StorageMax
901 Proctor

Zebulon, NC
Wake County

Pipe (Q10) HGL Calculations

July 7, 2023

Prepared for:

Robert High Development, LLC
324 Greenville Ave.
Wilmington, NC 28403

StorageMax
HGL Analysis

Project Name:	**StorageMax**
Project Address:	**901 Proctor Ave. Zebulon, NC**
Pins:	**2706217463**
Latitude: **Longitude:**	**35.840297** **-78.315683**
Zoning:	**Heavy Commercial (HC)**
River Basin:	**Neuse**
Watershed:	**Buckhorn**
HUC:	**03020203**
Developer:	**Robert High Development, LLC 324 Greenville Ave. Wilmington, NC 28403**
Telephone:	**(919) 604-0505**
Email:	**Storit@AOL.com**

Site Description

The project consists of a single parcel located at the intersection of Proctor Avenue and Shepard School Road near downtown Zebulon. The lot is approximately 6.50 acres (283,140 sq feet). The parcel is vacant with grassy vegetation and a woods along the property lines. There is 0 sq ft of existing impervious area on the site. The project will consist of a commercial building and the impervious area post development will be 3.64 acres, or approximately 56% of the gross site.

The site is in the Neuse River Basin, Buckhorn Watershed and subject to those rules regarding nutrient management and post storm water runoff.

The parcel is not located within a flood zone as noted per FEMA map 372020600J, Dated May 2, 2006.

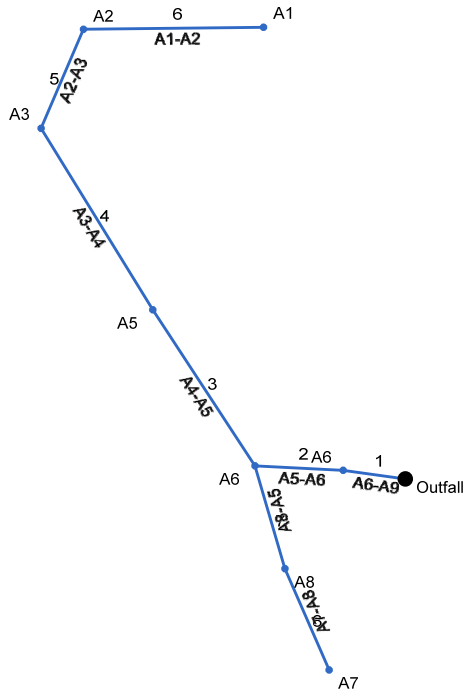
Based on the Wake County SCS soils map (attached) the onsite soils are primarily Appling Series (ApB2), soil group B, throughout the tract. The Appling Series soil type is considered to have fair infiltration and surface runoff medium based on information in the Soil Survey.

Pipe Summary:

The analysis uses a “C” value of 0.95 for the pavement and 0.65 for the open areas. Time of concentration of 5 minutes is considered in the review and the drainage areas noted in the Hydrflow data.

The pipes were reviewed using a Q10 flow and the HGL is within the pipe network system and are sized appropriately.

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Zebulon StorageMax.stm	Number of lines: 8	Date: 7/7/2023

Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr Line No.	Line Length (ft)	Defl angle (deg)	Junc Type	Known Q (cfs)	Drng Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Invert El Dn (ft)	Line Slope (%)	Invert El Up (ft)	Line Size (in)	Line Shape	N Value (n)	J-Loss Coeff (K)	Inlet/ Rim El (ft)	
1	End	54.000	-172.093	Curb	0.00	0.18	0.95	8.0	310.80	0.50	311.07	24	Cir	0.013	0.50	316.80	A6-A9
2	1	76.000	-4.972	DrGrt	0.00	0.77	0.80	8.0	311.27	0.50	311.65	24	Cir	0.013	1.50	316.60	A5-A6
3	2	161.000	53.953	Curb	0.00	0.82	0.80	8.0	311.85	0.50	312.66	24	Cir	0.013	0.50	317.50	A4-A5
4	3	184.000	1.600	Curb	0.00	0.70	0.80	8.0	312.86	0.49	313.76	24	Cir	0.013	1.27	317.50	A3-A4
5	4	93.000	54.600	DrGrt	0.00	0.27	0.65	8.0	314.00	0.49	314.46	24	Cir	0.013	1.40	318.00	A2-A3
6	5	155.000	66.271	Curb	0.00	0.23	0.95	8.0	314.66	0.50	315.43	15	Cir	0.013	1.00	318.00	A1-A2
7	2	92.500	-109.125	DrGrt	0.00	0.46	0.65	8.0	311.85	0.49	312.30	24	Cir	0.013	0.50	316.60	A8-A5
8	7	95.500	-7.275	DrGrt	0.00	0.50	0.65	8.0	312.50	1.15	313.60	24	Cir	0.013	1.00	316.80	A7-A8

Project File: Zebulon StorageMax.stm | Number of lines: 8 | Date: 7/7/2023

Structure Report

Struct No.	Structure ID	Junction Type	Rim Elev (ft)	Structure			Line Out			Line In		
				Shape	Length (ft)	Width (ft)	Size (in)	Shape	Invert (ft)	Size (in)	Shape	Invert (ft)
1	A6	Curb-Horiz	316.80	Cir	4.00	4.00	24	Cir	311.07	24	Cir	311.27
2	A6	DropGrate	316.60	Cir	4.00	4.00	24	Cir	311.65	24 24	Cir Cir	311.85 311.85
3	A5	Curb-Horiz	317.50	Cir	4.00	4.00	24	Cir	312.66	24	Cir	312.86
4	A3	Curb-Horiz	317.50	Cir	4.00	4.00	24	Cir	313.76	24	Cir	314.00
5	A2	DropGrate	318.00	Cir	4.00	4.00	24	Cir	314.46	15	Cir	314.66
6	A1	Curb-Horiz	318.00	Cir	4.00	4.00	15	Cir	315.43			
7	A8	DropGrate	316.60	Cir	4.00	4.00	24	Cir	312.30	24	Cir	312.50
8	A7	DropGrate	316.80	Cir	4.00	4.00	24	Cir	313.60			

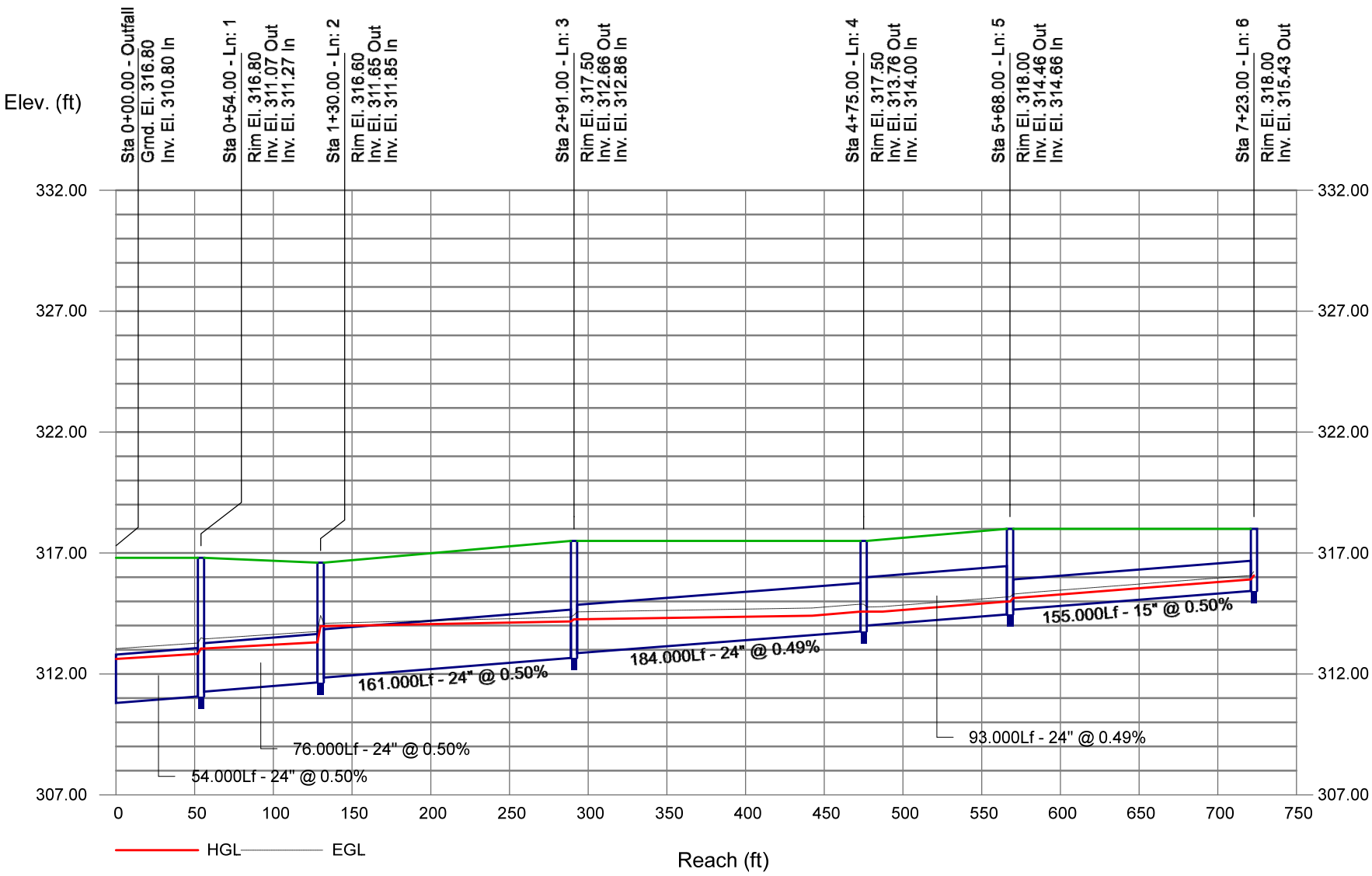
Storm Sewer Inlet Time Tabulation

Line No.	Line ID	Tc Method	Sheet Flow					Shallow Concentrated Flow					Channel Flow							Total Travel Time (min)
			n-Value	flow Length (ft)	2-yr 24h P (in)	Land Slope (%)	Travel Time (min)	flow Length (ft)	Water Slope (%)	Surf Descr	Ave Vel (ft/s)	Travel Time (min)	X-sec Area (sqft)	Wetted Perim (ft)	Chan Slope (%)	n-Value	Vel	flow Length (ft)	Travel Time (min)	
1	A6-A9	User																		8.00
2	A5-A6	User																		8.00
3	A4-A5	User																		8.00
4	A3-A4	User																		8.00
5	A2-A3	User																		8.00
6	A1-A2	User																		8.00
7	A8-A5	User																		8.00
8	A7-A8	User																		8.00

Project File: Zebulon StorageMax.stm | Min. Tc used for intensity calculations = 5 min | Number of lines: 8 | Date: 7/7/2023

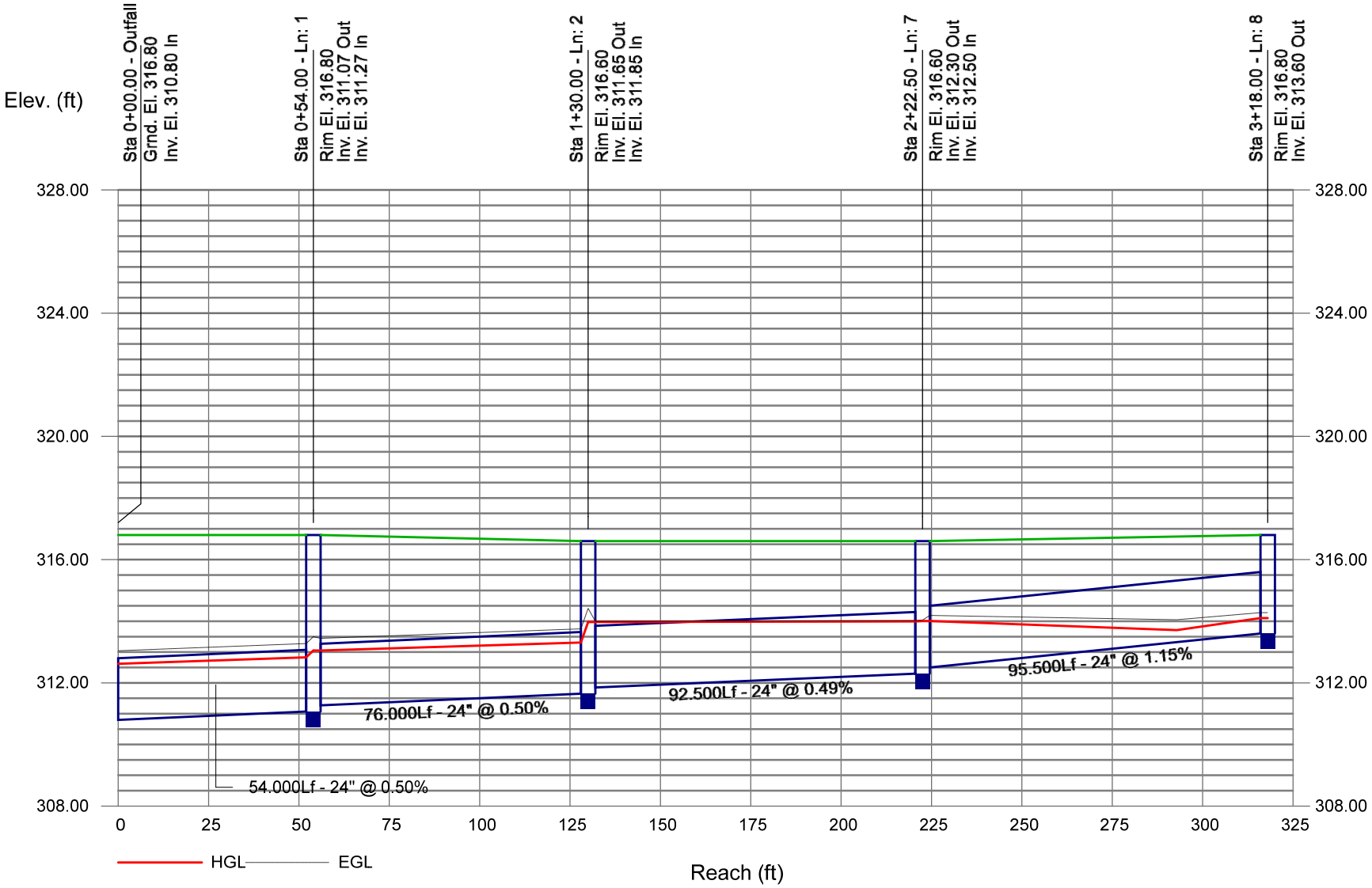
Storm Sewer Profile

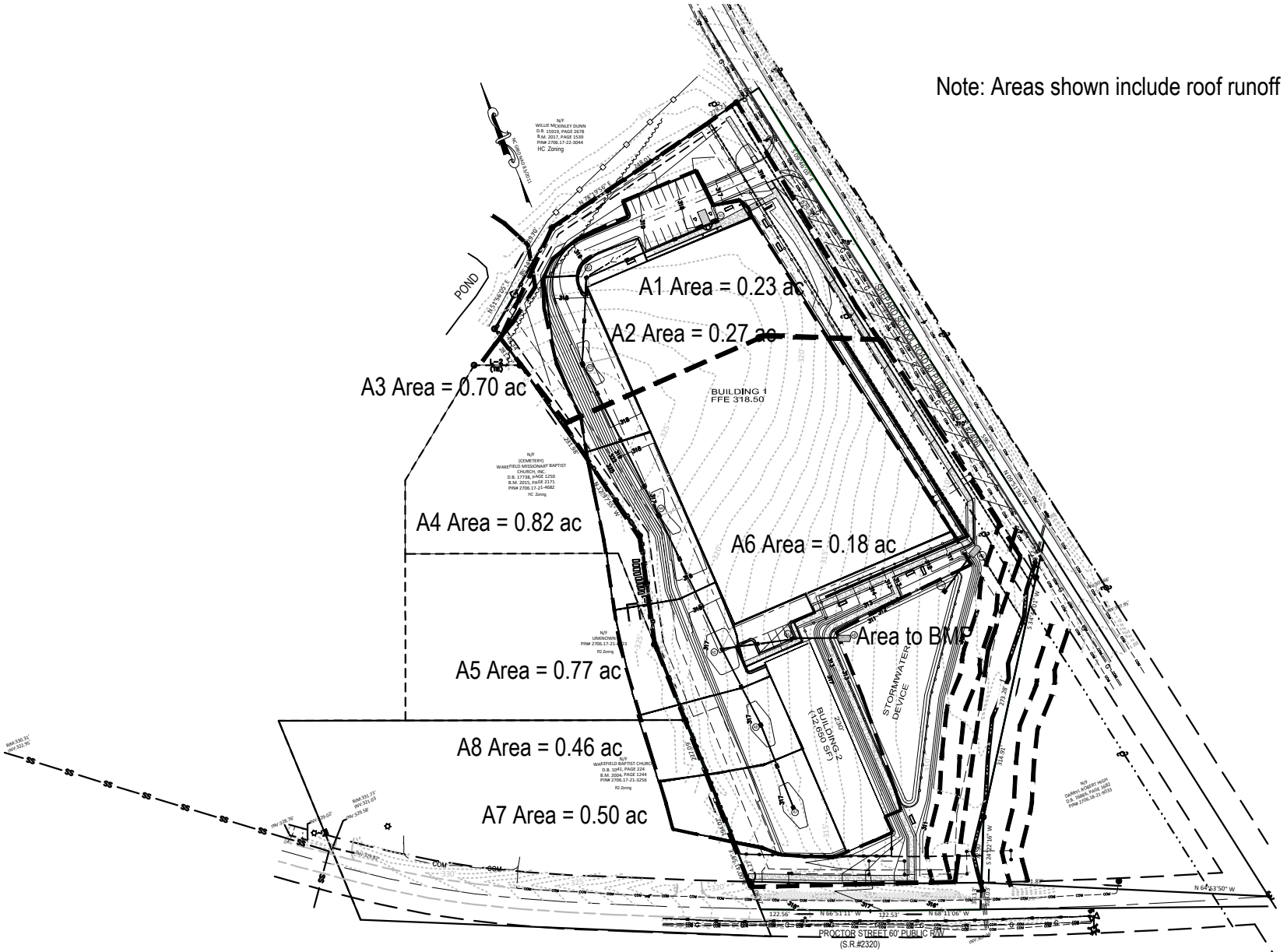
Proj. file: Zebulon StorageMax.stm



Storm Sewer Profile

Proj. file: Zebulon StorageMax.stm





Gettle Engineering and Design, PLLC
3616 Waxwing Court,
Wake Forest, North Carolina 27587
(919) 210-3934 Firm License P-2538

1	DATE	COMMENT	BY
2	DATE	COMMENT	BY
3	DATE	COMMENT	BY
4	DATE	COMMENT	BY
5	DATE	COMMENT	BY
6	DATE	COMMENT	BY
NO.	Date	Comment	Rv

REVISION DESCRIPTION

PRELIMINARY
DO NOT USE FOR
CONSTRUCTION

Drainage Areas - Storm Drain

StorageMax
901 Proctor Street
Zebulon, Wake County, North Carolina

Project No. 23001
Dwg No. EX2