1. ADD STRUCTURES AND PIPES FROM JB #4-TIE IN TO EXISTING

2. INCLUDE THE DITCH DRAINAGE SWALE BEHIND CURB IN ADDITION TO ROAD DRAINAGE.

Vineyard Pine Commercial

4502 Vineyard Pine Lane

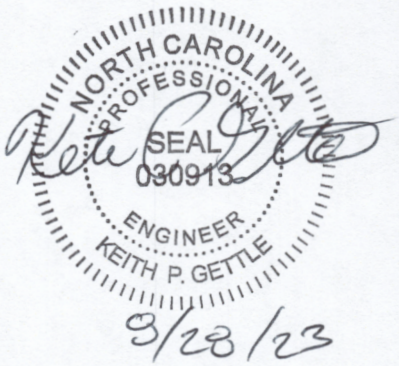
Rolesville, NC
Wake County

Pipe (Q10) HGL Calculations

August 28, 2023

Prepared for:

MRR Development, LLC
10121 Capital Blvd., Suite 105
Wake Forest, NC 27587



9/28/23

Vineyard Pine Commercial

Project Name:	**Vineyard Pine Commercial**
Project Address:	**4502 Vineyard Pine Lane Rolesville, NC**
Pins:	**175843022**
Latitude: **Longitude:**	**N 35.906083** **W -79.688333**
Zoning:	**OP- CZ**
River Basin:	**Neuse**
Watershed:	**Lower Neuse**
HUC:	**0302020107**
Developer:	**MRR Development, LLC 10121 Capital Blvd., Suite 105 Wake Forest, NC 27587**
Telephone:	**(330) 573-4030**
Email:	**Omar@Meinekenc.com**

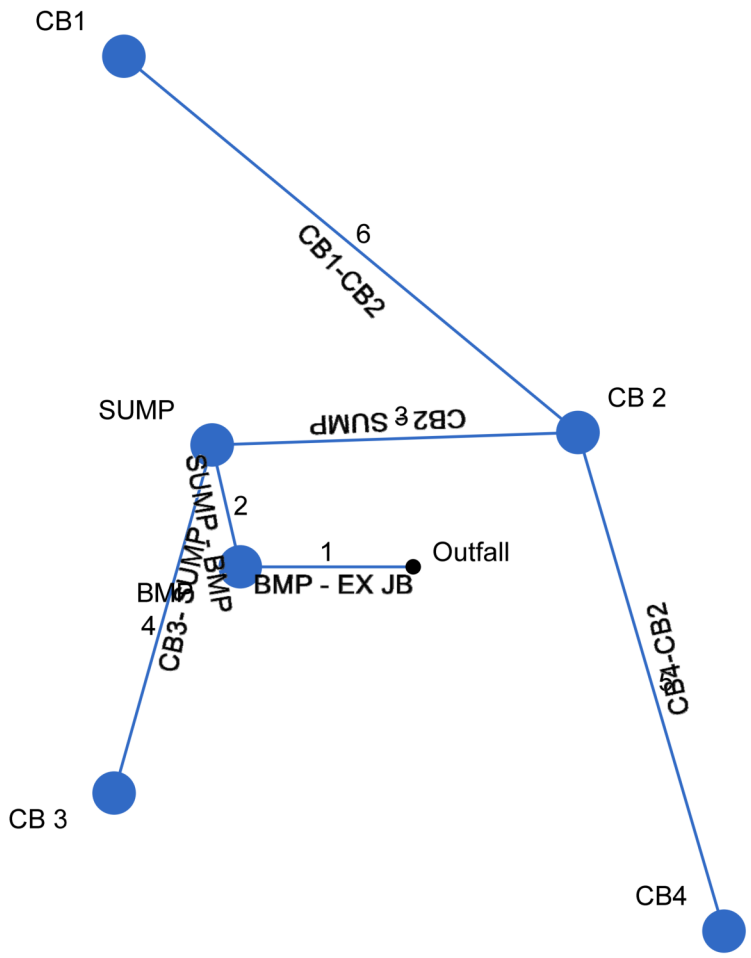
Pipe Summary:

The analysis uses a "C" value of 0.95 for the pavement. Time of concentration of 5 minutes is considered in the review and the drainage areas noted in the Hydrflow data and sheet EX3.

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

3. SPECIFY WHICH DIRECTION IS NORTH, HARD TO FOLLOW PLANS TO CALCS.



Project File: Storm Pipe HGL.stm	Number of lines: 6	Date: 8/26/2023

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	17.000	180.000	MH	0.00	0.00	0.95	5.0	361.36	0.82	361.50	18	Cir	0.013	0.99	368.00	BMP - EX JB
2	1	15.987	80.028	MH	0.00	0.00	0.95	5.0	362.00	3.13	362.50	15	Cir	0.013	1.00	368.80	SUMP - BMP
3	2	36.000	97.405	Comb	0.00	0.07	0.95	5.0	362.65	0.97	363.00	15	Cir	0.013	1.50	368.82	CB2 - SUMP
4	2	46.000	-157.931	Comb	0.00	0.41	0.95	5.0	362.85	3.59	364.50	12	Cir	0.013	1.00	369.09	CB3- SUMP
5	3	66.000	80.000	Comb	0.00	0.24	0.95	5.0	363.34	0.85	363.90	12	Cir	0.013	1.00	367.00	CB4-CB2
6	3	66.000	-130.000	Comb	0.00	0.32	0.95	5.0	363.34	2.00	364.66	15	Cir	0.013	1.00	370.00	CB1-CB2

Project File: Storm Pipe HGL.stm

Number of lines: 6

Date: 8/26/2023

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line Size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line Slope (%)	HGL Down (ft)	HGL Up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns Line No.	Junction Type
1	BMP - EX JB	9.39	18	Cir	17.000	361.36	361.50	0.824	362.86	362.99	0.44	363.43	End	Manhole
2	SUMP - BMP	9.40	15	Cir	15.987	362.00	362.50	3.128	363.43	363.74	0.91	364.66	1	Manhole
3	CB2 - SUMP	5.72	15	Cir	36.000	362.65	363.00	0.972	364.66*	364.94*	0.51	365.45	2	Combination
4	CB3- SUMP	3.78	12	Cir	46.000	362.85	364.50	3.587	364.66	365.33	n/a	365.33 j	2	Combination
5	CB4-CB2	2.21	12	Cir	66.000	363.34	363.90	0.848	365.45*	365.70*	0.12	365.83	3	Combination
6	CB1-CB2	2.95	15	Cir	66.000	363.34	364.66	2.000	365.45	365.55	0.16	365.70	3	Combination

Project File: Storm Pipe HGL.stm | Number of lines: 6 | Run Date: 8/26/2023

NOTES: Return period = 100 Yrs. ; *Surcharged (HGL above crown). ; j - Line contains hyd. jump.

Inlet Report

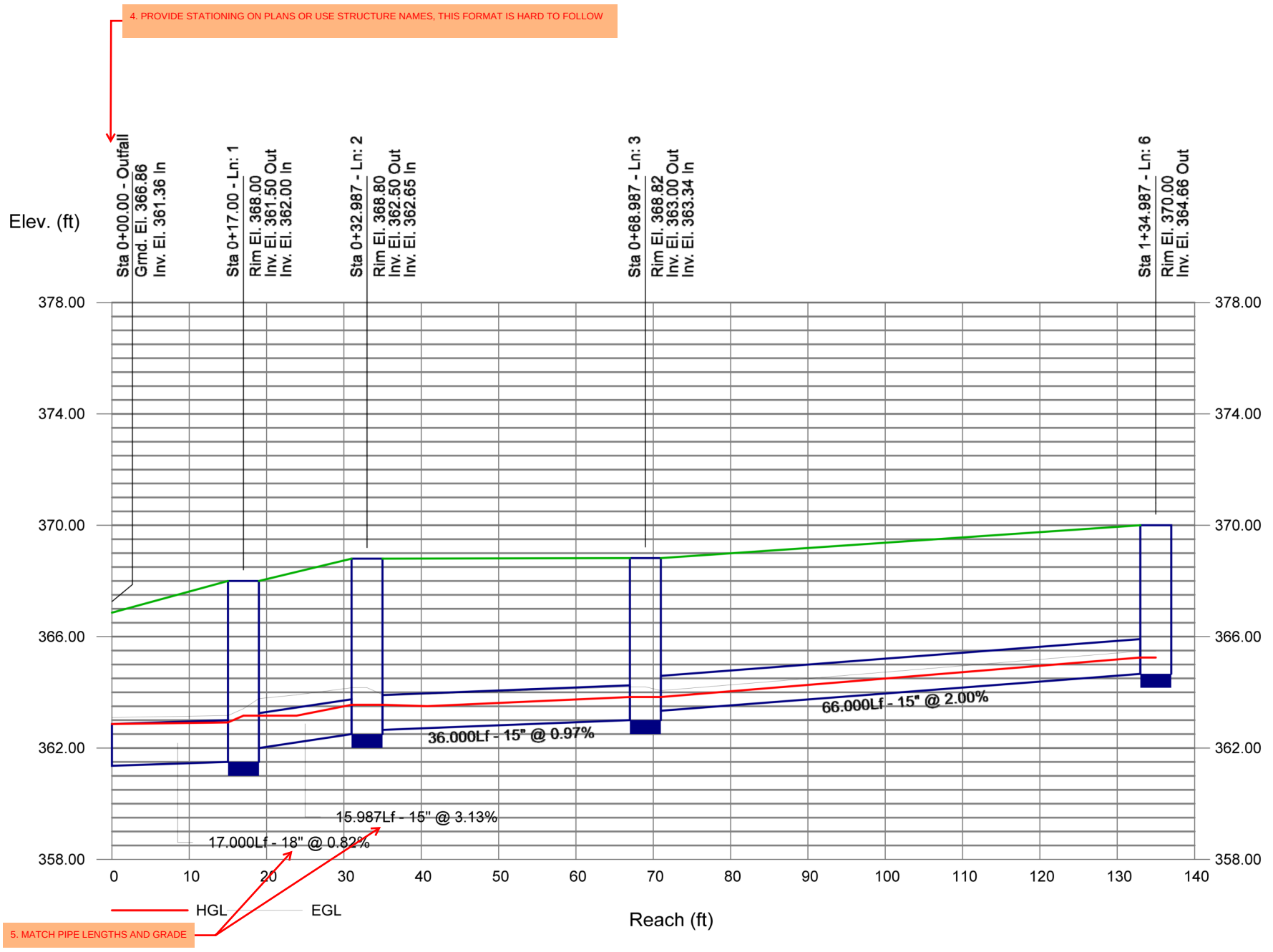
Line No	Inlet ID	Q = CIA (cfs)	Q carry (cfs)	Q capt (cfs)	Q Byp (cfs)	Junc Type	Curb Inlet		Grate Inlet			Gutter							Inlet			Byp Line No
							Ht (in)	L (ft)	Area (sqft)	L (ft)	W (ft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	BMP	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
2	SUMP	0.00	0.00	0.00	0.00	MH	0.0	0.00	0.00	0.00	0.00	Sag	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.0	Off
3	CB 2	0.65	0.00	0.65	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.000	0.13	3.51	0.13	3.51	0.0	Off
4	CB 3	3.78	0.00	3.78	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.000	0.30	12.05	0.30	12.05	0.0	Off
5	CB4	2.21	0.00	2.21	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.000	0.23	8.34	0.23	8.34	0.0	Off
6	CB1	2.95	0.00	2.95	0.00	Comb	4.0	4.00	2.00	2.00	2.00	Sag	2.00	0.050	0.020	0.000	0.26	10.17	0.26	10.17	0.0	Off

Project File: Storm Pipe HGL.stm | Number of lines: 6 | Run Date: 8/26/2023

NOTES: Inlet N-Values = 0.016; Intensity = 157.18 / (Inlet time + 19.60) ^ 0.87; Return period = 100 Yrs. ; * Indicates Known Q added. All curb inlets are Horiz throat.

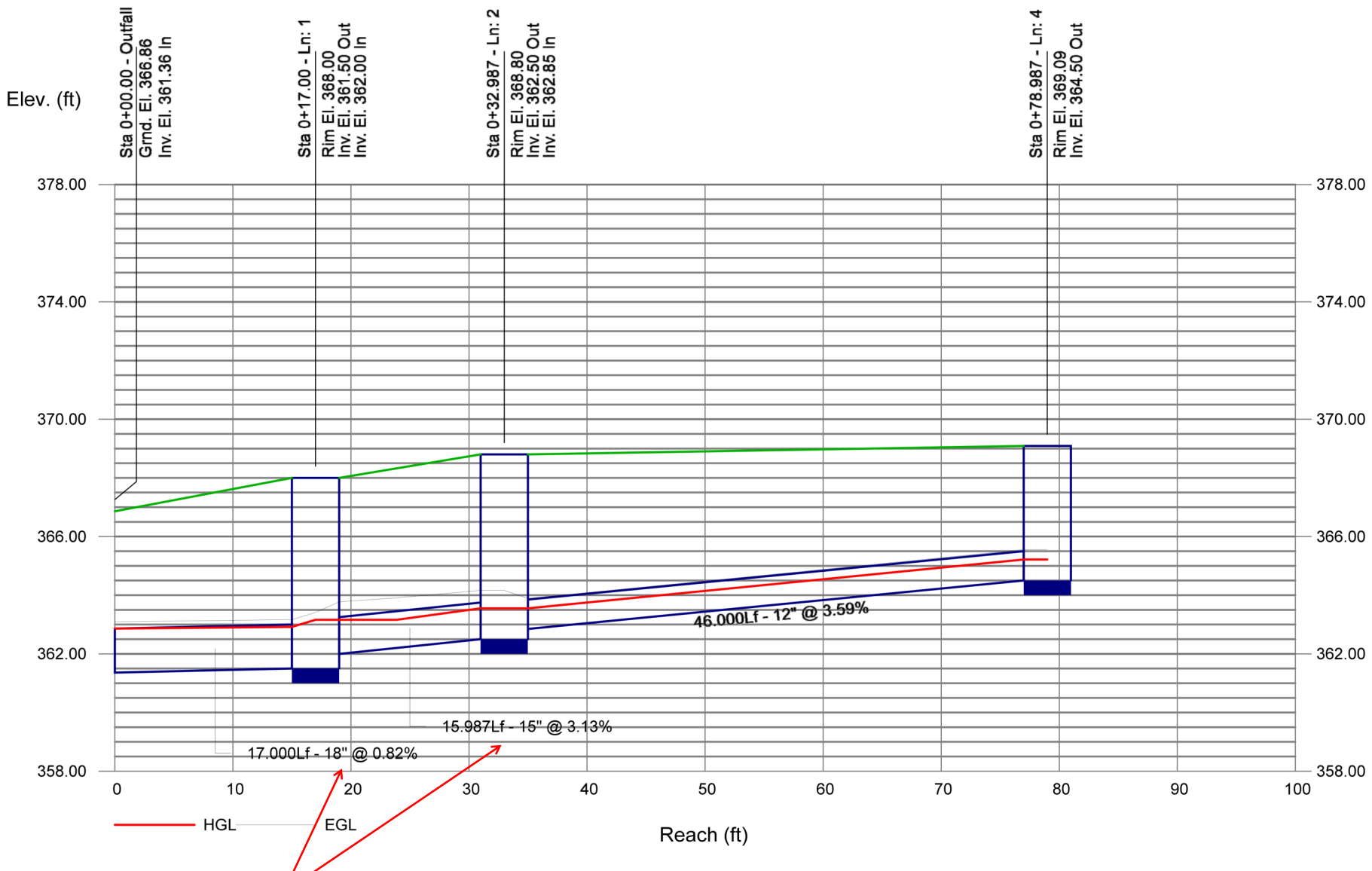
Storm Sewer Profile

Proj. file: Storm Pipe HGL.stm



Storm Sewer Profile

Proj. file: Storm Pipe HGL.stm

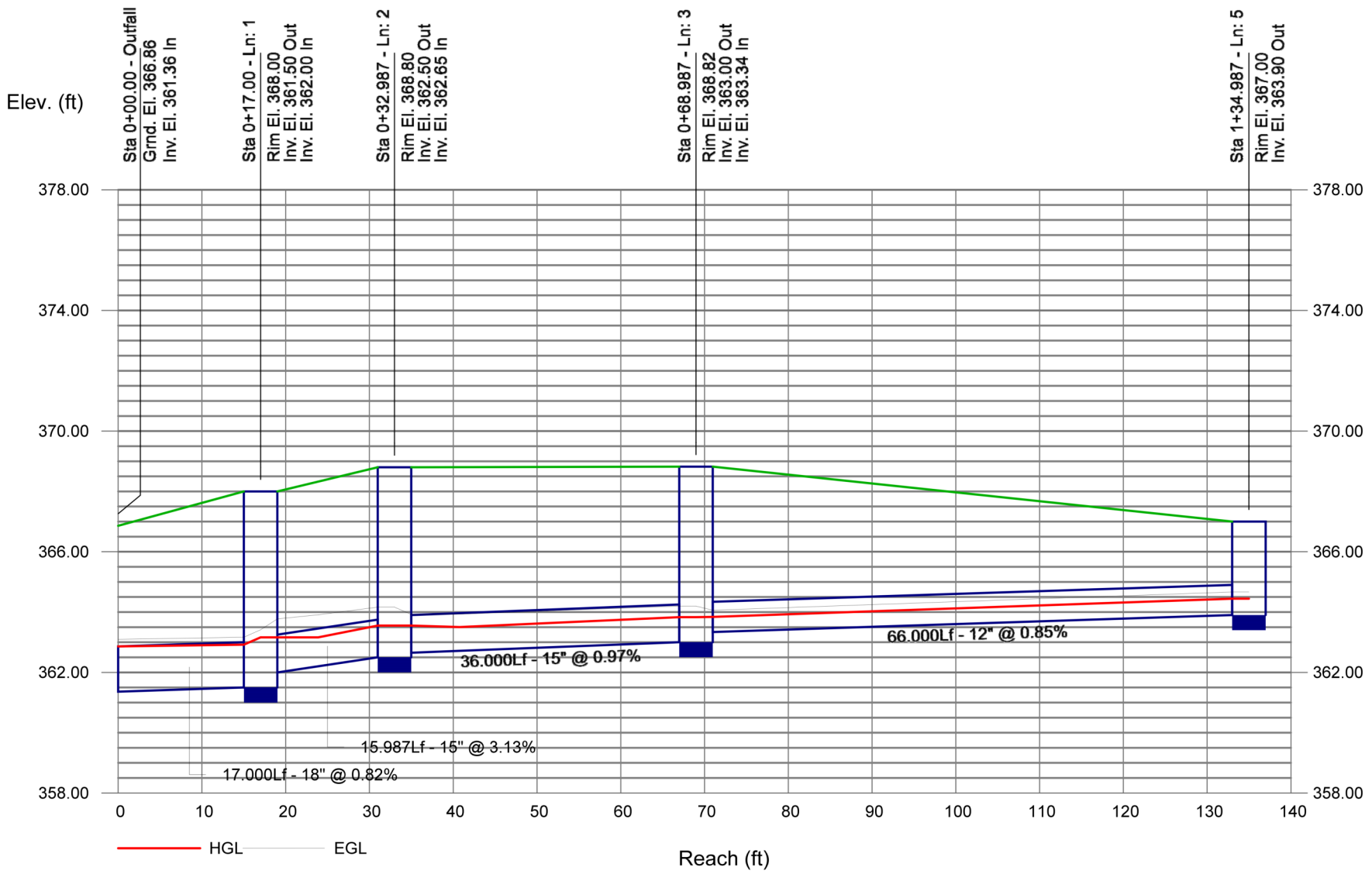


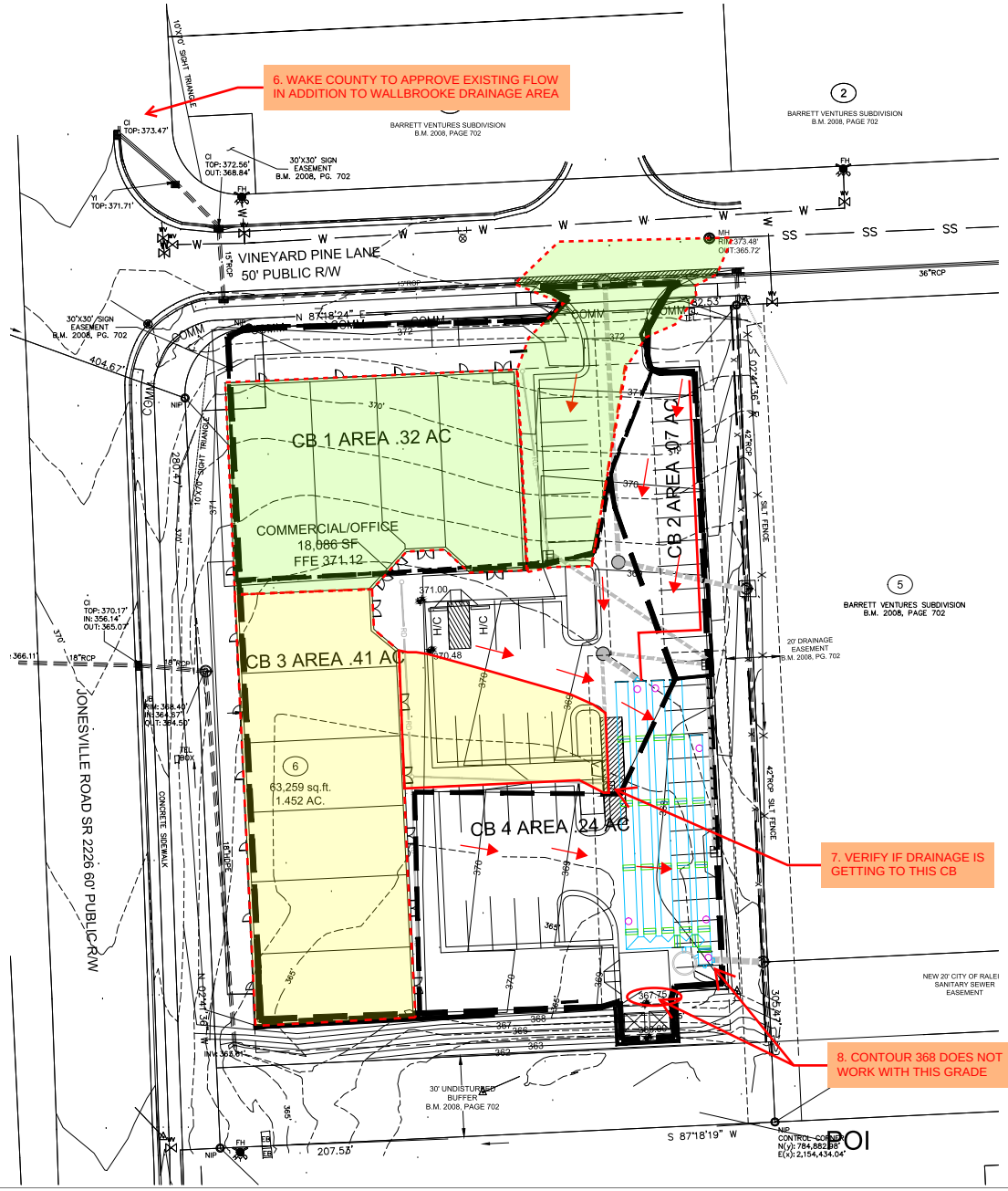
5. REPEAT COMMENT: MATCH PIPE LENGTH AND GRADE WITH PLANS

Storm Sewer Profile

Proj. file: Storm Pipe HGL.stm

1. REPEAT COMMENT PROFILE FROM JB#4- EXISTING JB - NEEDED





Graphic Scale

20 0 10 20 40 80

NORTH

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

NO.	DATE	REVISION DESCRIPTION	BY
1	DATE	Comment	BY
2	DATE	Comment	BY
3	DATE	Comment	BY
3	DATE	Comment	BY
4	DATE	Comment	BY
5	DATE	Comment	BY
6	DATE	Comment	BY
8	Date	Comment	By

PRELIMINARY
DO NOT USE FOR CONSTRUCTION

Storm Pipe Drainage Map

Vineyard Pine Commercial
MRR Development, LLC
Rolesville, Wake County, North Carolina

Project No.

Dwg No.

EX3