.60	0.14	1.13	2.5	11
13	CB-123	Combination	0.57	0.00	0.53	0.04	3.0	3.00	3.00	2.00	-	0.020	2.00	0.040	0.020	0.013	0.12	4.05	0.19	1.51	2.5	9
14	CB-112	Combination	0.47	0.00	0.44	0.03	3.0	3.00	3.00	2.00	-	0.018	2.00	0.040	0.020	0.013	0.12	3.75	0.18	1.43	2.5	10
15	DI-113	Drop Grate	0.24	0.00	0.24	0.00	-	-	2.00	2.00	0.15	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
16	DI-114	Drop Grate	0.49	0.00	0.49	0.00	-	-	2.00	2.00	0.30	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
17	DI-115	Drop Grate	1.49	0.00	1.49	0.00	-	-	2.00	2.00	0.91	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
18	DI-116	Drop Grate	1.33	0.00	1.33	0.00	-	-	2.00	2.00	0.81	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
19	YI-117	Drop Grate	1.01	0.00	1.01	0.00	-	-	2.00	2.00	0.62	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
20	YI-102	Drop Grate	0.33	0.00	0.33	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.07	8.91	0.07	8.91	0.0	0
21	YI-103	Drop Grate	0.29	0.00	0.29	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.06	8.34	0.06	8.34	0.0	0
22	YI-104	Drop Grate	1.12	0.00	1.12	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.16	17.65	0.16	17.65	0.0	0

Notes: Return Period = 1-yrs. All curb inlets are Horiz throat. Clogging Factors (%): Curb on Grade = 0; Curb in Sag = 50; Grate on Grade = 0; Grate in Sag = 50,

Project File: Storm System 100.sws

Inlet Report

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 100

10-11-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
23	CB-106	Combination	1.00	0.19	0.97	0.22	3.0	3.00	3.00	2.00	-	0.028	2.00	0.040	0.020	0.013	0.15	5.35	0.23	1.88	2.5	1
24	CB-124	Combination	0.08	0.00	0.08	0.00	3.0	3.00	3.00	2.00	-	0.020	2.00	0.040	0.020	0.013	0.06	1.45	0.09	0.65	3.0	12
25	CB-125	Combination	0.09	0.00	0.09	0.00	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.08	1.90	0.12	0.84	3.0	27
26	CB-126	Combination	0.14	0.00	0.14	0.00	3.0	3.00	3.00	2.00	-	0.010	2.00	0.040	0.020	0.013	0.08	2.20	0.14	0.94	3.0	0
27	CB-127	Combination	0.17	0.00	0.17	0.00	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.10	2.75	0.15	1.06	3.0	29
28	CB-128	Combination	0.08	0.00	0.08	0.00	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.07	1.77	0.12	0.79	3.0	30
29	CB-129	Combination	1.02	0.00	1.02	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.11	3.25	0.32	3.25	3.0	27
30	CB-130	Combination	1.06	0.00	1.06	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.12	3.75	0.33	3.75	3.0	29

Notes: Return Period = 1-yrs. All curb inlets are Horiz throat. Clogging Factors (%): Curb on Grade = 0; Curb in Sag = 50; Grate on Grade = 0; Grate in Sag = 50,

Inlet Report

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 300

10-11-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	CB-301	Combination	0.20	0.00	0.20	0.00	3.0	3.00	3.00	2.00	-	0.019	2.00	0.040	0.020	0.013	0.08	2.25	0.13	1.05	2.5	24
2	CB-302	Combination	0.08	0.00	0.08	0.00	3.0	3.00	3.00	2.00	-	0.014	2.00	0.040	0.020	0.013	0.06	1.57	0.10	0.70	3.0	3
3	CB-312	Combination	0.28	0.00	0.28	0.00	3.0	3.00	3.00	2.00	-	0.014	2.00	0.040	0.020	0.013	0.10	3.10	0.16	1.26	2.5	4
4	CB-316	Combination	0.33	0.00	0.31	0.02	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.12	4.00	0.19	1.50	2.5	10
5	CB-318	Combination	0.40	0.00	0.38	0.02	3.0	3.00	3.00	2.00	-	0.013	2.00	0.040	0.020	0.013	0.12	3.80	0.18	1.45	2.5	10
6	CB-319	Combination	0.39	0.00	0.37	0.02	3.0	3.00	3.00	2.00	-	0.014	2.00	0.040	0.020	0.013	0.11	3.65	0.18	1.41	2.5	10
7	CB-320	Combination	0.20	0.00	0.20	0.00	3.0	3.00	3.00	2.00	-	0.031	2.00	0.040	0.020	0.013	0.08	1.92	0.12	0.95	2.5	6
8	CB-322	Combination	0.41	0.00	0.41	0.00	3.0	3.00	3.00	2.00	-	0.031	2.00	0.040	0.020	0.013	0.10	3.05	0.16	1.25	2.5	7
9	CB-323	Combination	0.27	0.00	0.27	0.00	3.0	3.00	3.00	2.00	-	0.031	2.00	0.040	0.020	0.013	0.09	2.30	0.13	1.06	2.5	15
10	CB-324	Combination	0.49	0.14	0.62	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.08	1.90	0.24	1.97	2.5	0
11	CB-326	Combination	0.59	0.00	0.51	0.08	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.15	5.30	0.23	1.88	2.5	10
12	CB-332	Combination	0.22	0.02	0.24	0.00	3.0	3.00	3.00	2.00	-	0.018	2.00	0.040	0.020	0.013	0.09	2.60	0.14	1.13	2.5	11
13	CB-333	Combination	0.42	0.00	0.40	0.02	3.0	3.00	3.00	2.00	-	0.018	2.00	0.040	0.020	0.013	0.11	3.55	0.17	1.38	2.5	12
14	CB-334	Combination	0.58	0.00	0.53	0.05	3.0	3.00	3.00	2.00	-	0.018	2.00	0.040	0.020	0.013	0.12	4.20	0.19	1.56	2.5	23
15	CB-321	Combination	0.28	0.00	0.28	0.00	3.0	3.00	3.00	2.00	-	0.031	2.00	0.040	0.020	0.013	0.09	2.40	0.13	1.08	2.5	5
16	DI-313	Drop Grate	1.31	0.00	1.31	0.00	-	-	2.00	2.00	0.80	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
17	YI-314	Drop Grate	1.04	0.00	1.04	0.00	-	-	2.00	2.00	0.63	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
18	YI-315	Drop Grate	1.23	0.00	1.23	0.00	-	-	2.00	2.00	0.86	Sag	2.00	0.050	0.020	0.013	0.29	30.59	0.29	30.59	0.0	0
19	DI-328	Drop Grate	0.73	0.00	0.73	0.00	-	-	2.00	2.00	0.45	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
20	YI-329	Drop Grate	0.91	0.00	0.91	0.00	-	-	2.00	2.00	0.55	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
21	YI-330	Drop Grate	0.47	0.00	0.47	0.00	-	-	2.00	2.00	0.29	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0
22	YI-331	Drop Grate	0.91	0.00	0.91	0.00	-	-	2.00	2.00	0.56	Sag	2.00	0.050	0.020	0.013	0.37	39.17	0.37	39.17	0.0	0

Notes: Return Period = 1-yrs. All curb inlets are Horiz throat. Clogging Factors (%): Curb on Grade = 0; Curb in Sag = 50; Grate on Grade = 0; Grate in Sag = 50,

Inlet Report

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 300

10-11-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
23	CB-327	Combination	0.63	0.05	0.58	0.10	3.0	3.00	3.00	2.00	-	0.010	2.00	0.040	0.020	0.013	0.15	5.30	0.23	1.88	2.5	25
24	CB-317	Combination	0.33	0.00	0.31	0.02	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.12	4.00	0.19	1.50	2.5	25
25	CB-325	Combination	0.62	0.12	0.73	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.10	2.79	0.26	2.79	2.5	0

Notes: Return Period = 1-yrs. All curb inlets are Horiz throat. Clogging Factors (%): Curb on Grade = 0; Curb in Sag = 50; Grate on Grade = 0; Grate in Sag = 50,

Inlet Report

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-11-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	CB-401	Combination	0.11	0.00	0.11	0.00	3.0	3.00	3.00	2.00	-	0.029	2.00	0.040	0.020	0.013	0.06	1.60	0.10	0.78	2.5	4
2	CB-402	Combination	0.27	0.00	0.27	0.00	3.0	3.00	3.00	2.00	-	0.034	2.00	0.040	0.020	0.013	0.08	2.25	0.13	1.04	2.5	1
3	CB-403	Combination	0.30	0.00	0.30	0.00	3.0	3.00	3.00	2.00	-	0.034	2.00	0.040	0.020	0.013	0.09	2.40	0.13	1.08	2.5	30
4	CB-404	Combination	0.09	0.00	0.09	0.00	3.0	3.00	3.00	2.00	-	0.023	2.00	0.040	0.020	0.013	0.06	1.52	0.09	0.75	2.5	5
5	CB-405	Combination	0.17	0.00	0.17	0.00	3.0	3.00	3.00	2.00	-	0.012	2.00	0.040	0.020	0.013	0.09	2.30	0.13	1.06	2.5	6
6	CB-406	Combination	0.30	0.00	0.30	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.04	0.90	0.20	1.64	2.5	0
7	CB-408	Combination	0.04	0.00	0.04	0.00	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.05	1.37	0.08	0.68	2.5	6
8	CB-418	Combination	0.18	0.00	0.18	0.00	3.0	3.00	3.00	2.00	-	0.013	2.00	0.040	0.020	0.013	0.09	2.40	0.13	1.08	2.5	7
9	CB-420	Combination	0.08	0.00	0.08	0.00	3.0	3.00	3.00	2.00	-	0.007	2.00	0.040	0.020	0.013	0.07	1.77	0.11	0.87	2.5	10
10	CB-421	Combination	0.66	0.02	0.68	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.09	2.29	0.25	2.29	2.5	0
11	CB-423	Combination	0.39	0.00	0.37	0.02	3.0	3.00	3.00	2.00	-	0.014	2.00	0.040	0.020	0.013	0.11	3.70	0.18	1.42	2.5	10
12	CB-425	Combination	0.08	0.00	0.08	0.00	3.0	3.00	3.00	2.00	-	0.011	2.00	0.040	0.020	0.013	0.07	1.65	0.10	0.81	2.5	13
13	CB-426	Combination	0.18	0.00	0.18	0.00	3.0	3.00	3.00	2.00	-	0.015	2.00	0.040	0.020	0.013	0.08	2.25	0.13	1.04	2.5	14
14	CB-428	Combination	0.34	0.00	0.33	0.01	3.0	3.00	3.00	2.00	-	0.015	2.00	0.040	0.020	0.013	0.11	3.30	0.16	1.31	2.5	31
15	CB-431	Combination	0.83	0.20	0.83	0.20	3.0	3.00	3.00	2.00	-	0.015	2.00	0.040	0.020	0.013	0.16	5.75	0.25	2.00	2.5	31
16	CB-432	Combination	0.68	0.00	0.60	0.08	3.0	3.00	3.00	2.00	-	0.016	2.00	0.040	0.020	0.013	0.13	4.70	0.21	1.70	2.5	15
17	DI-433	Drop Grate	0.79	0.00	0.79	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.12	14.45	0.12	14.45	2.5	0
18	YI-434	Drop Grate	0.55	0.00	0.55	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.10	11.78	0.10	11.78	2.5	0
19	YI-435	Drop Grate	0.22	0.00	0.22	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.05	7.23	0.05	7.23	2.5	0
20	CB-424	Combination	0.72	0.00	0.62	0.10	3.0	3.00	3.00	2.00	-	0.014	2.00	0.040	0.020	0.013	0.14	5.00	0.22	1.79	2.5	29
21	CB-427	Combination	0.83	0.00	0.70	0.13	3.0	3.00	3.00	2.00	-	0.015	2.00	0.040	0.020	0.013	0.14	5.20	0.23	1.84	2.5	15
22	DI-412	Drop Grate	0.08	0.00	0.08	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.050	0.020	0.013	0.03	4.70	0.03	4.70	2.5	0

Notes: Return Period = 1-yrs. All curb inlets are Horiz throat. Clogging Factors (%): Curb on Grade = 0; Curb in Sag = 50; Grate on Grade = 0; Grate in Sag = 50,

Inlet Report

Stormwater Studio 2022 v 3.0.0.29

Project Name: Storm System 400

10-11-2022

Line No	Inlet		Q				Curb		Grate			Gutter							Inlet			Byp Line No
	Id	Type	Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
23	DI-413	Drop Grate	0.44	0.00	0.44	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.08	10.37	0.08	10.37	2.5	0
24	DI-414	Drop Grate	0.72	0.00	0.72	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.12	13.69	0.12	13.69	2.5	0
25	DI-415	Drop Grate	0.36	0.00	0.36	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.07	9.36	0.07	9.36	2.5	0
26	YI-416	Drop Grate	0.52	0.00	0.52	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.09	11.35	0.09	11.35	2.5	0
27	YI-417	Drop Grate	0.48	0.00	0.48	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.09	10.86	0.09	10.86	2.5	0
28	CB-419	Combination	1.08	0.00	0.85	0.23	3.0	3.00	3.00	2.00	-	0.013	2.00	0.040	0.020	0.013	0.16	6.10	0.26	2.63	2.5	30
29	CB-422	Combination	1.23	0.10	1.33	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.16	5.79	0.32	5.79	2.5	0
30	CB-407	Combination	1.07	0.23	1.30	0.00	3.0	3.00	3.00	2.00	3.22	Sag	2.00	0.040	0.020	0.013	0.16	5.79	0.32	5.79	2.5	0
31	CB-429	Combination	0.36	0.20	0.52	0.05	3.0	3.00	3.00	2.00	-	0.016	2.00	0.040	0.020	0.013	0.13	4.30	0.20	1.58	2.5	0
32	CB-430	Combination	0.57	0.00	0.52	0.05	3.0	3.00	3.00	2.00	-	0.016	2.00	0.040	0.020	0.013	0.13	4.30	0.20	1.59	2.5	0
33	CB-409	Combination	0.40	0.00	0.37	0.02	3.0	3.00	3.00	2.00	-	0.010	2.00	0.040	0.020	0.013	0.12	4.05	0.19	1.51	2.5	0
34	DI-410	Drop Grate	0.35	0.00	0.35	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.07	9.16	0.07	9.16	2.5	0
35	YI-411	Drop Grate	0.36	0.00	0.36	0.00	-	-	2.00	2.00	4.00	Sag	2.00	0.020	0.020	0.013	0.07	9.36	0.07	9.36	2.5	0

Notes: Return Period = 1-yrs. All curb inlets are Horiz throat. Clogging Factors (%): Curb on Grade = 0; Curb in Sag = 50; Grate on Grade = 0; Grate in Sag = 50,