STORMWATER MANAGEMENT REPORT

PROJECT NAME

Chipotle Restaurant
Mormon Coulee Road & Shelby Road
La Crosse, WI 54601

OWNER

Alliance Development
230 Ohio Street, Suite 200
Oshkosh, WI 54902

REVISIONS

Issue Date: 07/16/26
Revision Date: 08/10/26

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1.0 INTRODUCTION

This report provides a basic analysis of the proposed stormwater management system for the development of a Chipotle restaurant in La Crosse, Wisconsin. The analysis was completed to ensure compliance with the stormwater requirements of the City of La Crosse. Included in this document is a rate control analysis and a water quality treatment analysis. See Figure 1 for a site location map.

1.1 Existing Conditions

The site is located in the Northwest quadrant of Mormon Coulee Road and Shelby Road, approximately 250 ft north of Shelby road in La Crosse, La Crosse County, Wisconsin. The site is bounded by Mormon Coulee Road on the northeast, and by existing commercial property to the northwest, southwest and southeast. The site is currently an existing bituminous parking lot that is part of a large strip retail center.

The proposed property boundary for the Chipotle restaurant consists of 0.710 acres. The drainage boundary being considered for this analysis is 1.802 acres which includes portion of the existing parking lot to the northwest and southwest that drain to the site. Within the drainage boundary, there are approximately 1.774 acres of impervious surfaces.

The site has elevations ranging from 667 in the east down to 663 in the northwest at the existing low point. All stormwater from the site drains to an existing storm sewer catch basin located internal to the drainage boundary near the northern boundary. See Figure 2 for an existing conditions drainage map.

The Mississippi River is located about 1,800 feet southwest of the site and receives all stormwater from the site.

1.2 Proposed Conditions

Alliance Development plans on redeveloping the site into a Chipotle restaurant with associated parking and drive areas. During construction, approximately 0.021 acres will be disturbed (excluding the disturbance necessary for the water service installation). After construction, the drainage boundary will contain 1.725 acres of impervious surfaces. The proposed project will result in a reduction of impervious surface of 0.049 acres.

Storm sewer will be used to collect stormwater from the site. A storm sewer manhole with a sump and preserver device is proposed in the northwest of the site to provide water quality treatment for the project. The preserver will route into the existing, rerouted storm sewer. See Figure 3 for a proposed conditions drainage map.

The site is under one acre of disturbance and results in a net reduction of impervious surface, .049 acres therefore, the site is exempt from the Wisconsin DNR stormwater requirements.

1.3 Soil Information

A site specific geotechnical report was not available at the time of this report. Based on general knowledge of the area, it is assumed that onsite soils fall within the Hydrologic Soil Group B. This report will be updated if a geotechnical report becomes available for the site.

1.4 Curve Numbers

Curve Numbers (CN) were selected based on the Soil Conservation Service (SCS) Technical Release 55.

Cover types for both the existing and proposed drainage analysis are impervious and grass. The following CNs based on HSG “B” were used in the drainage analysis:

- Impervious: 98
- Grass: 61

1.5 Time of Concentration

For existing and proposed conditions, the times of concentration were calculated using a combination of sheet flow and shallow concentrated flow. These methods require the length, slope of the water course and the water course characteristics for calculating the time of concentration, which were measured from the proposed topography. A minimum time of concentration of 6 minutes was used for storm sewer analysis

2.0 STORMWATER ANALYSIS

2.1 Rate Control

The proposed project will result in a reduction of impervious surface. The reduction in impervious surface will result in a reduction in runoff rates from the site. Therefore, post project runoff rates will be less than pre project runoff rates.

2.2 Water Quality Analysis

The City of La Crosse requires redevelopment sites to provide stormwater treatment to reduce 40 percent Total Suspended Solids (TSS). To meet this requirement, a manhole with a sump and Preserver device is proposed (STMH 101) in the north parking lot. A P8 model was prepared for proposed conditions to quantify the site TSS load. The manufacturer's TSS removal efficiency for the Preserver was applied to the catchment area tributary to STMH 101. See Figure 4 for the P8 watershed map and Appendix A for P8 Model. See table below for a summary of results.

	Lbs/yr
Allowable TSS	1s + 2s = 104.17 + 36.57 = 140.74 Total 140.74 x 60% = 84.45 Allowable *40% reduction requirement*
Proposed TSS	1s = 104.17 x 38.4% passing TSS = 40.00 *61.6% preserver removal efficiency* 2s = 36.57 TOTAL = 76.57 Proposed

2.3 Storm Sewer Design

All storm sewers were designed to accommodate a 10-year storm event. The rational method was used to determine anticipated flows to each inlet and the pipes were sized using those flows along with Manning's equation. See Appendix B for storm sewer design spreadsheet.

2.4 Conclusion

The drainage analysis and stormwater modeling show that the proposed site will meet the water quality requirements and rate control requirements of the City of La Crosse. All storm sewers have been designed to accommodate, at a minimum, a 10-year storm event.

3.0 CERTIFICATION

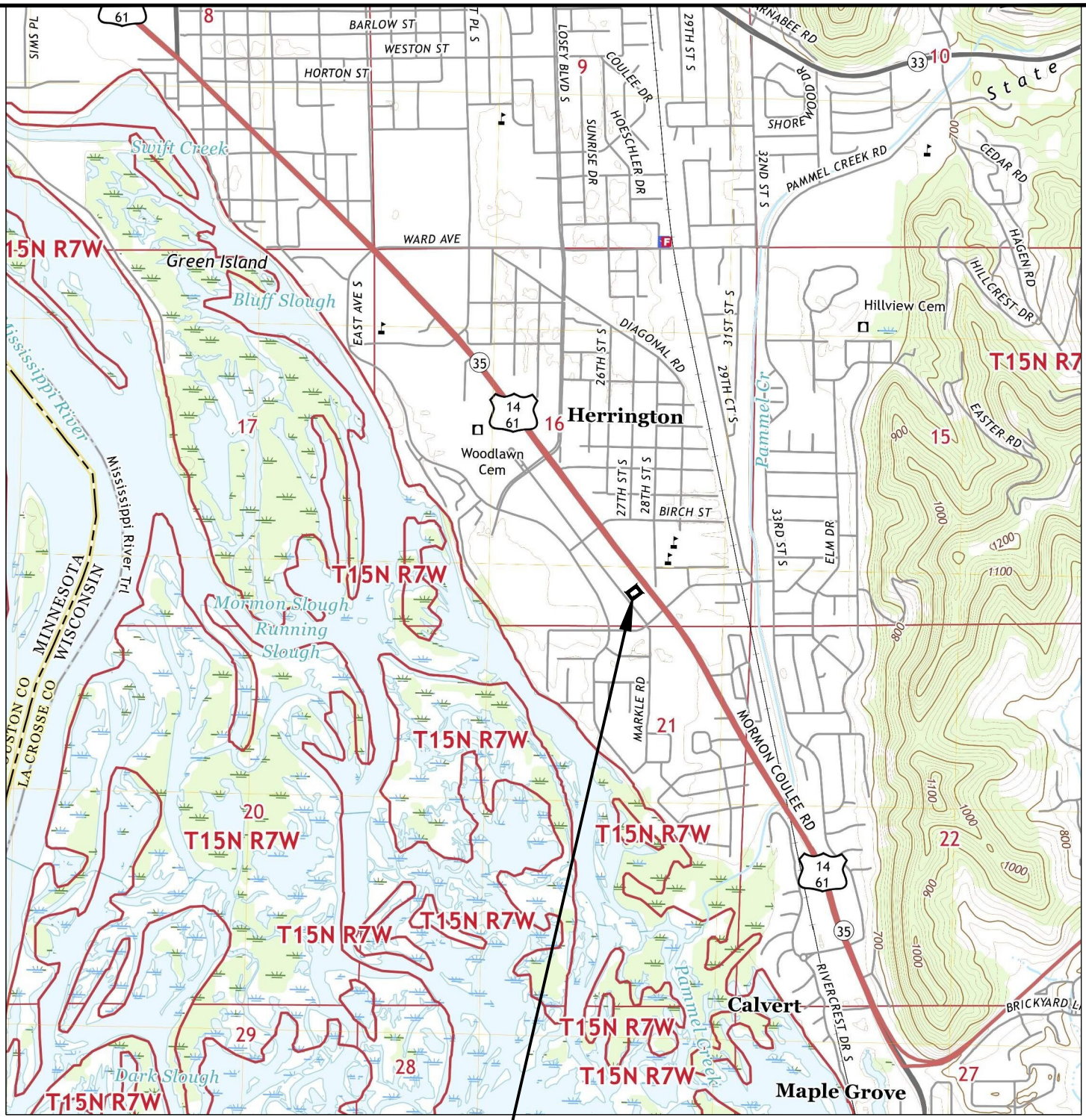
I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.

This Stormwater Management Plan was prepared by:

Joseph T. Radach, PE
License No: E-43913

08/07/2026
Date

FIGURES



CONTOUR CIVIL DESIGN

PROJECT

CHIPOTLE RESTAURANT
LA CROSSE, WISCONSIN

SHEET ID

FIGURE 1
SITE LOCATION MAP

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N

0 25 50 100

< SCALE IN FEET >

DRAINAGE BOUNDARY (1.802 ACRES)

ULTIMATE DISCHARGE LOCATION - EXISTING STORM SEWER

AREA DRAIN
RIM: 661.88
INV: 656.33

AREA DRAIN
RIM: 662.25
INV: 657.60

AREA DRAIN
RIM: 667.02
INV: 660.97

AREA DRAIN
RIM: 666.95
INV: 658.20

UNABLE TO VERIFY USE OF MANHOLE

SAN MH
RIM: 667.15
INV: 652.90

STM MH
RIM: 667.08
INV: 651.08

STORM MANHOLE
RIM: 666.00
INV: 654.40

SAN MH
RIM: 666.48
INV: 653.13

CURB INLET
RIM: 664.92
INV: 656.62

LEGEND

- DRAINAGE BOUNDARY
- 1S — CATCHMENT
- 1P — COLLECTION POINT

CONTOUR CIVIL DESIGN

NOTES

OWNER

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230 Ohio Street, Suite 200
Oshkosh, WI 54902

PROJECT

CHIPOTLE RESTAURANT
Mormon Coulee Road & Shelby Road
La Crosse, WI 54601

SHEET ID

FIGURE 2
EXISTING CONDITIONS DRAINAGE MAP

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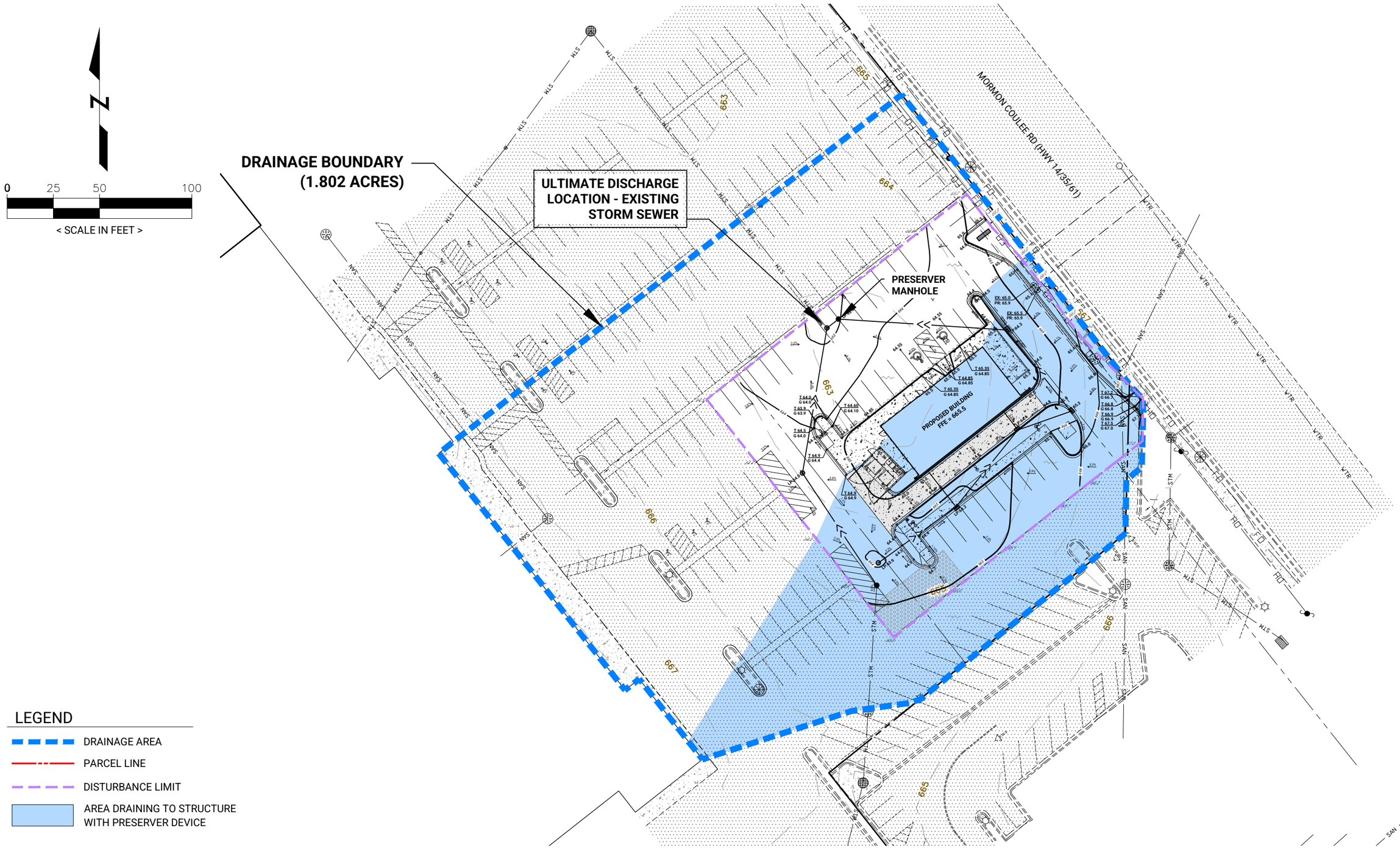

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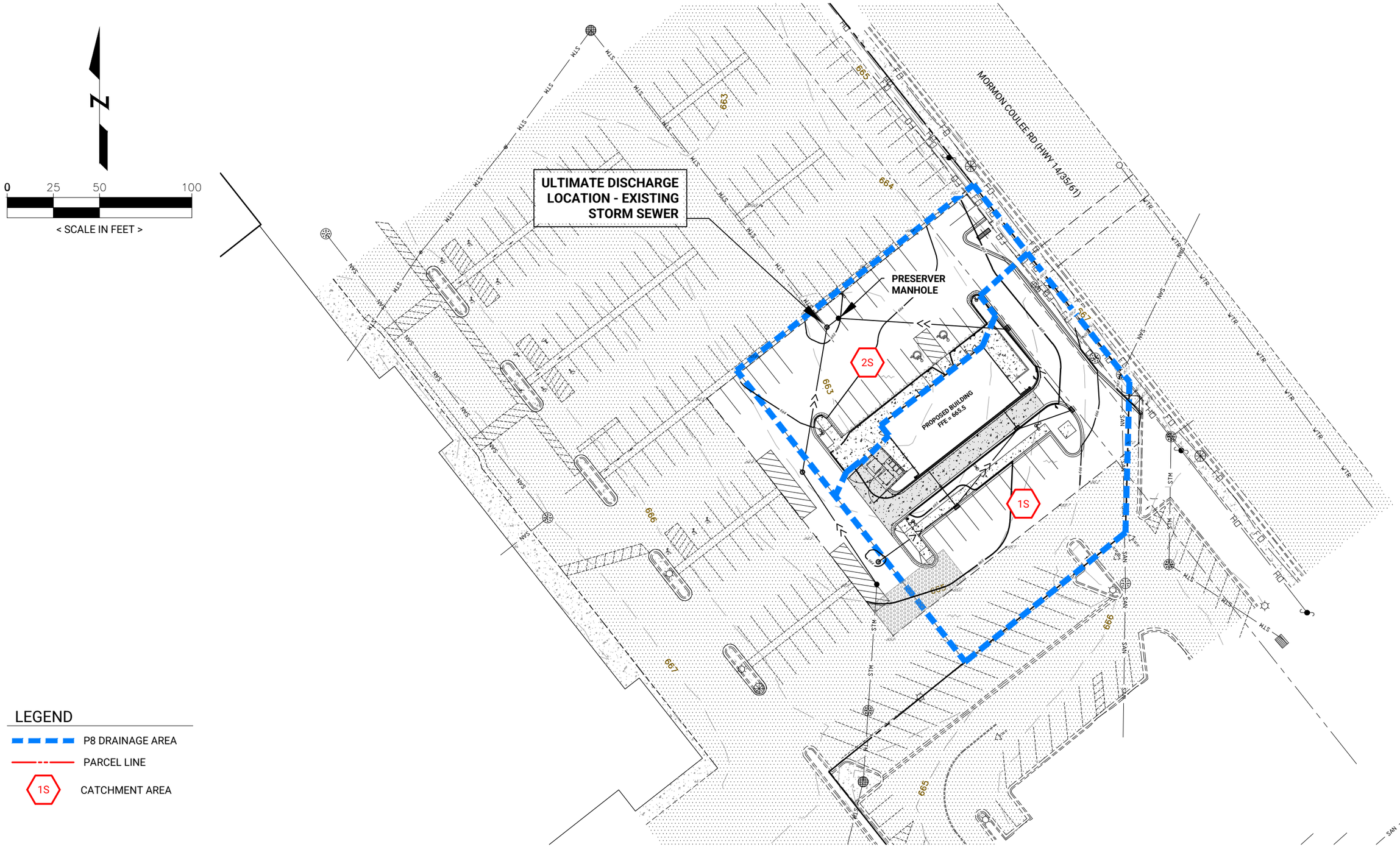
SHEET ID

FIGURE 3
PROPOSED CONDITIONS
DRAINAGE MAP



LEGEND

- P8 DRAINAGE AREA
- PARCEL LINE
- 1S CATCHMENT AREA

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CONTOUR CIVIL DESIGN

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CHIPOTLE RESTAURANT
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SHEET ID

FIGURE 4
P8 MODEL

N

0 25 50 100

< SCALE IN FEET >

LEGEND

- CATCHMENT LINE
- 100 STORM STRUCTURE

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CONTOUR CIVIL DESIGN

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SHEET ID

FIGURE 5
STORM SEWER DRAINAGE MAP

APPENDIX A

P8 Urban Catchment Model, Version 3.5				Run Date
Case	pr_chipotle La Crosse.p8c	FirstDate	01/01/59	Precip(in)
Title	Chipotle La Crosse	LastDate	09/30/59	Rain(in)
PrecFile	MSP4914_Corr.pcp	Events	54	Snow(in)
PartFile	nurp50.p8p	TotalHrs	5160	TotalYrs

Case Title	Chipotle La Crosse
Case Data File	pr_chipotle La Crosse.p8c
Path	C:\Users\armst\Amccivilconsulting Dropbox\Alyssa Armstrong\26012 - Chipotle La Cr
Case Notes:	
Storm Data File	MSP4914_Corr.pcp
Particle File	nurp50.p8p
Air Temp File File	MSP_FC4915.tem

Time Steps Per Hour	50
Minimum Inter-Event Time (hrs)	10
Maximum Continuity Error %	2
Rainfall Breakpoint (inches)	0.8
Precipitation Scale Factor	1
Air Temp Offset (deg-F)	0
Loops Thru Storm File	1
Simulation Dates	
Start	10/1/1958
Keep	1/1/1959
Stop	9/30/1959

Max Snowfall Temperature (deg-f)	32.0
SnowMelt Temperature (deg-f)	32.0
Snowmelt Coef (in/degF-Day)	0.06
Soil Freeze Temp (deg-F)	32.0
Snowmelt Abstraction Factor	1.00
Evapo-Trans. Calibration Factor	1.00
Growing Season Start Month	5
Growing Season End Month	10

5-Day Antecedent Rainfall + Runoff (inches)		
CN Antecedent Moisture Condition	AMC-II	AMC-III
Growing Season	1.40	2.10
NonGrowing Season	0.50	1.10

Watershed Data		
Watershed Name	2s	1s
Runoff to Device	SITE	SITE

Infiltration to Device		
Watershed Area	0.257	0.453
SCS Curve Number (Pervious)	61	61
Scale Factor for Pervious Runoff Load	1	1
Indirectly Connected Imperv Fraction	0	0
UnSwept Impervious Fraction	0.245	0.396
UnSwept Depression Storage (inches)	0.02	0.02
UnSwept Imperv. Runoff Coefficient	1	1
UnSwept Scale Factor for Particle Loads	1	1
Swept Impervious Fraction	0	0
Swept Depression Storage (inches)	0.02	0.02
Swept Imperv. Runoff Coefficient	1	1
Swept Scale Factor for Particle Loads	1	1
Sweeping Frequency	0	0
Sweeping Efficiency	1	1
Sweeping Start Date (MMDD)	101	101
Sweeping Stop Date (MMDD)	1231	1231

Device Data	
Device Name	SITE
Device Type	PIPE
Infiltration Outlet	
Normal Outlet	
Spillway Outlet	
Particle Removal Scale Factor	
Bottom Elevation (ft)	
Bottom Area (acres)	
Permanent Pool Area (acres)	
Permanent Pool Volume (ac-ft)	
Perm Pool Infilt Rate (in/hr)	
Flood Pool Area (acres)	
Flood Pool Volume (ac-ft)	
Flood Pool Infilt Rate (in/hr)	
Infilt Basin Void Fraction (%)	
Detention Pond Outlet Parameters	
Outlet Type	
Outlet Orifice Diameter (in)	
Orifice Discharge Coef	
Outlet Weir Length (ft)	
Weir Discharge Coef	
Perforated Riser Height (ft)	
Number of Holes in Riser	
Holes Diameter	
Flood Pool Drain Time (hrs)	

Swale Parameters	
Length of Flow Path (ft)	
Slope of Flow Path %	
Bottom Width (ft)	
Side Slope (ft-v/ft-h)	
Maximum Depth of Flow (ft)	
Mannings n Constant	
Hydraulic Model	
Pipe, Splitter, Aquifer Parameter	
Hydraulic Res. Time (hrs)	1

Particle Data					
Particle File	nurp50.p8p				
Particle Class	P0%	P10%	P30%	P50%	P80%
Filtration Efficiency (%)	90	100	100	100	100
Settling Velocity (ft/hr)	0	0.03	0.3	1.5	15
First Order Decay Rate (1/day)	0	0	0	0	0
2nd Order Decay (1/day-ppm)	0	0	0	0	0
Impervious Runoff Conc (ppm)	1	0	0	0	0
Pervious Runoff Conc (ppm)	1	100	100	100	200
Pervious Conc Exponent	0	1	1	1	1
Accum. Rate (lbs-ac-day)	0	1.75	1.75	1.75	3.5
Particle Removal Rate (1/day)	0	0.25	0.25	0.25	0.25
Washoff Coefficient	0	20	20	20	20
Washoff Exponent	0	2	2	2	2
Sweeper Efficiency	0	0	0	5	15

Water Quality Component Data						
Component Name	TSS	TP	TKN	CU	PB	ZN

Water Quality Criteria (ppm)						
Level 1	5	0.025	2	2	0.02	5
Level 2	10	0.05	1	0.0048	0.014	0.0362
Level 3	20	0.1	0.5	0.02	0.15	0.38

Content Scale Factor	1	1	1	1	1	1

Particle Composition (mg/kg)						
P0%	0	99000	600000	13600	2000	64000
P10%	1000000	3850	15000	340	180	1600
P30%	1000000	3850	15000	340	180	1600
P50%	1000000	3850	15000	340	180	1600
P80%	1000000	0	0	340	180	0

P8 Urban Catchment Model, Version 3.5

Case	pr1s_chipotle La Crosse.p8c	FirstDate	01/01/59	Run Date	07/28/26
Title	Chipotle La Crosse	LastDate	09/30/59	Precip(in)	21.8
PrecFile	MSP4914_Corr.pcp	Events	54	Rain(in)	21.57
PartFile	nurp50.p8p	TotalHrs	5160	Snow(in)	0.25
				TotalYrs	0.59

Mass Balances by Device

Device: SITE	Type:	PIPE											
	Flow	Loads(lbs)											
Mass Balance Term	acre-ft	P0%	P10%	P30%	P50%	P80%	TSS	TP	TKN	CU	PB	ZN	HC
01 watershed inflows	0.32	0.88	20.83	20.83	20.83	41.67	104.17	0.33	1.47	0.05	0.02	0.16	2.56
06 normal outlet	0.32	0.88	20.83	20.83	20.83	41.67	104.17	0.33	1.47	0.05	0.02	0.16	2.56
09 total inflow	0.32	0.88	20.83	20.83	20.83	41.67	104.17	0.33	1.47	0.05	0.02	0.16	2.56
10 surface outflow	0.32	0.88	20.83	20.83	20.83	41.67	104.17	0.33	1.47	0.05	0.02	0.16	2.56
12 total outflow	0.32	0.88	20.83	20.83	20.83	41.67	104.17	0.33	1.47	0.05	0.02	0.16	2.56
14 storage increase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 mass balance check	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Load Reduction (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

104.17 X 0.616 (PRESERVER REMOVAL EFF.) = 64.169
104.17 - 64.169 = 40.000 DISCHARGE

Concentrations (ppm)

P0%	P10%	P30%	P50%	P80%	TSS	TP	TKN	CU	PB	ZN	HC
1.00	23.63	23.63	23.63	47.27	118.16	0.37	1.66	0.05	0.02	0.18	2.91
1.00	23.63	23.63	23.63	47.27	118.16	0.37	1.66	0.05	0.02	0.18	2.91
1.00	23.63	23.63	23.63	47.27	118.16	0.37	1.66	0.05	0.02	0.18	2.91
1.00	23.63	23.63	23.63	47.27	118.16	0.37	1.66	0.05	0.02	0.18	2.91
1.00	23.63	23.63	23.63	47.27	118.16	0.37	1.66	0.05	0.02	0.18	2.91

P8 Urban Catchment Model, Version 3.5				Run Date	07/28/26
Case	pr2s_chipotle La Crosse.p8c	FirstDate	01/01/59	Precip(in)	21.8
Title	Chipotle La Crosse	LastDate	09/30/59	Rain(in)	21.57
PrecFile	MSP4914_Corr.pcp	Events	54	Snow(in)	0.25
PartFile	nurp50.p8p	TotalHrs	5160	TotalYrs	0.59

Mass Balances by Device

Device: SITE	Type:	PIPE											
	Flow	Loads(lbs)											
Mass Balance Term	acre-ft	P0%	P10%	P30%	P50%	P80%	TSS	TP	TKN	CU	PB	ZN	HC
01 watershed inflows	0.11	0.31	7.31	7.31	7.31	14.63	36.57	0.12	0.52	0.02	0.01	0.05	0.90
06 normal outlet	0.11	0.31	7.31	7.31	7.31	14.63	36.57	0.12	0.52	0.02	0.01	0.05	0.90
09 total inflow	0.11	0.31	7.31	7.31	7.31	14.63	36.57	0.12	0.52	0.02	0.01	0.05	0.90
10 surface outflow	0.11	0.31	7.31	7.31	7.31	14.63	36.57	0.12	0.52	0.02	0.01	0.05	0.90
12 total outflow	0.11	0.31	7.31	7.31	7.31	14.63	36.57	0.12	0.52	0.02	0.01	0.05	0.90
14 storage increase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15 mass balance check	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Load Reduction (%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Concentrations (ppm)

P0%	P10%	P30%	P50%	P80%	TSS	TP	TKN	CU	PB	ZN	HC
1.00	23.57	23.57	23.57	47.14	117.85	0.37	1.66	0.05	0.02	0.18	2.90
1.00	23.57	23.57	23.57	47.14	117.85	0.37	1.66	0.05	0.02	0.18	2.90
1.00	23.57	23.57	23.57	47.14	117.85	0.37	1.66	0.05	0.02	0.18	2.90
1.00	23.57	23.57	23.57	47.14	117.85	0.37	1.66	0.05	0.02	0.18	2.90
1.00	23.57	23.57	23.57	47.14	117.85	0.37	1.66	0.05	0.02	0.18	2.90

APPENDIX B

PROJECT NAME: **Chipotle Restaurant**
LOCATION: La Crosse, Wisconsin
PROJECT NO: 26012
DATE: 7/16/2026
BY: AKA

DESIGN CRITERIA	
Frequency	10 year
Manning's "n"	0.013
"C" coefficient	varies

CONTOUR CIVIL DESIGN

STORM SEWER DESIGN

LOCATION		MH SIZE	AREA			"C" COEFFICIENT			ToC/INTENSITY		FLOW CALCULATIONS					PROFILE DATA				
CBMH (from)	CBMH (to)	Diameter (in)	Impervious (sf)	Pervious (sf)	Total Area (ac)	Inc. "C"	Inc. CA	Cum. CA	T (min)	I (in/hr)	Q = CAI (cfs)	D (in)	% Grade	Q_{full} (cfs)	V_{full} (fps)	L (ft)	Invert (in)	Invert (out)	Rim El.	Build (ft)
CB106	CBMH 105	24x36	12749	85	0.29	0.90	0.26	0.26	6	5.8	1.53	12	0.50%	2.52	3.21	52	660.35	660.09	663.85	3.50
ROOF A	CBMH 105	NA	1223	0	0.03	0.90	0.03	0.03	6	5.8	0.15	4	2.00%	0.27	3.08	25	660.00	659.50	665.50	5.50
CBMH 105	CBMH 104	48	7496	540	0.18	0.85	0.16	0.45	6	5.8	2.59	12	0.80%	3.18	4.05	53	659.50	659.08	664.03	4.53
ROOF B	CBMH 104	NA	1170	0	0.03	0.90	0.02	0.02	6	5.8	0.14	4	2.00%	0.27	3.08	13	660.00	659.74	665.50	5.50
CBMH 104	CBMH 103	48	658	813	0.03	0.51	0.02	0.49	6	5.8	2.83	12	0.80%	3.18	4.05	30	659.08	658.84	664.43	5.35
CBMH 103	CBMH 102	48	705	0	0.02	0.90	0.01	0.50	6	5.8	2.91	12	0.80%	3.18	4.05	56	658.84	658.39	665.13	6.29
CBMH 102	PRESERVER 101	48	2998	1090	0.09	0.71	0.07	0.57	6	5.8	3.30	12	1.00%	3.56	4.53	91	658.39	657.48	664.13	5.74
PRESERVER 101	CBMH 100	48	1	0	0.00	0.90	0.00	0.57	6	5.8	3.30	12	1.00%	3.56	4.53	8	657.48	657.40	662.95	5.47
CBMH 100	EX PIPE	48	36235	857	0.85	0.88	0.75	1.32	6	5.8	7.67	EX	0.33%				657.40	657.34	662.75	5.35
EX PIPE	CBMH 108	48										EX	0.33%			107	658.20	657.85	662.75	4.55
CBMH 108	CBMH 107	48										EX	0.33%			73	657.85	657.61	664.35	6.50
CBMH 107	CBMH 100	48	11890	0	0.27	0.90	0.25	0.25	6	5.8	1.42	EX	0.33%			80	657.61	657.34	663.95	6.34