To: Tony Bunkleman – Village of Caledonia

From: Andy Shoaf

Date: February 09, 2026

Subject: Caledonia Business Park Sewer Memorandum

The following is a short summary detailing the proposed onsite storm sewer for the Caledonia Business Park Project storm sewer design.

Storm Sewer Design Summary

The Caledonia Business Park Project site is located within the Caledonia Business Park and is 11.76 acres with a proposed warehouse building 251,417 square feet. Also including truck docks, tailer parking, passenger vehicle parking, access roads, and landscaped green spaces.

The site is located within the approved stormwater management plan for the park. The site is located within two of the proposed drainage basins. The Eastern half of the site is located within the NW Basin and Western half within the Center Basin as shown on the Proposed Hydrology Exhibit in the report. The eastern half of the site will drain into the NW Basin while the west half will drain into the Center basin.

The proposed storm sewer system for the Caledonia Business Park Project follows the drainage patterns per the approved stormwater report. Stormwater in the Western half of the site will be collected by storm sewers and will discharge into a proposed swale and Ultimately into the Center basin. The storm sewer in the eastern half of the site will be collected by storm sewers and connect to the public storm sewer system within Baxter Ct. and ultimately discharged to NW Basin. The storm sewers have been analyzed to show they comply with DSPS requirements.

Shown below are tables indicating the development of the area primarily focusing on the NW basin and Center Basin. Attached to this memo is a drainage basin exhibit and storm sewer calculations.

Proposed Areas and Curve Number Comparison Table For NW Basin

	Approved SWMP	Proposed Development	Meets Approved SWMP
NW Basin	**12.10 ac**	**12.10 ac**	**Yes**
Area of Impervious	**8.62 ac**	**8.54 ac**	**Yes**
Curve Number	**95**	**95**	**Yes**

Proposed Areas and Curve Number Comparison Table For Center Basin

	Approved SWMP	Proposed Development	Meets Approved SWMP
Center Basin	**47.44 ac**	**47.44 ac**	**Yes**
Area of Impervious	**35.6 ac**	**30.29 ac**	**Yes**
Curve Number	**95**	**95**	**Yes**

Attachments

- Drainage Basin Exhibit
- Storm Sewer Sizing Calculations
- Revised Proposed Hydrology Exhibit

STORM SEWER COMPUTATIONS

ZILBER C251
CALEDONIA, WI

DATE: 2/9/2026
PROJECT #: 1912.40-WI
COUNTY: RACINE

DESIGNED BY: AJS
CHECKED BY: JLJ

DESIGN STORM: 10-YR
STORM DURATION: 10-MIN
DESIGN INTENSITY (I): 5.04 IN/HR

PINNACLE ENGINEERING GROUP

STRUCTURE DATA			DRAINAGE AREA AND FLOW DATA (Flow is determined by SPS 382.36)						PIPE DATA				PIPE CAPACITY INFORMATION (Pipe capacity is determined by Manning's Equation $Q = 1.486/n\ AR^{2/3}\ S^{1/2}$)					ELEVATIONS		
NOTES	UPSTREAM STRUCTURE	DOWNSTREAM STRUCTURE	GRASS AREA (SF) 11	PVMT AREA (SF) 12	ROOF AREA (SF) 13	INDIVIDUAL FLOW Q (CFS) 14	CUMULATIVE FLOW (CFS) 23	CUMULATIVE FLOW (CFS) 24	LENGTH (FT) 32	DIAMETER (IN) 33	SLOPE (%) 34	MANNING COEFFICIENT 35	REQUIRED DROP (FT) 36	ACTUAL DROP (FT) 37	PERCENT FULL (%) 38	ACTUAL VELOCITY (FPS) 39	MAX. CAPACITY (CFS) 40	RIM/TOC UP 41	INVERT UP 42	INVERT DOWN 43
	INL 14.0	MH 13.0	2,035	8,969	0	1	1	296	49.9	12	0.20	0.012	0.04	0.10	41%	2.05	1.86			
	BC 13.1	MH 13.0	0	0	11,016	0.94	0.94	425	42.8	8	1.04	0.012	0.37	0.45	65%	4.15	1.44			
	MH 13.0	INL 12.0	0	0	0		1.60	721	90.1	15	0.23	0.012	0.09	0.21	48%	2.70	3.61			
	BC 12.3	INL 12.0	0	0	11,042	0.95	0.95	426	46.1	8	1.04	0.012	0.40	0.48	65%	4.15	1.44			
	INL 12.0	INL 11.0	2,008	8,957	0	0.66	3.21	1,443	97.5	18	0.20	0.012	0.15	0.20	60%	3.04	5.47			
	INL 11.0	ES 10.0	1,919	2,161	0	0.19	6.08	2,735	52.7	18	0.55	0.012	0.30	0.29	66%	5.20	9.08			
													-	-						
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													-	-						
	INL 34.0	MH 32.0	2,641	5,110	0	0.41	0.41	183	60.7	8	0.30	0.012	0.14	0.18	55%	2.12	0.77			
	BC 32.1	MH 32.0	0	0	21,462	1.84	1.84	828	40.0	10	1.04	0.012	0.40	0.42	69%	4.88	2.60			
	INL 33.0	MH 32.0	7,534	0	0	0.16	0.16	73	19.3	8	0.20	0.012	0.01	0.04	32%	1.43	0.63			
	MH 32.0	MH 31.0	0	0	0		2.41	1,083	45.0	15	0.35	0.012	0.09	0.16	56%	3.50	4.45			
													-	-						
													-	-						
	INL 30.0	MH 29.0	2,790	6,190	0	0.48	0.48	218	23.9	8	0.20	0.012	0.08	0.05	74%	1.87	0.63			
	BC 29.1	MH 29.0	0	0	24,804	2.13	2.13	957	40.0	10	1.04	0.012	0.53	0.42	78%	5.01	2.60			
	MH 29.0	INL 28.0	0	0	0		2.61	1,174	71.1	15	0.25	0.012	0.18	0.18	68%	3.13	3.76			
	INL 28.0	MH 27.0	3,069	5,920	0	0.47	3.08	1,387	44.8	15	0.35	0.012	0.16	0.16	68%	3.70	4.45			
													-	-						
													-	-						
													-	-						
	INL 26.0	MH 25.0	2,985	6,444	0	0.51	0.51	228	45.7	8	0.25	0.012	0.21	0.11	70%	2.07	0.70			
													-	-						
													-	-						
	BC 24.3	INL 24.0	0	0	33,076	2.83	2.83	1,276	69.8	12	1.04	0.012	0.62	0.73	66%	5.45	4.23			
	INL 24.0	INL 23.0	2,682	6,073	0	0.47	3.31	1,489	88.7	15	0.30	0.012	0.34	0.27	77%	3.51	4.12			
	INL 23.0	MH 22.0	1,787	5,433	0	0.41	3.72	1,674	51.1	15	0.35	0.012	0.25	0.18	79%	3.82	4.45			
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													-	-						
	BC 21.2	INL 21.0	0	0	22,072	1.89	1.89	851	47.1	10	1.04	0.012	0.49	0.49	71%	4.91	2.60			
	INL 21.0	INL 20.0	1,833	4,710	0	0.36	2.25	1,014	88.0	12	0.45	0.012	0.55	0.40	77%	3.71	2.79			
	INL 20.0	INL 11.0	1,786	5,685	0	0.43	2.68	1,207	90.8	15	0.20	0.012	0.26	0.18	76%	2.87	3.37			
													-	-						
													-	-						
													-	-						
	BC 57.1	INL 57.0	0	0	23,256	1.99	1.99	897	125.0	10	1.04	0.012	1.45	1.30	74%	4.96	2.60			
	INL 57.0	ES 56.0	0	22,206	0	1.52	3.52	1,582	20.5	12	1.04	0.012	0.34	0.21	79%	5.67	4.23			
													-	-						
													-	-						
	BC 55.1	INL 55.0	0	0	26,244	2.25	2.25	1,012	125.0	12	1.04	0.012	0.70	1.30	55%	5.18	4.23			
	INL 55.0	ES 54.0	0	23,278	0	1.60	3.84	1,730	21.0	15	1.04	0.012	0.16	0.22	53%	5.92	7.68			
													-	-						
													-	-						
	BC 53.1	INL 53.0	0	0	34,992	3.00	3.00	1,349	125.0	12	1.04	0.012	1.24	1.30	69%	5.52	4.23			
	INL 53.0	ES 52.0	0	30,564	0	2.10	5.09	2,292	25.6	15	1.04	0.012	0.21	0.27	66%	6.32	7.68			
													-	-						
													-	-						
	BC 51.1	INL 51.0	0	0	23,980	2.06	2.06	925	119.6	10	1.04	0.012	1.47	1.24	76%	4.98	2.60			
	INL 51.0	MH 51.2	0	27,073	0	1.86	3.91	1,760	10.9	12	1.04	0.012	0.23	0.11	87%	5.71	4.23			

STORM SEWER COMPUTATIONS

ZILBER C251
CALEDONIA, WI

DATE: **2/9/2026**
PROJECT #: **1912.40-WI**
COUNTY: **RACINE**

DESIGNED BY: **AJS**
CHECKED BY: **JLJ**

DESIGN STORM: **10-YR**
STORM DURATION: **10-MIN**
DESIGN INTENSITY (I): **5.04** IN/HR

PINNACLE ENGINEERING GROUP

STRUCTURE DATA			DRAINAGE AREA AND FLOW DATA (Flow is determined by SPS 382.36)						PIPE DATA				PIPE CAPACITY INFORMATION (Pipe capacity is determined by Manning's Equation $Q = 1.486/n\ AR^{2/3}\ S^{1/2}$)					ELEVATIONS		
Notes	Upstream Structure	Downstream Structure	Grass Area (sf) *11*	Pvmt Area (sf) *12*	Roof Area (sf) *13*	Individual Flow Q (cfs) *14*	Cumulative Flow (cfs) *23*	Cumulative Flow (cfs) *24*	Length (ft) *32*	Diameter (in) *33*	Slope (%) *34*	Manning Coefficient *35*	Required Drop (ft) *36*	Actual Drop (ft) *37*	Percent Full (%) *38*	Actual Velocity (fps) *39*	Max. Capacity (cfs) *40*	Rim/Toc Up *41*	Invert Up *42*	Invert Down *43*
													-	-						
	BC 67.4	**MH 67.0**	0	0	9,817	0.84	0.84	379	107.0	10	1.04	0.012	0.22	1.11	38%	4.04	2.60			
	BC 67.1	**MH 67.0**	0	0	9,792	0.84	0.84	378	16.0	10	1.04	0.012	0.03	0.17	38%	4.04	2.60			
	MH 67.0	**MH 66.0**	0	0	0		1.68	756	230.9	18	1.04	0.012	0.08	2.40	20%	4.68	12.48			
	MH 66.0	**FES 65.0**	0	0	0		1.68	756	67.5	18	1.04	0.012	0.02	0.70	20%	4.68	12.48			

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NORTH

GRAPHICAL SCALE (FEET)
0 1" = 60' 120'

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OUTLOT 3
NWL = 756.00
HWL = 762.34

OUTLOT 1
NWL = 750.00
HWL = 758.41

OUTLOT 4
NWL = 745.00
HWL = 758.55

ZILBER C251
251,872 SF
FFE = 764.00

ZILBER INDUSTRIAL 2
#4321 CAROL ROAD
233,249 SF
FFE = 764.00

INL 14.0 SF:11004 AC:0.25
INL 12.0 SF:10965 AC:0.25
INL 11.0 SF:4080 AC:0.09
INL 20.0 SF:5358 AC:0.12
INL 51.0 SF:27073 AC:0.62
INL 21.0 SF:6543 AC:0.15
INL 23.0 SF:7220 AC:0.17
INL 24.0 SF:8755 AC:0.20
INL 53.0 SF:30564 AC:0.70
INL 26.0 SF:9429 AC:0.22
INL 28.0 SF:8,989 AC:0.21
INL 55.0 SF:23278 AC:0.53
INL 30.0 SF:8,980 AC:0.21
INL 33.0 SF:7534 AC:0.17
INL 57.0 SF:22206 AC:0.51
INL 34.0 SF:7751 AC:0.18

BC 13.1 SF:11016 AC:0.25
BC 12.3 SF:11042 AC:0.25
BC 51.1 SF:23976 AC:0.55
BC 21.2 SF:22072 AC:0.51
BC 53.1 SF:34992 AC:0.80
BC 24.3 SF:33076 AC:0.76
BC 55.1 SF:26244 AC:0.60
BC 29.1 SF:24804 AC:0.57
BC 57.1 SF:23256 AC:0.53
BC 32.1 SF:21462 AC:0.49
BC 67.1 SF:9,792 AC:0.22
BC 67.4 SF:9,817 AC:0.23

FES 10.0
FES 65.0
MH 13.0
MH 22.0
MH 25.0
MH 27.0
MH 29.0
MH 32.0
MH 66.0
MH 67.0
MH 31.0

PROPERTY LINE

REVIEWED: MJ
DESIGNED: MB
DRAFTED: MB

PLAN | DESIGN | DELIVER
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PINNACLE ENGINEERING GROUP
ENGINEERING | NATURAL RESOURCES | SURVEYING

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ZILBER C251

CALEDONIA, WI

STORM DRAINAGE EXHIBIT

REVISIONS

1	VILLAGE BSO SUBMITTAL	02/09/26

PEC JOB No. 1912.40-WI
PEC PM: MJ
START DATE: 02/09/26
SCALE: 1" = 40'

SHEET
EX-1

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STORM DRAINAGE EXHIBIT

Z:\PROJECTS\2020\1912.40-WI\CAD\EXHIBITS\1912.40-WI PROPOSED STORM BASIN EXHIBIT_ALTERNATIVE.DWG

OFFSITE CONTOURS OBTAINED FROM SURVEY DATED 03/11/16 & INFRAWORKS 2020

LEGEND

- PERVIOUS - HSG C
- PERVIOUS - HSG C/D

N ROAD OFFSITE BASIN
TOTAL - 5.02 AC
PERVIOUS C/D - 0.39 AC
PERVIOUS C - 0.95 AC
IMPERVIOUS - 3.68 AC

N BASIN
TOTAL - 2.55 AC
PERVIOUS - 1.37 AC
IMPERVIOUS - 0.92 AC
POND - 0.26 AC

DEBACK FARMS
BUSINESS PARK

OFFSITE FLOW:
2-YR: 6.57 CFS
10-YR: 8.72 CFS
100-YR: 12.03 CFS

EX OFFSITE N
DETENTION

NW OFFSITE BASIN
TOTAL - 2.86 AC
PERVIOUS C/D - 0.32 AC
PERVIOUS C - 2.20 AC
IMPERVIOUS - 0.34 AC

N OFFSITE BASIN
TOTAL - 50.19 AC
PERVIOUS C/D - 11.69 AC
PERVIOUS C - 33.02 AC
IMPERVIOUS - 5.48 AC

Tc PATH = 26.8 MIN

Tc PATH = 14.9 MIN

NE OFFSITE BASIN
TOTAL - 1.02 AC
PERVIOUS C/D - 0.30 AC
PERVIOUS C - 0.30
IMPERVIOUS - 0.42 AC

Tc PATH = 51.3 MIN

EX OFFSITE
NW DETENTION

EX OFFSITE
NE DETENTION

NW OFFSITE 2 BASIN
TOTAL - 15.09 AC
PERVIOUS C/D - 4.30 AC
PERVIOUS C - 3.76
IMPERVIOUS - 7.03 AC

NW BASIN
TOTAL - 12.10 AC
PERVIOUS - 3.17 AC
IMPERVIOUS - 8.54 AC
POND - 0.39 AC

Tc PATH = 17.8 MIN

NE OFFSITE 2 BASIN
TOTAL - 2.93 AC
PERVIOUS C/D - 0.95 AC
PERVIOUS C - 1.20 AC
IMPERVIOUS - 0.78 AC

Tc PATH = 11.6 MIN

Tc PATH = 40.8 MIN

CENTER BASIN
TOTAL - 47.44 AC
PERVIOUS - 11.36 AC
IMPERVIOUS - 30.29 AC
POND - 1.05 AC

W OFFSITE BASIN
TOTAL - 1.52 AC
PERVIOUS C/D - 0.77 AC
PERVIOUS C - 0.66 AC
IMPERVIOUS - 0.09 AC

S BASIN
TOTAL - 28.42 AC
PERVIOUS - 4.43 AC
IMPERVIOUS - 22.77 AC
POND - 1.22 AC

E OFFSITE BASIN
TOTAL - 28.22 AC
PERVIOUS C/D - 11.31 AC
PERVIOUS C -16.91 AC

W OFFSITE
UNDETAINED BASIN
TOTAL - 0.09 AC
PERVIOUS C/D - 0.06 AC
IMPERVIOUS - 0.03 AC

Tc PATH = 12.1 MIN

S UNDETAINED BASIN
TOTAL - 1.22 AC
PERVIOUS C/D - 1.22 AC

Tc PATH = 23.0 MIN

SE UNDETAINED BASIN
TOTAL - 0.92 AC
PERVIOUS C/D - 0.23 AC
PERVIOUS C - 0.69 AC

S OFFSITE
UNDETAINED BASIN
TOTAL - 3.39 AC
PERVIOUS C/D - 2.23 AC
PERVIOUS C - 1.16 AC

Tc PATH = 34.7 MIN

S OFFSITE BASIN
TOTAL - 1.77 AC
PERVIOUS C/D - 0.78 AC
PERVIOUS C - 0.99 AC

27%

NORTH

GRAPHICAL SCALE (FEET)

0 1" = 400' 800'

2:\PROJECTS\2020\1912.40-WI\CAD\EXHIBITS\1912.00.40-WI PROPOSED DRAINAGE EXHIBIT - C251.DWG 2/6/2026 4:36 PM

ZILBER C251 - PROPOSED HYDROLOGY

07/28/22

PINNACLE ENGINEERING GROUP
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PLAN | DESIGN | DELIVER **PEG JOB#** 1912.00