STORMWATER TECHNICAL DRAINAGE REPORT

LOT 8 – HURRICANE INDUSTRIAL PARK
1594 AMY LANE
FRANKLIN, INDIANA

OCTOBER 2023

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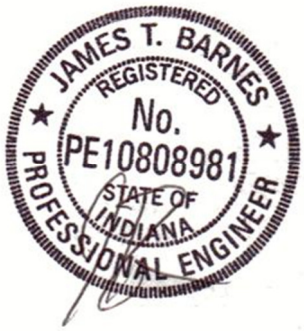
Indianapolis, Indiana 46023



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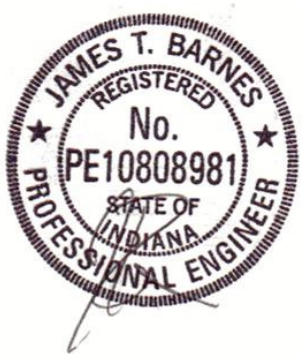


1.0. INTRODUCTION

A drainage analysis has been completed for a 1.26 acre site located at 1594 Amy Lane in Hancock County, Indiana.

The parcel is Lot 8 within the Hurricane Industrial Park.

According to the drainage masterplan for the Hurricane Industrial Park, development of the currently vacant lot is permitted to discharge stormwater runoff to the main pond south of the parcel overland within existing roadside swales in drainage easements. Per the referenced document, site development cannot exceed an 85% impervious level.

The purpose of the report is to confirm a permissible level of development, and also to ensure proper onsite conveyance sizing.

A summary of the existing condition is discussed in Section 2.0, while a discussion of the proposed condition in Section 3.0.

2.0. EXISTING CONDITIONS

The aerial photograph shown on Figure 1 illustrates the site and existing land cover. The aerial also shows the detention pond to the south that the site is designed to drain to.

According to the USDA Web Soil Survey (Figure 2), the site is expected to be underlain by Miami silt loam (HSG 'C'). FEMA does not associate the area with any Special Flood Hazard Zones, and no notable drainage issues exist at the site.

The site generally drains from north to south to a front yard swale and drains west and south to the masterplanned wet pond.
Figure 3 shows the existing flow and outlet location for Lot 8. c

	CN	C				
Roof	98	0.90				
Pavement	98	0.85				
Grass 'C'	74	0.25				
Woods 'C'	70	0.15				
Existing Hydrology	Total (ac)	Impervious	Turf Grass 'C'	Woods 'C'	CN	C
Area	1.257	0.000	0.942	0.315	73	0.22

Unabridged input parameters and computed output for the 2, 10, and 100 year design events for the existing site can be viewed in Appendix 'A'. Table 1, below, summarizes the existing peak release rates from the SITE discharging west. The 24-hour NRCS Type 2 rainfall distribution and 24-hour rainfall depths for the 2, 10 and 100 year events from the *Manual* are used.

Table 1: Existing Peak Runoff Summary

EX	2 YR (cfs)	10 YR (cfs)	100 YR (cfs)
15MIN	0.03	0.27	0.94
30MIN	0.21	**0.67**	**1.53**
1HR	**0.25**	0.64	1.41
2HR	0.20	0.47	1.26
3HR	0.15	0.35	1.03
6HR	0.12	0.28	0.78
12HR	0.12	0.27	0.56
24HR	0.17	0.30	0.50

3.0. PROPOSED SYSTEM DESIGN

As shown on Figure 4, the development plan consists of the construction of a single building, asphalt drives and parking, with associated utilities. A single culvert pipe is proposed with the design to allow stormwater runoff to continue as per the existing condition. A hydrologic summary is provided below for the characterization of the proposed site. Also provided for conveyance analysis is that area shown on Figure 4 which will drain to the proposed culvert:

	CN	C				
Roof	98	0.90				
Pavement	98	0.85				
Grass 'C'	74	0.25				
Woods 'C'	70	0.15				
Proposed Hydrology	Total (ac)	Impervious	Turf Grass 'C'	Woods 'C'	CN	C
Area	1.257	0.614	0.328	0.315	85	0.52
Culvert Catchment	0.350	0.174	0.155	0.021	86	0.54

As shown above, the overall percent impervious is within the masterplan limits.

Unabridged input parameters and computed output for the 2, 10, and 100 year design events for the proposed SITE can be viewed in Appendix 'B'. Table 2, below, summarizes the site discharge for reporting purposes. The 24-hour NRCS Type 2 rainfall distribution and 24-hour rainfall depths for the 10 and 100 year events from the *Manual* are used.

Table 2: Proposed Site Discharge Summary

PR	2 YR (cfs)	10 YR (cfs)	100 YR (cfs)
30MIN	-	**1.57**	**2.90**
1HR	**0.63**	-	-

As provided in the Masterplan excerpts in Appendix 'C', lot 8 was anticipated to be 85% asphalt coverage with a 'C' factor of 0.74. The proposed lot 8 will discharge less stormwater rate and volume than anticipated.

Conveyance Design

As referenced above, there is only one culvert proposed for the project. All other swales are pre-existing and appear substantially able to pass design flows. The 12" culvert at 1% is shown below to pass both the 10 and 100 year design flows and appears to be compliant with the Standards for design:

PIPE NO.	AREA ac	RUNOFF COEFF.	SUM C * A	TIME CONC. min	I 10 YR. in/hr	I 100 YR in/hr	Q 10 YR cfs	Q 100 YR cfs	PIPE SIZE in	PIPE LENGTH ft	PIPE SLOPE ft/ft	INV UP ft	INV DOWN ft	VEL. 10 YR fps	HW 10 YR ft	HW 100 YR ft	10-YR CAP. cfs
1-2	0.350	0.54	0.19	5.00	6.99	9.69	1.3	1.8	12	40	0.0100	739.80	739.40	4.42	0.71	0.86	3.9

FIGURE 1

SITE LOCATION CONTEXT

Lot 8 - Hurricane Industrial Park

Aerial Mapping and Property Boundary

JOHNSON COUNTY, INDIANA

Prepared by:

H. Gibson Land Surveying

321 N. State Street

Greenfield, IN 46140

Soil Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
MnB2	Miami silt loam, 2 to 6 percent slopes, eroded	C	1.2	100.0%
Totals for Area of Interest			**1.2**	**100.0%**

Prepared by:
H. Gibson Land Surveying
321 N. State Street
Greenfield, IN 46140

USDA SOIL MAPPING

Lot 8 - Hurricane Industrial Park
USDA Web Soil Survey
JOHNSON COUNTY, INDIANA

FIGURE 2

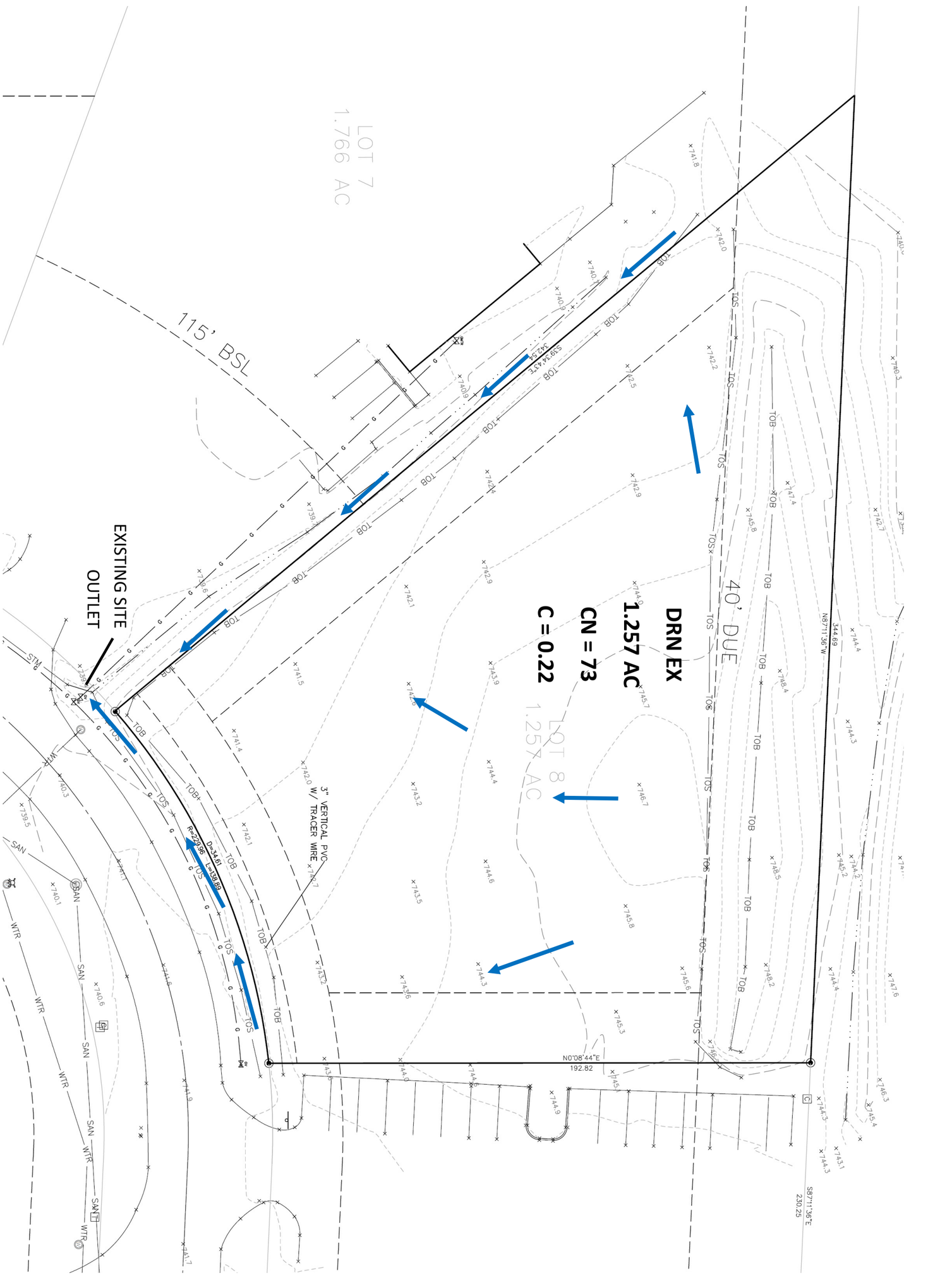


FIGURE 3

EXISTING DELINEATION

Lot 8 - Hurricane Industrial Park

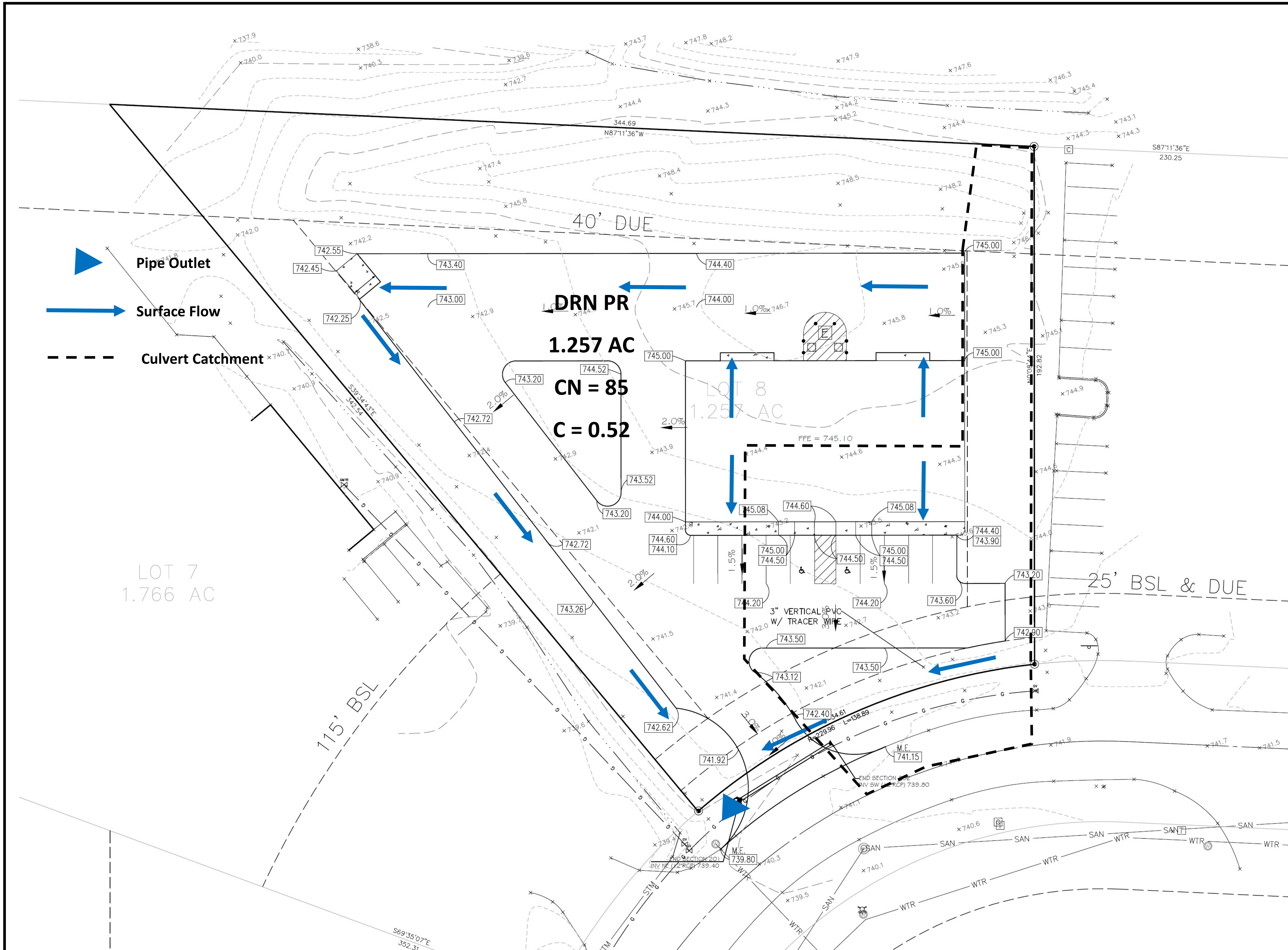
JOHNSON COUNTY, INDIANA

Prepared by:

H. Gibson Land Surveying

321 N. State Street

Greenfield, IN 46140



Prepared by:
H. Gibson Land Surveying
321 N. State Street
Greenfield, IN 46140

PROPOSED DELINEATION

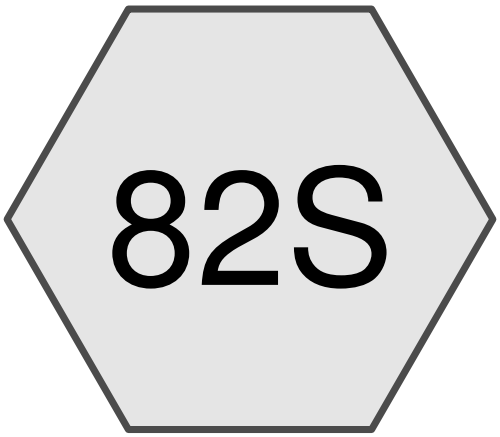
Lot 8 - Hurricane Industrial Park

JOHNSON COUNTY, INDIANA

FIGURE 4

Appendix A

Existing Condition Modeling



EX LOT 8

Subcat Reach Pond Link

Routing Diagram for BLD2 DetentionNoah14
Prepared by SC, Printed 10/10/2023

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.12 cfs @ 6.19 hrs, Volume= 0.056 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 2nd Quartile 12.00 hrs 2YR12HR Rainfall=2.44"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.03 cfs @ 0.36 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.25 hrs 2YR15MIN Rainfall=0.85"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.25 cfs @ 0.98 hrs, Volume= 0.010 af, Depth= 0.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 1.00 hrs 2YR1HR Rainfall=1.39"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.17 cfs @ 21.75 hrs, Volume= 0.084 af, Depth= 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 4th Quartile 2YR24HR Rainfall=2.91"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.20 cfs @ 1.76 hrs, Volume= 0.018 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 2.00 hrs 2YR2HR Rainfall=1.63"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.21 cfs @ 0.55 hrs, Volume= 0.004 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.50 hrs 2YR30MIN Rainfall=1.14"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.15 cfs @ 2.56 hrs, Volume= 0.022 af, Depth= 0.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 3.00 hrs 2YR3HR Rainfall=1.72"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.12 cfs @ 4.95 hrs, Volume= 0.036 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 6.00 hrs 2YR6HR Rainfall=2.05"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.27 cfs @ 6.11 hrs, Volume= 0.126 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 2nd Quartile 12.00 hrs 10YR12HR Rainfall=3.53"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.27 cfs @ 0.33 hrs, Volume= 0.004 af, Depth= 0.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.25 hrs 10YR15MIN Rainfall=1.14"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.64 cfs @ 0.93 hrs, Volume= 0.034 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 1.00 hrs 10YR1HR Rainfall=2.02"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.30 cfs @ 21.73 hrs, Volume= 0.166 af, Depth= 1.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 4th Quartile 10YR24HR Rainfall=4.08"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.47 cfs @ 1.73 hrs, Volume= 0.053 af, Depth= 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 2.00 hrs 10YR2HR Rainfall=2.38"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.67 cfs @ 0.53 hrs, Volume= 0.017 af, Depth= 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.50 hrs 10YR30MIN Rainfall=1.59"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.35 cfs @ 2.53 hrs, Volume= 0.061 af, Depth= 0.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 3.00 hrs 10YR3HR Rainfall=2.53"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.28 cfs @ 1.94 hrs, Volume= 0.092 af, Depth= 0.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 6.00 hrs 10YR6HR Rainfall=3.03"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.56 cfs @ 6.03 hrs, Volume= 0.269 af, Depth= 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 2nd Quartile 12.00 hrs 100YR12HR Rainfall=5.36"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.94 cfs @ 0.31 hrs, Volume= 0.016 af, Depth= 0.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.25 hrs 100YR15MIN Rainfall=1.56"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 1.41 cfs @ 0.89 hrs, Volume= 0.090 af, Depth= 0.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 1.00 hrs 100YR1HR Rainfall=3.01"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.50 cfs @ 21.71 hrs, Volume= 0.312 af, Depth= 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 4th Quartile 100YR24HR Rainfall=5.87"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 1.26 cfs @ 0.73 hrs, Volume= 0.134 af, Depth= 1.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 2.00 hrs 100YR2HR Rainfall=3.65"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 1.53 cfs @ 0.51 hrs, Volume= 0.046 af, Depth= 0.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.50 hrs 100YR30MIN Rainfall=2.25"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 1.03 cfs @ 0.99 hrs, Volume= 0.155 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 3.00 hrs 100YR3HR Rainfall=3.93"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 82S: EX LOT 8

Runoff = 0.78 cfs @ 1.72 hrs, Volume= 0.219 af, Depth= 2.09"

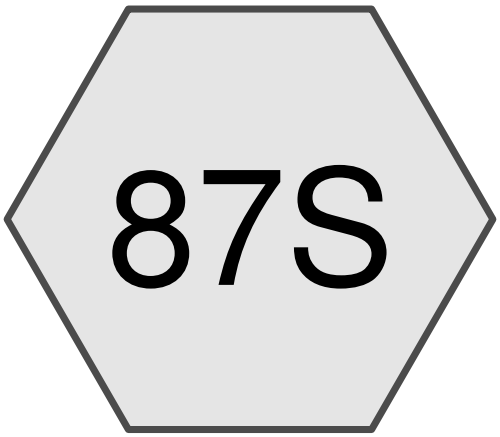
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 6.00 hrs 100YR6HR Rainfall=4.76"

Area (ac)	CN	Description
0.000	98	Paved parking, HSG D
0.942	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	73	Weighted Average
1.257		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Appendix B

Proposed Condition Modeling



PR LOT 8

Subcat Reach Pond Link

Routing Diagram for BLD2 DetentionNoah14
Prepared by SC, Printed 10/10/2023

Summary for Subcatchment 87S: PR LOT 8

Runoff = 0.63 cfs @ 0.90 hrs, Volume= 0.040 af, Depth= 0.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 1.00 hrs 2YR1HR Rainfall=1.39"

Area (ac)	CN	Description
0.614	98	Paved parking, HSG D
0.328	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	85	Weighted Average
0.643		51.15% Pervious Area
0.614		48.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 87S: PR LOT 8

Runoff = 1.57 cfs @ 0.48 hrs, Volume= 0.053 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.50 hrs 10YR30MIN Rainfall=1.59"

Area (ac)	CN	Description
0.614	98	Paved parking, HSG D
0.328	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	85	Weighted Average
0.643		51.15% Pervious Area
0.614		48.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Summary for Subcatchment 87S: PR LOT 8

Runoff = 2.90 cfs @ 0.31 hrs, Volume= 0.103 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Indy Huff 1st Quartile 0.50 hrs 100YR30MIN Rainfall=2.25"

Area (ac)	CN	Description
0.614	98	Paved parking, HSG D
0.328	74	>75% Grass cover, Good, HSG C
0.315	70	Woods, Good, HSG C
1.257	85	Weighted Average
0.643		51.15% Pervious Area
0.614		48.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry, DIRECT ENTRY**

Appendix C

Relevant Masterplan Excerpts

Additional Detention Pond Calculations

Prepared by Projects Plus
for the
Hurricane Industrial Park - Lots 9 & 10
Dated April 11, 2011

4/11/11

Hurricane Industrial

Storm Sewer Calculations

			Ac.	%			"C"	
LOT #1	**"C" Factor =**	Lawn	0.32	13%	0.132	x	0.15 =	0.02
		Asphalt	1.56	64%	0.645	x	0.85 =	0.55
		Roof	0.54	22%	0.223	x	0.90 =	0.20
Area =		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
2.42 Acres							Weighted 'C'	**0.77**
LOT #2	**"C" Factor =**	Lawn	0.54	23%	0.234	x	0.15 =	0.04
		Asphalt	1.23	53%	0.532	x	0.85 =	0.45
		Roof	0.54	23%	0.234	x	0.90 =	0.21
Area =		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
2.31 Acres							Weighted 'C'	**0.70**
LOT #15	**"C" Factor =**	Lawn	0.50	43%	0.435	x	0.15 =	0.07
		Asphalt	0.46	40%	0.400	x	0.85 =	0.34
		Roof	0.19	17%	0.165	x	0.90 =	0.15
Area =		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
1.15 Acres							Weighted 'C'	**0.55**
LOT #16	**"C" Factor =**	Lawn	0.56	49%	0.487	x	0.15 =	0.07
		Asphalt	0.43	37%	0.374	x	0.85 =	0.32
		Roof	0.16	14%	0.139	x	0.90 =	0.13
Area =		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
1.15 Acres							Weighted 'C'	**0.52**
Lot #3,6-8 11-12,17	**"C" Factor =**	Lawn	1.37	15%	0.150	x	0.15 =	0.02
		Asphalt	7.74	85%	0.850	x	0.85 =	0.72
		Roof	0.00	0%	0.000	x	0.90 =	0.00
Area =		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
9.11 Acres							Weighted 'C'	**0.74**
Lots # 13-16	**"C" Factor =**	Lawn	1.24	25%	0.250	x	0.15 =	0.04
		Asphalt	3.72	75%	0.750	x	0.85 =	0.64
		Roof	0.00	0%	0.000	x	0.90 =	0.00
Area =		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
4.96 Acres							Weighted 'C'	**0.68**
Lots # 9-10	**"C" Factor =**	Lawn	0.74	29%	0.290	x	0.15 =	0.04
		Asphalt	1.31	51%	0.514	x	0.85 =	0.44
		Roof	0.50	20%	0.196	x	0.90 =	0.18
Area =		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
2.55 Acres							Weighted 'C'	**0.66**
		Lawn	5.27	22%	0.223	x	0.15 =	0.03
		Asphalt	16.45	70%	0.696	x	0.85 =	0.59
		Roof	1.93	8%	0.082	x	0.90 =	0.07
		Culivated Field	0.00	0%	0.000	x	0.30 =	0.00
							Weighted 'C'	**0.70** ← AVERAGE 'C' FOR DEVELOPMENT

EXISTING LOTS

FUTURE DEV.

CURRENT DEV.

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	53.30	1	40	127,912	----	------	------	Offsite - Frnk Eng
2	Rational	24.94	1	24	35,909	----	------	------	Onsite - Frnk Eng
3	Combine	61.61	1	40	163,821	1, 2	------	------	Total to Pond
4	Reservoir	23.13	1	63	163,476	3	734.48	111,407	Thru Pond
7	Rational	53.30	1	40	127,912	----	------	------	Offsite - Frnk Eng
8	Rational	29.09	1	24	41,894	----	------	------	Onsite - revised Proj +
9	Combine	62.99	1	40	169,806	7, 8	------	------	Total to Pond
10	Reservoir	23.81	1	62	169,459	9	734.58	114,967	Thru Pond

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	83.45	1	40	200,284	----	------	------	Offsite - Frnk Eng
2	Rational	38.76	1	24	55,816	----	------	------	Onsite - Frnk Eng
3	Combine	96.37	1	40	256,100	1, 2	------	------	Total to Pond
4	Reservoir	30.60	1	65	255,737	3	736.09	176,734	Thru Pond
7	Rational	83.45	1	40	200,284	----	------	------	Offsite - Frnk Eng
8	Rational	45.22	1	24	65,119	----	------	------	Onsite - revised Proj +
9	Combine	98.53	1	40	265,403	7, 8	------	------	Total to Pond
10	Reservoir	31.16	1	65	265,039	9	736.24	183,416	Thru Pond

Hydrograph Summary Report

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Maximum storage (cuft)	Hydrograph description
1	Rational	122.09	1	40	293,027	----	------	------	Offsite - Frnk Eng
2	Rational	56.20	1	24	80,922	----	------	------	Onsite - Frnk Eng
3	Combine	140.83	1	40	373,949	1, 2	------	------	Total to Pond
4	Reservoir	37.34	1	68	373,565	3	738.09	269,751	Thru Pond
7	Rational	122.09	1	40	293,027	----	------	------	Offsite - Frnk Eng
8	Rational	65.56	1	24	94,409	----	------	------	Onsite - revised Proj +
9	Combine	143.95	1	40	387,436	7, 8	------	------	Total to Pond
10	Reservoir	37.97	1	68	387,051	9	738.30	280,257	Thru Pond