



**SITE PLAN AND TRAFFIC ADVISORY REVIEW COMMITTEE
Internal Staff Meeting**

Minnesota Valley Room, First Floor, Intergovernmental Center

1. **SITE PLAN ITEMS**

1. CY36-26 tabled at August 26, 2026 PC meeting

Request of Bolton and Menk, on behalf of Kody Schendel of New Hope Board and Lodge and KD2 Properties, LLC, for an amended conditional use permit to allow a building addition and an operational expansion; and for a variance to decrease the rear yard from 66' to 11.2' in the R-3, Limited Multiple Family Dwelling District. The variance is being requested in order to allow for a building addition. The property is described as Lots 6, 7, 8 and the westerly half of Lot 9, Block 16 of Mankato City, Blue Earth County (1429 3rd Avenue).

2. CY42-26

Request of Jones Haugh & Smith, with permission of the property owner, Scott Brown, for a final plat review of Metcon Addition, and a conditional use permit to allow a wetland replacement on the subject site. The subject property is described as That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96

feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning; Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota (Blue Earth County PIDR430911300021).

3.

CY43-26

Request of RJC Rental Properties LLC for a conditional use permit to allow the operation of an Intensive Outpatient Treatment clinic in the R-3, Limited Multiple dwelling zoning district. The subject properties are described as Lots 3, 4, and 5, Block 25, Mankato City subdivision (1618, 1620 and 1622 3rd Avenue).

4.

CY44-26

Request of the Planning Agency to review Mankato Development District No. 51 Plan ("Plan") to determine conformity of said plan to the General Development Plan for Development or Redevelopment of the Municipality as a whole. The subject properties are described as Lots 1 through 8, Block 1, Quarry View Addition subdivision.

For Information Purposes Only.

5.

CY45-26

Request of the Planning Agency to amend Chapter 10 of Mankato City Code related to permitted and conditional units in the R-3, Limited Multiple-Family Dwelling District and the R-4, Multiple Family Dwelling District.

For Information Purposes Only.

6.

CY46-26

Request of the Planning Agency to amend Chapter 10 of Mankato City Code in the M-1, Light Industrial District related to cannabis.

For Information Purposes Only.

2.

TRAFFIC ITEMS

1. **STOP (R1 1) signs on the northbound and southbound approaches of Dane Street at the intersection of Marsh Street (west leg)**

Meeting Date: 09/08/2026

Title

CY36-26 tabled at August 26, 2026 PC meeting

Request of Bolton and Menk, on behalf of Kody Schendel of New Hope Board and Lodge and KD2 Properties, LLC, for an amended conditional use permit to allow a building addition and an operational expansion; and for a variance to decrease the rear yard from 66' to 11.2' in the R-3, Limited Multiple Family Dwelling District. The variance is being requested in order to allow for a building addition. The property is described as Lots 6, 7, 8 and the westerly half of Lot 9, Block 16 of Mankato City, Blue Earth County (1429 3rd Avenue).

Applicant

The applicant is Bolton and Menk, on behalf of the property owner, Kody Schendel.

Request

The applicant is requesting a conditional use permit to construct and operate a 16-unit congregate micro-apartment addition; and for a variance to decrease the rear yard from 66' to 25' in the R-3, Limited Multiple Family Dwelling District.

The variance is being requested in order to allow for an approximately 52.5' X 60' building addition.

Location

The address for the property is 1429 3rd Ave.

Existing Land Use

The property is the location of New Hope Board and Lodge, formally House of Hope.

Zoning

The property is zoned R-3, Limited Multiple Dwelling District.

Environmentally Sensitive Areas

There are no known environmentally sensitive areas on the site.

Public Utilities

The property is currently served by public utilities.

City Code

The City Code pertaining to the R-3, Limited Multiple Dwelling District may be viewed at the following link.

https://library.municode.com/mn/mankato/codes/code_of_ordinances?nodeId=PTIICOOR_CH10LAUSDE_ARTIREDI_DIV5LIMUDWDI

Site Plan Review Comments

The Site Plan and Traffic Review Committee met on August 11, 2026 and submitted the following comments:

1. The applicants shall evaluate the need for upgraded/additional sewer and water services to the property to support the new building addition as soon as possible. 3rd Avenue is being reconstructed currently; late summer/early fall would be an opportune time to upgrade utilities if needed. *Applicant: Owner to have a plumber review the existing service connection to the building. If required, he will work with City Staff to get the new services installed during the construction of 3rd Avenue. This step will move forward after review and approval of the project.*
2. The applicants will be required to pay SAC & WAC connection charges based on the City of Mankato assessment policy and fee schedule. *Applicant - Noted.*
3. The applicants shall be aware that the building is located within the FlexZone, which requires advanced scheduling for curb-to-curb service. The nearest Route 10 bus stop is approximately 0.75 miles away on foot. *Applicant - Noted.*
4. The applicant shall meet all parking requirements for residents and staffing based on the calculations in Mankato City Code Chapter 10. *Applicant - The current use of the property is congregate housing which requires one-half space per dwelling unit. The building currently has 18 rooms with an additional 16 rooms being proposed (total of 34). The required stalls for the current and proposed stalls would be 17 stalls, plus the number of employees on the major shift. The current employees on the major shift are as follows: two staff members plus 2 caterers during dining time. So, in conclusion, the required stalls would be 17 for the units plus 4 for staff totaling 21. Most of the current individuals that live in the building do not have their own vehicle and depend on public transportation. The owner plans to work with the City Staff to coordinate access to public transportation.*
5. Applicant shall license the facility through the State of Minnesota and coordinate all necessary services through Blue Earth County. *Applicant - Noted.*

Review

The applicant is requesting a conditional use permit to allow a building addition and an operational expansion of the current facility; and a variance to decrease the rear yard from 66' to 25' in the R-3, Limited Multiple Family Dwelling District.

Conditional Use Permit:

The current facility located at the site operates as a state licensed Rate 1 Room and Board. There are currently 18 bedrooms that are being rented by individuals seeking recovery housing.

In 1997, a conditional use permit was granted allowing the House of Hope operations. The original 1997 Planning Commission report and City Council resolution from 1997 are included as attachments.

The property owner requested that the Planning Commission table a review of the items at their [August 26, 2026, meeting](#) to make modifications to their request. As requested, the Planning Commission tabled the item and will take it up at their September 23, 2026, meeting.

A newly revised site plan shows a 60' X 52.5', approximately 3,150 square foot, addition located on the southerly side of the existing facility. The August 2026 submission has been modified to now contain 16 new bedrooms, each having their own bathroom. There are eight bedroom units on each floor of the proposed 2-story addition. The proposed new addition also includes shared kitchen, dining and living room spaces on each floor. This replaces the previous apartment-type units.

Variance:

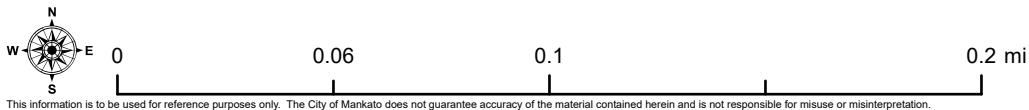
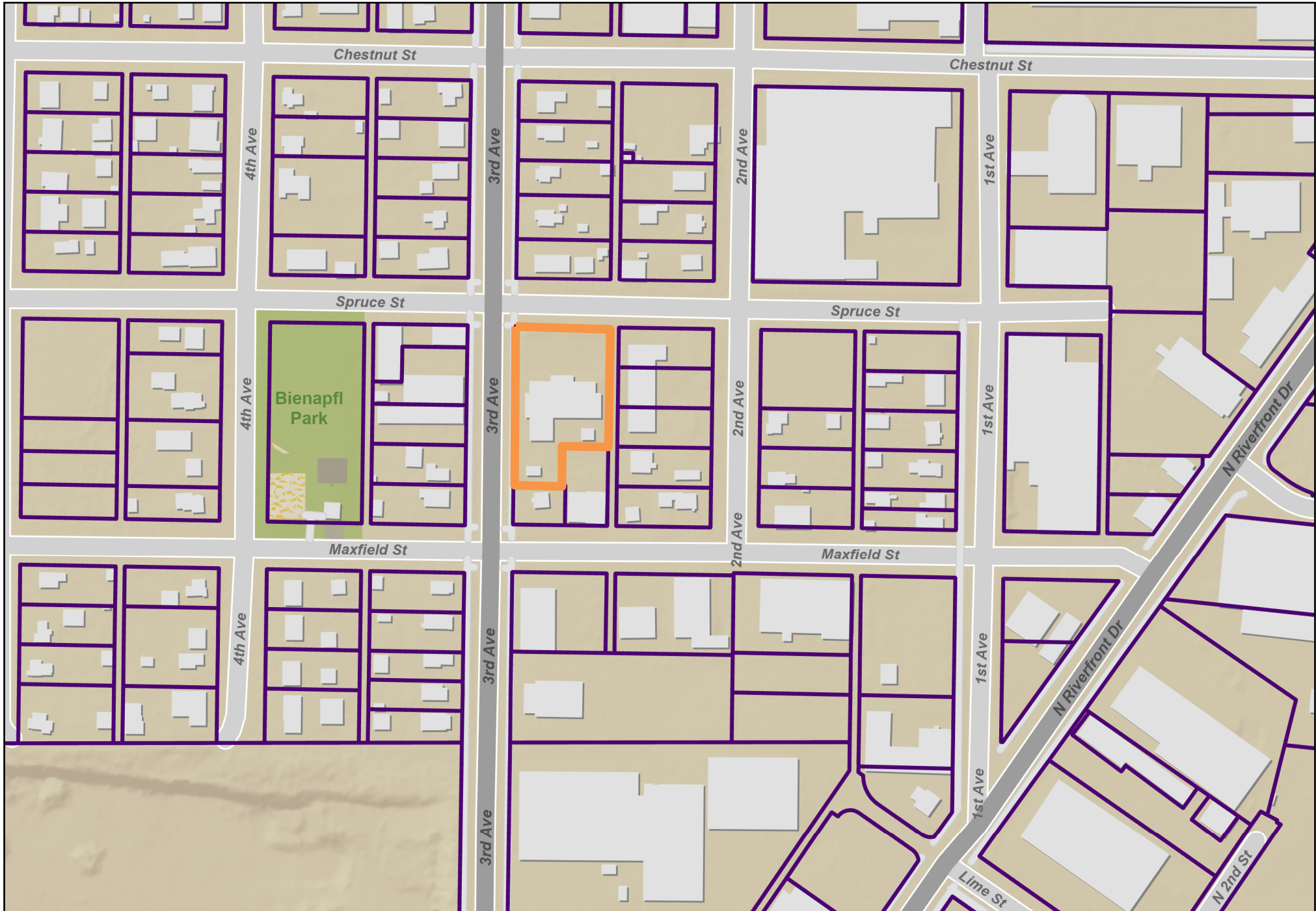
The applicant is requesting a variance to reduce the rear yard setback from 66' to 25'. The Mankato City Code requires a rear yard setback for all principal buildings other than one-and-two family dwellings of 25 percent of lot depth, provided the yard is a minimum of 25 feet or a maximum of 75 feet. The variance is being requested in order to allow for an approximately 60' X 52.5' building addition.

The applicant has modified their August 2026 submission from an initially proposed 11.2' setback, to a proposed 25' rear yard setback.

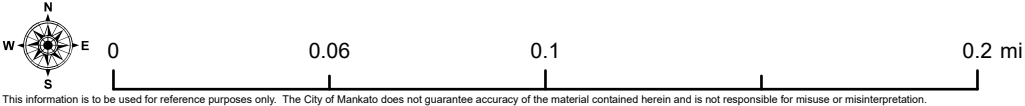
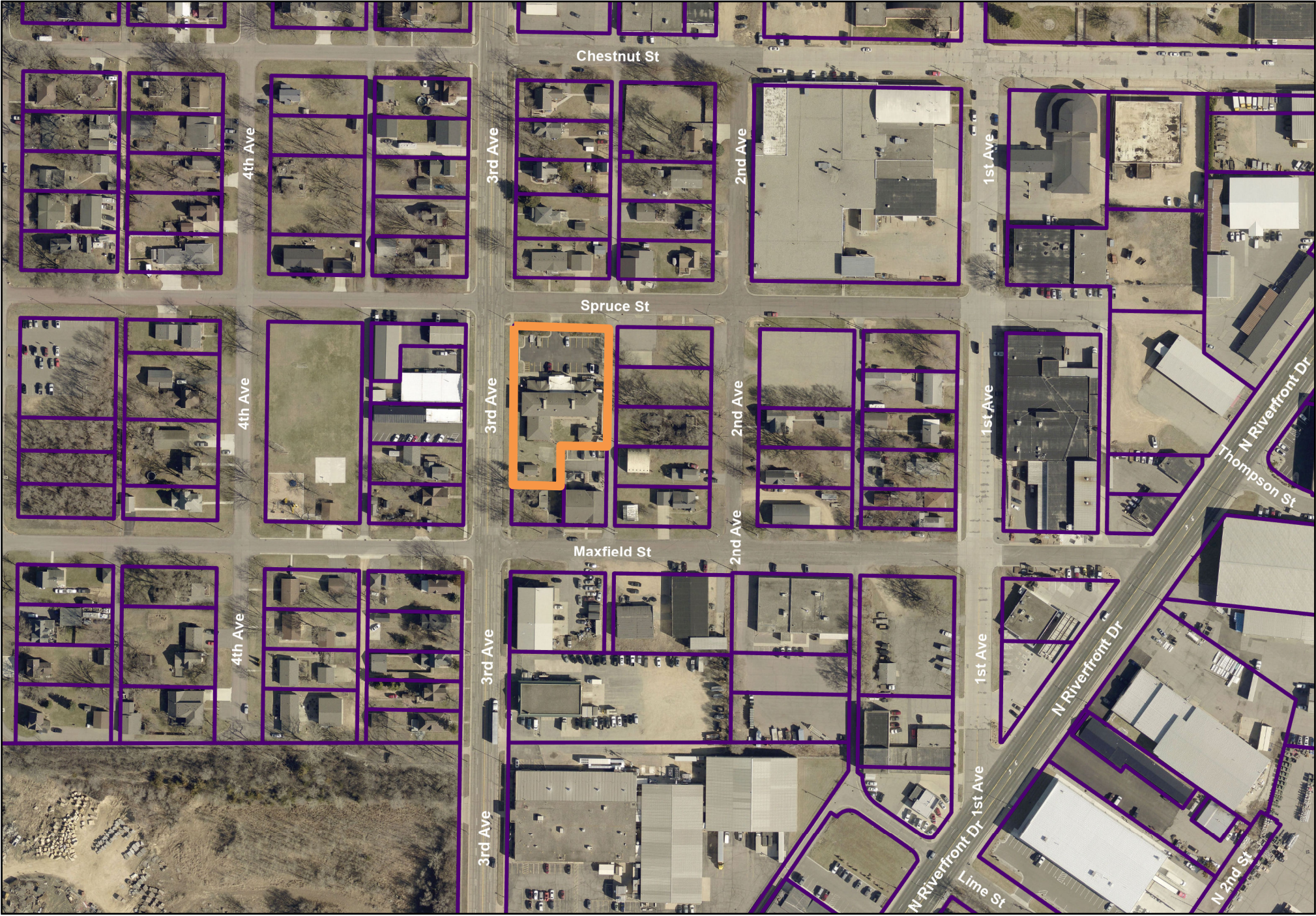
Attachments

General Location Map
Aerial Plan
Site Plan
Site Plan - variance
Floor Plans
Exterior rendering
Narrative
Neighborhood Meeting Responses
1997 Planning Commission report
1997 City Council report and details

General Location Map



Aerial Map





UTILITY & SITE DATA
All Zoning and Setback information was obtained from the City of Mankato Code. For detailed zoning information and specific interpretation of code requirements, contact the City of Mankato.

ZONING:
Property is Zoned R-3, Limited Multiple-Family Dwelling District

SETBACKS:
Front
Main and Accessory Building 25 feet

Side
Main and Accessory Buildings 6 feet

Rear
Main and Accessory Building
25 feet (one- and two-family dwellings)
25% of the lot depth provide is minimum of 25 feet to a max of 75 feet (for all other principal buildings)

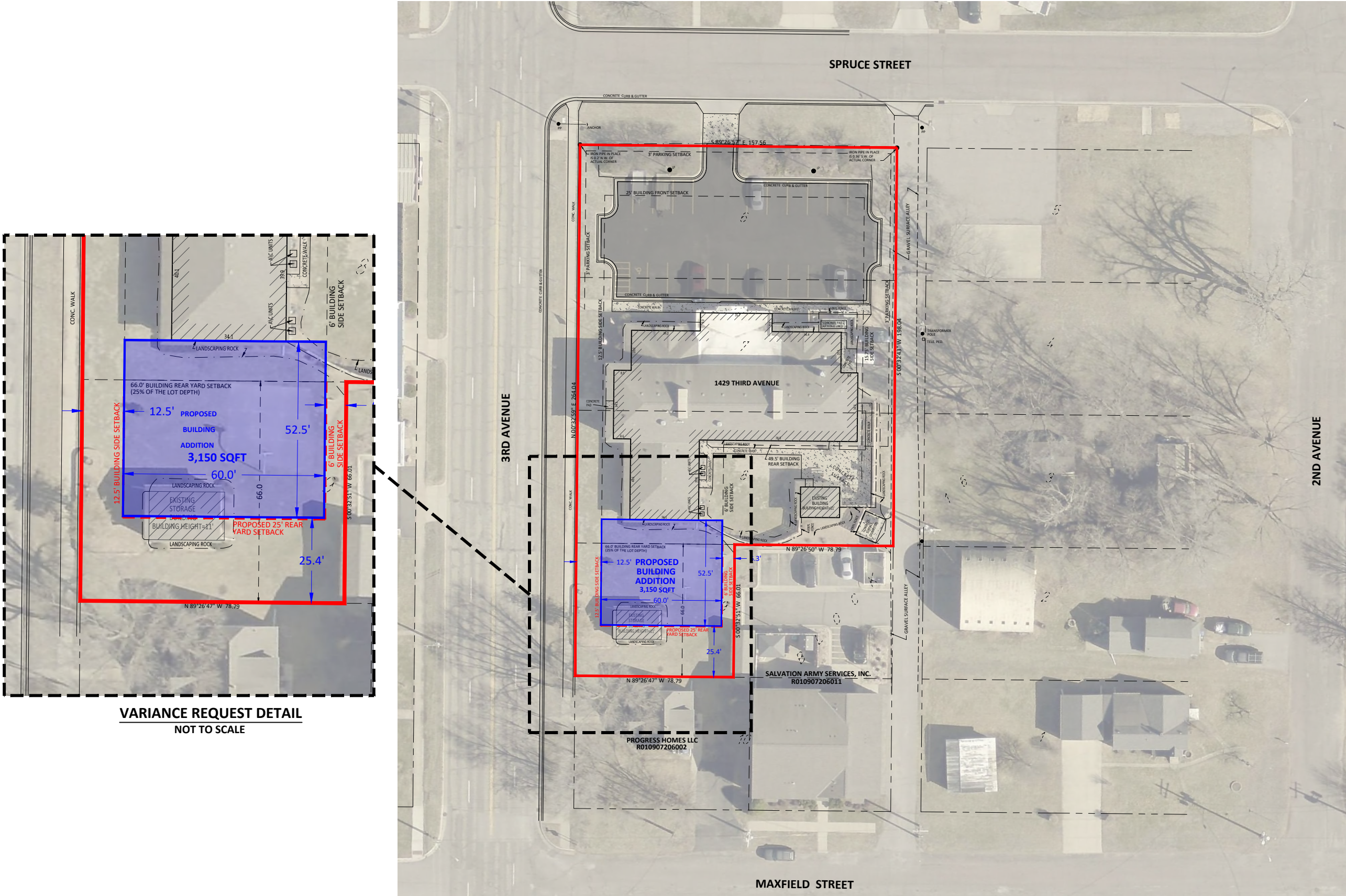
Lot Area (minimum) = 10,000 sq.ft. (for the first 4 units)
Lot Width (minimum) = 60 feet
Maximum Ground Coverage = 35% by all structures
Maximum Building Height = 35 feet (principal) and 20 feet (accessory)

SITE DATA

BUILDING INFO:
Existing Building Area = 8,213 sqft
Proposed Building Area = 3,150 sqft
Total Building Area = 11,363 sqft
Ground Coverage by all structures = 31.2%

Existing number of units = 16 bedrooms (board and lodge units)
Proposed number of units = 16 bedrooms (board and lodge units)
Total number of units = 32 bedrooms

PARKING:
Existing parking stalls = 22
Required parking stalls = 16 (0.5 stalls per bedroom) + 4 stalls for employees = 22 stalls.



UTILITY & SITE DATA
All Zoning and Setback information was obtained from the City of Mankato Code. For detailed zoning information and specific interpretation of code requirements, contact the City of Mankato.

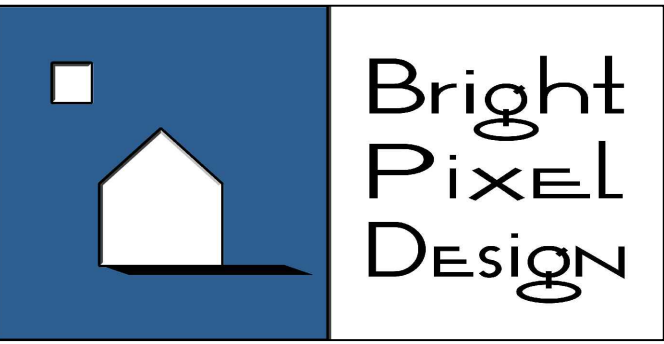
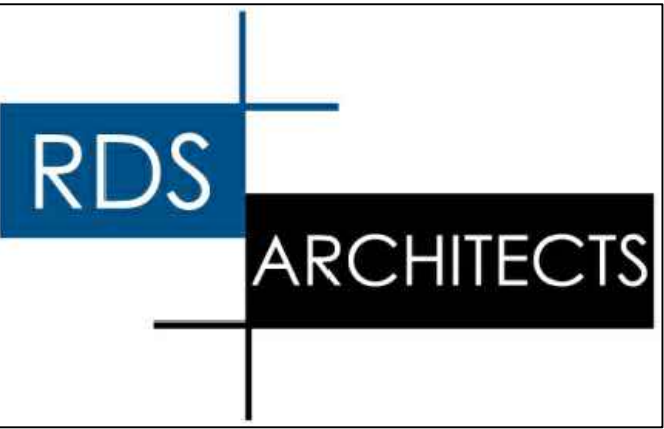
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Main and Accessory Buildings 6 feet

Rear
Main and Accessory Building
25 feet (one- and two-family dwellings)
25% of the lot depth provide is minimum of 25 feet to a max of 75 feet
(for all other principal buildings)

Lot Area (minimum) = 10,000 sq.ft. (for the first 4 units)
Lot Width (minimum) = 60 feet
Maximum Ground Coverage = 35% by all structures
Maximum Building Height = 35 feet (principal) and 20 feet (accessory)



PROJECT TITLE:
HOUSE OF HOPE
1618 3RD. AVE.
MANKATO, MN 56001

GENERAL NOTES:

CONTRACTORS TO FOLLOW
MANUFACTURER'S INSTRUCTIONS AND
INDUSTRY BEST PRACTICES FOR ALL
PRODUCT INSTALLATIONS.

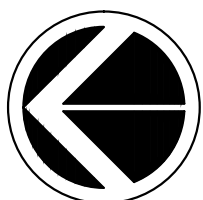
SHEET NOTES:

1 NOTE

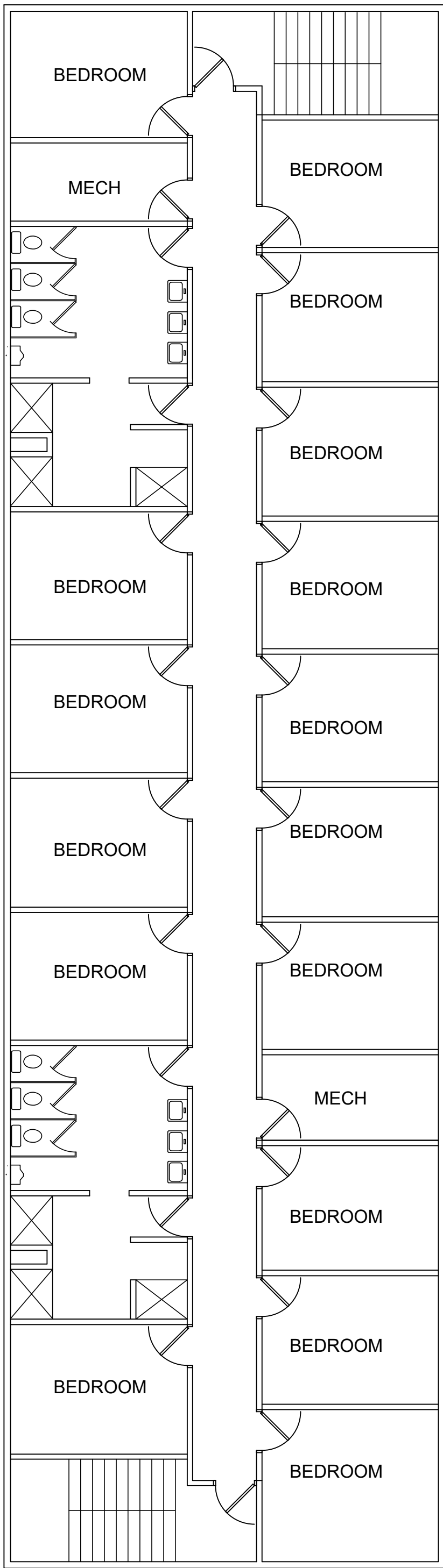
No.	SUBMISSIONS & REVISIONS	Date

CONCEPT FLOOR PLANS

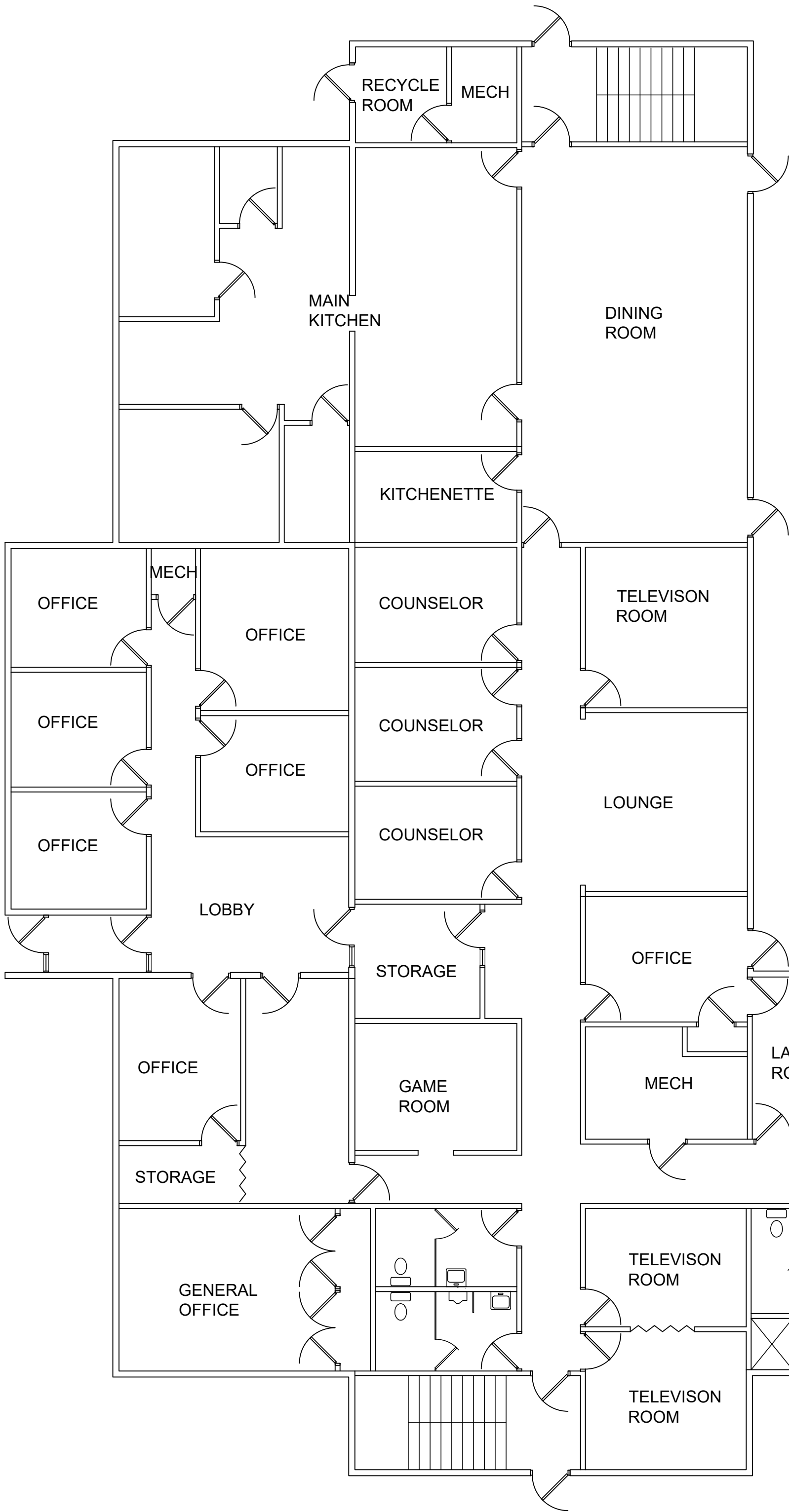
JOB NO.:	26.32.5
DATE:	8-31-2026
DRAWN BY:	MJB



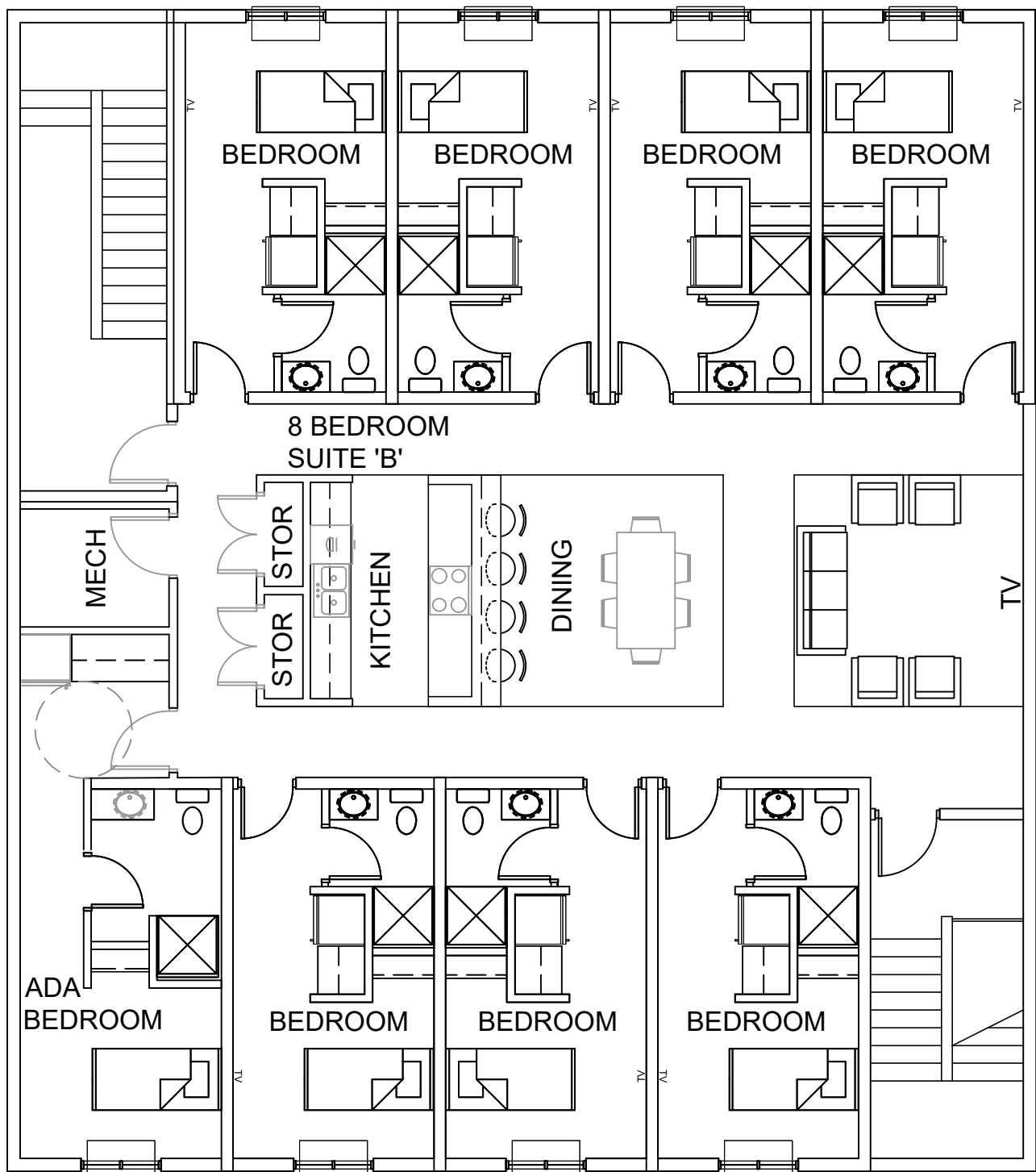
NORTH



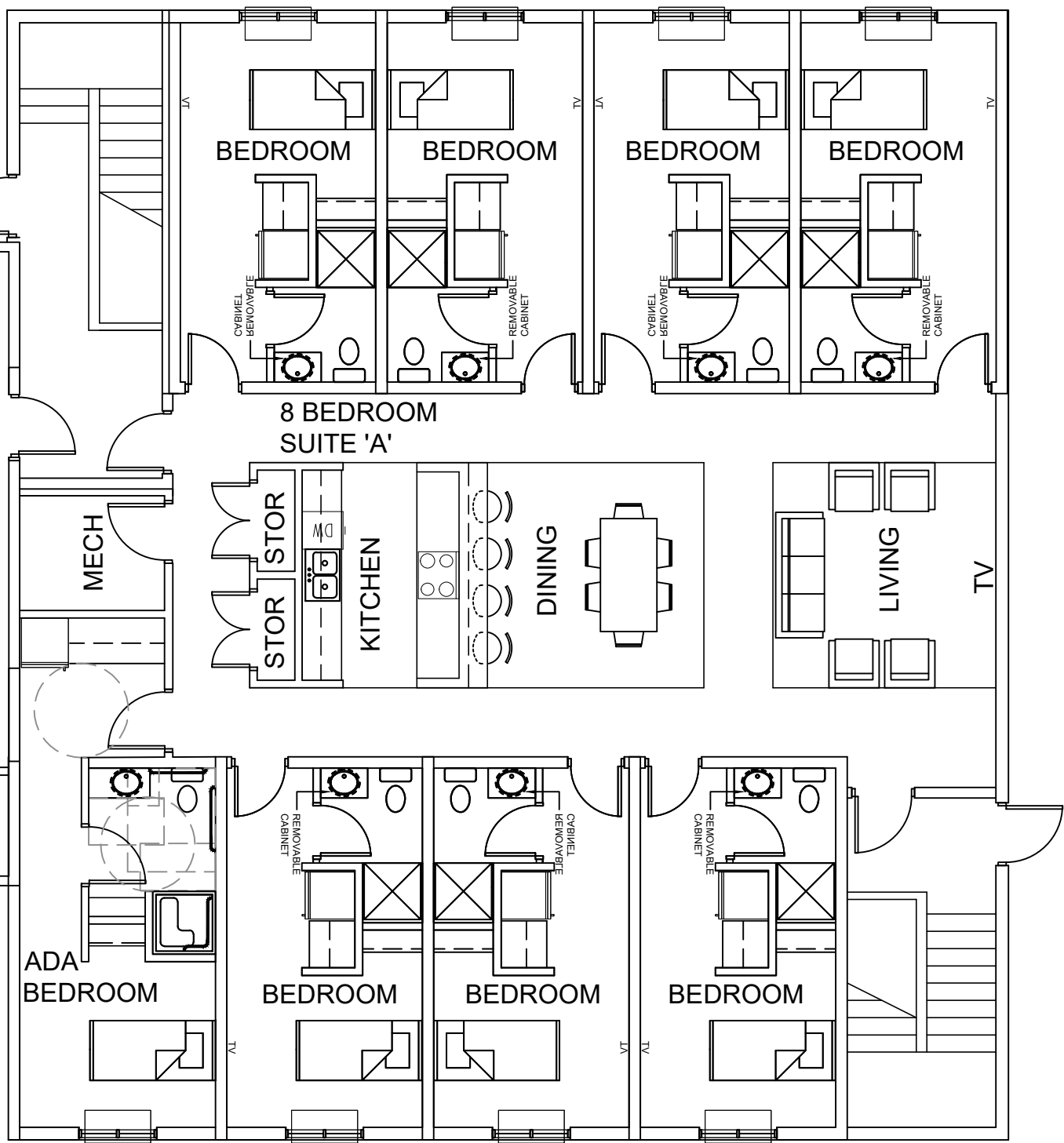
1 EXISTING 2ND LEVEL PLAN
0 4' 8' SCALE: 1/8"=1'-0"



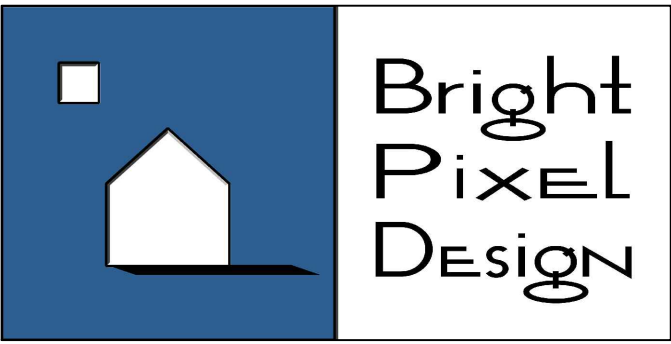
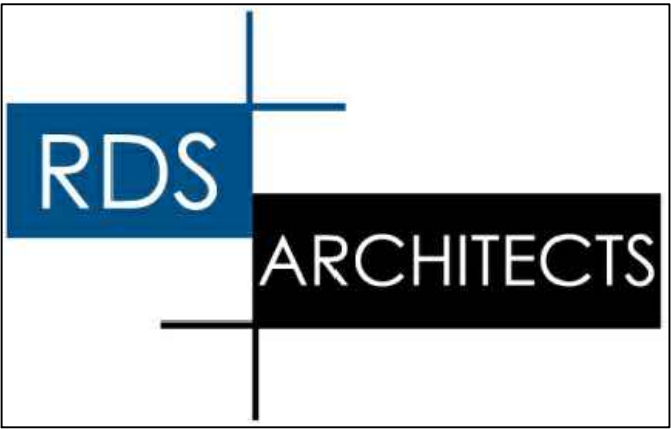
2 EXISTING FIRST LEVEL PLAN
0 4' 8' SCALE: 1/8"=1'-0"



4 PROPOSED 2ND LEVEL PLAN
0 4' 8' SCALE: 1/8"=1'-0"



EXISTING NEW
3 PROPOSED 1ST LEVEL PLAN
0 4' 8' SCALE: 1/8"=1'-0"



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MANUFACTURER'S INSTRUCTIONS AND
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PRODUCT INSTALLATIONS.

SHEET NOTES:

① NOTE

No.	SUBMISSIONS & REVISIONS	Date

**CONCEPT
RENDERING**

JOB NO.:	26.32.5
DATE:	8-31-2026
DRAWN BY:	MJB

① **PROPOSED EXTERIOR DESIGN**

MANKATO PLANNING COMMISSION & CITY COUNCIL

SUBMITTAL PACKET

Project: Proposed 16-Unit Congregate Micro-Apartment Addition

Subject Property: 1429 Third Ave, Mankato, MN 56001

Applicant: New Hope Board and Lodge LLC / Kody Schendel (KD2 Properties, LLC)

Civil Engineer / Project Lead: Bolton & Menk, Inc. (Nate Myhra)

General Contractor: Alliance Contracting (Jason Weinandt)

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1. COVER LETTER & PROJECT OVERVIEW

TO: City of Mankato Planning Commission & City Council

DATE: July 27, 2026 - Revised September 2, 2026

SUBJECT: Joint Application for Revised Conditional Use Permit (CUP) and Variance Request for 1429 Third Ave

Dear Commissioners and Council Members,

On behalf of New Hope Board and Lodge LLC and KD2 Properties, LLC, we submit this comprehensive application package for a revised Conditional Use Permit (CUP) and variance request to construct an additional 16-unit board and lodge units to our existing facility located at 1429 Third Ave.

This addition is specifically designed as supportive recovery housing for past and present residents of New Hope Board and Lodge who are stepping down into more independent, long-term recovery living while maintaining a connection to a supportive peer community.

Notably, this project is 100% privately financed by the applicant without relying on government grants, public subsidies, or outside investors. It represents a direct, private capital investment into Mankato's supportive housing infrastructure to address a critical local housing gap.

Currently, our facility is experiencing an acute capacity crisis. Due to physical footprint constraints of our existing building, we are routinely forced to turn away individuals who are committed to their recovery. This proposed 16-unit contiguous expansion directly addresses a severe regional shortage of supportive recovery housing in Blue Earth County while preserving the residential character of the neighborhood.

Respectfully submitted,

Kody Schendel

New Hope Board and Lodge LLC / KD2 Property, LLC

PO Box 123, Elysian, MN 56028

2. RESPONSES TO CITY COMMENTS (SITE PLAN & TRAFFIC ADVISORY)

In response to the City of Mankato Site Plan and Traffic Advisory Committee review comments provided on June 15, 2026, the applicant submits the following responses:

- **Water & Sewer Availability Charges (WAC/SAC) & Utilities:**

The applicant acknowledges and accepts all applicable Water Availability Charges (WAC) and Sewer Availability Charges (SAC) associated with the additional 16-unit board and lodge units. In coordination with our civil design team (Bolton & Menk, Inc.) and ahead of the planned 3rd Avenue reconstruction, the existing water and sewer service lines will be fully inspected to evaluate capacity and structural integrity. Any required utility upgrades or new service connections will be incorporated directly into the civil construction plans to meet City engineering standards.

- **Licensing, Project Scope, & Operation Type:**

The current facility operates as a licensed Rate 1 Board and Lodge. The proposed addition will provide an additional 16-unit of board and lodge-style living designed specifically to serve past and present New Hope residents. (the new units will be defined as a shared living arrangement where people have a private bedroom and

bedroom, but share common areas.) This model provides an essential transitional bridge, allowing individuals in active recovery to progress into independent micro-units while remaining connected to on-site peer support, shared services, and administrative oversight. Full operational details will be provided as required.

- **Density & Conditional Use Permit (CUP) Requirements:**

While standard R-3 Limited Multiple Dwelling District zoning permits up to 8 units per building/lot, this proposal requests a revised Conditional Use Permit (CUP) and associated density/setback variance to allow an expansion of 16 new board and lodge units. Expanding the existing contiguous footprint is critical for operational efficiency, centralized intake, shared dining/common spaces, and supervisory oversight under one roof—eliminating the need for duplicate overhead or a secondary remote facility.

- **Financial Viability & Project Execution:**

The project is entirely privately funded by the developer/owner with zero reliance on public grant cycles, government tax credits, or external private investor approval processes. This ensures immediate project readiness and reliable execution upon municipal approval.

- **Site Performance Elements:**

The revised site plan prepared by Bolton & Menk addresses all performance standards outlined in City Code. This includes engineered hard-surfacing, dedicated off-street parking calculations for micro-units, code-compliant exterior fixtures (downward-shielded dark-sky lighting), perimeter screening/landscaping buffers adjacent to surrounding properties, and dedicated outdoor amenity space for residents.

- **Security, Staffing, & Neighborhood Compatibility:**

The facility maintains direct administrative oversight during core operational hours, paired with on-site house management during evenings and weekends, continuous electronic security monitoring, controlled access keypads, and strictly enforced house rules (including zero-tolerance substance policies along with drug/alcohol screening, guest curfews, and mandatory check-ins). Surrounding neighbors have

expressed support during our recent neighborhood informational meeting on July 23, 2026.

3. CITY OF MANKATO VARIANCE QUESTIONNAIRE

We would like to formally request a variance to the rear yard setback. We would like to reduce the rear yard setback from the required 25% of the lot depth to the regular standard of 25 feet.

1. In your opinion, is the variance in harmony with the purposes and intent of the ordinance?

Yes. The intent of the R-3 district and local zoning ordinances is to ensure orderly, safe, and compatible residential development that serves community needs. Granting this variance allows an existing, legally established board and lodge to expand its contiguous footprint with 16 new board and lodge units tailored for past and present residents. Because the site operates with shared central common spaces, and administrative oversight, expanding on-site rather than constructing a separate building preserves land efficiency and keeps the visual scale compatible with the surrounding residential neighborhood.

2. In your opinion, is the variance consistent with the comprehensive plan?

Yes. The City of Mankato Comprehensive Plan emphasizes diverse housing options, redevelopment of infill properties, and micro-unit/flexible housing models for vulnerable populations. Expanding New Hope Board and Lodge with private capital directly aligns with these goals by expanding stable, substance-free housing, preventing housing instability, and supporting workforce reintegration—all within a designated mixed-density residential corridor.

3. In your opinion, does the proposal put property use in a reasonable manner?

Yes. The continuous operation of a board and lodge housing is a reasonable and established use of this property. Adding 16 new board and lodge units directly addresses a

severe capacity crisis where qualified past and present residents seeking independent recovery living are routinely placed on waitlists. Constructing an attached addition rather than purchasing a separate, detached site is the only operationally viable method to maintain shared staffing, centralized security, common dining, and unified administrative oversight.

4. In your opinion, are there circumstances unique to the property?

Yes. The primary structure was positioned centrally on the parcel prior to modern expansion needs and modern setback rules, establishing fixed access points, parking alignments, and utility corridors. The physical lot dimensions and fixed position of the existing foundation limit where new construction can attach. Forcing strict adherence to standard yard setbacks shrinks the buildable footprint to a point where an addition becomes structurally infeasible and economically unviable, creating a unique physical hardship tied directly to the property's layout.

5. In your opinion, will the variance maintain the essential character of the locality?

Yes. The property has functioned seamlessly as a board and lodge in this neighborhood. The architectural design of the proposed additional 16 board and lodge units will mirror the scale, rooflines, and exterior finishes of the existing building and neighboring multi-family structures. Parking lot and landscape buffers will ensure the expansion integrates quietly into the neighborhood without causing off-site parking congestion or altering the streetscape. Furthermore, adjacent neighborhood stakeholders have provided documented support for this proposal.

4. OPERATIONAL, SECURITY, AND STAFFING NARRATIVE

I. Overview & Facility Mission

New Hope Board and Lodge operates at 1429 Third Ave as a licensed Rate 1 Board and Lodge. The facility provides structured, supportive, and substance-free transitional housing for adults (\$18+).

The proposed new 16-unit addition consists of additional board and lodge-style units engineered specifically for past and present New Hope residents. This project fills a critical post-treatment and transitional housing gap by offering an affordable, structured step-down environment.

Centralizing this expansion within the existing contiguous structure allows for unified management, shared amenities, and continuous supervisory oversight.

II. Project Financing & Independence

- **100% Private Capital:** The construction and ongoing operation of these additional 16 units are fully self-financed by the owner/applicant.
- **No Public Burden:** The project requires no government grants, public tax subsidies, or outside investors, ensuring long-term operational stability and eliminating bureaucratic delays during construction.

III. Operational Structure & Supervisory Staffing

To ensure safety, accountability, and seamless daily operations, the facility utilizes a structured staffing model across both the primary lodge and the new lodge units:

- **On-Site Management & Administrative Oversight:** Operational leadership and program management maintain on-site office hours Monday through Friday during core daytime business hours to oversee resident activity, conduct intake assessments, and coordinate support if needed.
- **On-Site House Management:** Dedicated Resident Managers reside on-site and provide oversight during evening and weekend hours, providing a physical presence and direct point of contact for staff.
- **On-Call Emergency Coverage:** Program leadership and designated supervisory personnel are available 24 hours a day, 7 days a week via on-call to respond immediately to any operational, physical plant, or resident emergency.

IV. Comprehensive Security Protocols & Access Control

The security framework at 1429 Third Ave combines modern hardware systems with strict house policy enforcement:

- **Controlled Building Entry:** All exterior entry doors remain locked 24/7. Access is strictly controlled via electronic keypad/fob systems issued only to authorized

residents and staff. Key codes are uniquely assigned and promptly revoked upon program completion.

- Surveillance System: High-definition security cameras monitor primary building perimeter entry/exit points, common hallways, parking areas, and shared spaces. Camera feeds are monitored by staff and archived for review.
- Visitor & Guest Policies: To maintain a safe environment, guest visitation is strictly regulated. All visitors must remain accompanied by a resident in designated common areas. No unapproved overnight guests are permitted under any circumstances.

V. Residence Rules, Accountability, & Substance Policies

The core of our operational strategy is maintaining a structured, peer-supported environment that respects surrounding neighborhood properties:

- Zero-Tolerance Substance Policy: The residence enforces a strict zero-tolerance policy for alcohol, illicit drugs, and unprescribed controlled substances. Regular, unannounced drug and alcohol screenings are conducted as a condition of residency.
- Curfew & House Accountability: All residents adhere to established evening curfews (typically 10:00 PM, with adjustments for documented employment shifts). Random nightly check-ins ensure resident accountability.
- Good Neighbor Policy: Residents agree to a comprehensive Code of Conduct that explicitly prohibits loitering, outdoor smoking outside designated rear screened areas, excessive noise, and disruptive behavior. Compliance is required for continued residency.

VI. Community Liaison & Emergency Contacts

New Hope Board and Lodge is committed to being an open, responsive neighbor within the 3rd Avenue corridor:

- Direct Neighborhood Contact: Facility leadership provides adjacent neighbors and local emergency services (Mankato Public Safety) with direct cell phone contact information for the primary Facility Manager and On-Call Supervisor.
- Incident Escalation: Any neighborhood concerns or inquiries are directed to on-site management for immediate resolution.

5. CIVIL ENGINEERING & SITE PLAN SUPPORTING NARRATIVE

I. Overview & Site Integration

This narrative supports the engineering submission prepared by Bolton & Menk, Inc. for the proposed 16-unit board and lodge expansion to New Hope Board and Lodge at 1429 Third Ave. The proposed expansion is designed to integrate into the existing parcel layout, optimizing land use while fully addressing City of Mankato site performance standards, access efficiency, and utility connectivity.

II. Off-Street Parking & Circulation

- **Parking Capacity & Demand:** Because residents in recovery rely heavily on public transit, micro-mobility, and local employment within walking distance, vehicle ownership among micro-unit residents is significantly lower than standard multi-family developments. We would like the City of Mankato to consider a reduction in the required parking to 0.5 stalls per bedroom plus four employees stalls. (16 existing bedrooms (0.5 stalls per bedroom) + 16 new proposed bedrooms (0.5 stalls per bedroom) + 4 employees = 22 stalls. The site has 22 stalls.)
- **Layout & Traffic Flow:** All parking stalls are configured with standard drive aisles to ensure safe, unimpeded vehicle maneuvering, clear emergency vehicle access, and efficient trash/recycling pickup.
- **Surface & Markings:** Parking surfaces will feature full bituminous asphalt or concrete hard-surfacing, with designated stall striping and accessible stall signage conforming to ADA standards.

III. Exterior Lighting & Photometrics

- **Dark-Sky Compliance:** All proposed exterior light fixtures will be modern, energy-efficient LED luminaires equipped with full-cutoff, downward-shielded housing to eliminate upward light spill and skyglow.
- **Property Line Shielding:** Lighting layout and photometric levels are designed to provide clear, uniform illumination for resident safety along walkways, entry points, and parking lots while maintaining zero foot-candles of light trespass across adjacent residential property lines.

IV. Utility Evaluation & Services Coordination

- **Water & Sanitary Sewer Connections:** In response to feedback from the City Site Plan and Traffic Advisory Committee, the engineering design evaluates existing water and sanitary sewer service connections. In coordination with the City of Mankato's planned reconstruction of 3rd Avenue, existing utility connections will be inspected for capacity and structural integrity. Any required utility adjustments, resizing, or new taps will be integrated directly into the civil construction plans to prevent future right-of-way disruption.
- **Stormwater Management:** The site plan addresses localized drainage to ensure post-development runoff patterns match or improve upon pre-development conditions, directing surface runoff efficiently to existing municipal storm infrastructure.

V. Landscaping, Screening, & Amenities

- **Perimeter Buffering:** Landscaping buffers and decorative perimeter screening (fencing and native plantings) will be placed along sensitive lot boundaries to provide visual separation and preserve the residential character of the corridor.
- **Outdoor Amenity Space:** Dedicated outdoor green space and a rear patio area are designated for resident use, keeping outdoor gathering areas fenced from direct street view.
- **Refuse & Screening:** Trash and recycling dumpsters will be situated on a concrete pad enclosed by an opaque, architecturally compatible screening fence with latching gates.

1429 3rd Avenue PROJECT: Proposed 16-Unit Congregate Board and Lodge Addition Neighborhood Meeting Recap

1. Overview & Purpose

At the recommendation of the City Council, an informal neighborhood open house meeting was hosted at **1422 2nd Avenue (Wrestling Brotherhood)** to present plans for a proposed **16-unit micro-apartment addition** at the adjacent property (**1429 3rd Avenue**) and engage directly with surrounding property owners.

The goal was to review site plans, discuss the Conditional Use Permit (CUP) request for Congregate Housing expansion, explain day-to-day operations, and address any neighborhood questions prior to formal municipal public hearings.

2. Project Specifications

- **Subject Property:** 1429 3rd Avenue
- **Proposed Structure:** A 2-story, 16-unit addition physically connected to the existing facility.
- **Unit Layout:** Micro-apartments featuring individual private kitchenettes and private full bathrooms.
- **Common Amenities:** Centralized dining room, community lounge, private administrative meeting spaces, and an enclosed rear courtyard.
- **Requested Land Use:** Conditional Use Permit (CUP) for **Congregate Housing** under the existing multi-family zoning designation.
- **Program Model:** "Revive" independent, supportive housing serving individuals who have completed primary treatment/outpatient programming and are transitioning into long-term community independence.

3. Key Discussion Points & Neighborhood Clarifications

A. Parking & Transportation Impact

- **Neighborhood Inquiry:** Questions regarding off-street parking sufficiency and potential overflow onto adjacent streets.
- **Applicant Response:**
 - The requested CUP designation requires 0.5 parking stalls per dwelling unit, which the current site configuration satisfies.
 - Approximately 90% of program participants do not own personal vehicles or hold active driver's licenses.
 - The location is ideal for its proximity to public transit stops, bike routes, and walking access to employment and recovery support resources (e.g., local 5th Ave AA/NA Meetings).

B. Security, Resident Screening & House Rules

- **Neighborhood Inquiry:** Protocols regarding resident selection, safety oversight, and guest policies.
- **Applicant Response:**
 - **Screening:** All candidates undergo mandatory Minnesota state background checks prior to acceptance.
 - **Surveillance:** The facility is equipped with 24/7 video surveillance in all shared internal areas and exterior entry points.
 - **Drug/Alcohol Compliance:** Mandatory, 100% random drug and alcohol urinalysis screening is conducted.
 - **Rules:** Private living quarters carry a strict zero-guest policy. Nightly curfews are enforced. Relapses result in immediate discharge or managed referral with probation agents and outpatient program leads.

C. Operational Clarification

- **Applicant Response:** Clarified that the facility operates as an independent Board & Lodge framework. It is not an inpatient treatment center, medical facility, or emergency shelter. Rent is structured to remain accessible (capped at affordable out-of-pocket rates, ~\$650/month for working residents at Revive locations) to foster financial stability and permanent housing transition.

4. Neighborhood Feedback & Summary of Sentiment

- **Track Record Acknowledgment:** Neighboring property owners in attendance (including adjacent commercial and residential neighbors) noted that over the applicants' three years of ownership at 1429 3rd Avenue, the site has been quiet, clean, and well-maintained with no notable police calls or public disturbances.
- **Overall Receptivity:** Attendees expressed support for the ownership's hands-on management approach, local roots, ongoing investment in the neighborhood, and clear communication regarding the addition.

5. Conclusion

The neighborhood meeting achieved its objective of providing complete transparency, clarifying land-use intent, and maintaining open dialogue with adjacent property owners. The applicants remain committed to being accessible contacts for the neighborhood throughout the development process and ongoing operations.

**REZONING AND CONDITIONAL USE PERMIT . . . HALFWAY HOUSE IN AN R-3,
LIMITED MULTIPLE DWELLING DISTRICT . . . LOTS 6, 7, 8, AND THE WESTERLY
HALF OF LOT 9, BLOCK 16 OF MANKATO CITY . . . HOUSE OF HOPE, INC.**

Applicant

The applicant is House of Hope, Inc.

Request

The applicant is requesting a rezoning of the property from M-1, Light Industrial to R-3, Limited Multiple Family Dwelling, and a conditional use permit for a halfway house in the R-3, Limited Multiple Family Dwelling.

Location

The property is described as Lots 6, 7, 8, and the Westerly Half of Lot 9, Block 16 of Mankato City (southeast corner of the intersection of Spruce Street and 3rd Avenue).

Existing Land Use

The property is currently vacant. Surrounding land uses include a variety of commercial and residential uses.

Land Use Plan

The City's Land Use Plan designates this area as Light Industry.

Zoning

The site is zoned M-1, Light Industrial.

Floodplain

The site is not located in a floodplain.

Environmentally Sensitive Areas

The site is not located in an environmentally sensitive area.

Public Utilities

Public utilities are available to the property.

Parking

The required parking for the development is one space per every four beds. There will be a total of twenty-five beds within the facility. The development will have 10 employees on a major shift. One parking stall is required for every three employees. The depicted parking on the plan should be adequate.

Site Plan Review Committee

The Site Plan Review Committee reviewed the proposal on May 21, 1997, and made the following comments:

1. The building is sprinkled.
2. A revised landscaping plan shall be submitted which depicts more plantings around the building.
3. The petitioning on improvements of Spruce Street from 2nd Avenue to 3rd Avenue and the alley from Spruce Street to Maxfield Street shall be done.
4. A signage plan shall be submitted.
5. A drainage plan shall be submitted.
6. All parking shall meet City standards.

Review

House of Hope, Inc. is requesting a rezoning of the property from M-1, Light Industrial to R-3, Limited Multiple Dwelling, and a conditional use permit to allow a halfway house in the R-3, Limited Multiple Dwelling District. House of Hope, Inc. is proposing to move its facilities from Fulton Street to the proposed location. They have expressed an interest to do so because they have outgrown their current facilities and also wish to expand the use of the facility. Currently, House of Hope, Inc. is a halfway house for those who have drug or alcohol problems. They also wish to house work release and intensive supervised release inmates from the Department of Corrections.

It is staff's believe that the proposed use would be a buffer between commercial and residential uses. Neighboring properties are zoned R-1, One-Family Dwelling District and R-3, Multiple Family Dwelling District. In addition, the parcel has remained vacant for a considerable amount of time; therefore, staff would recommend rezoning the property.

The building on the site is approximately a 10,000 square foot building which will be sprinkled. The development meets the maximum allowable lot coverage including future expansions and storage areas. There will be 14 two-bedroom units and one handicap unit. There will be a total of seven offices for staff and approximately ten employees on a major shift. The site is providing the necessary amount of parking stalls, and a building for storage purposes. Landscaping is being shown with a variety of plantings. Staff recommends that the proposed landscaping be revised in order to implement additional plantings around the building. The necessary walkways and open space areas are being shown.

With the project, the City is requiring that improvements be made to Spruce Street and the abutting alley, and that the applicant petition for such improvements which include curb and gutter for Spruce Street and the hardsurfacing of the alley. With the addition of impervious surfacing and drainage from the building, staff is requesting that a drainage plan be submitted for the site.

The current site plan is in need of setback alterations that have to be made and a revised site plan must be submitted before the item is forwarded to the City Council for their review. Staff feels that there is sufficient room on the property to meet the necessary setback requirements.

Recommendation

Staff recommends approval of the rezoning.

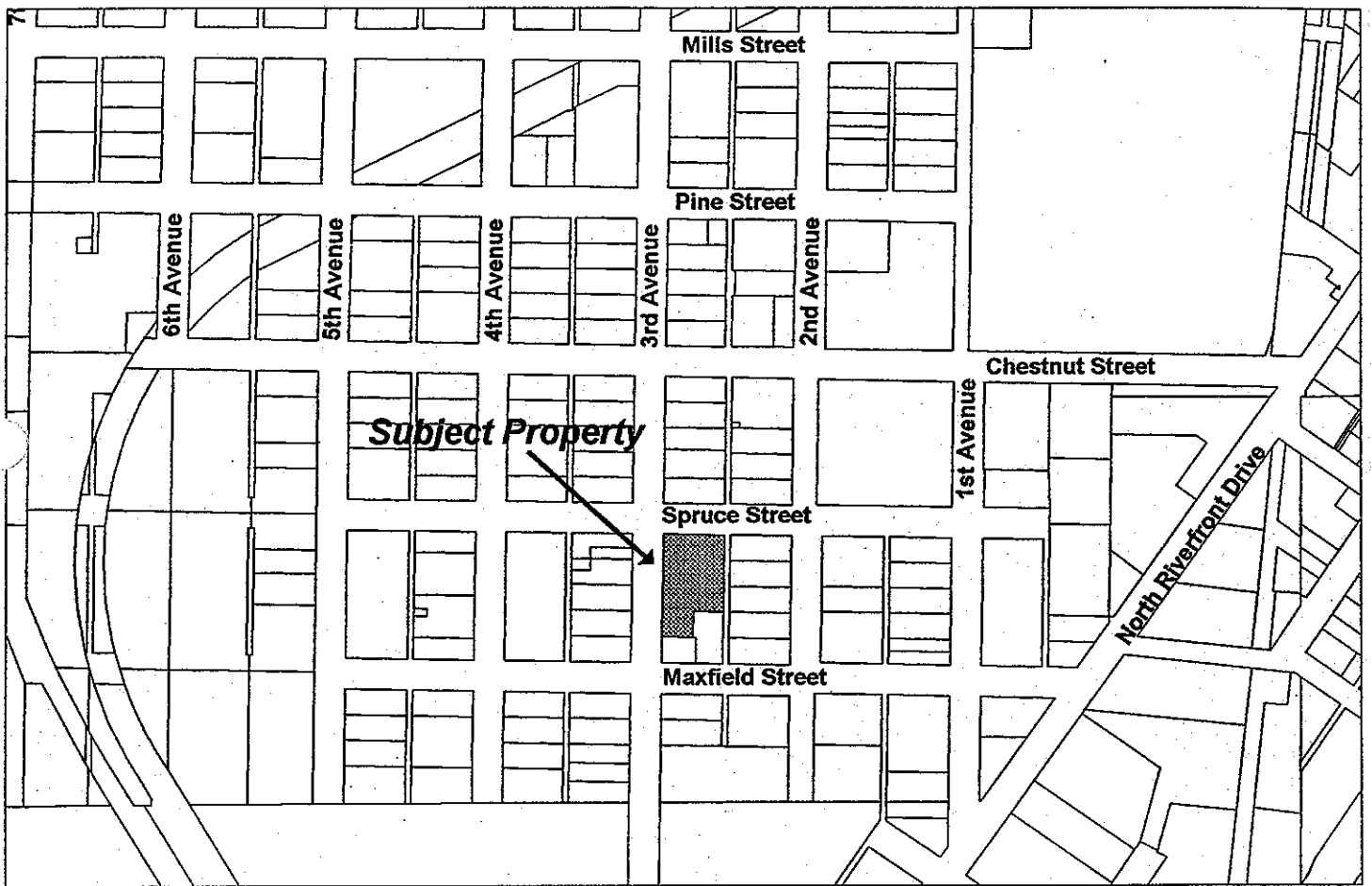
Staff recommends approval of the conditional use permit with the following conditions:

1. A landscaping plan shall be submitted to the Planning & Zoning Administrator for review and approval. Once the landscaping plan has been approved, it shall be implemented and maintained.
2. Signage shall comply with Section 10.87 of the City Code.
3. A lighting plan shall be submitted to the Planning & Zoning Administrator for review and approval. The lighting plan shall depict lighting away from neighboring properties.
4. All trash and recyclable material containers shall be located in enclosures which shall be constructed with materials which are similar and complementary to the materials found on the main buildings.
5. A drainage plan shall be submitted to the City Engineer for review and approval.
6. The improvement of Spruce Street from 3rd Avenue to 2nd Avenue and the alley adjacent to the property from Spruce Street to Maxfield Street shall be petitioned.
7. Parking for the development shall meet City standards. The City may require additional parking if the use exceeds what is required.

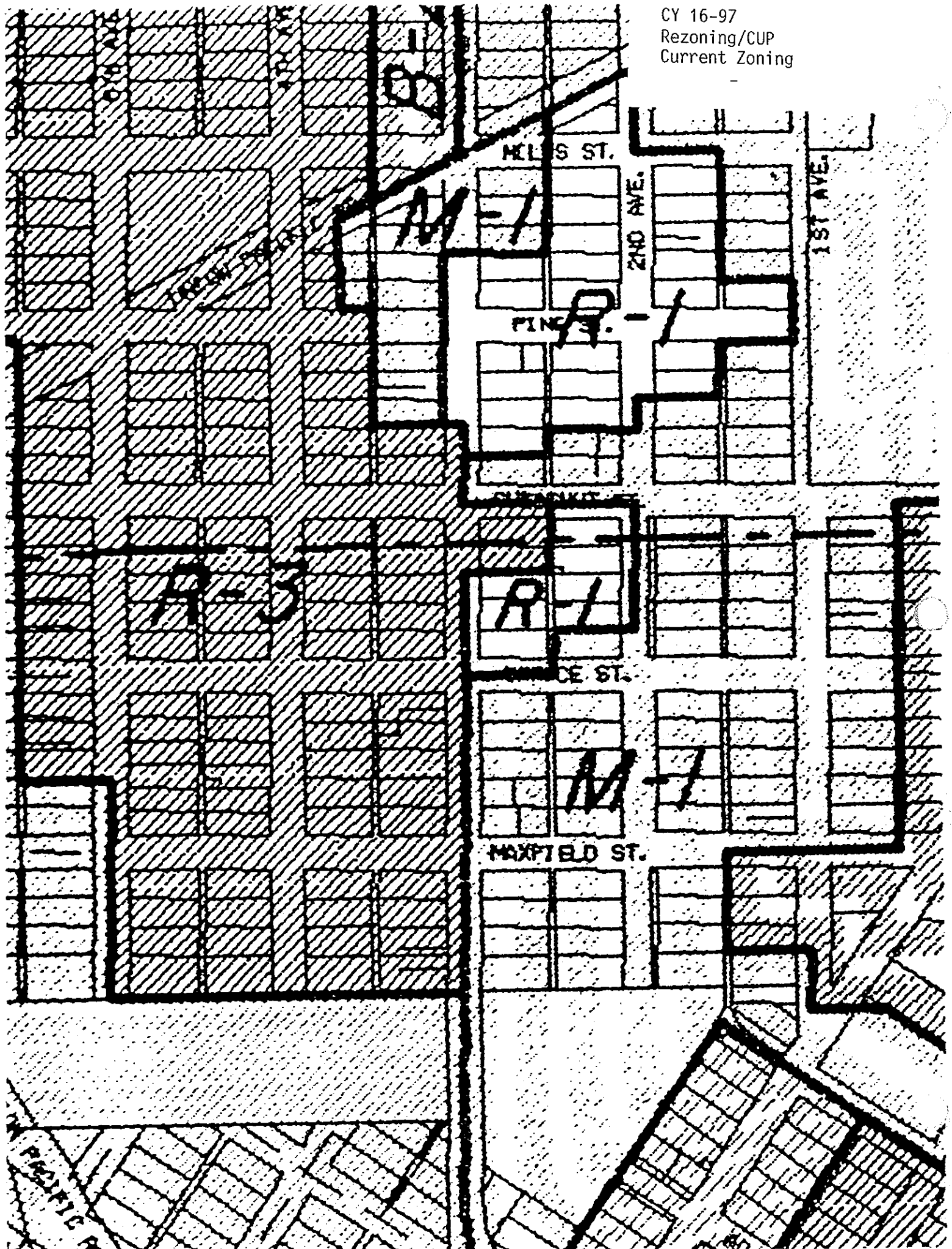
Attachments

1. General Location Map
2. Current Zoning
3. Proposed Zoning
4. Site Plan
6. Larry Norland Letter

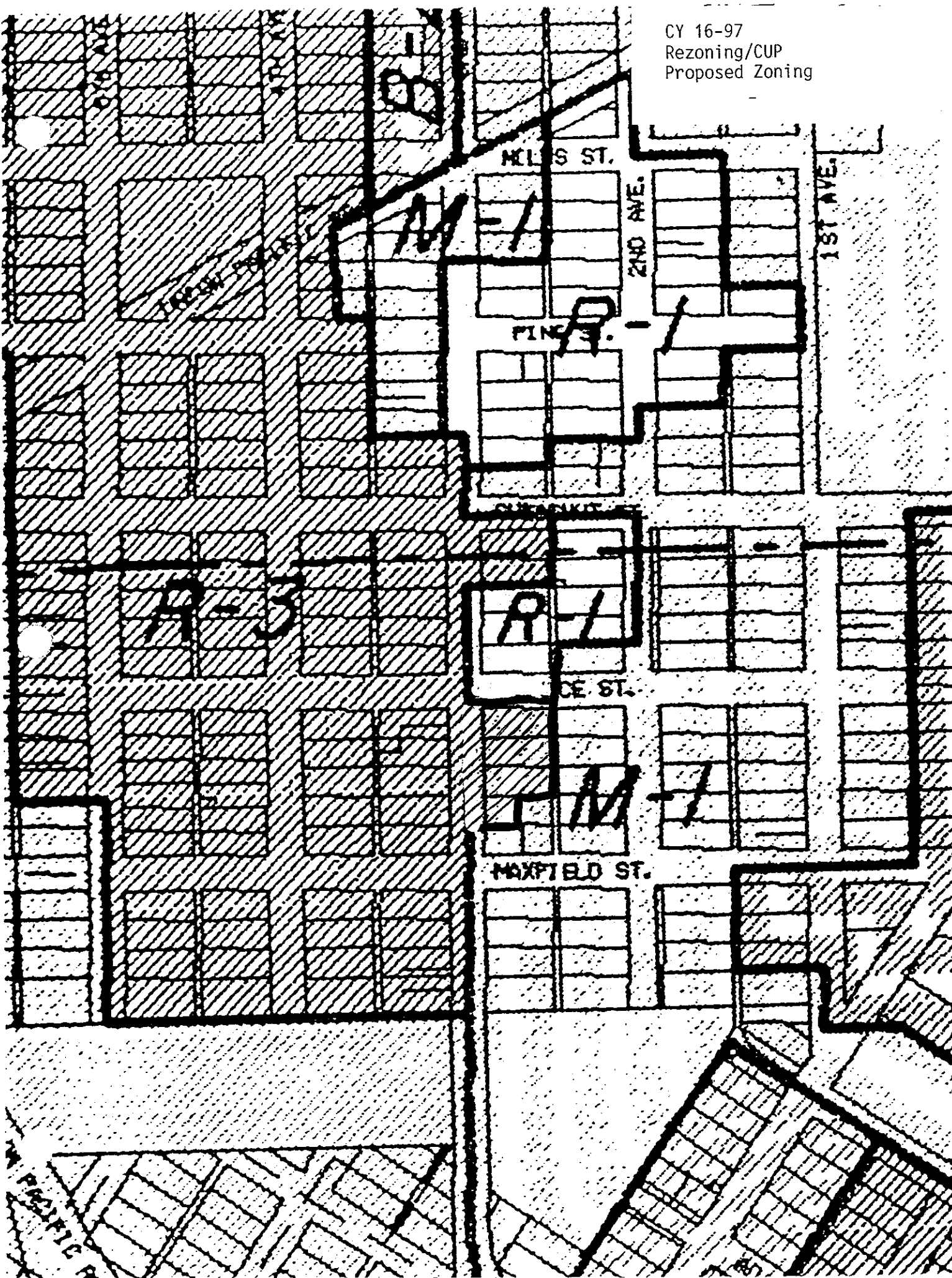
CY 16-97
Rezoning/CUP
General Location Map



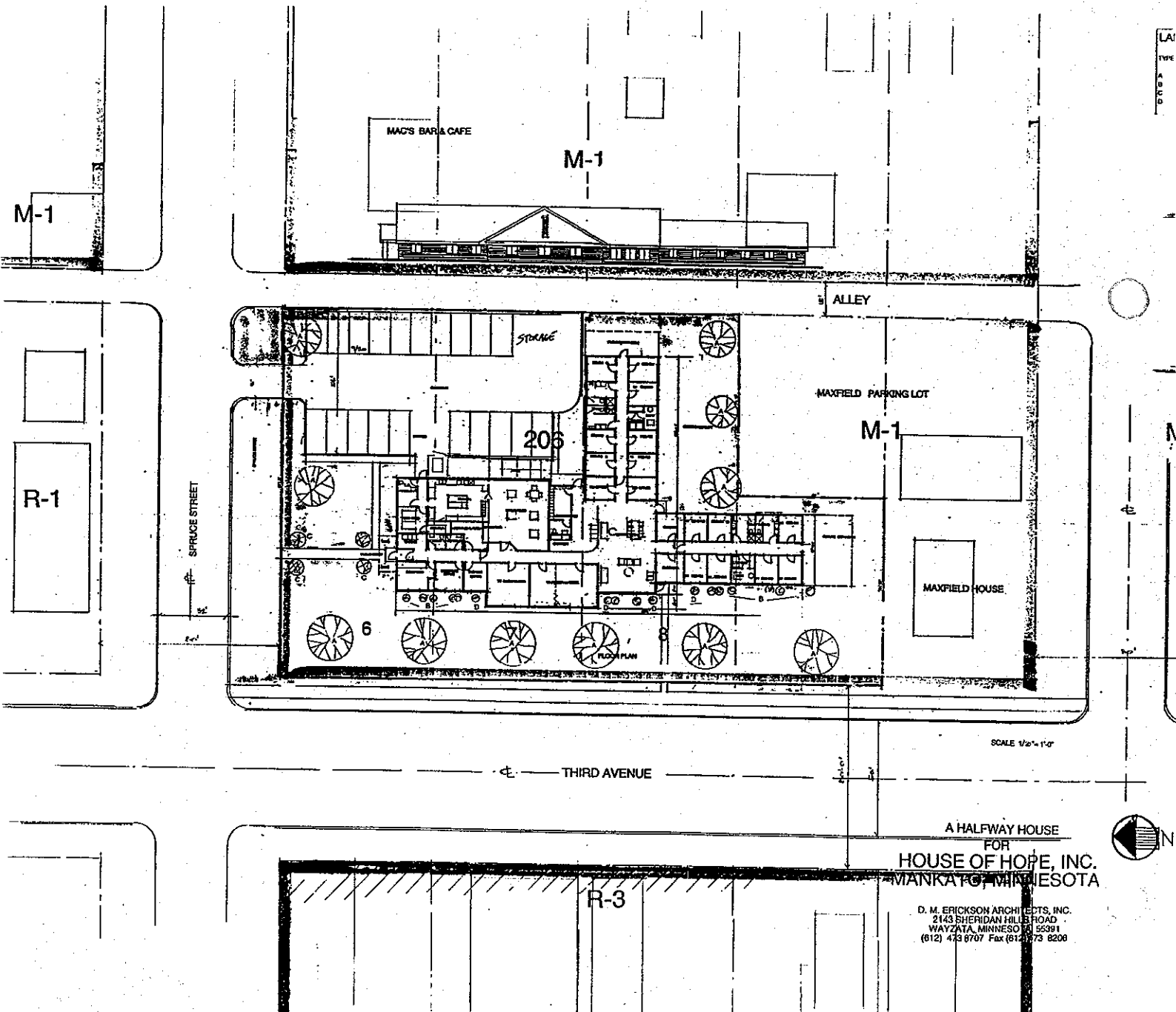
CY 16-97
Rezoning/CUP
Current Zoning



CY 16-97
Rezoning/CUP
Proposed Zoning



CY 16-97
Rezoning/CUP
Site Plan



REQUEST, PROJECT DESCRIPTION AND JUSTIFICATION

HOUSE OF HOPE, INC.
119/121 Fulton Street
Mankato, MN 56001

CY 16-97
Rezoning/CUP
Larry Norland Letter

A Brief Background and History

House of Hope began in 1971 as a halfway house for recovering alcoholic men mainly from the Mankato area. Early records show there was also a contract with the State of Minnesota, Department of Corrections, to accept referrals from them.

My tenure as Director began in June, 1982. The typical resident at that time was a 32 to 42 year old male. The older men were the "typical" alcoholic with alcohol being their only choice. The younger residents typically used alcohol and some other drug or drugs, with marijuana being the usual drug other than alcohol. With alcohol being the least expensive, and legal, that was most common and is also currently. The last few years we have been seeing more cocaine, crack cocaine, and LSD in addition to the alcohol and marijuana. The average age of residents is now more mid-twenties.

Due to fluctuating funding, consistent referrals from counties has become more and more unpredictable in the last few years. Just before I started as Director in 1982, my successor had secured a contract with the VA Medical Center in St. Cloud. During the 15 years I have been with HOH we experimented with a small halfway house in some rental property for chemically dependent women. We closed it after 2 years because of lack of funding and few referrals. During the last 10 years we expanded the VA referrals by adding the VA Medical Center in Tomah, Wisconsin. For a few years we had a contract with the Federal Bureau of Prisons and accepted referrals from them for approximately four years. About seven years ago I negotiated a contract with the State of Minnesota, Department of Corrections. In the last 5 years that contract is what has kept HOH in operation. The county funding and the VA referrals are not consistent enough to count on solely to operate the HOH. In 1988 we purchased our second house at 121 Fulton and expanded from 10 beds to 17 beds. Still, at times, there is a need for more bed space - at least 24 to 26.

Over the years we have had to be adaptable, flexible, creative, and willing to diversify in order to stay in existence. The Board of Directors and I, as well as the rest of the staff, believe in the halfway house concept and mission. Because of our beliefs we have persevered, overcome difficulties and obstacles and kept a viable program in operation.

Clients

We accept referrals from:

1. Any county in Minnesota
2. Any other state if funding is available
3. The VA Medical Centers in St. Cloud, MN and Tomah, WI (temporarily inactive)
4. The State of Minnesota, Department of Corrections
5. Vinland Treatment Center, Loretto, MN (which specializes in the brain-injured patient)

Our current conditional use permit with the City of Mankato limits us to accepting only residents who have alcohol or drug problems. On occasion we have requests for residents who don't necessarily have a chemical problem but need a structured environment. In our request I will ask for a conditional use permit that won't limit us to just the chemically dependent resident. If we get approval for the new site and building I would also attempt to secure a contract with the Federal Bureau of Prisons again and reactivate the VA Contract from St. Cloud and Tomah.

With the Department of Corrections, there are two types of clients we work with: work release inmates and intensive supervised release inmates. The work release inmates have served the majority of their sentences in a State Correctional Facility such as Faribault or Stillwater. If they qualify for work release they are released to a facility such as House of Hope to finish out their sentence, a period of 3 to 8 months, in order to secure a job and a place to live. They are still considered inmates and are under the jurisdiction of the Department of Corrections. They have to follow strict guidelines and rules or they could be returned to the State Institution they came from to finish out their sentences. Typical offenses include various degrees of felonious burglaries, assaults, forgeries and drug violations. The intensive supervised inmates are both different and similar. Their crimes are usually more serious and their stays in the halfway house are of shorter duration- anywhere from 1 to 3 months. They also have to secure employment and a place to live, however they have been discharged from a State Correctional facility and have ended their sentences. They remain on probation, however, with a State Correctional Probation Officer and are under close supervision. Sometimes they are also put on electronic monitoring while they are a resident. Typical offenses include the same as work releasees but may include aggravated assaults (a weapon was used or the victim was injured), vehicular homicides, certain degrees of criminal sexual conduct and/or terroristic threats. To clarify the criminal sexual conduct charges, HOH screens these very carefully.

All referrals are carefully considered and examined individually, including the criminal sexual conduct cases. If a prospective client is considered a "sexual predator" they are declined admission. However, if the sexual misconduct charges were inter-familial, happened on only one or two occasions, and the perpetrator was intoxicated or high during the offense, we may admit the person. This type of client would also have participated in some form of treatment successfully while incarcerated to be considered for admission. We also may accept a resident that has had a sexual relationship with someone not of legal age as long as the ages of the victim and perpetrator are similar and the relationship was consensual. HOH staff take very seriously the responsibility of accepting only those residents that pose little, low or no risk to the staff, fellow residents and citizens of the community.

CONCLUSION

The House of Hope Board of Directors and Staff believe we have evolved into a program that is no longer suitable for our location or the two houses out of which we operate. We believe we have found a more suitable location on Third Avenue and feel it is time to build a facility that is designed with the space we need for our mission, program and operation.

A RESOLUTION OF THE CITY COUNCIL
APPROVING A CONDITIONAL USE PERMIT UNDER
THE MANKATO ZONING ORDINANCE

WHEREAS, House of Hope Inc., purchaser of the following described real estate located in Mankato, Minnesota, to-wit:

Lots 6, 7, 8, and the Westerly Half of Lot 9, Block 16 of Mankato City;

has applied for a conditional use permit to allow a halfway house in a R-3, Limited Multiple Family Dwelling District; and

WHEREAS, the Planning Commission of the City, on the 28th, of May, 1997, following proper notice, held a public hearing regarding the request, and following said public hearing, adopted a recommendation that the request for a conditional use permit be approved; and

WHEREAS, the minutes of such public hearing and recommendation of the Commission have been presented to the City Council; and

WHEREAS, based upon the Planning Agency report, minutes and recommendation, the City Council hereby finds that:

1. The establishment of the proposed use will not impede nor be incompatible with the goals of the City Land Use Plan.
2. The use of the site for the proposed activity will not be injurious to the use and enjoyment of adjacent property.

NOW, THEREFORE, BE IT RESOLVED by the Mankato City Council, that the request for a conditional use permit to allow a halfway house, is approved, subject to the following conditions:

1. A landscaping plan shall be submitted to the Planning & Zoning Administrator for review and approval. Once the landscaping plan has been approved, it shall be implemented and maintained.
2. All trash and recyclable material containers shall be located within a trash enclosure which shall be constructed with materials which are similar and complementary to the materials found on the main buildings.
3. An exterior lighting plan shall be submitted to the Planning & Zoning Administrator for review and approval. The lighting plan shall depict lighting away from neighboring properties.
4. Signage shall comply with Section 10.87 of the City Code.
5. A drainage plan shall be submitted to the City Engineer for review and approval.
6. A signed petition for the improvement of Spruce Street from 3rd Avenue to 2nd Avenue and the alley adjacent to the property from Spruce Street to Maxfield Street shall be submitted to the City Engineer.

7. Off Street parking for the development shall meet City Standards. The City may require additional parking if the use exceeds what is required.
8. Clients from the Department of Corrections that are not classified as chemically dependant, shall be limited to only those individuals serving sentences for property crimes, such as theft or damage to property. Individuals convicted of crimes against a person (such as homicide, assault, robbery, or sex crimes) shall not be allowed in the facility, unless classified as chemically dependant and participating in the residential treatment program.

The Council reserves the right to review the correctional component of the facility in the future. The Council may allow additional classes of supervised release inmates at the facility or further limit the types of supervised release inmates. The decision to expand or limit the correctional component will depend on the impact of the program on the community.

This resolution shall become effective immediately upon its passage and without publication.

Passed this 23rd day of June, 1997.

Stan T. Christ
Mayor

Attest: Janell L. Golett
Acting City Clerk

**CITY OF
MANKATO**

**CITY COUNCIL
AGENDA RECOMMENDATION**

TO: Patrick Hentges, City Manager

DATE: June 16, 1997

FROM: Paul Vogel, Planning & Zoning Administrator *PV*

SUBJECT: Rezoning & Conditional Use Permit - House of Hope, CY 16-97

Agenda Recommendation:

The following actions were recommended by the Planning Commission at their May 28, 1997, meeting:

1. Adoption of an ordinance rezoning Lots 6, 7, 8, and the Westerly Half of Lot 9, Block 16, Mankato City, from a M-1, Light Industrial District, to a R-3, Limited Multiple-Family Dwelling District.
2. Adoption of a resolution granting a conditional use permit to allow a halfway house in the R-3, Limited Multiple-Family Dwelling District, with the following seven conditions:
 - a. A landscaping plan shall be submitted to the Planning & Zoning Administrator for review and approval. Once the landscaping plan has been approved, it shall be implemented and maintained.
 - b. Signage shall comply with Section 10.87 of the City Code.
 - c. An exterior lighting plan shall be submitted to the Planning & Zoning Administrator for review and approval. The lighting plan shall depict lighting directed away from neighboring properties.
 - d. All trash and recyclable material containers shall be located in enclosures which shall be constructed with materials which are similar and complementary to the materials found on the main buildings.
 - e. A drainage plan shall be submitted to the City Engineer for review and approval.
 - f. A signed petition for the improvement of Spruce Street from 3rd Avenue to 2nd Avenue and the alley adjacent to the property from Spruce Street to Maxfield Street shall be submitted to the City Engineer.
 - g. Off-street parking for the development shall satisfy zoning standards. The City may require additional parking if the demand exceeds the standards.

Background/Summary:

House of Hope, Inc., is requesting a rezoning of the subject property from M-1, Light Industrial, to R-3, Limited Multiple Dwelling, and a conditional use permit to allow a halfway house in the R-3, Limited Multiple Dwelling District. The subject property is located at the southeast corner of Spruce Street and Third Avenue, and is currently vacant.

House of Hope, Inc., is proposing to move its facilities from Fulton Street to the proposed location because they are seeking to serve a greater number of clients and expand their service to include conditional release inmates from the Department of Corrections. The current facilities on Fulton Street serve a maximum of 17 individuals, all chemically dependant men. The new facility will serve up to 29 individuals and will have 10 employees. The new facility will house a mix of work and intensive supervised release inmates with and without chemical dependency problems. This changes the House of Hope operation in Mankato by adding a purely correctional component to the facility. The existing House of Hope does house supervised release inmates, but only if the inmates are being treated for chemical dependency problems.

Since the number of individuals in the proposed facility exceeds 16 persons and the use is partially classified as a correctional facility, the use is not a protected state licensed residential facility. State Statute requires that residential treatment facilities, licensed by the Department of Human Services, must be allowed in cities if the use serves 16 or fewer adults. Residential treatment programs for chemically dependant individuals are licensed by the Department of Human Services and must be allowed if they serve 16 or fewer individuals. However, the proposed facility will serve more than 16 persons and the correctional component is not licensed by the Department of Human Services. The correctional component will be licensed by the Department of Corrections.

The proposed building is approximately 10,000 square feet and will be sprinkled. The development meets the maximum allowable lot coverage including future expansions and storage areas. There will be 14 two-bedroom units and one disability unit. There will be a total of seven offices for staff and approximately ten employees on a major shift. The site is providing the necessary number of parking stalls. A small accessory building is also provided for storing maintenance supplies. Landscaping is being shown with a variety of plantings. Staff recommends that the proposed landscaping be revised in order to implement additional plantings around the building. The necessary walkways and open space areas are also shown.

With the project, the City is requiring that improvements be made to Spruce Street and the abutting alley. The improvement to Spruce Street involves total reconstruction from Third Avenue to Second Avenue and the installation of storm sewer. The improvement to the alley will involve regrading and hardsurfacing. These projects were not included in the Capital Improvements Plan, but are being triggered because the drainage in the area is insufficient and the proposed development would exacerbate the drainage problems.

A revised site plan has been submitted and is included with this report.

Background/Summary: (continued)

At the Planning Commission meeting, staff stated their opinion that the proposed use would be appropriate as a buffer between existing commercial/industrial and residential uses. Neighboring properties are zoned R-1, One-Family Dwelling District, R-3, Multiple Family Dwelling District, and M-1, Light Industrial District. As the property is currently zoned, such uses as a concrete mixing plant, building yards, and contractor's yards would be permitted.

Several neighbors testified at the Planning Commission meeting and stated their objections to the proposed use. The most common concern was that the proposed use may be detrimental to the neighborhood and may be incompatible with Mac's Bar, which is located across the alley. A copy of the hearing minutes is attached.

Alternatives:

In addition to the recommended action from the Planning Commission, the following alternatives exist:

1. Deny the request. Denial must be based on findings that the rezoning or proposed use are not appropriate for the property, would have detrimental effects on other uses in the vicinity, and would be contrary to the goals of the Land Use Plan.
2. Approve the request subject to the recommended conditions, and limit the use to a residential treatment program for chemically dependant men. Inmates from the department of corrections could still be housed in the facility, but only if classified as chemically dependant. This would be the same type of use that is currently located in the facilities on Fulton Street.
3. Approve the request subject to the recommended conditions, and limit the type of correctional client, that is not classified as chemically dependant, to those individuals serving sentences for property crimes, such as theft or damage. Individuals convicted of crimes against a person (such as homicide, assault, robbery, or sex crimes) would not be allowed in the facility, unless they were classified as chemically dependant.

Under this option, the Council may also reserve the right to review the correctional component of the facility in the future. At that time, the Council may allow additional classes of supervised release inmates at the facility or further limit the types of supervised release inmates. The decision to expand or limit the correctional component would depend on the impact of the program on the community.

Fiscal/Budget Impact:

There are no fiscal or budgetary impacts associated with this request.

Attachments

cc: Jan Schmitt, Acting City Clerk

Background/Summary (continued)

At the Planning Commission meeting, staff stated their opinion that the proposed use would be appropriate as a buffer between existing commercial/industrial and residential uses. The proposed use would be located on the east side of the property, which is currently vacant, such use as a corporate parking lot, and commercial yards would be permitted.

Staff also stated that the Planning Commission meeting staff stated their opinion that the proposed use would be appropriate as a buffer between existing commercial/industrial and residential uses. The proposed use would be located on the east side of the property, which is currently vacant, such use as a corporate parking lot, and commercial yards would be permitted.

Staff also stated that the Planning Commission meeting staff stated their opinion that the proposed use would be appropriate as a buffer between existing commercial/industrial and residential uses. The proposed use would be located on the east side of the property, which is currently vacant, such use as a corporate parking lot, and commercial yards would be permitted.

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Staff also stated that the Planning Commission meeting staff stated their opinion that the proposed use would be appropriate as a buffer between existing commercial/industrial and residential uses. The proposed use would be located on the east side of the property, which is currently vacant, such use as a corporate parking lot, and commercial yards would be permitted.

Old Business - CY 51-96 (Cont'd)

MOTION. Mr. Knapp moved to approve the amendment to the final plat. The motion was seconded by Mr. Sundborg, and carried unanimously.

Council Agenda Date: Pending completion of Subdividers Agreement.

**CY 11-97 Vacation of Future Interest for Right-of-Way Purposes . . .
 Portion of South Riverfront Drive . . . Honeymead Products
 Company**

Mr. Vogel stated that staff recommended that this item be tabled until the June meeting because a proposal has not yet been finalized.

MOTION. Mr. Sundborg moved to approve tabling of the vacation. The motion was seconded by Mr. Knapp, and carried unanimously.

5. NEW BUSINESS.

**CY 16-97 Rezoning and Conditional Use Permit . . . Lots 6, 7, 8, and
 the Westerly Half of Lot 9, Block 16 of Mankato City . . .
 House of Hope, Inc.**

Mr. Potter presented the staff report. He stated that the applicant is proposing to move its facilities from Fulton Street to the proposed location because they have outgrown their current facilities and also wish to expand the use of the facility. Currently, House of Hope, Inc. is a halfway house for those who have drug or alcohol problems; however, they also wish to house work release and intensive supervised release inmates from the Department of Corrections. Staff felt that the proposed use would be a buffer between commercial and residential uses. Staff recommended that the proposed landscaping be revised in order to implement additional plantings around the building. Mr. Potter noted that with the project the City is requiring that improvements be made to Spruce Street and the abutting alley, and that the applicant petition for such improvements which include curb and gutter for Spruce Street and the hardsurfacing of the alley. He pointed out that there is sufficient room on the property to meet the necessary setback requirements. Staff recommended approval the rezoning. Staff also recommended approval of the conditional use permit with seven conditions.

Chair Farnham asked about the State requirements. Mr. Vogel responded that House of Hope, Inc. is required to be licensed.

New Business - CY 16-97 (Cont'd)

Mr. Sundborg inquired as to why additional parking would be needed (condition #7). Mr. Potter replied that the parking is adequate, since not many of the residents drive. However, if demand is greater than zoning requirements the condition would enable the City to require additional parking.

Mr. Oakey questioned the reconstruction of Spruce Street. Mr. Potter stated that certain property owners, about thirty-five percent (35%), would need to sign a petition to allow this reconstruction.

Mr. Oakey reviewed the zoning in the area. Mr. Vogel noted that the use would be allowed as a conditional use as long as the area is rezoned.

Mr. Knapp wondered what qualified as an M-1, Light Industrial District. Mr. Vogel reported on what was allowed in the M-1, Light Industrial District.

Larry Norland, 716 Lake Street, North Mankato, applicant, presented a brief history of where House of Hope, Inc. stands today. He explained that they have the option of taking in more residents; therefore, they would like to expand the facility. He was available to answer any questions.

Mr. Sundborg wondered if most of the residents were from the Mankato area. Mr. Norland responded yes, unless they had petitioned otherwise. Mr. Norland indicated that most get sent to the County of commitment; however, some end up relocating to the Mankato area after they have been through the program.

Mr. Knapp asked what the house rules were. Mr. Norland stated that there are rules. The goal of the program is to phase the residents into their roles of society as they leave the facility.

Mr. Bernhagen wondered about the number of resident requests. Mr. Norland pointed out that on occasion he gets several referrals and requests, in any case he has the right to refuse any or all of them.

Mr. Knapp questioned the idea of a bar being located across the alley. Mr. Norland felt that the bar would be considered a testing ground and that all recovering alcoholics will have the temptation no matter where a bar is located.

New Business - CY 16-97 (Cont'd)

Mr. Norland stated that the first requirement is that the residents find a job, if they are able to work. He specified that either they are working or we do not have them, especially those who are from corrections. He stressed that correction's people have to be accountable every four hours.

Mr. Oakey inquired as to financing and if there were a lot of refusals. Mr. Norland stated that he does turn people down. He mentioned that the funding for the program has not always been there, so they had to adapt as they went along. He indicated that House of Hope, Inc. was a private nonprofit company.

Mr. Oakey was concerned about visitors parking. Mr. Norland stated that there was a time limit on visiting; thus, he did not feel there would be a problem. Mr. Norland noted that only five of the residents out of seventeen on Fulton Street currently have cars.

Mr. Harder commented that he knew the residents would be on the honor system, but he was concerned with the fact that there is a bar and a park close by. He asked Mr. Norland what they looked for when picking a site.

Mr. Norland stated that their goal was to get everything under one roof, even though that has not been possible.

Mr. Harder wondered how the neighbors that lived near their current location felt about the facility. Mr. Norland stated that the neighbors have asked the residents on several occasions to help mow their lawns, shovel snow, and do other miscellaneous things. Mr. Norland stated that they have not had any problems.

Chair Farnham commented that there are many halfway houses and group homes in the Lincoln Park area, generally people can hardly tell that they are there.

Mr. Sundborg was concerned with the expanding on the types of people the home takes in. He asked if there were any other homes in town that currently take in people from corrections.

Mr. Norland clarified that House of Hope, Inc. is primarily for residents with alcohol or drug problems. He stated that they were the only facility in Mankato that he knew of that worked with the Department of Corrections.

New Business - CY 16-97 (Cont'd)

Mr. Bernhagen asked what criteria was used to turn down clients. Mr. Norland stated that they do not get sex offenders or those that are showing signs of rebellious behavior; thus, everyone is screened.

Mr. Oakey asked about the success rate of the residents. Mr. Norland felt that at least eighty percent (80%) of the residents make it through the program and back into society.

Mr. Oakey wondered what staff's responsibilities were. Mr. Norland explained his staff's responsibilities and indicated that they were all professionals. Mr. Norland also pointed out that they have used other services in the Mankato area if they are needed.

Ken Devney, 204 Clover Lane, stated that he owns a house across the alley from the proposed site and that he is concerned about the resale of the house if the zoning is changed. Mr. Vogel noted that Mr. Devney's property would not be affected in the rezoning because it does not abut the subject property.

Kay Dauffenbach, 1503 3rd Avenue, was opposed to the construction of the facility. She commented that she lives alone and so do several others in the neighborhood. She also expressed a concern about children in the area.

Gary McNab, RR1 Box 309, Madison Lake, stated that he was very open minded and believed that everyone deserves a second chance. He addressed several questions, such as: What is the top of the scale on the severeness of a crime? Are residents specifically from our County/State and do they have to meet special requirements? He felt that even though the facility is not considered a "babysitter" they better be able to keep things controlled. He indicated that most of his customers were not in favor of the idea and said that they would not stop at his establishment if this facility is approved. Mr. McNab stated that he has talked to several of the neighbors and they are all concerned. He inquired as to what the tax structure was going to be. Mr. McNab commented on the drainage in the proposed area and wondered what the costs would be for curb and gutter, etc. He asked the Commission to consider if they would feel comfortable having this facility in their neighborhood.

Chair Farnham commented on how she would feel if this facility was in her neighborhood. She stated that she currently lives in an area where similar facilities are located. She felt that most of the people in the area do not even know the facility is there.

New Business - CY 16-97 (Cont'd)

Mr. Knapp thought that his neighborhood was similar, since several homes in his neighborhood are located next to a home that deals with the handicapped. He stated that they have been good neighbors and have lived in the area a long time.

Mr. McNab felt that this would not be a good site since he was in the bar business and some of the people in this particular facility will have alcohol backgrounds. He felt that handicap people would be different neighbors than those who had alcohol or drug related problems. He stated that he has talked with the neighbors and everyone is against the idea of this facility in the neighborhood.

Mr. Norland noted that being the residents were monitored he does not feel that the facility would bother a bar. He indicated that all people would like this type of facility located in another county; nonetheless, if a property is a rental property you cannot control who resides in it. Mr. Norland did indicate that he has taken in a murderer that stabbed his brother while he was under the influence. He stressed that several people do not even know the facility exists because they keep a low profile their property is very well maintained.

Mr. Oakey asked if the facility paid taxes. Mr. Norland stated no because it was a nonprofit organization.

Mr. Norland stated that the Department of Corrections tries to place people close to where they are from, yet in some cases because of a close circle of friends the person may have to go to another area.

Mr. Knapp wondered how many times since 1972 the police have been at the facility on a nuisance call. Mr. Norland replied, never that he is aware of.

Mr. Knapp asked about the exterior of the building.

Don Erickson, St. Paul, applicant's architect, commented that the facility would be a one-story building with a gable roof. He stated that each room would have two occupants. He noted that the interior was classified as type five one-hour and it will be sprinklered. He felt that the type of function will serve well for the purpose.

Mr. Knapp questioned signage. Mr. Norland stated that there wouldn't be any signage, except for the address.

New Business - CY 16-97 (Cont'd)

Tami Melvin, 1715 2nd Avenue, stated that she has kids and lives two blocks from where they plan on building. She was concerned about the bar being too close to the facility. She felt that residents would watch people enter and exit the bar and wondered how it would help people to correct themselves. She stated that it was hard to believe such a building would be constructed this close to a bar.

MOTION. Mr. Bernhagen moved to approve the rezoning. Mr. Knapp seconded the motion, which carried 6 to 1, with Mr. Sundborg voting against.

Ms. Wessman asked Mr. Norland what would happen if someone would revert to using alcohol or drugs. Mr. Norland responded that it depends on their participation in the program.

Mr. Sundborg inquired as to whether the applicant would construct this building if it was only for alcohol and drug corrections. Mr. Norland stated no, but they will be limiting the number of requests.

Mr. Sundborg wondered if there were problems finding facilities such as this one. Mr. Norland replied yes.

Mr. Sundborg commented that history has proven that House of Hope, Inc. can handle the alcohol and drug related residents, but he was concerned about residents that would come from the Department of Corrections. Mr. Sundborg asked if there was a need for this type of facility in Mankato. Mr. Norland felt that there was not a great need, although it would help the program even though most of the people will still have alcohol and drug related problems.

Mr. Knapp asked Mr. Norland if he would be willing to address the neighbor's concerns. Mr. Norland stated yes, he would be glad to.

Mr. Oakey inquired as to what percentage of the residents are currently from the Department of Corrections. Mr. Norland stated eighty percent (80%). He indicated that anything they cannot handle they refer out, but staff is on duty at all times.

Ms. Wessman wondered if any residents had been charged with an offense while they were in the facility. Mr. Norland stated that there haven't been any crimes against another person that he is aware of.

Mr. Harder questioned that if the facility can continue to operate as they are, why are they diversifying. Mr. Norland indicated that the facility can continue to operate as they are, but they are cramped for space. Mr. Norland stated that

New Business - CY 16-97 (Cont'd)

they are complying with the law even though there is very little space now; however, the offices are shared and they do not have a decent group room. Mr. Norland felt that more room was needed to help the facility operate properly.

Ms. Wessman commented that the facility currently takes Department of Corrections people that have alcohol and drug related crimes.

Mr. Oakey asked if those that were turned away found help. Mr. Norland indicated that he does not follow up after the point of rejection.

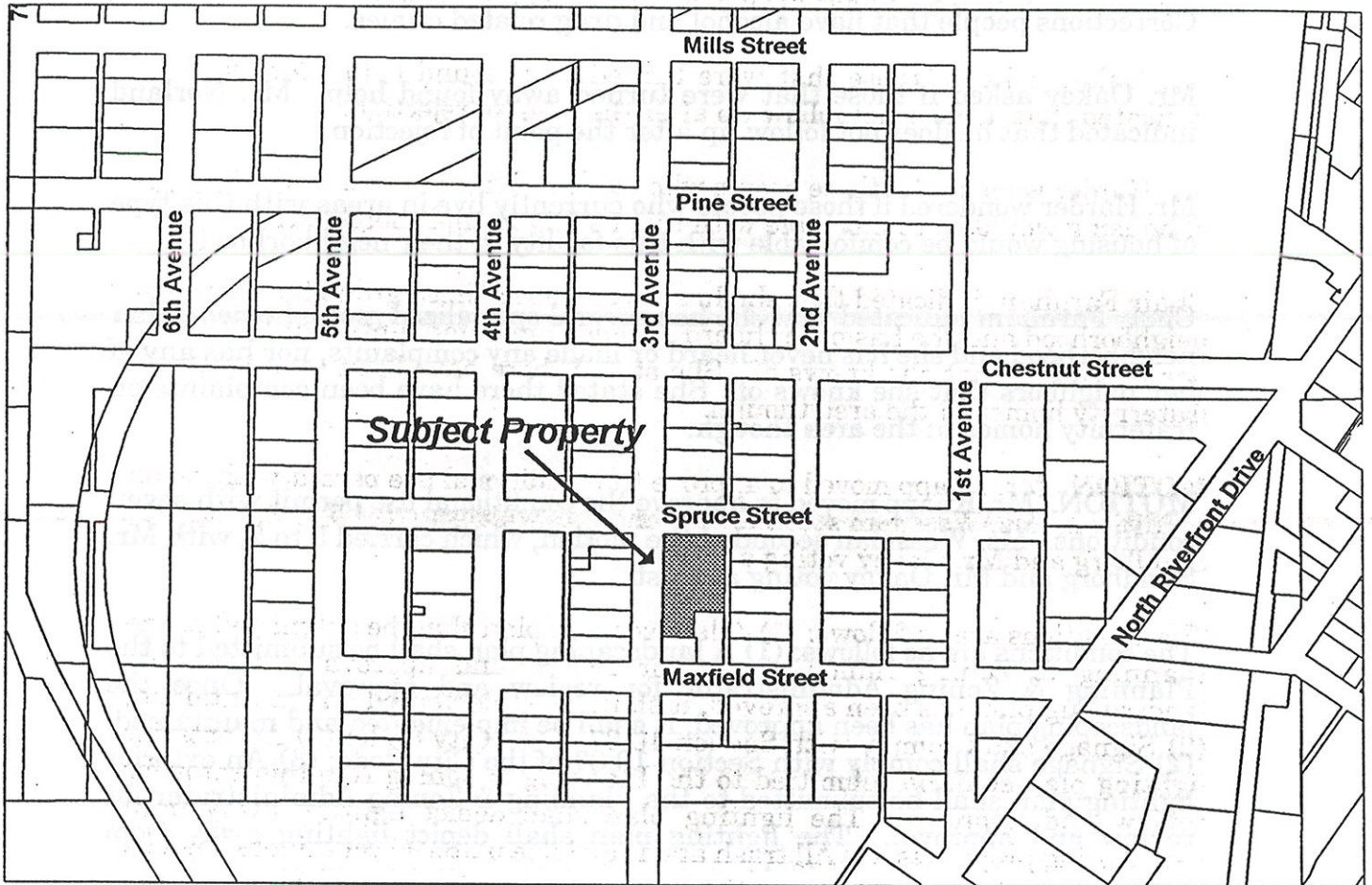
Mr. Harder wondered if those people who currently live in areas with this type of housing would be comfortable with this facility in their neighborhood.

Chair Farnham indicated that she has several specialized group homes in her neighborhood and she has never heard or made any complaints, nor has any of her neighbors that she knows of. She stated there have been complaints on fraternity homes in the area though.

MOTION. Mr. Knapp moved to approve the conditional use permit with seven conditions. Ms. Wessman seconded the motion, which carried 5 to 2, with Mr. Sundborg and Mr. Oakey voting against.

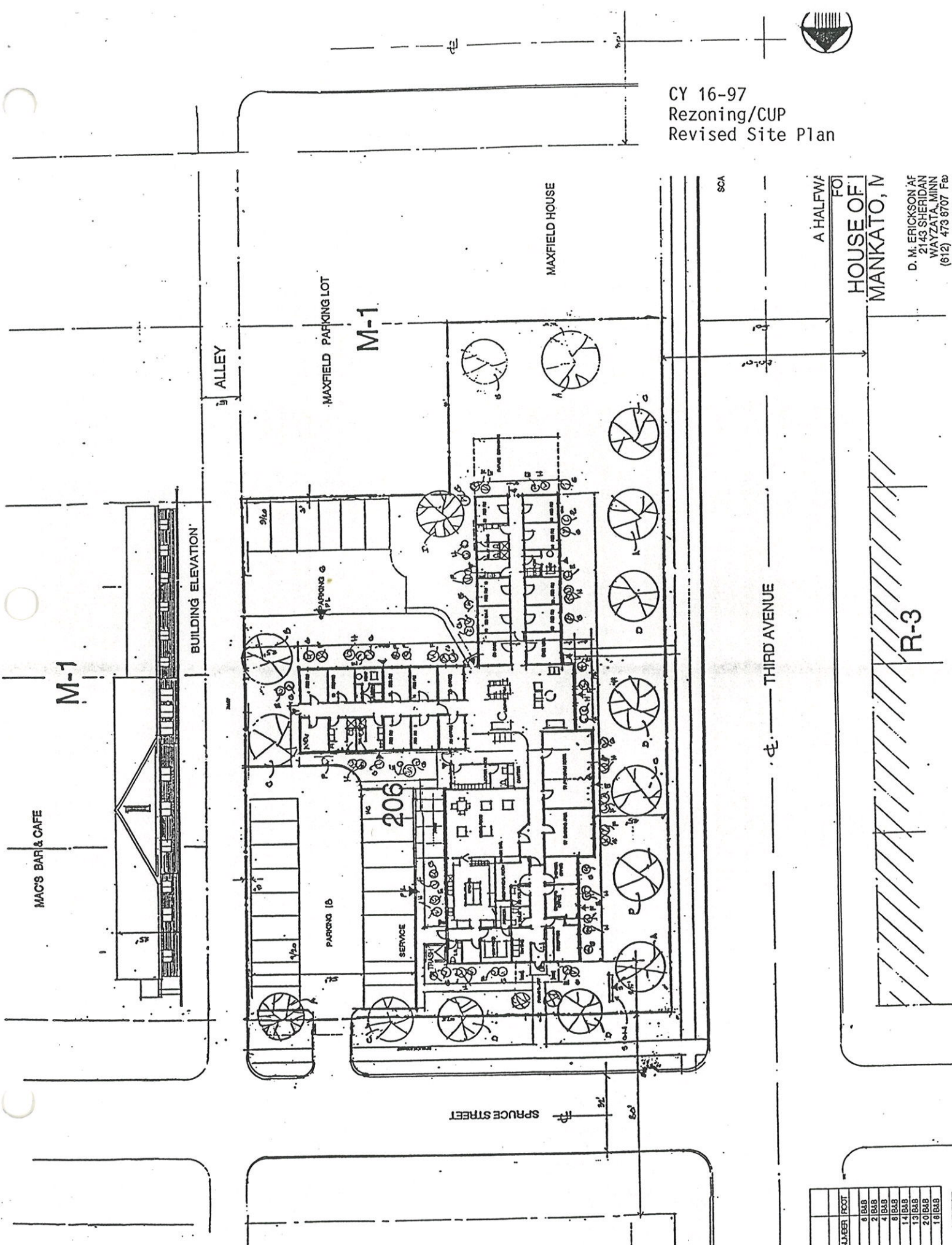
The conditions are as follows: (1) A landscaping plan shall be submitted to the Planning & Zoning Administrator for review and approval. Once the landscaping plan has been approved, it shall be implemented and maintained; (2) Signage shall comply with Section 10.87 of the City Code; (3) An exterior lighting plan shall be submitted to the Planning & Zoning Administrator for review and approval. The lighting plan shall depict lighting away from neighboring properties; (4) All trash and recyclable material containers shall be located in enclosures which shall be constructed with materials which are similar and complementary to the materials found on the main buildings; (5) A drainage plan shall be submitted to the City Engineer for review and approval; (6) A signed petition for the improvement of Spruce Street from 3rd Avenue to 2nd Avenue and the alley adjacent to the property from Spruce Street to Maxfield Street shall be submitted to the City Engineer; and (7) Off-street parking for the development shall satisfy zoning standards. The City may require additional parking if the demand exceeds the standards.

Council Agenda Date: June 23, 1997





CY 16-97
Rezoning/CUP
Revised Site Plan



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A HALF WA
HOUSE OF
MANKATO, N
D. M. ERICKSON AF
2143 SHERIDAN
WAYZATA, MINN
(612) 473 8707 Fax



Revised Site Plan
CY 18-21
Residential

150.52 AC
M. OTAKHIAN
10/1/2018
10/1/2018
10/1/2018

P-M

100' x 100' x 100'

100' x 100' x 100'

3-11

100' x 100' x 100'

100'



House of Hope, Inc.

Box 291
Mankato, MN 56002
(507) 625-4373
Fax (507) 625-4536

REQUEST, PROJECT DESCRIPTION AND JUSTIFICATION

A Brief Background and History

House of Hope began in 1971 as a halfway house for recovering alcoholic men mainly from the Mankato area. Early records show there was also a contract with the State of Minnesota, Department of Corrections.

My tenure as Director began in June, 1982. The typical resident at that time was a 32 to 42 year old male. The older men were the "typical" alcoholic with alcohol being their drug of choice. The younger residents typically used alcohol and some other drug or drugs, with marijuana being the usual drug other than alcohol. The last few years we have been seeing more cocaine, crack cocaine, and LSD in addition to the alcohol and marijuana. The average age of residents is now more mid-twenties.

Due to fluctuating funding in the last few years, referrals from counties have become more and more unpredictable. Just before I started as Director in 1982, my successor had secured a contract with the VA Medical Center in St. Cloud. During the 15 years I have been with HOH we experimented with a small halfway house in some rental property for chemically dependent women. We closed it after 2 years because of lack of funding and few referrals. During the last 10 years we expanded the VA referrals by adding the VA Medical Center in Tomah, Wisconsin. For a few years we had a contract with the Federal Bureau of Prisons and accepted referrals from them for approximately four years. About seven years ago I negotiated a contract with the State of Minnesota, Department of Corrections. In the last 5 years that contract is what has kept HOH in operation. The county funding and the VA referrals are not consistent enough to count on solely to operate the HOH. In 1988 we purchased our second house at 121 Fulton and expanded from 10 beds to 17 beds. Still, at times, there is a need for more bed space -anywhere from 24 and up.

Over the years we have had to be adaptable, flexible, creative, and willing to diversify in order to stay in existence. The Board of Directors and I, as well as the rest of the staff, believe in the halfway house concept and mission. Because of our beliefs we have persevered, overcome difficulties and obstacles and kept a viable program in operation.

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Clients

We accept referrals from:

1. Any county in Minnesota
2. Any other state if funding is available
3. The VA Medical Centers in St. Cloud, MN and Tomah, WI (temporarily inactive)
4. The State of Minnesota, Department of Corrections
5. Vinland Treatment Center, Loretto, MN (which specializes in the brain-injured patient)

Our current conditional use permit with the City of Mankato limits us to accept only residents who have alcohol or drug problems. On occasion we have requests for residents who don't necessarily have a chemical problem but need a structured environment. In our request I will ask for a conditional use permit that won't limit us to just the chemically dependent resident. If we get approval for the new site and building I would also attempt to secure a contract with the Federal Bureau of Prisons again and reactivate the VA Contract from St. Cloud and Tomah.

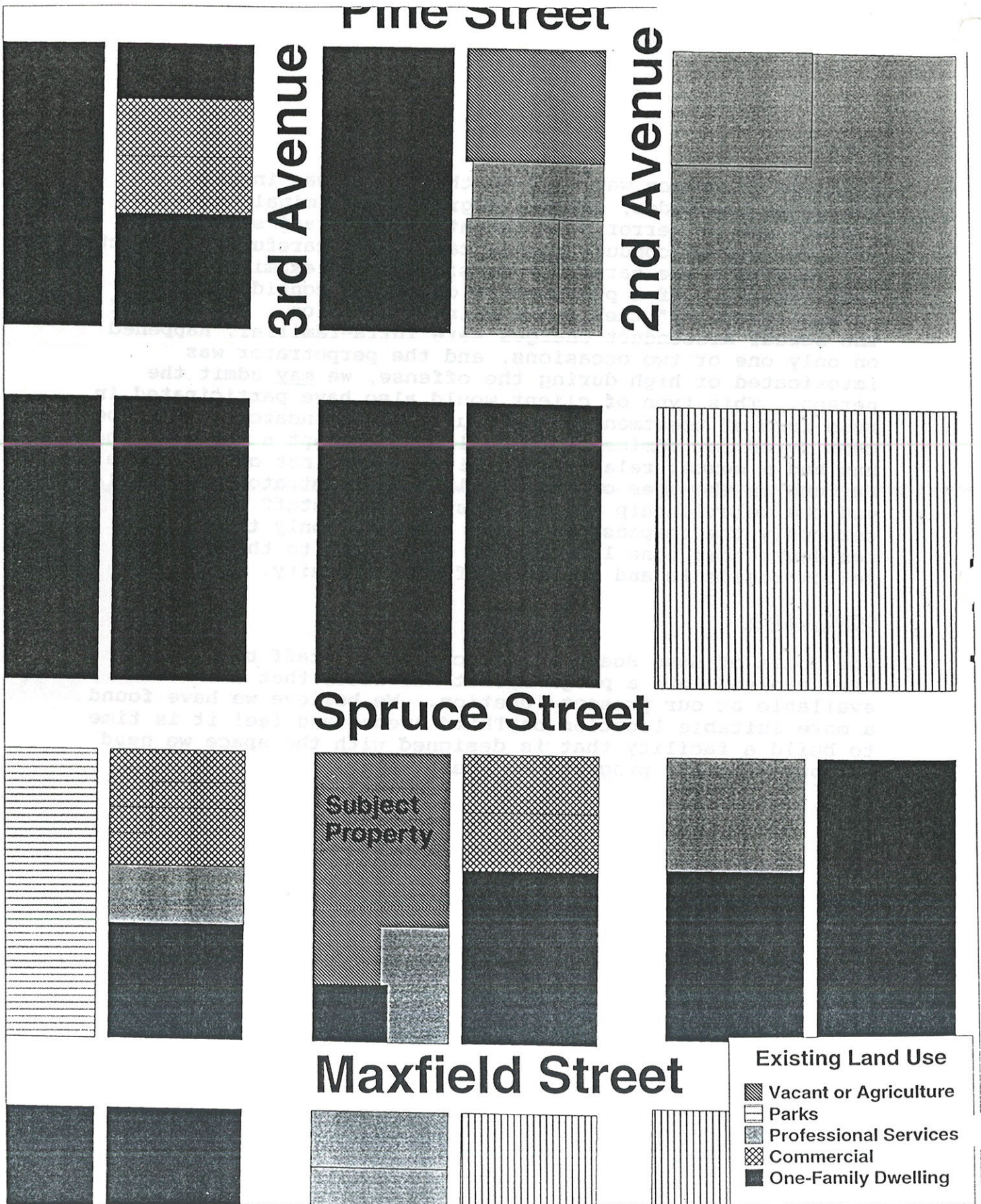
With the Department of Corrections, there are two types of clients we accept: work release inmates and intensive supervised release inmates. The work release inmates have served the majority of their sentences in a State Correctional Facility such as Faribault or Stillwater. If they qualify for work release they are released to a facility such as House of Hope to finish out their sentence, a period of 3 to 8 months. This gives them time to secure a job and a place to live. They are still considered inmates and are under the jurisdiction of the Department of Corrections. They have to follow strict rules or they could be returned to the State Institution they came from to finish out their sentences. Typical offenses include various degrees of felonious burglaries, assaults, forgeries and drug violations. The intensive supervised inmates are both different and similar. Their crimes are usually more serious and their stays in the halfway house are of shorter duration- anywhere from 1 to 3 months. They also have to secure employment and a place to live; however they have been discharged from a State Correctional facility and have ended their sentences. They remain on probation with a State Correctional Probation Officer and are under close supervision. Sometimes they are also put on electronic monitoring while they are a resident. Typical offenses include the same as work releasees but may include aggravated

page 3

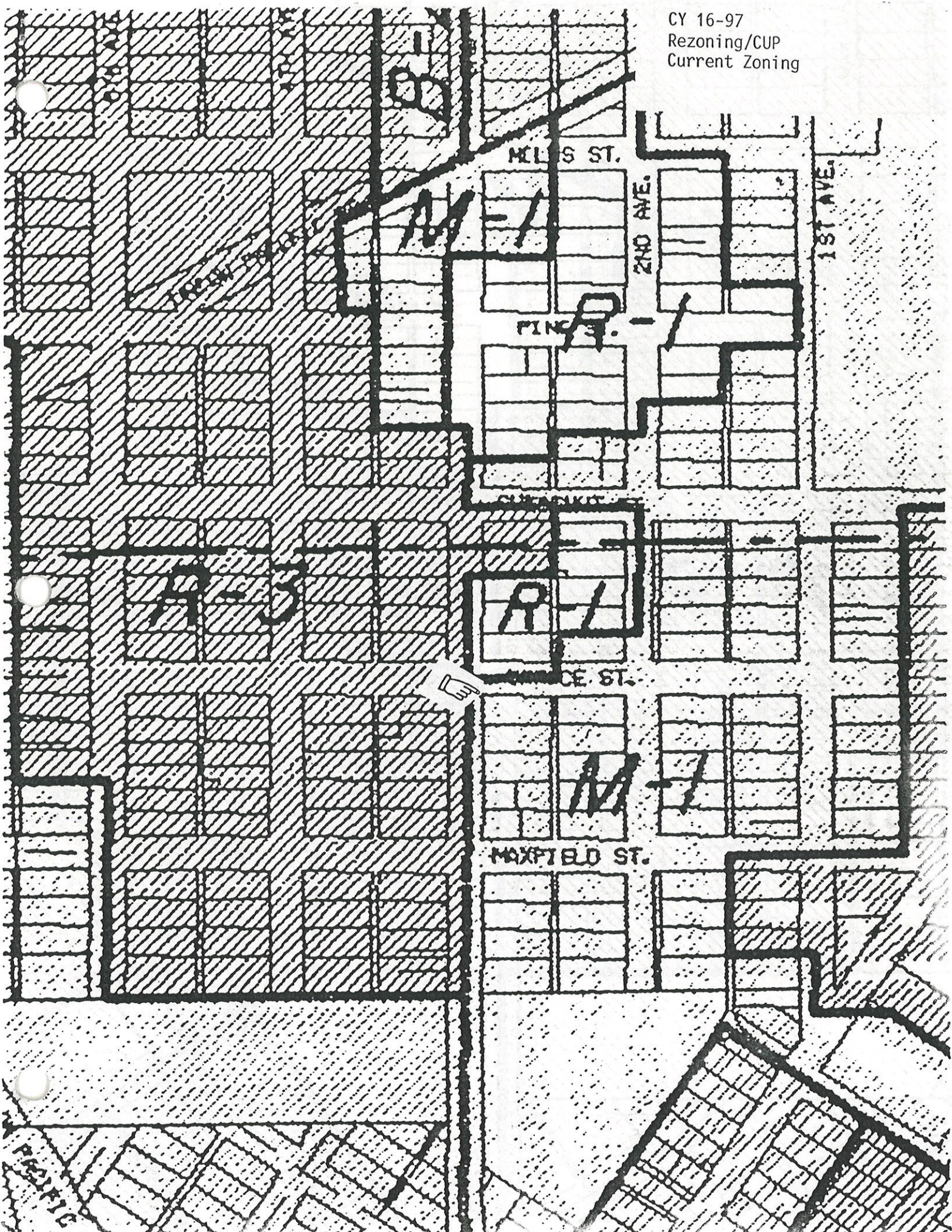
assaults (a weapon was used or the victim was injured), vehicular homicides, certain degrees of criminal sexual conduct and/or terroristic threats. HOH Staff screens the criminal sexual conduct charge cases very carefully, in fact, all referrals are carefully considered and examined individually. If a prospective client is considered a "sexual predator" they are declined admission. However, if the sexual misconduct charges were intra-familial, happened on only one or two occasions, and the perpetrator was intoxicated or high during the offense, we may admit the person. This type of client would also have participated in some form of treatment successfully while incarcerated to be considered for admission. We also may accept a resident that has had a sexual relationship with someone not of legal age as long as the ages of the victim and perpetrator are similar and the relationship was consensual. HOH staff take very seriously the responsibility of accepting only those residents that pose little, low or no risk to the staff, fellow residents and citizens of the community.

CONCLUSION

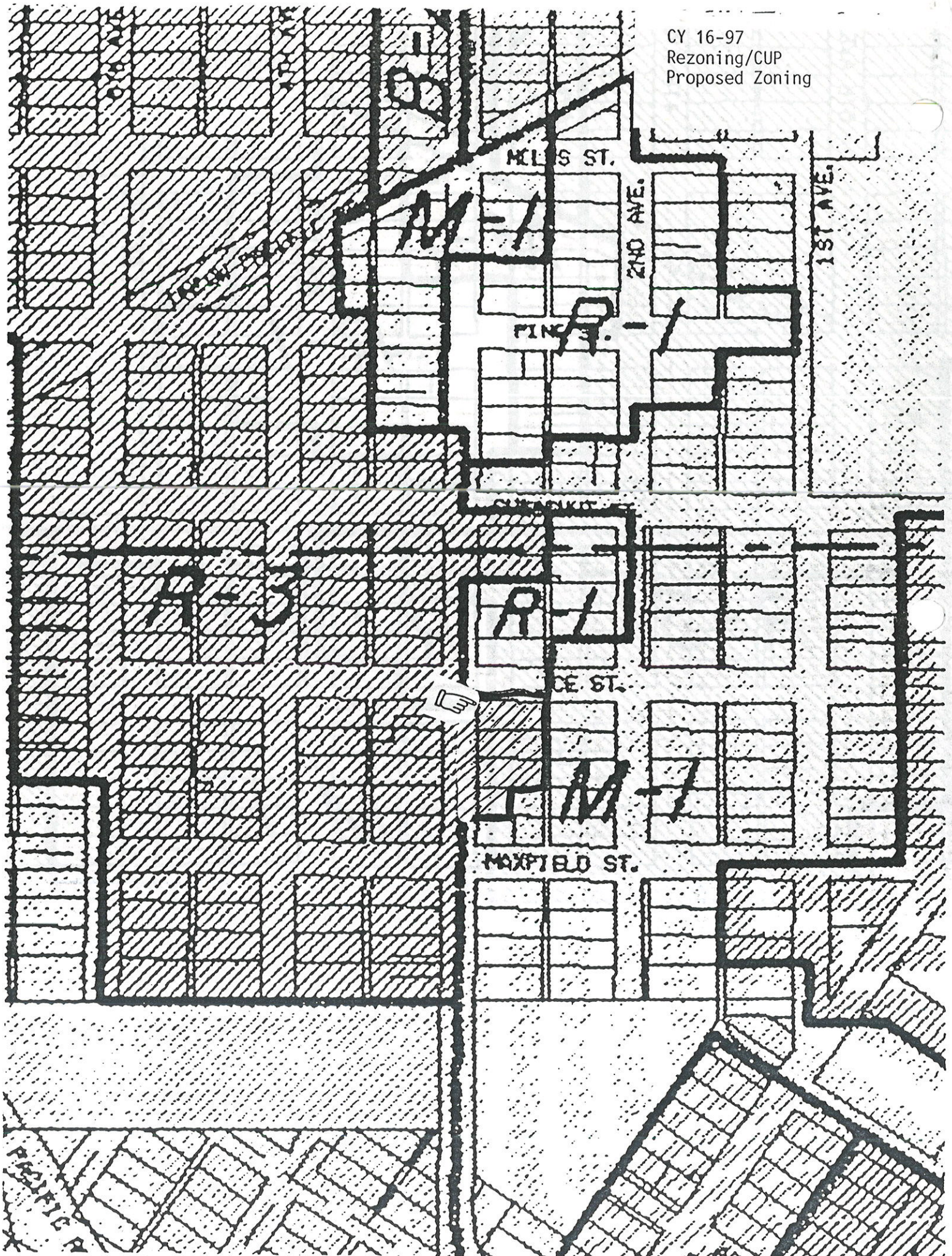
The House of Hope Board of Directors and Staff believe we have evolved into a program that has needs that are not available at our present location. We believe we have found a more suitable location on Third Avenue and feel it is time to build a facility that is designed with the space we need for our mission, program and operation.



CY 16-97
Rezoning/CUP
Current Zoning



CY 16-97
Rezoning/CUP
Proposed Zoning



Meeting Date: 09/08/2026

Title

CY42-26

Request of Jones Haugh & Smith, with permission of the property owner, Scott Brown, for a final plat review of Metcon Addition, and a conditional use permit to allow a wetland replacement on the subject site. The subject property is described as That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning; Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota (Blue Earth County PIDR430911300021).

Applicant

The applicant is Jones Haugh & Smith, with permission of the property owner, Scott Brown.

Request

The applicant is seeking a Final Plat review of Metcon Addition, and a Conditional Use Permit to allow for wetland replacement on the subject site.

Location

The subject property is located at Blue Earth County PID R430911300021 and is legally described as: That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning; Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota.

Existing Land Use

The subject property is currently an undeveloped agricultural field.

Zoning

Following the recent annexation into the City of Mankato, the subject property has been zoned T- Transition District.

At the August 26th, 2026, Planning Commission Meeting, the applicant received a recommendation to rezone the Subject Property to M-1, Light Industrial District and B-3, Highway Business District.

Other Board or Commission

The Preliminary Plat of Metcon Addition and Rezoning of the Subject Property to a mix of M-1, Light Industrial and B-3, Highway Business Districts was reviewed by the Planning Commission at their August 26th, 2026, meeting and recommended for approval.

Environmentally Sensitive Areas

Environmentally Sensitive Areas, Wetlands: Three wetland basins are present on the subject property. The preliminary plat represented the locations of these wetlands. Two wetlands are present within the proposed Block 1 and one wetland is located within Ponderosa Court & Outlot A. Due to the location of these wetlands, the applicant would be unable to construct the proposed subdivision as intended. It is the applicant's intent to remove these wetlands and purchase wetland replacement credits from a wetland bank.

The applicant has provided wetland application documentation for removal of said wetlands. Until such time as all required documentation has been provided and the TEP has completed their review of the proposal, the wetlands delineated onsite shall not be permitted to be impacted by the applicant.

Review

The applicant, Jones Haugh & Smith, with permission of the property owner, Scott Brown, is requesting a Final Plat review of Metcon Addition, and a Conditional Use Permit to allow for replacement of three wetlands located within the subject site.

Final Plat:

The applicant has submitted a request for a Final plat review of the Metcon Addition. The plat creates a new public cul-de-sac, identified as "Ponderosa Court", a new retention pond within Outlot B, and depicts a potential future extension of Evergreen Drive.

The proposed Final Plat contains two Outlots that will be platted during the development of those lots and one block. Block 1 contains three new lots. Lot 1 is proposed to contain 1.64 acres. Lot 2 is proposed to contain 2.41 acres. Lot 3 is proposed to contain 2.00 acres of area.

On the western side of the newly created Ponderosa Court is Outlot A, which the applicant proposes to zone for Highway Commercial use. As an Outlot, Outlot A will require future subdivision prior to development occurring. Outlot B is proposed to encompass the south-west corner of the subdivision and will serve as the location of a public stormwater pond. A development agreement will be drafted to outline the intended development conditions of the stormwater pond. The agreement shall also ensure that once the required stormwater improvements have been completed, Outlot B will be dedicated to the City for use as a public stormwater pond.

Access to Lots 1 and 2 will be via a connection to the newly proposed Ponderosa Court. Conceptually, a second access to Lot 2 will be via a connection to Adams Street. The proposed second access would be shared with Lot 3. Access is restricted to County State Aid Highway 12 and County State Aid Highway 17/Madison Avenue.

In addition to Ponderosa Court, the applicant is proposing to install a dedicated turn lane on Adams Street to serve Ponderosa Court. The right-of-way will also include a continuation of the existing dedicated bike lane. The applicant has provided a sidewalk network along the full duration of Ponderosa Court.

Evergreen Drive is being platted on the eastern side of the subdivision. This access will not be constructed at this time but will provide access to the subdivision if the level of County State Aid Highway 12/Adams Street access is reduced. The applicant shall be a willing petitioner for full roadway improvement of Evergreen Drive, particularly if the CSAH 12/Adams Street or Ponderosa Court/Adams Street intersection results in operational or safety issues.

Each lot also contains utility and drainage easements.

The applicant states that Met-Con is planning to construct an office and shop on Lot 2.

Payment In Lieu of Parkland Dedication:

The subdivision has not designated an area for a playground or park in the comprehensive development plan. The owner or subdivider, in lieu of property dedication, shall provide a payment-in-lieu of parkland dedication fee in the specified amount determined by an analysis based on the City's Section 10-2193 Standards. Payment will be due prior to affixing signatures to the final plat of the subject property.

As the proposed subdivision depicts one block and two Outlots, only the block shall be subject to the parkland dedication at this time. At the time that Outlot A is platted for development, it shall be subject to the parkland dedication standards.

Wetland Replacement:

Three wetland basins are present on the subject property. Two wetlands are present within the proposed Block 1 and one wetland is located within Ponderosa Court & Outlot A. Due to the location of these wetlands, the applicant would be unable to construct the proposed subdivision as intended. It is the applicant's intent to remove these wetlands and purchase wetland replacement credits from a wetland bank.

The applicant intends to seek replacement of all three wetlands located within the subject property, as each wetland would be permanently impacted by the proposed development. The three wetlands, identified as Seasonal Flood Basins within a farm field, total approximately 18,792 Sq. Ft. or 0.4314 acres in area:

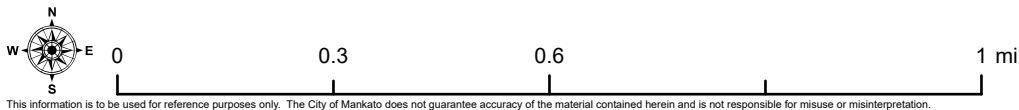
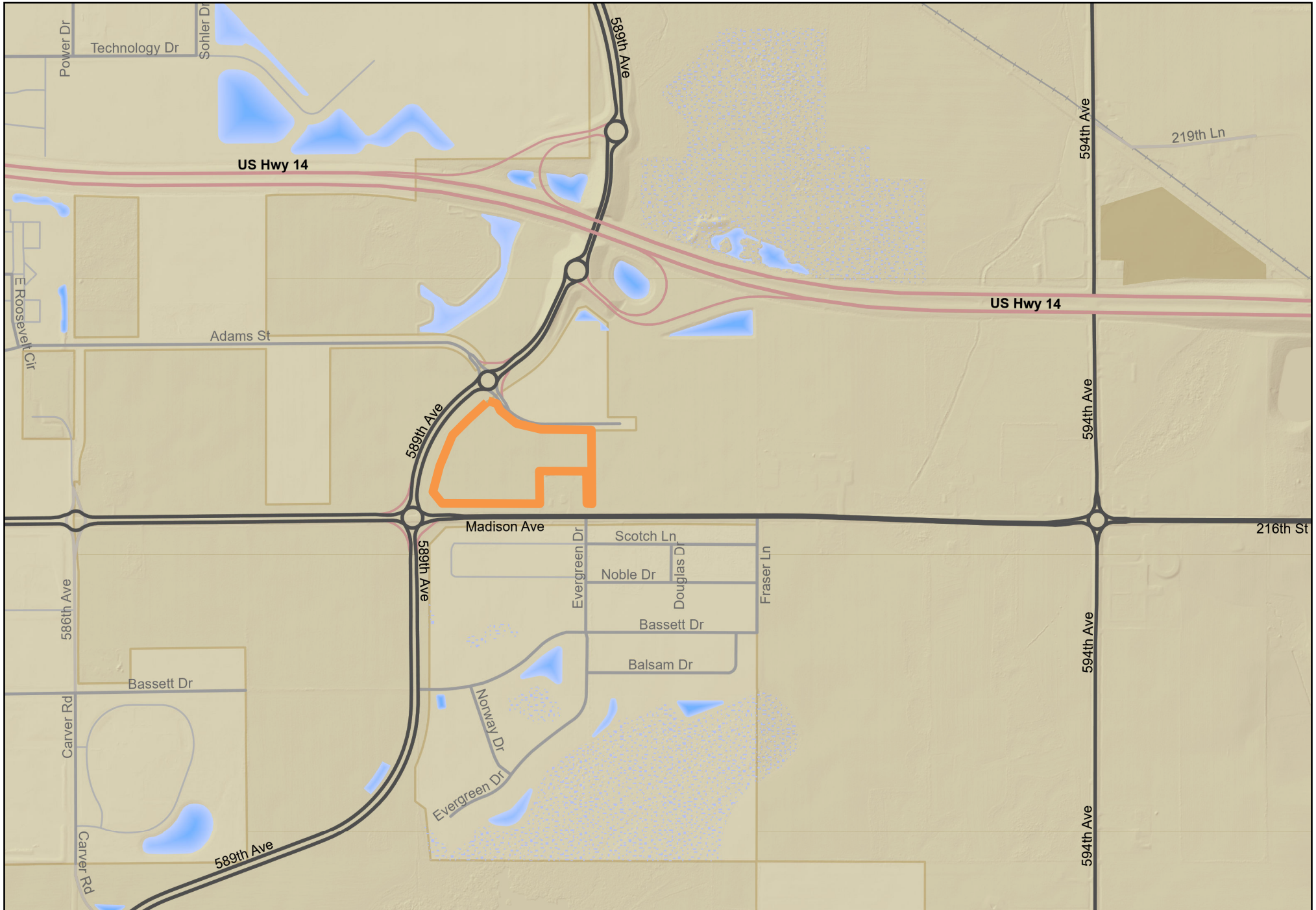
- Basin 1 is approximately 6,262 Sq. Ft. in area and is located in the path of the proposed Ponderosa Ct roadway.
- Basin 2 is approximately 2,811 Sq. Ft. in area and is located in the proposed Lot 1 site.
- Basin 3 is approximately 9,719 Sq. Ft. in area and is located along the boundary of the proposed Lots 2 & 3.

The applicant is requesting sequencing flexibility to allow for impacts on the wetlands in order to construct the development as proposed. It is the applicant's intention to replace the impacted wetlands by purchasing wetland bank credits. In total, 0.4314 acres will be impacted and 0.8628 (*a rate of 2:1*) acres of wetland credits will be purchased. The SWC wetland credits will be purchased from a Wetland Bank located within Blue Earth County, specifically the Wetland Bank Account #1804, an account owned by "*Guentzel Family Farms*", which is located within the same major water shed (#28), and in Bak Service Area #9.

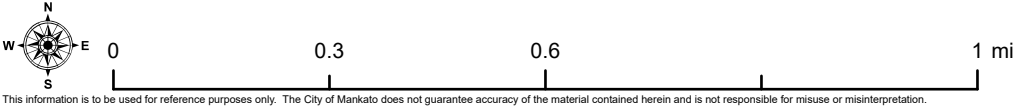
Attachments

General Location Map
Aerial
Preliminary Plat & Site Plan
Final Plat
Wetland Application
Grading Plan
Utility Plan
Traffic Study
Drainage Memo
Geotechnical Evaluation
Title Commitment

General Location Map



Aerial Map



EXISTING LEGAL DESCRIPTION:

That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: Commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No.27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System – Blue Earth County Zone – HARN NAD83 – 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning.

Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota.

LEGEND

- DUE = Drainage & Utility Easement
W = Water Main
S = Sanitary Sewer
ST = Storm Sewer
G = Gas Main
UT = Underground Telephone
OT = Overhead Telephone
FO = Fiber-Optics
UE = Underground Electric
OE = Overhead Electric
UTV = Underground TV
JLM = Judicial Landmark
X = Chain Link Fence
= Control Access
= Sign
= Stop Sign
= Light Pole
= Flood Lights
= Power Pole
= Guy Anchor
= Fire hydrant
= Water Main Valve
= Culvert
= Catch Basin & Catch Basin Numbers
= Manholes & Manhole Numbers
1272.2 = Elevation Contour Line
1271.23 = Spot Elevation
RM1270.89 = Rim Elevation
FL1262.34 = FlowLine Elevation
= Deciduous Tree
= Coniferous Tree
= Bush

ZONING NOTES:

Outlot A to be Zoned B-3 Highway Business

Commercial Gateway Overlay

Setbacks:

Front: 15' Impervious Surface or Structure
Structure Min. 15' and 20' Max Corner Lot
Structure Min. 15' and 85' Interior Lot
Rear: 3' Impervious Surface or Structure
Side: 6' Impervious Surface or Structure
Maximum Height: None

Lots 1-3 Block 1 to be Zoned M-1 Light Industrial

Setbacks:

Front: 15' Impervious Surface, 30' Structure
Rear: None
Side: 6' Impervious Surface or 15' Building
Transitional to Residential: 30'
Maximum Height: None

FLOOD ZONE:

The surveyed property shown on this survey map is in Flood Zone X, according to Flood Insurance Rate Map Community Panel No. 27013C0116F, published by the Federal Emergency Management Agency, effective date February 22, 2024

OWNERS / DEVELOPERS:

METCON
15760 Acorn Trail
Faribault, MN 55021
(597)-332-2266

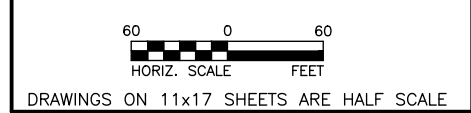
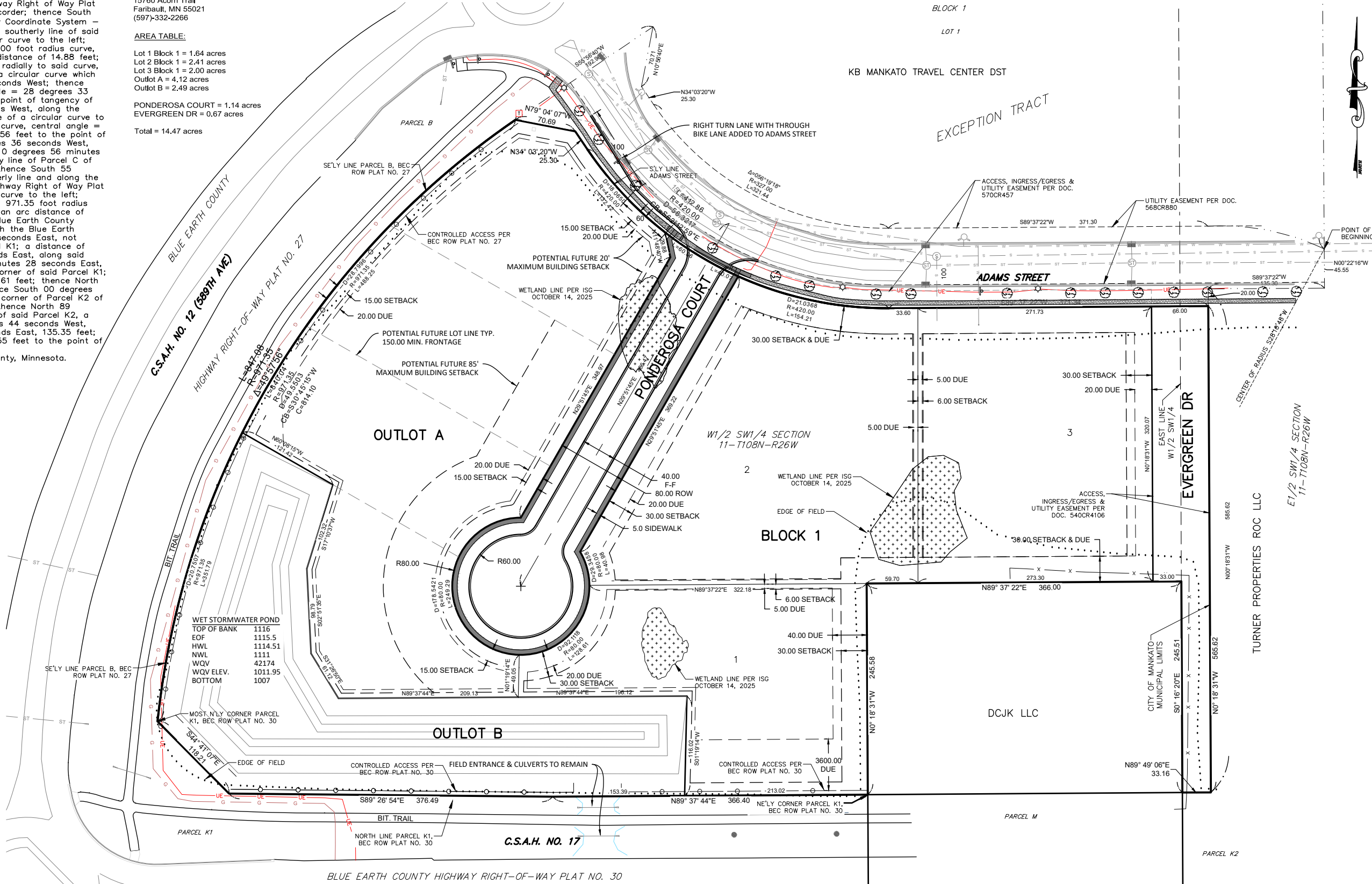
AREA TABLE:

Lot 1 Block 1 = 1.64 acres
Lot 2 Block 1 = 2.41 acres
Lot 3 Block 1 = 2.00 acres
Outlot A = 4.12 acres
Outlot B = 2.49 acres

PONDEROSA COURT = 1.14 acres
EVERGREEN DR = 0.67 acres

Total = 14.47 acres

METCON ADDITION



REV.	BY	DATE	REVISION DESCRIPTION

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 56001-4598

DESIGNED: JHS
DRAWN: JHS
CHECKED: BU
Date: 8/13/26
DWG: 25-1234PP

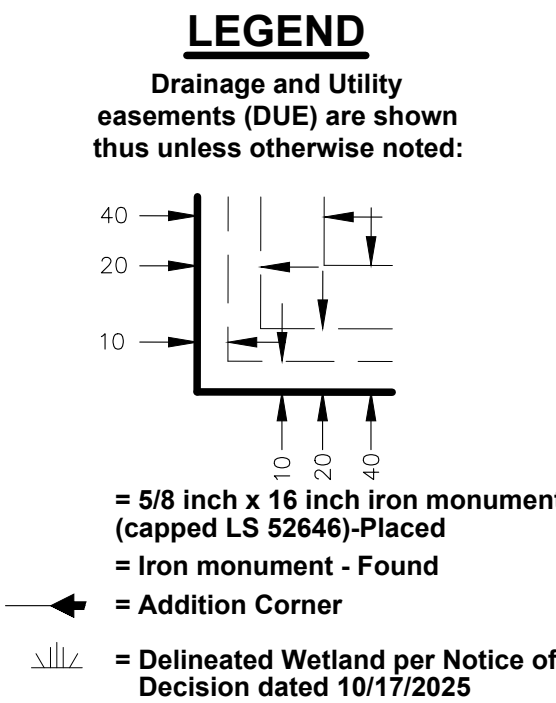
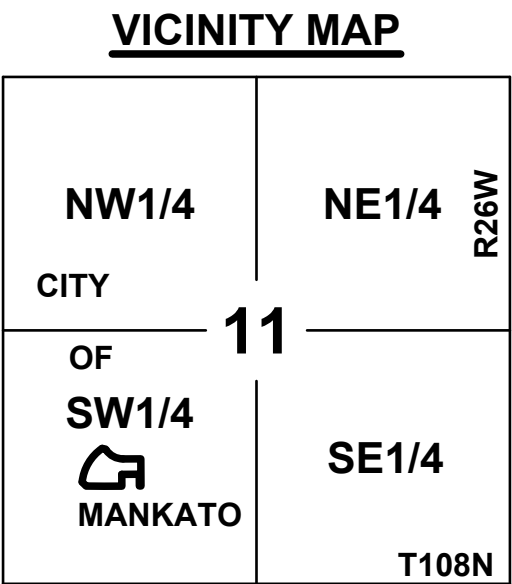
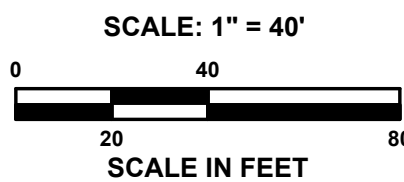
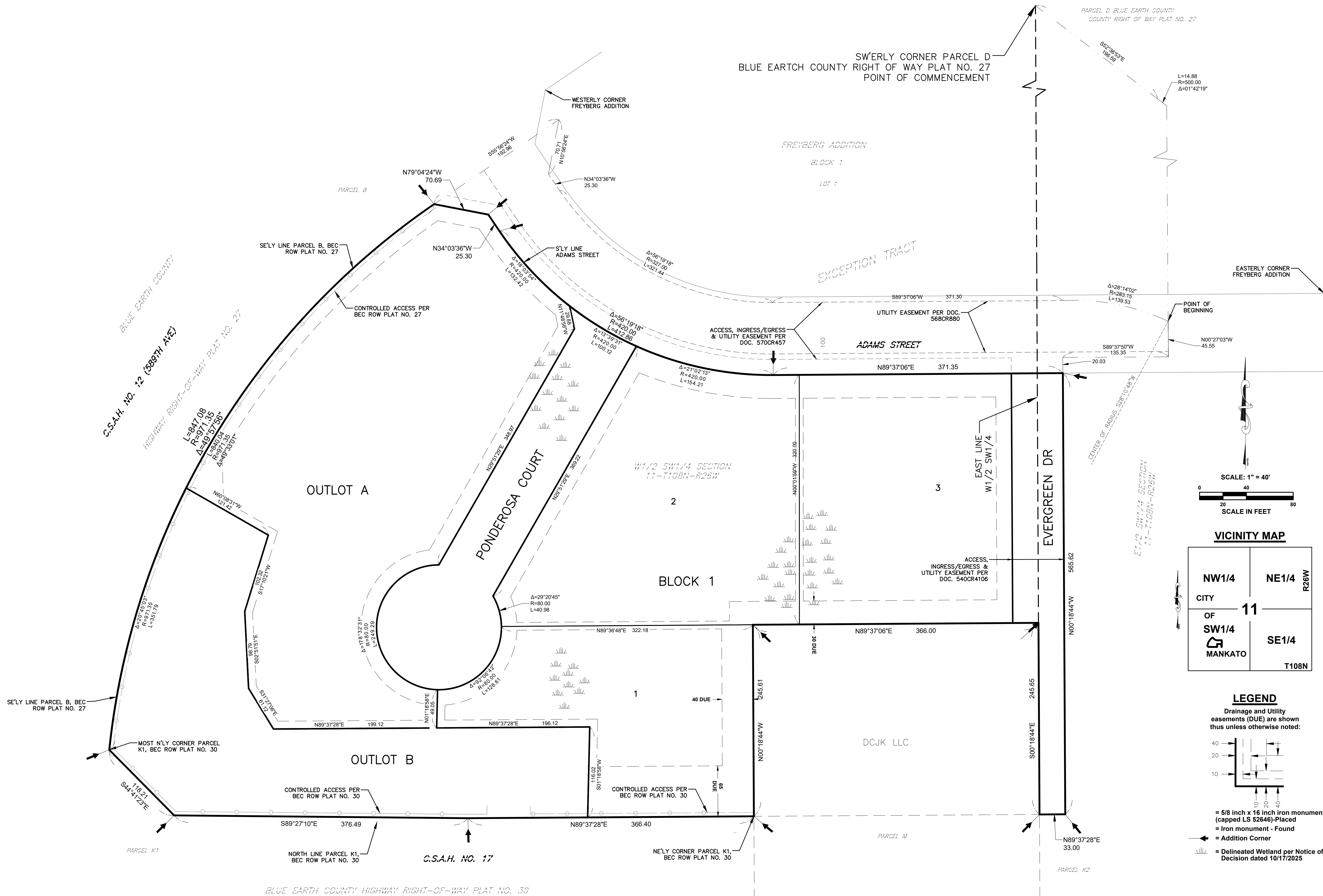
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

John H. Schulte V
License No. 44639 Date: 8/13/26

PRELIMINARY PLAT METCON ADDITION PART OF SW1/4 SECTION 11-T108N-R26W SITE PLAN	SHEET 1 OF 3
---	-----------------------

OFFICIAL PLAT

METCON ADDITION



BASIS OF BEARING SYSTEM
All bearings are based upon the north line of Lot 4, Block 5, ERBLANG'S ADDITION, bearing South 89°58'05" East

JONES, HAUGH & SMITH
PROFESSIONAL ENGINEERS & LAND SURVEYORS

OFFICIAL PLAT

METCON ADDITION

CERTIFICATE OF DEDICATION

KNOW ALL PERSONS BY THESE PRESENTS: That McDonough Farms LLC, a Minnesota Limited Liability Company, fee owner of the following described property:

That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: Commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning. Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota.

Has caused the same to be surveyed and platted as METCON ADDITION and does hereby dedicate to the public for public use the public way(s) and/or the drainage and utility easement(s) as created by this plat.

In witness whereof said McDonough Farms LLC, a Minnesota limited liability company, has caused these presents to be signed by

its proper officer this ____ day of _____, 20____.

Randy McDonough, Manager

STATE OF MINNESOTA
COUNTY OF _____

The forgoing Instrument was acknowledged before me on this ____ day of _____, 20____ by Randy McDonough, Manager of McDonough Farms LLC, a Minnesota limited liability company.

(Notary Signature) Notary Public, _____ County, Minnesota

(Notary Printed Name) My Commission expires _____

SURVEYOR'S CERTIFICATE

I Scott A. Tuchtenhagen do hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been, or will be correctly set within one year; that all water boundaries and wetlands, as defined in Minnesota Statutes, Section 505.021, Subd. 11, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated ____ day of _____, 20____.

Licensed Land Surveyor
Minnesota Licensed No. 52646

STATE OF MINNESOTA
COUNTY OF _____

This Instrument was acknowledged before me on ____ day of _____, 20____ by Scott A. Tuchtenhagen, a Licensed Land Surveyor, Minnesota License No. 52646

(Notary Signature) Notary Public, _____ County, Minnesota

(Notary Printed Name) My Commission expires _____

TITLE OPINION

I, _____, licensed attorney, State of Minnesota, do hereby certify that the owner(s), as indicated hereon represents all ownership interests in the land encompassed by this plat.

MANKATO PLANNING COMMISSION

Be it known that on this the ____ day of _____, _____, the Planning Commission of City of Mankato, Minnesota did duly review this plat of METCON ADDITION.

Chair Person Secretary

CITY COUNCIL, CITY OF MANKATO, MINNESOTA

This plat of METCON ADDITION was approved and accepted by the City Council of the City of Makato, Minnesota at a regular meeting thereof held this ____ day of _____, _____, and said plat is in compliance with the provisions of Minnesota Statutes, Section 505.03, Subd. 2.

Chair Person County Administrator

TAXPAYER SERVICES, BLUE EARTH COUNTY, MINNESOTA

I hereby certify that there are no delinquent taxes and/or delinquent special assessments, that the current taxes have been paid and that the transfer has been entered on the land described herein on the ____ day of _____, _____.

Blue Earth County Property and Public Services Director

COUNTY RECORDER, BLUE EARTH COUNTY, MINNESOTA

I hereby certify that this instrument was filed in my office for record on this, the ____ day of _____, _____, at ____ o'clock ___.M., and that it was duly recorded on ____ of Plats, as Document Number _____.

Blue Earth County, County Recorder

Joint Application Form for Activities Affecting Water Resources in Minnesota

This joint application form is the accepted means for initiating review of proposals that may affect a water resource (wetland, tributary, lake, etc.) in the State of Minnesota under state and federal regulatory programs. Applicants for Minnesota Department of Natural Resources (DNR) Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. Applicants can use the information entered into MPARS to substitute for completing parts of this joint application form (see the paragraph on MPARS at the end of the joint application form instructions for additional information). This form is only applicable to the water resource aspects of proposed projects under state and federal regulatory programs; other local applications and approvals may be required. Depending on the nature of the project and the location and type of water resources impacted, multiple authorizations may be required as different regulatory programs have different types of jurisdiction over different types of resources.

Regulatory Review Structure

Federal

The St. Paul District of the U.S. Army Corps of Engineers (Corps) is the federal agency that regulates discharges of dredged or fill material into waters of the United States (wetlands, tributaries, lakes, etc.) under Section 404 of the Clean Water Act (CWA) and regulates work in navigable waters under Section 10 of the Rivers and Harbors Act. Applications are assigned to Corps project managers who are responsible for implementing the Corps regulatory program within a particular geographic area.

State

There are three state regulatory programs that regulate activities affecting water resources. The Wetland Conservation Act (WCA) regulates most activities affecting wetlands. It is administered by local government units (LGUs) which can be counties, townships, cities, watershed districts, watershed management organizations or state agencies (on state-owned land). The Minnesota DNR Division of Ecological and Water Resources issues permits for work in specially-designated public waters via the Public Waters Work Permit Program (DNR Public Waters Permits). The Minnesota Pollution Control Agency (MPCA) under Section 401 of the Clean Water Act certifies that discharges of dredged or fill material authorized by a federal permit or license comply with state water quality standards. One or more of these regulatory programs may be applicable to any one project.

Required Information

Prior to submitting an application, applicants are **strongly encouraged** to seek input from the Corps Project Manager and LGU staff to identify regulatory issues and required application materials for their proposed project. Project proponents can request a pre-application consultation with the Corps and LGU to discuss their proposed project by providing the information required in Sections 1 through 5 of this joint application form to facilitate a meaningful discussion about their project. Many LGUs provide a venue (such as regularly scheduled technical evaluation panel meetings) for potential applicants to discuss their projects with multiple agencies prior to submitting an application. Contact information is provided below.

The following bullets outline the information generally required for several common types of determinations/authorizations.

- For delineation approvals and/or jurisdictional determinations, submit Parts 1, 2 and 5, and Attachment A.
- For activities involving CWA/WCA exemptions, WCA no-loss determinations, and activities not requiring mitigation, submit Parts 1 through 5, and Attachment B.
- For activities requiring compensatory mitigation/replacement plan, submit Parts 1 thru 5, and Attachments C and D.
- For local road authority activities that qualify for the state's local road wetland replacement program, submit Parts 1 through 5, and Attachments C, D (if applicable), and E to both the Corps and the LGU.

Submission Instructions

Send the completed joint application form and all required attachments to:

U.S Army Corps of Engineers. Applications may be sent directly to the appropriate Corps Office. For a current listing of areas of responsibilities and contact information, visit the St. Paul District's website at:

<http://www.mvp.usace.army.mil/Missions/Regulatory.aspx> and select "Minnesota" from the contact Information box.

Alternatively, applications may be sent directly to the St. Paul District Headquarters and the Corps will forward them to the appropriate field office.

Section 401 Water Quality Certification: Applicants do not need to submit the joint application form to the MPCA unless specifically requested. The MPCA will request a copy of the completed joint application form directly from an applicant when they determine an individual 401 water quality certification is required for a proposed project.

Wetland Conservation Act Local Government Unit: Send to the appropriate Local Government Unit. If necessary, contact your county Soil and Water Conservation District (SWCD) office or visit the Board of Water and Soil Resources (BWSR) web site (www.bwsr.state.mn.us) to determine the appropriate LGU.

DNR Public Waters Permitting: In 2014 the DNR will begin using the Minnesota DNR Permitting and Reporting System (MPARS) for submission of Public Waters permit applications (<https://webapps11.dnr.state.mn.us/mpars/public/authentication/login>).

Applicants for Public Waters permits **MUST** use the MPARS online permitting system for submitting applications to the DNR. To avoid duplication and to streamline the application process among the various resource agencies, applicants can use the information entered into MPARS to substitute for completing parts of this joint application form. The MPARS print/save function will provide the applicant with a copy of the Public Waters permit application which, at a minimum, will satisfy Parts one and two of this joint application. For certain types of activities, the MPARS application may also provide all of the necessary information required under Parts three and four of the joint application. However, it is the responsibility of the Applicant to make sure that the joint application contains all of the required information, including identification of all aquatic resources impacted by the project (see Part four of the joint application). After confirming that the MPARS application contains all of the required information in Parts one and two the Applicant may attach a copy to the joint application and fill in any missing information in the remainder of the joint application.

PART ONE: Applicant Information

If applicant is an entity (company, government entity, partnership, etc.), an authorized contact person must be identified. If the applicant is using an agent (consultant, lawyer, or other third party) and has authorized them to act on their behalf, the agent's contact information must also be provided.

Applicant/Landowner Name: Randy McDonough, McDonough Farms, LLC.

Mailing Address: 15760 Acorn Trail, Faribault, MN 55021

Phone: 507, 332-2266

E-mail Address: scott.brown@met-con.com

Authorized Contact (do not complete if same as above): John Schulte, PE, Jones Haugh & Smith, Inc.

Mailing Address: 415 West North Street, Owatonna, MN 55060

Phone: 507, 451-4598

E-mail Address: john5@jhseng.com

Agent Name: Robert Merila, Aquatic EcoSolutions, Inc.

Mailing Address: PO Box 497, Nevis, MN 56467

Phone: 877, 346-3474

E-mail Address: robertmerila@arvig.net

PART TWO: Site Location Information

County: Blue Earth

City/Township: Mankato

Parcel ID and/or Address: R430911300021

Legal Description (Section, Township, Range): Sec 11, T 108 N, R 26 W

Lat/Long (decimal degrees): 44.16908 / 93.92710

Attach a map showing the location of the site in relation to local streets, roads, highways.

Approximate size of site (acres) or if a linear project, length (feet): Approximately 17 acres

If you know that your proposal will require an individual Permit from the U.S. Army Corps of Engineers, you must provide the names and addresses of all property owners adjacent to the project site. This information may be provided by attaching a list to your application or by using block 25 of the Application for Department of the Army permit which can be obtained at:

http://www.mvp.usace.army.mil/Portals/57/docs/regulatory/RegulatoryDocs/engform_4345_2012oct.pdf

PART THREE: General Project/Site Information

If this application is related to a delineation approval, exemption determination, jurisdictional determination, or other correspondence submitted **prior to** this application then describe that here and provide the Corps of Engineers project number.

Describe the project that is being proposed, the project purpose and need, and schedule for implementation and completion. The project description must fully describe the nature and scope of the proposed activity including a description of all project elements that effect aquatic resources (wetland, lake, tributary, etc.) and must also include plans and cross section or profile drawings showing the location, character, and dimensions of all proposed activities and aquatic resource impacts.

The Met-Con Addition project is a Commercial/Industrial subdivision with large lots in the eastern developing fringe of Mankato immediately south of an exit from Trunk Highway 14 at the location of a popular truck stop. This is a premier location for Commercial/Industrial buildings to be built because of the quick access to a well-used divided highway that reduces heavy

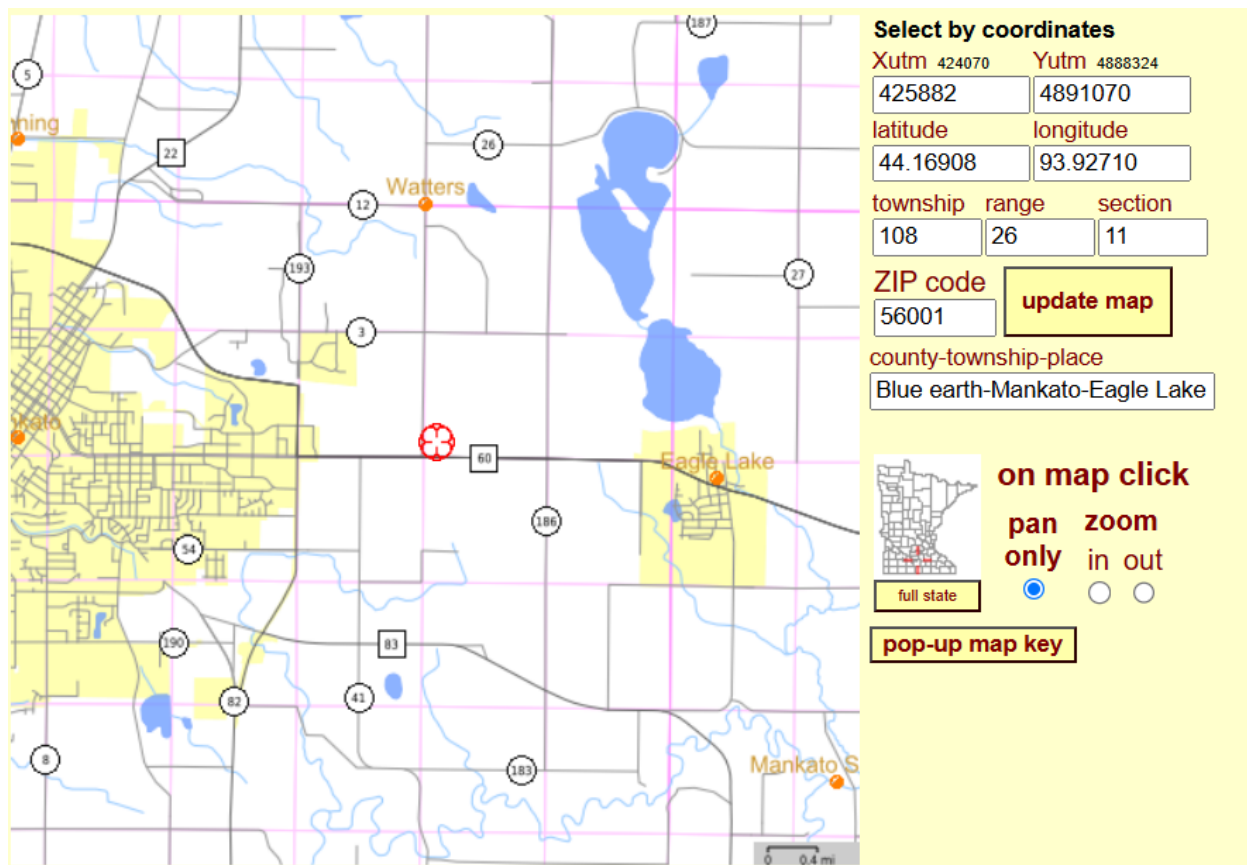
truck travel on City roads and increases the number of businesses in Mankato. It has been determined that development within Blue Earth County is encouraged to be done within City limits instead of outside cities, so this property is being annexed into the City of Mankato with the goal of maximizing it for Commercial/Industrial development. By maximizing the number of Commercial/Industrial lots that are built on this property, it will reduce the demand for other properties to be annexed into the City of Mankato and will reduce overall suburban sprawl along with reducing heavy truck travel on City roadways.

The lots are large because Commercial/Industrial buildings are sprawling by nature, and because large trucks need room to maneuver into and out of the loading/unloading docks. This former agricultural field with three degraded farmed wetlands is the ideal location to add these large lots to the City of Mankato.

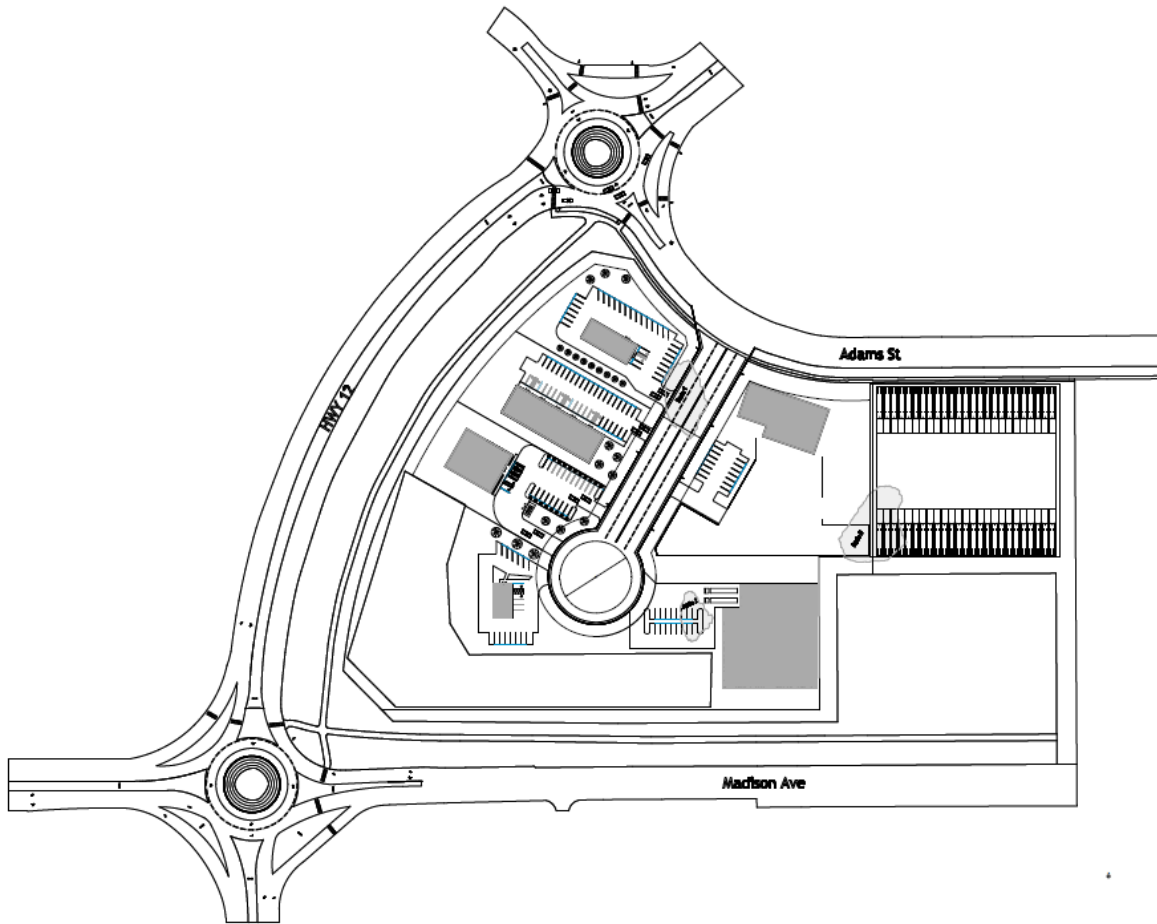
As required by engineering specifications, this subdivision has a properly sized stormwater management pond that will collect hard-surface runoff and hold it on-site for the proper length of time and will treat it before that water either percolates into the ground or runs off beyond the perimeter of this subdivision to flow down-slope. This stormwater ponding area takes up a sizable portion of this subdivision in order to provide this water management.

By using this property on the western fringe of Mankato next to the highway access and adjacent to a truck stop, large truck traffic on City roadways will be reduced. If this Commercial/Industrial subdivision were located along the southern developing fringe of Mankato, the large trucks would have to drive through the busy roadways in Mankato and would degrade the roads faster than if they did not have to travel on them. Truck traffic slowdowns on City roadways would also be eliminated by having this subdivision right next to on-off ramps to a main highway.

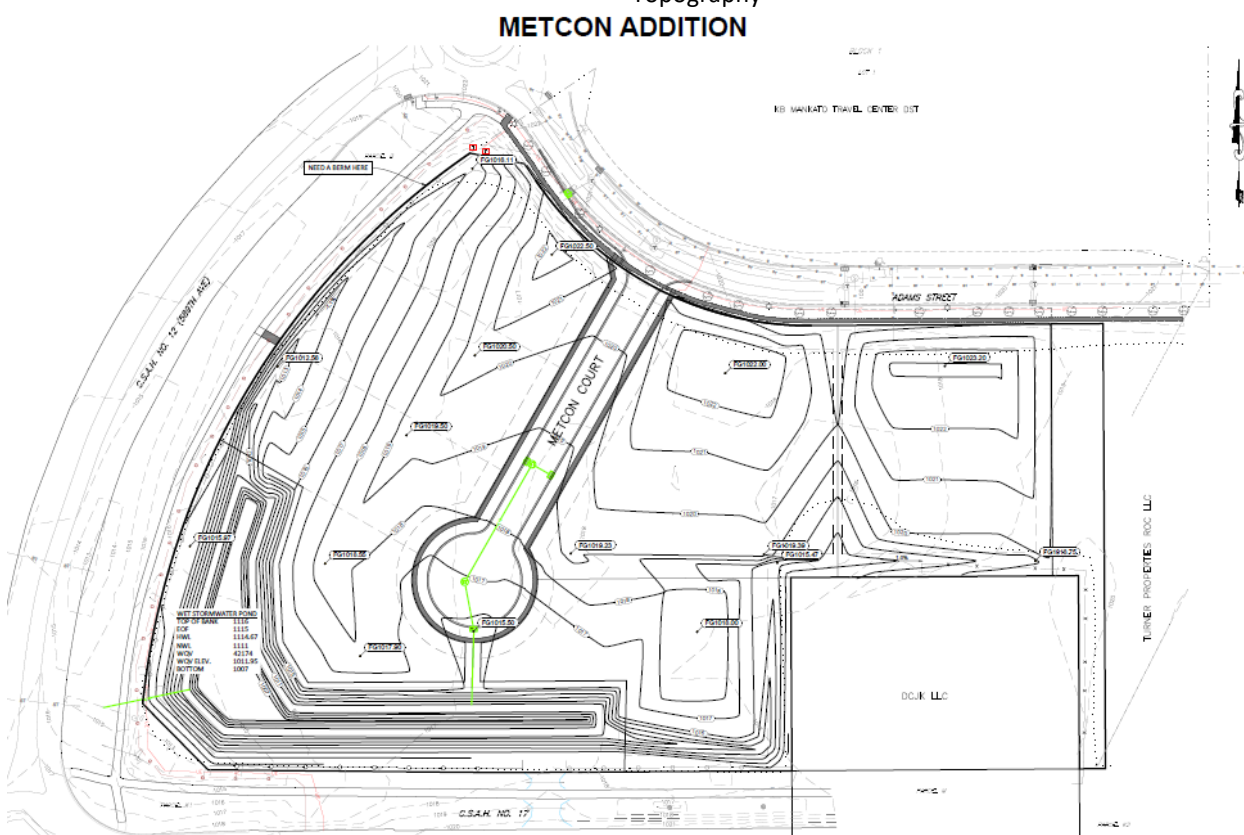
Site Location



Preliminary Site Design with Anticipated Land Usage



Topography METCON ADDITION



PART FOUR: Aquatic Resource Impact¹ Summary

If your proposed project involves a direct or indirect impact to an aquatic resource (wetland, lake, tributary, etc.) identify each impact in the table below. Include all anticipated impacts, including those expected to be temporary. Attach an overhead view map, aerial photo, and/or drawing showing all of the aquatic resources in the project area and the location(s) of the proposed impacts. Label each aquatic resource on the map with a reference number or letter and identify the impacts in the following table.

Aquatic Resource ID (as noted on overhead view)	Aquatic Resource Type (wetland, lake, tributary etc.)	Type of Impact (fill, excavate, drain, or remove vegetation)	Duration of Impact Permanent (P) or Temporary (T) ¹	Size of Impact ²	Overall Size of Aquatic Resource ³	Existing Plant Community Type(s) in Impact Area ⁴	County, Major Watershed #, and Bank Service Area # of Impact Area ⁵
Basin 1	Farmed Wetland	Fill	P	6,262 sf	N/A	Seas Fld Basin	Blue Earth
Basin 2	Farmed Wetland	Fill	P	<u>2,811 sf</u>	N/A	Seas Fld Basin	28, 9
Basin 3	Farmed Wetland	Fill	P	<u>9,719 sf</u>	N/A	Seas Fld Basin/ Frsh Wet Mdw	
				18,792 sf			
				0.4314 acre			

¹If impacts are temporary; enter the duration of the impacts in days next to the "T". For example, a project with a temporary access fill that would be removed after 220 days would be entered "T (220)".

²Impacts less than 0.01 acre should be reported in square feet. Impacts 0.01 acre or greater should be reported as acres and rounded to the nearest 0.01 acre. Tributary impacts must be reported in linear feet of impact and an area of impact by indicating first the linear feet of impact along the flowline of the stream followed by the area impact in parentheses). For example, a project that impacts 50 feet of a stream that is 6 feet wide would be reported as 50 ft (300 square feet).

³This is generally only applicable if you are applying for a de minimis exemption under MN Rules 8420.0420 Subp. 8, otherwise enter "N/A".

⁴Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.

⁵Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

If any of the above identified impacts have already occurred, identify which impacts they are and the circumstances associated with each:

PART FIVE: Applicant Signature

☐ Check here if you are requesting a pre-application consultation with the Corps and LGU based on the information you have provided. Regulatory entities will not initiate a formal application review if this box is checked.

By signature below, I attest that the information in this application is complete and accurate. I further attest that I possess the authority to undertake the work described herein.

Signature:

Brendy McDonough 7/28/26

I hereby authorize Robert Merila to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

¹ The term "impact" as used in this joint application form is a generic term used for disclosure purposes to identify activities that may require approval from one or more regulatory agencies. For purposes of this form it is not meant to indicate whether or not those activities may require mitigation/replacement.

I hereby authorize Robert Merila to act on my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this application.

Attachment A

Request for Delineation Review, Wetland Type Determination, or Jurisdictional Determination

By submission of the enclosed wetland delineation report, I am requesting that the U.S. Army Corps of Engineers, St. Paul District (Corps) and/or the Wetland Conservation Act Local Government Unit (LGU) provide me with the following (check all that apply):

☐ **Wetland Type Confirmation**

☐ **Delineation Concurrence.** Concurrence with a delineation is a written notification from the Corps and a decision from the LGU concurring, not concurring, or commenting on the boundaries of the aquatic resources delineated on the property. Delineation concurrences are generally valid for five years unless site conditions change. Under this request alone, the Corps will not address the jurisdictional status of the aquatic resources on the property, only the boundaries of the resources within the review area (including wetlands, tributaries, lakes, etc.).

☐ **Preliminary Jurisdictional Determination.** A preliminary jurisdictional determination (PJD) is a non-binding written indication from the Corps that waters, including wetlands, identified on a parcel may be waters of the United States. For purposes of computation of impacts and compensatory mitigation requirements, a permit decision made on the basis of a PJD will treat all waters and wetlands in the review area as if they are jurisdictional waters of the U.S. PJDs are advisory in nature and may not be appealed.

☒ **Approved Jurisdictional Determination.** An approved jurisdictional determination (AJD) is an official Corps determination that jurisdictional waters of the United States are either present or absent on the property. AJDs can generally be relied upon by the affected party for five years. An AJD may be appealed through the Corps administrative appeal process.

In order for the Corps and LGU to process your request, the wetland delineation must be prepared in accordance with the 1987 Corps of Engineers Wetland Delineation Manual, any approved Regional Supplements to the 1987 Manual, and the *Guidelines for Submitting Wetland Delineations in Minnesota* (2013).

<http://www.mvp.usace.army.mil/Missions/Regulatory/DelineationJDGuidance.aspx>

Attachment B

Supporting Information for Applications Involving Exemptions, No Loss Determinations, and Activities Not Requiring Mitigation

Complete this part *if* you maintain that the identified aquatic resource impacts in Part Four do not require wetland replacement/compensatory mitigation OR *if* you are seeking verification that the proposed water resource impacts are either exempt from replacement or are not under CWA/WCA jurisdiction.

Identify the specific exemption or no-loss provision for which you believe your project or site qualifies:

Provide a detailed explanation of how your project or site qualifies for the above. Be specific and provide and refer to attachments and exhibits that support your contention. Applicants should refer to rules (e.g. WCA rules), guidance documents (e.g. BWSR guidance, Corps guidance letters/public notices), and permit conditions (e.g. Corps General Permit conditions) to determine the necessary information to support the application. Applicants are strongly encouraged to contact the WCA LGU and Corps Project Manager prior to submitting an application if they are unsure of what type of information to provide:

Attachment C

Avoidance and Minimization

Project Purpose, Need, and Requirements. Clearly state the purpose of your project and need for your project. Also include a description of any specific requirements of the project as they relate to project location, project footprint, water management, and any other applicable requirements. Attach an overhead plan sheet showing all relevant features of the project (buildings, roads, etc.), aquatic resource features (impact areas noted) and construction details (grading plans, storm water management plans, etc.), referencing these as necessary:

The Met-Con Addition project is a Commercial/Industrial subdivision with large lots in the eastern developing fringe of Mankato immediately south of an exit from Trunk Highway 14 at the location of a popular truck stop. This is a premier location for Commercial/Industrial buildings to be built because of the quick access to a well-used divided highway that reduces heavy truck travel on City roads and increases the number of businesses in Mankato. It has been determined that development within Blue Earth County is encouraged to be done within City limits instead of outside cities, so this property is being annexed into the City of Mankato with the goal of maximizing it for Commercial/Industrial development. By maximizing the number of Commercial/Industrial lots that are built on this property, it will reduce the demand for other properties to be annexed into the City of Mankato and will reduce overall suburban sprawl along with reducing heavy truck travel on City roadways.

The lots are large because Commercial/Industrial buildings are sprawling by nature, and because large trucks need room to maneuver into and out of the loading/unloading docks. This former agricultural field with three degraded farmed wetlands is the ideal location to add these large lots to the City of Mankato.

As required by engineering specifications, this subdivision has a properly sized stormwater management pond that will collect hard-surface runoff and hold it on-site for the proper length of time and will treat it before that water either percolates into the ground or runs off beyond the perimeter of this subdivision to flow down-slope. This stormwater ponding area takes up a sizable portion of this subdivision in order to provide this water management.

Purpose and Need

By using this property on the western fringe of Mankato next to the highway access and adjacent to a truck stop, large truck traffic on City roadways will be reduced. If this Commercial/Industrial subdivision were located along the southern developing fringe of Mankato, the large trucks would have to drive through the busy roadways in Mankato and would degrade the roads faster than if they did not have to travel on them. Truck traffic slowdowns on City roadways would also be eliminated by having this subdivision right next to on-off ramps to a main highway. The proposed subdivision is zoned as zoned by the City of Mankato as Commercial (Fast Food, Mixed Use Strip Mall, Auto Parts, Coffee Shop, etc.) west of the proposed Ponderosa Court and Industrial west of Ponderosa Ct.

Ponderosa Ct. needs to be short and straight enough that emergency vehicles such as large fire trucks or ambulances will visibly see the end of it in case they mistakenly turn into this roadway while driving quickly to an emergency situation. If Ponderosa Ct. was curved or any longer, it would create a dangerous situation because there is no way to drive straight ahead with the stormwater ponding area at the far end of the dead-end roadway. It is for this reason that Ponderosa Ct. needs to be straight and as short as possible to still accommodate access to the property.

The traffic study performed by SSTS LLC dated 6/3/26 determined that the location of Ponderosa Ct. and the other access point as the only locations allowed on this stretch of Adams St. Those locations are shown on the proposed plan.

Ponderosa Ct. cannot enter from Evergreen Drive along the east side of the property because it would be a dead end roadway that is more than 850 feet long and would need to be curved to reach the Commercial zoned portion of the property. This longer dead end roadway would be too long and too curvy for the safety of emergency vehicles such as large fire trucks or ambulances. Fire trucks that mistakenly drive into this roadway could not visually see that there is not an outlet on the other end (during emergency runs) and could get stuck because they are difficult to back up and the curves. For this reason, this alignment is not a feasible option. In addition, an ambulance that mistakenly drives into a long curvy dead end road might think that it is a short cut across to avoid CSAH 12 turnabouts, but would lose valuable time to reach a heart attack victim because of the time it takes to realize the mistake and turn around. Again, this makes the long alignment from Evergreen Dr. a non-feasible option.

The proposed alternative of the shorter and straighter Ponderosa Ct. allows fire trucks and ambulances to see the far end of the dead end and avoid the dangerous scenarios described above.

To accommodate health, safety, and welfare, the City of Mankato recommended the shorter version of Ponderosa Ct. and split the zoning of the property to have Commercial on the west side (fronting on CSAH 12) and Industrial to the east of Ponderosa Ct. (to be less visible from CSAH 12). This allows the future businesses to have direct frontage on a busy roadway to market their goods and services and keeps the industrial land use away from busy roadways.

The MetCon property is an Industrial land use, so it cannot be constructed west of Ponderosa Ct. in the Commercial zoned area.

Metcon Property

The **MetCon property** is planned to be constructed on **Industrial Lot 1** and has the purpose of being an industrial office space with an area for outdoor storage of heavy equipment such as backhoe excavators, front-end loaders, highlift machines, and the lowboy semi tractor and trailers to haul them in and out of this area. MetCon does construction of industrial sized buildings and needs to house this equipment at this location so that it reduces the travel on roadways from its Faribault location when working on sites in south central Minnesota.

This property needs to have a 125 foot wide area between parking spaces to accommodate the turning radius of the semi tractor and trailers for parking and maneuvering the off-loading of the heavy equipment. Currently, MetCon is leasing office space in Mankato to be closer to sites in south central Minnesota; they want to build their own office space instead of leasing.

The current Trump administration has provided incentives for manufacturers to build manufacturing facilities within the United States by allowing rapid expensing in 2026, which has motivated many manufacturers including Hyundai auto maker to drastically increase production within the United States thus increasing the need for the construction of commercial buildings to manufacture parts in the supply chain. Manufacturing facility construction has increased drastically in 2026, and is anticipated to increase in future years. MetCon builds commercial buildings such as manufacturing facilities, so they are preparing for this anticipated increase in commercial building within Southern Minnesota, which has a desirable potential workforce to draw from.

Industrial Lot 2 is positioned at the southeastern corner of Ponderosa Ct., north and east of the stormwater ponding area that needs to be in the southwestern portion of the property to accommodate the gravity flow of the site and to satisfy the requirements of stormwater retention and treatment before it is released downstream in the watershed.

The buyer of this lot zoned as Industrial will almost certainly require the 125 foot wide turning area for semi tractor and trailers for docking into the facility to bring raw materials for industrial use and to haul out product if a manufacturer purchases this site. If a distributor purchases this site, the semi tractors and trailers will bring in bulk volumes of product and sell lesser volumes of product. Both potential buyers would need to have the semi tractor and trailer maneuvering flat space for loading and off-loading of large trucks. The demand for manufacturing and distribution of American made parts and supply chains has been increasing in 2026 and is anticipated to increase in future years. This property is in line with that anticipated demand. Basin 2 cannot be avoided because any configuration of this lot would require a large flat pavement area to accommodate the large trucks that would come and go from this Industrial zoned property. If this Industrial zoned property were not built here, more land would need to be annexed to the west and there are more wetlands that would need to be impacted. Replacement of Basin 2 at a 2:1 replacement ratio from a Wetland Bank in Blue Earth County provides an increase of wetland functions and values within the county.

Industrial Lot 3 is located in the eastern part of the property, farthest away from CSAH 12 to have the most amount of distance screening from the busy roadway. As an industrial property, the entire site would need to be utilized in order to justify the annexation of this property from the Township into the City limits. If this property were not fully utilized, there would need to be more land annexed to the east, and more wetlands would need to be impacted (the property immediately to the west has wetlands on it). By fully utilizing this property and replacing Basin 3 with Wetland Bank Credits at a 2:1 replacement ratio from a Wetland Bank within Blue Earth County, the wetland functions and values within the county are in a way envisioned by the Wetland Conservation Act of 1991: to concentrate development within urban areas and create wetland bank sites within rural areas near the urban centers. This part of the City of Mankato is zoned Industrial in order to encourage Industrial development here instead of having large semi tractor and trailer trucks drive around the roundabouts and through the City streets clogging traffic and increasing the wear on City streets.

One possible land use for this property is to provide short-term outdoor storage of outdoor semi tractors and trailers waiting for off-loading and / or waiting for picking up a load to haul to the next location. There is a Walmart Distribution

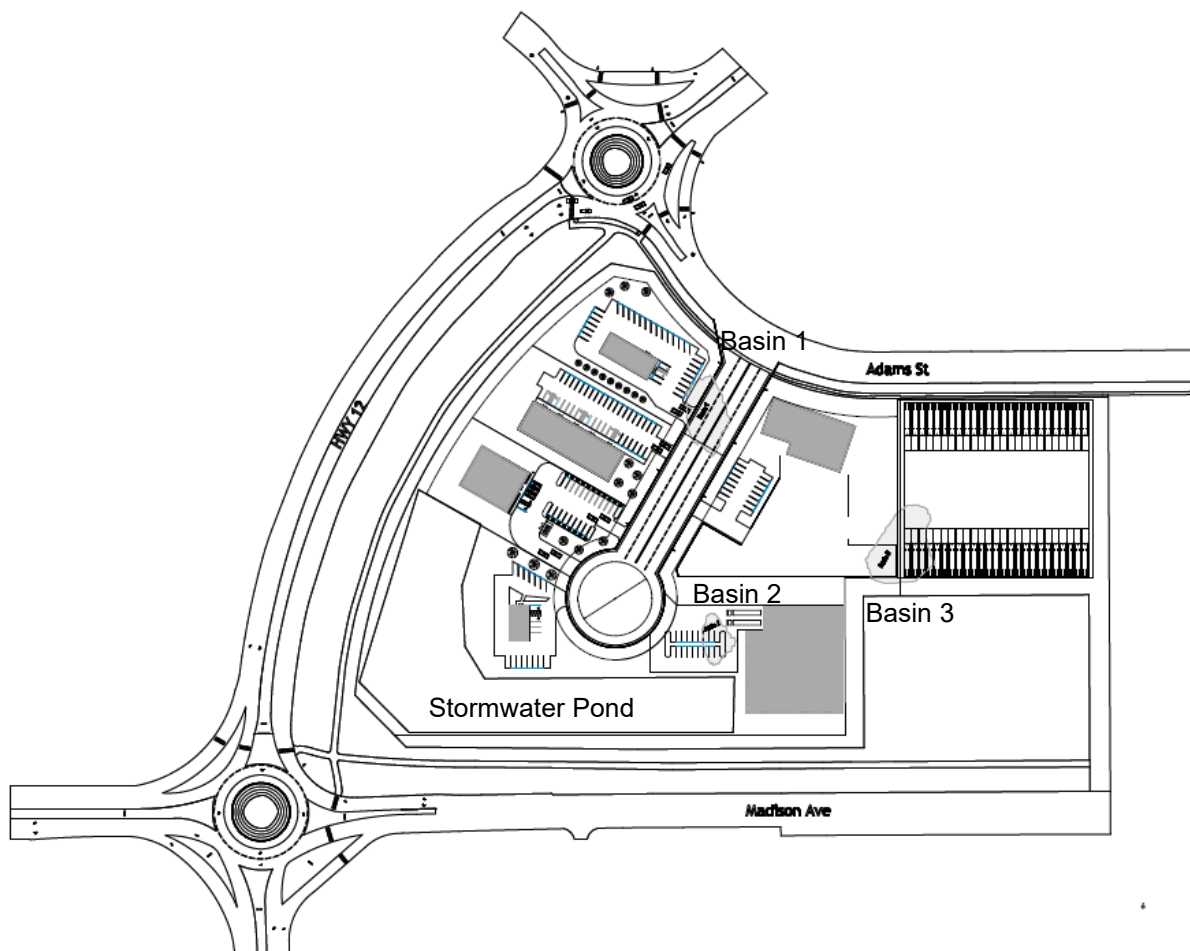
Center located in the Mankato area that services the region, which would need this type of a short term storage location. There are other large businesses in south-central Minnesota that utilize over-the-road trucking for obtaining raw materials and hauling their products across the state and the country. Trunk Highway 14 is a main trucking artery heading east toward Rochester and eastern states, and Mankato is a major Minnesota River crossing for loads heading to and from the northwestern states and avoiding the Twin Cities Metro Area traffic slowdowns. For this reason, this outdoor storage location would be appealing for semi tractor and trailer haulers to utilize as a carry-over location, especially with the walking distance proximity of the travel center across the road to the north that has a restaurant and more amenities than a typical truck stop, built for the purpose of being a destination location for truckers. The short term outdoor storage would provide a benefit to the travel center and also to the truckers who are driving the large trucks.

Commerical Lots West of Ponderosa Ct.

Within the Preferred Alternative, there are four Commercial zoned lots to the west of Ponderosa Ct. with frontage on CSAH 12 but accessed from Ponderosa Ct. The frontage allows for good marketing of products and services, and the access from Adams Street allows for good access for customers. The quick access to Trunk Highway 14 will allow the businesses to pull business from travelers on the divided highway because of the quick and easy on-off access to Fast Food, Auto Parts, a Strip Mall, and/or a Coffee Shop. Because of this desirable access, businesses would see the value in placement of their business at this location and would provide goods and services to not just Mankato but also to the high volume of travelers that pass through the trunk highway corridor.

In addition, these businesses would provide goods and services to truckers and travelers who pull off of the trunk highway to refuel at the travel center immediately to the north, specifically within walking distance of truckers who are taking their daily breaks and parking in the truck stop or the potential use of Industrial Lot 3. If these businesses were not built here, it would be more difficult for the truckers to utilize these types of businesses that are not within walking distance of this area.

Preliminary Site Design



Avoidance. Both the CWA and the WCA require that impacts to aquatic resources be avoided if practicable alternatives exist. Clearly describe all on-site measures considered to avoid impacts to aquatic resources and discuss at least two project alternatives that avoid all impacts to aquatic resources on the site. These alternatives may include alternative site plans, alternate sites, and/or not doing the project. Alternatives should be feasible and prudent (see MN Rules 8420.0520 Subp. 2 C). Applicants are encouraged to attach drawings and plans to support their analysis:

The **No Build Alternative** is the first avoidance alternative. In this alternative, this Commercial/Industrial subdivision would not be built at this location at this time. This is not a viable alternative because there is a strong demand for increasing the business capacity in the Mankato area to provide jobs for people, to increase Minnesota-made products, and to increase the logistical stability in this region.

If this property is not utilized for Commercial/Industrial lots, the businesses that would have built here would build elsewhere and either impact more raw land outside of the City limits where infrastructure is not as readily available, or would build at other locations in a developing fringe area where truck traffic on City roads would increase. The additional truck traffic on City roads would speed up breakdown of those roadways and also increase drive times unnecessarily.

Because of these factors, the no-build alternative is not a viable alternative.

The No Wetland Impact Alternative

In the **No wetland Impact Alternative**, Ponderosa Court would come into the property at Evergreen. This is because this roadway cannot come into the property from the south or the west (off of CSAH 17 and 12 respectively) because both County Roads are existing and were platted by Blue Earth County. The County has restricted the access locations via those Right of Way plats. This means that access into the property can only come in through Adams Street along the north side of the property.

Ponderosa Ct. cannot enter the property to the west of Basin 1 because the engineering requirements need enough distance from the intersection with CSAH 12 for safety in making the right turn into Ponderosa Ct. Furthermore, Ponderosa Court must line up with the entry driveway on the north side of Adams St. per engineering requirement. Ponderosa Ct. cannot be moved eastward away from the curve because of the requirement that streets must be at least 300 feet away from each other and the straight part of Adams St. is less than 300 feet from the platted Evergreen Dr.

In addition, the City of Mankato engineers prefers that dead end streets be as short and as straight as possible so that emergency vehicles such as large fire trucks and ambulances can see that it is not a through street if they are forced to bypass traffic or an accident on a main roadway. The Preferred Alternative of Ponderosa Court fits this criteria and the No Wetland Impact Alternative does not.

If Ponderosa Ct. was required to enter the site from Evergreen Drive and avoid all wetland impacts, the dead-end roadway would be approximately 850 feet long and have curves in it that would make it difficult for emergency vehicles to see to the end of it during emergency runs. When attempting to bypass traffic or a traffic accident, it is common for emergency vehicles to attempt to use back roads and this would create a very dangerous situation where a large fire truck would become entrapped and have much difficulty backing out and an entire convoy could become entrapped. An ambulance driving to a heart attack victim that seeks to bypass traffic or an accident on CSAH 12 could attempt to take back roads and not realize that this is a dead end with a stormwater pond at the end and lose precious time on the way to save the life of a person. These dangerous situations can be avoided by the preferred alternative that is straight and as short as practicable in order to reach the potential businesses identified.

An additional reason why the No Wetland Impact Alternative is not feasible is because the site needs to be mass-graded for the large Commercial and Industrial businesses that will use the sites in this property that is zoned as Commercial and Industrial. The Commercial buildings need to be placed on flat ground with large driveways and parking lots such that mass grading has to be done for them to be built. The Industrial lots need to be mass graded to a flat contour because of the need for semi tractor and trailer vehicles to have at least 125 feet of flat space to turn and maneuver into parking and/or docking places. It would be extremely difficult for these sites to be fully utilized unless they are mass graded to the elevations that allow for proper use of the properties.

Furthermore, because of the extensive roof tops and hard surface roadways, sidewalks, and parking areas, most of the rainfall runoff within the immediate watershed would be directed to the stormwater ponding area that is at a lower elevation than the existing wetlands, so Basin 1, Basin 2, and Basin 3 would be starved of their hydrology and therefore

would be impacted even if a chain link fence were placed around them to keep vehicles from backing into them in the back ends of parking lots, or within parking lots. Wetlands technically avoided but without much of an adjacent upland would seriously degrade over time. This is precisely why the Wetland Conservation Act of 1991 started with a provision for the purchase of wetland bank credits for replacement of wetland functions and values in a place where larger wetland complexes could be restored/created instead of requiring on-site replacement of unavoidable wetland impacts that was the case prior to circa 1995. The replacement ratio is 2:1 in Blue Earth County, so there will be a net gain of both wetland acreage and wetland quality through the purchase of wetland bank credits within Blue Earth County in the Preferred Alternative.

Another reason why the No Wetland Impact Alternative is not feasible is because the City of Mankato has run out of room and needs to expand through the annexation of land from the perimeter townships. By not maximizing the Commercial and Industrial potential of this property, the demand for Commercial and Industrial lots will require that more land be annexed into the City. The property immediately to the east of this location has wetlands that would need to be impacted in order to build more Commercial and Industrial lots as this part of the City is zoned Commercial and Industrial. If lots were placed farther to the south, there would be more wear and tear on the City roadways and the traffic would become more clogged, especially when semi tractor and trailers have to navigate the turnabouts and the stoplights within the city.

Based on these things, the No Wetland Impact alternative is not a feasible alternative.

In the Preferred Alternative, the Ponderosa Ct. roadway alignment allows for the best use of this property for the maximum amount of commercial or industrial businesses to utilize the lots in the best way based on the shape of the property and the need for hard-surface runoff retention and treatment. The wetland impacts to Basin 1 cannot be avoided because the ultimate purpose of this property is to provide the maximum number of Commercial/Industrial lots to reduce the need to annex more land into the city in the future.

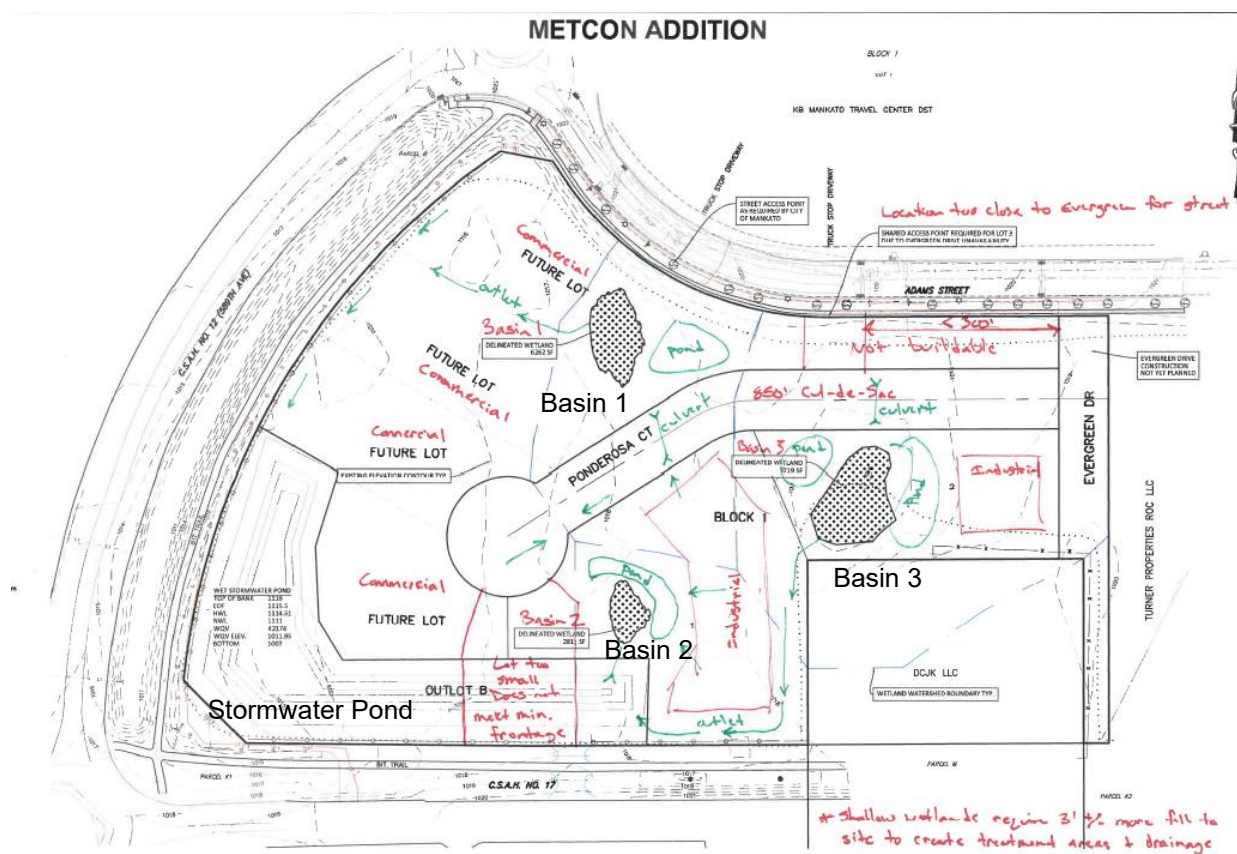
Basin 2 is located right in the middle of the entrance to one of the properties, so it would be impossible to grade for a Commercial/Industrial building entrance and avoid this wetland.

Basin 3 is located on the property line between two ideal-sized Commercial/Industrial lots where surface water flow is planned to be directed within the property to flow down to the stormwater ponding area for retention/treatment; if this wetland had to be avoided, one or both of these lots would be un-buildable for the intended Commercial/Industrial use. In addition, hard-surface runoff would flow off the property to the south and potentially flood out the neighboring property, which is not a desirable situation.

Single family subdivisions have much smaller lot sizes that would allow for the avoidance of wetlands within a subdivision. Commercial/Industrial areas require large expanses of flat ground for the square or rectangular buildings needed for commercial and industrial use along with the requirement of trucking loading/unloading docks to drop off raw components and load finished products.

Based on these factors, it is not practicable to build around and avoid impacts to the farmed wetlands that are present on the property.

Sketch of the No Wetland Impact Alternative



Minimization. Both the CWA and the WCA require that all unavoidable impacts to aquatic resources be minimized to the greatest extent practicable. Discuss all features of the proposed project that have been modified to minimize the impacts to water resources (see MN Rules 8420.0520 Subp. 4):

As described above, the design criteria for this property to be annexed into the City of Mankato is to provide the greatest number of Commercial/Industrial units within this property so that it reduces the need to annex more land for Commercial/industrial land use. The location of this property being very close to both the entry/exit of a major divided highway and also a truck stop makes this a prime location for Commercial/Industrial land use where large trucks are anticipated to be entering and exiting. By utilizing this land to the greatest extent possible, there would be reduced wear-and-tear on the roadways from reduced truck traffic; with increased truck traffic, roadways would need to be rebuilt sooner and that rebuilding effort would increase the risk of sediment events to adjacent wetlands, so concentrating Commercial/Industrial development here would reduce ecological impacts in the future.

Basin 1 (6,262 square feet) is right on the roadway that needs to be in the middle of the property so that the commercial buildings could be built to the west and the Industrial properties can be built to the east. The roadway location cannot be farther west because it would be too close to CSAH12 and it cannot be farther to the east because it must line up with the entry roadway across to the north (and needs to be at least 300 feet away from platted Evergreen Dr.)

Basin 2 (2,811 square feet) is in the middle of the parking/loading area for Industrial Lot 1 south of the MetCon lot. Because this lot is within the Industrial zoning, it is expected to have semi tractor and trailer use, which requires 125 feet of open space for turning around and backing into parking spaces or loading docks. Basin 2 is directly underneath where this maneuvering activity would be located. The stormwater ponding area needs to be in the southwestern portion of the property to satisfy the stormwater retention and treatment requirements, and this is the best place on the property to place it.

Sizing and location of the subdivision's stormwater pond and surface swales to said pond restrict the buildable area of this lot such that it would be unbuildable as an industrial lot without impact to Basin 2. If this basin were left alone, it would lose its source of surface water because the surface water is being directed to the stormwater pond immediately to the southwest and the functions and values of this basin would not exist even if it were avoided. Therefore, it is better for this basin to be

replaced at a 2:1 replacement ratio through the purchase of wetland bank credits from within Blue Earth County.

Basin 3 (9,719 square feet) is in the middle of the surface water drainage that is necessary to prevent flooding onto the adjoining property and divert the surface stormwater into the stormwater retention and treatment pond in the SW portion of the property. If this is avoided, the water from the hard surface rooftops and roadways on the eastern lot would flood into the adjoining property and there would not be proper flow to the stormwater pond that is designed to retain and treat the stormwater from the hard surface on the property. Furthermore, if this spot were avoided, it would grow up in agricultural field weeds and would be starved of water because of the need to treat hard surface in a stormwater pond before letting it flow into natural wetlands.

Access to Adams Avenue NW for Lot 3 (the eastern lot) will also be required at the location shown along the Lot 2/Lot 3 shared lot line, adding even greater surface water treatment requirements before those waters could enter Basin 3.

The current design includes a swale that goes from Adams Avenue NW southward then westward to the stormwater ponding area, collecting untreated stormwater from Lots 1, 2, and 3. If this wetland was left on the landscape, stormwater basins would be required ringing the upstream portions of the basin. Due to the very flat nature of the site, these basins would require the import of multiple feet of fill onto the sites to provide "dry" storage above the elevation of the wetlands. The building pads would likewise be raised to maintain positive drainage to the ringing treatment systems resulting in match slopes within the sites to the proposed roadways greater than allowed by city standards.

Additionally subsurface water flows will be impacted by the nearby required drainage swale on the south line of Lots 2 and 3 which could have detrimental effects to Basin 3.

The current plan is to grade the area of Basin 3 into a surface flowageway down to the stormwater pond and replace this wetland with the purchase of wetland bank credits in Blue Earth County at a 2:1 ratio.

Total unavoidable wetland impacts are 18,792 square feet or 0.4314 acre

Off-Site Alternatives. An off-site alternatives analysis is not required for all permit applications. If you know that your proposal will require an individual permit (standard permit or letter of permission) from the U.S. Army Corps of Engineers, you may be required to provide an off-site alternatives analysis. The alternatives analysis is not required for a complete application but must be provided during the review process in order for the Corps to complete the evaluation of your application and reach a final decision. Applicants with questions about when an off-site alternatives analysis is required should contact their Corps Project Manager.

This property is an agricultural field that is annexed into the City of Mankato for the purpose of being used for Commercial/Industrial use. As such, this has been identified as the next most logical annexation of land for the City in order to satisfy the demand for more Commercial/Industrial lots that are needed in south-central Minnesota. By concentrating and maximizing the usage of these large lots on a property such as this, it reduces the demand for expansion and annexation of other properties around the developing fringe of the City of Mankato. This is the best location for this large-lot Commercial/Industrial subdivision with a truck stop directly adjacent to this property. These factors are not found elsewhere in the area and therefore there are no off-site alternatives.

Attachment D

Replacement/Compensatory Mitigation

Complete this part **if** your application involves wetland replacement/compensatory mitigation not associated with the local road wetland replacement program. Applicants should consult Corps mitigation guidelines and WCA rules for requirements.

Replacement/Compensatory Mitigation via Wetland Banking. Complete this section if you are proposing to use credits from an existing wetland bank (with an account number in the State wetland banking system) for all or part of your replacement/compensatory mitigation requirements.

Wetland Bank Account #	County	Major Watershed #	Bank Service Area #	Credit Type (if applicable)	Number of Credits
1804	Blue Earth	28	9	SWC	0.8628

Applicants should attach documentation indicating that they have contacted the wetland bank account owner and reached at least a tentative agreement to utilize the identified credits for the project. This documentation could be a signed purchase agreement, signed application for withdrawal of credits or some other correspondence indicating an agreement between the applicant and the bank owner. *However, applicants are advised not to enter into a binding agreement to purchase credits until the mitigation plan is approved by the Corps and LGU.*

Project-Specific Replacement/Permittee Responsible Mitigation. Complete this section if you are proposing to pursue actions (restoration, creation, preservation, etc.) to generate wetland replacement/compensatory mitigation credits for this proposed project.

WCA Action Eligible for Credit ¹	Corps Mitigation Compensation Technique ²	Acres	Credit % Requested	Credits Anticipated ³	County	Major Watershed #	Bank Service Area #

¹Refer to the name and subpart number in MN Rule 8420.0526.

²Refer to the technique listed in *St. Paul District Policy for Wetland Compensatory Mitigation in Minnesota*.

³If WCA and Corps crediting differs, then enter both numbers and distinguish which is Corps and which is WCA.

Explain how each proposed action or technique will be completed (e.g. wetland hydrology will be restored by breaking the tile.....) and how the proposal meets the crediting criteria associated with it. Applicants should refer to the Corps mitigation policy language, WCA rule language, and all associated Corps and WCA guidance related to the action or technique:

Attach a site location map, soils map, recent aerial photograph, and any other maps to show the location and other relevant features of each wetland replacement/mitigation site. Discuss in detail existing vegetation, existing landscape features, land use (on and surrounding the site), existing soils, drainage systems (if present), and water sources and movement. Include a topographic map showing key features related to hydrology and water flow (inlets, outlets, ditches, pumps, etc.):

Attach a map of the existing aquatic resources, associated delineation report, and any documentation of regulatory review or approval. Discuss as necessary:

For actions involving construction activities, attach construction plans and specifications with all relevant details. Discuss and provide documentation of a hydrologic and hydraulic analysis of the site to define existing conditions, predict project outcomes, identify specific project performance standards and avoid adverse offsite impacts. Plans and specifications should be prepared by a licensed engineer following standard engineering practices. Discuss anticipated construction sequence and timing:

For projects involving vegetation restoration, provide a vegetation establishment plan that includes information on site preparation, seed mixes and plant materials, seeding/planting plan (attach seeding/planting zone map), planting/seeding methods, vegetation maintenance, and an anticipated schedule of activities:

For projects involving construction or vegetation restoration, identify and discuss goals and specific outcomes that can be determined for credit allocation. Provide a proposed credit allocation table tied to outcomes:

Provide a five-year monitoring plan to address project outcomes and credit allocation:

Discuss and provide evidence of ownership or rights to conduct wetland replacement/mitigation on each site:

Quantify all proposed wetland credits and compare to wetland impacts to identify a proposed wetland replacement ratio. Discuss how this replacement ratio is consistent with Corps and WCA requirements:

By signature below, the applicant attests to the following (only required if application involves project-specific/permittee responsible replacement):

- All proposed replacement wetlands were not:
 - Previously restored or created under a prior approved replacement plan or permit
 - Drained or filled under an exemption during the previous 10 years
 - Restored with financial assistance from public conservation programs
 - Restored using private funds, other than landowner funds, unless the funds are paid back with interest to the individual or organization that funded the restoration and the individual or organization notifies the local government unit in writing that the restored wetland may be considered for replacement.
- The wetland will be replaced before or concurrent with the actual draining or filling of a wetland.
- An irrevocable bank letter of credit, performance bond, or other acceptable security will be provided to guarantee successful completion of the wetland replacement.
- Within 30 days of either receiving approval of this application or beginning work on the project, I will record the Declaration of Restrictions and Covenants on the deed for the property on which the replacement wetland(s) will be located and submit proof of such recording to the LGU and the Corps.

Applicant or Representative:

Title:

Signature: *Garby McDonough* 7/28/26 Date:

Attachment E

Local Road Replacement Program Qualification

Complete this part **if** you are a local road authority (county highway department, city transportation department, etc.) seeking verification that your project (or a portion of your project) qualifies for the MN Local Government Road Wetland Replacement Program (LGRWRP). If portions of your project are not eligible for the LGRWRP, then Attachment D should be completed and attached to your application.

Discuss how your project is a repair, rehabilitation, reconstruction, or replacement of a currently serviceable road to meet state/federal design or safety standards/requirements. Applicants should identify the specific road deficiencies and how the project will rectify them. Attach supporting documents and information as applicable:

Provide a map, plan, and/or aerial photograph accurately depicting wetland boundaries within the project area. Attach associated delineation/determination report or otherwise explain the method(s) used to identify and delineate wetlands. Also attach and discuss any type of review or approval of wetland boundaries or other aspects of the project by a member or members of the local Technical Evaluation Panel (TEP) or Corps of Engineers:

In the table below, identify only the wetland impacts from Part 4 that the road authority has determined should qualify for the LGRWRP.

Wetland Impact ID (as noted on overhead view)	Type of Impact (fill, excavate, drain)	Size of Impact (square feet or acres to 0.01)	Existing Plant Community Type(s) in Impact Area ¹	County, Major Watershed #, and Bank Service Area # of Impact ²

¹Use *Wetland Plants and Plant Community Types of Minnesota and Wisconsin* 3rd Ed. as modified in MN Rules 8420.0405 Subp. 2.

²Refer to Major Watershed and Bank Service Area maps in MN Rules 8420.0522 Subp. 7.

Discuss the feasibility of providing onsite compensatory mitigation/replacement for important site-specific wetland functions:

Please note that under the MN Wetland Conservation Act, projects with less than 10,000 square feet of wetland impact are allowed to commence prior to submission of this notification so long as the notification is submitted within 30 days of the impact. The Clean Water Act has no such provision and requires that permits be obtained prior to any regulated discharges into water of the United States. To avoid potential unauthorized activities, road authorities must, at a minimum, provide a complete application to the Corps and receive a permit prior to commencing work.

By signature below, the road authority attests that they have followed the process in MN Rules 8420.0544 and have determined that the wetland impacts identified in Attachment D are eligible for the MN Local Government Road Wetland Replacement Program.

Road Authority Representative:

Title:

Signature: _____

Date:

Technical Evaluation Panel Concurrence:

Project Name and/or Number: **Metcon Addition**

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? ☐ Yes ☐ No

Signature: _____

Date:

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? ☐ Yes ☐ No

Signature: _____

Date:

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? ☐ Yes ☐ No

Signature: _____

Date:

TEP member:

Representing:

Concur with road authority's determination of qualification for the local road wetland replacement program? ☐ Yes ☐ No

Signature: _____

Date:

Upon approval and signature by the TEP, application must be sent to: **Wetland Bank Administration
Minnesota Board of Water & Soil Resources
520 Lafayette Road North
Saint Paul, MN 55155**

Special Considerations Metcon Addition

Subp. 2. Endangered and threatened species.

The property is almost entirely an agricultural field that has been annually tilled for decades. The likelihood of any endangered or threatened species present is very low. This property has a busy truck stop immediately to the north, and urban land use to the west and south. There is a limited access divided highway immediately north of the truck stop, so there would be no travel corridor from the north and it is mostly agricultural fields to the east. With all of the activity and minimal travel at this location, travelling wildlife use would be very low. Since this land has been in row crop farming for decades, the likelihood of any unique plants at this location would be very unlikely.

Subp. 3. Rare natural communities.

Being an agricultural field, the plant community has been row crop agricultural that is regularly tilled when the crops are harvested for decades. It is unlikely that there would be a rare natural community on the property.

Subp. 4. Special fish and wildlife resources.

A. fish passage and spawning areas;

There are no areas on the property that have fish.

B. colonial water bird nesting colonies;

The property is mostly farmland without trees. The likelihood for colonial bird nesting is low.

C. migratory waterfowl concentration areas;

The likelihood for waterfowl concentration is low because this farm field is relatively small compared to the fields that are typically used by waterfowl. Also, this property is being annexed into the City of Mankato with development around it. The stormwater ponding area will increase waterfowl habitat as compared to the farmed wetlands that are proposed to be impacted for the project; the stormwater pond would not be row cropped the way that the farmed wetlands are row cropped, so there would be a net gain for waterfowl habitat.

D. deer wintering areas; and

The property is a row cropped agricultural field that is being annexed into the City of Mankato. There is development north, east, and south of this property, so it is unlikely that deer would winter here.

E. wildlife travel corridors.

With City development to the north, east, and south and a divided highway, there are no wildlife travel corridors.

Subp. 5. **Archaeological, historic, or cultural resource sites.**

This property has been a row crop agricultural field for decades, so if there were any cultural resources previously, they would have been destroyed long ago.

Subp. 6. **Groundwater sensitivity.**

This property is relatively flat and it is unlikely that there is much interaction with groundwater due to the tight nature of the soils commonly found in this area. The wetlands proposed to be impacted were mild depressions within agricultural fields and were unlikely to recharge groundwater. The stormwater pond that is planned to be constructed on the property is designed to have vegetation growing in it to allow the breakdown constituents of hard surface runoff before it flows downstream or percolates into groundwater.

Subp. 7. **Sensitive surface waters.**

There are no trout waters or outstanding resource value waters adjacent to this property.

Subp. 8. **Education or research use.**

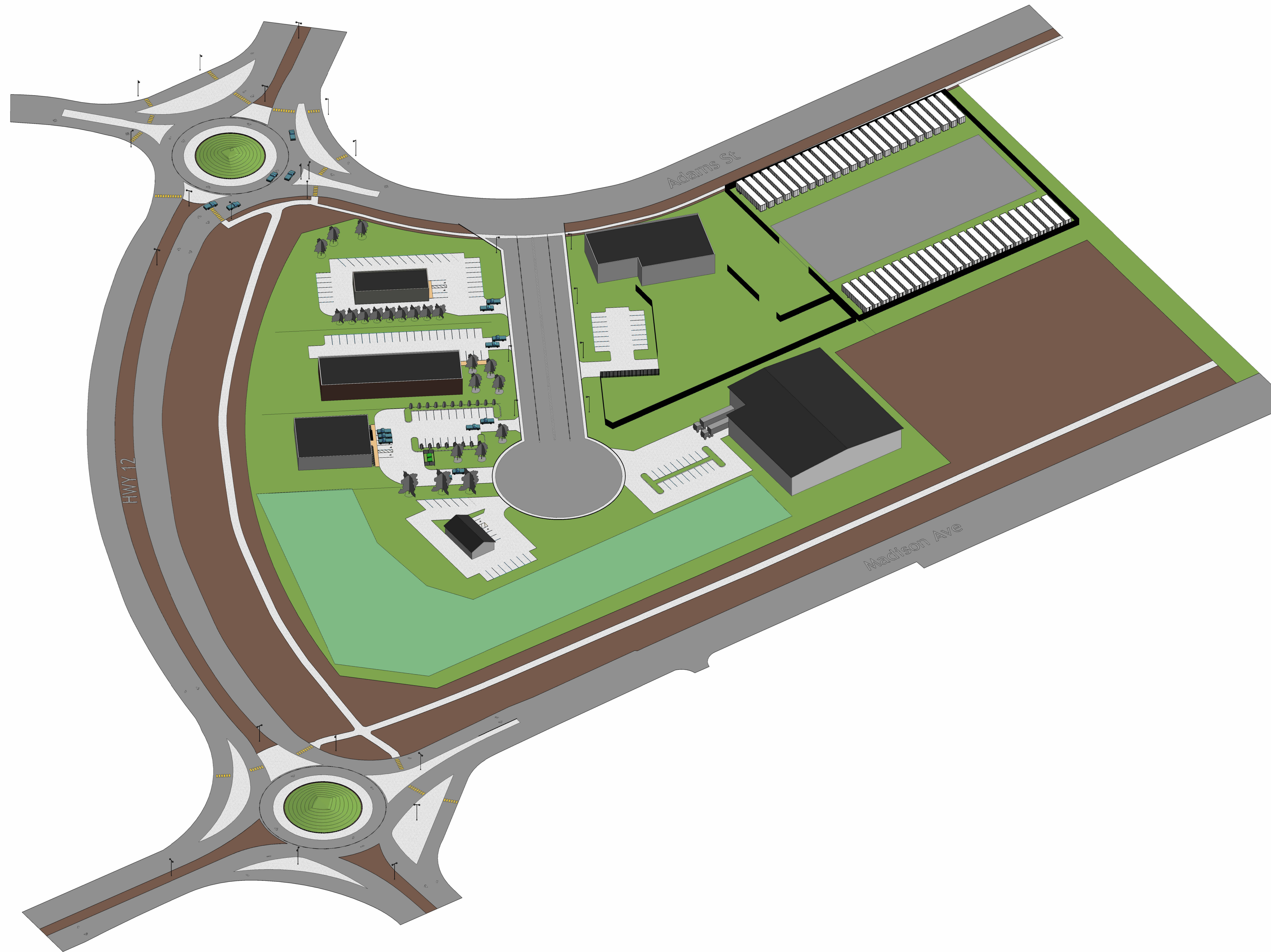
There are no known wetlands used for educational or research purposes on the property.

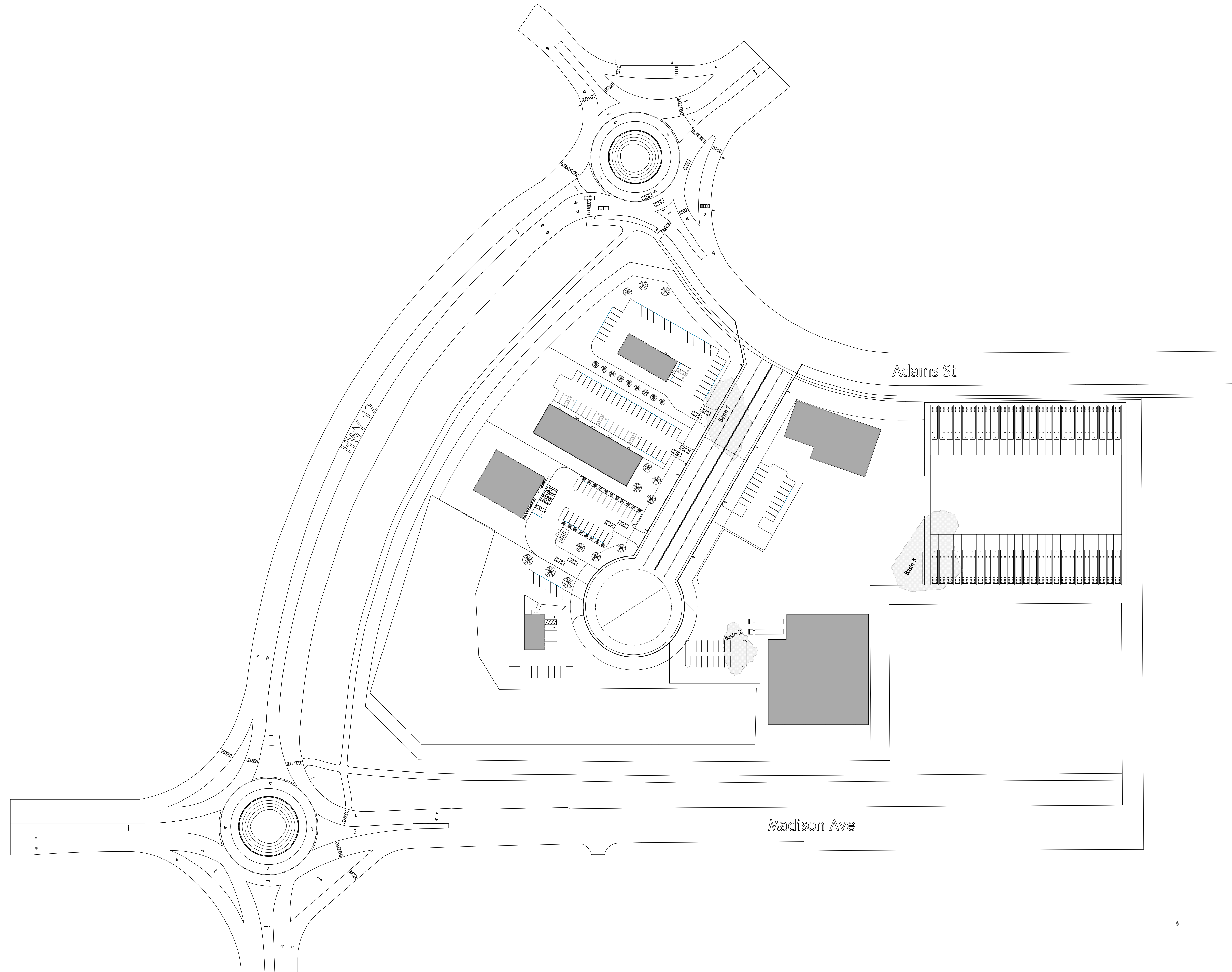
Subp. 9. **Waste disposal sites.**

The property appears to be an agricultural field that was used for growing crops that would be used for food. As such, the likelihood for hazardous wastes is low.

Subp. 10. **Consistency with other plans.**

This proposed Commercial/Industrial large lot subdivision of land is consistent with the zoning and comprehensive plans of the City of Mankato as shown by the annexation of this land into the City. The engineered stormwater pond that is designed to retain water to allow suspended colloidal solids to precipitate out and the vegetation designed to break down chemicals in solution is consistent with local/watershed management plans.





EXISTING LEGAL DESCRIPTION:

That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as: Commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right of Way Plat No.27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System – Blue Earth County Zone – HARN NAD83 – 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right of Way Plat No. 27, 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1; a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East, along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning.

Excepting therefrom all of Freyberg Addition, Blue Earth County, Minnesota.

LEGEND

- W = Water Main
- S = Sanitary Sewer
- ST = Storm Sewer
- G = Gas Main
- UT = Underground Telephone
- OT = Overhead Telephone
- FO = Fiber-Optics
- UE = Underground Electric
- OE = Overhead Electric
- UTV = Underground TV
- JLM = Judicial Landmark
- X = Chain Link Fence
- = Control Access
- = Sign
- = Stop Sign
- = Light Pole
- = Flood Lights
- = Power Pole
- = Guy Anchor
- = Fire hydrant
- = Water Main Valve
- = Culvert
- = Catch Basin & Catch Basin Numbers
- = Manholes & Manhole Numbers
- = Elevation Contour Line
- = Spot Elevation
- = Rim Elevation
- = FlowLine Elevation
- = Deciduous Tree
- = Coniferous Tree
- = Bush

ZONING NOTES:

Outlot A to be Zoned B-3 Highway Business

Setbacks:

Front: 15' Impervious Surface or Structure

Rear: 3' Impervious Surface or Structure

Side: 6' Impervious Surface or Structure

Maximum Height: None

Lots 1-3 Block 1 to be Zoned M-1 Light Industrial

Setbacks:

Front: 15' Impervious Surface, 30' Structure

Rear: None

Side: 6' Impervious Surface or 15' Building

Transitional to Residential: 30'

Maximum Height: None

FLOOD ZONE:

The surveyed property shown on this survey map is in Flood Zone X, according to Flood Insurance Rate Map Community Panel No. 27013C0116F, published by the Federal Emergency Management Agency, effective date February 22, 2024

OWNERS / DEVELOPERS:

METCON
15760 Acorn Trail
Faribault, MN 55021
(597)-332-2266

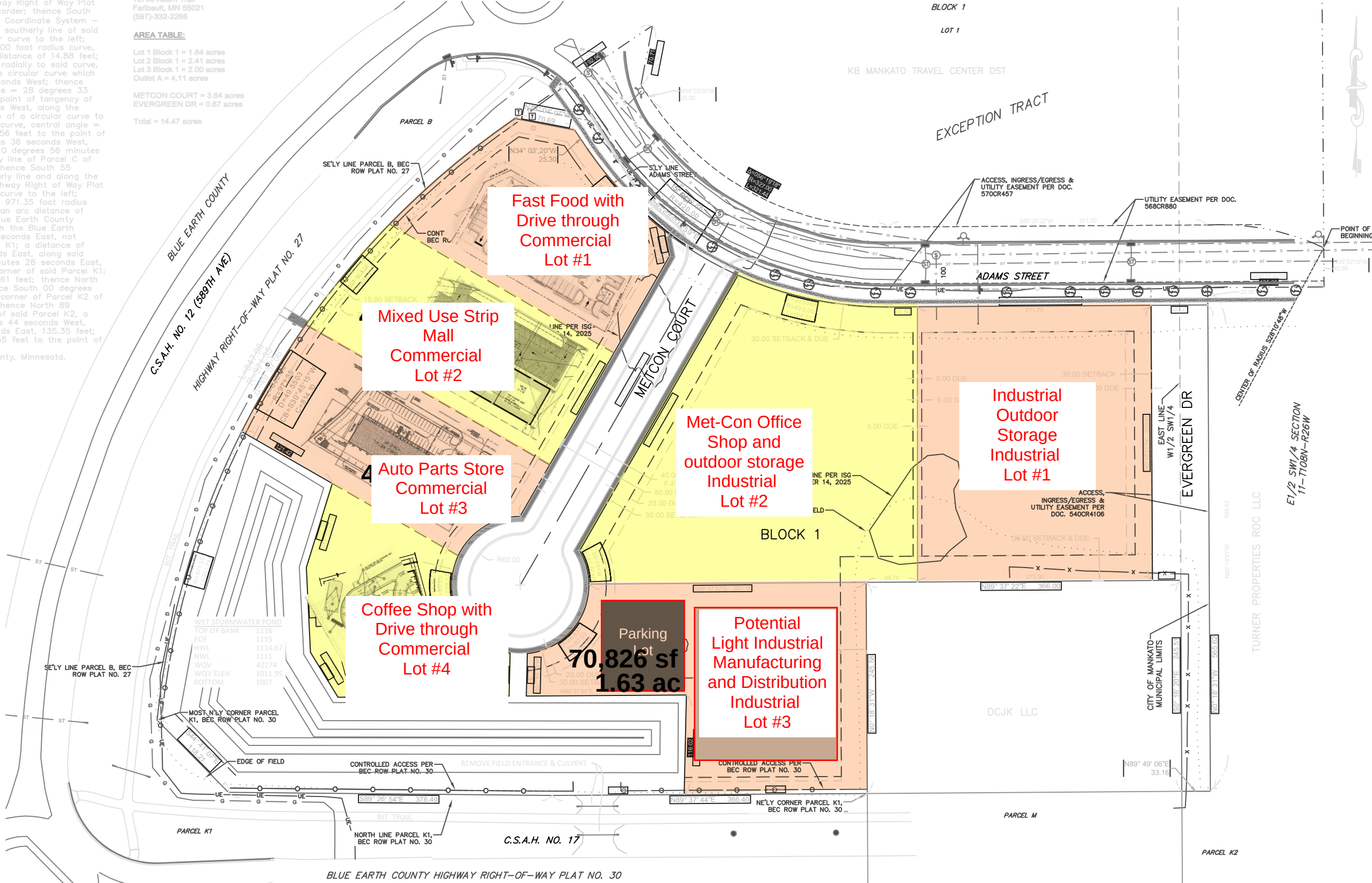
AREA TABLE:

Lot 1 Block 1 = 1.64 acres
Lot 2 Block 1 = 2.41 acres
Lot 3 Block 1 = 2.00 acres
Outlot A = 4.11 acres

METCON COURT = 3.64 acres
EVERGREEN DR = 0.67 acres

Total = 14.47 acres

METCON ADDITION

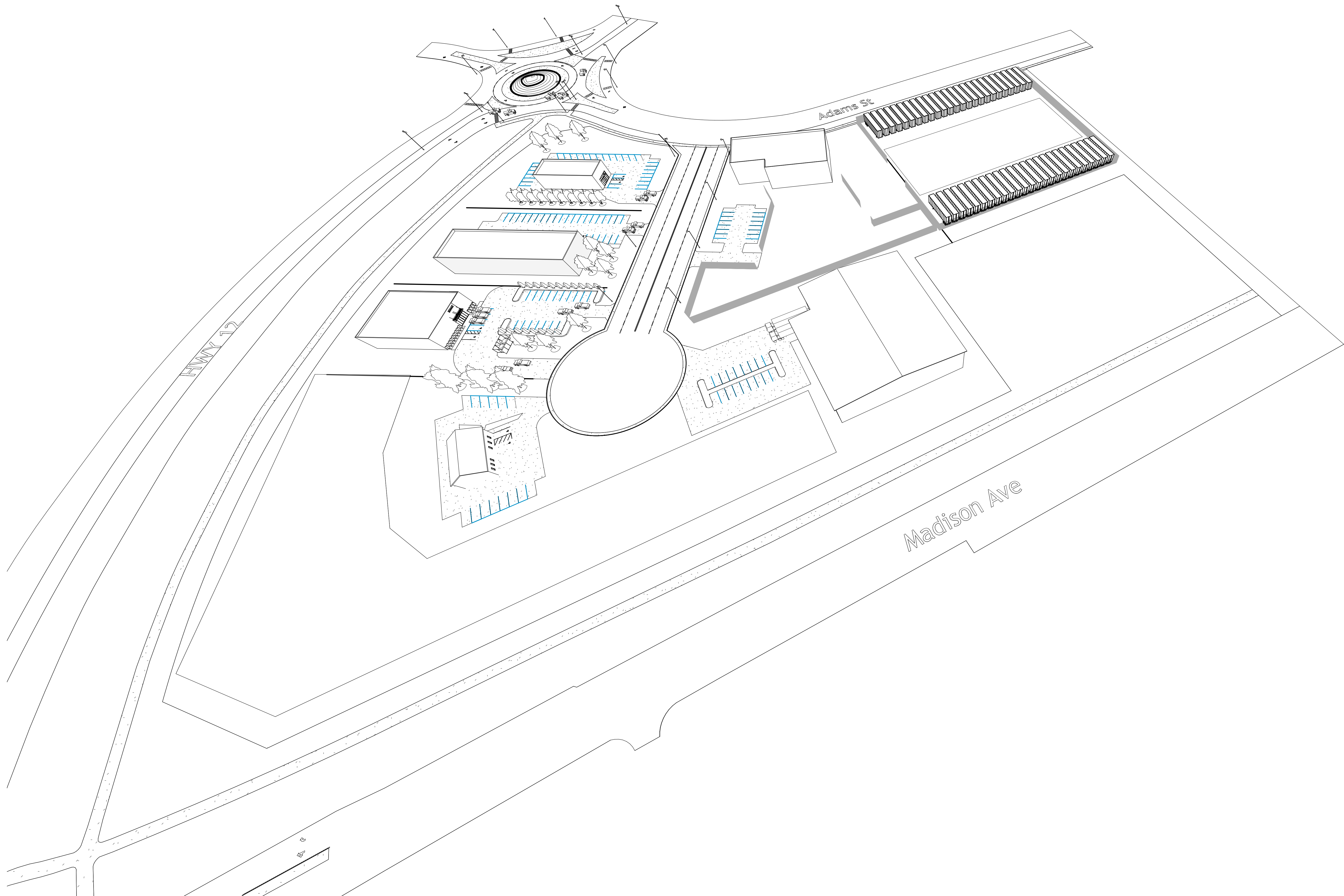


REV.	BY	DATE	REVISION DESCRIPTION

JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 56001
507-451-4598

DESIGNED: JHS	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 Minnesota. John H. Schulte V License No. 44639 Date: 6/16/26
DRAWN: JHS	
CHECKED: BJ	
Date: 6/16/26	
DWG: 25-1234PP	

PRELIMINARY PLAT METCON ADDITION PART OF SW1/4 SECTION 11-T108N-R26W SITE PLAN	SHEET 1 OF 2
---	-----------------------



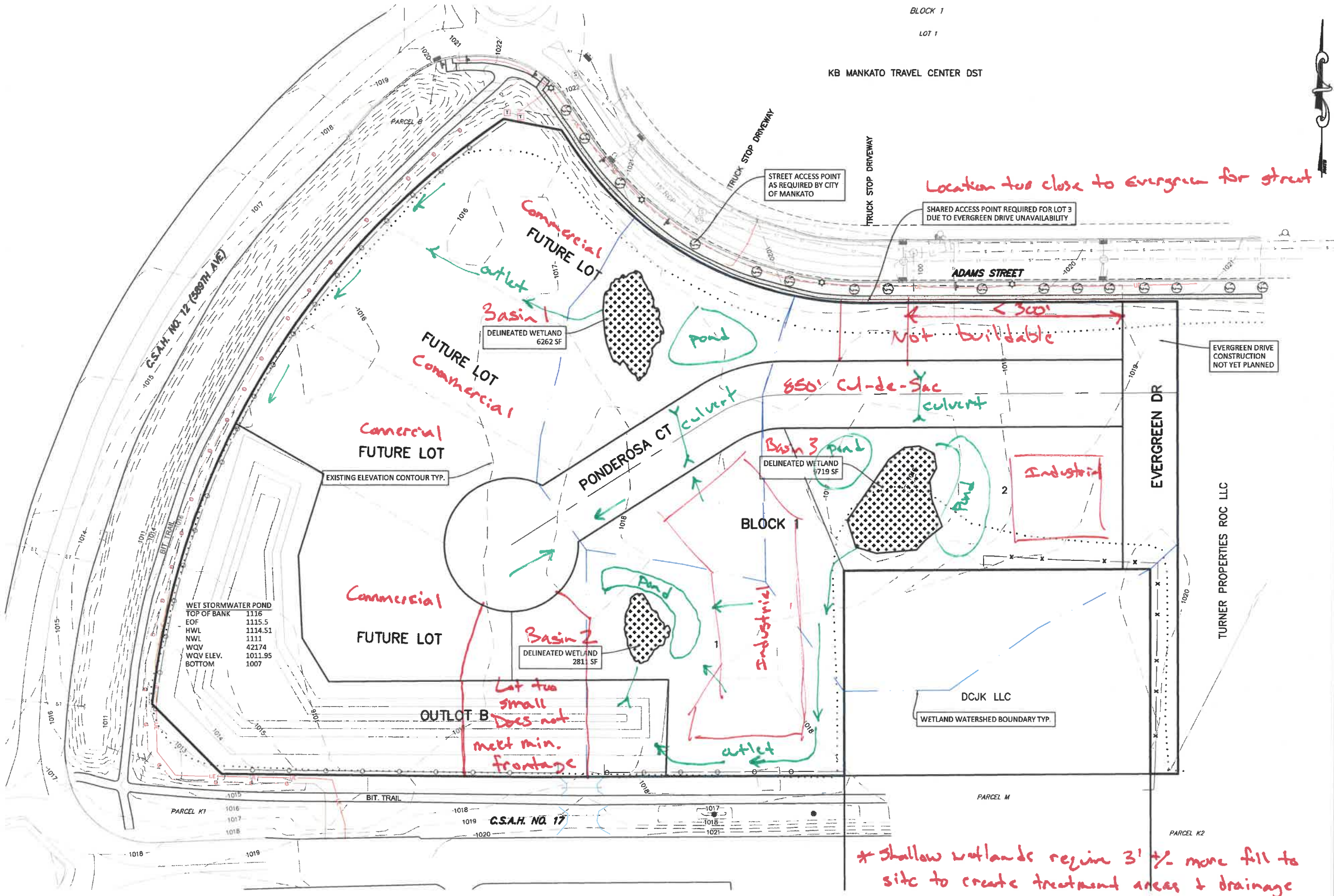
METCON ADDITION

BLOCK 1

LOT 1

KB MANKATO TRAVEL CENTER DST

- LEGEND**
- Water Main
 - Sanitary Sewer
 - Storm Sewer
 - Gas Main
 - Underground Telephone
 - Overhead Telephone
 - Fiber-Optics
 - Underground Electric
 - Overhead Electric
 - Underground TV
 - Judicial Landmark
 - Chain Link Fence
 - Control Access
 - Sign
 - Stop Sign
 - Light Pole
 - Flood Lights
 - Power Pole
 - Guy Anchor
 - Fire Hydrant
 - Water Main Valve
 - Culvert
 - Catch Basin & Catch Basin Numbers
 - Manholes & Manhole Numbers
 - Elevation Contour Line
 - Spot Elevation
 - Rim Elevation
 - FlowLine Elevation
 - Deciduous Tree
 - Coniferous Tree
 - Bush



REV.	BY	DATE	REVISION DESCRIPTION

JONES HAUGH SMITH
Engineers & Surveyors
415 West North Street Owatonna, MN 56057-4598

DESIGNED: JHS
DRAWN: JHS
CHECKED: BAJ
Date: 8/13/26
DWG: 25-1234PP

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 Minnesota.

John H. Schulte V
License No. 44639 Date: 8/13/26

PRELIMINARY PLAT
METCON ADDITION
PART OF SW1/4 SECTION 11-T108N-R26W
NO WETLAND IMPACTS PLAN

SHEET 1 OF 1

**PURCHASE AGREEMENT
FOR
WETLAND BANKING CREDITS**

THIS AGREEMENT is made this 27th day of July, 2026 between Jonathan Guentzel, Guentzel Family Farms (Seller) and Randy McDonough, McDonough Farms, LLC (Buyer).

1. Seller agrees to sell to Buyer, and Buyer agrees to buy from Seller, the wetland banking credits (Credits) from Wetland Bank 1804 listed below:

Credits to be Sold										
Credit Subgroup		Credit Type SWC or AGC		Wetland Type/Plant Community Type			Cost per Credit		Credit Amounts	
C		SWC		SWC			\$50,000.00		0.8628	
Per Credit Withdrawal Fee by BSA*						Enter the Withdrawal Fee for the BSA of the account:	Total Cost:	\$43,140.00	Total Credits :	0.8628
	SWC	AGC		SWC	AGC					
BSA 1	\$520	\$270	BSA 6	\$1,083	\$586		Withdrawal Fee x total credits = fee			
BSA 2	\$371	\$191	BSA 7	\$1,992	\$1,060	\$2,628/credit	Withdrawal Fee:		\$2,267.44	
BSA 3	\$725	\$389	BSA 8	\$2,577	\$1,348	Easement Stewardship Fee:				
						Easement Stewardship fee x total credits = fee				
BSA 4	\$1,412	\$724	BSA 9	\$2,628	\$1,332	\$302	Stewardship Fee:		\$260.57	
BSA 5	\$685	\$367	BSA 10	\$3,099	\$1,580		Total Fees:		\$2,528.01	
							Grand Total:		\$45,668.01	

*AGC is for Ag bank credits and SWC is for standard bank credits.

2. Seller represents and warrants as follows:

- a) The Credits are deposited in an account in the Minnesota Wetland Bank administered by the Minnesota Board of Water and Soil Resources (BWSR) pursuant to Minn. Rules Chapter 8420.0700-.0760.
- b) Seller owns the Credits and has the right to sell the Credits to Buyer.

3. Buyer will pay Seller a total of \$ 43,140.00 for the Credits, as follows:

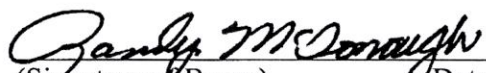
- a) \$ 0 as earnest money, to be paid when this Agreement is signed; and
- b) The balance of \$ 43,140.00 to be paid on the Closing Date listed below.

4. ☒ Buyer, ☐ Seller agrees to pay to a withdrawal fee of \$ 2,223.44 to the State of Minnesota based on the per credit fee of \$ 2,628 for Bank Service Area 9 and a stewardship fee of \$ 260.57 based on the per credit fee of \$ 302. At the Closing Date, ☒ Buyer, ☐ Seller will execute a check made out for this amount (\$ 2,484.01) payable to the Board of Water and Soil Resources.

5. The closing of the purchase and sale shall occur **on or before** December 31, 2026 (Closing Date) at 4:30 pm. The **Closing Date and location may be changed by written consent of both parties**. Upon payment of the balance of the purchase price, Seller will sign a fully executed Transaction Form to Withdraw Credits provided by BWSR, provide a copy of the Transaction Form to Withdraw Credits to the Buyer and forward the same to the BWSR along with the check for the withdrawal fee and stewardship fee.

6. Buyer has applied or will apply to City of Mankato (Local Government Unit (LGU) or other regulatory authority) for approval of a replacement plan utilizing the Credits as the means of replacing impacted wetlands. If the LGU has not approved the Buyer's application for a replacement plan utilizing the Credits by the Closing Date, and no postponement of the Closing Date has been agreed to by Buyer and Seller in writing, then either Buyer or Seller may cancel this Agreement by giving written notice to the other. In this case, Seller shall return Buyer's earnest money, and neither Buyer nor Seller shall have any further obligations under this Agreement. If the LGU has approved the replacement plan and the Seller is ready to proceed with the sale on the Closing Date, but Buyer fails to proceed, then the Seller may retain the earnest money as liquidated damages. **Buyer and Seller agree that the Purchase Agreement is contingent upon final approval by reviewing agencies (including adjustments to the acreage numbers) and project approval by the City of Mankato.**


(Signature of Seller) 7/27/26
(Date)


(Signature of Buyer) 7/27/26
(Date)

Transaction Form to Withdraw Credits

Minnesota Wetland Bank Program

If the layout of this form looks incorrect, click on [View, Edit Document](#), then save it to your computer.

1. Credit User		This space for BWSR use only.
Name: Randy McDonough	Organization: McDonough Farms, LLC	
15760 Acorn Trail, Faribault, MN 55021	Email: scott.brown@met-con.com	
Phone: 507-332-2266	LGU File #:	
Consultant: Rob Merila, Aquatic EcoSolutions, Inc. # 612-799-3238		

2. Wetland Impact Information	
To be completed for the project impacting wetlands and with which this withdrawal is intended to replace.	
Project Name: Metcon Addition	Impact Size (acres): 0.4314
Impact County: Blue Earth	Impact Wetland type: Fresh (Wet) Meadow
Impact Major Watershed/BSA: 28 / 9	Replacement Ratio: 2:1
Sec/Twp/Range: Sec 11 T 108 N, R 26 W	
*Projects with multiple locations should use the most central location in relation to the project as a whole.	
Are Federally authorized credits required for this impact? Yes No	
Corps Regulatory File Number: MVP-	
Comments:	

3. Credits to be Withdrawn To be completed by the seller of the credits (account holder)				
Account Information				
Account: 1804		County: Blue Earth		Bank Service Area: 8
Credit Subgroup	Wetland Type/Plant Community Type	Federally Approved?	Cost per Credit	Credit Amounts
C	SWC	Y		0.8628
Per Credit Withdrawal Fee by BSA			Total Credits: 0.8628	
BSA 1 \$520	BSA 6 \$1,083	Enter the Withdrawal Fee for the BSA of the account:		(Withdrawal Fee x total credits)
BSA 2 \$371	BSA 7 \$1,992	\$2,628		Withdrawal Fee: \$2,267.44
BSA 3 \$725	BSA 8 \$2,577	Easement Stewardship Fee:		(Easement Stewardship fee x total credits)
BSA 4 \$1,412	BSA 9 \$2,628	\$302		Stewardship Fee: \$260.57
BSA 5 \$685	BSA 10 \$3,099			Total Fees: \$2,528.01

Please make checks payable to the Minnesota Board of Water and Soil Resources. BWSR does not accept cash.

BWSR fee policy: http://www.bwsr.state.mn.us/wetlands/wetlandbanking/fee_and_sales_data/Wetland_Banking_Fee_Policy_Effective_June1_2017.pdf

Project Name: Metcon Addition

Confirmation email will be emailed to the user, seller, and regulatory representative when the transaction is complete.
If anyone else should be notified please indicated their emails below:

4. Regulatory Authorization

By signing below, the identified agency and authorized representative hereby certifies that they have: **a)** verified that the subject wetland credits are deposited in the account of the owner/seller, **b)** approved a wetland replacement plan or similar agreement under their jurisdiction, and **c)** approve the proposed use of the wetland bank credit described above.

WCA LGU/Agency:

LGU Representative:

Email Address:

Signature

Date

For NRCS, DNR, etc. as applicable

Agency Name and Location:

Representative:

Email Address:

Signature

Date

5. Credit User Signature

By signing below the proposed credit user attests that he/she owns or has purchased the credits identified in this form and has received approval from the regulatory authority(ies).

Signature

Date

6. Account Holder Signature

By signing below I, the seller and holder of the aforementioned account in the State of Minnesota Wetland Mitigation Bank, certify that:

- 1) The credits described in this transaction form have been sold to the credit user or will be used for my own project;
- 2) I have received payment in full from the buyer (if applicable);
- 3) The credits described in this transaction form have not been sold or used in any way to mitigate wetland losses other than for the project and location identified in the wetland impact information block on the previous page;
- 4) The credits described in this application should be withdrawn from my account; and
- 5) I will not have a negative balance of credits after the subject credits are debited from my account.

Name/Representative:

Email Address:

Signature

Date

Send complete forms and fee payments to:

**Wetland Bank Administration
Minnesota Board of Water and Soil Resources
520 Lafayette Road North
Saint Paul, MN 55155**

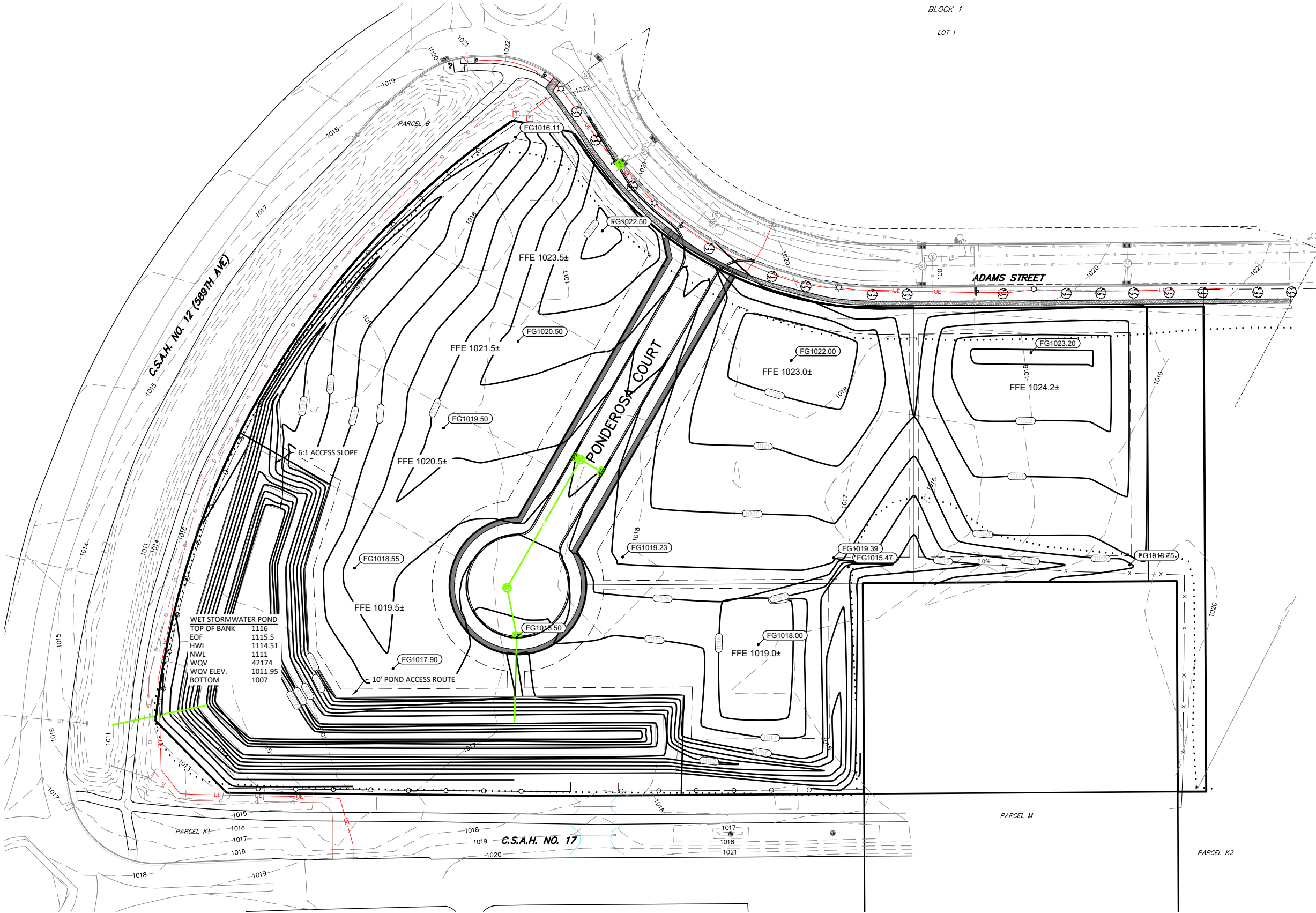
METCON ADDITION

BLOCK 1

LOT 1



- LEGEND**
- W = Water Main
 - S = Sanitary Sewer
 - ST = Storm Sewer
 - G = Gas Main
 - UT = Underground Telephone
 - OT = Overhead Telephone
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 - UTV = Underground TV
 - JLM = Judicial Landmark
 - X = Chain Link Fence
 - Control Access
 - Sign
 - Stop Sign
 - Light Pole
 - Flood Lights
 - Power Pole
 - Guy Anchor
 - Fire hydrant
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 - Culvert
 - Catch Basin & Catch Basin Numbers
 - Manholes & Manhole Numbers
 - Elevation Contour Line
 - Spot Elevation
 - Rim Elevation
 - FlowLine Elevation
 - Deciduous Tree
 - Coniferous Tree
 - Bush



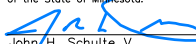
NOTE: CONTOUR SHOWN ARE FOR MASS GRADING
AND INCLUDE A 1' HOLD-DOWN AT BUILDING PADS



REV.	BY	DATE	REVISION DESCRIPTION

 **JONES
HAUGH
SMITH**
Engineers + Surveyors
415 West North Street Owatonna, MN 56045-4598

DESIGNED: JHS
DRAWN: JHS
CHECKED: BJU
Date: 8/13/26
DWG: 25-1234PP

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 Minnesota.

John H. Schulte V
License No. 44639 Date: 8/13/26

PRELIMINARY PLAT
METCON ADDITION
PART OF SW1/4 SECTION 11-T108N-R26W
GRADING PLAN

SHEET
2
OF
2

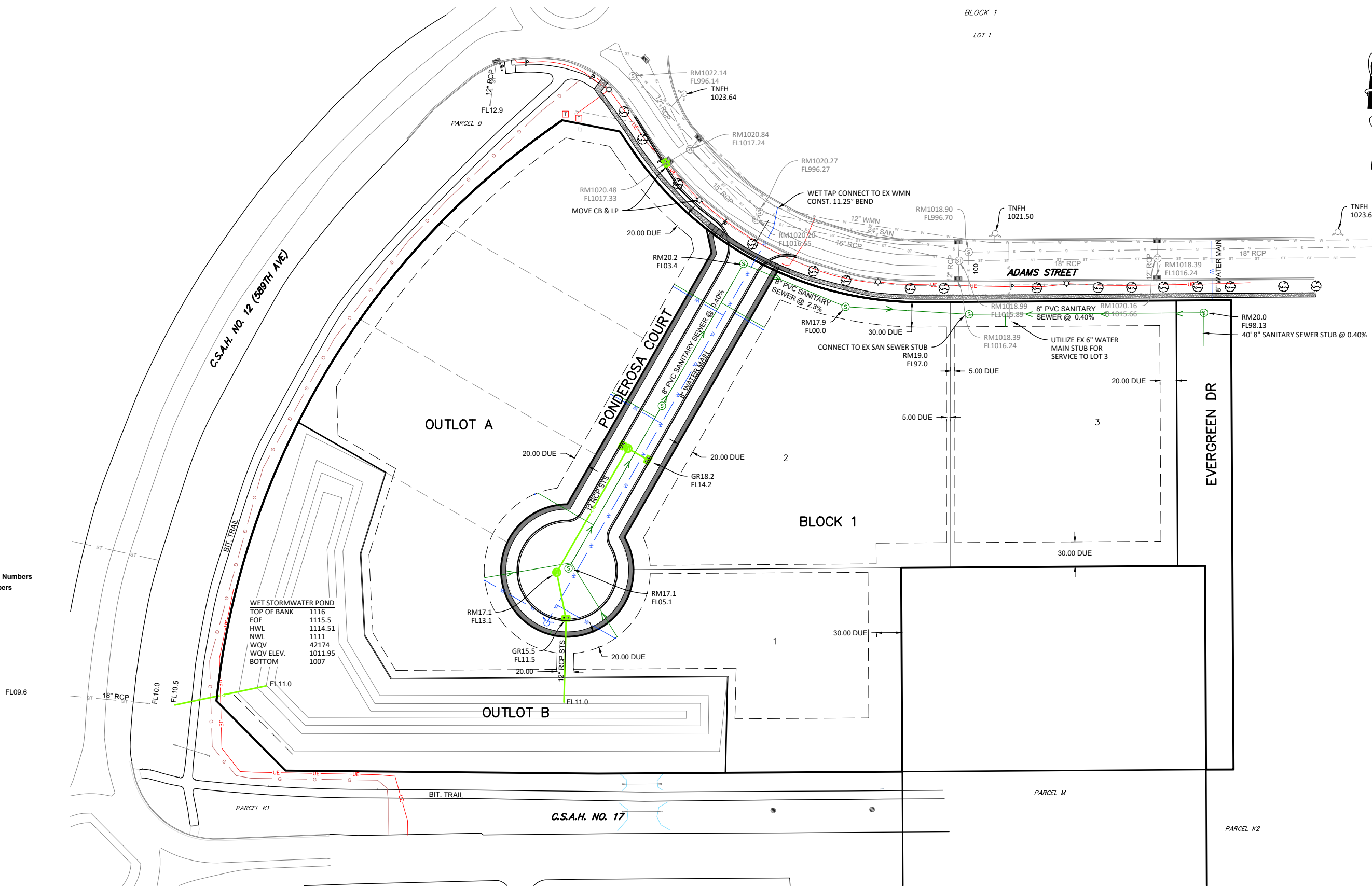
METCON ADDITION

BLOCK 1

LOT 1



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 - Elevation Contour Line
 - Spot Elevation
 - Rim Elevation
 - FlowLine Elevation
 - Deciduous Tree
 - Coniferous Tree
 - Bush



REV.	BY	DATE	REVISION DESCRIPTION



JONES HAUGH SMITH
Engineers + Surveyors
415 West North Street Owatonna, MN 56045-4598

DESIGNED: JHS
DRAWN: JHS
CHECKED: BW
Date: 8/13/26
DWG: 25-1234PP

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 Minnesota.


John H. Schulte V
License No. 44639 Date: 8/13/26

PRELIMINARY PLAT	SHEET 2 OF 3
METCON ADDITION	
PART OF SW1/4 SECTION 11-T108N-R26W	
UTILITY PLAN	

Met-Con Development Traffic Study

Mankato, MN

June 3, 2026

Prepared For:
Met-Con Companies

Prepared By:
SSTS, LLC

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



Katie A Schmidt, P.E.

Date: 06/03/2026

Lic. No.: 47147

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1 INTRODUCTION

The Met-Con Mankato development, referred to as the “Proposed Project” in this study, is planned in Mankato, Blue Earth County, Minnesota. 16.61 acres are planned to be developed into retail and industrial uses. One outlot is designated for Met-Con Companies office and shop. At this time, tenants have not yet been secured for the remaining outlots and likely land uses are assumed. The Proposed Project is located south of Adams St and the TA Travel Center and Truck Stop, east of CSAH 12 (589th Ave) and north of CSAH 17 (Madison Ave).

1.1 Proposed Access

Main full access serving the west side of the site is proposed on Adams St at the westerly TA Travel Center Driveway (Driveway 1) through construction of a southern leg. This existing driveway/proposed access is spaced approximately 280 feet from the CSAH 12/Adams St roundabout. A second full access serving the eastern 20,000 SF industrial building outlot is proposed on Adams St at the TA Travel Center Driveway 2. The Proposed Project’s location, layout, likely land uses and access are illustrated in Figure 1.

1.2 Study Purpose

The purpose of this study is to evaluate the impact of traffic generated by the Proposed Project on the operations and safety of the adjacent roadway network and access locations. This study reviews existing conditions and year 2030 conditions without the Proposed Project (termed No-Build conditions) and with the Proposed Project (termed Build conditions). Intersection and access operations and queuing are detailed. Queueing on Adams St between the CSAH 12/Adams St roundabout and Driveway 1/Access 1 is reviewed. Recommendations are provided for roadway and safety improvements to manage site-generated traffic and projected background traffic growth.

2 EXISTING CONDITIONS

2.1 Study Area

Input from the City of Mankato helped define the following existing study area intersections.

1. CSAH 12 (589th Ave) & CSAH 17 (Madison Ave) - Roundabout
2. CSAH 12 (589th Ave) & Adams St - Roundabout
3. CSAH 12 (589th Ave) & US Highway 14/MN Highway 60 Eastbound Ramps - Roundabout
4. CSAH 12 (589th Ave) & US Highway 14/MN Highway 60 Westbound Ramps - Roundabout
5. Adams St & Travel Center Driveway 1 - Side-Street Stop-Control
6. Adams St & Travel Center Driveway 2 - Side-Street Stop-Control
7. Adams St & Travel Center Driveway 3 - Side-Street Stop-Control
8. Adams St & Travel Center Driveway 4 - Side-Street Stop-Control

The study area roadway traffic characteristics are noted below.

CSAH 12 (589th Ave)

Jurisdiction: Blue Earth County

Functional Class: Major Collector north of CSAH 17, Minor Arterial south of CSAH 17

Parking: No parking

Speed: 45 MPH

ADT: 5,781 vehicles/day (Year 2024)

Bike: Off-street shared path on east side

Pedestrian: Off-street shared path on east side

Transit: None

CSAH 17 (Madison Ave)

<i>Jurisdiction:</i>	Blue Earth County
<i>Functional Class:</i>	Minor Collector
<i>Typical Section:</i>	4-lane divided west of CSAH 12, 3-lane w/center left turn lane east of CSAH 12
<i>Parking:</i>	No parking
<i>Speed:</i>	55 MPH
<i>ADT:</i>	4,887 vehicles/day (Year 2024)
<i>Bike:</i>	Off-street shared path on north side
<i>Pedestrian:</i>	Off-street shared path on north side
<i>Transit:</i>	None

Adams St

<i>Jurisdiction:</i>	Municipal, City of Mankato
<i>Functional Class:</i>	Minor Collector west of CSAH 12, Local east of CSAH 12
<i>Typical Section:</i>	3-lane w/center left turn lane
<i>Parking:</i>	No parking
<i>Speed:</i>	30 MPH
<i>ADT:</i>	Not available
<i>Bike:</i>	On-street bike lanes both sides
<i>Pedestrian:</i>	Off-street shared path on north side, sidewalk on south side
<i>Transit:</i>	None

2.2 Traffic Volumes

Turning movement counts for both AM and PM peak periods, including trucks as well as pedestrians and bicycles, were collected at study area intersections on Tuesday, April 7, 2026. The study area's morning peak hour is from 7:15 AM to 8:15 AM, while the evening peak hour is from 4:00 PM to 5:00 PM. Figure 2 illustrates the existing peak hour traffic volumes at study area intersections. Detailed count data is available in the Appendix.

2.3 Crash History

A review of intersection crash records was conducted to evaluate the safety of the study area intersection and to determine if the addition of future traffic growth could exacerbate existing safety issues. Historical crash data was obtained from MnDOT's Crash Mapping Analysis Tool (MnCMAT2). The most recent 5 years of data (2021 to 2025) was considered for the CSAH 12/CSAH 17 roundabout and the CSAH 12/Hwy 14 Ramps roundabouts. Due to the construction of the CSAH 12/Adams St roundabout and the TA travel center, the most recent 3 years of data (2023 to 2025) was considered for the Adams St intersections. The crash analysis considered two factors:

- **Crash Rate** - Crashes are a function of exposure. Roadways with higher traffic volumes experience more crashes than similar roadways with lower volumes and a crash rate is considered to normalize the locations and accurately assess safety. Intersection crash rates are defined by the number of crashes occurring per million entering vehicles (MEV).
- **Critical Crash Rate** - Critical crash rate comparison identifies locations that have a crash rate higher than similar facilities by a statistically significant amount. The critical crash rate is calculated by adjusting the system-wide average crash rate based on the amount of exposure and a statistical constant indicating the level of confidence (95th % confidence interval). At locations where the actual crash rate exceeds the critical crash rate (critical index >1.0), it is likely that the crashes are a result of deficiencies in the intersection design or other existing factors and further study is recommended.

Table 1 summarizes the crash data for the study area intersections and provides a comparison of crash rates to critical crash rates through the critical index. All study area intersections have a crash rate under the critical crash rate (critical index <1.0), indicating existing conditions are not currently contributing to an overall safety problem. It is noted the one crash on Adams St at TA Driveway 3 involved two trucks parked on Adams St with one truck backing up into the other truck.

Table 1. Intersection Crash Data

Intersection	Control	Years of Data	Crash Details		Entering ADT	Intersection Crash Rates (CR)			
			Total	F&A*		CR	MnDOT Ave. CR**	Critical CR	Critical Index
CSAH 12 (589 th Ave) & CSAH 17 (Madison Ave)	RAB	5	13	0	9,528	0.75	0.986	1.63	0.46
CSAH 12 (589 th Ave) & Adams St	RAB	3	4	0	6,000	0.61	0.986	2.06	0.30
CSAH 12 (589 th Ave) & Hwy 14 EB Ramps	RAB	5	4	0	6,522	0.34	0.986	1.77	0.19
CSAH 12 (589 th Ave) & Hwy 14 WB Ramps	RAB	5	3	0	5,805	0.28	0.986	1.82	0.16
Adams St & TA Driveway 1	Side Street Stop	3	0	0	680	0.00	0.151	1.98	0.00
Adams St & TA Driveway 2	Side Street Stop	3	0	0	380	0.00	0.151	2.90	0.00
Adams St & TA Driveway 3	Side Street Stop	3	1	0	330	2.77	0.151	3.20	0.86
Adams St & TA Driveway 4	Side Street Stop	3	0	0	130	0.00	0.151	6.32	0.00

* Fatal and "A" type serious injury crashes.

** System-wide average crash rates from MnDOT's Intersection Green Sheets

3 NO-BUILD TRAFFIC CONDITIONS

To assess how the Proposed Project affects the study area, traffic conditions for year 2030 without the project (the No-Build scenario) are used as a baseline. These are then compared to scenarios where the project is included (the Build scenario). Background traffic growth, planned developments and future roadway projects are considered to develop the No-Build scenarios.

3.1 Background Traffic Growth

A background traffic growth rate for study area roadways was developed by reviewing forecast 2050 daily traffic volumes from the **Mankato/North Mankato Area Planning Organization (MAPO) 2050 Metropolitan Transportation Plan**¹. A 1.5% annual growth rate was established and used to project existing 2026 traffic volumes forward to anticipated 2030 levels. Figure 3 shows the estimated 2030 No-Build traffic volumes.

3.2 Future Roadway Projects

The **MAPO 2050 Metropolitan Transportation Plan** identifies the future extension of Adams Rd from the cul-de-sac east of the TA Truck Stop to CSAH 17 (Madison Ave) in the 2031-2035 timeline. This roadway project will be dependent on development of the parcels to the east of the Proposed Project. Adams St is designated for a functional class change from a local street to a minor collector with the extension. This extension is not fully modeled in this traffic study, but a sensitivity analysis is provided in Section 5 reviewing access operations with increased through traffic on Adams St.

¹ **MAPO 2050 Metropolitan Transportation Plan**, November 2025, [Link](#).

4 BUILD TRAFFIC CONDITIONS

4.1 Site-Generated Traffic

The Proposed Project includes a 10,016 SF building designated for Met-Con Companies office and shop. There are no secured tenants for the remaining outlots and likely land uses are assumed. Retail land uses including a fast food restaurant, auto parts store and strip retail are assumed on the west side of the site due to higher visibility and easy accessibility, and industrial uses are assumed on the east side of the site (see Figure 1). The fast food restaurant and strip retail uses are high traffic generators, offering a cautious basis for analysis.

The volume of vehicle site generated trips has been estimated for the weekday AM and PM peak hours and on a daily basis using the data and methodology described in the Institute of Transportation Engineers' (ITE) **Trip Generation Manual (TGM)**². Shared trips and pass-by trips for the retail uses were considered in the trip generation estimate. Shared trips account for the complementary nature of the land uses (i.e., visiting both strip retail and the fast food restaurant during the same trip). Pass-by trips are trips that are attracted to the site from existing traffic already passing on adjacent roadways. Table 2 summarizes the trip generation estimate.

Table 2. Trip Generation

Land Use	ITE Land Use Code	Size	Trips Generated:				
			AM Peak		PM Peak		Weekday ADT
			Enter	Exit	Enter	Exit	
Met-Con Office (Specialty Trade Contractor)	180	10,016 s.f.	12	4	6	13	98
Fast Food - w/Drive Thru	934	2,500 s.f.	42	41	41	38	1,120
Automobile Parts Sales	843	8,500 s.f.	12	10	20	21	464
Strip Retail Plaza (<40k)	822	17,000 s.f.	37	30	53	53	926
Industrial	130	20,000 s.f.	3	1	1	3	54
Industrial	130	20,000 s.f.	3	1	1	3	54
Totals - Gross			109	87	122	131	2,716
			196		253		
Shared Trips ¹			9	8	11	11	251
			17		22		
Pass-By Trips ²			17	17	23	23	1,130
			34		46		
Totals - Net			83	62	88	97	1,335
			145		185		

¹ 10% shared trips between the retail uses was assumed.

² 50% of pass-by trips from Hwy14/60, 40% from CSAH 12 and 10% from Adams St.

4.2 Access Driveway Geometrics

Both access driveways are planned for full-movement, side-street stop-controlled with single entry and exit lanes. Adams St will retain its current layout: one eastbound shared through/right turn lane and westbound left turns from the center left turn lane. This setup was used for operational analysis. Section 6 provides more discussion on the need for an eastbound right turn lane on Adams St at Driveway 1/Access 1.

4.3 Trip Distribution and Assignment

Site-generated traffic was distributed to the study area network according to current volume patterns and expected site traffic origins and destinations. Figure 4 illustrates the distribution percentages and how site-generated traffic flows in and out of the study area network and access intersections.

4.4 Build Traffic Volumes

When combined, the site-generated traffic volumes and No-Build scenario traffic volumes result in the 2030 Build scenario traffic volumes shown in Figure 5.

² **Trip Generation Manual (TGM)**, Institute of Transportation Engineers (ITE), 12th Edition

5 TRAFFIC OPERATIONAL ANALYSIS

5.1 Operational Analysis Methodology

Intersection performance is measured by driver delay and vehicle queues, which depend on capacity relative to traffic volume. Industry standards for evaluating capacity and resulting driver delay are detailed in the **Highway Capacity Manual**³. Driver delay is represented as a Level of Service (LOS) grade with "A" as the best conditions and "F" as the worst. Table 3 summarizes the LOS and delay criteria for unsignalized/roundabout and signalized intersections. Typically, LOS "D" represents the threshold for acceptable overall intersection operations, and LOS "E" represents the acceptable individual movement threshold operating during a peak hour. For side-street stop-controlled movements on high volume mainline roads, it is common for side-streets to operate at LOS "D" or "E".

Table 3. Level of Service Grading Criteria

LOS	A	B	C	D	E	F
Unsignalized/Roundabout Intersection Delay	0-10 seconds	>10-15 seconds	>15-25 seconds	>25-35 seconds	>35-50 seconds	>50 seconds
Signalized Intersection Delay	0-10 seconds	>10-20 seconds	>20-35 seconds	>35-55 seconds	>50-80 seconds	>80 seconds
Description	 Free-flow operation	 Unimpeded operation	 Stable operation	 Less stable & more delay	 Unstable & high delay	 Congested & back-ups

The operational analyses also considers vehicle queuing. An intersection can operate with acceptable LOS, but if queues extend back to block entrances to turn lanes or access driveways, unsafe operating conditions could result. 95th % queue lengths are considered in this study. The 95th % queue length refers to the length of vehicle queue that has a five-percent probability of occurring during an analysis hour.

The Synchro/SimTraffic software package (12th Edition) was used to evaluate the side-street stop-controlled intersections on Adams St and reported operations are from Synchro's HCM 7 reports. For side-street stop-controlled intersections, the worst opposing left or side-street movement delay is reported rather than the overall intersection delay. Overall intersection delay for side-street stop-controlled intersections can misrepresent operations, since most mainline free-flowing vehicles experience no delay. Rodel software was used to evaluate roundabout-controlled intersections. Existing truck percentages and peak hour factors were used in the analysis.

5.2 Operational Analysis Results

The results of the operational analysis for Existing, 2030 No-Build and 2030 Build conditions are summarized for the AM and PM peak hour. Table 4 summarizes the AM peak hour and Table 5 summarizes the PM peak hour. Proposed access driveway intersections are shaded light blue and critical movement operations and queues are noted. Westbound queues on Adams St at the CSAH 12/Adams St roundabout are noted to ensure they do not extend more than 280' to Driveway 1/Access 1. Detailed operational analysis tables are included in the Appendix.

³ **Highway Capacity Manual (HCM)**, Transportation Research Board, 7th Edition

Table 4. Traffic Operational Results - AM Peak Hour

Intersection	Control	MOE	Existing	2030 No-Build	2030 Build
CSAH 12 & CSAH 17 (Madison Ave)	Roundabout	Overall LOS	A-5.0	A-5.2	A-5.2
		Worst LOS	A-8.3 (WBLT)	A-8.7 (WBLT)	A-8.7 (WBLT)
		Queuing Notes	None	None	None
CSAH 12 & Adams St	Roundabout	Overall LOS	A-3.3	A-3.3	A-4.1
		Worst LOS	A-6.8 (WBLT)	A-7.0 (WBLT)	A-8.9 (WBLT)
		Queuing Notes	2' WBLT, 2' WBR	2' WBLT, 3' WBR	5' WBLT, 8' WBR
CSAH 12 & Hwy 14 EB Ramps	Roundabout	Overall LOS	A-5.0	A-5.0	A-5.5
		Worst LOS	A-8.4 (NBT)	A-8.7 (NBT)	A-9.1 (NBT)
		Queuing Notes	None	None	None
CSAH 12 & Hwy 14 WB Ramps	Roundabout	Overall LOS	A-4.3	A-4.4	A-4.7
		Worst LOS	A-6.2 (SBT)	A-6.4 (SBT)	A-6.7 (NBLT)
		Queuing Notes	None	None	None
Adams St & TA Driveway 1/ Proposed Access	Side-Street Stop	NBLTR LOS/Q			B-10.3 / 8'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.6 / 2'	A-8.6 / 2'	A-8.7 / 2'
		EBL LOS/Q	A-7.3 / 0'	A-7.3 / 0'	A-8.7 / 0'
Adams St & TA Driveway 2/ Proposed Access	Side-Street Stop	NBLTR LOS/Q			A-0.0 / 0'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.5 / 0'	A-8.5 / 0'	A-8.5 / 0'
		EBL LOS/Q	A-7.3 / 0'	A-7.3 / 0'	A-7.3 / 0'
Adams St & TA Driveway 3	Side-Street Stop	Worst LOS	A-9.3 (SBLTR)	A-9.4 (SBLTR)	A-9.4 (SBLTR)
		Queuing Notes	None	None	None
Adams St & TA Driveway 4	Side-Street Stop	Worst LOS	A-9.3 (SBLTR)	A-9.3 (SBLTR)	A-9.3 (SBLTR)
		Queuing Notes	None	None	None

Table 5. Traffic Operational Results - PM Peak Hour

Intersection	Control	MOE	Existing	2030 No-Build	2030 Build
CSAH 12 & CSAH 17 (Madison Ave)	Roundabout	Overall LOS	A-4.9	A-5.1	A-5.1
		Worst LOS	A-7.1 (SBLT)	A-7.3 (SBLT)	A-7.4 (SBLT)
		Queuing Notes	None	None	None
CSAH 12 & Adams St	Roundabout	Overall LOS	A-3.5	A-3.6	A-4.4
		Worst LOS	A-6.3 (WBLT)	A-6.4 (WBLT)	A-9.0 (WBLT)
		Queuing Notes	1' WBLT, 2' WBR	1' WBLT, 2' WBR	6' WBLT, 11' WBR
CSAH 12 & Hwy 14 EB Ramps	Roundabout	Overall LOS	A-4.8	A-5.0	A-5.4
		Worst LOS	A-7.1 (NBT)	A-7.3 (NBT)	A-8.0 (NBT)
		Queuing Notes	None	None	None
CSAH 12 & Hwy 14 WB Ramps	Roundabout	Overall LOS	A-4.7	A-4.9	A-5.0
		Worst LOS	A-8.0 (SBT)	A-8.3 (SBT)	A-8.6 (SBT)
		Queuing Notes	None	None	None
Adams St & TA Driveway 1/ Proposed Access	Side-Street Stop	NBLTR LOS/Q			B-10.6 / 12'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.5 / 2'	A-8.5 / 2'	A-8.6 / 2'
		EBL LOS/Q	A-7.3 / 0'	A-7.3 / 0'	A-8.6 / 0'
Adams St & TA Driveway 2/ Proposed Access	Side-Street Stop	NBLTR LOS/Q			A-0.0 / 0'
		WBL LOS/Q			A-0.0 / 0'
		SBLTR LOS/Q	A-8.4 / 0'	A-8.4 / 0'	A-8.4 / 0'
		EBL LOS/Q	A-7.2 / 0'	A-7.2 / 0'	A-7.2 / 0'
Adams St & TA Driveway 3	Side-Street Stop	Worst LOS	A-9.3 (SBLTR)	A-9.3 (SBLTR)	A-9.3 (SBLTR)
		Queuing Notes	None	None	None
Adams St & TA Driveway 4	Side-Street Stop	Worst LOS	A-9.3 (SBLTR)	A-9.3 (SBLTR)	A-9.3 (SBLTR)
		Queuing Notes	None	None	None

5.2.1 Existing Conditions Overview

All study area intersections operate acceptably for Existing Conditions. Overall intersection LOS is A and no individual lane group operates below LOS A. Queuing is acceptable and accommodated by existing geometry for all intersections. The westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and range from 1' to 2' and there are no back-up concerns related to the 280' spacing to Driveway 1. There are no recommendations to improve Existing Conditions.

5.2.2 2030 No-Build Conditions Overview

All intersections operate acceptably for 2030 No-Build Conditions. Overall intersection LOS is A and no individual lane group operates below LOS A. Queuing is acceptable and accommodated by existing geometry for all intersections. The westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and range from 1' to 3' and there are no back-up concerns related to the 280' spacing to Driveway 1. There are no recommendations to improve 2030 No-Build Conditions.

5.2.3 2030 Build Conditions Overview

All intersections operate acceptably for 2030 Build Conditions with the Proposed Project. Overall intersection LOS is A and no individual lane group operates below LOS B. Queuing is acceptable and accommodated by existing/proposed geometry for all intersections. The westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and range from 5' to 11' and there are no back-up concerns related to the 280' spacing to Driveway 1/Proposed Access 1.

The Adams St/Driveway 1/Access 1 intersection operates acceptably. The single lane northbound approach experiences LOS B with a 12' queue in the PM peak hour.

The Adams St/Driveway 2/Access 2 intersection operates acceptably. The single lane northbound approach experiences LOS A with no queueing in both peak hours.

There are no recommended development related mitigation measures to improve 2030 Build Conditions based on traffic operations.

5.2.4 2030 Build Conditions with Adams St Traffic Growth

A sensitivity analysis was conducted at the Adams St/Driveway 1/Proposed Access 1 intersection to evaluate the threshold for additional traffic growth beyond the Proposed Project on Adams St before operational performance becomes unacceptable (defined as reaching the LOS D/E boundary for the northbound left movement and/or roundabout queues extending to the driveway). The results indicate that through traffic on Adams St can accommodate an increase of 500-600 vehicles (depending on vehicle type) during peak hours before operations degrade. Notably, the northbound left turn operations reach failure prior to roundabout queue lengths extending to the driveway. Unacceptable operations could also occur if there is a statistically significant crash increase at the Adams St/Access 1 intersection.

If operations or safety at Access 1 deteriorate to unacceptable levels, the recommended mitigation would be to restrict Access 1 to right-in/right-out only movements by extending the median on Adams St. The Developer would agree to this restriction only if Adams St is extended to CSAH 17.

6 TURN LANE REVIEW

The need for an eastbound right turn lane at the Adams St/Driveway 1/Access 1 intersection was evaluated as part of the Proposed Project. 2030 Build traffic volumes show that there will be 96 eastbound right turns during the morning peak hour, 109 during the evening peak hour with steady retail traffic turning right all day. Although through traffic heading east is light, most vehicles are semi-trailer trucks headed to the truck stop. Operational analyses indicate LOS and queuing are adequate with a shared through/right turn lane. However, considering the high percentage of trucks and speed differential, safety concerns arise. Research indicates that providing

dedicated turn lanes on mainline roads at intersections with side streets controlled by stop signs helps reduce crashes. Given the relatively low cost to construct (available ROW and 13' boulevard), notable safety advantages, and retail tenant marketability, constructing an eastbound right turn lane on Adams St at Driveway 1/Access 1 is recommended. The right turn lane should be constructed with the initial phase of the site due to mobilization costs and to safely accommodate construction traffic as the outlots develop.

7 MULTI-MODAL TRAFFIC REVIEW

As noted in the Existing Conditions summary, the study area includes existing shared-use paths, sidewalks, and on-street bicycle facilities. It is recommended a sidewalk be constructed along the Access 1 roadway and connected to the existing sidewalk on Adams St. This sidewalk should remain continuous regardless of outlot development phasing. Connections to the existing shared-use paths along CSAH 12 and CSAH 17 should be considered during detailed site plan reviews for the outlots.

8 SUMMARY & RECOMMENDATIONS

The previous analysis assessed traffic impacts for the 16.61-acre Met-Con Mankato retail and industrial development. The traffic and safety review indicates:

- ★ The development includes a 10,016 SF building designated for Met-Con Companies' office and shop. There are no secured tenants for the remaining outlots and likely land uses were assumed. Retail land uses including a fast food restaurant, auto parts store and strip retail are assumed on west side of the site for higher visibility and easy accessibility and industrial uses are assumed on the east side of the site. The fast food restaurant and strip retail uses are high traffic generators, offering a cautious basis for analysis.
- ★ The project is estimated to generate 145 new trips (83 entering and 62 exiting) during the morning traffic peak hour, 185 new trips (88 entering and 97 exiting) during the evening traffic peak hour and 1,335 new daily trips to the study area. The retail component of the site includes pass-by trips, which are trips that are attracted to the site from existing traffic already passing on adjacent roadways.
- ★ Two full movement access driveways are proposed on Adams St. Main full access serving the west side of the site is proposed at the westerly TA Travel Center Driveway (Driveway 1) through construction of a southern leg. This access is spaced approximately 280 feet from the CSAH 12/Adams St roundabout. A second full access for an industrial outlot is proposed on Adams St at the TA Travel Center Driveway 2.
- ★ Traffic operations analysis were conducted for existing conditions, year 2030 conditions without the project (No-Build conditions) and year 2030 conditions with the project (Build conditions).
- ★ Traffic operations for Existing and 2030 No-Build conditions without the project are acceptable and there are no improvement recommendations.
- ★ 2030 Build conditions with the project are acceptable. Westbound queues on Adams St at the CSAH 12/Adams St roundabout are very short and there are no back-up concerns related to the 280' spacing to Driveway 1/Proposed Access 1.
- ★ A sensitivity analysis shows Adams St can accommodate an increase of up to 500-600 vehicles during peak hours (depending on vehicle type) before the Adams St/Driveway 1/Access 1 intersection operates unacceptably. Unacceptable operations could also occur if there is a statistically significant crash increase at the Adams St/Access 1 intersection.
- ★ If operations or safety at Access 1 deteriorate to unacceptable levels, the recommended mitigation would be to restrict Access 1 to right-in/right-out only movements by extending the median on Adams St. The Developer would agree to this restriction only if Adams St is extended to CSAH 17.

- ★ Construction of an eastbound right turn lane on Adams St at Driveway 1/Access 1 is recommended with the initial phase of the site. The right turn lane is cost-effective to construct due to available right-of-way and boulevard space, offers significant safety benefits, and enhances the marketability of retail tenants.
- ★ It is recommended a sidewalk be constructed along the Access 1 roadway and connected to the existing sidewalk on Adams St. This sidewalk should remain continuous regardless of outlot development phasing. Connections to the existing shared-use paths along CSAH 12 and CSAH 17 should be considered during detailed site plan reviews for the outlots.
- ★ It is recommended the City requires a traffic study for the development of the parcels located east of the project, as well as for the future extension of Adams Street to CSAH 17. While traffic patterns on Adams Street are expected to change, high level reviews suggest that traffic operations will remain within acceptable ranges.

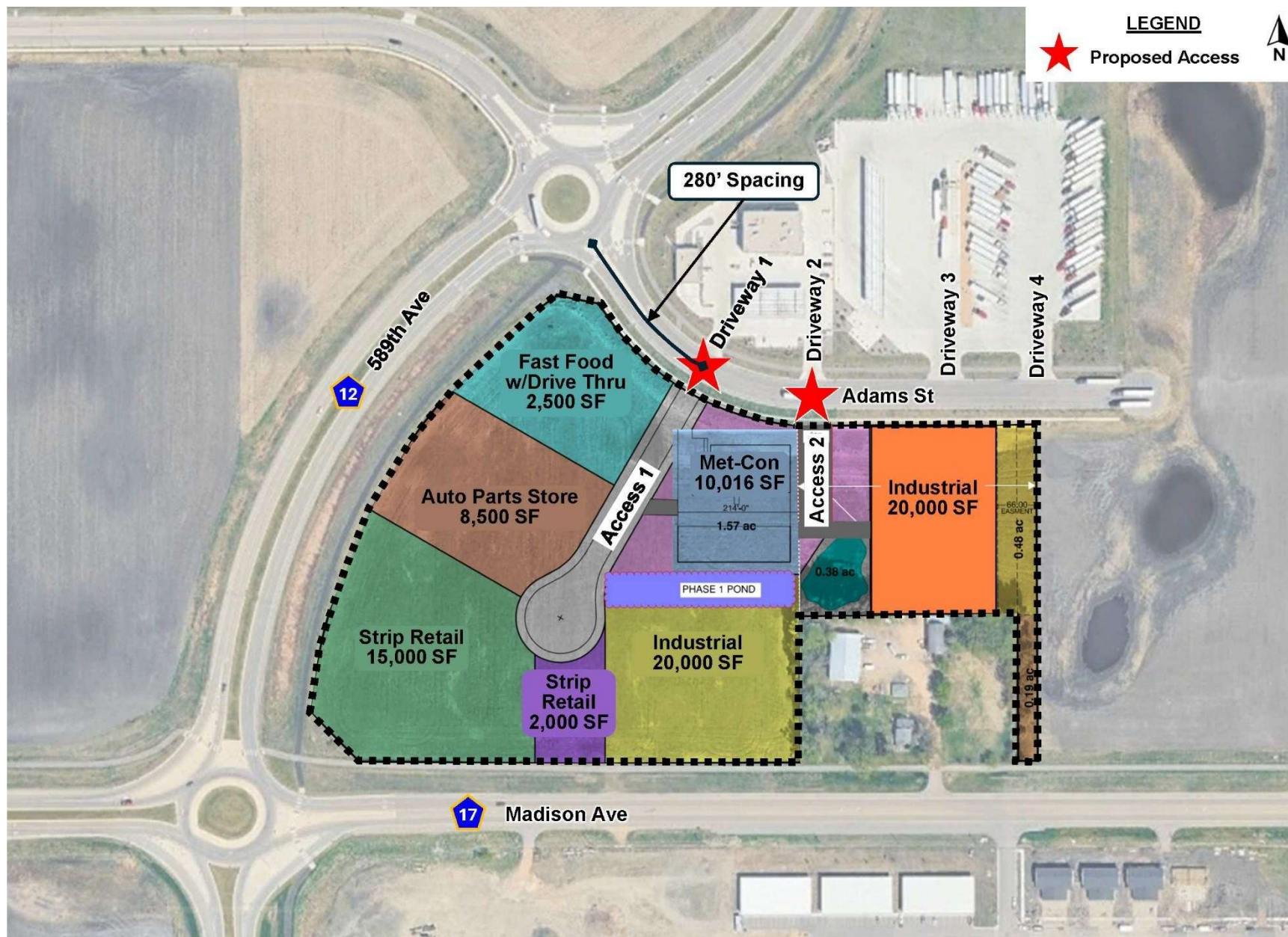


Figure 1. Conceptual Site Plan

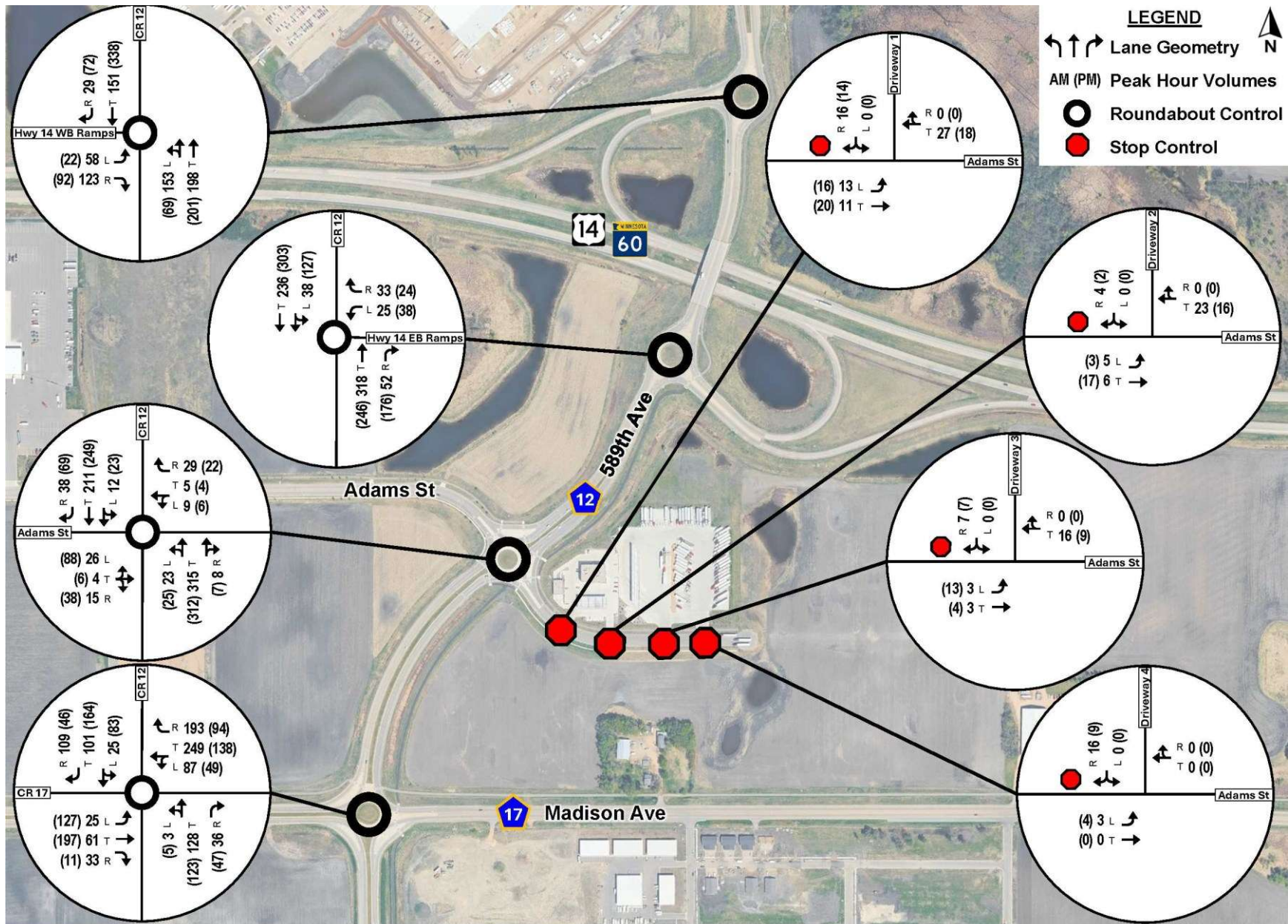


Figure 2. Existing Traffic Volumes

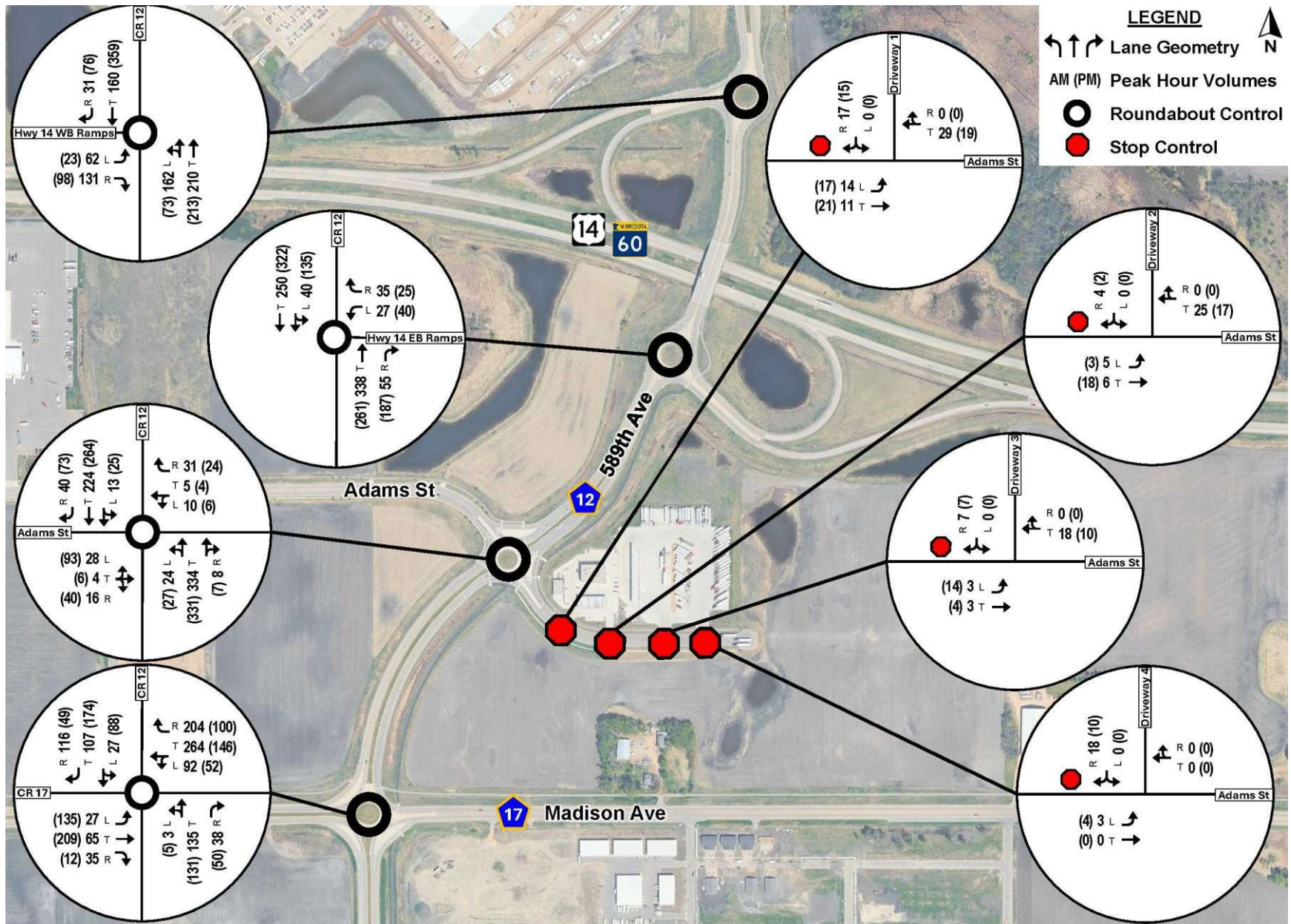


Figure 3. 2030 No-Build Traffic Volumes

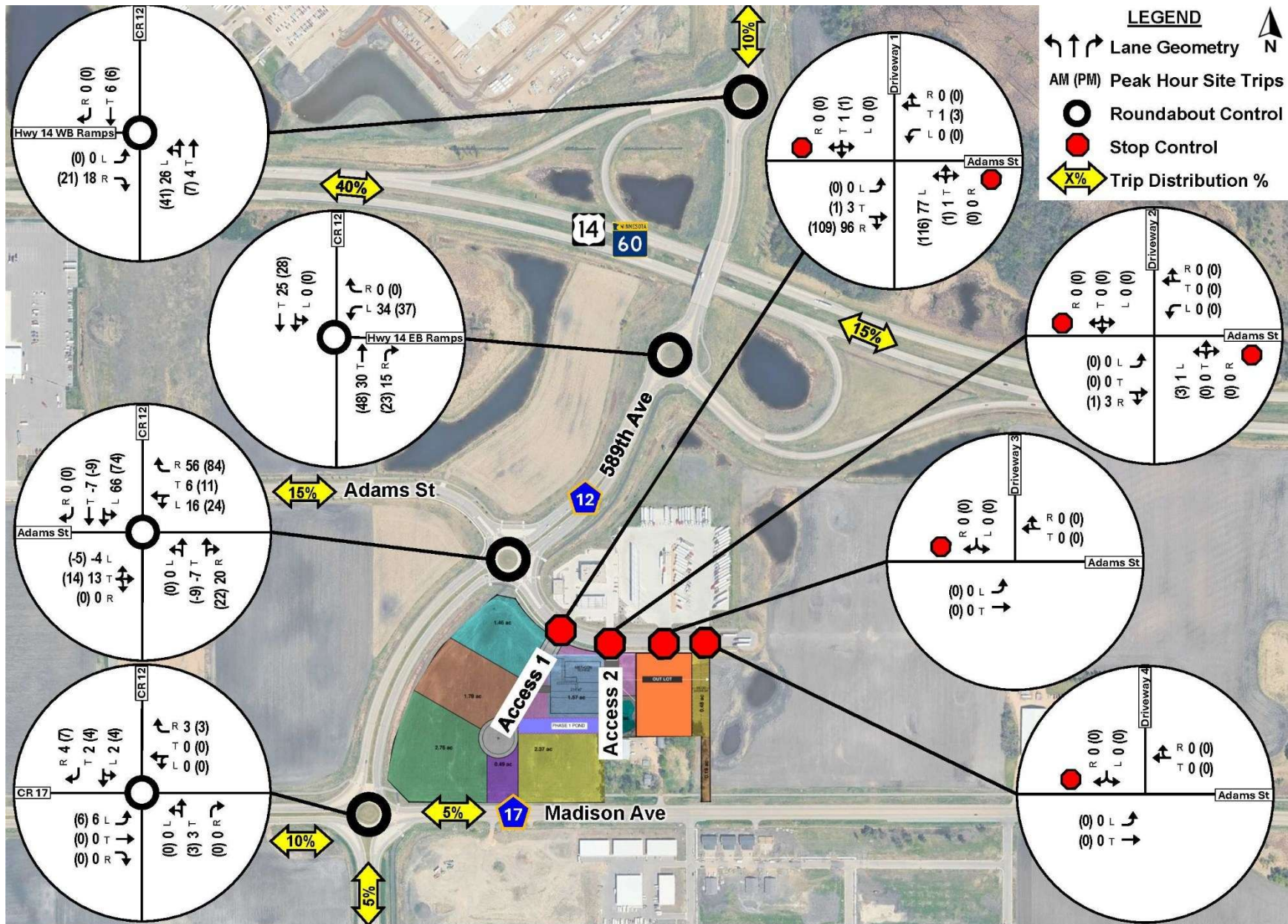


Figure 4. Trip Distribution and Assignment

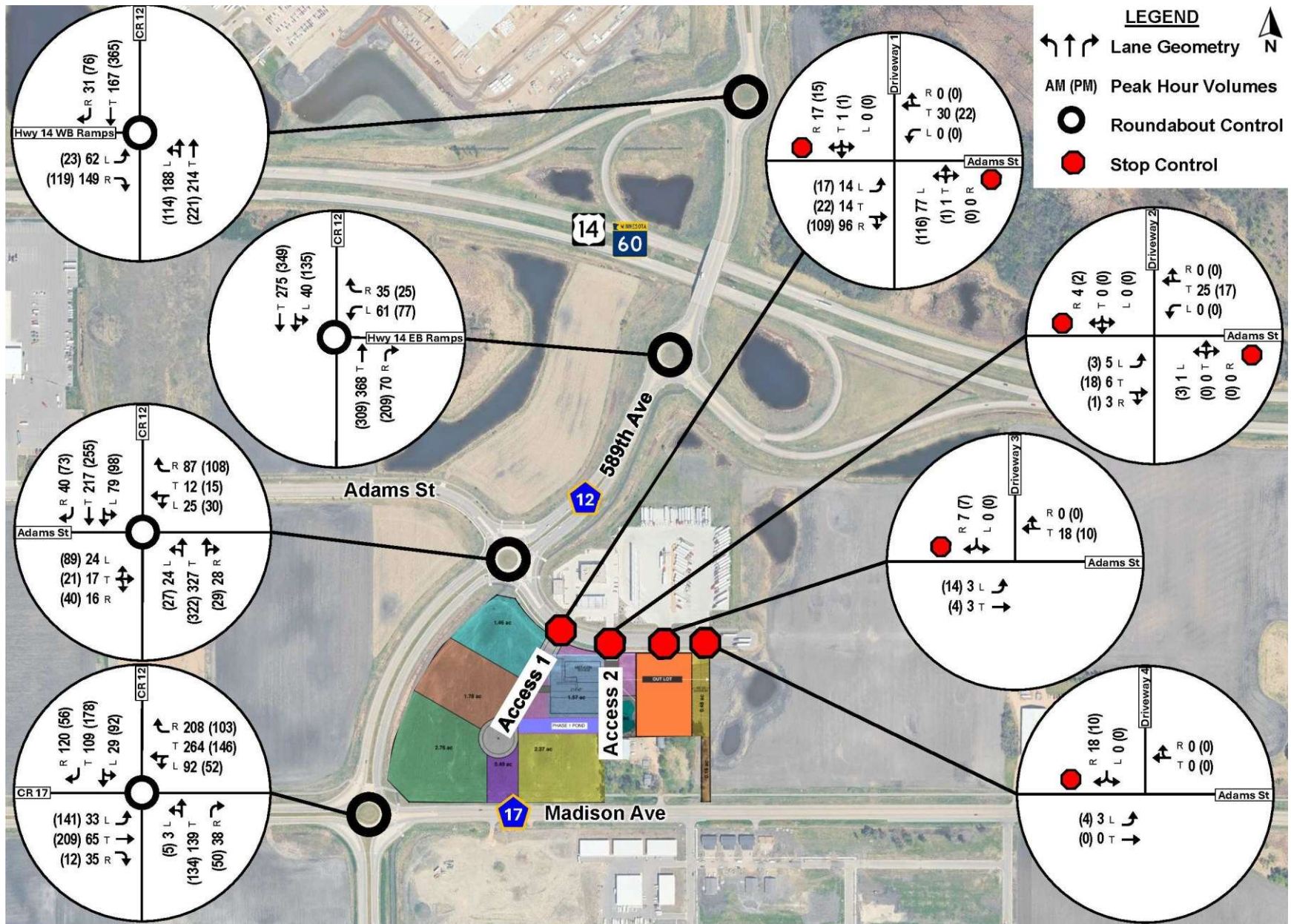


Figure 5. 2030 Build Traffic Volumes

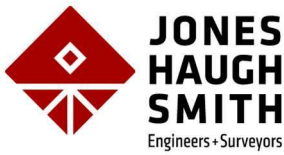
Appendix A - Detailed Operational Analysis Tables

Table A- 1. AM Peak Hour Operations

Intersection	Lane Group	Bay	Existing			2030 No-Build			2030 Build		
			LOS	Delay	95 th % Q	LOS	Delay	95 th % Q	LOS	Delay	95 th % Q
CSAH 12 & CSAH 17 (Madison Ave) (Roundabout)	NBLT		A	5.4	10	A	5.5	10	A	5.6	11
	NBR		A	4.0	2	A	4.1	2	A	4.1	2
	WBLT		A	8.3	36	A	8.7	40	A	8.7	40
	WBR	220'	A	6.5	16	A	6.7	17	A	6.8	18
	SBLT		A	6.2	11	A	6.4	12	A	6.5	12
	SBR		A	0.9	0	A	0.9	0	A	1.0	0
	EBLT		A	3.3	4	A	3.4	5	A	3.6	5
	EBR		A	0.3	0	A	0.3	0	A	0.3	0
	Overall		A	5.0		A	5.2		A	5.2	
CSAH 12 & Adams St (Roundabout)	NBLTR		A	4.1	13	A	4.2	14	A	4.5	16
	WBLT		A	6.8	2	A	7.0	2	A	8.9	5
	WBR	220'	A	5.5	2	A	5.6	3	A	7.1	8
	SBLT		A	3.2	8	A	3.3	8	A	4.3	14
	SBR		A	4.0	2	A	4.0	2	A	4.1	2
	EBLTR		A	4.5	3	A	4.6	3	A	4.9	4
	Overall		A	3.3		A	3.3		A	4.1	
CSAH 12 & Hwy 14 EB Ramps (Roundabout)	NBT		A	8.4	31	A	8.7	35	A	9.1	40
	NBR		A	4.5	3	A	4.6	4	A	4.8	5
	WBL		A	5.4	2	A	5.6	2	A	6.3	6
	WBR	230'	A	0.3	0	A	0.3	0	A	0.4	0
	SBLT		A	3.6	11	A	3.7	11	A	3.9	13
	Overall		A	5.0		A	5.0		A	5.5	
CSAH 12 & Hwy 14 WB Ramps (Roundabout)	NBLT		A	6.1	28	A	6.2	30	A	6.7	36
	SBT		A	6.2	13	A	6.4	14	A	6.6	16
	SBR		A	4.2	2	A	4.3	2	A	4.4	2
	EBL		A	5.3	5	A	5.4	6	A	5.7	6
	EBR	220'	A	1.1	0	A	1.1	0	A	1.3	0
	Overall		A	4.3		A	4.4		A	4.7	
Adams St & TA Driveway 1/Proposed Access (Side-Street Stop)	NBLTR		NA			NA			B	10.3	8
	WBL	50'							A	0	0
	SBLTR		A	8.6	2	A	8.6	2	A	8.7	2
	EBL	100'	A	7.3	0	A	7.3	0	A	7.3	0
	Worst Mvmnt.		A	8.6		A	8.6		B	10.3	
Adams St & TA Driveway 2/Proposed Access (Side-Street Stop)	NBLTR		NA			NA			A	8.9	0
	WBL	50'							A	0.0	0
	SBLTR		A	8.5	0	A	8.5	0	A	8.5	0
	EBL	50'	A	7.3	0	A	7.3	0	A	7.3	0
	Worst Mvmnt.		A	8.5		A	8.5		A	8.9	
Adams St & TA Driveway 3 (Side-Street Stop)	SBLTR		A	9.3	0	A	9.4	0	A	9.4	0
	EBL	50'	A	8.2	0	A	8.2	0	A	8.2	0
	Worst Mvmnt.		A	9.3		A	9.4		A	9.4	
Adams St & TA Driveway 4 (Side-Street Stop)	SBLTR		A	9.3	2	A	9.3	2	A	9.3	2
	EBL	50'	A	8.1	0	A	8.1	0	A	8.1	0
	Worst Mvmnt.		A	9.3		A	9.3		A	9.3	

Table A- 2. PM Peak Hour Operations

Intersection	Lane Group	Bay	Existing			2030 NB			2030 Build		
			LOS	Delay	95 th % Q	LOS	Delay	95 th % Q	LOS	Delay	95 th % Q
CSAH 12 & CSAH 17 (Madison Ave) (Roundabout)	NBLT		A	5.8	10	A	6.0	10	A	6.0	11
	NBR		A	4.5	3	A	4.6	3	A	4.6	3
	WBLT		A	6.5	15	A	6.8	16	A	6.8	16
	WBR	220'	A	5.1	7	A	5.2	7	A	5.3	7
	SBLT		A	7.1	20	A	7.3	22	A	7.4	23
	SBR		A	0.4	0	A	0.4	0	A	0.4	0
	EBLT		A	5.5	20	A	5.7	22	A	5.8	23
	EBR		A	0.1	0	A	0.1	0	A	0.1	0
	Overall		A	4.9		A	5.1		A	5.1	
CSAH 12 & Adams St (Roundabout)	NBLTR		A	4.0	14	A	4.2	15	A	4.4	17
	WBLT		A	6.3	1	A	6.4	1	A	9.0	6
	WBR	220'	A	4.9	2	A	5.0	2	A	7.1	11
	SBLT		A	3.6	11	A	3.7	11	A	4.9	19
	SBR		A	4.5	5	A	4.5	5	A	4.6	5
	EBLTR		A	5.4	10	A	5.6	10	A	6.0	12
	Overall		A	3.5		A	3.6		A	4.4	
CSAH 12 & Hwy 14 EB Ramps (Roundabout)	NBT		A	7.1	24	A	7.3	27	A	8.0	35
	NBR		A	6.2	15	A	6.4	17	A	6.7	19
	WBL		A	5.5	4	A	5.6	4	A	6.6	8
	WBR	230'	A	0.3	0	A	0.3	0	A	0.3	0
	SBLT		A	5.2	26	A	5.3	29	A	5.4	31
	Overall		A	4.8		A	5.0		A	5.4	
CSAH 12 & Hwy 14 WB Ramps (Roundabout)	NBLT		A	4.1	14	A	4.2	15	A	4.9	21
	SBT		A	8.0	37	A	8.3	41	A	8.6	45
	SBR		A	4.5	5	A	4.6	6	A	4.7	6
	EBL		A	5.8	2	A	6.0	3	A	6.1	3
	EBR	220'	A	0.8	0	A	0.9	0	A	1.0	0
	Overall		A	4.7		A	4.9		A	5.0	
Adams St & TA Driveway 1 (Side-Street Stop)	NBLTR		NA			NA			B	10.6	12
	WBL	50'							A	0	0
	SBLTR		A	8.5	2	A	8.5	2	A	8.6	2
	EBL	100'	A	7.3	0	A	7.3	0	A	7.3	0
	Worst Mvmnt.		A	8.5		A	8.5		B	10.6	
Adams St & TA Driveway 2 (Side-Street Stop) Adams St & TA Driveway 3 (Side-Street Stop) Adams St & TA Driveway 4 (Side-Street Stop)	NBLTR		NA			NA			A	8.9	0
	WBL	50'							A	0.0	0
	SBLTR		A	8.4	0	A	8.4	0	A	8.4	0
	EBL	50'	A	7.2	0	A	7.2	0	A	7.2	0
	Worst Mvmnt.		A	8.4		A	8.4		A	8.9	
	SBLTR		A	9.3	0	A	9.3	0	A	9.3	0
	EBL	50'	A	8.2	0	A	8.2	0	A	8.2	0
	Worst Mvmnt.		A	9.3		A	9.3		A	9.3	
	SBLTR		A	9.3	0	A	9.3	0	A	9.3	0
	EBL	50'	A	8.1	0	A	8.1	0	A	8.1	0
	Worst Mvmnt.		A	9.3		A	9.3		A	9.3	



PRINCIPALS

Steven J. Thompson, P.L.S.
Brian J. Johnson, P.E.
Steven J. Penkava, P.E.
John H. Schulte V, P.E.
Scott A. Tuchtenhagen, P.L.S.

Established 1945

Drainage Memorandum
Preliminary Plat
Metcon Addition
Mankato
Prepared by: John H. Schulte V, PE

August 13, 2026

Introduction

Metcon intends to construct a new commercial / industrial subdivision off Adam Avenue Mankato. The project will include a new cul-de-sac from Adams Avenue, a right turn lane on Adams Avenue, sanitary sewer and water main extensions, and a wet stormwater treatment basin.

Basis of Design

The modeling that follows in this report was performed utilizing HydroCAD software. Pipes were sized utilizing State Plumbing Code and/or Rational Method Design and Manning's Equation. Rainfall was modeling with Atlas 14 Rainfall events.

Onsite soils per the Web Soil Survey and on-site borings show Hydric Type C/D clay soils. Infiltration as a method of stormwater treatment is therefore unavailable. Filtration was considered as an alternate method of treatment but a wet stormwater pond was selected to eliminate the costs of importing filtration viable materials as none exist on site, and to reduce the footprint required of the treatment basin. A filtration system would have required a higher outflow elevation to make room for the filtration materials, reducing the dry storage elevations available and thus increasing the overall basin footprint.

Existing Conditions

The site is bounded by Adams Avenue on the north, agricultural ground and a farm site to the east, CSAH 12 on the west and Madison Avenue to the south. The existing site is undeveloped and is maintained as agricultural row crop.

General surface water flows through the site east to west, with three wetlands scattered across the site. The site in general is very flat, with the three very shallow wetland basins providing almost no surface water storage. The eventual site discharge point is a centerline culvert under CSAH 12 near Madison Avenue discharging east to west.

Required Treatment

This site is greater than 1 acre and is thus required to provide stormwater treatment per the NPDES Construction Stormwater Permit with its associated 1" infiltration goal; a 1.1" Water Quality Volume requirement, and discharge rates controlled to not exceed existing conditions.

Below is a table of the requirements:

Platted Area:	14.47 acres
Proposed Impervious Surface:	10.56 acres
1" Infiltration Goal:	10.56 acres x 1" = 38333 cf
1.1" Water Quality Volume:	10.56 acres x 1.1" = 42166 cf
Basin Watershed Area:	15.03 acres
Wet Pond Wet Storage Volume:	15.03 acres x 1800 cf / acre = 27054 cf

Discussion of Proposed Improvements

The development of this site initially includes construction of Ponderosa Court and its associated roadway and utility infrastructure, the addition of a turn lane to Adams Avenue, and construction of the subdivision's wet stormwater pond. Future development will include the full buildout of the site's commercial and industrial lots. Right of Way for Evergreen Drive is being dedicated with this project, but there are currently no plans to construct that roadway.

Conveyance of stormwater flows to the wet stormwater pond is achieved via swales on the southeast and west sides of the development, while storm sewer will be constructed within Ponderosa Court.

Discussion of Proposed Stormwater Treatment

The wet stormwater pond is designed to treat the entire subdivision and a small portion of the farm site to the southeast that drains into the site. The area of Evergreen Drive is considered industrial development for the purposes of this design since there are currently no plans to construct it as a roadway.

The wet stormwater pond is designed to provide at least 1800 cf of wet volume per acre drained, to provide a Water Quality Volume of at least 1.1" of volume over the new impervious surface areas that discharges no faster than 5.66 cfs per acre of Water Quality Volume, and to not discharge faster than existing conditions to CSAH 12. Since infiltration is not viable at this site, that goal is not met. A summary of the requirements and design is below:

	Required	Designed
Wet Volume	27054 cf	113212 cf
1.1" Water Quality Volume	42166 cf	46520 cf
Water Quality Volume Rate	6.91 cfs	3.30 cfs
2-year Discharge Rate	9.68 cfs	6.73 cfs
10-year Discharge Rate	23.98 cfs	11.06 cfs
100-year Discharge Rate	47.27 cfs	16.14 cfs

Other Pertinent Pond Data:

Pond Bottom Elevation	1007
Normal Water Level Elevation	1011
Water Quality Volume Elevation	1011.85
High Water Level	1014.51
Emergency Overflow Elevation	1015
Top of Bank Elevation	1016
Minimum FFE Draining to Basin	1016.75

Summary

In summary, the site's proposed wet stormwater pond provides the required treatment and attenuation that reduces flows leaving the site to less than existing.

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 Minnesota.



John H. Schulte V Date: 8/13/26

License No. 44639

Attachments:

Watershed Map
Calculations
Web Soil Survey
HydroCAD Model
Geotechnical Report

WATERSHED MAP

METCON ADDITION

BLOCK 1

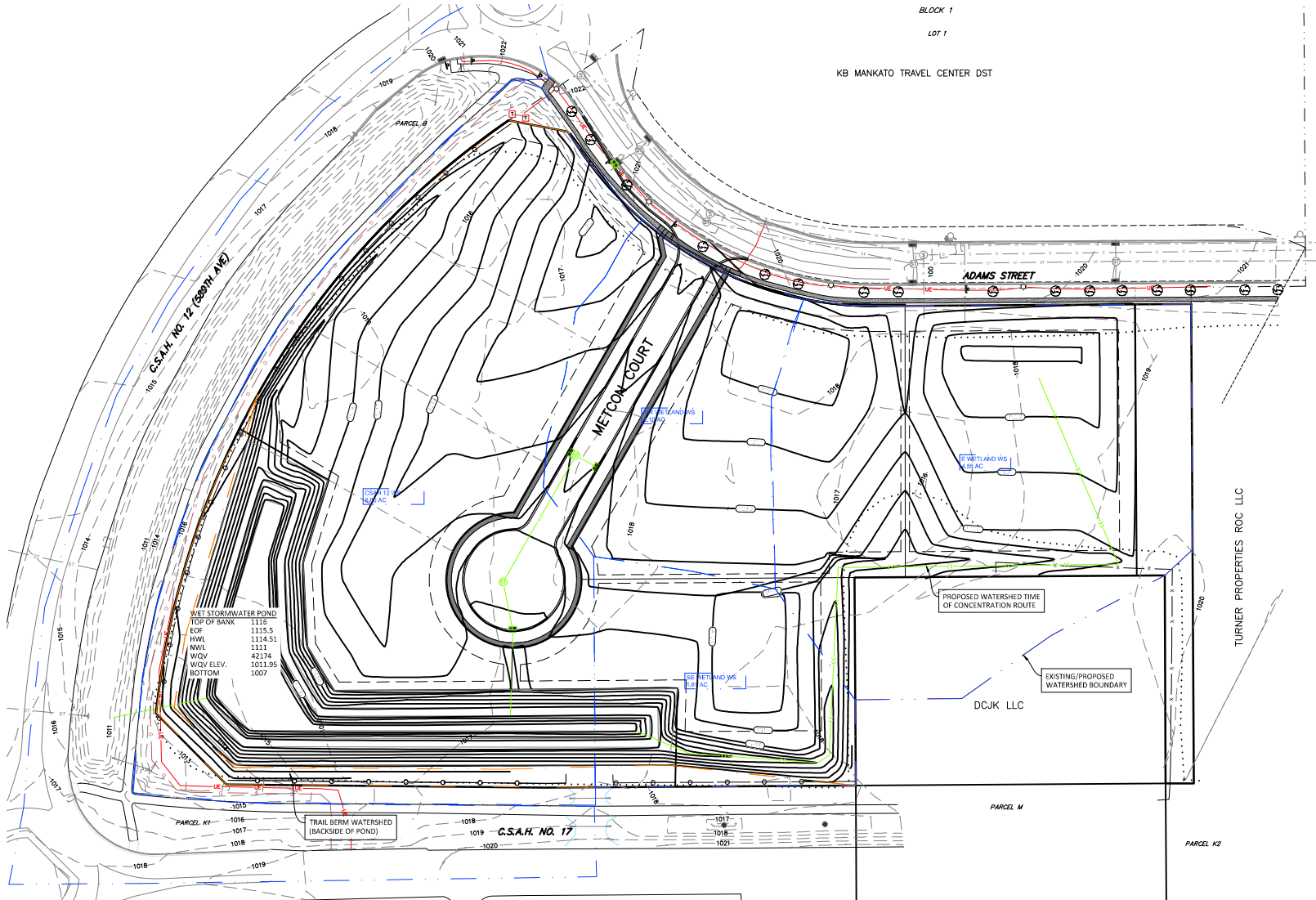
LOT 1

KB MANKATO TRAVEL CENTER DST



LEGEND

- W = Water Main
- S = Sanitary Sewer
- ST = Storm Sewer
- G = Gas Main
- UT = Underground Telephone
- OT = Overhead Telephone
- FO = Fiber-Optics
- UE = Underground Electric
- OE = Overhead Electric
- UTV = Underground TV
- JLM = Judicial Landmark
- X = Chain Link Fence
- O = Control Access
- Sign
- Stop Sign
- Light Pole
- Flood Lights
- Power Pole
- Guy Anchor
- Fire Hydrant
- Water Main Valve
- Culvert
- Catch Basin & Catch Basin Numbers
- Manholes & Manhole Numbers
- Elevation Contour Line
- Spot Elevation
- Rim Elevation
- Flow Line Elevation
- Deciduous Tree
- Coniferous Tree
- Bush



DRAWINGS ON 11x17 SHEETS ARE HALF SCALE

REV.	BY	DATE	REVISION DESCRIPTION



DESIGNED: JWS
 DRAWING: JWS
 CHECKED: BJ
 Date: 7/28/26
 DWG: 25-1234PP

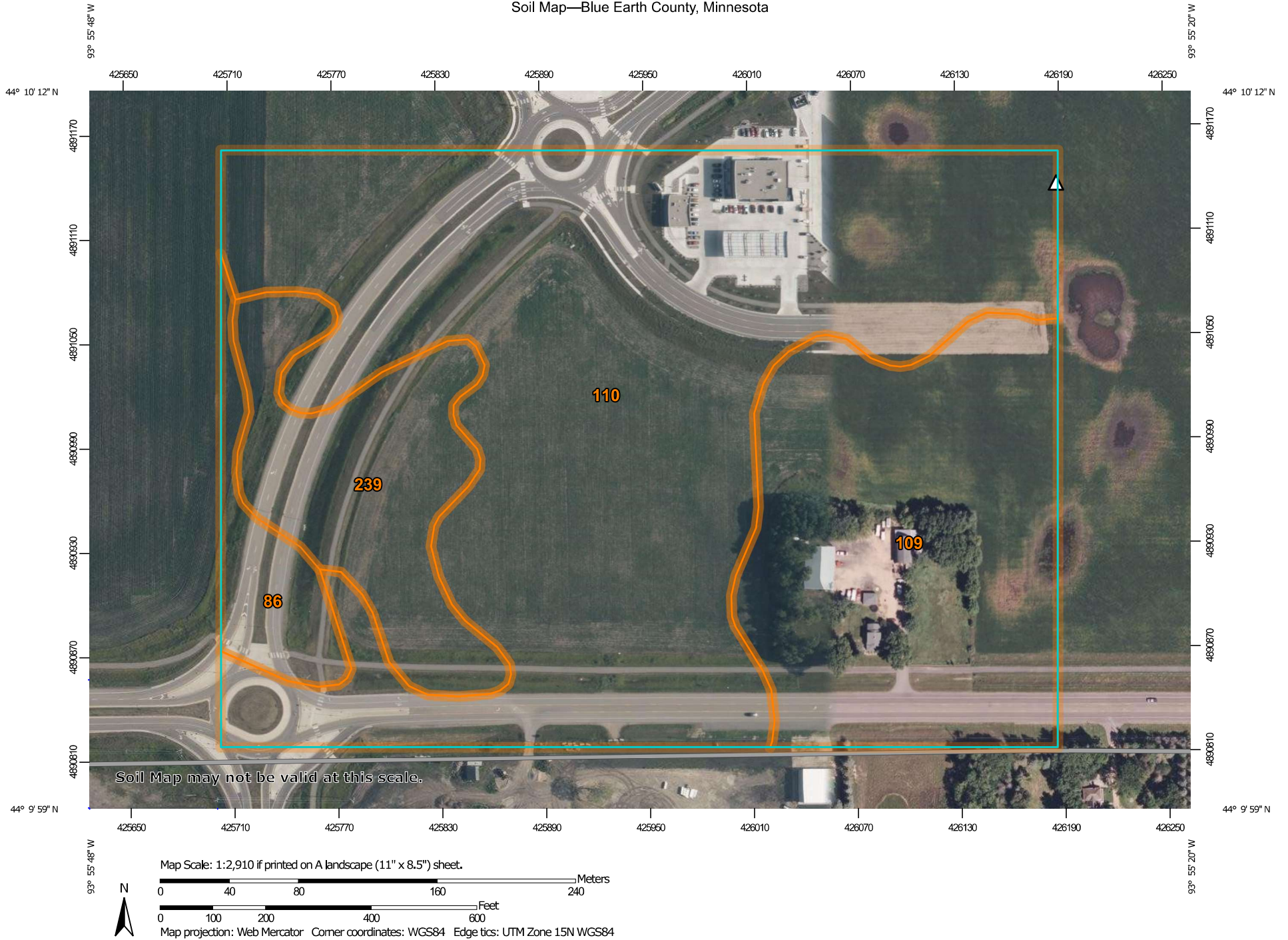
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.
 John H. Schulte V
 License No. 44639 Date: 7/28/26

PRELIMINARY PLAT
 METCON ADDITION
 PART OF SW1/4 SECTION 11-T108N-R26W
 WATERSHEDS MAP

SHEET
 1 OF
 1

WEB SOIL SURVEY

Soil Map—Blue Earth County, Minnesota



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Blue Earth County, Minnesota

Survey Area Data: Version 23, Sep 9, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 30, 2020—Aug 8, 2023

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
86	Canisteo clay loam, 0 to 2 percent slopes	1.7	4.1%
109	Cordova clay loam, 0 to 2 percent slopes	10.2	24.7%
110	Marna silty clay loam, 0 to 2 percent slopes	24.6	59.7%
239	Le Sueur loam, 1 to 3 percent slopes	4.7	11.5%
Totals for Area of Interest		41.2	100.0%

CALCULATIONS

25-1243

MSE 24-hr 3 100-Year Rainfall=7.41"

Prepared by Jones Haugh & Smith Inc

Printed 8/13/2026

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Stage-Area-Storage for Pond 23P: Metcon Addn Pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
1,011.00	47,057	0	1,011.52	50,800	25,443
1,011.01	47,129	471	1,011.53	50,872	25,951
1,011.02	47,201	943	1,011.54	50,944	26,460
1,011.03	47,273	1,415	1,011.55	51,016	26,970
1,011.04	47,345	1,888	1,011.56	51,088	27,481
1,011.05	47,417	2,362	1,011.57	51,160	27,992
1,011.06	47,489	2,836	1,011.58	51,232	28,504
1,011.07	47,561	3,312	1,011.59	51,304	29,016
1,011.08	47,633	3,788	1,011.60	51,376	29,530
1,011.09	47,705	4,264	1,011.61	51,448	30,044
1,011.10	47,777	4,742	1,011.62	51,520	30,559
1,011.11	47,849	5,220	1,011.63	51,592	31,074
1,011.12	47,921	5,699	1,011.64	51,664	31,591
1,011.13	47,993	6,178	1,011.65	51,736	32,108
1,011.14	48,065	6,659	1,011.66	51,808	32,625
1,011.15	48,137	7,140	1,011.67	51,880	33,144
1,011.16	48,209	7,621	1,011.68	51,952	33,663
1,011.17	48,281	8,104	1,011.69	52,023	34,183
1,011.18	48,353	8,587	1,011.70	52,095	34,703
1,011.19	48,425	9,071	1,011.71	52,167	35,225
1,011.20	48,497	9,555	1,011.72	52,239	35,747
1,011.21	48,569	10,041	1,011.73	52,311	36,269
1,011.22	48,641	10,527	1,011.74	52,383	36,793
1,011.23	48,712	11,013	1,011.75	52,455	37,317
1,011.24	48,784	11,501	1,011.76	52,527	37,842
1,011.25	48,856	11,989	1,011.77	52,599	38,368
1,011.26	48,928	12,478	1,011.78	52,671	38,894
1,011.27	49,000	12,968	1,011.79	52,743	39,421
1,011.28	49,072	13,458	1,011.80	52,815	39,949
1,011.29	49,144	13,949	1,011.81	52,887	40,477
1,011.30	49,216	14,441	1,011.82	52,959	41,007
1,011.31	49,288	14,934	1,011.83	53,031	41,537
1,011.32	49,360	15,427	1,011.84	53,103	42,067
1,011.33	49,432	15,921	1,011.85	53,175	42,599
1,011.34	49,504	16,415	1,011.86	53,247	43,131
1,011.35	49,576	16,911	1,011.87	53,319	43,664
1,011.36	49,648	17,407	1,011.88	53,391	44,197
1,011.37	49,720	17,904	1,011.89	53,463	44,731
1,011.38	49,792	18,401	1,011.90	53,535	45,266
1,011.39	49,864	18,900	1,011.91	53,607	45,802
1,011.40	49,936	19,399	1,011.92	53,679	46,339
1,011.41	50,008	19,898	1,011.93	53,751	46,876
1,011.42	50,080	20,399	1,011.94	53,823	47,414
1,011.43	50,152	20,900	1,011.95	53,895	47,952
1,011.44	50,224	21,402	1,011.96	53,967	48,491
1,011.45	50,296	21,904	1,011.97	54,039	49,031
1,011.46	50,368	22,408	1,011.98	54,111	49,572
1,011.47	50,440	22,912	1,011.99	54,183	50,114
1,011.48	50,512	23,417	1,012.00	54,255	50,656
1,011.49	50,584	23,922	1,012.01	54,327	51,199
1,011.50	50,656	24,428	1,012.02	54,399	51,742
1,011.51	50,728	24,935	1,012.03	54,471	52,287

Rec'd
Wet
$$\frac{53247}{43540} \times 5.44 =$$

6.91 cfs

25-1243

MSE 24-hr 3 100-Year Rainfall=7.41"

Prepared by Jones Haugh & Smith Inc

Printed 8/13/2026

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Hydrograph for Pond 23P: Metcon Addn Pond (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
10.20	3.28	21,447	1,011.44	0.98
10.25	3.32	21,862	1,011.45	1.01
10.30	3.36	22,277	1,011.46	1.05
10.35	3.39	22,691	1,011.47	1.09
10.40	3.42	23,106	1,011.47	1.12
10.45	3.45	23,519	1,011.48	1.16
10.50	3.49	23,932	1,011.49	1.20
10.55	3.64	24,355	1,011.50	1.23
10.60	4.21	24,835	1,011.51	1.28
10.65	4.87	25,417	1,011.52	1.34
10.70	5.41	26,096	1,011.53	1.40
10.75	5.84	26,850	1,011.55	1.47
10.80	6.26	27,666	1,011.56	1.55
10.85	6.65	28,541	1,011.58	1.64
10.90	7.06	29,471	1,011.60	1.73
10.95	7.45	30,456	1,011.62	1.84
11.00	7.86	31,493	1,011.64	1.95
11.05	8.25	32,581	1,011.66	2.07
11.10	8.67	33,721	1,011.68	2.19
11.15	9.08	34,912	1,011.70	2.33
11.20	9.51	36,153	1,011.73	2.47
11.25	9.92	37,443	1,011.75	2.62
11.30	10.35	38,781	1,011.78	2.78
11.35	10.77	40,167	1,011.80	2.95
11.40	11.21	41,599	1,011.83	3.12
11.45	11.63	43,076	1,011.86	3.30
11.50	12.07	44,597	1,011.89	3.49
11.55	12.83	46,192	1,011.92	3.69
11.60	14.89	48,001	1,011.95	3.92
11.65	17.45	50,180	1,011.99	4.20
11.70	20.48	52,808	1,012.04	4.54
11.75	23.73	55,935	1,012.10	4.94
11.80	28.24	59,681	1,012.16	5.41
11.85	33.33	64,199	1,012.25	5.96
11.90	40.07	69,676	1,012.34	6.58
11.95	49.14	76,463	1,012.46	7.22
12.00	66.76	85,531	1,012.62	7.92
12.05	89.43	98,079	1,012.83	8.84
12.10	123.37	115,547	1,013.11	9.87
12.15	146.53	137,968	1,013.47	10.90
12.20	121.52	160,051	1,013.80	11.79
12.25	83.00	176,281	1,014.04	12.39
12.30	59.48	186,841	1,014.19	12.75
12.35	45.97	194,015	1,014.29	12.99
12.40	37.07	199,135	1,014.37	13.16
12.45	30.78	202,862	1,014.42	13.28
12.50	25.98	205,573	1,014.46	13.36
12.55	22.20	207,498	1,014.48	13.42
12.60	18.75	208,763	1,014.50	13.46
12.65	15.96	209,462	1,014.51	13.48
12.70	14.42	209,768	1,014.51	13.49
12.75	13.57	209,858	1,014.51	13.50

vs 6.91 cfs ✓

25-1243

MSE 24-hr 3 2-Year Rainfall=2.92"

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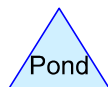
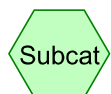
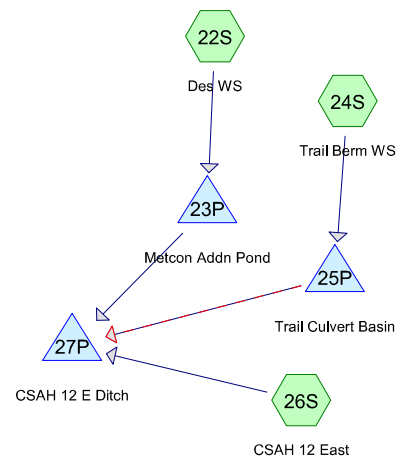
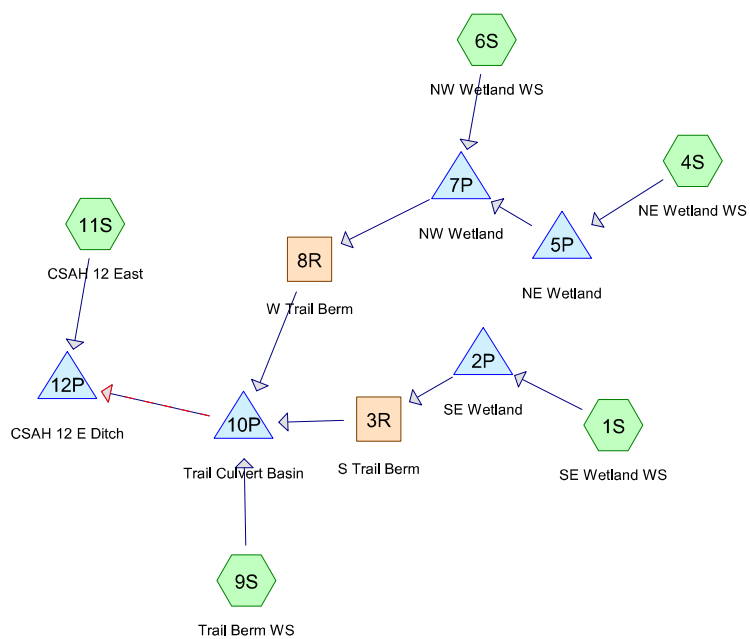
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Hydrograph for Pond 3P: (new Pond) (continued)

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Primary (cfs)
10.20	0.73	3,521	1,011.08	0.04
10.25	0.75	3,647	1,011.09	0.04
10.30	0.76	3,775	1,011.09	0.04
10.35	0.77	3,906	1,011.09	0.04
10.40	0.79	4,038	1,011.10	0.05
10.45	0.80	4,173	1,011.10	0.05
10.50	0.82	4,309	1,011.10	0.05
10.55	0.86	4,450	1,011.11	0.06
10.60	1.00	4,607	1,011.11	0.06
10.65	1.17	4,790	1,011.11	0.07
10.70	1.31	5,001	1,011.12	0.08
10.75	1.43	5,234	1,011.12	0.08
10.80	1.55	5,486	1,011.13	0.09
10.85	1.67	5,759	1,011.14	0.10
10.90	1.79	6,051	1,011.14	0.11
10.95	1.91	6,364	1,011.15	0.12
11.00	2.04	6,696	1,011.16	0.13
11.05	2.16	7,048	1,011.17	0.15
11.10	2.30	7,421	1,011.18	0.17
11.15	2.43	7,816	1,011.19	0.18
11.20	2.57	8,232	1,011.20	0.20
11.25	2.71	8,669	1,011.21	0.22
11.30	2.86	9,129	1,011.22	0.25
11.35	3.01	9,611	1,011.23	0.28
11.40	3.17	10,115	1,011.24	0.30
11.45	3.32	10,641	1,011.25	0.33
11.50	3.48	11,190	1,011.26	0.37
11.55	3.74	11,770	1,011.28	0.40
11.60	4.39	12,425	1,011.29	0.45
11.65	5.20	13,203	1,011.31	0.50
11.70	6.18	14,131	1,011.33	0.57
11.75	7.26	15,231	1,011.36	0.65
11.80	8.77	16,546	1,011.39	0.76
11.85	10.50	18,130	1,011.42	0.90
11.90	12.84	20,052	1,011.46	1.08
11.95	16.02	22,433	1,011.52	1.33
12.00	22.22	25,604	1,011.59	1.68
12.05	30.40	29,991	1,011.68	2.20
12.10	42.91	36,120	1,011.81	3.01
12.15	51.89	44,012	1,011.98	4.11
12.20	43.52	51,760	1,012.14	5.21
12.25	29.97	57,367	1,012.25	5.98
12.30	21.63	60,894	1,012.32	6.43
12.35	16.82	63,172	1,012.36	6.70
12.40	13.62	64,690	1,012.39	6.87
12.45	11.35	65,690	1,012.41	6.98
12.50	9.60	66,314	1,012.42	7.04
12.55	8.22	66,648	1,012.43	7.07
12.60	6.95	66,739	1,012.43	7.08
12.65	5.92	66,624	1,012.43	7.07
12.70	5.36	66,369	1,012.43	7.04
12.75	5.04	66,040	1,012.42	7.01

✓
vs 4.2

HYDROCAD MODEL



Routing Diagram for 25-1243

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MSE 24-hr 3 2-Year Rainfall=2.92"

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Summary for Subcatchment 1S: SE Wetland WS

Runoff = 2.96 cfs @ 12.40 hrs, Volume= 0.257 af, Depth> 1.91"
 Routed to Pond 2P : SE Wetland

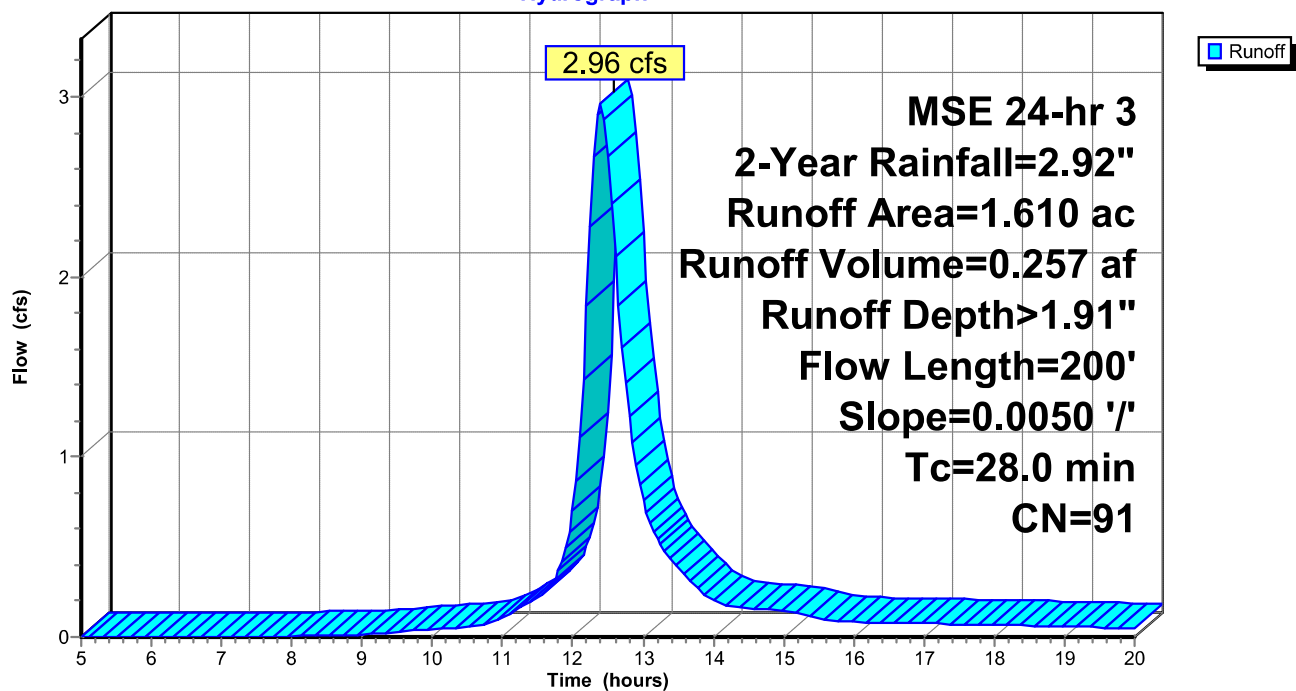
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
1.610	91	Row crops, straight row, Poor, HSG D
1.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"

Subcatchment 1S: SE Wetland WS

Hydrograph



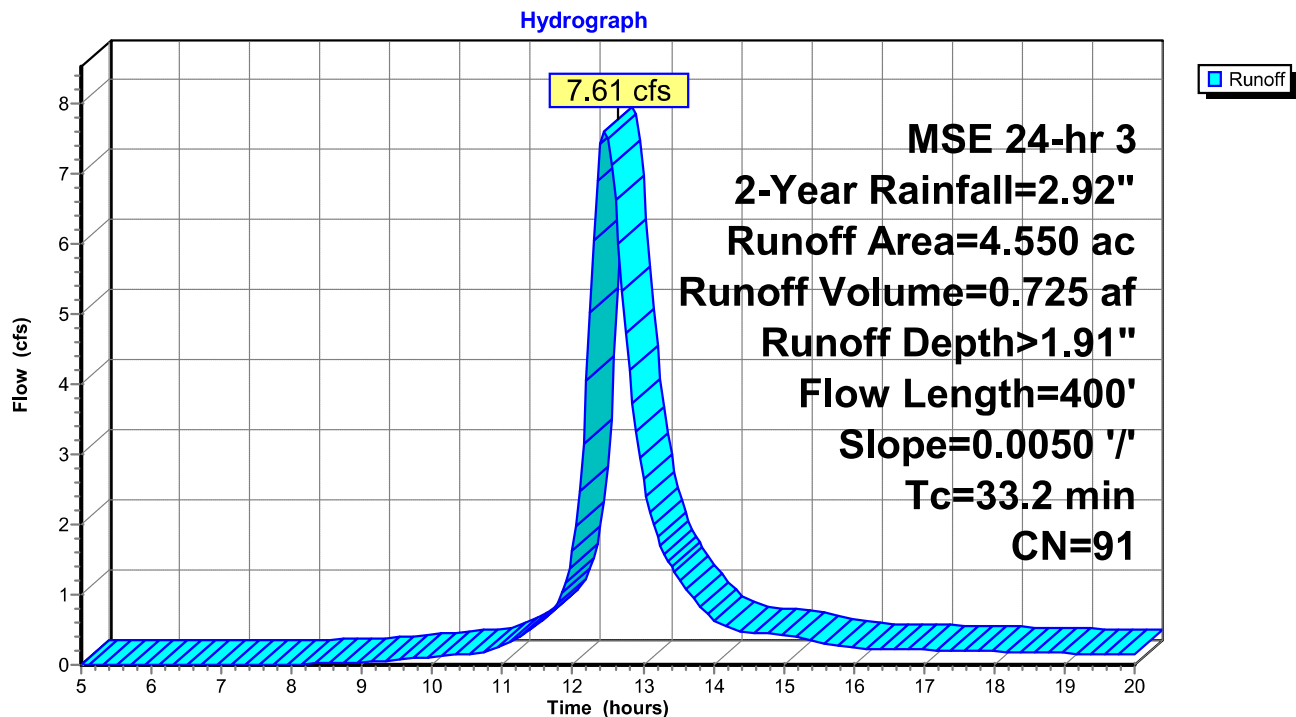
Summary for Subcatchment 4S: NE Wetland WS

Runoff = 7.61 cfs @ 12.46 hrs, Volume= 0.725 af, Depth> 1.91"
 Routed to Pond 5P : NE Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
4.190	91	Row crops, straight row, Poor, HSG D
0.360	86	Farmsteads, HSG D
4.550	91	Weighted Average
4.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"
5.2	200	0.0050	0.64		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
33.2	400	Total			

Subcatchment 4S: NE Wetland WS

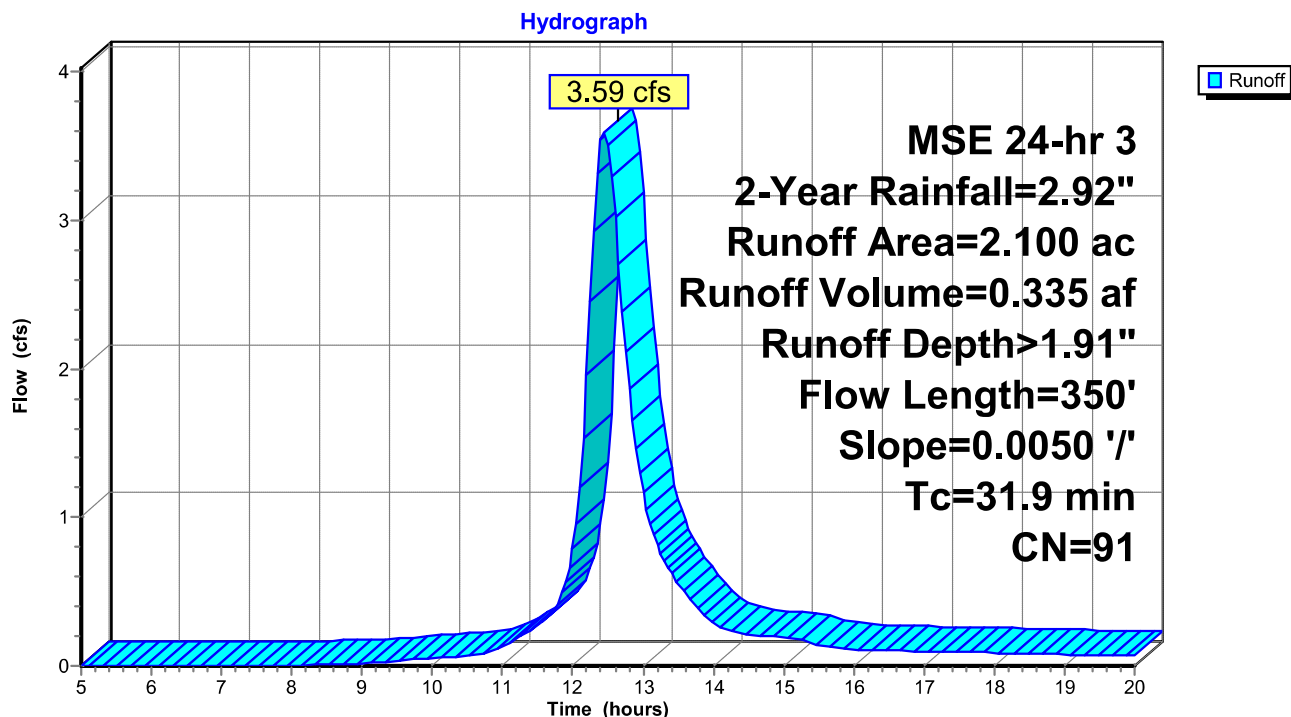
Summary for Subcatchment 6S: NW Wetland WS

Runoff = 3.59 cfs @ 12.44 hrs, Volume= 0.335 af, Depth> 1.91"
 Routed to Pond 7P : NW Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
2.100	91	Row crops, straight row, Poor, HSG D
2.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"
3.9	150	0.0050	0.64		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
31.9	350	Total			

Subcatchment 6S: NW Wetland WS

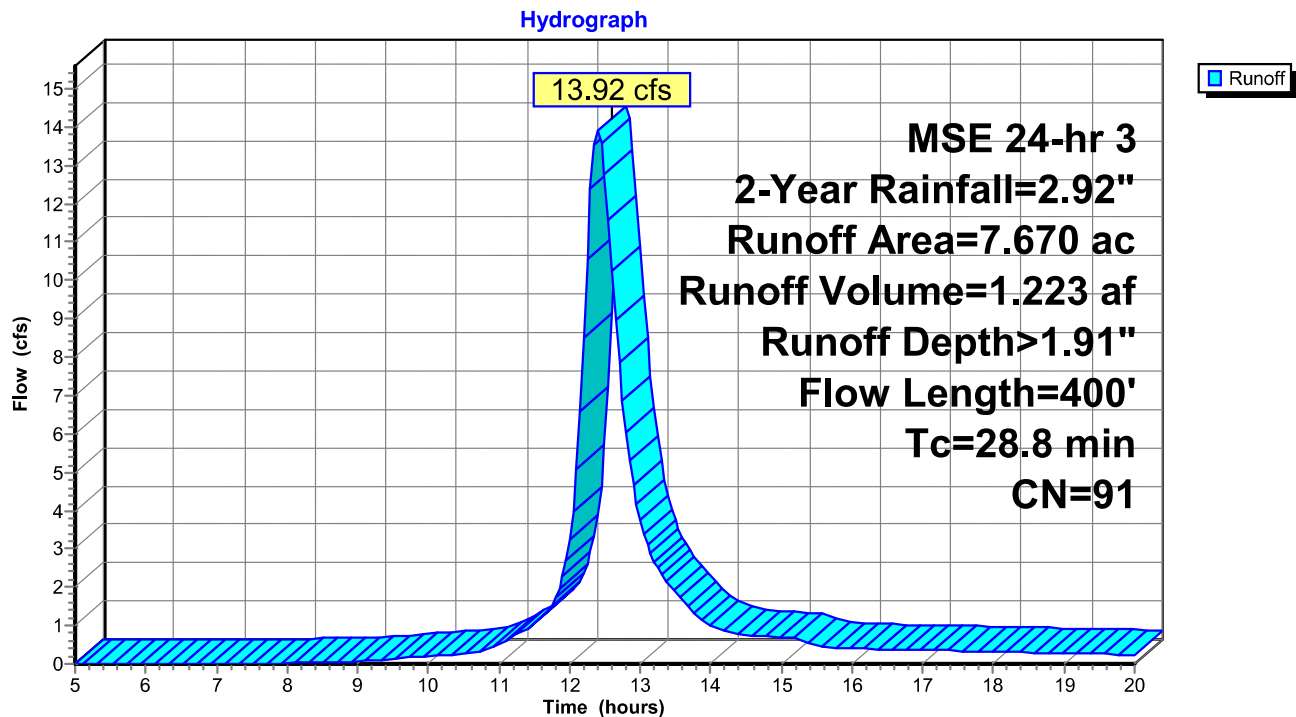
Summary for Subcatchment 9S: Trail Berm WS

Runoff = 13.92 cfs @ 12.40 hrs, Volume= 1.223 af, Depth> 1.91"
 Routed to Pond 10P : Trail Culvert Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
7.670	91	Row crops, straight row, Poor, HSG D
7.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	200	0.0050	0.27		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 4.40"
16.6	200	0.0005	0.20		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
28.8	400	Total			

Subcatchment 9S: Trail Berm WS

25-1243

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MSE 24-hr 3 2-Year Rainfall=2.92"

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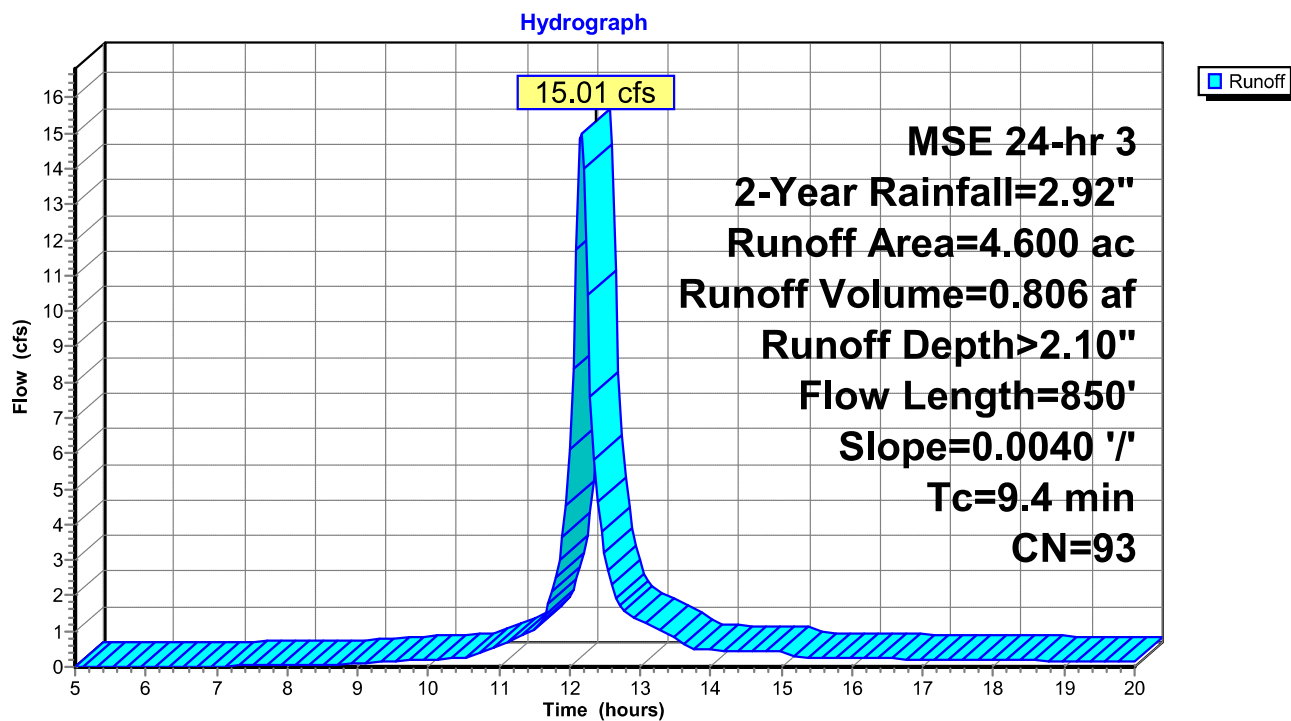
Summary for Subcatchment 11S: CSAH 12 East

Runoff = 15.01 cfs @ 12.16 hrs, Volume= 0.806 af, Depth> 2.10"
 Routed to Pond 12P : CSAH 12 E Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
4.600	93	Paved roads w/open ditches, 50% imp, HSG D
2.300		50.00% Pervious Area
2.300		50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.4	450	0.0040	3.12	100.00	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=2.00' Z= 6.0 & 3.0 '/' Top.W=25.00' n= 0.035 Earth, dense weeds
9.4	850	Total			

Subcatchment 11S: CSAH 12 East

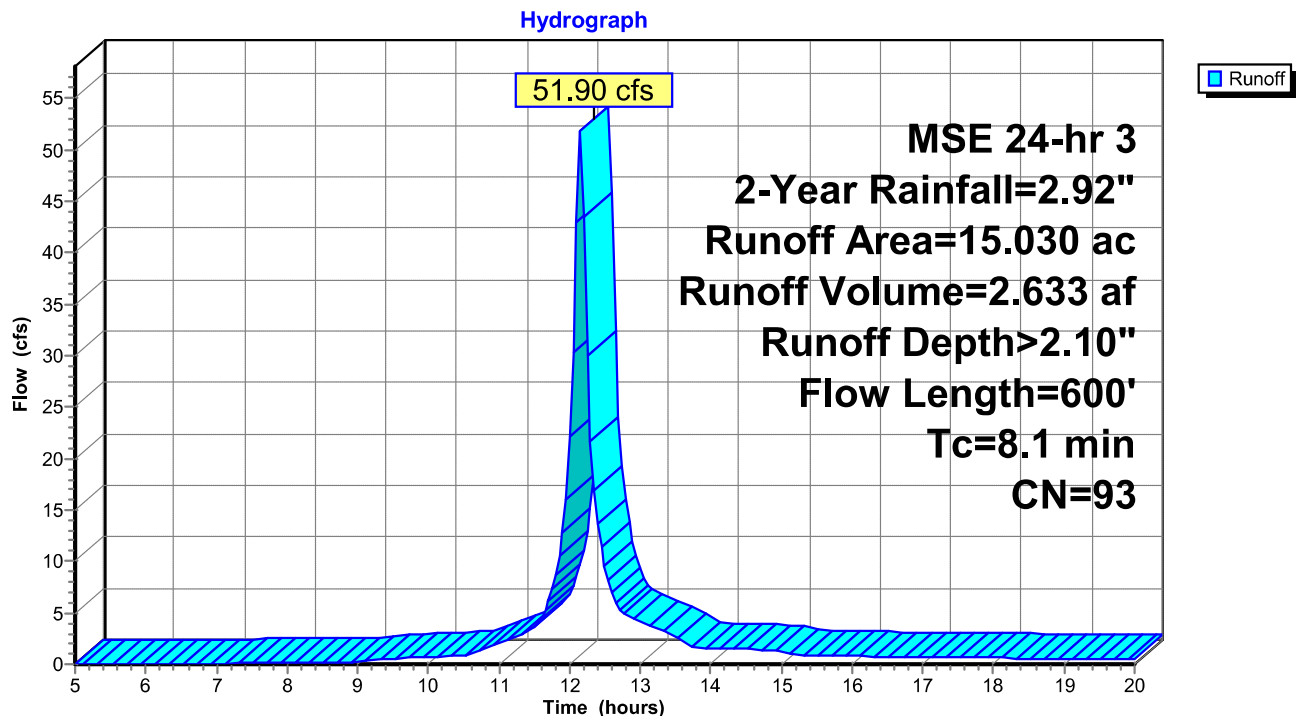
Summary for Subcatchment 22S: Des WS

Runoff = 51.90 cfs @ 12.15 hrs, Volume= 2.633 af, Depth> 2.10"
 Routed to Pond 23P : Metcon Addn Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
14.670	93	Urban industrial, 72% imp, HSG D
0.360	86	Farmsteads, HSG D
15.030	93	Weighted Average
4.468		29.72% Pervious Area
10.562		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	200	0.0200	1.85		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.40"
6.3	400	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
8.1	600	Total			

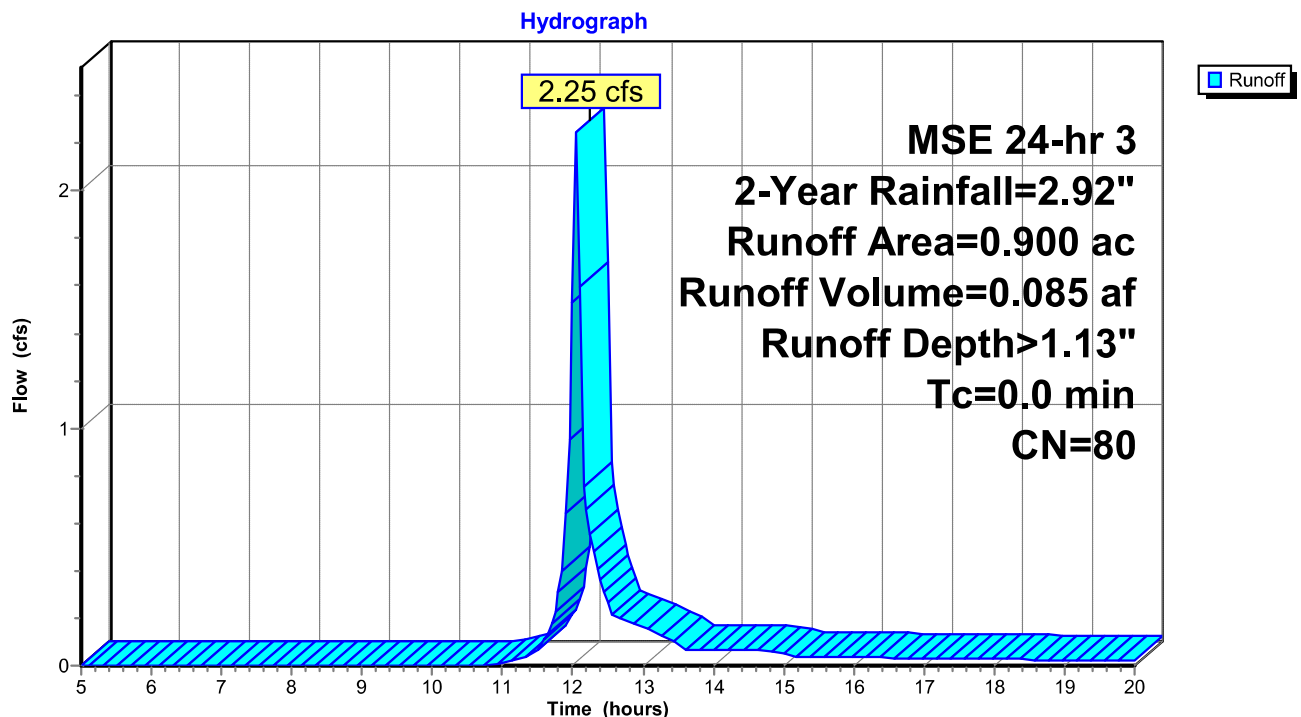
Subcatchment 22S: Des WS

Summary for Subcatchment 24S: Trail Berm WS

Runoff = 2.25 cfs @ 12.05 hrs, Volume= 0.085 af, Depth> 1.13"
 Routed to Pond 25P : Trail Culvert Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
0.900	80	>75% Grass cover, Good, HSG D
0.900		100.00% Pervious Area

Subcatchment 24S: Trail Berm WS

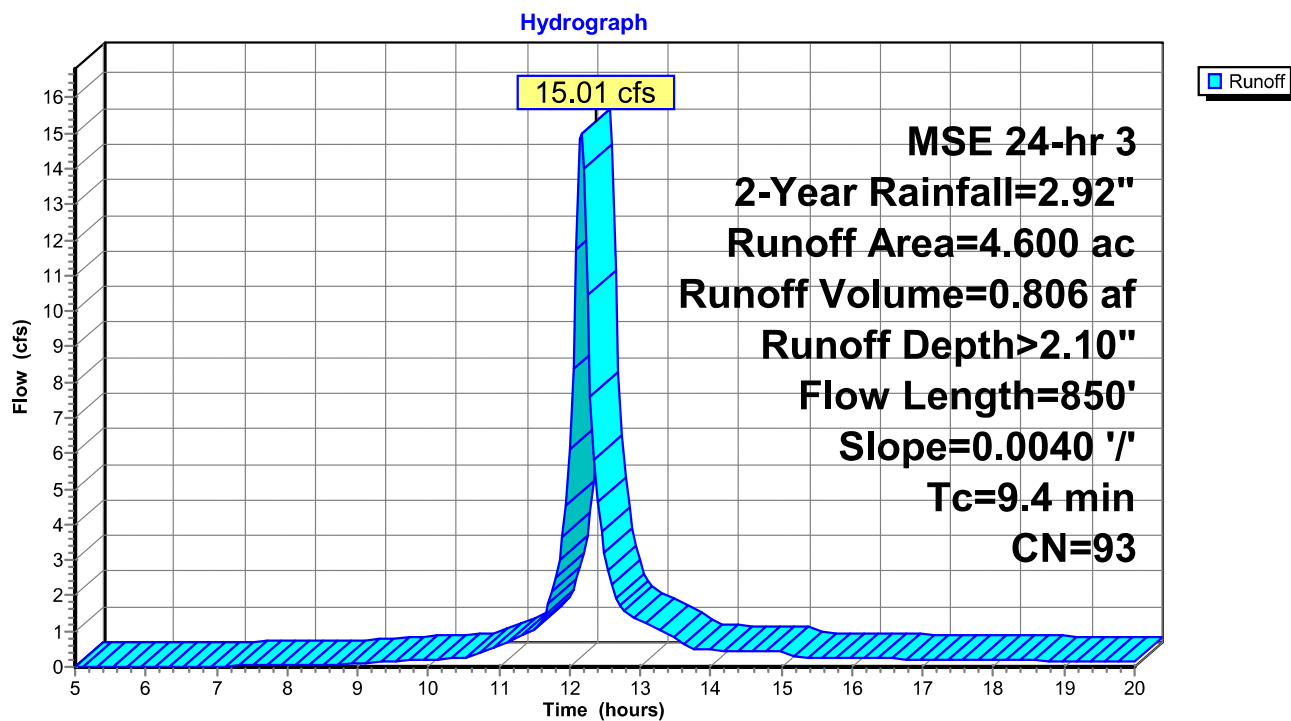
Summary for Subcatchment 26S: CSAH 12 East

Runoff = 15.01 cfs @ 12.16 hrs, Volume= 0.806 af, Depth> 2.10"
 Routed to Pond 27P : CSAH 12 E Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 2-Year Rainfall=2.92"

Area (ac)	CN	Description
4.600	93	Paved roads w/open ditches, 50% imp, HSG D
2.300		50.00% Pervious Area
2.300		50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.4	450	0.0040	3.12	100.00	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=2.00' Z= 6.0 & 3.0 '/' Top.W=25.00' n= 0.035 Earth, dense weeds
9.4	850	Total			

Subcatchment 26S: CSAH 12 East

Summary for Reach 3R: S Trail Berm

Inflow Area = 1.610 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-Year event
 Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Routed to Pond 10P : Trail Culvert Basin

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min

Avg. Velocity= 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 5.00 hrs

Average Depth at Peak Storage= 0.00'

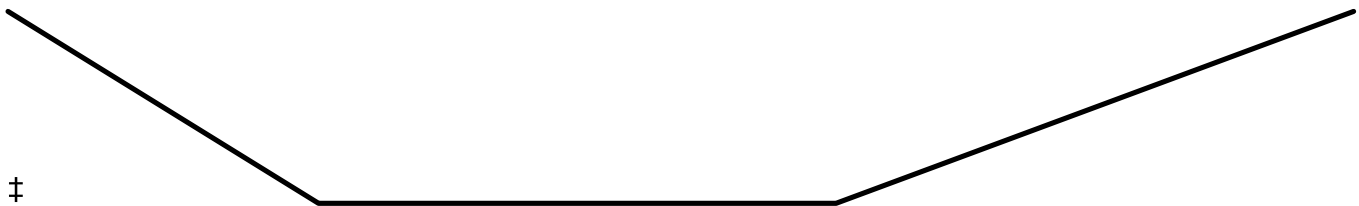
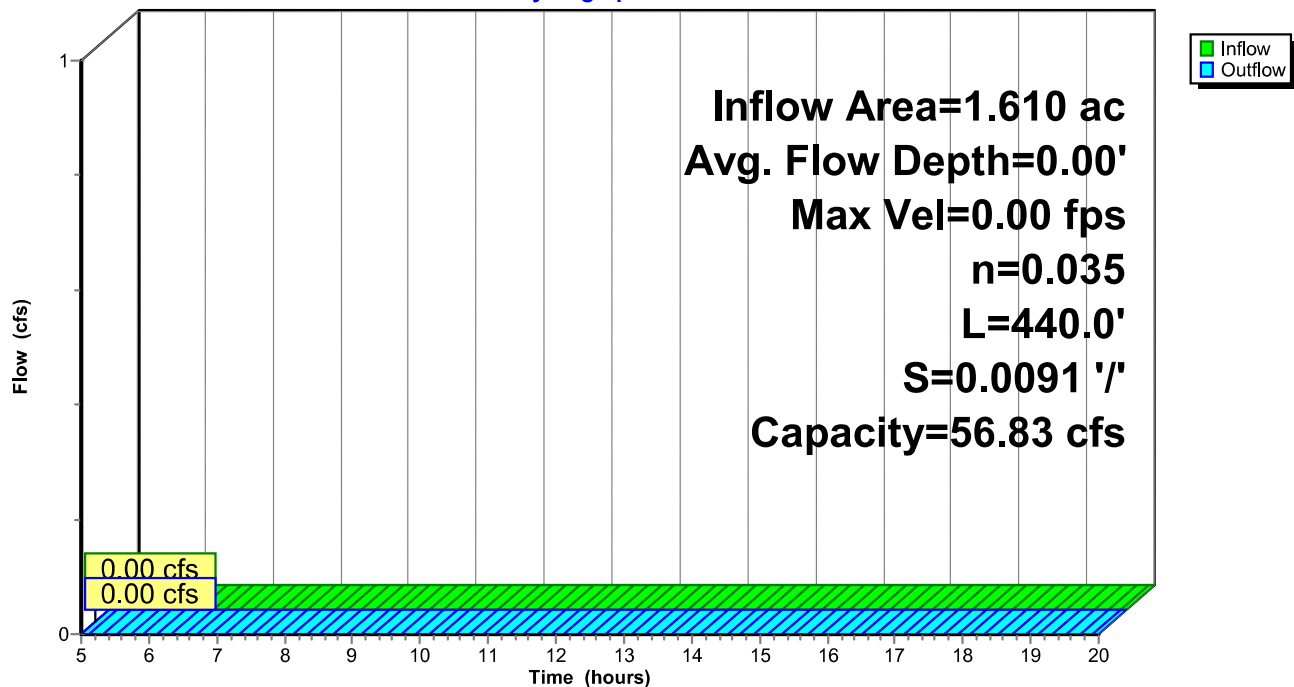
Bank-Full Depth= 1.00' Flow Area= 18.0 sf, Capacity= 56.83 cfs

10.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 6.0 10.0 '/' Top Width= 26.00'

Length= 440.0' Slope= 0.0091 '/'

Inlet Invert= 1,016.00', Outlet Invert= 1,012.00'

**Reach 3R: S Trail Berm****Hydrograph**

Summary for Reach 8R: W Trail Berm

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 0.55" for 2-Year event
 Inflow = 3.48 cfs @ 12.51 hrs, Volume= 0.303 af
 Outflow = 3.11 cfs @ 12.80 hrs, Volume= 0.299 af, Atten= 11%, Lag= 17.5 min
 Routed to Pond 10P : Trail Culvert Basin

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.30 fps, Min. Travel Time= 9.9 min

Avg. Velocity= 0.60 fps, Avg. Travel Time= 21.4 min

Peak Storage= 1,855 cf @ 12.63 hrs

Average Depth at Peak Storage= 0.35' , Surface Width= 9.62'

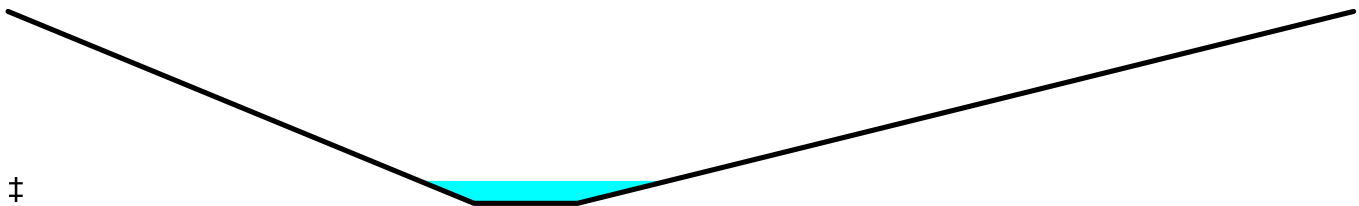
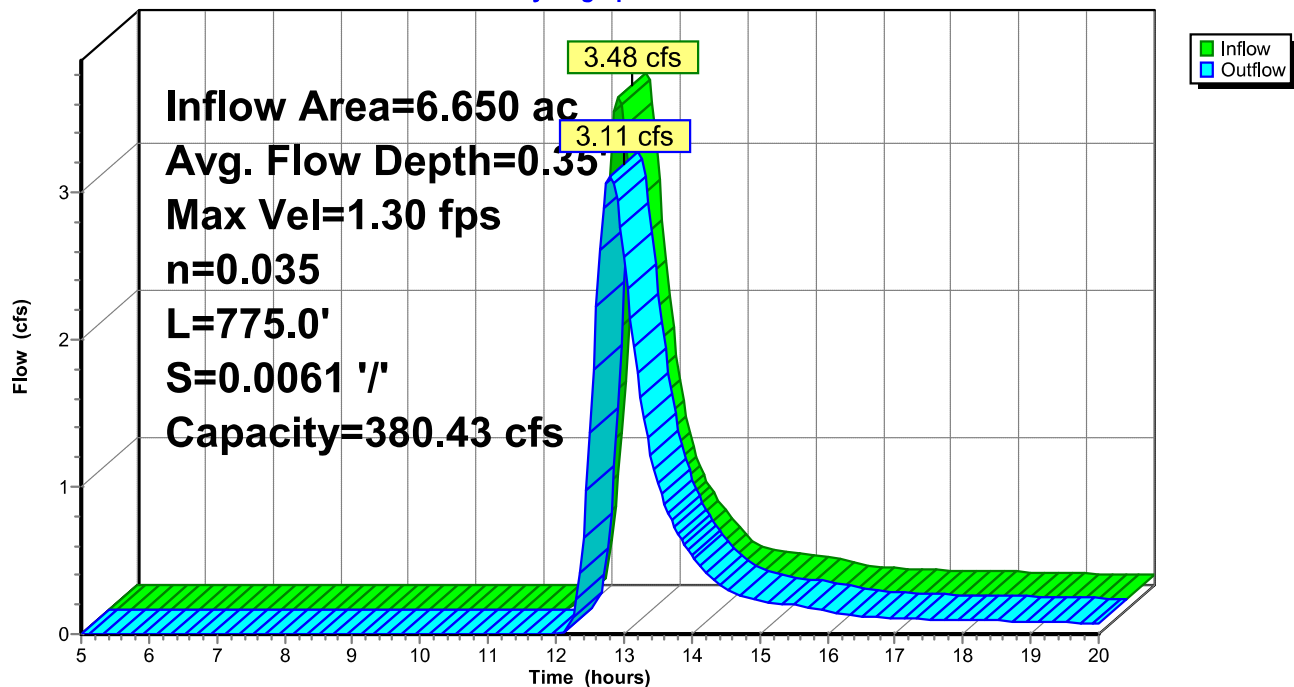
Bank-Full Depth= 3.00' Flow Area= 84.0 sf, Capacity= 380.43 cfs

4.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 6.0 10.0 '/' Top Width= 52.00'

Length= 775.0' Slope= 0.0061 '/'

Inlet Invert= 1,016.70', Outlet Invert= 1,012.00'

**Reach 8R: W Trail Berm****Hydrograph**

Summary for Pond 2P: SE Wetland

Inflow Area = 1.610 ac, 0.00% Impervious, Inflow Depth > 1.91" for 2-Year event
 Inflow = 2.96 cfs @ 12.40 hrs, Volume= 0.257 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Reach 3R : S Trail Berm

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.78' @ 20.00 hrs Surf.Area= 41,990 sf Storage= 11,182 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	1,017.25'	22,174 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

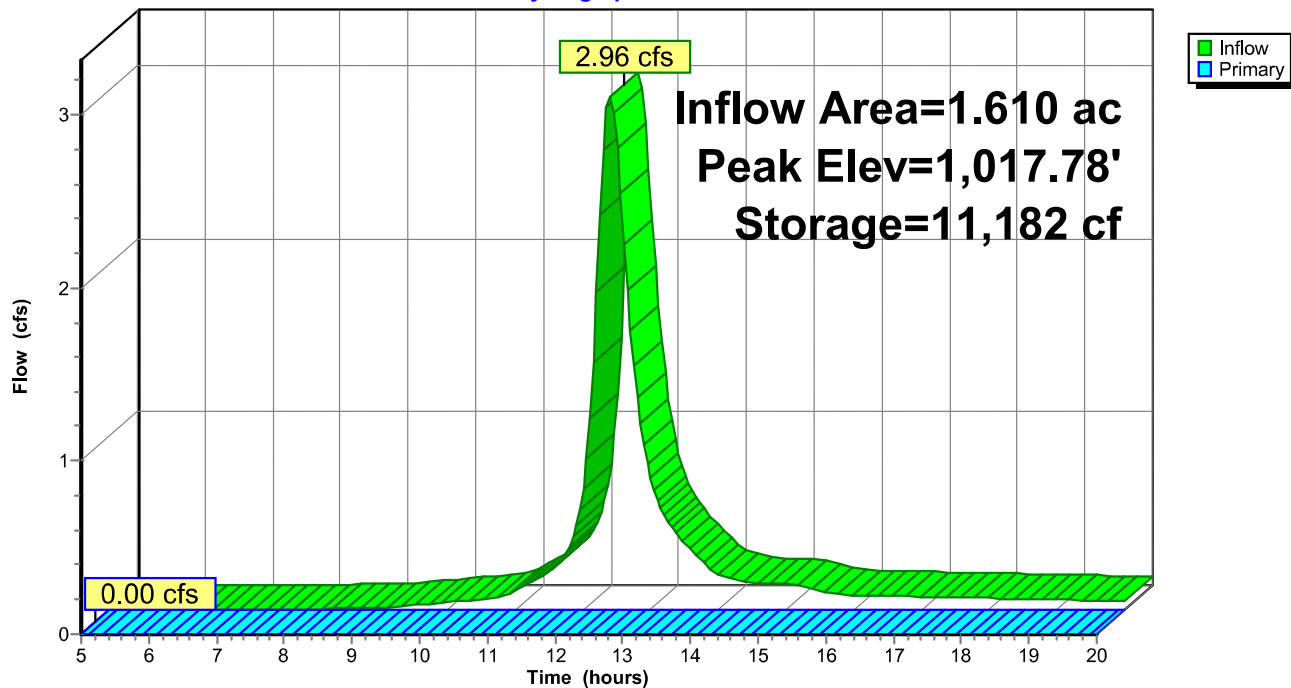
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,017.25	0	0	0
1,018.00	59,130	22,174	22,174

Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.90'	100.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,017.25' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 2P: SE Wetland

Hydrograph



Summary for Pond 5P: NE Wetland

Inflow Area = 4.550 ac, 0.00% Impervious, Inflow Depth > 1.91" for 2-Year event
 Inflow = 7.61 cfs @ 12.46 hrs, Volume= 0.725 af
 Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Pond 7P : NW Wetland

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.48' @ 20.00 hrs Surf.Area= 51,399 sf Storage= 31,557 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	1,016.00'	65,093 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,016.00	0	0	0
1,017.00	25,742	12,871	12,871
1,018.00	78,702	52,222	65,093

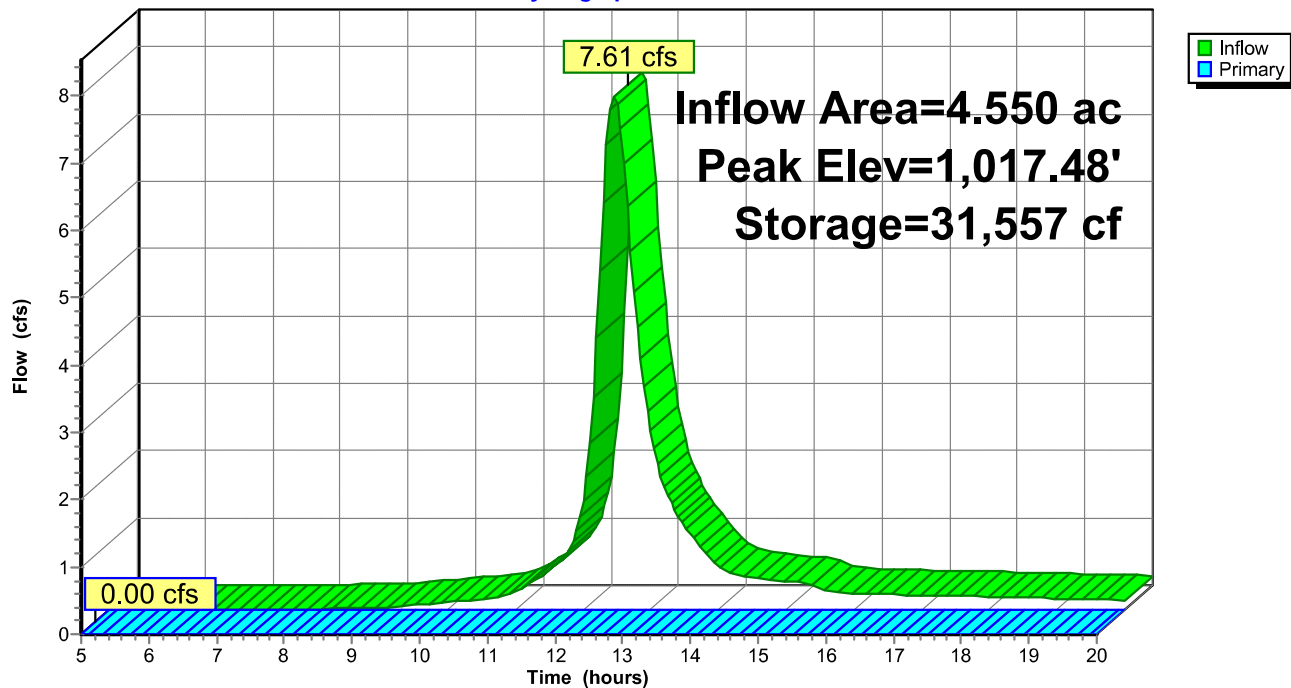
Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.56'	75.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,016.00' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 5P: NE Wetland

Hydrograph



Summary for Pond 7P: NW Wetland

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 0.60" for 2-Year event
 Inflow = 3.59 cfs @ 12.44 hrs, Volume= 0.335 af
 Outflow = 3.48 cfs @ 12.51 hrs, Volume= 0.303 af, Atten= 3%, Lag= 3.9 min
 Primary = 3.48 cfs @ 12.51 hrs, Volume= 0.303 af
 Routed to Reach 8R : W Trail Berm

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.23' @ 12.51 hrs Surf.Area= 20,885 sf Storage= 2,362 cf

Plug-Flow detention time= 45.5 min calculated for 0.302 af (90% of inflow)
 Center-of-Mass det. time= 18.3 min (808.8 - 790.5)

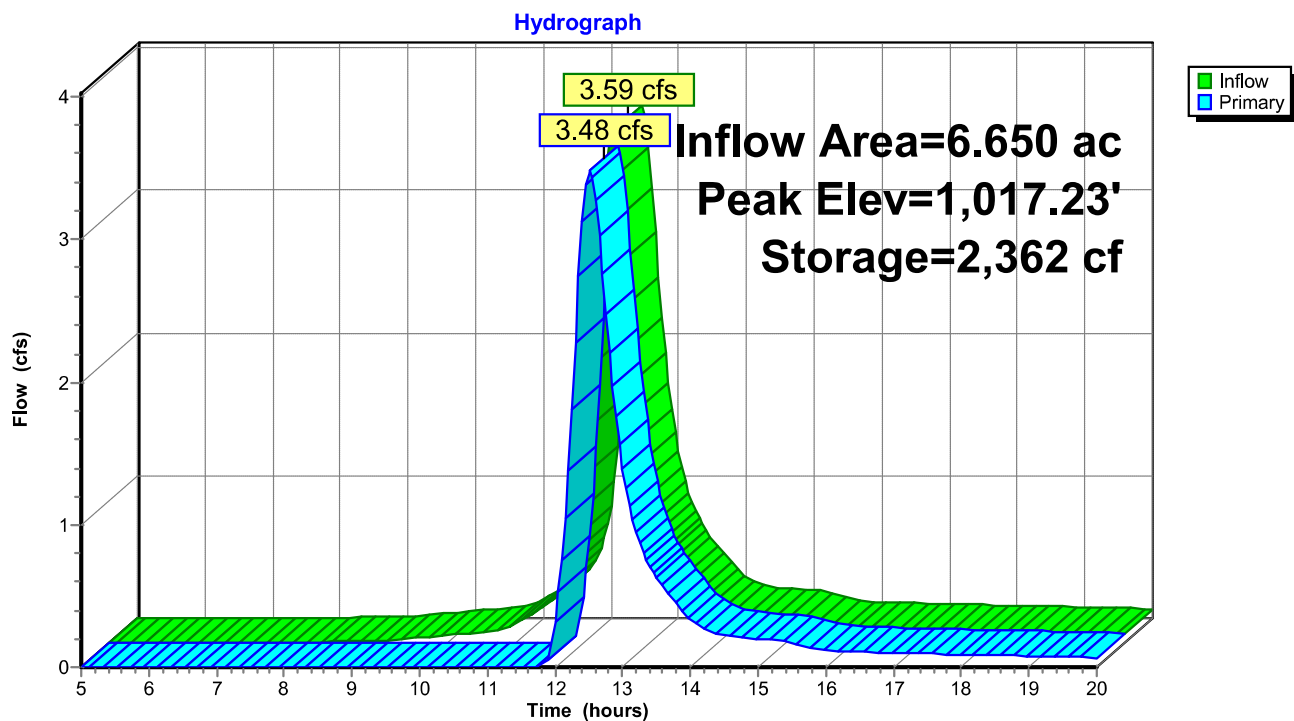
Volume	Invert	Avail.Storage	Storage Description
#1	1,017.00'	46,162 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,017.00	0	0	0
1,018.00	92,324	46,162	46,162

Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.17'	100.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.46 cfs @ 12.51 hrs HW=1,017.23' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 3.46 cfs @ 0.58 fps)

Pond 7P: NW Wetland



Summary for Pond 10P: Trail Culvert Basin

Inflow Area = 15.930 ac, 0.00% Impervious, Inflow Depth > 1.15" for 2-Year event
 Inflow = 14.64 cfs @ 12.43 hrs, Volume= 1.522 af
 Outflow = 9.68 cfs @ 12.77 hrs, Volume= 1.520 af, Atten= 34%, Lag= 20.9 min
 Primary = 4.03 cfs @ 12.77 hrs, Volume= 1.323 af
 Routed to Pond 12P : CSAH 12 E Ditch
 Secondary = 5.65 cfs @ 12.77 hrs, Volume= 0.197 af
 Routed to Pond 12P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,014.61' @ 12.77 hrs Surf.Area= 23,929 sf Storage= 18,489 cf

Plug-Flow detention time= 34.2 min calculated for 1.520 af (100% of inflow)
 Center-of-Mass det. time= 33.7 min (829.6 - 795.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.30'	29,601 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.30	0	0	0
1,013.00	1,763	1,499	1,499
1,014.00	11,053	6,408	7,907
1,015.00	32,336	21,695	29,601

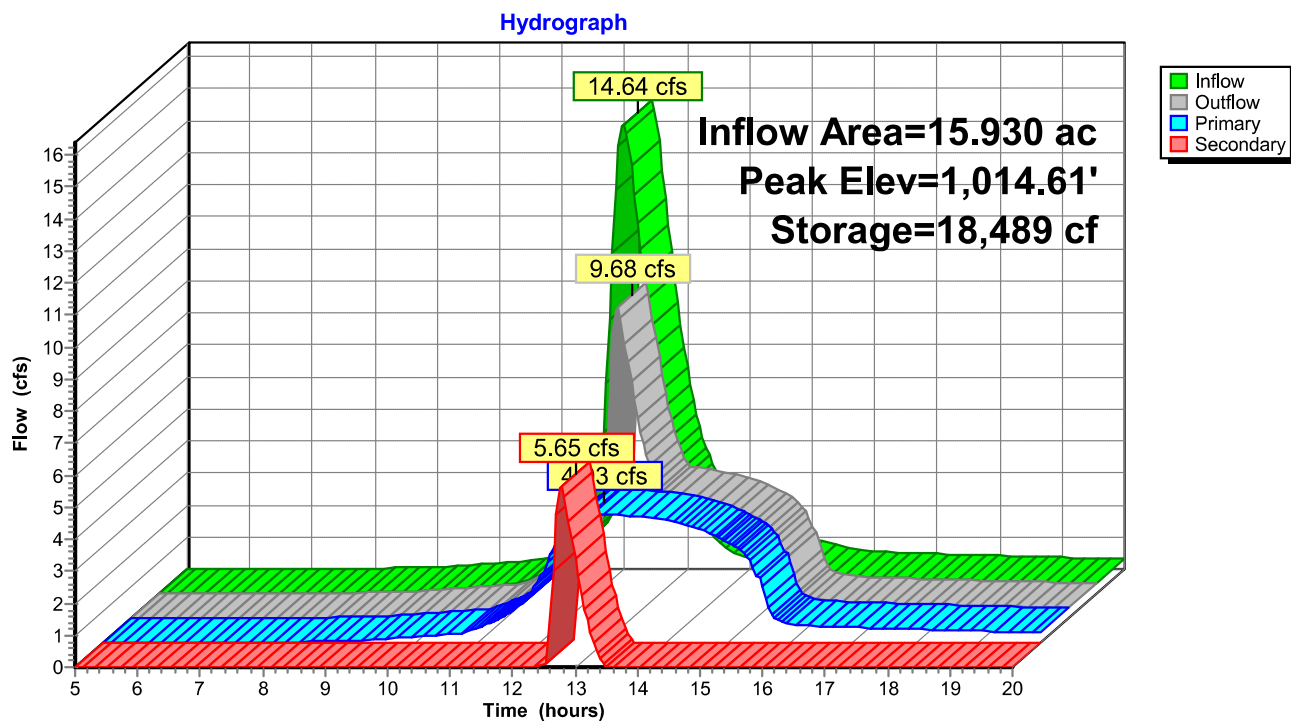
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.30'	12.0" Round Culvert L= 42.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.30' / 1,011.00' S= 0.0071 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Secondary	1,014.50'	50.0' long + 100.0 ' SideZ x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.03 cfs @ 12.77 hrs HW=1,014.60' (Free Discharge)

↑**1=Culvert** (Barrel Controls 4.03 cfs @ 5.13 fps)

Secondary OutFlow Max=5.47 cfs @ 12.77 hrs HW=1,014.60' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 5.47 cfs @ 0.87 fps)

Pond 10P: Trail Culvert Basin

Summary for Pond 12P: CSAH 12 E Ditch

Inflow Area = 20.530 ac, 11.20% Impervious, Inflow Depth > 1.36" for 2-Year event
 Inflow = 17.83 cfs @ 12.17 hrs, Volume= 2.326 af
 Outflow = 8.60 cfs @ 13.01 hrs, Volume= 2.312 af, Atten= 52%, Lag= 50.6 min
 Primary = 8.60 cfs @ 13.01 hrs, Volume= 2.312 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,011.42' @ 13.01 hrs Surf.Area= 21,148 sf Storage= 16,510 cf

Plug-Flow detention time= 27.1 min calculated for 2.304 af (99% of inflow)
 Center-of-Mass det. time= 24.8 min (832.3 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	152,598 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,010.00	0	0	0
1,011.00	17,095	8,548	8,548
1,012.00	26,827	21,961	30,509
1,013.00	37,445	32,136	62,645
1,014.00	38,000	37,723	100,367
1,015.00	66,462	52,231	152,598

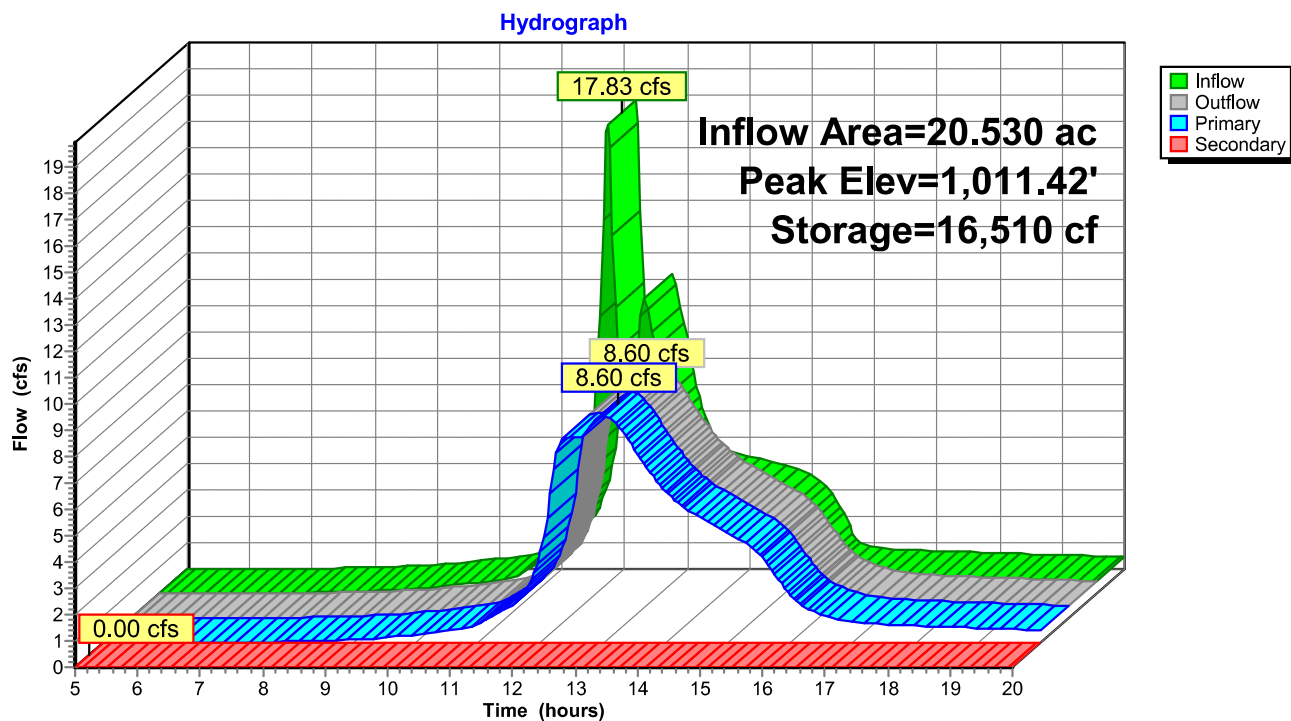
Device	Routing	Invert	Outlet Devices
#1	Primary	1,010.00'	28.0" W x 18.0" H, R=14.7"/40.7" Pipe Arch Culvert L= 148.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,010.00' / 1,009.60' S= 0.0027 ' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 2.76 sf
#2	Secondary	1,013.70'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=8.60 cfs @ 13.01 hrs HW=1,011.42' (Free Discharge)

↑**1=Culvert** (Barrel Controls 8.60 cfs @ 3.93 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,010.00' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 12P: CSAH 12 E Ditch

Summary for Pond 23P: Metcon Addn Pond

Inflow Area = 15.030 ac, 70.28% Impervious, Inflow Depth > 2.10" for 2-Year event
 Inflow = 51.90 cfs @ 12.15 hrs, Volume= 2.633 af
 Outflow = 6.45 cfs @ 12.62 hrs, Volume= 2.118 af, Atten= 88%, Lag= 28.4 min
 Primary = 6.45 cfs @ 12.62 hrs, Volume= 2.118 af
 Routed to Pond 27P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,012.32' @ 12.62 hrs Surf.Area= 56,574 sf Storage= 68,509 cf

Plug-Flow detention time= 164.7 min calculated for 2.118 af (80% of inflow)
 Center-of-Mass det. time= 121.1 min (885.7 - 764.6)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	325,258 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

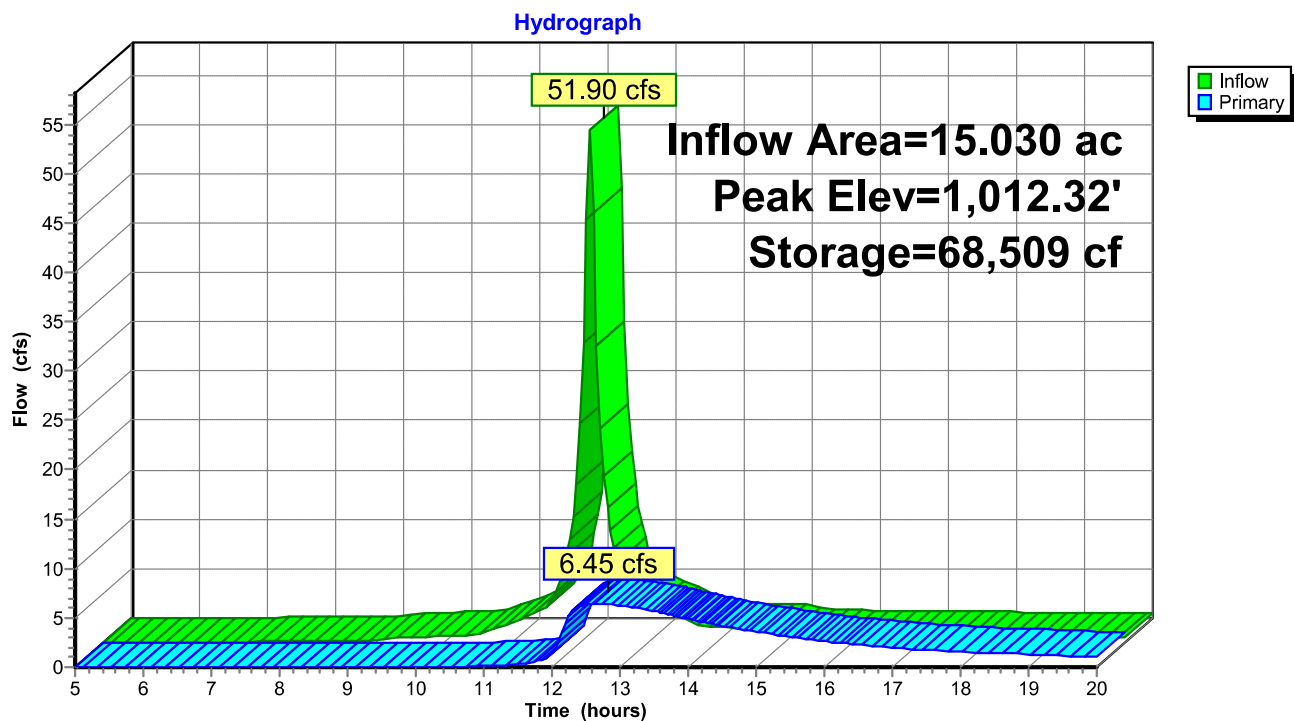
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	47,057	0	0
1,016.00	83,046	325,258	325,258

Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	18.0" Round Culvert L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	1,008.00'	18.0" Round Culvert L= 30.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,008.00' / 1,008.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=6.45 cfs @ 12.62 hrs HW=1,012.32' (Free Discharge)

↑ **1=Culvert** (Inlet Controls 6.45 cfs @ 3.91 fps)

↑ **2=Culvert** (Passes 6.45 cfs of 9.78 cfs potential flow)

Pond 23P: Metcon Addn Pond

Summary for Pond 25P: Trail Culvert Basin

Inflow Area = 0.900 ac, 0.00% Impervious, Inflow Depth > 1.13" for 2-Year event
 Inflow = 2.25 cfs @ 12.05 hrs, Volume= 0.085 af
 Outflow = 1.54 cfs @ 12.11 hrs, Volume= 0.085 af, Atten= 32%, Lag= 3.3 min
 Primary = 1.54 cfs @ 12.11 hrs, Volume= 0.085 af
 Routed to Pond 27P : CSAH 12 E Ditch
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Pond 27P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,012.26' @ 12.11 hrs Surf.Area= 993 sf Storage= 476 cf

Plug-Flow detention time= 4.5 min calculated for 0.085 af (100% of inflow)
 Center-of-Mass det. time= 3.9 min (792.4 - 788.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.30'	12,717 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.30	0	0	0
1,013.00	1,763	1,499	1,499
1,014.00	5,033	3,398	4,897
1,015.00	10,608	7,821	12,717

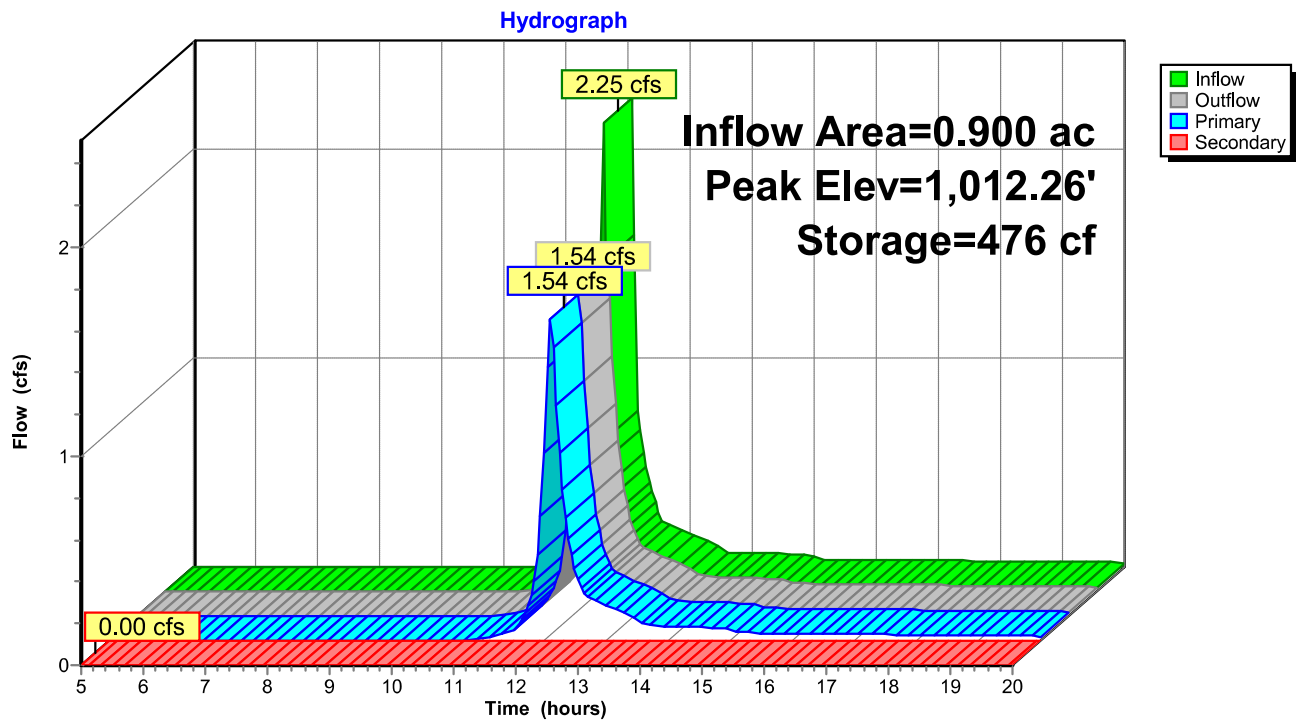
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.30'	12.0" Round Culvert L= 42.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.30' / 1,011.00' S= 0.0071 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Secondary	1,014.50'	50.0' long + 100.0 ' / SideZ x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=1.52 cfs @ 12.11 hrs HW=1,012.25' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 1.52 cfs @ 2.54 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,011.30' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: Trail Culvert Basin

Summary for Pond 27P: CSAH 12 E Ditch

Inflow Area = 20.530 ac, 62.65% Impervious, Inflow Depth > 1.76" for 2-Year event
 Inflow = 20.20 cfs @ 12.17 hrs, Volume= 3.009 af
 Outflow = 8.94 cfs @ 12.61 hrs, Volume= 2.970 af, Atten= 56%, Lag= 26.1 min
 Primary = 8.94 cfs @ 12.61 hrs, Volume= 2.970 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,011.46' @ 12.61 hrs Surf.Area= 21,602 sf Storage= 17,509 cf

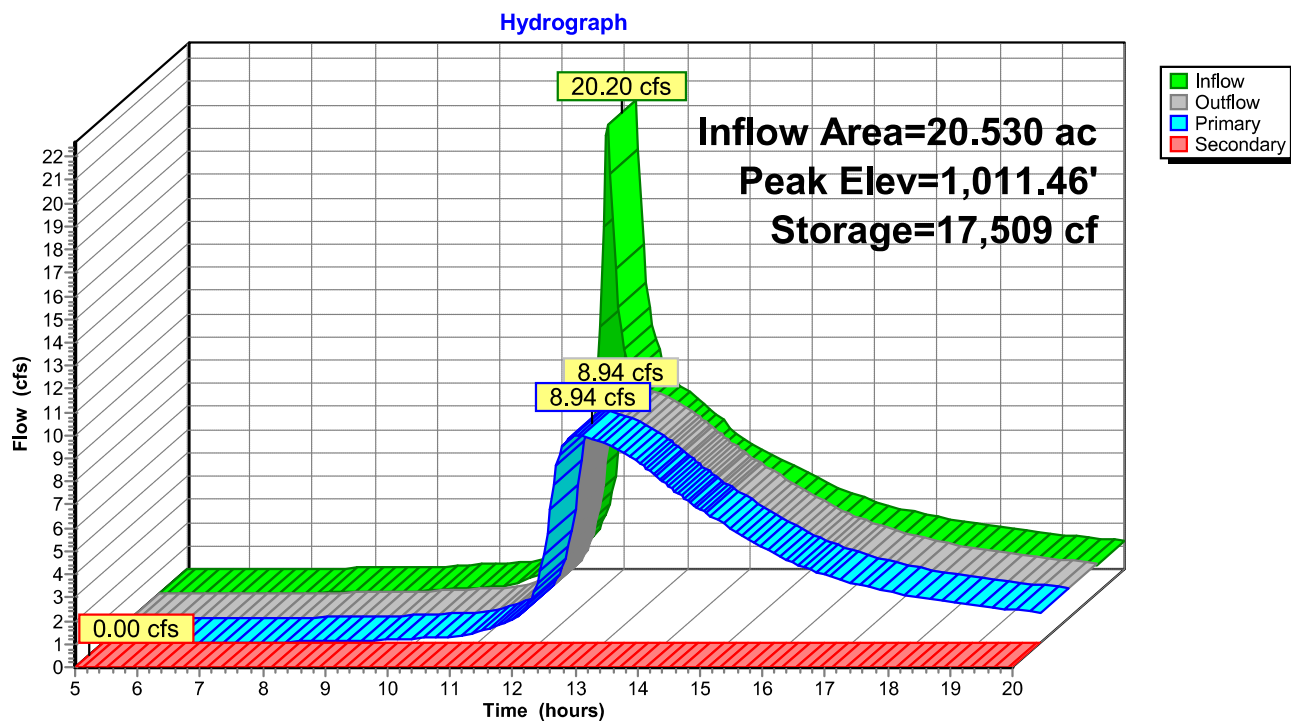
Plug-Flow detention time= 27.3 min calculated for 2.970 af (99% of inflow)
 Center-of-Mass det. time= 22.9 min (873.8 - 850.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	152,598 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,010.00	0	0	0
1,011.00	17,095	8,548	8,548
1,012.00	26,827	21,961	30,509
1,013.00	37,445	32,136	62,645
1,014.00	38,000	37,723	100,367
1,015.00	66,462	52,231	152,598

Device	Routing	Invert	Outlet Devices
#1	Primary	1,010.00'	28.0" W x 18.0" H, R=14.7"/40.7" Pipe Arch Culvert L= 148.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,010.00' / 1,009.60' S= 0.0027 ' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 2.76 sf
#2	Secondary	1,013.70'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=8.94 cfs @ 12.61 hrs HW=1,011.46' (Free Discharge)
 ↑1=Culvert (Barrel Controls 8.94 cfs @ 3.97 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,010.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 27P: CSAH 12 E Ditch

25-1243

MSE 24-hr 3 10-Year Rainfall=4.38"

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Summary for Subcatchment 1S: SE Wetland WS

Runoff = 4.92 cfs @ 12.39 hrs, Volume= 0.437 af, Depth> 3.25"
 Routed to Pond 2P : SE Wetland

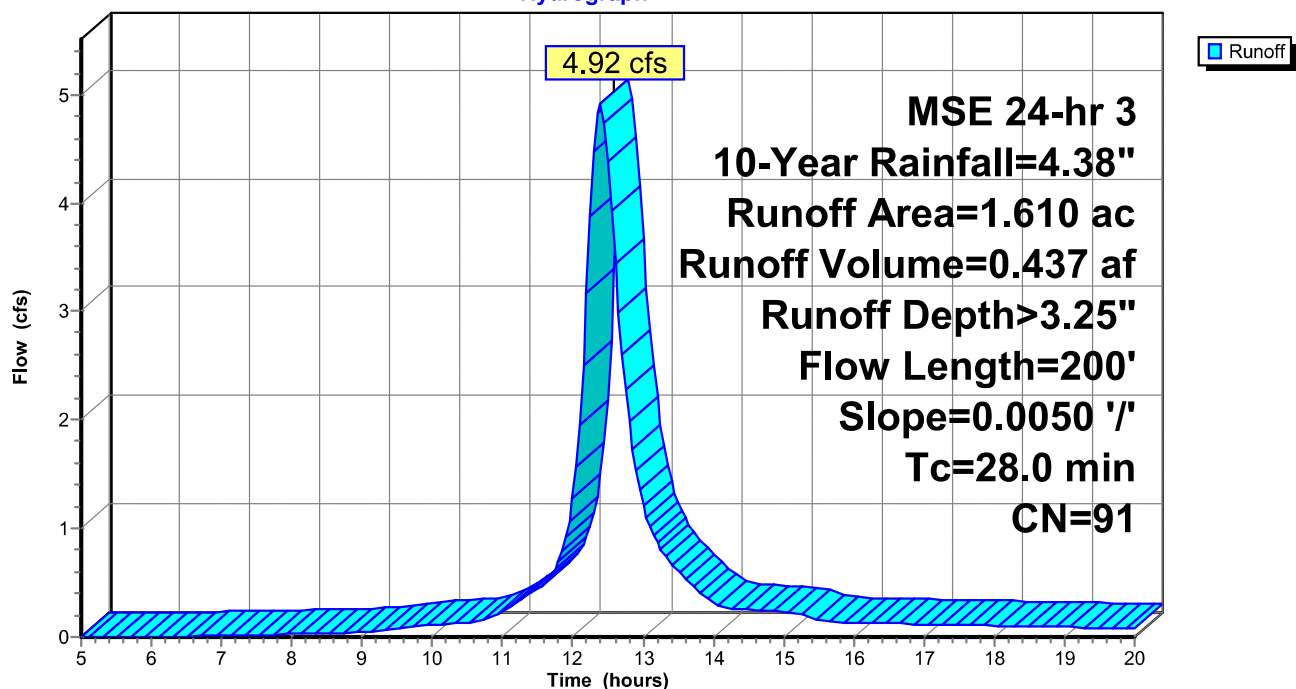
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
1.610	91	Row crops, straight row, Poor, HSG D
1.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"

Subcatchment 1S: SE Wetland WS

Hydrograph



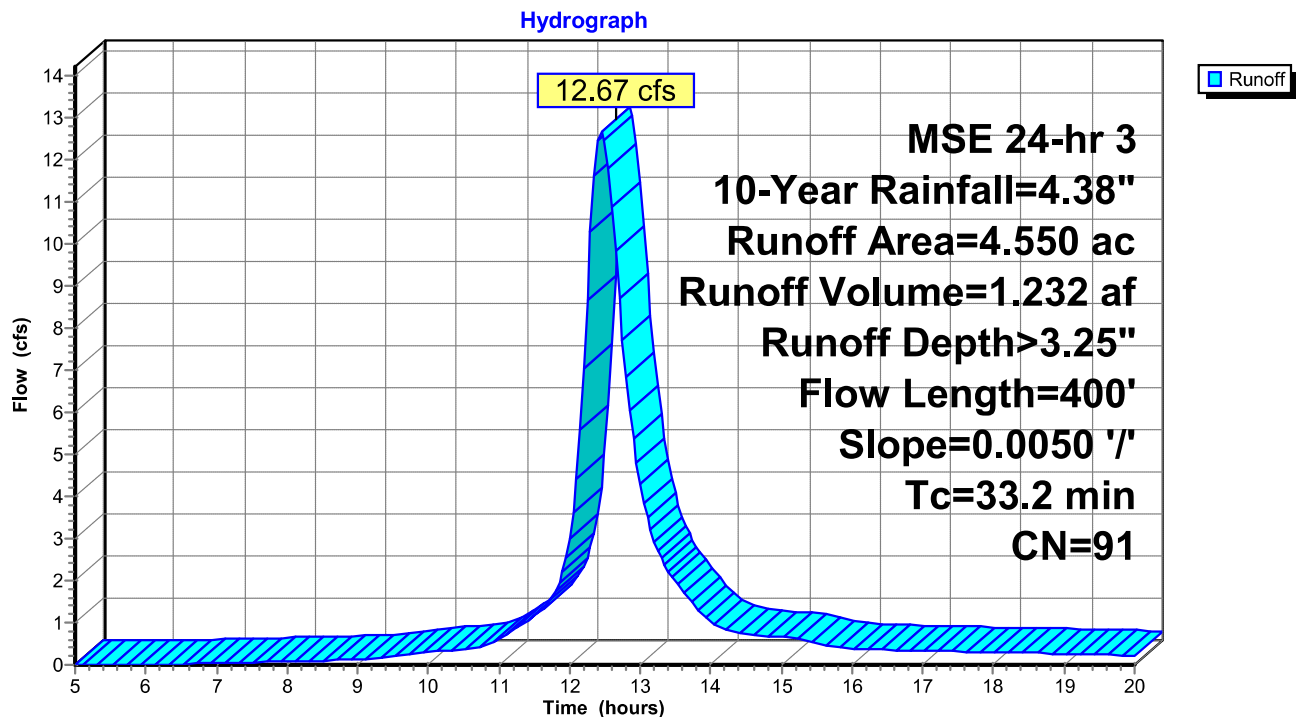
Summary for Subcatchment 4S: NE Wetland WS

Runoff = 12.67 cfs @ 12.45 hrs, Volume= 1.232 af, Depth> 3.25"
 Routed to Pond 5P : NE Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
4.190	91	Row crops, straight row, Poor, HSG D
0.360	86	Farmsteads, HSG D
4.550	91	Weighted Average
4.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"
5.2	200	0.0050	0.64		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
33.2	400	Total			

Subcatchment 4S: NE Wetland WS

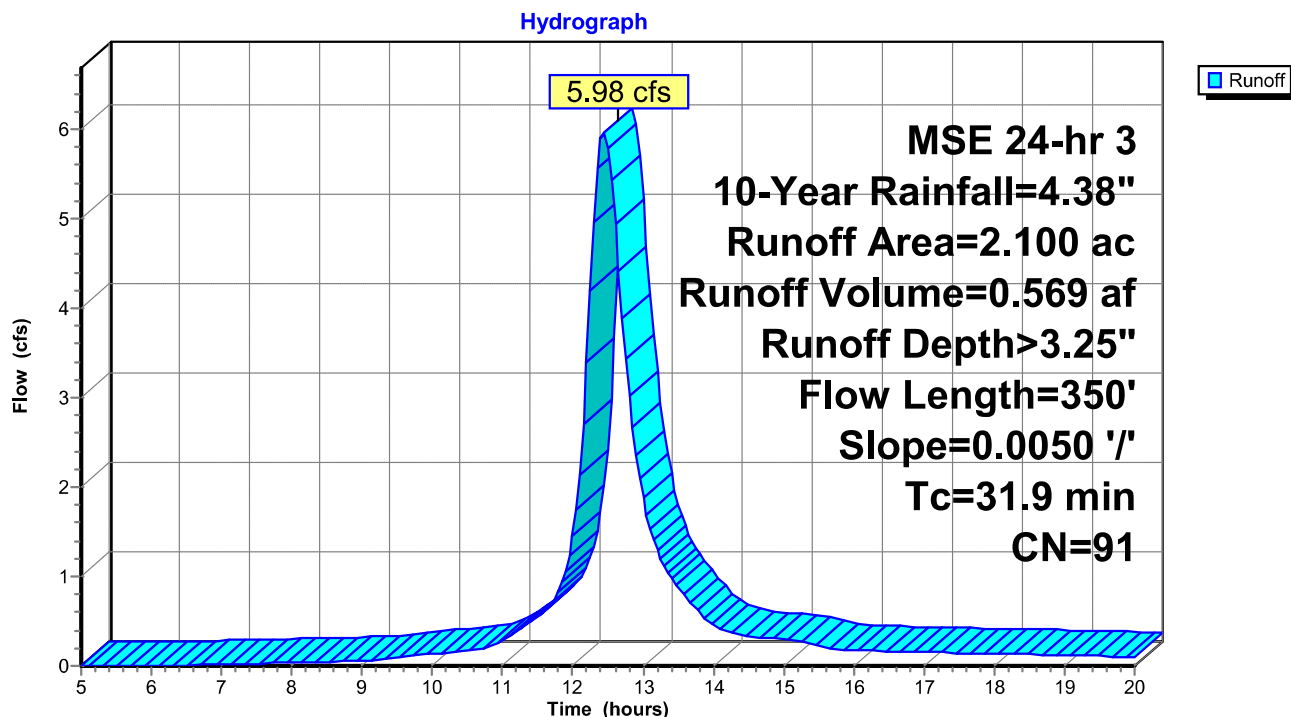
Summary for Subcatchment 6S: NW Wetland WS

Runoff = 5.98 cfs @ 12.44 hrs, Volume= 0.569 af, Depth> 3.25"
 Routed to Pond 7P : NW Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
2.100	91	Row crops, straight row, Poor, HSG D
2.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"
3.9	150	0.0050	0.64		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
31.9	350	Total			

Subcatchment 6S: NW Wetland WS

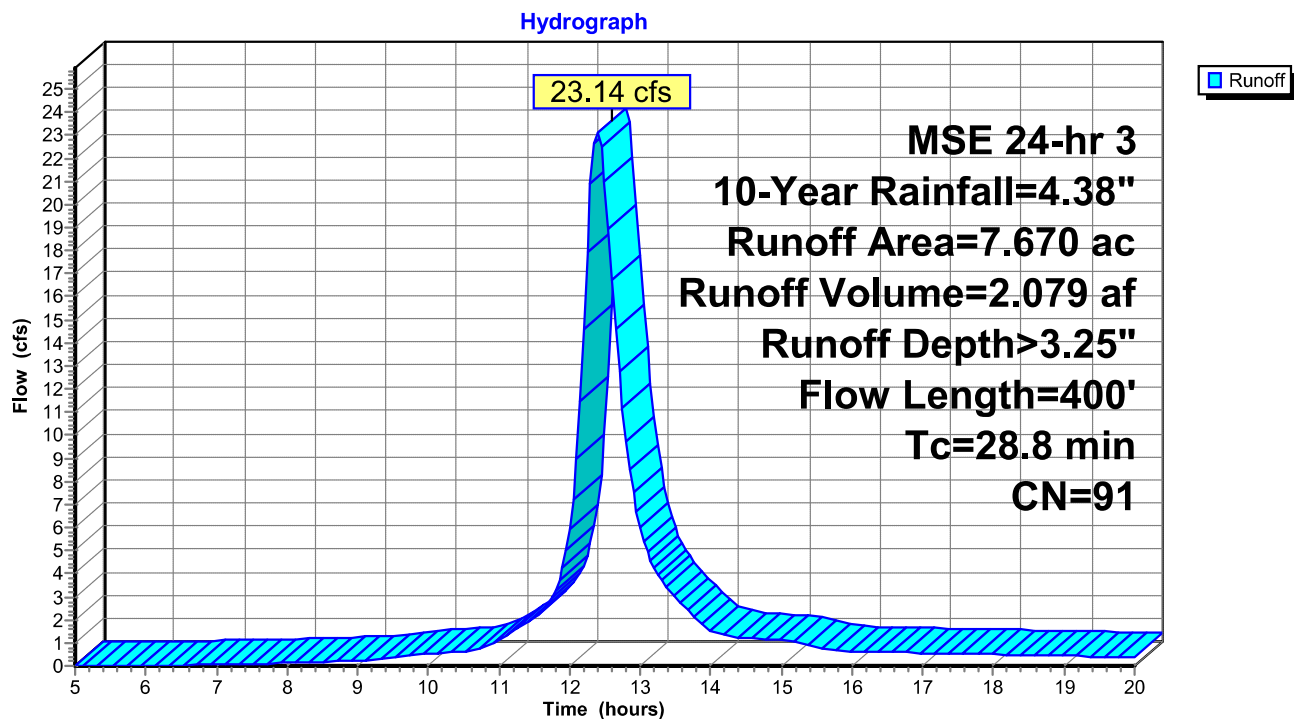
Summary for Subcatchment 9S: Trail Berm WS

Runoff = 23.14 cfs @ 12.40 hrs, Volume= 2.079 af, Depth> 3.25"
 Routed to Pond 10P : Trail Culvert Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
7.670	91	Row crops, straight row, Poor, HSG D
7.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	200	0.0050	0.27		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 4.40"
16.6	200	0.0005	0.20		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
28.8	400	Total			

Subcatchment 9S: Trail Berm WS

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MSE 24-hr 3 10-Year Rainfall=4.38"

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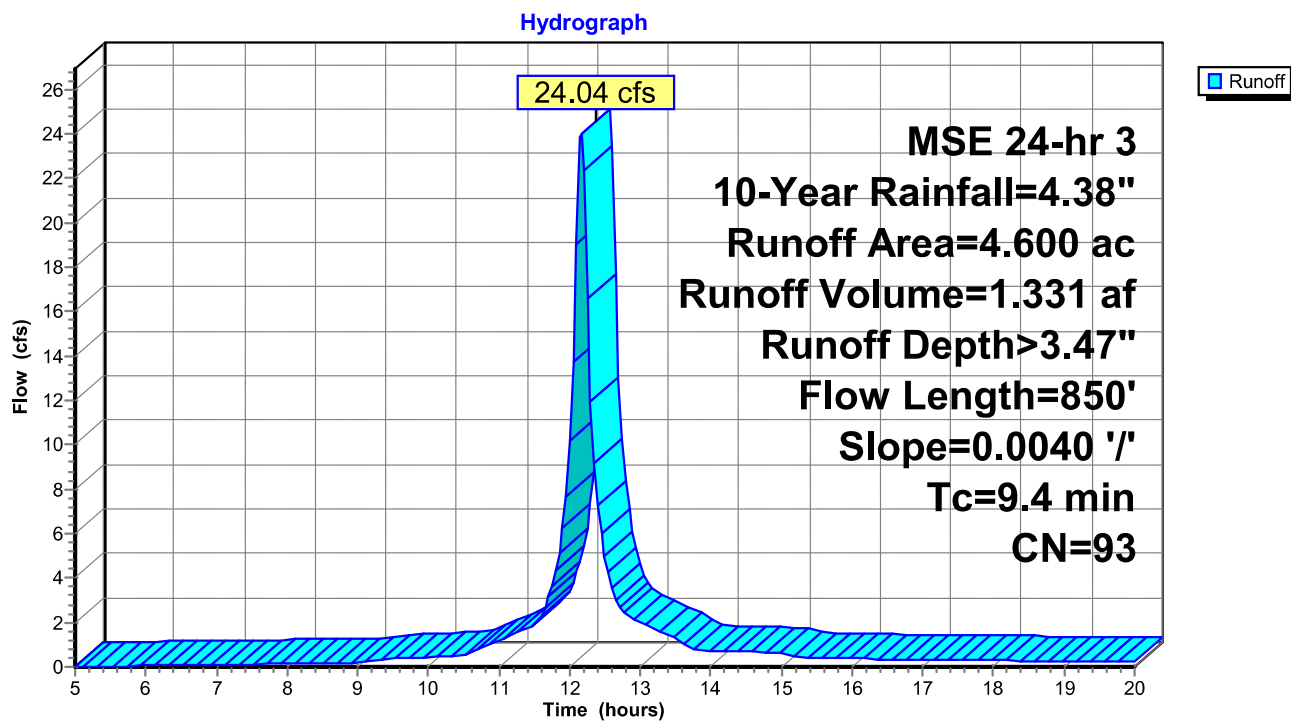
Summary for Subcatchment 11S: CSAH 12 East

Runoff = 24.04 cfs @ 12.16 hrs, Volume= 1.331 af, Depth> 3.47"
 Routed to Pond 12P : CSAH 12 E Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
4.600	93	Paved roads w/open ditches, 50% imp, HSG D
2.300		50.00% Pervious Area
2.300		50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.4	450	0.0040	3.12	100.00	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=2.00' Z= 6.0 & 3.0 ' Top.W=25.00' n= 0.035 Earth, dense weeds
9.4	850	Total			

Subcatchment 11S: CSAH 12 East

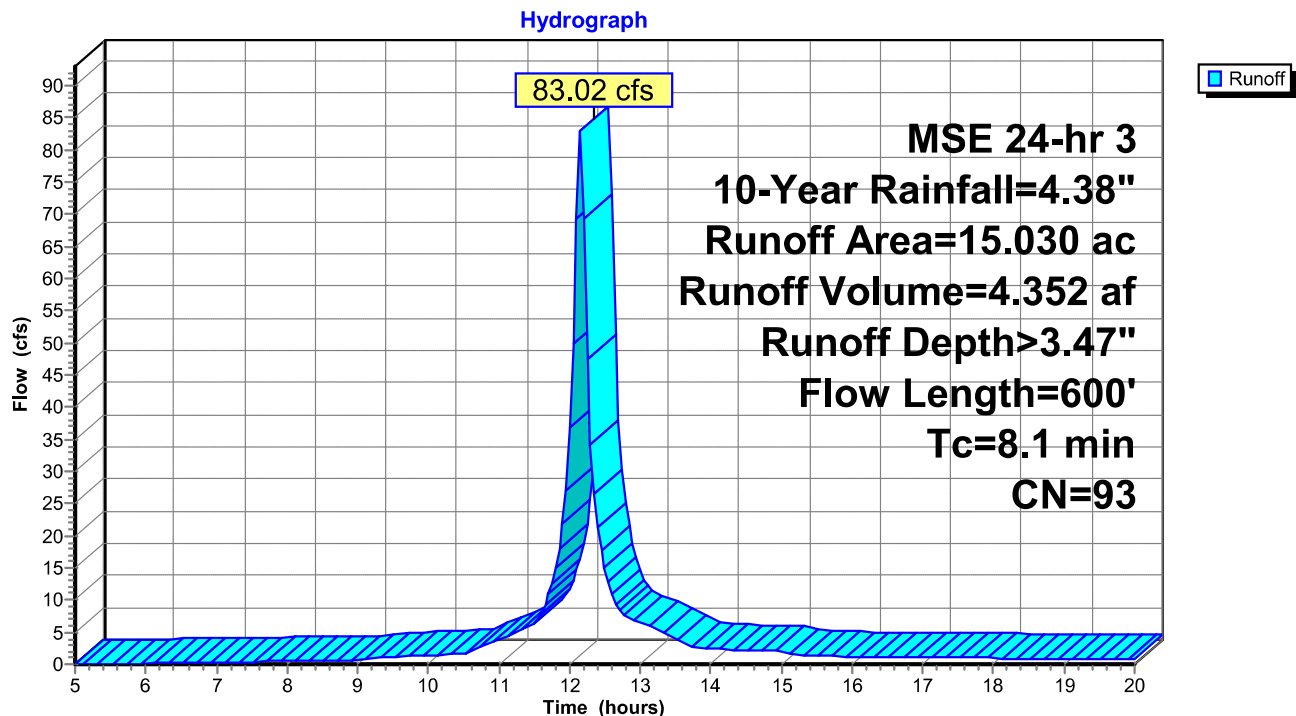
Summary for Subcatchment 22S: Des WS

Runoff = 83.02 cfs @ 12.15 hrs, Volume= 4.352 af, Depth> 3.47"
 Routed to Pond 23P : Metcon Addn Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
14.670	93	Urban industrial, 72% imp, HSG D
0.360	86	Farmsteads, HSG D
15.030	93	Weighted Average
4.468		29.72% Pervious Area
10.562		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	200	0.0200	1.85		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.40"
6.3	400	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
8.1	600	Total			

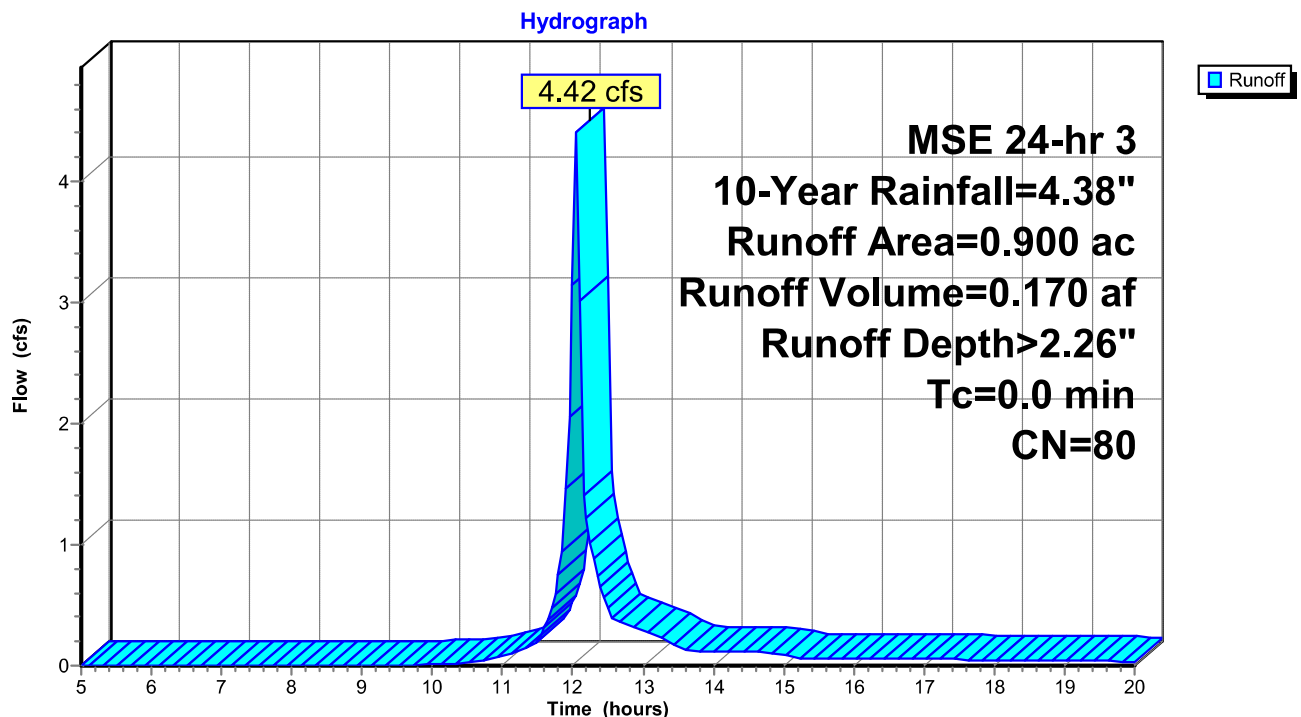
Subcatchment 22S: Des WS

Summary for Subcatchment 24S: Trail Berm WS

Runoff = 4.42 cfs @ 12.05 hrs, Volume= 0.170 af, Depth> 2.26"
 Routed to Pond 25P : Trail Culvert Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
0.900	80	>75% Grass cover, Good, HSG D
0.900		100.00% Pervious Area

Subcatchment 24S: Trail Berm WS

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MSE 24-hr 3 10-Year Rainfall=4.38"

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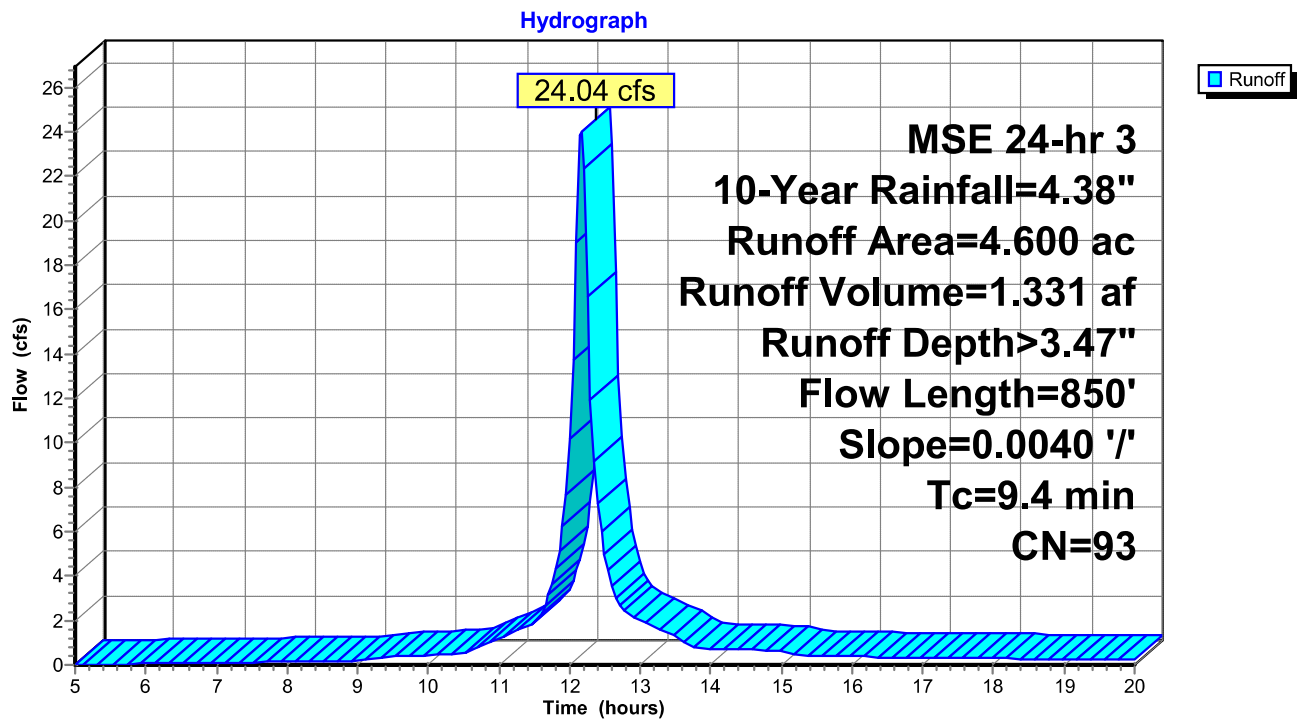
Summary for Subcatchment 26S: CSAH 12 East

Runoff = 24.04 cfs @ 12.16 hrs, Volume= 1.331 af, Depth> 3.47"
 Routed to Pond 27P : CSAH 12 E Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 10-Year Rainfall=4.38"

Area (ac)	CN	Description
4.600	93	Paved roads w/open ditches, 50% imp, HSG D
2.300		50.00% Pervious Area
2.300		50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.4	450	0.0040	3.12	100.00	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=2.00' Z= 6.0 & 3.0 ' /' Top.W=25.00' n= 0.035 Earth, dense weeds
9.4	850	Total			

Subcatchment 26S: CSAH 12 East

Summary for Reach 3R: S Trail Berm

Inflow Area = 1.610 ac, 0.00% Impervious, Inflow Depth > 0.37" for 10-Year event
 Inflow = 0.15 cfs @ 15.57 hrs, Volume= 0.049 af
 Outflow = 0.15 cfs @ 16.20 hrs, Volume= 0.044 af, Atten= 4%, Lag= 37.9 min
 Routed to Pond 10P : Trail Culvert Basin

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.42 fps, Min. Travel Time= 17.4 min

Avg. Velocity= 0.37 fps, Avg. Travel Time= 20.0 min

Peak Storage= 153 cf @ 15.91 hrs

Average Depth at Peak Storage= 0.03' , Surface Width= 10.54'

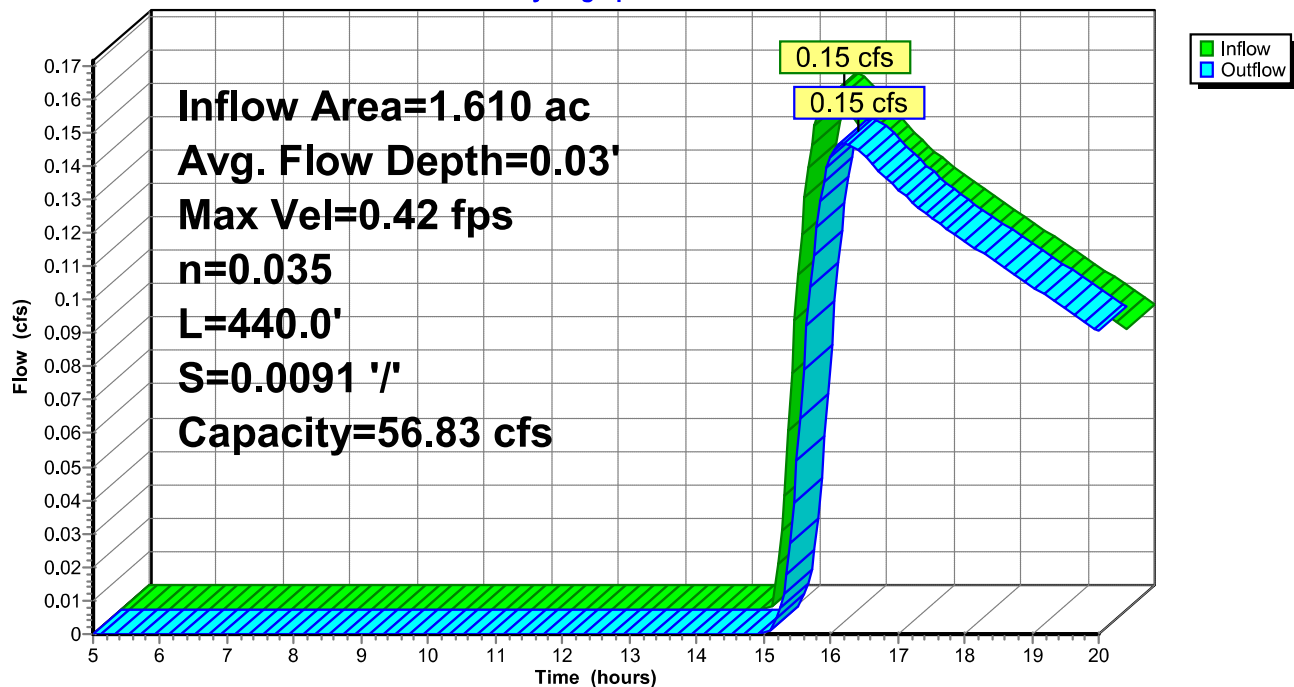
Bank-Full Depth= 1.00' Flow Area= 18.0 sf, Capacity= 56.83 cfs

10.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 6.0 10.0 '/' Top Width= 26.00'

Length= 440.0' Slope= 0.0091 '/'

Inlet Invert= 1,016.00', Outlet Invert= 1,012.00'

**Reach 3R: S Trail Berm****Hydrograph**

Summary for Reach 8R: W Trail Berm

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 1.69" for 10-Year event
Inflow = 5.82 cfs @ 12.50 hrs, Volume= 0.937 af
Outflow = 5.36 cfs @ 12.75 hrs, Volume= 0.923 af, Atten= 8%, Lag= 14.9 min
Routed to Pond 10P : Trail Culvert Basin

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.52 fps, Min. Travel Time= 8.5 min

Avg. Velocity = 0.91 fps, Avg. Travel Time= 14.2 min

Peak Storage= 2,749 cf @ 12.60 hrs

Average Depth at Peak Storage= 0.46' , Surface Width= 11.38'

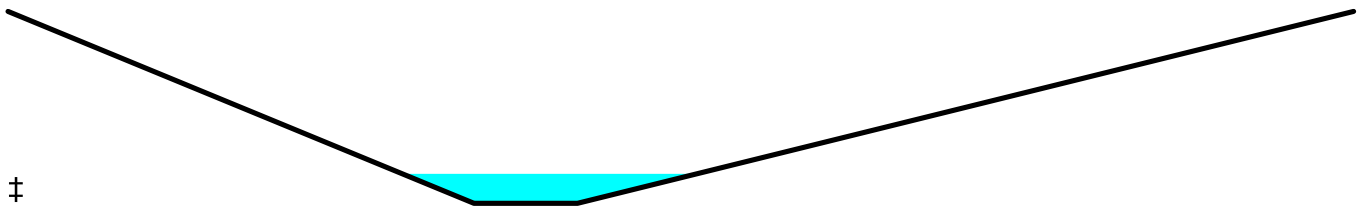
Bank-Full Depth= 3.00' Flow Area= 84.0 sf, Capacity= 380.43 cfs

4.00' x 3.00' deep channel, $n = 0.035$ Earth, dense weeds

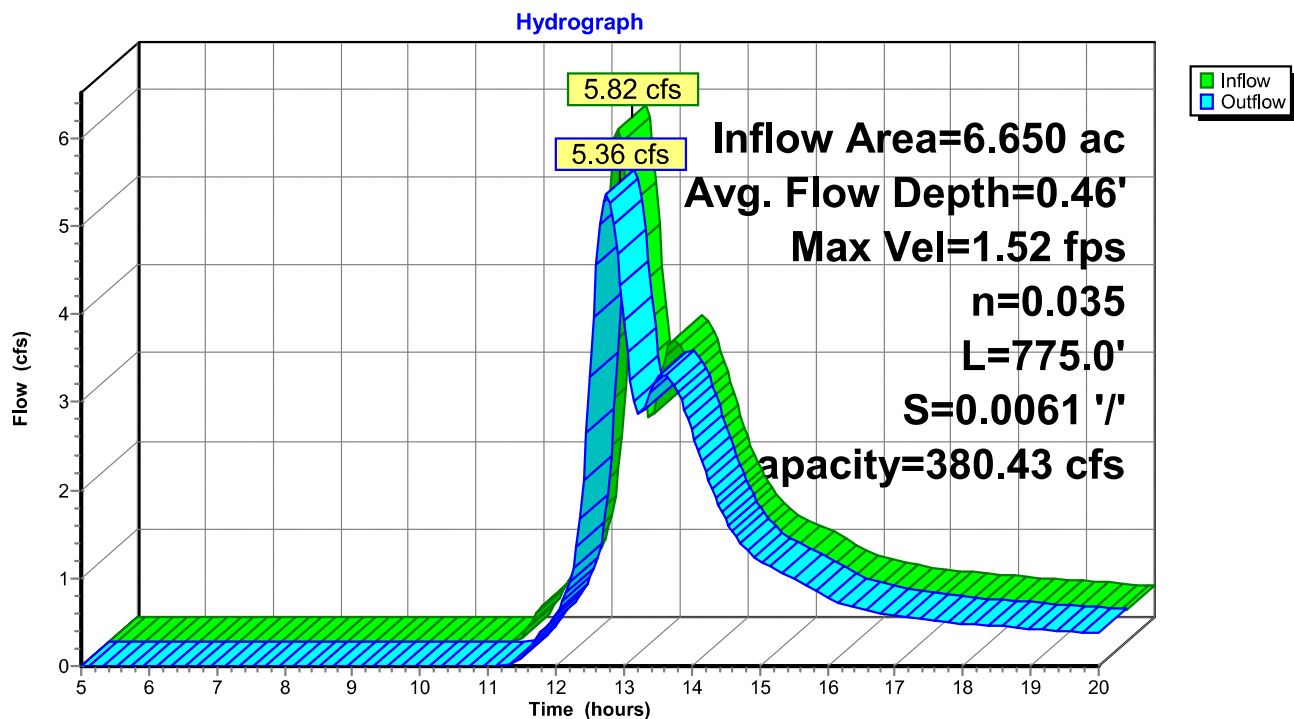
Side Slope Z-value= 6.0 10.0 ' Top Width= 52.00'

Length= 775.0' Slope= 0.0061 '/'

Inlet Invert= 1,016.70', Outlet Invert= 1,012.00'



Reach 8R: W Trail Berm



Summary for Pond 2P: SE Wetland

Inflow Area = 1.610 ac, 0.00% Impervious, Inflow Depth > 3.25" for 10-Year event
 Inflow = 4.92 cfs @ 12.39 hrs, Volume= 0.437 af
 Outflow = 0.15 cfs @ 15.57 hrs, Volume= 0.049 af, Atten= 97%, Lag= 191.0 min
 Primary = 0.15 cfs @ 15.57 hrs, Volume= 0.049 af
 Routed to Reach 3R : S Trail Berm

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.91' @ 15.57 hrs Surf.Area= 51,771 sf Storage= 16,998 cf

Plug-Flow detention time= 397.6 min calculated for 0.049 af (11% of inflow)
 Center-of-Mass det. time= 257.7 min (1,035.9 - 778.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,017.25'	22,174 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,017.25	0	0	0
1,018.00	59,130	22,174	22,174

Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.90'	100.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=0.14 cfs @ 15.57 hrs HW=1,017.91' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 0.14 cfs @ 0.20 fps)

25-1243

Prepared by Jones Haugh & Smith Inc

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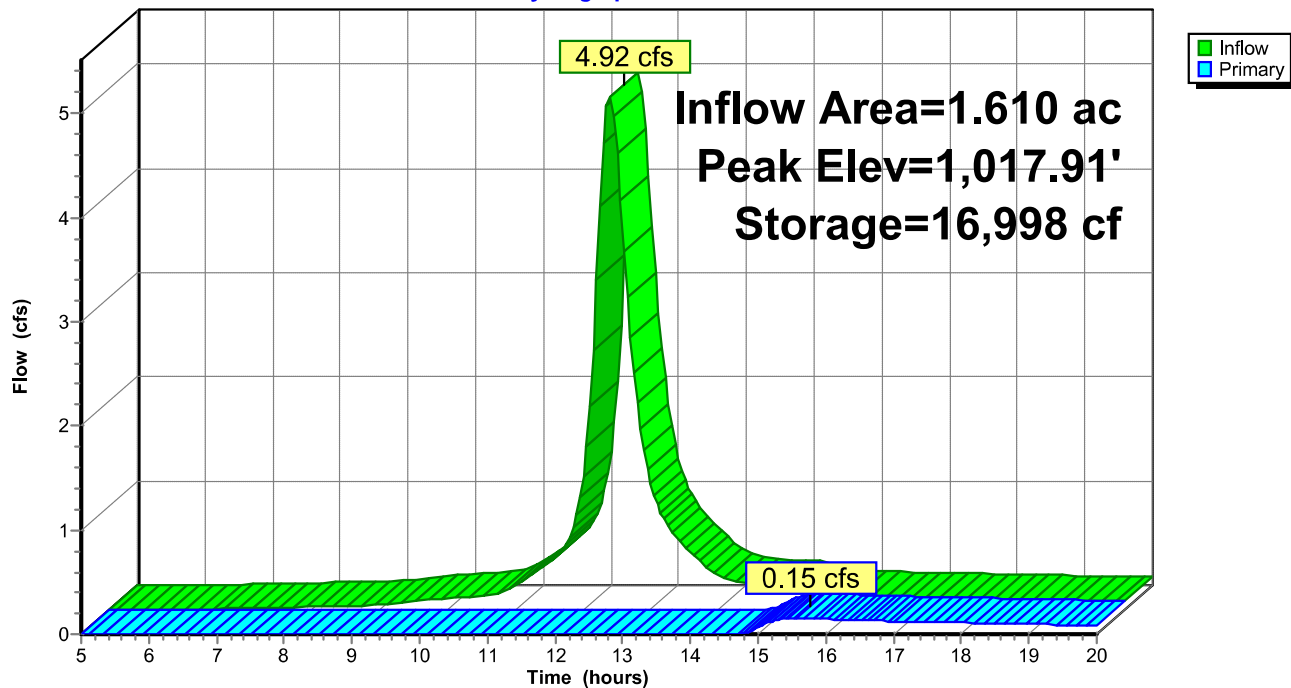
MSE 24-hr 3 10-Year Rainfall=4.38"

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Pond 2P: SE Wetland

Hydrograph



Summary for Pond 5P: NE Wetland

Inflow Area = 4.550 ac, 0.00% Impervious, Inflow Depth > 3.25" for 10-Year event
 Inflow = 12.67 cfs @ 12.45 hrs, Volume= 1.232 af
 Outflow = 2.36 cfs @ 13.36 hrs, Volume= 0.404 af, Atten= 81%, Lag= 54.3 min
 Primary = 2.36 cfs @ 13.36 hrs, Volume= 0.404 af
 Routed to Pond 7P : NW Wetland

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.61' @ 13.36 hrs Surf.Area= 58,140 sf Storage= 38,528 cf

Plug-Flow detention time= 204.5 min calculated for 0.404 af (33% of inflow)
 Center-of-Mass det. time= 123.8 min (906.3 - 782.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,016.00'	65,093 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,016.00	0	0	0
1,017.00	25,742	12,871	12,871
1,018.00	78,702	52,222	65,093

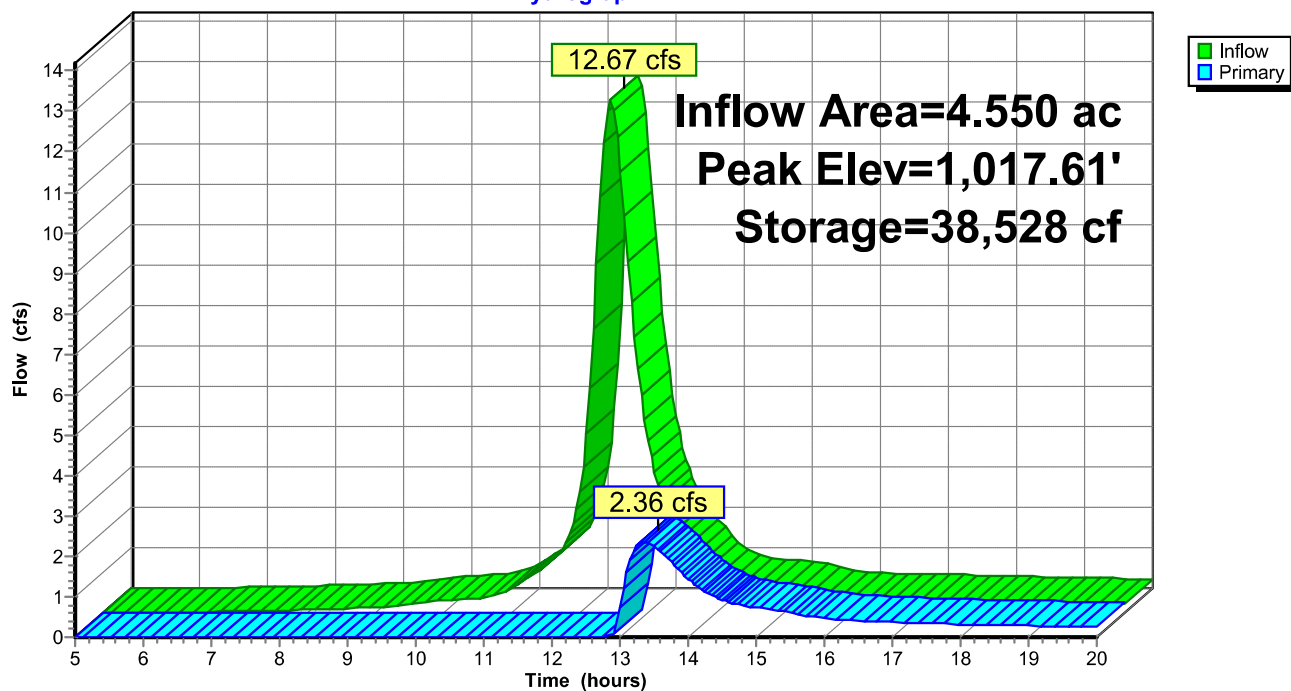
Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.56'	75.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=2.32 cfs @ 13.36 hrs HW=1,017.61' (Free Discharge)

↑1=**Broad-Crested Rectangular Weir** (Weir Controls 2.32 cfs @ 0.56 fps)

Pond 5P: NE Wetland

Hydrograph



Summary for Pond 7P: NW Wetland

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 1.75" for 10-Year event
 Inflow = 5.98 cfs @ 12.44 hrs, Volume= 0.972 af
 Outflow = 5.82 cfs @ 12.50 hrs, Volume= 0.937 af, Atten= 3%, Lag= 3.5 min
 Primary = 5.82 cfs @ 12.50 hrs, Volume= 0.937 af
 Routed to Reach 8R : W Trail Berm

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.25' @ 12.50 hrs Surf.Area= 22,937 sf Storage= 2,849 cf

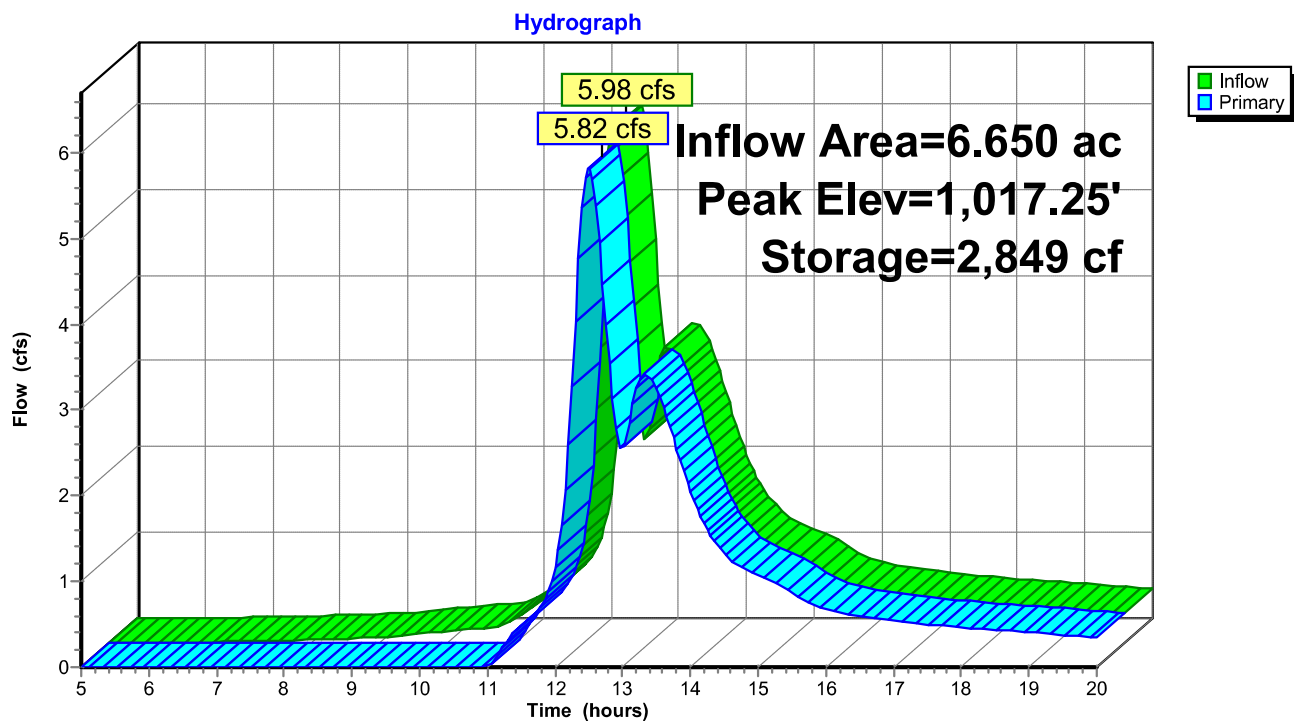
Plug-Flow detention time= 24.4 min calculated for 0.937 af (96% of inflow)
 Center-of-Mass det. time= 12.3 min (845.5 - 833.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,017.00'	46,162 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,017.00	0	0	0
1,018.00	92,324	46,162	46,162

Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.17'	100.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=5.81 cfs @ 12.50 hrs HW=1,017.25' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 5.81 cfs @ 0.69 fps)

Pond 7P: NW Wetland

Summary for Pond 10P: Trail Culvert Basin

Inflow Area = 15.930 ac, 0.00% Impervious, Inflow Depth > 2.30" for 10-Year event
 Inflow = 25.33 cfs @ 12.42 hrs, Volume= 3.047 af
 Outflow = 23.98 cfs @ 12.52 hrs, Volume= 3.042 af, Atten= 5%, Lag= 6.2 min
 Primary = 4.12 cfs @ 12.52 hrs, Volume= 2.057 af
 Routed to Pond 12P : CSAH 12 E Ditch
 Secondary = 19.87 cfs @ 12.52 hrs, Volume= 0.985 af
 Routed to Pond 12P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,014.72' @ 12.52 hrs Surf.Area= 26,395 sf Storage= 21,404 cf

Plug-Flow detention time= 29.3 min calculated for 3.032 af (99% of inflow)
 Center-of-Mass det. time= 28.6 min (836.3 - 807.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.30'	29,601 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.30	0	0	0
1,013.00	1,763	1,499	1,499
1,014.00	11,053	6,408	7,907
1,015.00	32,336	21,695	29,601

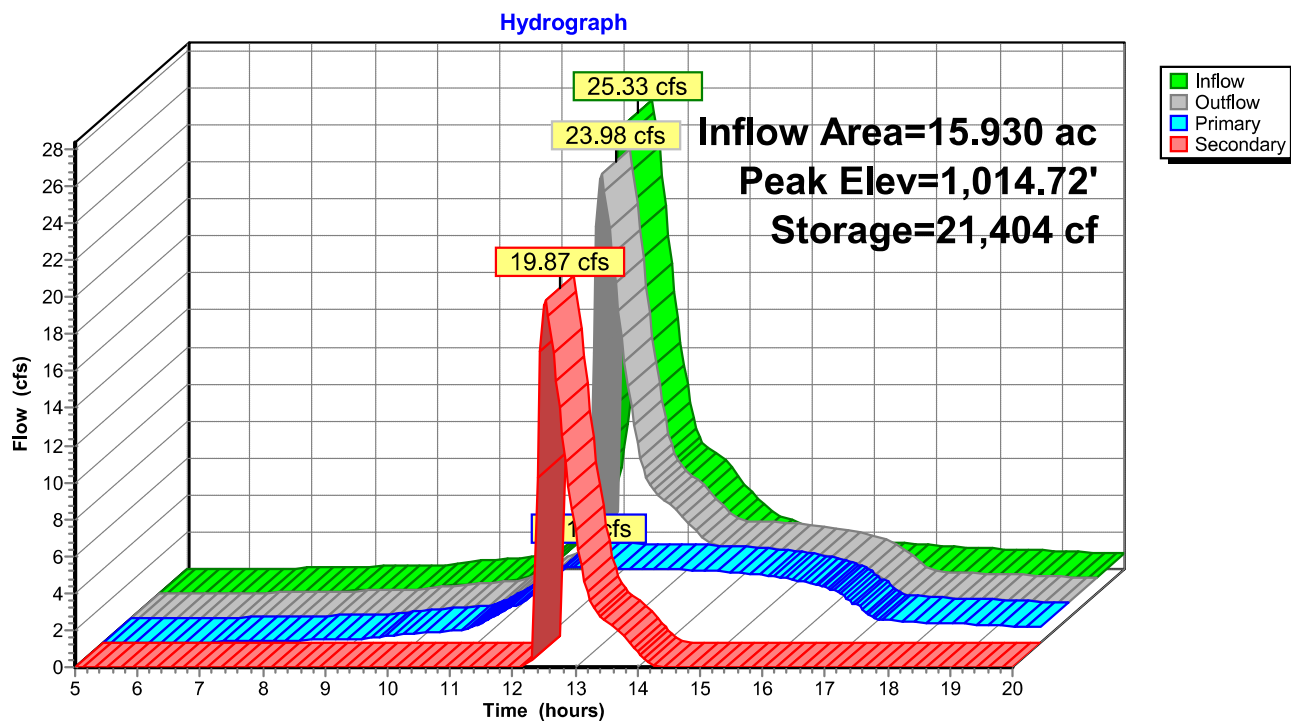
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.30'	12.0" Round Culvert L= 42.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.30' / 1,011.00' S= 0.0071 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Secondary	1,014.50'	50.0' long + 100.0 ' SideZ x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.12 cfs @ 12.52 hrs HW=1,014.72' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 4.12 cfs @ 5.24 fps)

Secondary OutFlow Max=19.43 cfs @ 12.52 hrs HW=1,014.72' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 19.43 cfs @ 1.24 fps)

Pond 10P: Trail Culvert Basin

Summary for Pond 12P: CSAH 12 E Ditch

Inflow Area = 20.530 ac, 11.20% Impervious, Inflow Depth > 2.56" for 10-Year event
 Inflow = 28.72 cfs @ 12.51 hrs, Volume= 4.373 af
 Outflow = 13.68 cfs @ 12.99 hrs, Volume= 4.340 af, Atten= 52%, Lag= 29.0 min
 Primary = 13.68 cfs @ 12.99 hrs, Volume= 4.340 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,012.49' @ 12.99 hrs Surf.Area= 31,981 sf Storage= 44,780 cf

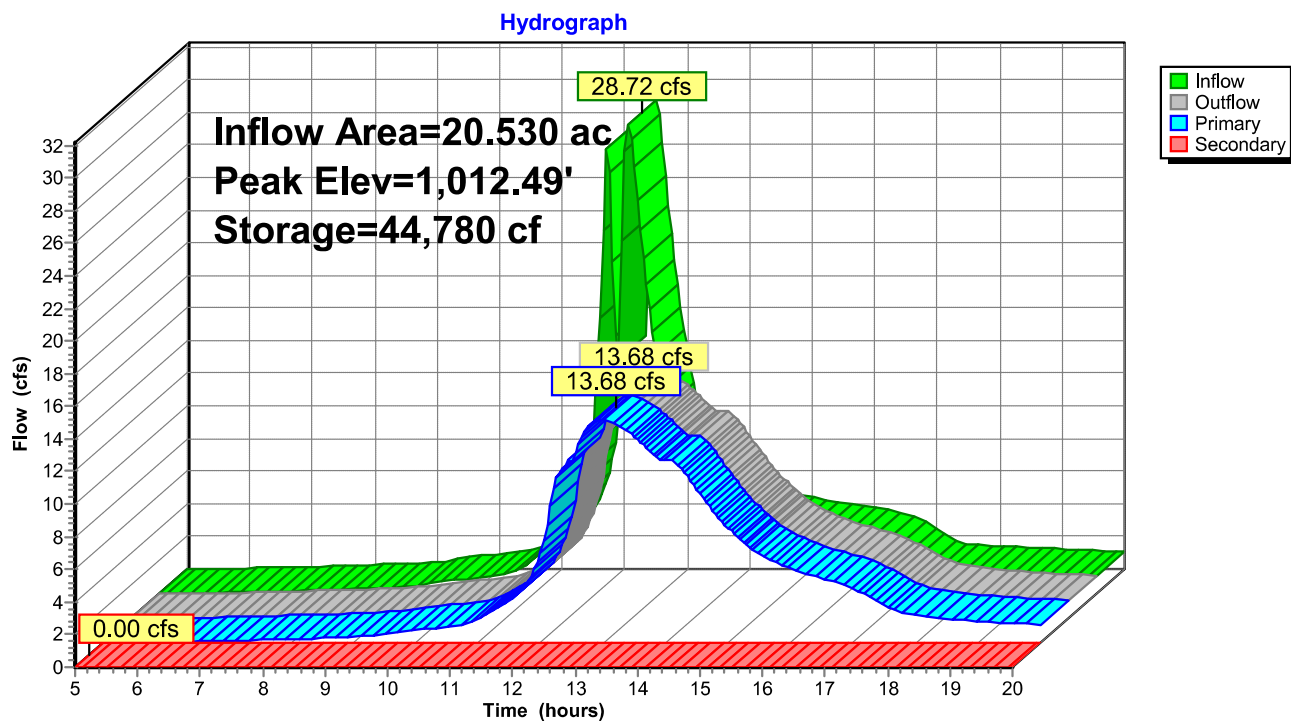
Plug-Flow detention time= 36.8 min calculated for 4.340 af (99% of inflow)
 Center-of-Mass det. time= 34.0 min (846.1 - 812.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	152,598 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,010.00	0	0	0
1,011.00	17,095	8,548	8,548
1,012.00	26,827	21,961	30,509
1,013.00	37,445	32,136	62,645
1,014.00	38,000	37,723	100,367
1,015.00	66,462	52,231	152,598

Device	Routing	Invert	Outlet Devices
#1	Primary	1,010.00'	28.0" W x 18.0" H, R=14.7"/40.7" Pipe Arch Culvert L= 148.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,010.00' / 1,009.60' S= 0.0027 ' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 2.76 sf
#2	Secondary	1,013.70'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=13.67 cfs @ 12.99 hrs HW=1,012.48' (Free Discharge)
 ↑1=Culvert (Barrel Controls 13.67 cfs @ 4.96 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,010.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Pond 12P: CSAH 12 E Ditch

Summary for Pond 23P: Metcon Addn Pond

Inflow Area = 15.030 ac, 70.28% Impervious, Inflow Depth > 3.47" for 10-Year event
 Inflow = 83.02 cfs @ 12.15 hrs, Volume= 4.352 af
 Outflow = 9.75 cfs @ 12.64 hrs, Volume= 3.697 af, Atten= 88%, Lag= 29.2 min
 Primary = 9.75 cfs @ 12.64 hrs, Volume= 3.697 af
 Routed to Pond 27P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,013.07' @ 12.64 hrs Surf.Area= 61,990 sf Storage= 113,121 cf

Plug-Flow detention time= 165.0 min calculated for 3.685 af (85% of inflow)
 Center-of-Mass det. time= 127.4 min (883.2 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	325,258 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	47,057	0	0
1,016.00	83,046	325,258	325,258

Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	18.0" Round Culvert L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	1,008.00'	18.0" Round Culvert L= 30.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,008.00' / 1,008.00' S= 0.0000 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

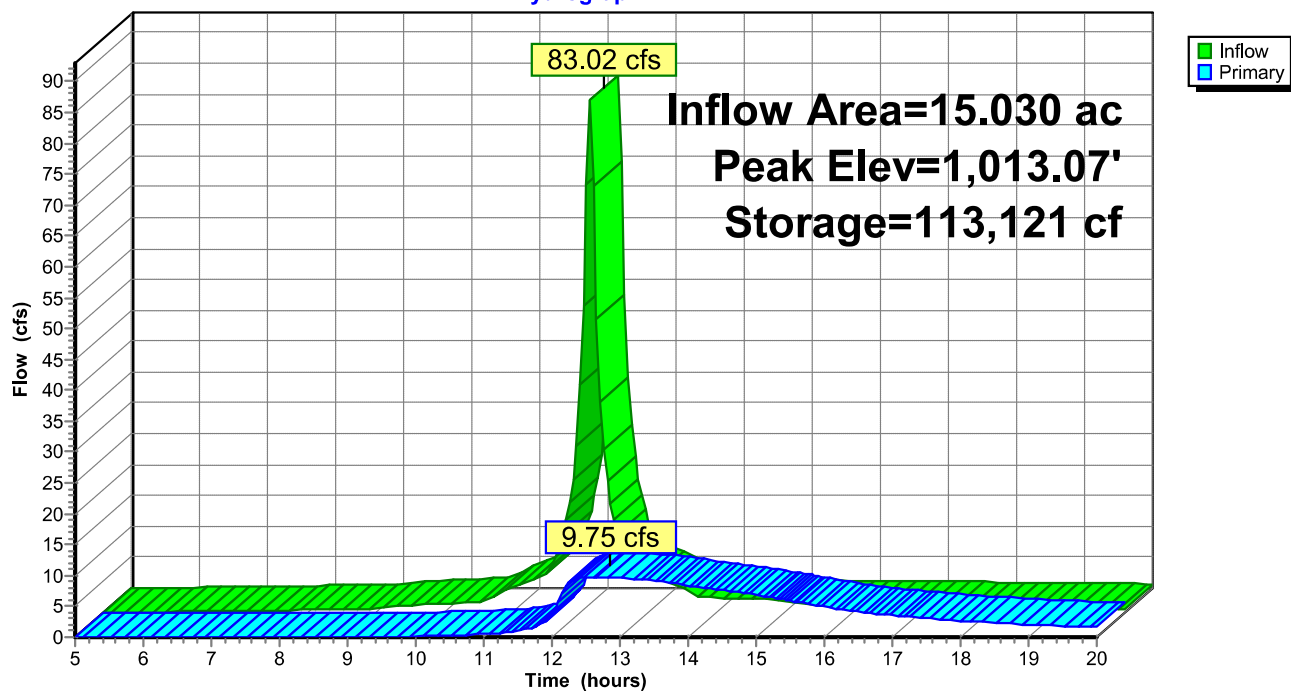
Primary OutFlow Max=9.75 cfs @ 12.64 hrs HW=1,013.07' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 9.75 cfs @ 5.52 fps)

↑ **2=Culvert** (Passes 9.75 cfs of 12.25 cfs potential flow)

Pond 23P: Metcon Addn Pond

Hydrograph



Summary for Pond 25P: Trail Culvert Basin

Inflow Area = 0.900 ac, 0.00% Impervious, Inflow Depth > 2.26" for 10-Year event
 Inflow = 4.42 cfs @ 12.05 hrs, Volume= 0.170 af
 Outflow = 2.29 cfs @ 12.12 hrs, Volume= 0.170 af, Atten= 48%, Lag= 4.5 min
 Primary = 2.29 cfs @ 12.12 hrs, Volume= 0.170 af
 Routed to Pond 27P : CSAH 12 E Ditch
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Pond 27P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,012.84' @ 12.12 hrs Surf.Area= 1,600 sf Storage= 1,235 cf

Plug-Flow detention time= 5.5 min calculated for 0.169 af (100% of inflow)
 Center-of-Mass det. time= 5.0 min (782.0 - 777.0)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.30'	12,717 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.30	0	0	0
1,013.00	1,763	1,499	1,499
1,014.00	5,033	3,398	4,897
1,015.00	10,608	7,821	12,717

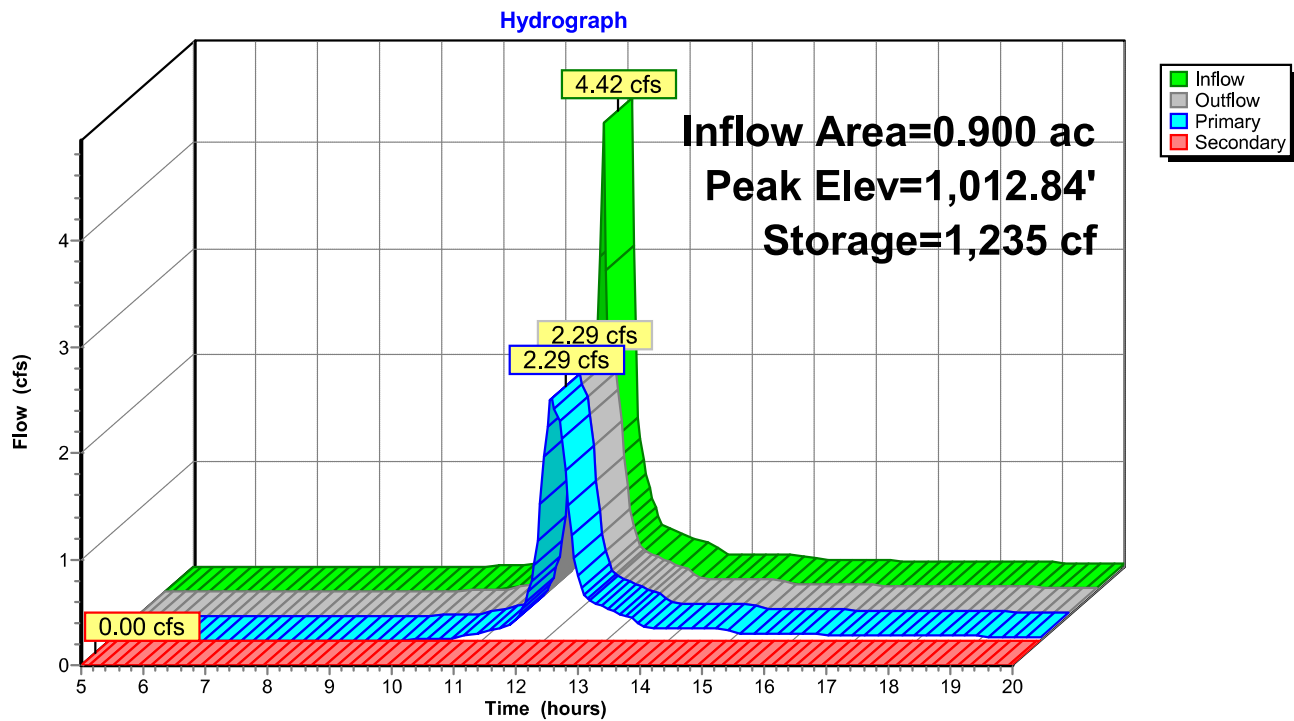
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.30'	12.0" Round Culvert L= 42.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.30' / 1,011.00' S= 0.0071 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Secondary	1,014.50'	50.0' long + 100.0 ' / SideZ x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.26 cfs @ 12.12 hrs HW=1,012.82' (Free Discharge)

↑**1=Culvert** (Barrel Controls 2.26 cfs @ 2.88 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,011.30' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: Trail Culvert Basin

Summary for Pond 27P: CSAH 12 E Ditch

Inflow Area = 20.530 ac, 62.65% Impervious, Inflow Depth > 3.04" for 10-Year event
 Inflow = 33.76 cfs @ 12.17 hrs, Volume= 5.198 af
 Outflow = 12.04 cfs @ 12.95 hrs, Volume= 5.134 af, Atten= 64%, Lag= 47.0 min
 Primary = 12.04 cfs @ 12.95 hrs, Volume= 5.134 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,012.17' @ 12.95 hrs Surf.Area= 28,677 sf Storage= 35,343 cf

Plug-Flow detention time= 36.6 min calculated for 5.134 af (99% of inflow)
 Center-of-Mass det. time= 32.3 min (879.9 - 847.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	152,598 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,010.00	0	0	0
1,011.00	17,095	8,548	8,548
1,012.00	26,827	21,961	30,509
1,013.00	37,445	32,136	62,645
1,014.00	38,000	37,723	100,367
1,015.00	66,462	52,231	152,598

Device	Routing	Invert	Outlet Devices
#1	Primary	1,010.00'	28.0" W x 18.0" H, R=14.7"/40.7" Pipe Arch Culvert L= 148.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,010.00' / 1,009.60' S= 0.0027 ' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 2.76 sf
#2	Secondary	1,013.70'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=12.04 cfs @ 12.95 hrs HW=1,012.17' (Free Discharge)
 ↑1=Culvert (Barrel Controls 12.04 cfs @ 4.36 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,010.00' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

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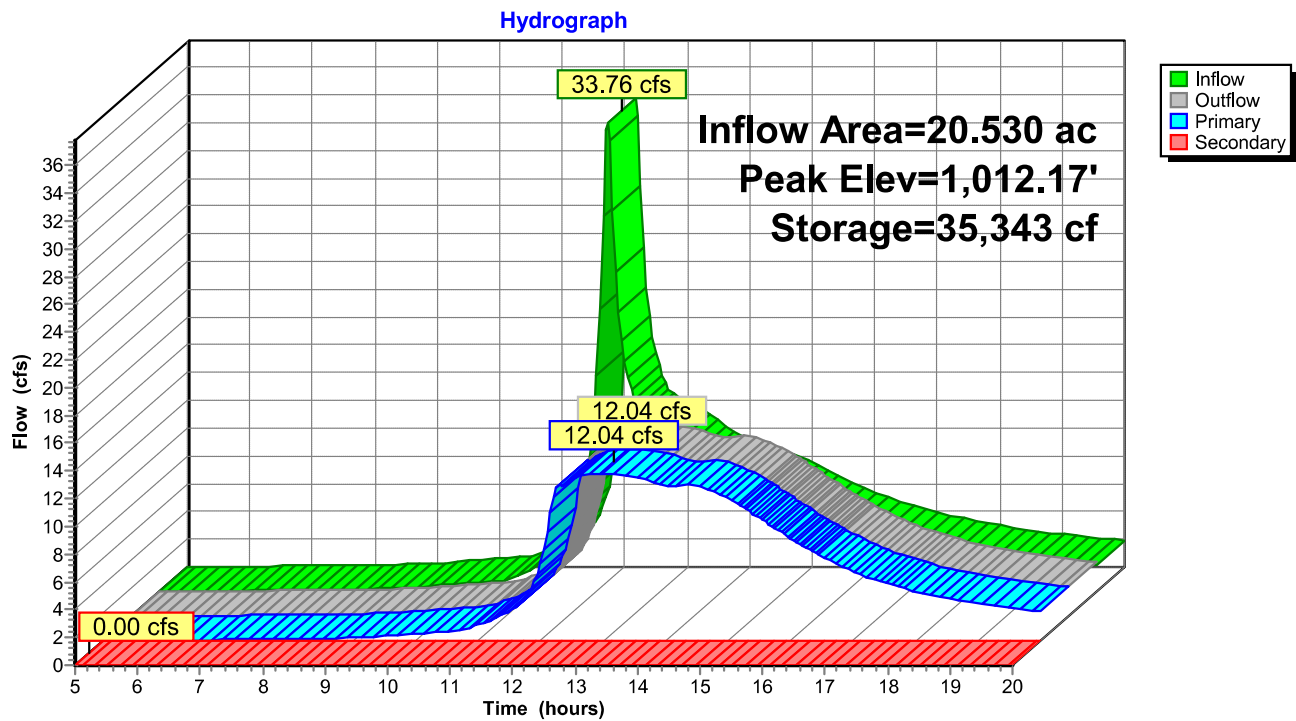
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MSE 24-hr 3 10-Year Rainfall=4.38"

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Pond 27P: CSAH 12 E Ditch



Summary for Subcatchment 1S: SE Wetland WS

Runoff = 8.95 cfs @ 12.39 hrs, Volume= 0.821 af, Depth> 6.12"
 Routed to Pond 2P : SE Wetland

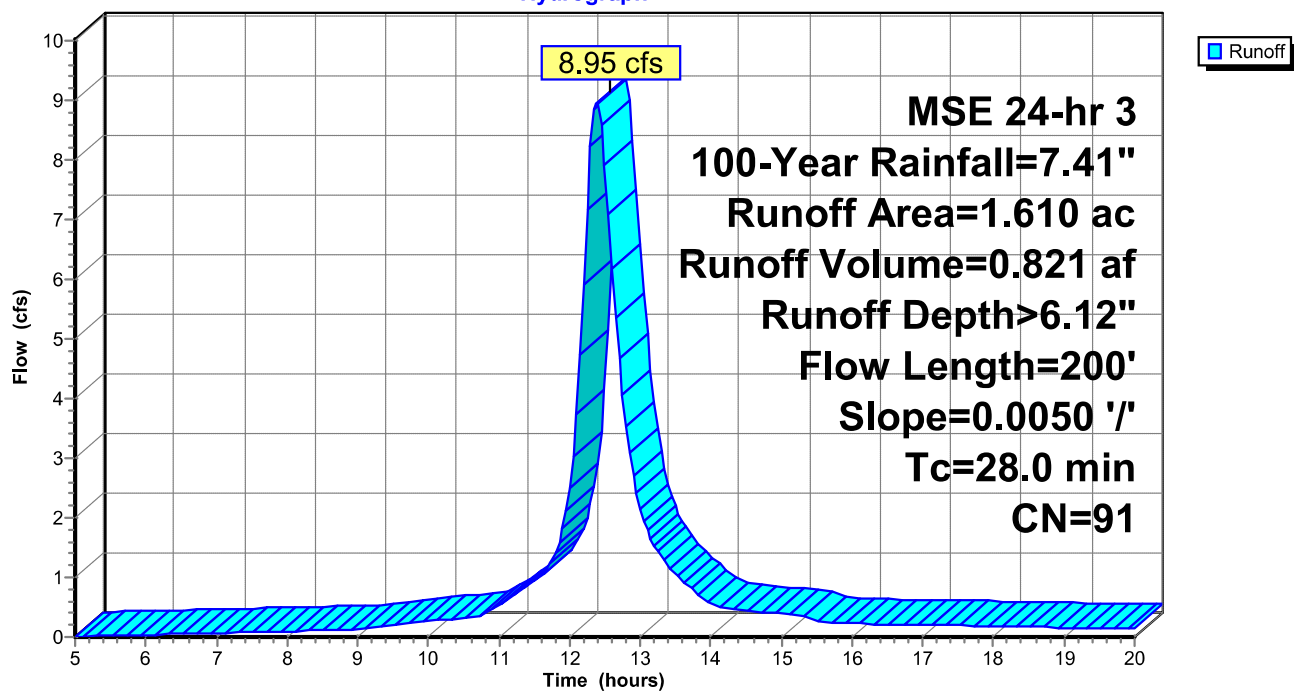
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
1.610	91	Row crops, straight row, Poor, HSG D
1.610		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"

Subcatchment 1S: SE Wetland WS

Hydrograph



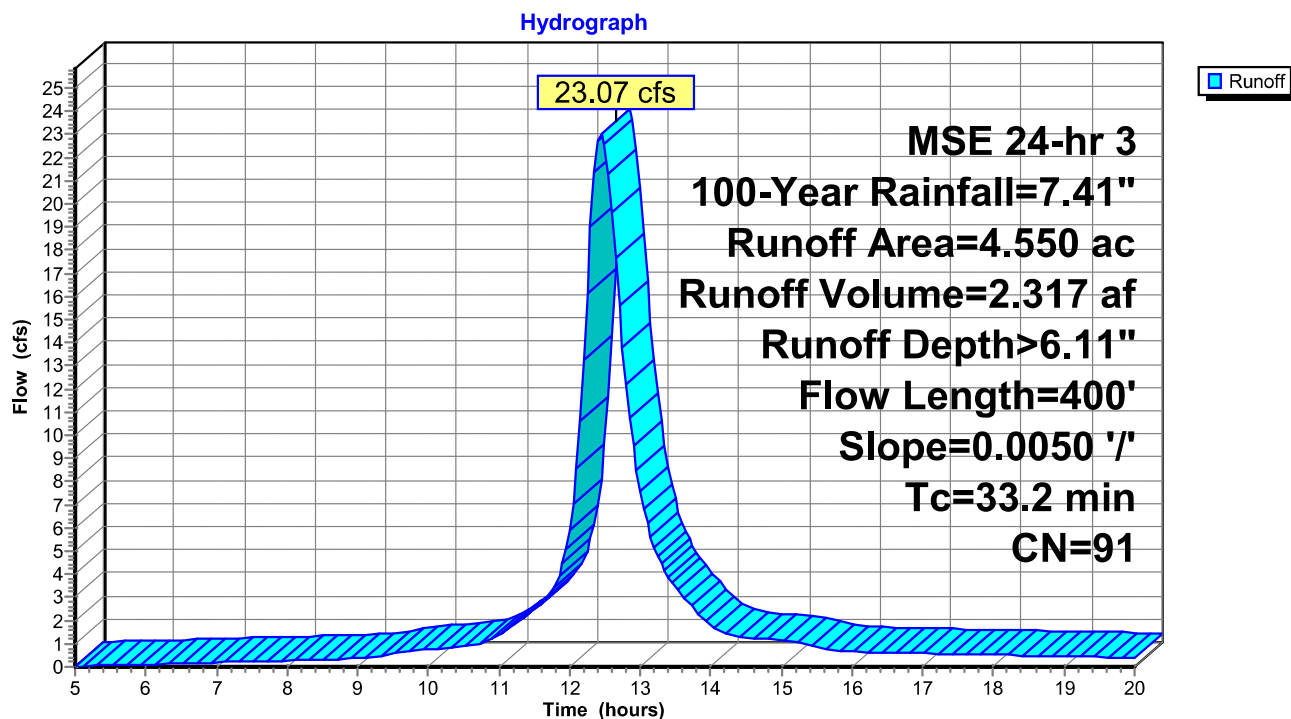
Summary for Subcatchment 4S: NE Wetland WS

Runoff = 23.07 cfs @ 12.45 hrs, Volume= 2.317 af, Depth> 6.11"
 Routed to Pond 5P : NE Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
4.190	91	Row crops, straight row, Poor, HSG D
0.360	86	Farmsteads, HSG D
4.550	91	Weighted Average
4.550		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"
5.2	200	0.0050	0.64		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
33.2	400	Total			

Subcatchment 4S: NE Wetland WS

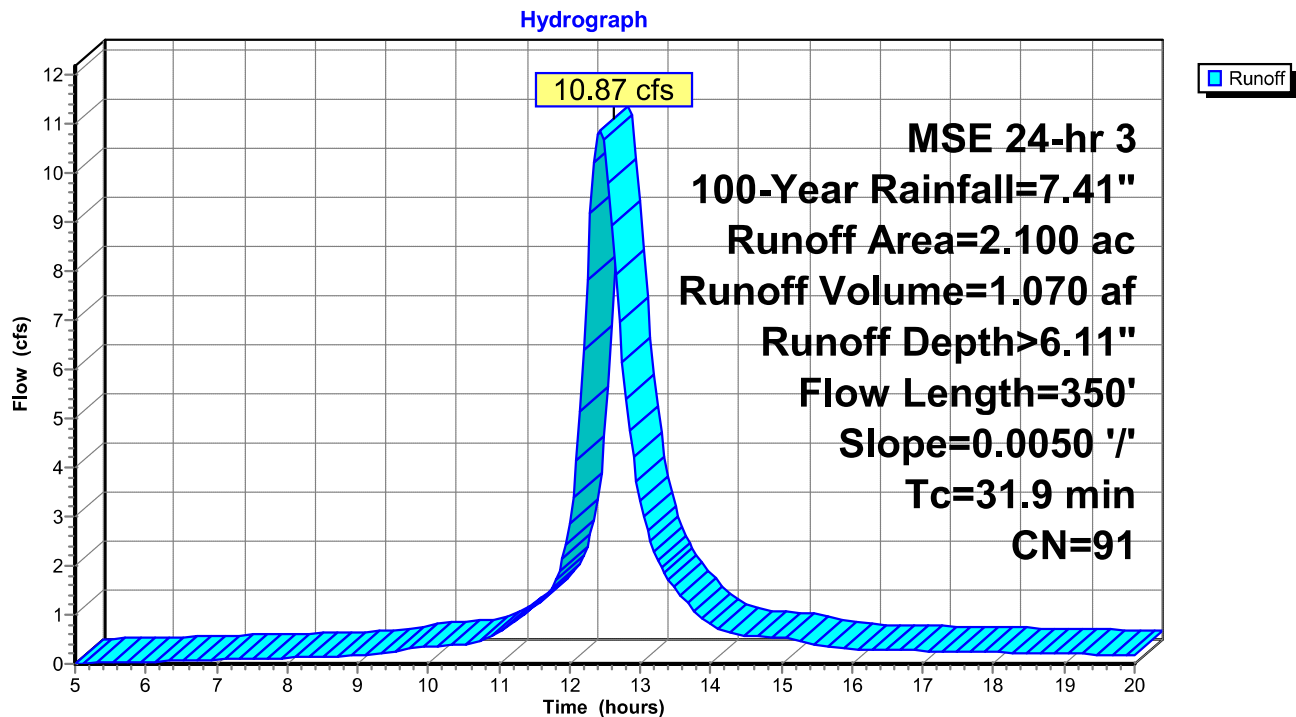
Summary for Subcatchment 6S: NW Wetland WS

Runoff = 10.87 cfs @ 12.43 hrs, Volume= 1.070 af, Depth> 6.11"
 Routed to Pond 7P : NW Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
2.100	91	Row crops, straight row, Poor, HSG D
2.100		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.0	200	0.0050	0.12		Sheet Flow, Cultivated: Residue>20% n= 0.170 P2= 4.40"
3.9	150	0.0050	0.64		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
31.9	350	Total			

Subcatchment 6S: NW Wetland WS

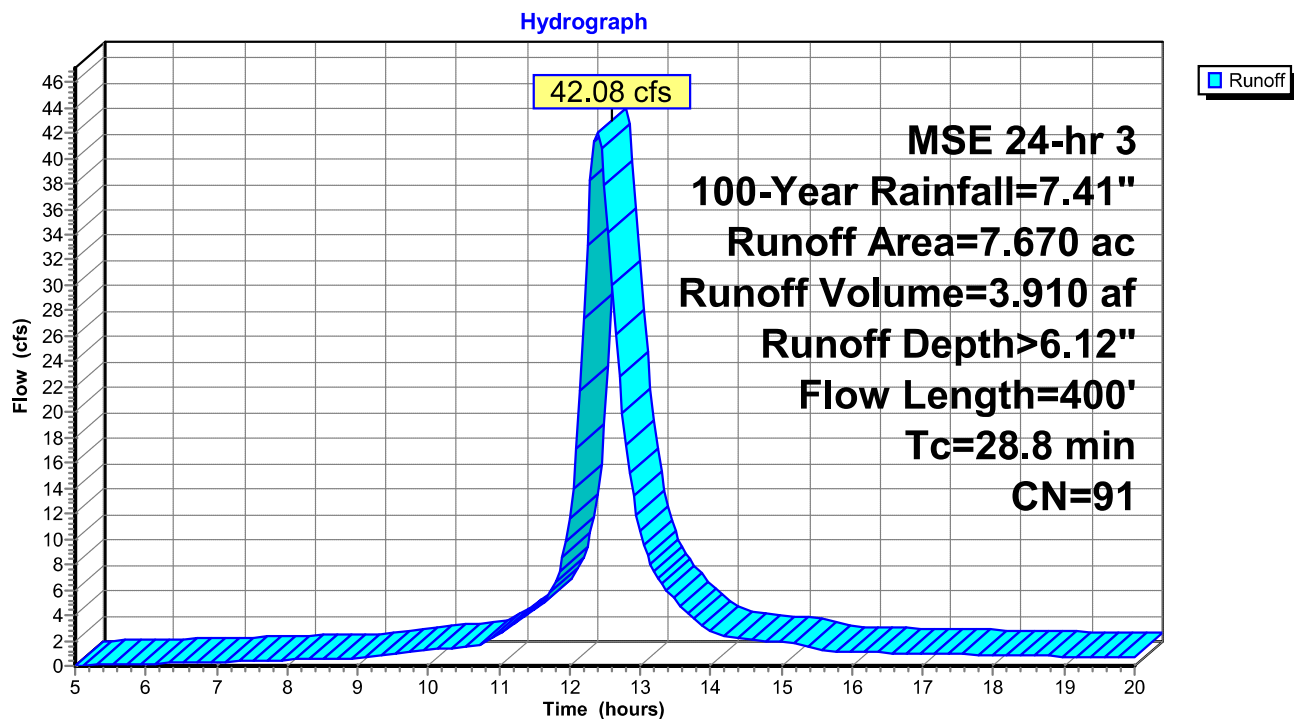
Summary for Subcatchment 9S: Trail Berm WS

Runoff = 42.08 cfs @ 12.39 hrs, Volume= 3.910 af, Depth> 6.12"
 Routed to Pond 10P : Trail Culvert Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
7.670	91	Row crops, straight row, Poor, HSG D
7.670		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.2	200	0.0050	0.27		Sheet Flow, Cultivated: Residue<=20% n= 0.060 P2= 4.40"
16.6	200	0.0005	0.20		Shallow Concentrated Flow, Cultivated Straight Rows Kv= 9.0 fps
28.8	400	Total			

Subcatchment 9S: Trail Berm WS

25-1243

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MSE 24-hr 3 100-Year Rainfall=7.41"

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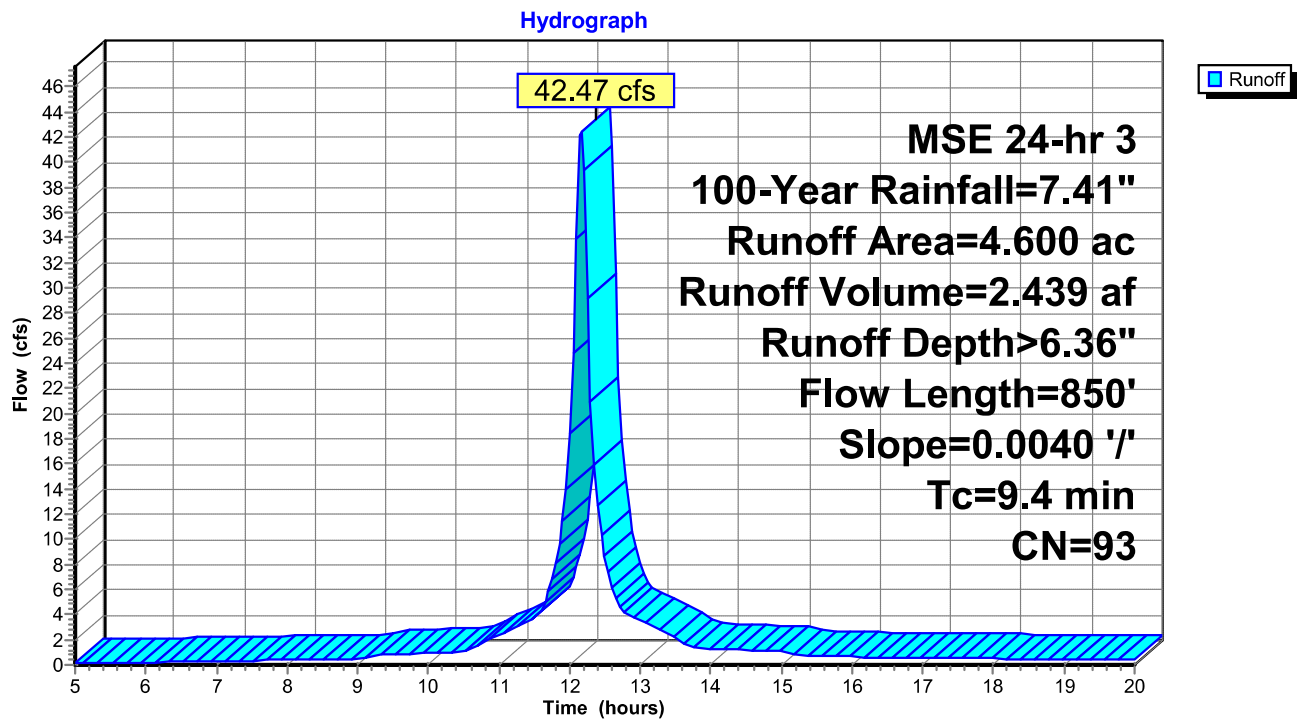
Summary for Subcatchment 11S: CSAH 12 East

Runoff = 42.47 cfs @ 12.16 hrs, Volume= 2.439 af, Depth> 6.36"
 Routed to Pond 12P : CSAH 12 E Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
4.600	93	Paved roads w/open ditches, 50% imp, HSG D
2.300		50.00% Pervious Area
2.300		50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.4	450	0.0040	3.12	100.00	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=2.00' Z= 6.0 & 3.0 ' /' Top.W=25.00' n= 0.035 Earth, dense weeds
9.4	850	Total			

Subcatchment 11S: CSAH 12 East

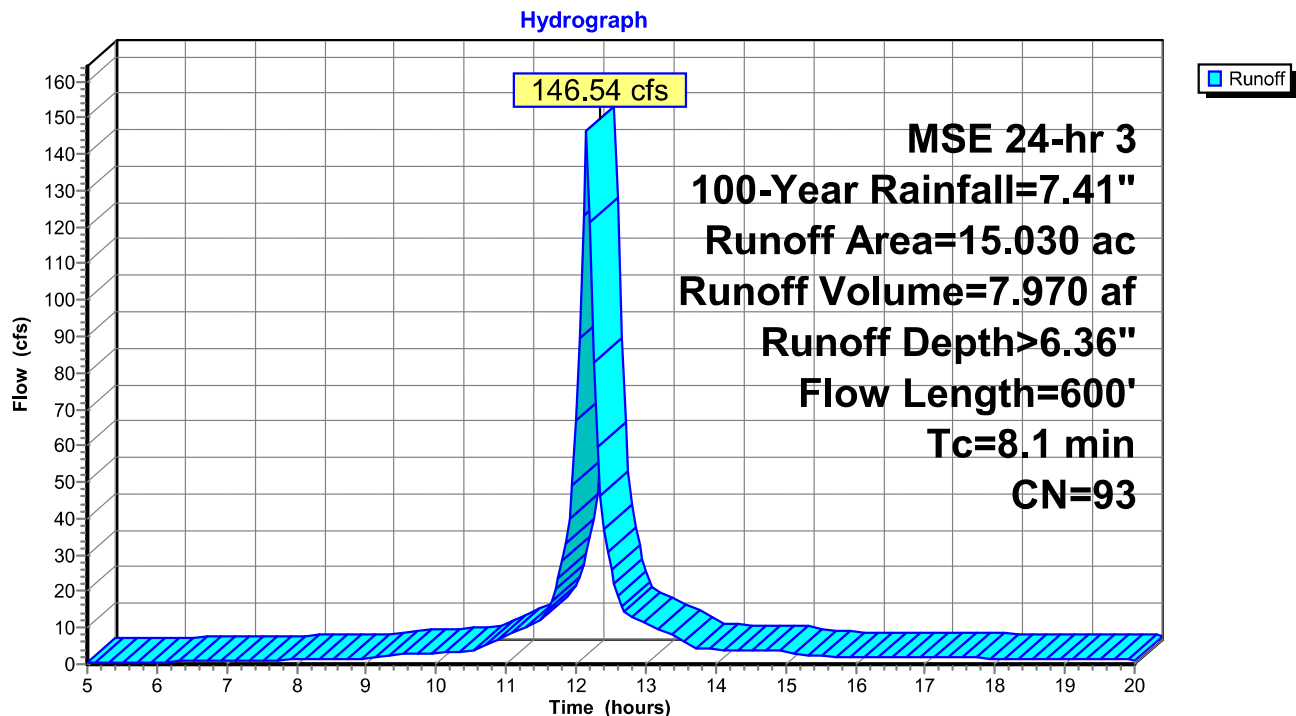
Summary for Subcatchment 22S: Des WS

Runoff = 146.54 cfs @ 12.15 hrs, Volume= 7.970 af, Depth> 6.36"
 Routed to Pond 23P : Metcon Addn Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
14.670	93	Urban industrial, 72% imp, HSG D
0.360	86	Farmsteads, HSG D
15.030	93	Weighted Average
4.468		29.72% Pervious Area
10.562		70.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.8	200	0.0200	1.85		Sheet Flow, Smooth surfaces n= 0.011 P2= 4.40"
6.3	400	0.0050	1.06		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
8.1	600	Total			

Subcatchment 22S: Des WS

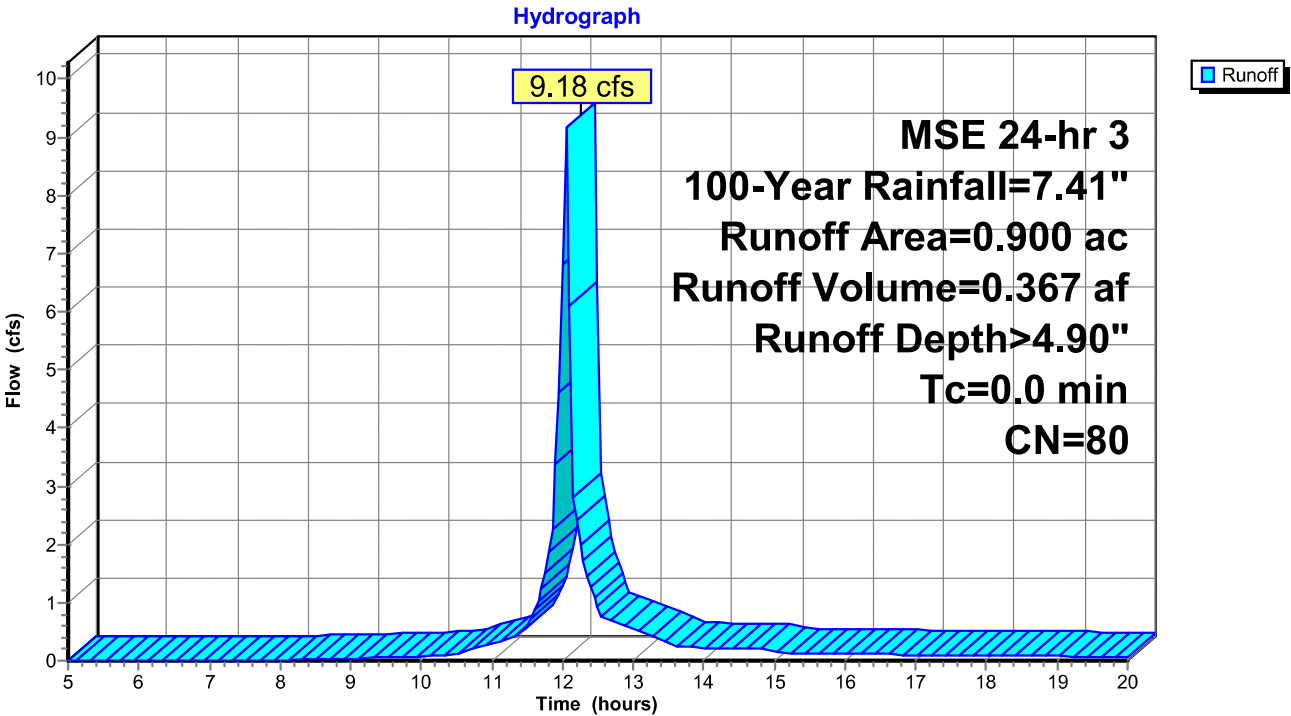
Summary for Subcatchment 24S: Trail Berm WS

Runoff = 9.18 cfs @ 12.05 hrs, Volume= 0.367 af, Depth> 4.90"
Routed to Pond 25P : Trail Culvert Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
0.900	80	>75% Grass cover, Good, HSG D
0.900		100.00% Pervious Area

Subcatchment 24S: Trail Berm WS



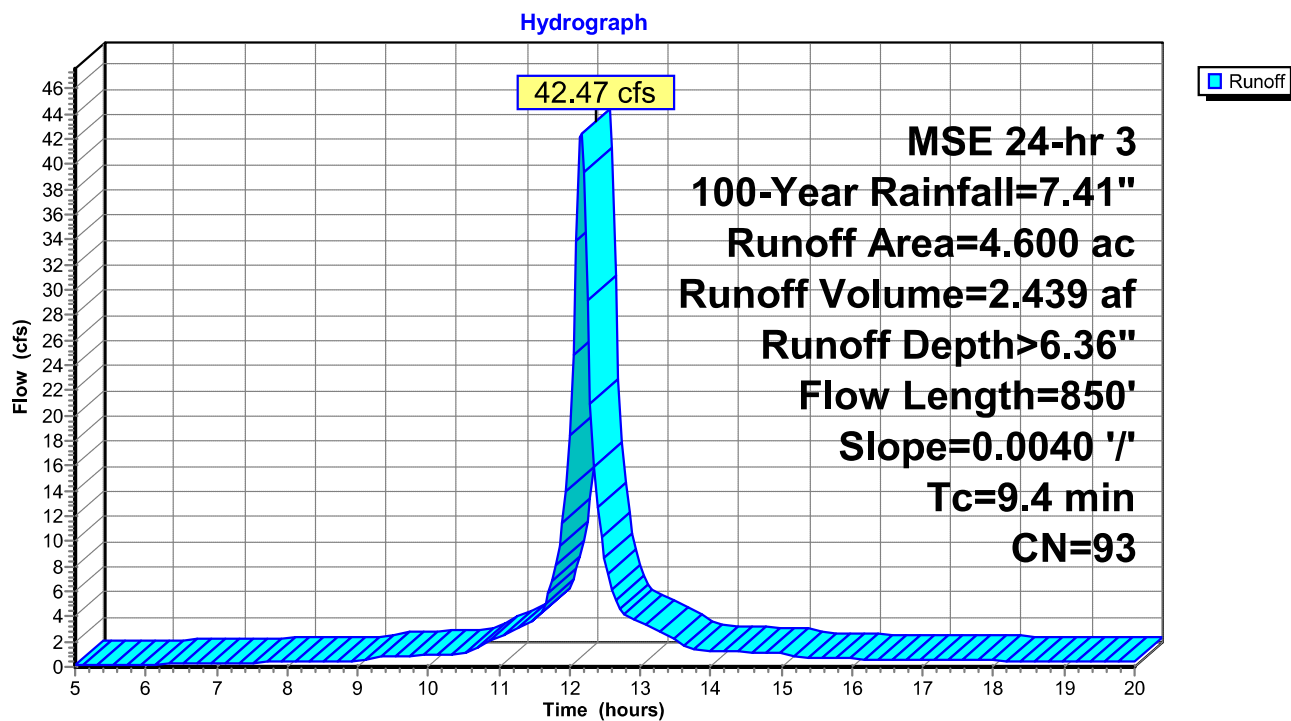
Summary for Subcatchment 26S: CSAH 12 East

Runoff = 42.47 cfs @ 12.16 hrs, Volume= 2.439 af, Depth> 6.36"
 Routed to Pond 27P : CSAH 12 E Ditch

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 MSE 24-hr 3 100-Year Rainfall=7.41"

Area (ac)	CN	Description
4.600	93	Paved roads w/open ditches, 50% imp, HSG D
2.300		50.00% Pervious Area
2.300		50.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
3.5	200	0.0040	0.95		Shallow Concentrated Flow, Grassed Waterway Kv= 15.0 fps
2.4	450	0.0040	3.12	100.00	Trap/Vee/Rect Channel Flow, Bot.W=7.00' D=2.00' Z= 6.0 & 3.0 ' Top.W=25.00' n= 0.035 Earth, dense weeds
9.4	850	Total			

Subcatchment 26S: CSAH 12 East

Summary for Reach 3R: S Trail Berm

Inflow Area = 1.610 ac, 0.00% Impervious, Inflow Depth > 3.21" for 100-Year event
 Inflow = 4.54 cfs @ 12.71 hrs, Volume= 0.431 af
 Outflow = 4.32 cfs @ 12.88 hrs, Volume= 0.426 af, Atten= 5%, Lag= 9.9 min
 Routed to Pond 10P : Trail Culvert Basin

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.45 fps, Min. Travel Time= 5.1 min

Avg. Velocity= 0.65 fps, Avg. Travel Time= 11.4 min

Peak Storage= 1,319 cf @ 12.79 hrs

Average Depth at Peak Storage= 0.25' , Surface Width= 14.00'

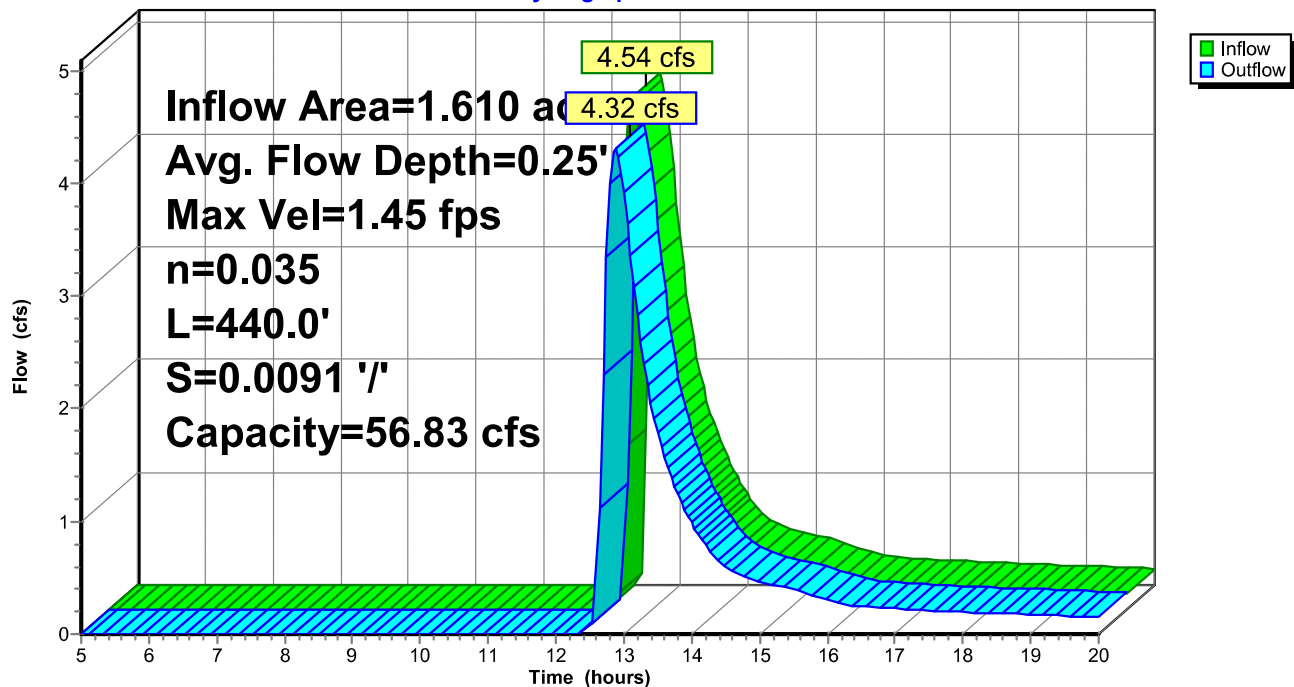
Bank-Full Depth= 1.00' Flow Area= 18.0 sf, Capacity= 56.83 cfs

10.00' x 1.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 6.0 10.0 '/' Top Width= 26.00'

Length= 440.0' Slope= 0.0091 '/'

Inlet Invert= 1,016.00', Outlet Invert= 1,012.00'

**Reach 3R: S Trail Berm****Hydrograph**

Summary for Reach 8R: W Trail Berm

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 4.53" for 100-Year event
 Inflow = 24.95 cfs @ 12.67 hrs, Volume= 2.513 af
 Outflow = 23.66 cfs @ 12.85 hrs, Volume= 2.494 af, Atten= 5%, Lag= 10.8 min
 Routed to Pond 10P : Trail Culvert Basin

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.24 fps, Min. Travel Time= 5.8 min

Avg. Velocity= 1.04 fps, Avg. Travel Time= 12.5 min

Peak Storage= 8,194 cf @ 12.75 hrs

Average Depth at Peak Storage= 0.93' , Surface Width= 18.82'

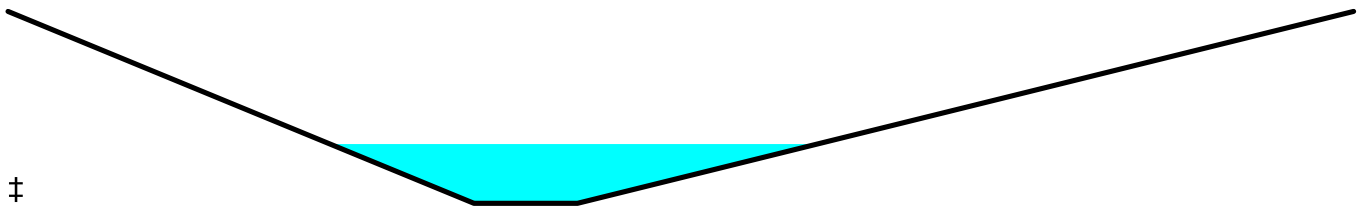
Bank-Full Depth= 3.00' Flow Area= 84.0 sf, Capacity= 380.43 cfs

4.00' x 3.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 6.0 10.0 ' Top Width= 52.00'

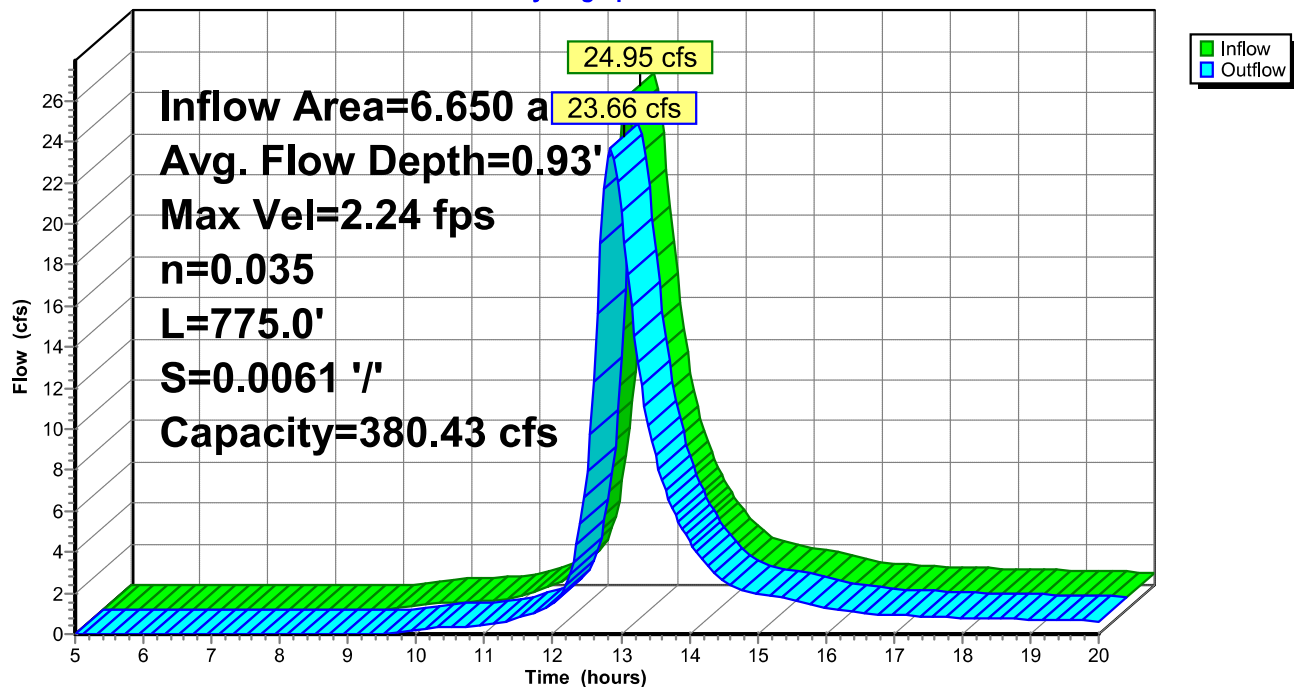
Length= 775.0' Slope= 0.0061 ' /'

Inlet Invert= 1,016.70', Outlet Invert= 1,012.00'



Reach 8R: W Trail Berm

Hydrograph



Summary for Pond 2P: SE Wetland

Inflow Area = 1.610 ac, 0.00% Impervious, Inflow Depth > 6.12" for 100-Year event
 Inflow = 8.95 cfs @ 12.39 hrs, Volume= 0.821 af
 Outflow = 4.54 cfs @ 12.71 hrs, Volume= 0.431 af, Atten= 49%, Lag= 19.7 min
 Primary = 4.54 cfs @ 12.71 hrs, Volume= 0.431 af
 Routed to Reach 3R : S Trail Berm

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.97' @ 12.71 hrs Surf.Area= 56,519 sf Storage= 20,259 cf

Plug-Flow detention time= 142.0 min calculated for 0.429 af (52% of inflow)
 Center-of-Mass det. time= 77.1 min (844.6 - 767.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,017.25'	22,174 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

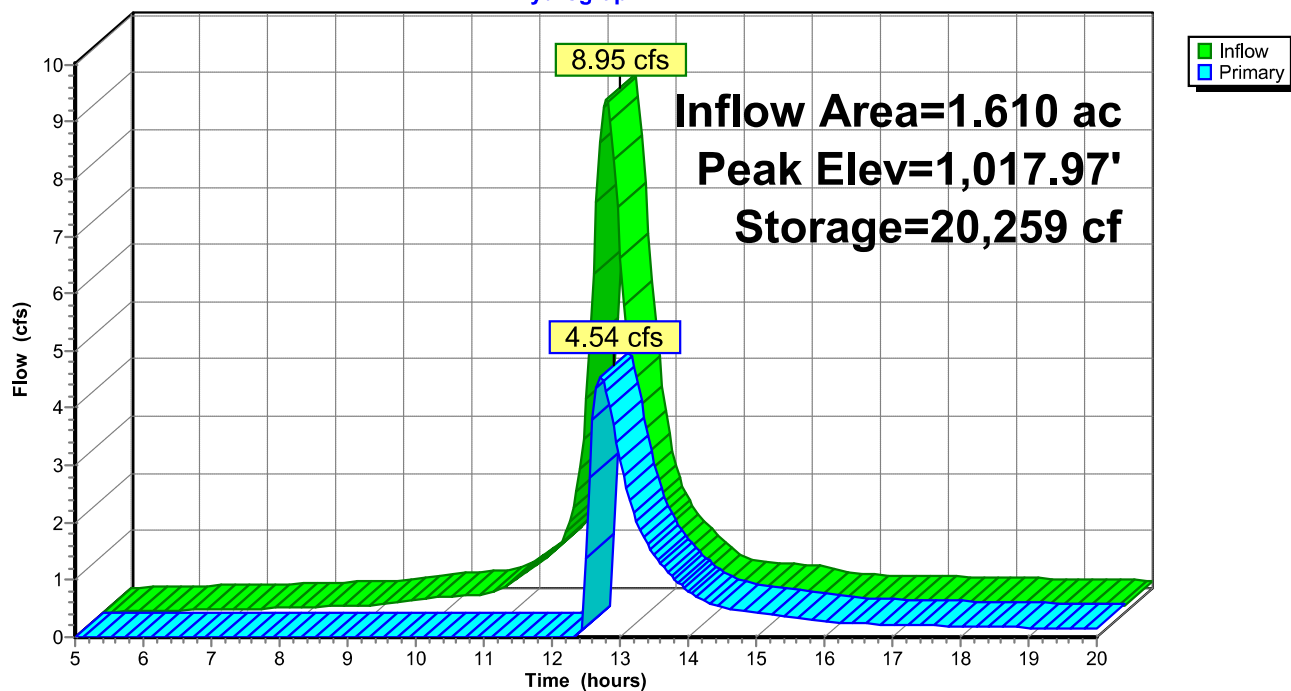
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,017.25	0	0	0
1,018.00	59,130	22,174	22,174

Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.90'	100.0' long + 100.0' /' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=4.51 cfs @ 12.71 hrs HW=1,017.97' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 4.51 cfs @ 0.63 fps)

Pond 2P: SE Wetland

Hydrograph



Summary for Pond 5P: NE Wetland

Inflow Area = 4.550 ac, 0.00% Impervious, Inflow Depth > 6.11" for 100-Year event
 Inflow = 23.07 cfs @ 12.45 hrs, Volume= 2.317 af
 Outflow = 17.30 cfs @ 12.66 hrs, Volume= 1.480 af, Atten= 25%, Lag= 13.1 min
 Primary = 17.30 cfs @ 12.66 hrs, Volume= 1.480 af
 Routed to Pond 7P : NW Wetland

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.74' @ 12.66 hrs Surf.Area= 65,030 sf Storage= 46,541 cf

Plug-Flow detention time= 116.2 min calculated for 1.480 af (64% of inflow)
 Center-of-Mass det. time= 59.8 min (831.5 - 771.7)

Volume	Invert	Avail.Storage	Storage Description
#1	1,016.00'	65,093 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,016.00	0	0	0
1,017.00	25,742	12,871	12,871
1,018.00	78,702	52,222	65,093

Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.56'	75.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=17.19 cfs @ 12.66 hrs HW=1,017.74' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 17.19 cfs @ 1.02 fps)

25-1243

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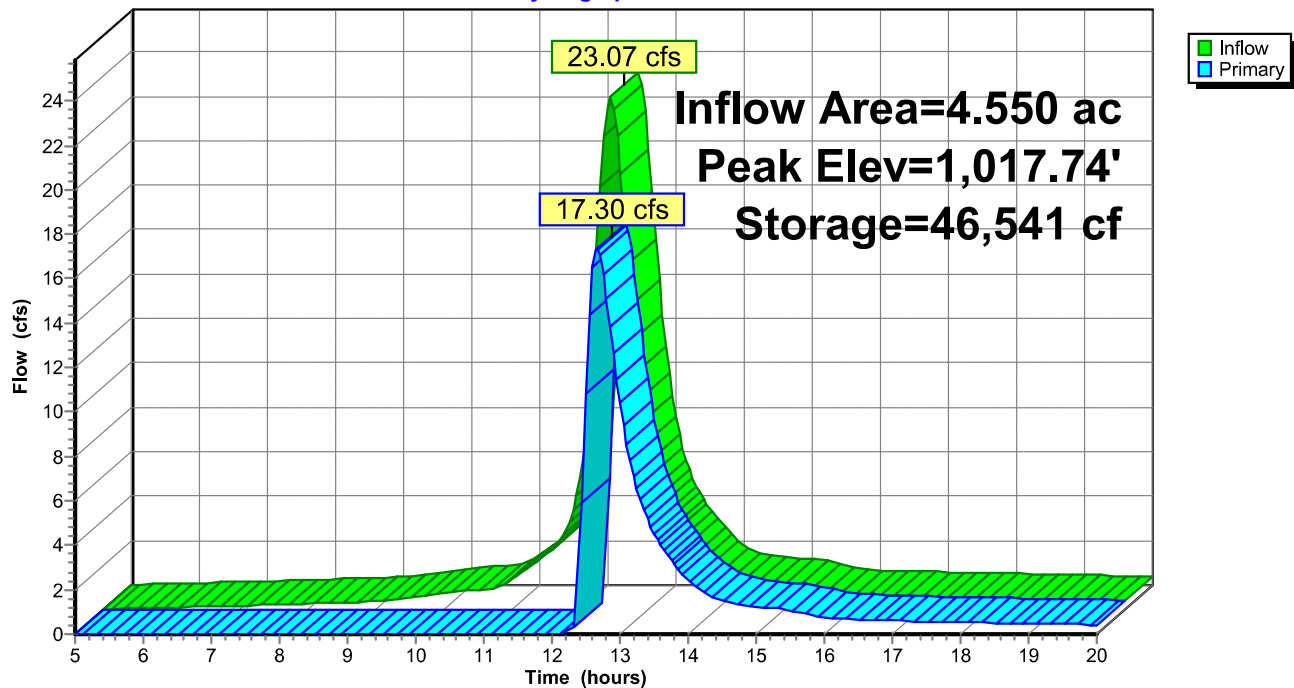
MSE 24-hr 3 100-Year Rainfall=7.41"

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Pond 5P: NE Wetland

Hydrograph



Summary for Pond 7P: NW Wetland

Inflow Area = 6.650 ac, 0.00% Impervious, Inflow Depth > 4.60" for 100-Year event
 Inflow = 25.51 cfs @ 12.62 hrs, Volume= 2.550 af
 Outflow = 24.95 cfs @ 12.67 hrs, Volume= 2.513 af, Atten= 2%, Lag= 3.1 min
 Primary = 24.95 cfs @ 12.67 hrs, Volume= 2.513 af
 Routed to Reach 8R : W Trail Berm

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,017.37' @ 12.67 hrs Surf.Area= 33,765 sf Storage= 6,174 cf

Plug-Flow detention time= 13.2 min calculated for 2.504 af (98% of inflow)
 Center-of-Mass det. time= 7.7 min (813.7 - 806.0)

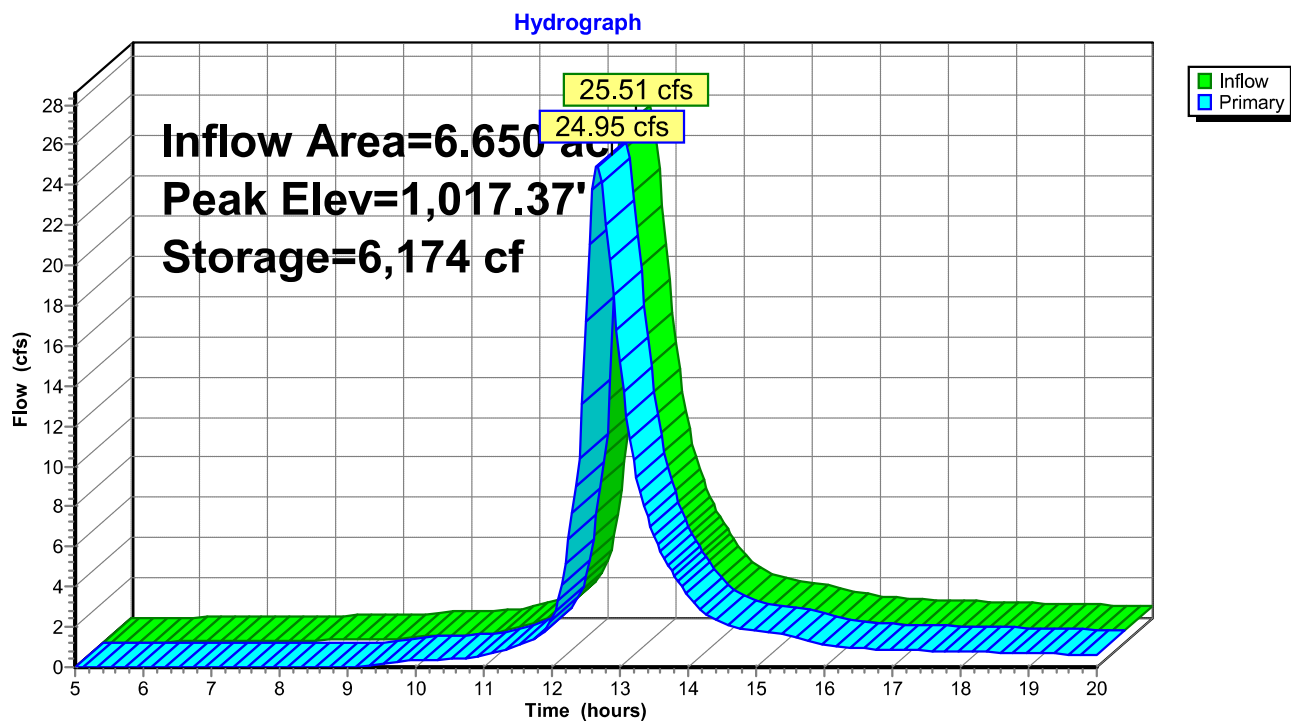
Volume	Invert	Avail.Storage	Storage Description
#1	1,017.00'	46,162 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,017.00	0	0	0
1,018.00	92,324	46,162	46,162

Device	Routing	Invert	Outlet Devices
#1	Primary	1,017.17'	100.0' long + 100.0 ' SideZ x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=24.78 cfs @ 12.67 hrs HW=1,017.36' (Free Discharge)
 ↑1=**Broad-Crested Rectangular Weir** (Weir Controls 24.78 cfs @ 1.06 fps)

Pond 7P: NW Wetland



Summary for Pond 10P: Trail Culvert Basin

Inflow Area = 15.930 ac, 0.00% Impervious, Inflow Depth > 5.14" for 100-Year event
 Inflow = 47.66 cfs @ 12.42 hrs, Volume= 6.830 af
 Outflow = 47.27 cfs @ 12.46 hrs, Volume= 6.820 af, Atten= 1%, Lag= 2.2 min
 Primary = 4.20 cfs @ 12.46 hrs, Volume= 2.869 af
 Routed to Pond 12P : CSAH 12 E Ditch
 Secondary = 43.07 cfs @ 12.46 hrs, Volume= 3.951 af
 Routed to Pond 12P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,014.84' @ 12.46 hrs Surf.Area= 28,827 sf Storage= 24,559 cf

Plug-Flow detention time= 20.8 min calculated for 6.820 af (100% of inflow)
 Center-of-Mass det. time= 20.2 min (814.5 - 794.4)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.30'	29,601 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.30	0	0	0
1,013.00	1,763	1,499	1,499
1,014.00	11,053	6,408	7,907
1,015.00	32,336	21,695	29,601

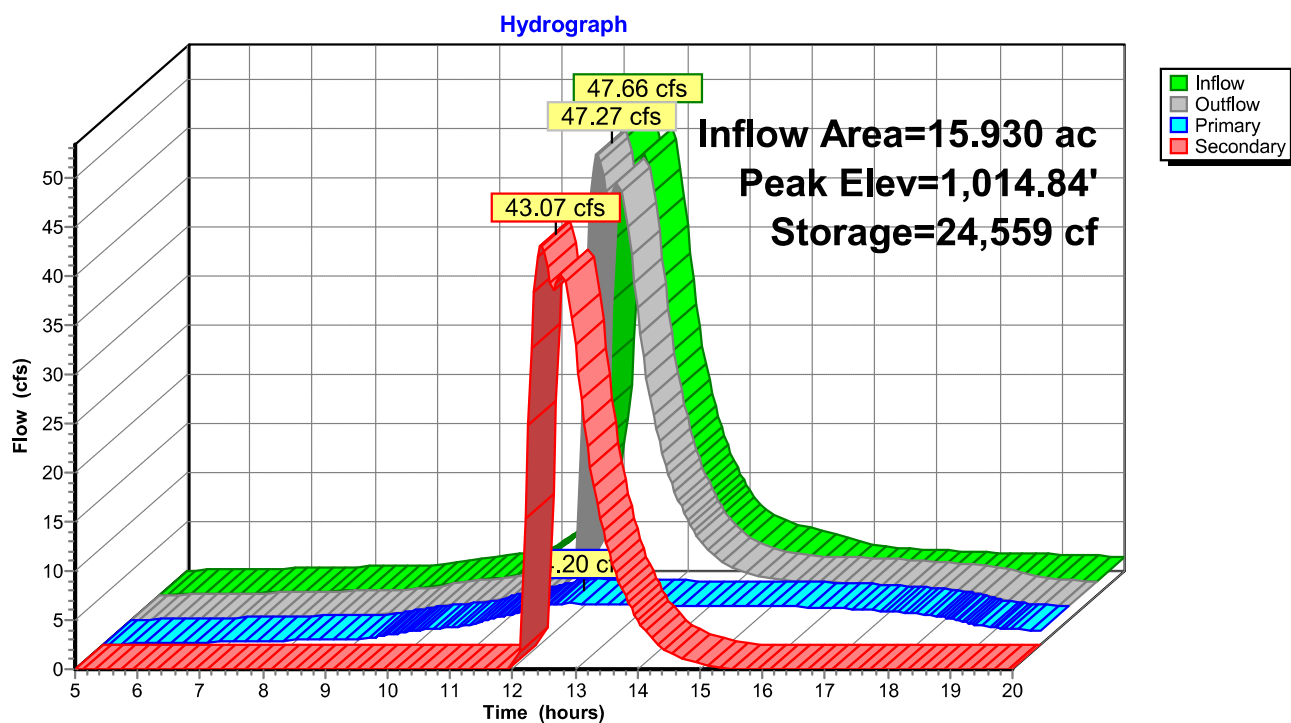
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.30'	12.0" Round Culvert L= 42.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.30' / 1,011.00' S= 0.0071 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Secondary	1,014.50'	50.0' long + 100.0 ' / SideZ x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.20 cfs @ 12.46 hrs HW=1,014.83' (Free Discharge)

↑**1=Culvert** (Barrel Controls 4.20 cfs @ 5.35 fps)

Secondary OutFlow Max=42.81 cfs @ 12.46 hrs HW=1,014.83' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Weir Controls 42.81 cfs @ 1.53 fps)

Pond 10P: Trail Culvert Basin

Summary for Pond 12P: CSAH 12 E Ditch

Inflow Area = 20.530 ac, 11.20% Impervious, Inflow Depth > 5.41" for 100-Year event
 Inflow = 58.81 cfs @ 12.38 hrs, Volume= 9.258 af
 Outflow = 39.07 cfs @ 13.03 hrs, Volume= 9.195 af, Atten= 34%, Lag= 38.7 min
 Primary = 21.06 cfs @ 13.03 hrs, Volume= 8.092 af
 Secondary = 18.01 cfs @ 13.03 hrs, Volume= 1.103 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,014.39' @ 13.03 hrs Surf.Area= 48,961 sf Storage= 117,112 cf

Plug-Flow detention time= 51.3 min calculated for 9.195 af (99% of inflow)
 Center-of-Mass det. time= 48.6 min (845.5 - 796.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	152,598 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,010.00	0	0	0
1,011.00	17,095	8,548	8,548
1,012.00	26,827	21,961	30,509
1,013.00	37,445	32,136	62,645
1,014.00	38,000	37,723	100,367
1,015.00	66,462	52,231	152,598

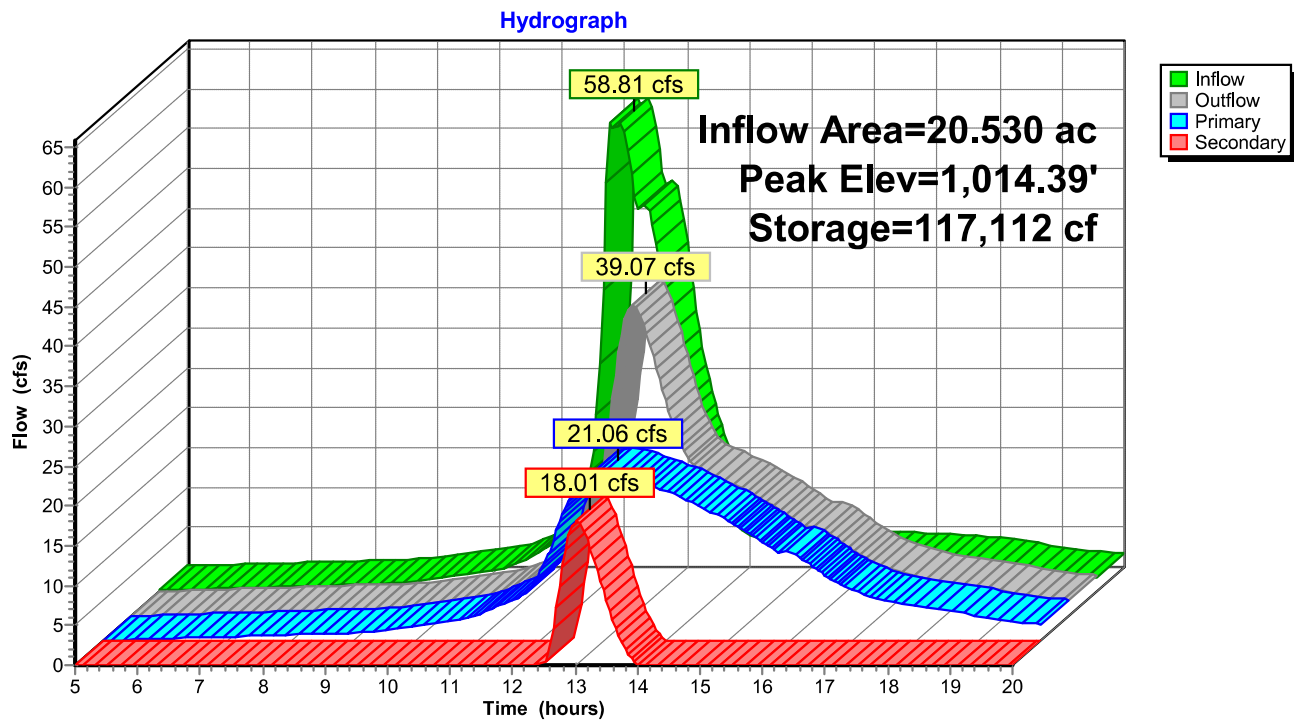
Device	Routing	Invert	Outlet Devices
#1	Primary	1,010.00'	28.0" W x 18.0" H, R=14.7"/40.7" Pipe Arch Culvert L= 148.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,010.00' / 1,009.60' S= 0.0027 ' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 2.76 sf
#2	Secondary	1,013.70'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=21.06 cfs @ 13.03 hrs HW=1,014.38' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 21.06 cfs @ 7.63 fps)

Secondary OutFlow Max=17.94 cfs @ 13.03 hrs HW=1,014.38' (Free Discharge)

↑ **2=Broad-Crested Rectangular Weir** (Weir Controls 17.94 cfs @ 2.62 fps)

Pond 12P: CSAH 12 E Ditch

Summary for Pond 23P: Metcon Addn Pond

Inflow Area = 15.030 ac, 70.28% Impervious, Inflow Depth > 6.36" for 100-Year event
 Inflow = 146.54 cfs @ 12.15 hrs, Volume= 7.970 af
 Outflow = 13.50 cfs @ 12.76 hrs, Volume= 6.895 af, Atten= 91%, Lag= 36.6 min
 Primary = 13.50 cfs @ 12.76 hrs, Volume= 6.895 af
 Routed to Pond 27P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,014.51' @ 12.76 hrs Surf.Area= 72,356 sf Storage= 209,859 cf

Plug-Flow detention time= 189.9 min calculated for 6.894 af (87% of inflow)
 Center-of-Mass det. time= 153.5 min (900.0 - 746.5)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.00'	325,258 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.00	47,057	0	0
1,016.00	83,046	325,258	325,258

Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.00'	18.0" Round Culvert L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.00' / 1,010.00' S= 0.0100 ' / Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf
#2	Device 1	1,008.00'	18.0" Round Culvert L= 30.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,008.00' / 1,008.00' S= 0.0000 ' / Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 1.77 sf

Primary OutFlow Max=13.50 cfs @ 12.76 hrs HW=1,014.51' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 13.50 cfs @ 7.64 fps)

↑ **2=Culvert** (Passes 13.50 cfs of 15.95 cfs potential flow)

25-1243

Prepared by Jones Haugh & Smith Inc

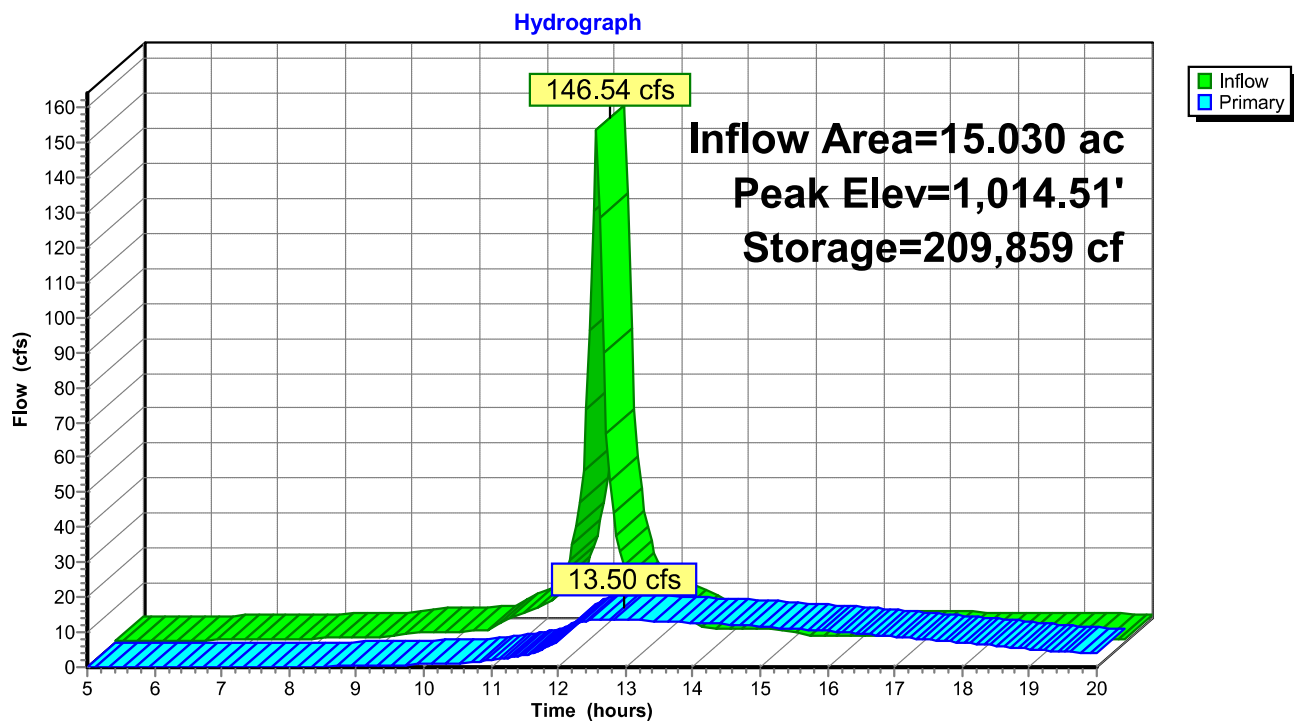
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MSE 24-hr 3 100-Year Rainfall=7.41"

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Pond 23P: Metcon Addn Pond



Summary for Pond 25P: Trail Culvert Basin

Inflow Area = 0.900 ac, 0.00% Impervious, Inflow Depth > 4.90" for 100-Year event
 Inflow = 9.18 cfs @ 12.05 hrs, Volume= 0.367 af
 Outflow = 3.28 cfs @ 12.16 hrs, Volume= 0.367 af, Atten= 64%, Lag= 6.6 min
 Primary = 3.28 cfs @ 12.16 hrs, Volume= 0.367 af
 Routed to Pond 27P : CSAH 12 E Ditch
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Pond 27P : CSAH 12 E Ditch

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,013.72' @ 12.16 hrs Surf.Area= 4,123 sf Storage= 3,623 cf

Plug-Flow detention time= 9.0 min calculated for 0.367 af (100% of inflow)
 Center-of-Mass det. time= 8.6 min (772.7 - 764.1)

Volume	Invert	Avail.Storage	Storage Description
#1	1,011.30'	12,717 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,011.30	0	0	0
1,013.00	1,763	1,499	1,499
1,014.00	5,033	3,398	4,897
1,015.00	10,608	7,821	12,717

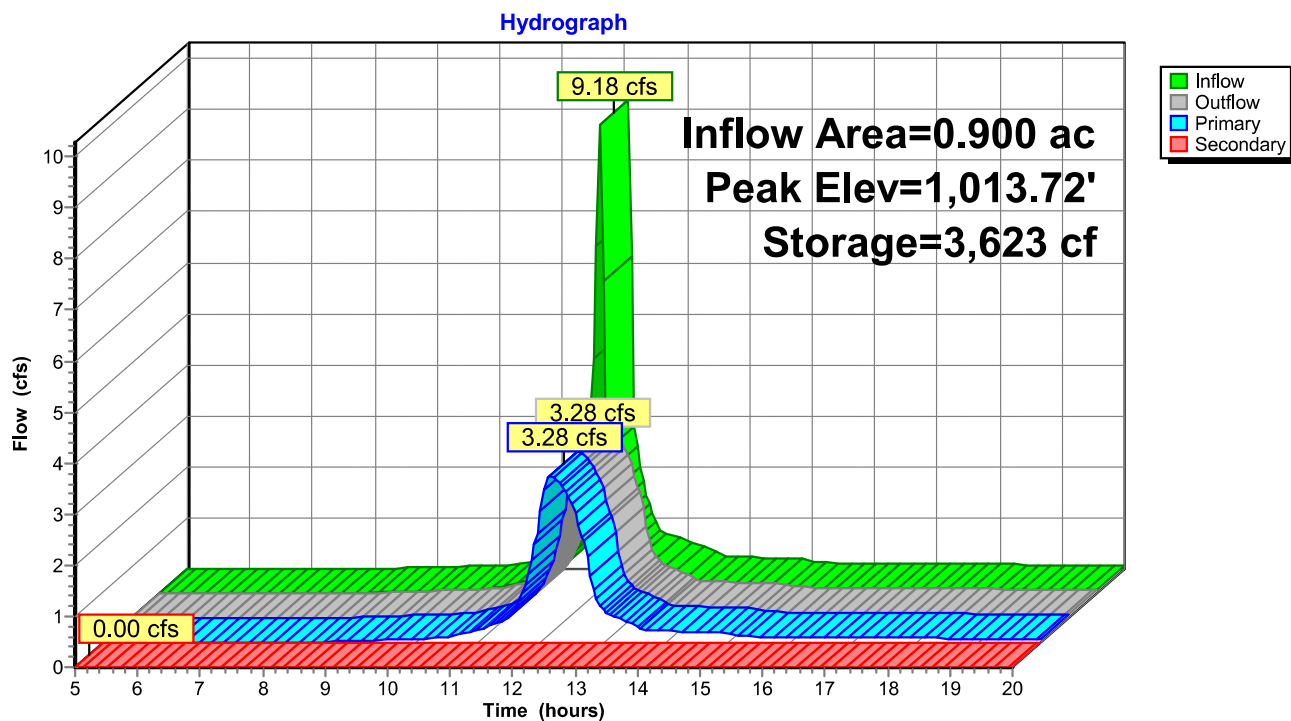
Device	Routing	Invert	Outlet Devices
#1	Primary	1,011.30'	12.0" Round Culvert L= 42.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,011.30' / 1,011.00' S= 0.0071 ' / Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Secondary	1,014.50'	50.0' long + 100.0 ' / SideZ x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.27 cfs @ 12.16 hrs HW=1,013.72' (Free Discharge)

↑**1=Culvert** (Barrel Controls 3.27 cfs @ 4.16 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,011.30' (Free Discharge)

↑**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 25P: Trail Culvert Basin

Summary for Pond 27P: CSAH 12 E Ditch

Inflow Area = 20.530 ac, 62.65% Impervious, Inflow Depth > 5.67" for 100-Year event
 Inflow = 56.91 cfs @ 12.17 hrs, Volume= 9.700 af
 Outflow = 17.07 cfs @ 13.14 hrs, Volume= 9.497 af, Atten= 70%, Lag= 58.6 min
 Primary = 17.07 cfs @ 13.14 hrs, Volume= 9.497 af
 Secondary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 1,013.26' @ 13.14 hrs Surf.Area= 37,588 sf Storage= 72,305 cf

Plug-Flow detention time= 53.4 min calculated for 9.465 af (98% of inflow)
 Center-of-Mass det. time= 46.3 min (903.1 - 856.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,010.00'	152,598 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,010.00	0	0	0
1,011.00	17,095	8,548	8,548
1,012.00	26,827	21,961	30,509
1,013.00	37,445	32,136	62,645
1,014.00	38,000	37,723	100,367
1,015.00	66,462	52,231	152,598

Device	Routing	Invert	Outlet Devices
#1	Primary	1,010.00'	28.0" W x 18.0" H, R=14.7"/40.7" Pipe Arch Culvert L= 148.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,010.00' / 1,009.60' S= 0.0027 ' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 2.76 sf
#2	Secondary	1,013.70'	10.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=17.07 cfs @ 13.14 hrs HW=1,013.26' (Free Discharge)
 ↑1=Culvert (Barrel Controls 17.07 cfs @ 6.19 fps)

Secondary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,010.02' (Free Discharge)
 ↑2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

25-1243

Prepared by Jones Haugh & Smith Inc

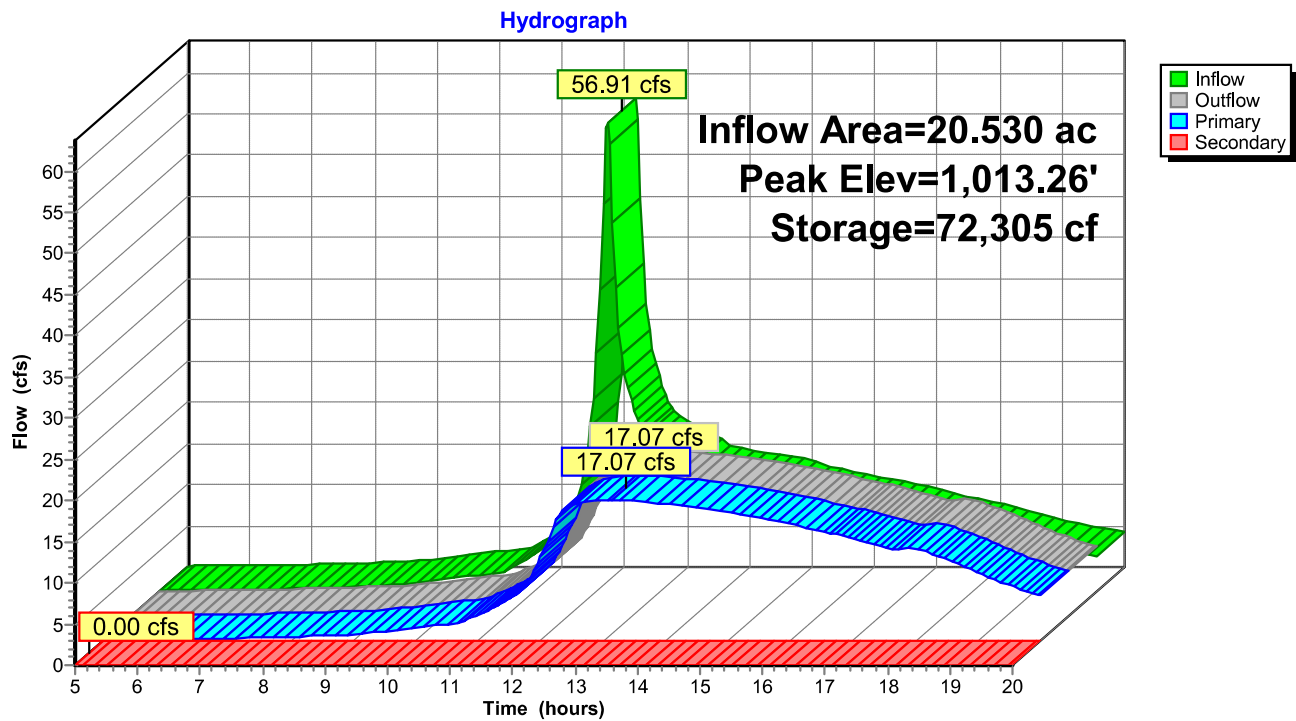
HydroCAD® 10.20-9a s/n 03815 © 2026 HydroCAD Software Solutions LLC

MSE 24-hr 3 100-Year Rainfall=7.41"

Printed 8/13/2026

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Pond 27P: CSAH 12 E Ditch



Geotechnical Evaluation Report

Met-Con Mankato Office and Site Development

East of County Highway 12 between Adams Street and Madison Avenue
Mankato, Minnesota

Prepared for

Met-Con Companies, Inc.

Professional 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 Minnesota.

Philip E. Bailey, PE
Associate Director, Senior Engineer
License Number: 47539
February 3, 2026

Braun Intertec Corporation

Project B2508847

February 3, 2026

Project B2508847

Scott Brown
Met-Con Companies, Inc.
PO Box 427
15760 Acorn Trail
Faribault, MN 55021

Re: Geotechnical Evaluation
Met-Con Mankato Office and Site Development
East of County Highway 12 between Adams Street and Madison Avenue
Mankato, Minnesota

Dear Mr. Brown:

We are pleased to present this geotechnical evaluation report for the Met-Con Mankato Office and Site Development project at the above referenced site.

Thank you for making Braun Intertec Corporation (Braun Intertec) your geotechnical consultant for this project. If you have questions about this report, or if there are other services that we can provide in support of our work to date, please contact Philip Bailey at 507.995.2788 or pbailey@braunintertec.com.

Sincerely,
Braun Intertec Corporation

Philip E. Bailey, PE
Associate Director, Senior Engineer

Brandon K. Wright, PE
Senior Manager, Senior Engineer

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DRAFT



1.0 Introduction

1.1 Project Description

This geotechnical evaluation report addresses the proposed design and construction of the proposed office building and site grading, located in the southeast quadrant of the intersection of County State Aid Highway 12 and Adams Street in Mankato, Minnesota. The project will include the construction of a single-story office building with multiple rental units within a 1.9-acre parcel (Lot 6). The proposed office building will be steel framed with sheet-metal and stone siding. Civil improvements will include concrete pavement, a gravel surfaced storage yard, detention pond, and a patio.

In addition to the development of Lot 6, we also understand Met-Con has purchased an additional five adjoining lots and intends to develop them in the future. We assume similar single-story, slab-on-grade, steel-framed, office- or warehouse-type buildings will be constructed on the five adjoining lots.

Table 1-1 and Table 1-2 summarize the provided and assumed project details used to prepare this report.

Table 1-1. Building Description

Aspect	Descriptions
Below grade levels	None (Provided)
Above grade levels	1 (Provided)
Lowest level floor elevation (feet)	1018 (Assumed)
Column loads (kips)	150 (Assumed)
Wall loads (kips/foot)	8 (Assumed)
Nature of construction	Single-story, slab-on-grade, steel-framed, office- or warehouse-type buildings (Provided)
Cuts or fills for buildings	1 to 3 feet of fill (Assumed)
Tolerable building settlements	1 inch total, ½ inch differential (Assumed)

Table 1-2. Site Aspects and Grading Description

Aspect	Descriptions
Pavement type(s)	Bituminous or concrete for parking and drive areas and aggregate surfacing for yard storage
Assumed pavement loads	Light-duty: 50,000 ESALs* for car parking
	Medium-duty: 100,000 ESALs* for main drive areas
Grade changes	Up to 3 feet of fill in pavement areas (Assumed)

*Equivalent 18,000-lb single axle loads based on 20-year design for bituminous and 35-year design for concrete.



Figure 1-1 below shows an illustration of the proposed development area.



Figure 1-1. Site Development Area

Figure provided by Met-Con Companies, Inc. not dated.



Figure 1-2 below shows an illustration of the proposed site layout within Lot 6.

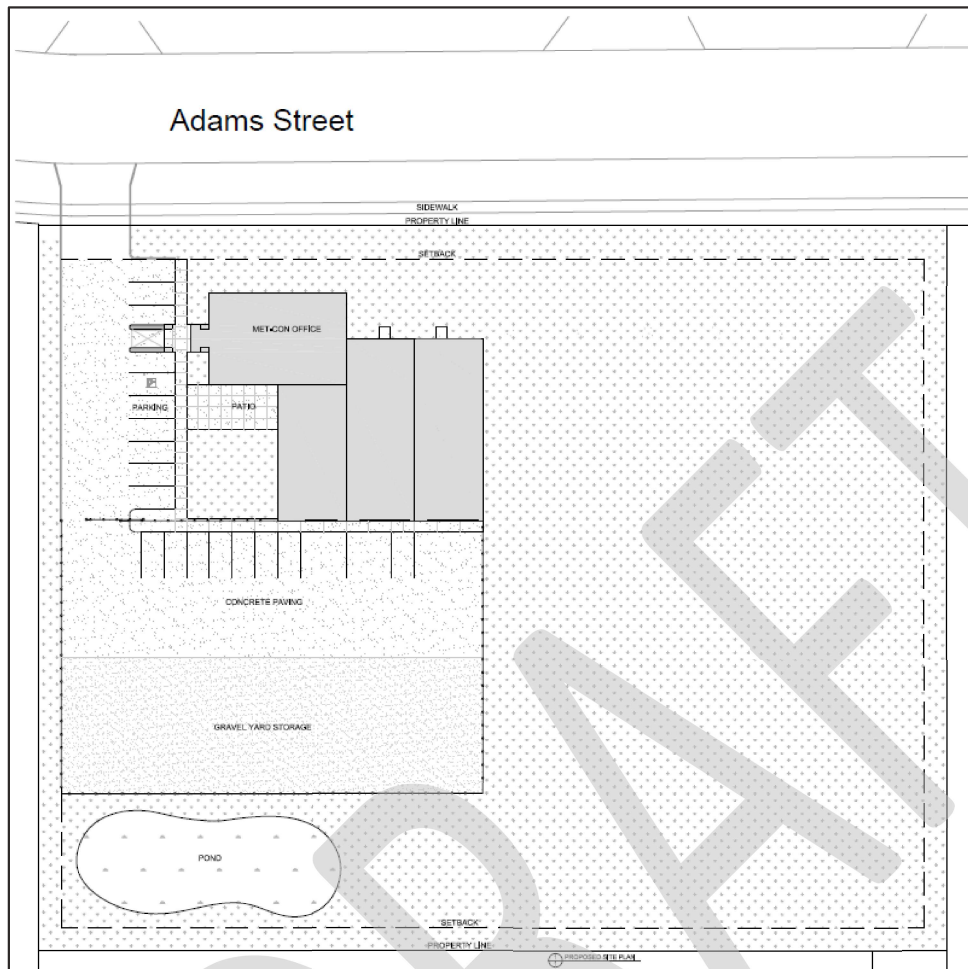


Figure 1-2. Site Layout

Figure provided by Met-Con Companies, Inc. dated June 26, 2025.

1.2 Site Conditions and History

Currently, the site exists as undeveloped agricultural fields. The project area is bounded by Adams Street on the north, County State Aid Highway (CSAH 12) on the west, Madison Avenue on the South and an existing farm and agricultural fields on the east.

Current grades range from about 1012 to 1018 feet with site slopes generally downward to the southeast.

Historically, the development area has remained as agricultural land. As shown in Figure 1-3 below, you will note the current site conditions.

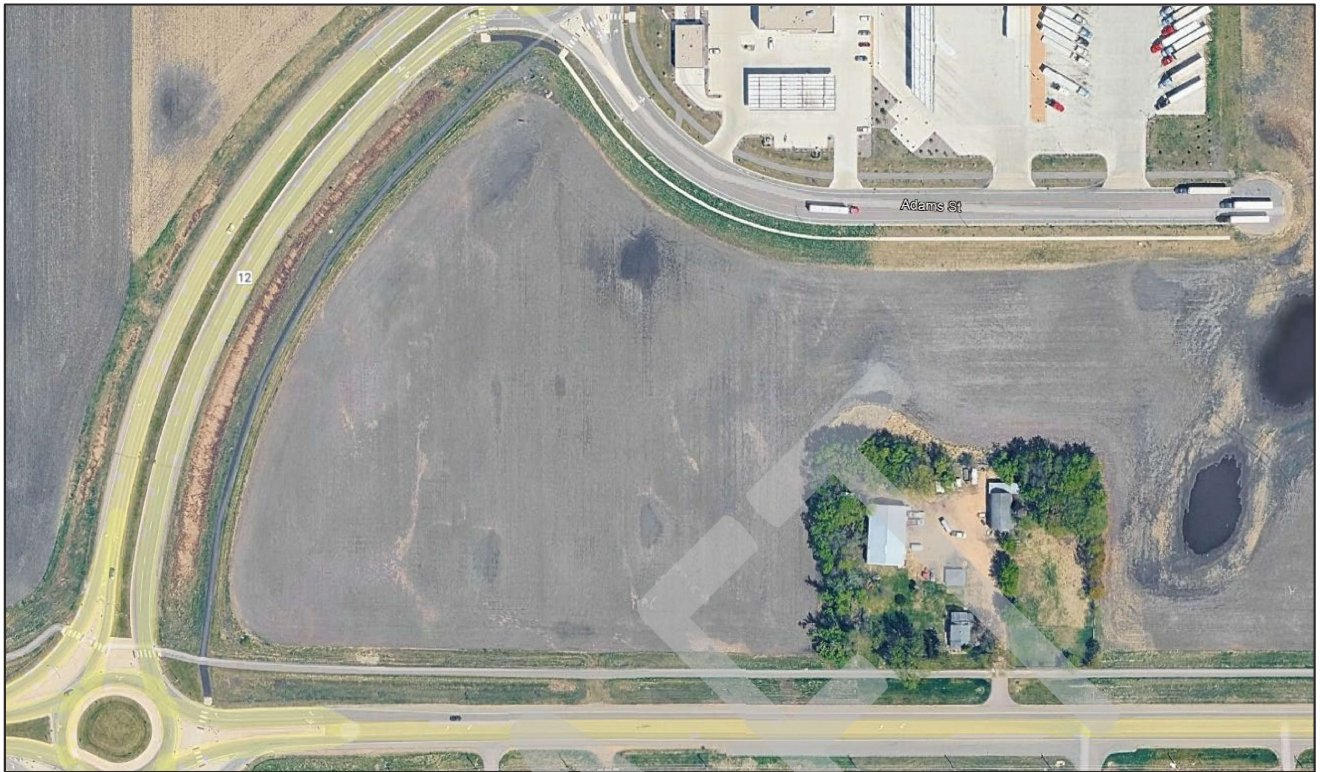


Figure 1-3. Aerial Photograph of the Site in 2025

Figure obtained from Google Earth™ dated May 5, 2025.

1.3 Purpose

The purpose of our geotechnical evaluation is to characterize subsurface geologic conditions at selected exploration locations, evaluate their impact on the project, and provide geotechnical recommendations for the design and construction of the proposed office building, pavements, and site development of Lots 1 to 5.

1.4 Background Information and Reference Documents

We reviewed the following information:

- Topographic data obtained from MnTOPO.
- Site Layout Plan prepared by Met-Con Companies, Inc. dated June 26, 2025.
- Surficial Geology Map of Blue Earth County, prepared by the University of Minnesota, Minnesota Geological Survey. The map is denoted as Atlas C-26, Part A, Plate 3, dated 2012.
- Google Earth aerial imagery with dates ranging from April 27, 1991 to May 5, 2025.
- Communications with Mr. Scott Brown of Met-Con Companies, Inc. regarding the proposed development.



In addition to the provided sources, we have used several publicly available sources of information.

We have described our understanding of the proposed construction and site to the extent others reported it to us. Depending on the extent of available information, we may have made assumptions based on our experience with similar projects. If we have not correctly recorded or interpreted the project details, the project team should notify us. New or changed information could require additional evaluation, analyses, and/or recommendations.

1.5 Scope of Services

We performed our scope of services for the project in accordance with our Proposal Mr. Scott Brown of Met-Con Companies, Inc., dated and authorized on September 30, 2025. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Reviewing the background information and reference documents previously cited.
- Staking and clearing the exploration location of underground utilities. We selected and we staked the new exploration locations. We acquired the surface elevations and locations with GPS technology. The Soil Boring Location Sketch included in the Appendix shows the approximate locations of the borings.
- Performing 24 standard penetration test (SPT) borings, denoted as ST-1 to ST-24, to nominal depths of 5 to 20 feet below grade across the site.
- Performing laboratory testing on select samples to aid in soil classification and engineering analysis.
- Perform engineering analysis including settlement and bearing capacity for spread footing foundations and pavement analysis for pavement design.
- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, and recommendations for structure and pavement subgrade preparation and the design of foundations, floor slabs, exterior slabs, utilities, stormwater improvements, and pavements.

2.0 Results

2.1 Geologic Overview

We based the geologic origins used in this report on the soil types, in-situ and laboratory testing, and available common knowledge of the geological history of the site. Because of the complex depositional history, geologic origins can be difficult to ascertain. We did not perform a detailed investigation of the geologic history for the site.



2.2 Boring Results

Table 2-1 provides a summary of the soil boring results, in the general order we encountered the strata. Please refer to the Log of Boring sheets in the [Appendix](#) for additional details. The Descriptive Terminology sheets in the [Appendix](#) include definitions of abbreviations used in the table below.

Table 2-1. Subsurface Profile Summary

Strata	Soil Type -ASTM Classification	Range of Penetration Resistances	Commentary and Details
Topsoil	OL, CL, SM, SC	--	- Thickesses at boring locations varied from 1 to 3 1/2 feet. - Slightly organic to organic. - Dark brown to black. - Moisture condition generally moist to wet.
Glaciolacustrine	CL, SC, ML, OL	3 to 9 blows per foot (BPF)	- Primarily lean clay with varying sand contents but also silt and organic clay. - Encountered to depths of about 4 to 11 feet. - Locally slightly organic to organic. - General penetration resistance of 3 to 6 BPF indicating the cohesionless silts and sands were very loose to loose in relative density and the cohesive clays were soft to stiff in consistency. - Brown, gray, dark gray and black in color. - Moisture condition generally moist.
Glacial deposits	SP-SC	5 to 9 BPF	- Primarily till composed of lean clay with varying sand contents but also outwash composed of sand with silt. - Possible cobbles and boulders. - Variable amounts of gravel and may contain cobbles and boulders.
	CL, SC	3 to 16 BPF	- Locally slightly organic. - General penetration resistance of 3 to 7 BPF, indicating the glacial soils were generally soft to medium in consistency and loose in relative density. - Moisture condition generally moist to wet.

2.3 Groundwater

Table 2-3 summarizes the depths where we observed groundwater; the attached Log of Boring sheets in the [Appendix](#) also include this information and additional details. We did not observe groundwater while performing the remainder of our borings. Groundwater may take days or longer to reach equilibrium in the boreholes and we immediately backfilled the boreholes, in accordance with our scope of work. Given the coloration of soils and experience with projects in the area, we anticipate that perched groundwater will likely be encountered at depths of 4 to 8 feet. In addition, glacial till (composed of sandy lean clay) frequently



contains isolated pockets and seams of water-bearing sands and gravels. These water-bearing layers are generally limited to extent but can produce a sudden influx of water when encountered during drilling operations or in excavations. If the project team identifies a need for more accurate determination of groundwater depth, we can install piezometers. Project planning should anticipate seasonal and annual fluctuations of groundwater.

Table 2-2. Groundwater Summary

Locations	Surface Elevation	Measured or Estimated Depth to Groundwater (ft)	Corresponding Groundwater Elevation (ft)
ST-2	1015.4	10	1005 1/2
ST-3	1016.2	10	1006 1/2
ST-4	1014.5	10	1004 1/2
ST-5	1017.1	12	1005 1/2
ST-15	1016.4	7 1/2	1009
ST-20	1016.9	10	1007

2.4 Laboratory Test Results

The boring logs show the results of laboratory testing we performed, next to the tested sample depth. The Appendix contains the results of these tests. The laboratory tests were completed in accordance with the current standards as specified by the American Society for Testing and Materials (ASTM).

The moisture content tests (ASTM D 2216) performed on select soil samples indicated a moisture content of 17 to 40 percent moisture by weight. The tests on the select soil samples indicate that the clay-laden soils are near to well above their estimated optimum moisture contents.

Sieve analysis tests (ASTM D 422) performed on select soil samples indicated 11 to 41 percent particles, by weight, passing the #200 sieve.

Liquid limits determined for the select soil samples ranged from 38 to 48; plastic limits ranged from 13 to 21. These results indicate that the select soil samples are classified as lean clay (CL) or silt.

We performed organic content tests (ASTM D2974) on selected samples to determine the reusability of the material for structure support and pavement design. The organic content of the selected material tested ranged from 4 to 6 percent, indicating the samples tested were slightly organic to organic.



3.0 Recommendations

3.1 Design and Construction Discussion

Based on the results of our exploration, field and laboratory tests and our understanding of the proposed project, it is our opinion that the site is suitable for the proposed project, with the following geotechnical design and construction considerations.

3.1.1 Building Subgrade Preparation

All borings encountered topsoil at the surface that was between about 1 to 3 1/2 feet in thickness that is unsuitable for use as subgrade material as well as structural fill and will need to be removed from all building and pavement areas.

Portions of the glacial clays and clayey sands present throughout the site are soft, slightly organic to organic, and are considered compressible. If these soils are left in place below the proposed building footprints, there is an elevated risk of post-construction settlement, and the soils cannot be directly relied upon to support the proposed building foundations. Therefore, we recommend removing soft clays with penetration test values less 4 BPF during mass grading and soft clays with penetration test values less than 5 below foundations and replacing them with compacted granular structural fill as described in [Table 3-2](#). Additionally, to allow for fill-induced consolidation to occur prior to placement of foundations, we recommend grade raises be completed prior to foundation construction.

3.1.2 Reuse of On-Site Soils

The majority of the on-site glacial clay soils tested were several percentage points to well above their estimated optimum moisture content, particularly in the upper 5 to 10 feet of the soil profile. Should these soils be selected for use as engineered fill, they will likely need to be moisture conditioned (dried) to achieve compaction. In our opinion, these materials are suitable for reuse if the contractor performs scarifying of these materials and are placed in the locations shown in [Table 3-2](#). To reduce settlement and facilitate construction, we do not recommend the onsite clayey soils be re-used as structural fill directly below foundations. Additionally, the silt and organic soils present on the site will be highly moisture sensitive, difficult to compact and provide limited support, thus we do not recommend reusing them outside of green spaces. Granular material used as soil correction backfill will need to be imported. Soils with more than 2-percent organic content should not be considered suitable for reuse as structural fill.

To achieve the proper moisture content within the on-site soils, the soils should be dried during the summer months. If the contractor performs site grading in the spring or fall, on-site drying of these soils may not prove feasible and require importing drier soils. If project constraints do not allow the time, or ideal weather conditions, the overly wet soil may need to be replaced with suitable material. We recommend discussing the reuse of these materials and required import quantities with potential contractors at the bidding stages of the project.



3.1.3 Groundwater

Perched water conditions will likely be present during construction. It is possible to encounter sand pockets and seams within the glacial clays and excavations may experience a sudden influx of groundwater. Temporary dewatering measures such as sumps pits should be anticipated during construction in clay areas as well as potential reconnection of disturbed field tile around the construction limits. Where clay soils are encountered in excavation bottoms, we recommend including provisions for placement of 4 to 6 inches of crushed aggregate in foundation excavations to provide a construction platform and a medium for removal of any accumulating water during construction.

3.1.4 Construction Disturbance

The contractor should note the on-site, clayey soils are highly susceptible to disturbance, due to repeated construction traffic. Disturbance of these soils may cause areas that were previously prepared, or that were suitable for pavement or structure support, to become unstable and require moisture conditioning and compaction. Subcutting and replacing the disturbed material with crushed, coarse gravel, free of fines is also an alternative. The contractor should use means and methods to limit disturbance of the soils.

If significant rainfall is anticipated during construction, the site should be graded to intercept surface water flow into the area and drain water from the area to an appropriate collection point. After grading, the soil surface should be compacted with a smooth drum roller to attempt to lower infiltration. After the rain, construction traffic should be limited until the surface has dried somewhat, to prevent traffic from mixing water that has accumulated at the surface into lower portions of the soil.

3.1.5 Frost Heave Mitigation

The soils encountered on the site are generally susceptible to frost heave. If heaving of exterior slabs and sidewalks is unacceptable, consideration should also be given to incorporating a granular subbase into these sections. A granular subbase enhances subgrade drainage, reduces the potential for subgrades to become saturated and heave upon freezing, and reduces the effects of subgrade strength loss upon thawing.

3.1.6 Pavement

In preparation of pavement subgrades, the project team should anticipate removal of topsoils within 3 feet of the pavements and some areas of unstable clayey or silty soils. If required, the contractor should perform scarification, drying and recompaction, as outlined in Section 3.2.7. Depending on the time of year and weather conditions, scarification, drying, and recompaction efforts may require multiple iterations to stabilize pavement subgrades.

To improve long-term pavement performance, the project team should consider a pavement design that incorporates non-frost-susceptible sand in paved areas. Incorporation of the sand into the pavement section will reduce the impact of the frost heave and subsequent thaw-weakening of the soils beneath the pavement. The sand will also provide better drainage throughout the year. Sand will not only increase the life of the pavement but will likely reduce reconstruction cost at the end of the pavement life. If the pavement design incorporates a sand subgrade, it could then decrease the aggregate base thickness.



3.2 Site Grading and Subgrade Preparation

3.2.1 Building Subgrade Excavations

We recommend removing unsuitable materials from below the proposed buildings and their oversize areas. We define unsuitable materials as topsoil, existing fill, frozen materials, slightly organic to organic soils, existing utilities, draintile, vegetation, and soft/loose soils with penetration test values less than 4 BPF. Table 3-1 shows the anticipated excavation depths and bottom elevations for each of the borings.

Table 3-1. Building Excavation Depths

Location	Approximate Surface Elevation (ft)	Anticipated Excavation Depth (ft)**	Anticipated Bottom Elevation* (ft)
ST-1	1017.0	2	1015
ST-2	1015.4	7	1008
ST-3	1016.2	7	1009
ST-4	1014.5	5	1009 1/2
ST-5	1017.1	7	1010
ST-11	1014	7	1007
ST-12	1015.4	1	1014 1/2
ST-14	1016.5	1	1015 1/2
ST-15	1016.4	6	1010
ST-17	1013.4	1 1/2	1011 1/2
ST-18	1014.9	4	1010 1/2
ST-20	1016.9	10	1006 1/2
ST-21	1017.6	2	1015 1/2
ST-23	1015.4	1 1/2	1014
ST-24	1015.1	1	1014

*Rounded down to the nearest 1/2-foot.

**In addition to removals depths noted above, we recommend removing any soft to medium soils with penetration test values less than 6 BPF within 1/2 of a column width below column pads and a full footing width below continuous foundations and replacing them with select structural fill.

Excavation depths will vary between the borings. Portions of the excavations may also extend deeper than indicated by the borings. A geotechnical representative should observe the excavations to make the necessary field judgments regarding the suitability of the exposed soils.

The contractor should use equipment and techniques to minimize soil disturbance. If soils become disturbed or are wet, we recommend excavation and replacement.



3.2.2 Excavation Oversizing

When removing unsuitable materials below structures or pavements, we recommend the excavation extend outward and downward at a slope of 1H:1V (horizontal:vertical) or flatter. See [Figure 3-1](#) for an illustration of excavation oversized.

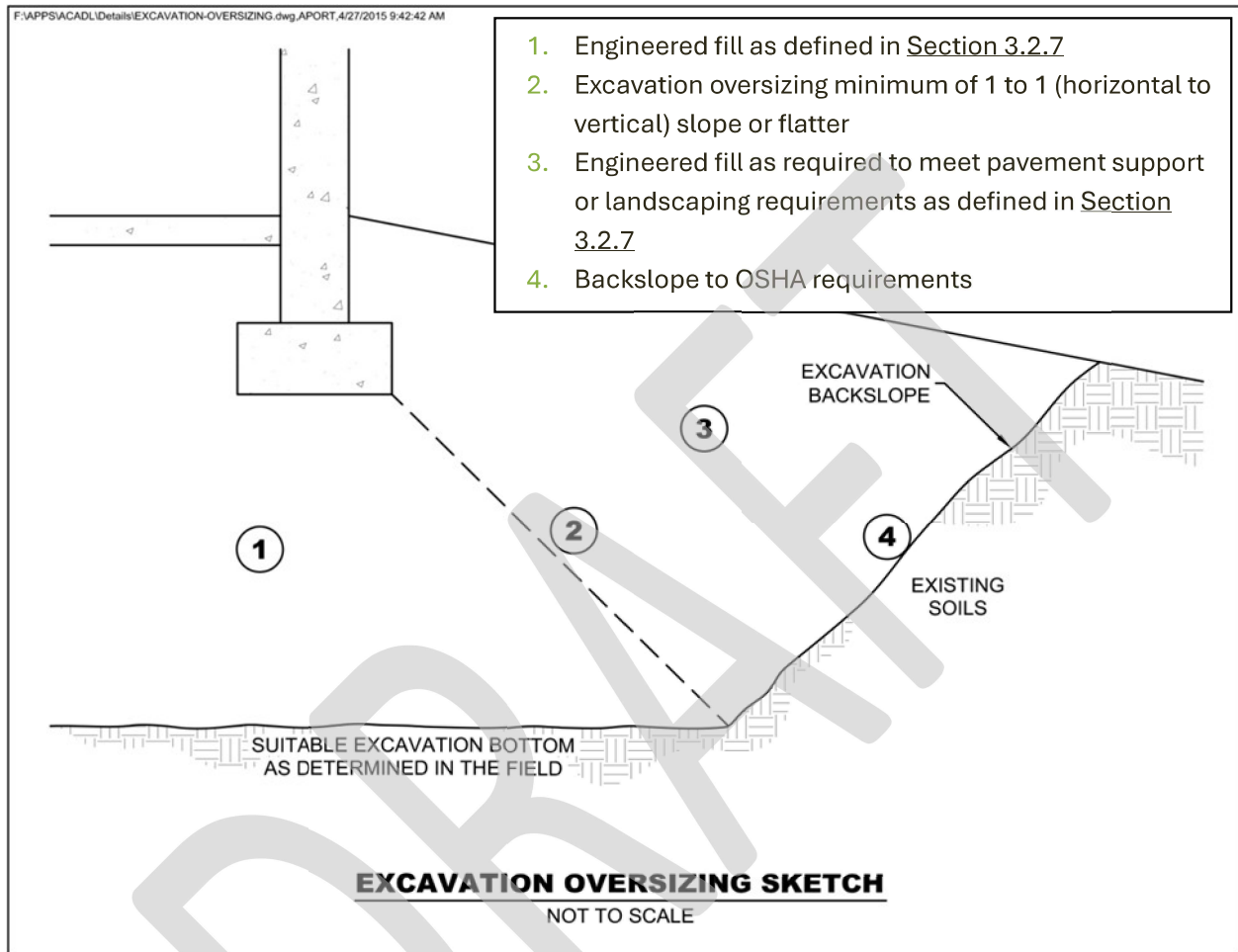


Figure 3-1. Generalized Illustration of Oversizing

3.2.3 Excavated Slopes

Based on the borings, we anticipate on-site soils in excavations will consist of soft to medium glacial clays and loose glacial sands and silts. These soils are typically considered Type C Soil under OSHA (Occupational Safety and Health Administration) guidelines. OSHA guidelines indicate unsupported excavations in Type C soils should have a gradient no steeper than 1 1/2H:1V. Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This



document states that excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

3.2.4 Excavation Dewatering

We recommend removing surface of water or groundwater from the excavations. Project planning should include temporary sumps and pumps for excavations in low-permeability soils, such as clays.

3.2.5 Pavement and Exterior Slab Subgrade Preparation

We recommend the following steps for pavement and exterior slab subgrade preparation, understanding the site will have a grade change of 3 feet or less. Note that project planning may require additional subcuts to limit frost heave.

1. Strip unsuitable soils consisting of topsoil, organic soils, vegetation, existing fill, and pavements from the area, within 3 feet of the pavement subgrade.
2. Subcut to allow for placement of the pavement and exterior slab section.
3. Have a geotechnical representative observe the excavated subgrade to evaluate if additional subgrade improvements are necessary.
4. Slope subgrade soils to areas of sand or drain tile to allow the removal of accumulating water.
5. Scarify, moisture condition and surface compact the subgrade with at least three passes of a large roller with a minimum drum diameter of 3 1/2 feet. It should be noted that multiple iterations of moisture conditioning may be required based on the high moisture content of the soils tested.
6. If overly soft or wet soils are encountered after the required removals that do not allow for placement of engineered fill, or if weather conditions do not allow for adequate drying and recompaction of engineered fill, we recommend performing subgrade stabilization that consists of either:
 - a. Subexcavating below the existing subgrade soils to allow for placement of a minimum of 24 inches of clean, sand subbase to bridge the softer soils.
 - b. Place geogrid reinforcement (Tensar NX750 or equivalent) on the surface of the clay subgrade in correction areas and place a thicker section of aggregate base. It should be noted that where stabilization is necessary, it may be necessary in localized areas to place a second layer of geogrid reinforcement approximately 6 to 8 inches below the top of aggregate base. We recommend initially constructing a test strip to evaluate the need for a second layer of geogrid.

Ultimately, the method and thickness of stabilization will have to be based on test sections placed within the pavement areas and will be dependent on what is needed to meet the requirements of a proofroll.



7. Place pavement engineered fill to grade and compact in accordance with [Section 3.2.7](#) to bottom of pavement and exterior slab section. See [Section 3.5](#) for additional considerations related to frost heave.
8. Proofroll the pavement or exterior slab subgrade as described in [Section 3.2.6](#).

To improve long-term pavement performance, we recommend incorporating 12 to 18 inches of sand subbase engineered fill in paved areas, in addition to the recommendations above, as a sand subbase. Note, we recommend sloping subgrade soils to promote drainage and removal of accumulated water.

3.2.6 Pavement Subgrade Proofroll

After preparing the subgrade as described above and prior to the placement of the aggregate base, we recommend proofrolling the subgrade soils with a fully loaded tandem-axle truck. We also recommend having a geotechnical representative observe the proofroll. Areas that fail the proofroll likely indicate soft or weak areas that will require additional soil correction work to support pavements.

The contractor should correct areas that display excessive yielding or rutting during the proofroll, as determined by the geotechnical representative. Possible options for subgrade correction include moisture conditioning and recompaction, subcutting and replacement with soil or crushed aggregate, chemical stabilization, and/or geotextiles. We recommend performing a second proofroll after the aggregate base material is in place, and prior to placing bituminous or concrete pavement.

3.2.7 Engineered Fill Materials and Compaction

[Table 3-2](#) below contains our recommendations for engineered fill materials.

Table 3-2. Engineered Fill Materials*

Locations To Be Used	Engineered Fill Classification	Possible Soil Type Descriptions	Gradation	Additional Requirements
- Mass grading - Below interior slabs	Structural fill	SP, SP-SM, SM, SC, CL (excluding ML)	100% passing 2-inch sieve	< 2% Organic Content (OC) Liquid Limit (LL) < 50%
Non-frost-susceptible	- Free draining - Non-frost-susceptible fill	GP, GW, SP, SW	100% passing 1-inch sieve < 50% passing #40 sieve < 5% passing #200 sieve	< 2% OC
- Soil Corrections below foundations - Deep Structural Fill (>10 feet of fill)	- Deep sand fill - Select structural fill	SP, SP-SM	100% passing 1-inch sieve < 12% passing #200 sieve	< 2% OC
Pavements	Pavement fill	SP, SP-SM, SM, SC, CL (excluding ML)	100% passing 3-inch sieve	< 3% OC PI < 20%



Locations To Be Used	Engineered Fill Classification	Possible Soil Type Descriptions	Gradation	Additional Requirements
Below landscaped surfaces, where subsidence is not a concern	Non-structural fill	Any Soil Type	100% passing 6-inch sieve	< 10% OC

* More select soils comprised of coarse sands with < 5% passing #200 sieve may be needed to accommodate work occurring in periods of wet or freezing weather.

If there is a need for deeper soil correction work or if there is a need for large grade raises that will require more than 10 feet of compacted fill below the lowest floor grades, we recommend placing sand fill (less than 12 percent passing the #200 sieve) as structural fill at depths deeper than 10 feet. If only clay fill is used to fill building pads where more than 10 feet of fill is needed, a construction delay of at least 3 to 12 months may be needed, depending on the final depths of clay fill used. As an alternative, on lots where deep fills are needed, deep sand fill could be used to initially fill the excavations below these house pads. The deep sand fill should be placed in thin compacted lifts, up to an elevation of 10 feet or less from the finished lowest floor grades. On-site clay fill can then be used to complete construction of the building pads. If the alternative method of filling the building pads partially with deep sand fill is used, a construction delay would not be needed. Any sand fill needed for deeper fill will need to be imported to the site.

We recommend spreading engineered fill in loose lifts of approximately 8 to 10 inches thick. We recommend compacting engineered fill in accordance with the criteria presented below in Table 3-3. The project documents should specify relative compaction of engineered fill, based on the structure located above the engineered fill, and vertical proximity to that structure.

Table 3-3. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor) (ASTM D1557 – Modified Proctor)	Moisture Content Variance from Optimum, percentage points	
		< 12% Passing #200 Sieve (typically SP, SP-SM)	> 12% Passing #200 Sieve (typically CL, SC, SM)
Below foundations and oversizing zones and mass grading	98	±3	-1 to +3
Below interior slabs	5	±3	-1 to +3
Within 3 feet of pavement subgrade	100	±3	-2 to +1
More than 3 feet below pavement subgrade	95	±3	-1 to +3
Below landscaped surfaces	90	±6	±5

Increase compaction requirement to meet compaction required for structure supported by this engineered fill.



The project documents should not allow the contractor to use frozen material as engineered fill or to place engineered fill on frozen material. Frost should not penetrate under foundations during construction.

We recommend performing density tests in engineered fill to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

3.2.8 Special Inspections of Soils

We recommend including the site grading and placement of engineered fill within the building pad under the requirements of Special Inspections, as provided in Chapter 17 of the International Building Code, which is part of the Minnesota State Building Code . Special Inspection requires observation of soil conditions below engineered fill or footings, evaluations to determine if excavations extend to the anticipated soils, and if engineered fill materials meet requirements for engineered fill and compaction condition of engineered fill. A licensed geotechnical engineer should direct the Special Inspections of site grading and engineered fill placement. The purpose of these Special Inspections is to evaluate whether the work is in accordance with the approved geotechnical report for the project. Special Inspections should include evaluation of the subgrade, observing preparation of the subgrade (surface compaction or dewatering, excavation oversizing, placement procedures, and materials used for engineered fill, etc.) and compaction testing of the engineered fill.

3.3 Spread Footings

We assume the foundation subgrade will consist of native soils with penetration test values of at least 6 BPF or compacted engineered fill soils. We recommend including an allowance for subcutting soft, wet soils below the footings due to groundwater and replacing with at least 4 to 6 inches of clear, crushed gravel free of fines.



Table 3-4 below contains our recommended parameters for foundation design. Given the limited information available for development of Lots 1 through 5, these recommendations should be considered preliminary, and we recommend additional exploration and evaluation be performed once further development information is available.

Table 3-4. Recommended Spread Footing Design Parameters

Item	Description
Maximum net allowable bearing pressure (psf)	1,500 (for Lot 6 based on subgrade improvement recommended here within)
Minimum factor of safety for bearing capacity failure	3.0
Minimum embedment below final exterior grade for heated structures (inches)	42
Minimum embedment below final exterior grade for unheated structures or for footings not protected from freezing temperatures during construction (inches)	60
Total estimated settlement (inches)	1*
Differential settlement (inches)	Typically, about 2/3 of total settlement**

* If the site is raised more than 3 feet, a time delay is recommended to allow the soft soils time to consolidate.

** Actual differential settlement amounts will depend on final loads and foundation layout. We can evaluate differential settlement based on final foundation plans and loadings.

3.4 Interior Slabs

3.4.1 Subgrade Modulus

The anticipated floor subgrade is engineered clay fill. We recommend using a modulus of subgrade reaction, k , of 100 pounds per square inch per inch of deflection (pci) to design the slabs. If the slab design requires placing 6 inches of compacted crushed aggregate base immediately below the slab, the slab design may increase the k -value by 50 pci. We recommend that the aggregate base materials be free of bituminous. In addition to improving the modulus of subgrade reaction, an aggregate base facilitates construction activities and is less weather sensitive.

3.4.2 Moisture Vapor Protection

Excess transmission of water vapor could cause floor dampness, certain types of floor bonding agents to separate, or mold to form under floor coverings. If project planning includes using floor coverings or coatings, we recommend placing a vapor retarder or vapor barrier immediately beneath the slab. We also recommend consulting with floor covering manufacturers regarding the appropriate type, use and installation of the vapor retarder or barrier to preserve warranty assurances.



3.5 Frost Protection

3.5.1 General

Clayey and silty soils will underlie exterior slabs, as well as pavements. We consider clayey and silty soils to be moderately to highly frost susceptible. Soils of this type can retain moisture and heave upon freezing. In general, this characteristic is not an issue unless these soils become saturated, due to surface runoff or infiltration, or are excessively wet in-situ. Once frozen, unfavorable amounts of general and isolated heaving of the soils and the surface structures supported on them could develop. This type of heaving could affect design drainage patterns and the performance of exterior slabs and pavements, as well as any isolated exterior footings and piers.

Note that general runoff and infiltration from precipitation are not the only sources of water that can saturate subgrade soils and contribute to frost heave. Roof drainage and irrigation of landscaped areas in close proximity to exterior slabs, pavements, and isolated footings and piers, contribute as well.

3.5.2 Frost Heave Mitigation

To address most of the heave related issues, we recommend setting general site grades and grades for exterior surface features to direct surface drainage away from buildings, across large, paved areas and away from walkways. Such grading will limit the potential for saturation of the subgrade and subsequent heaving. General grades should also have enough “slope” to tolerate potential larger areas of heave, which may not fully settle after thawing.

Even small amounts of frost-related differential movement at walkway joints or cracks can create tripping hazards. Project planning can explore several subgrade improvement options to address this condition.

One of the more conservative subgrade improvement options to mitigate potential heave is removing any frost-susceptible soils present below the exterior slab areas down to a minimum depth of 4 feet below subgrade elevations. We recommend filling the resulting excavation with non-frost-susceptible fill. We recommend providing drainage at the base of the subcut, as well as gradual transitions from this subcut (3H:1V or flatter gradient). We also recommend sloping the bottom of the excavation toward one or more collection points to remove any water entering the engineered fill. This approach will not be effective in controlling frost heave without removing the water.

An important geometric aspect of the excavation and replacement approach described above is sloping the banks of the excavations to create a more gradual transition between the unexcavated soils considered frost susceptible and the engineered fill in the excavated area, which is not frost susceptible. The slope allows attenuation of differential movement that may occur along the excavation boundary. We recommend slopes that are 3H:1V, or flatter, along transitions between frost-susceptible and non-frost-susceptible soils.

Figure 3-2 shows an illustration summarizing some of the recommendations.

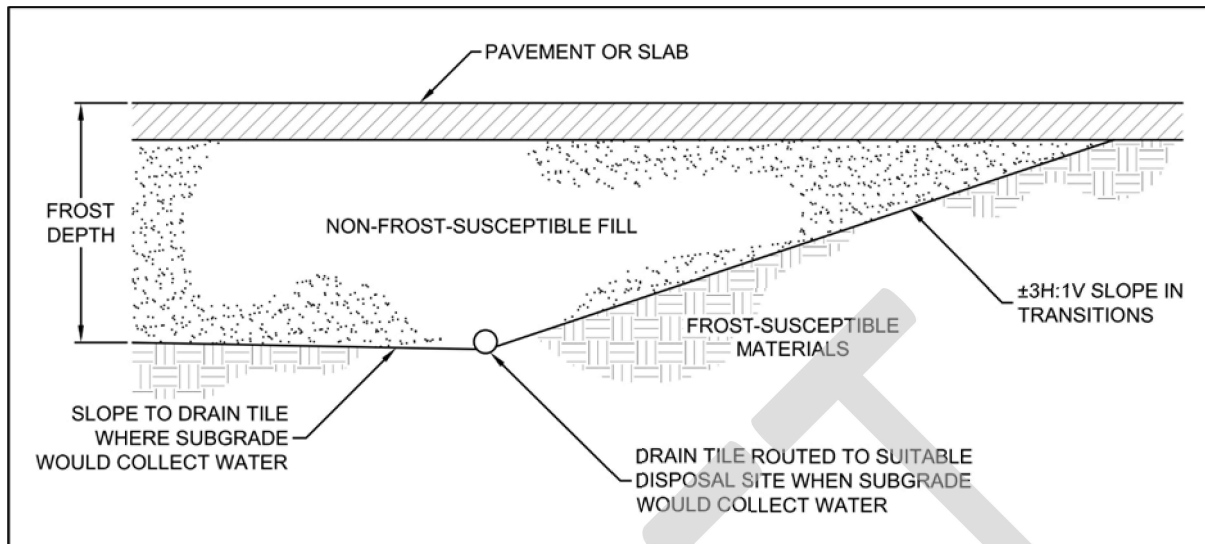


Figure 3-2. Frost Protection Geometry Illustration

Another option is to limit frost heave in critical areas, such as doorways and entrances, via frost-depth footings or localized excavations with sloped transitions between frost-susceptible and non-frost-susceptible soils, as described above.

Over the life of slabs and pavements, cracks will develop, and joints will open up, which will expose the subgrade and allow water to enter from the surface and either saturate or perch atop the subgrade soils. This water intrusion increases the potential for frost heave or moisture-related distress near the crack or joint. Therefore, we recommend implementing a detailed maintenance program to seal and/or fill any cracks and joints. The maintenance program should give special attention to areas where dissimilar materials abut one another, where construction joints occur and where shrinkage cracks develop.

3.6 Pavements and Exterior Slabs

3.6.1 Design Sections

Our scope of services for this project did not include laboratory tests on subgrade soils to determine an R-value for pavement design. Based on our experience with similar clayey soils anticipated at the pavement subgrade elevation, we recommend pavement design assume an R-value of 10. Note the contractor may need to perform limited removal of unsuitable or less suitable soils or mechanical or chemical stabilization to achieve this value. [Table 3-6](#) provides recommended pavement sections, based on the soils support and traffic loads.

We based the concrete pavement designs on a modulus of subgrade reaction (k) of 75 pci.



Table 3-5. Recommended Bituminous and Concrete Pavement Sections

Use	Light Duty Bituminous	Medium Duty Bituminous	Light Duty Concrete	Medium Duty Concrete
Minimum asphalt thickness (inches)	3 ½	4	---	---
Minimum concrete thickness (inches)	---	---	5	6
Minimum aggregate base thickness (inches)	6	8	4	4
Minimum granular subbase	12	18	12	18

3.6.2 Concrete Pavements

We assumed the concrete pavement sections in [Table 3-6](#) will have edge support. We recommend placing an aggregate base below the pavement to provide a suitable subgrade for concrete placement, reduce faulting and help dissipate loads. Appropriate mix designs, panel sizing, jointing, doweling and edge reinforcement are critical to performance of rigid pavements. We recommend you contact your civil engineer to determine the final design or consult with us for guidance on these items.

3.6.3 Bituminous Pavement Materials

Appropriate mix designs are critical to the performance of flexible pavements. We can provide recommendations for pavement material selection during final pavement design.

3.6.4 Subgrade Drainage

We recommend installing perforated drainpipes throughout pavement areas at low points, around catch basins, and behind curb in landscaped areas. We also recommend installing drainpipes along pavement and exterior slab edges where exterior grades promote drainage toward those edge areas. The contractor should place drainpipes in small trenches, extended at least 8 inches below the granular subbase layer, or below the aggregate base material where no subbase is present.

3.6.5 Performance and Maintenance

We based the above pavement designs on a 20-year performance life for bituminous and a 35-year life for concrete. This is the amount of time before we anticipate the pavement will require reconstruction. This performance assumes routine maintenance, such as seal coating and crack sealing. The actual pavement life will vary depending on variations in weather, traffic conditions, and maintenance.

It is common to place the non-wear course of bituminous and then delay placement of wear course. For this situation, we recommend evaluating if the reduced pavement section will have sufficient structure to support construction traffic.



Many conditions affect the overall performance of the exterior slabs and pavements. Some of these conditions include the environment, loading conditions and the level of ongoing maintenance. With regard to bituminous pavements in particular, it is common to have thermal cracking develop within the first few years of placement and continue throughout the life of the pavement. We recommend developing a regular maintenance plan for filling cracks in exterior slabs and pavements to lessen the potential impacts for cold weather distress due to frost heave or warm weather distress due to wetting and softening of the subgrade.

3.7 Utilities

3.7.1 Subgrade Stabilization

Earthwork activities associated with utility installations located inside the building area should adhere to the recommendations in [Section 3.2](#).

For exterior utilities, we anticipate the soils at typical invert elevations will be suitable for utility support. However, if construction encounters unfavorable conditions such as soft clay, organic soils or perched water at invert grades, the unsuitable soils may require some additional subcutting and replacement with sand or crushed rock to prepare a proper subgrade for pipe support. Project design and construction should not place utilities within the 1H:1V oversizing of foundations.

3.7.2 Corrosion Potential

Based on our experience, the soils encountered in the borings are moderately corrosive to metallic conduits, but only marginally corrosive to concrete. We recommend specifying non-corrosive materials or providing corrosion protection, unless project planning chooses to perform additional tests to demonstrate the soils are not corrosive.

3.8 Equipment Support

The recommendations included in the report may not be applicable to equipment used for the construction and maintenance of this project. We recommend evaluating subgrade conditions in areas of shoring, scaffolding, cranes, pumps, lifts, and other construction equipment prior to mobilization to determine if the exposed materials are suitable for equipment support or require some form of subgrade improvement. We also recommend project planning consider the effect that loads applied by such equipment may have on structures they bear on or surcharge – including pavements, buried utilities, below-grade walls, etc. We can assist you in this evaluation.



4.0 Procedures

4.1 Penetration Test Borings

We drilled the penetration test borings with a flotation tire-mounted core and auger drill equipped with hollow-stem auger. We performed the borings in general accordance with ASTM D6151 taking penetration test samples at 2 1/2- or 5-foot intervals in general accordance with ASTM D1586. The boring logs show the actual sample intervals and corresponding depths.

We sealed penetration test boreholes meeting the Minnesota Department of Health (MDH) Environmental Borehole criteria with an MDH-approved grout. We will forward a sealing record (or sealing records) for those boreholes to the MDH Well Management Section.

4.2 Exploration Logs

4.2.1 Log of Boring Sheets

The Appendix includes Log of Boring sheets for our penetration test borings. The logs identify and describe the penetrated geologic materials and present the results of penetration resistance performed. The logs also present the results of laboratory tests performed on penetration test samples, and groundwater measurements. The Appendix also includes a Fence Diagram intended to provide a summarized cross-sectional view of the soil profile across the site.

We inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

4.2.2 Geologic Origins

We assigned geologic origins to the materials shown on the logs and referenced within this report, based on: (1) a review of the background information and reference documents cited above, (2) visual classification of the various geologic material samples retrieved during the course of our subsurface exploration, (3) penetration resistance testing performed for the project, (4) laboratory test results, and (5) available common knowledge of the geologic processes and environments that have impacted the site and surrounding area in the past .



4.3 Material Classification and Testing

4.3.1 Visual and Manual Classification

We visually and manually classified the geologic materials encountered based on ASTM D2488. When we performed laboratory classification tests, we used the results to classify the geologic materials in accordance with ASTM D2487. The [Appendix](#) includes a chart explaining the classification system we used.

4.3.2 Laboratory Testing

The exploration logs in the [Appendix](#) note most of the results of the laboratory tests performed on geologic material samples. We performed the tests in general accordance with ASTM procedures.

4.4 Groundwater Measurements

The drillers checked for groundwater while advancing the penetration test borings, and again after auger withdrawal. We then filled the boreholes, as noted on the boring logs.

5.0 Qualifications

5.1 Variations in Subsurface Conditions

5.1.1 Material Strata

We developed our evaluation, analyses, and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation, and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

5.1.2 Groundwater Levels

We made groundwater measurements under the conditions reported herein and shown on the exploration logs and interpreted in the text of this report. Note that the observation periods were relatively short, and project planning can expect groundwater levels to fluctuate in response to rainfall, flooding, irrigation, seasonal freezing and thawing, surface drainage modifications, and other seasonal and annual factors.



5.2 Continuity of Professional Responsibility

5.2.1 Plan Review

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. We should be retained to review the geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

5.2.2 Construction Observations and Testing

We recommend retaining us to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

5.3 Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

5.4 Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix

Soil Boring Location Sketch

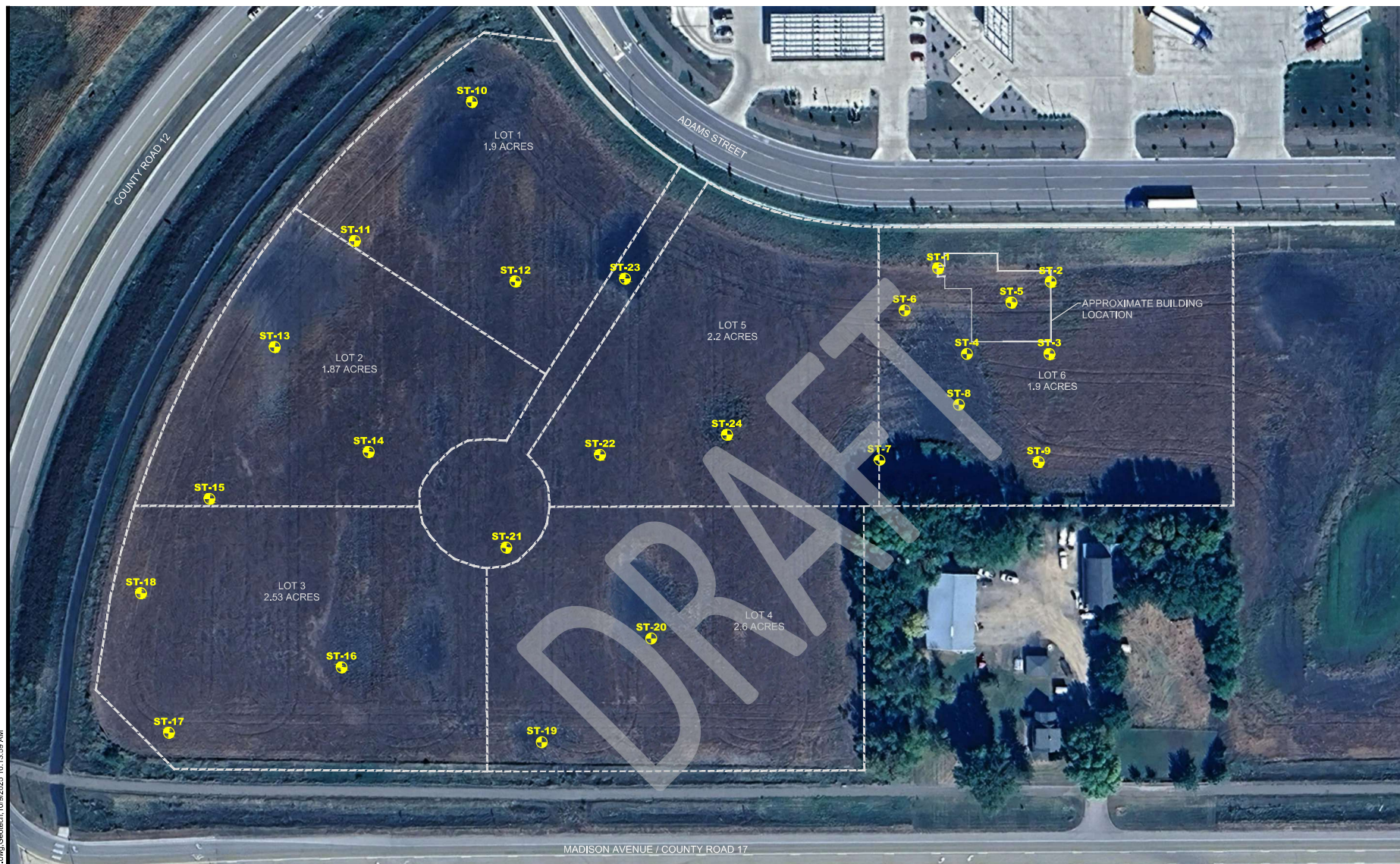
Fence Diagram

Log of Boring Sheets ST-1 to ST-24

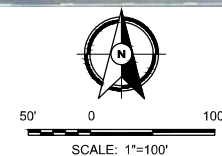
Descriptive Terminology of Soil

DRAFT

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DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



BRAUN INTERTEC

The solutions you build on

2120 Howard Drive W, Suite B
North Mankato, MN 56003
507.594.3000
braunintertec.com

Drawing Information

Project No:
B2508847

Drawing No:
B2508847

Drawn By: MMH
Date Drawn: 10/9/25
Checked By: IB
Last Modified: 10/9/25

Project Information

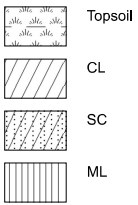
Met-Con Mankato Office
and Site Development

East of County Highway
12 between Adams
Street and Madison
Avenue

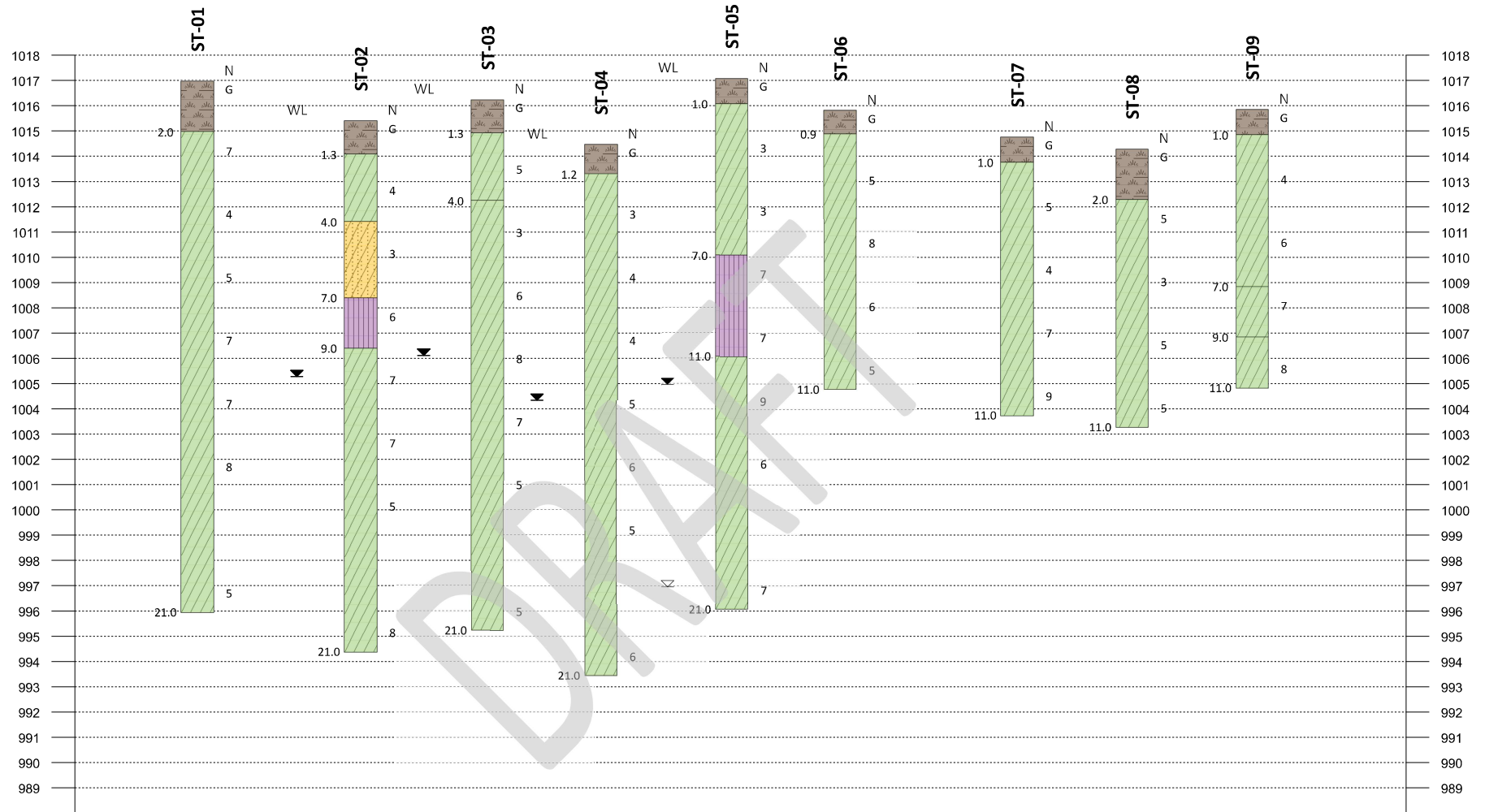
Mankato, Minnesota

Soil Boring Location Sketch

Legend Key



988.00



ST-01 to ST-09

Fence Diagram

Geotechnical Evaluation

Met-Con Mankato Office and Site Development

E of Cty Hwy 12 between Adams St and Madison Ave

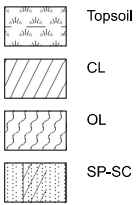
Mankato, Minnesota

BRAUN
INTERTEC

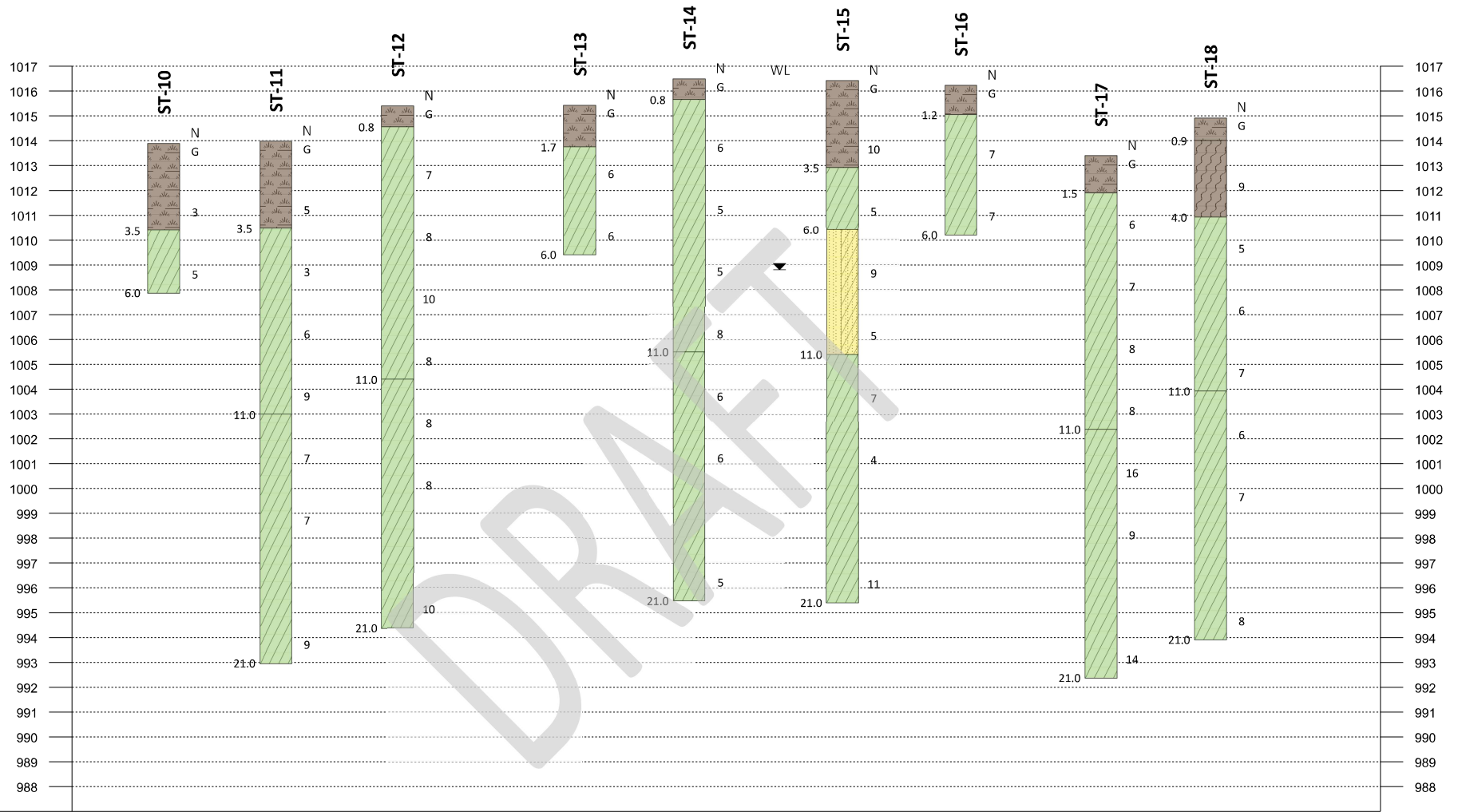
the science you build on

Project ID: B2508847
Vert. Scale: 1"= 4'
Hor. Scale: NTS
Date: 02/03/2026

Legend Key



987.00
↓



ST-10 to ST-18

Fence Diagram

Geotechnical Evaluation

Met-Con Mankato Office and Site Development

E of Cty Hwy 12 between Adams St and Madison Ave

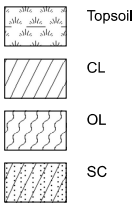
Mankato, Minnesota

BRAUN
INTERTEC

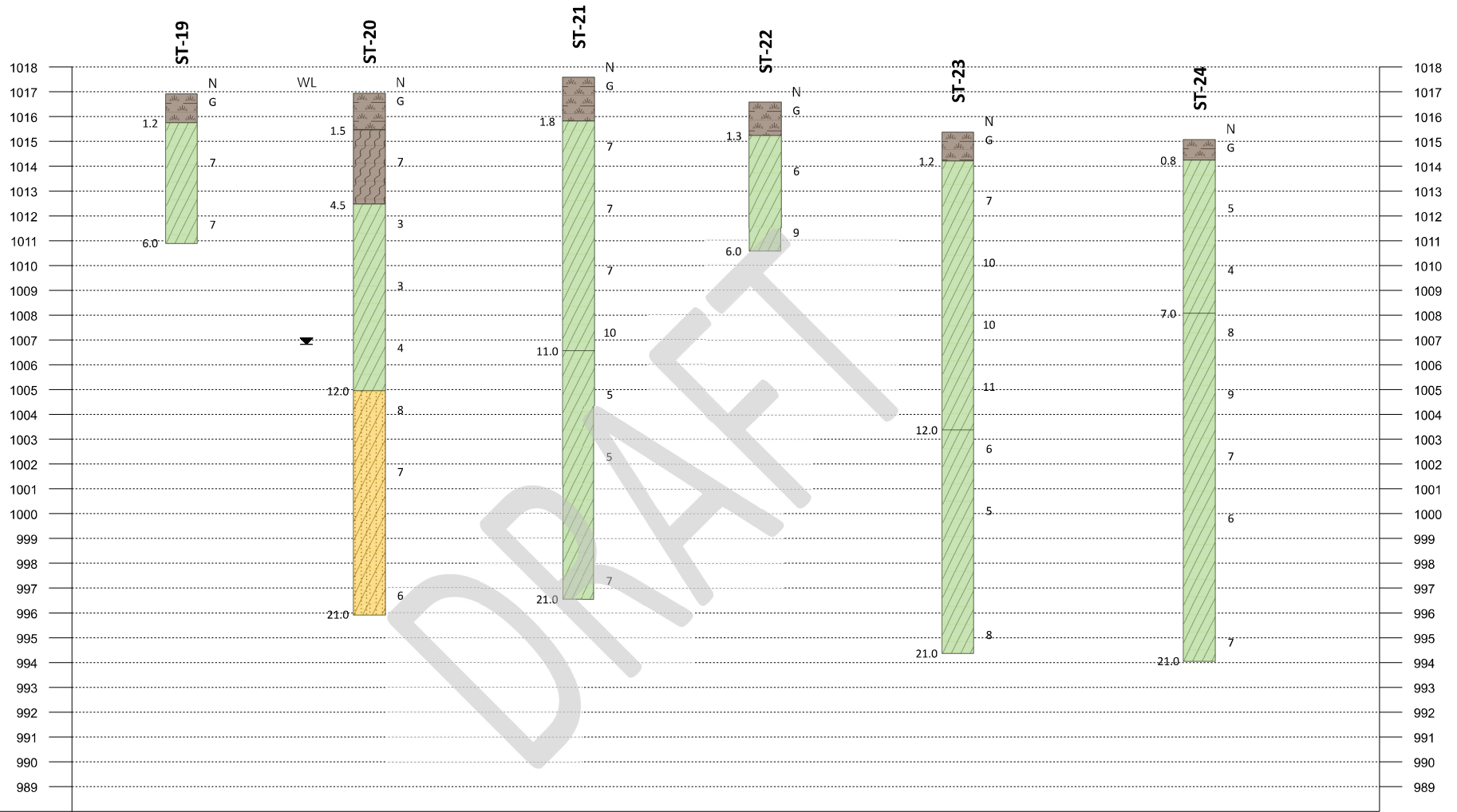
the science you build on

Project ID: B2508847
Vert. Scale: 1"= 4'
Hor. Scale: NTS
Date: 02/03/2026

Legend Key



988.00



ST-19 to ST-24

Fence Diagram

Geotechnical Evaluation

Met-Con Mankato Office and Site Development

E of Cty Hwy 12 between Adams St and Madison Ave

Mankato, Minnesota

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INTERTEC

the science you build on

Project ID: B2508847
Vert. Scale: 1"= 4'
Hor. Scale: NTS
Date: 02/03/2026

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-01		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217080.3	EASTING: 589641.5	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25	END DATE: 10/06/25		
SURFACE ELEVATION: 1017.0 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1015.0		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
2.0		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, soft to medium (GLACIAL TILL)		2-3-4 (7) 8"		27	
			5	1-2-2 (4) 10"			
				1-2-3 (5) 8"		27	
			10	1-2-5 (7) 12"			
				1-3-4 (7) 10"			
			15	2-3-5 (8) 14"		24	
				1-2-3 (5) 16"			
996.0		END OF BORING					
21.0		Boring then backfilled with bentonite grout					
		Water not observed while drilling.					
		Water not observed immediately after withdrawal of auger.					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-02		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217065.8	EASTING: 589761.1	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25	END DATE: 10/06/25		
SURFACE ELEVATION: 1015.4 ft		RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 50°s		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1014.1		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.3		LEAN CLAY (CL), light gray, moist, soft (GLACIAL LAKE)		1-2-2 (4) 6"		27	
1011.4		CLAYEY SAND (SC), trace Gravel, gray, moist, soft (GLACIAL LAKE)	5	1-1-2 (3) 10"			
1008.4		SANDY SILT (ML), brown, moist, loose (GLACIAL LAKE)		2-3-3 (6) 10"		28	LL=38, PL=25, PI=13
1006.4		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, medium (GLACIAL TILL)	10	1-3-4 (7) 12"		36	
				2-3-4 (7) 0"			No recovery
			15	1-1-4 (5) 0"			No recovery
				3-4-4 (8) 16"			
994.4			20				
21.0		END OF BORING					Water observed at 10.0 feet while drilling.
		Boring then backfilled with bentonite grout					Water observed at 10.0 feet immediately after withdrawal of auger.

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-03		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216989.3	EASTING: 589759.7	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25	END DATE: 10/06/25		
SURFACE ELEVATION: 1016.2 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1014.9		SILTY SAND (SM), slightly organic, black, moist (TOPSOIL)					
1.3		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black to gray, moist, soft to medium (GLACIAL LAKE)		1-2-3 (5) 6"		30	OC=5%
1012.2		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, soft to medium (GLACIAL TILL)		1-1-2 (3) 10"		26	
4.0			5	1-2-4 (6) 12"			
			10	2-4-4 (8) 0"			No recovery
				2-2-5 (7) 14"			
			15	1-2-3 (5) 0"			No recovery
				1-2-3 (5) 0"			No recovery
995.2		END OF BORING					
21.0		Boring then backfilled with bentonite grout					
							Water observed at 10.0 feet while drilling.
							Water observed at 10.0 feet immediately after withdrawal of auger.

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-04		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216989.8	EASTING: 589672.0	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25	END DATE: 10/06/25		
SURFACE ELEVATION: 1014.5 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1013.3		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
1.2		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, soft to medium (GLACIAL TILL)		1-1-2 (3) 0"			No recovery
			5	1-2-2 (4) 12"		23	
				1-1-3 (4) 10"		26	
			10	1-2-3 (5) 3"		27	
		Wet and dark gray at 10 feet		2-3-3 (6) 0"			No recovery
			15	1-2-3 (5) 4"			
			20	1-2-4 (6) 6"			
993.5		END OF BORING					
21.0		Boring then backfilled with bentonite grout					
		Water observed at 10.0 feet while drilling.					
		Water observed at 10.0 feet immediately after withdrawal of auger.					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-05		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217043.9	EASTING: 589719.3	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25		END DATE: 10/06/25	
SURFACE ELEVATION: 1017.1 ft		RIG: 8505		METHOD: 3 1/4" HSA		SURFACING: Farm Field WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1016.1		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
1.0		LEAN CLAY (CL), trace Sand, light gray to brown, moist, soft (GLACIAL LAKE)		1-1-2 (3) 6"		30	LL=38, PL=21, PI=17
			5	1-1-2 (3) 3"		28	
1010.1		SANDY SILT (ML), brown, moist, loose (GLACIAL LAKE)		2-3-4 (7) 12"		40	LL=45, PL=27, PI=18
7.0			10	1-3-4 (7) 8"		40	
1006.1		SANDY LEAN CLAY (CL), gray, moist, medium to stiff (GLACIAL TILL)		2-4-5 (9) 12"		23	
11.0			15	2-2-4 (6) 3"			
		Silt seams and sand seams present		3-3-4 (7) 0"			No recovery
996.1			20				Water observed at 20.0 feet while drilling.
21.0		END OF BORING					Water observed at 12.0 feet immediately after withdrawal of auger.
		Boring then backfilled with bentonite grout					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-06		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217035.8	EASTING: 589606.2	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25	END DATE: 10/06/25		
SURFACE ELEVATION: 1015.8 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1014.9 0.9		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL) SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, medium (GLACIAL TILL)		2-2-3 (5) 6"		24	
			5	1-3-5 (8) 12"		25	
		Sand seam from 7 to 8 feet		1-2-4 (6) 6"		27	
1004.8 11.0		END OF BORING Boring then backfilled with auger cuttings	10	1-2-3 (5) 12"			Water not observed while drilling.
			15				
			20				

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-07		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216877.4	EASTING: 589579.5	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25	END DATE: 10/06/25		
SURFACE ELEVATION: 1014.8 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1013.8		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.0		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, soft to stiff (GLACIAL TILL)		2-2-3 (5) 6"		28	
			5	1-1-3 (4) 8"			
				1-3-4 (7) 10"			
			10	1-3-6 (9) 12"			
1003.8		END OF BORING					Water not observed while drilling.
11.0		Boring then backfilled with auger cuttings					
			15				
			20				

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-08		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216936.0	EASTING: 589663.5	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/06/25	END DATE: 10/06/25		
SURFACE ELEVATION: 1014.3 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1012.3		CLAYEY SAND (SC), fine to medium-grained, slightly organic, black, moist (TOPSOIL)					
2.0		SANDY LEAN CLAY (CL), trace Gravel, black to gray, moist, soft to medium (GLACIAL TILL)		1-2-3 (5) 2"		17	
			5	1-1-2 (3) 8"			
				1-2-3 (5) 12"			
1003.3			10	1-2-3 (5) 12"			
11.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			15				
			20				

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-10		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217256.5	EASTING: 589147.2	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/08/25	END DATE: 10/08/25		
SURFACE ELEVATION: 1013.9 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1010.4		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)		1-1-2 (3) 4"		22	
3.5		SANDY LEAN CLAY (CL), with Gravel, dark gray to brown, moist, medium (GLACIAL TILL)		1-2-3 (5) 8"		31	
1007.9		END OF BORING					Water not observed while drilling.
6.0		Boring then backfilled with auger cuttings					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-11		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217109.3	EASTING: 589023.2	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/07/25		
SURFACE ELEVATION: 1014.0 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60's	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1010.5		SANDY ORGANIC CLAY (OL), trace Gravel, black, dry to moist (TOPSOIL)		2-2-3 (5) 4"		25	OC=6%
3.5		SANDY LEAN CLAY (CL), trace Gravel, gray to brown, moist, soft to stiff (GLACIAL TILL)	5	1-1-2 (3) 10"		26	
				1-2-4 (6) 12"		25	
1003.0			10	2-3-6 (9) 14"			
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium to stiff (GLACIAL TILL)		2-3-4 (7) 14"		22	
			15	2-3-4 (7) 16"			
			20	1-4-5 (9) 16"			
993.0		END OF BORING					
21.0		Boring then backfilled with bentonite grout					
		Water not observed while drilling.					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-12		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217066.3	EASTING: 589193.4	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/07/25		
SURFACE ELEVATION: 1015.4 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1014.6 0.8		SANDY ORGANIC CLAY (OL), black, moist to dry (TOPSOIL)		2-3-4 (7) 0"			No recovery
		SANDY LEAN CLAY (CL), trace Gravel, brown to gray, moist, medium to stiff (GLACIAL TILL)		2-3-5 (8) 10"		20	
				1-4-6 (10) 12"			
				2-3-5 (8) 10"			
1004.4 11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium to stiff (GLACIAL TILL)		1-4-4 (8) 14"		23	
				1-3-5 (8) 10"			
				3-4-6 (10) 16"			
994.4 21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-13			
					LOCATION: Captured with RTK GPS.			
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
					NORTHING: 216996.8	EASTING: 588938.2		
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/08/25	END DATE: 10/08/25			
SURFACE ELEVATION: 1015.4 ft		RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 60°s			
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)		Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1013.7		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					25	Water not observed while drilling.
1.7		SANDY LEAN CLAY (CL), trace Gravel, dark gray to brown, moist, medium (GLACIAL TILL)			2-3-3 (6) 3"			
1009.4				5	2-2-4 (6) 2"			
6.0	END OF BORING							
		Boring then backfilled with auger cuttings						
				10				
				15				
				20				

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-14		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216885.6	EASTING: 589037.8	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/07/25		
SURFACE ELEVATION: 1016.5 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 50°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1015.7		SANDY ORGANIC CLAY (OL), trace Gravel, black, dry to moist (TOPSOIL)	Hand				
0.8		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		2-2-4 (6) 6"		24	
			5	1-1-4 (5) 10"		22	
		Brown at 7 feet		1-2-3 (5) 12"		24	
			10	1-3-5 (8) 10"			
1005.5							
11.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium (GLACIAL TILL)		1-1-5 (6) 14"		23	
			15	2-2-4 (6) 18"			
			20	1-1-4 (5) 14"			
995.5							
21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-15		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216836.0	EASTING: 588869.0	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/07/25		
SURFACE ELEVATION: 1016.4 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1012.9		SANDY ORGANIC CLAY (OL), trace Gravel, black, dry to moist (TOPSOIL)		5-5-5 (10) 0"			No recovery
3.5		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black to gray, moist, medium (GLACIAL LAKE)	5	2-2-3 (5) 5"		24	OC=4%
1010.4		POORLY GRADED SAND with CLAY (SP-SC), fine to coarse-grained, trace Gravel, brown, moist to wet, loose (GLACIAL OUTWASH)		1-3-6 (9) 8"		22	P200=11%
6.0			10	1-2-3 (5) 6"		23	
1005.4		SANDY LEAN CLAY (CL), trace Gravel, gray, moist, soft to stiff (GLACIAL TILL)		1-2-5 (7) 12"			
11.0			15	1-2-2 (4) 10"		27	
			20	2-4-7 (11) 14"			
995.4		END OF BORING					
21.0		Boring then backfilled with bentonite grout					
		Water observed at 7.5 feet while drilling.					
		Water observed at 7.5 feet immediately after withdrawal of auger.					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-16			
					LOCATION: Captured with RTK GPS.			
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)			
					NORTHING: 216657.4	EASTING: 589009.0		
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/08/25	END DATE: 10/08/25			
SURFACE ELEVATION: 1016.2 ft		RIG: 8505	METHOD: 3 1/4" HSA	SURFACING: Farm Field	WEATHER: Clear, 60°s			
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)		Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1015.0		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, dry to moist (TOPSOIL)		Hand				
1.2		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black to brown, moist, medium (GLACIAL TILL)		3-3-4 (7) 0"				No recovery
1010.2				5 3-3-4 (7) 2"				
6.0		END OF BORING						Water not observed while drilling.
		Boring then backfilled with auger cuttings						
				10				
				15				
				20				

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-17		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216588.1	EASTING: 588826.0	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/07/25		
SURFACE ELEVATION: 1013.4 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1011.9		SILTY SAND (SM), trace Gravel, slightly organic, black, dry to moist (TOPSOIL)					
1.5		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium (GLACIAL TILL)		2-2-4 (6) 8"		23	
			5	1-3-4 (7) 10"		22	
				1-4-4 (8) 10"			
			10	1-4-4 (8) 14"			
1002.4		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, stiff to very stiff (GLACIAL TILL)		7-7-9 (16) 0"			No recovery
11.0			15	3-4-5 (9) 10"		23	
			20	2-6-8 (14) 12"			
992.4		END OF BORING					Water not observed while drilling.
21.0		Boring then backfilled with bentonite grout					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-18		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216736.0	EASTING: 588796.3	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/08/25		
SURFACE ELEVATION: 1014.9 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1014.0 0.9		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)		3-4-5 (9) 6"		22	OC=6%
1010.9 4.0		SANDY ORGANIC CLAY (OL), trace Gravel, black, moist, stiff (GLACIAL LAKE)					
		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium (GLACIAL TILL)	5	1-2-3 (5) 8"		30	
		Silt seams		2-2-4 (6) 10"		30	
1003.9 11.0		SANDY LEAN CLAY (CL), trace Gravel, light gray, moist, medium (GLACIAL TILL)	10	1-2-5 (7) 14"			
				2-2-4 (6) 14"			
			15	1-3-4 (7) 14"			
				2-3-5 (8) 12"		25	
993.9 21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-20				
					LOCATION: Captured with RTK GPS.				
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)				
					NORTHING: 216688.0	EASTING: 589337.6			
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/08/25		END DATE: 10/08/25			
SURFACE ELEVATION: 1016.9 ft		RIG: 8505		METHOD: 3 1/4" HSA		SURFACING: Farm Field		WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks		
1015.4	▼	SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, dry to moist (TOPSOIL)	Hand						
1.5		ORGANIC CLAY (OL), trace Gravel, black to gray, moist, soft to medium (GLACIAL LAKE)		2-3-4 (7) 4"		22			
1012.4		SANDY LEAN CLAY (CL), with Gravel, slightly organic, brown, moist, soft (GLACIAL TILL)	5	1-1-2 (3) 8"		28	OC=2%		
4.5				1-1-2 (3) 10"					
			10	1-2-2 (4) 10"		27			
1004.9		CLAYEY SAND (SC), medium-grained, brown to gray, moist to wet, loose (GLACIAL TILL)		1-3-5 (8) 12"					
12.0	15		1-3-4 (7) 8"		29	P200=41%			
	20		2-3-3 (6) 12"						
995.9		END OF BORING					Water observed at 10.0 feet while drilling.		
21.0		Boring then backfilled with bentonite grout					Water observed at 10.0 feet immediately after withdrawal of auger.		

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-21		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216784.3	EASTING: 589183.8	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/08/25	END DATE: 10/08/25		
SURFACE ELEVATION: 1017.6 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1015.8		SILTY SAND (SM), fine to medium-grained, slightly organic, black, dry to moist (TOPSOIL)					
1.8		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		2-3-4 (7) 8"		22	
			5	1-3-4 (7) 10"			
				1-2-5 (7) 10"			
			10	1-3-7 (10) 12"		22	
1006.6		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium (GLACIAL TILL)		1-2-3 (5) 14"		23	
11.0				2-2-3 (5) 12"			
			15				
				2-4-3 (7) 14"			
			20				
996.6		END OF BORING					
21.0		Boring then backfilled with bentonite grout					
		Water not observed while drilling.					

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-22		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216882.6	EASTING: 589283.1	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/08/25	END DATE: 10/08/25		
SURFACE ELEVATION: 1016.6 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1015.2		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL)					
1.3		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		1-2-4 (6) 6"		23	
1010.6			5	3-4-5 (9) 10"			
6.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with auger cuttings					
			10				
			15				
			20				

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-23		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 217069.3	EASTING: 589309.6	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/07/25		
SURFACE ELEVATION: 1015.4 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1014.2 1.2		CLAYEY SAND (SC), trace Gravel, organic, black, moist (TOPSOIL)					
		SANDY LEAN CLAY (CL), trace Gravel, light gray to brown, moist, medium to stiff (GLACIAL TILL)		1-2-5 (7) 10"		23	
			5	2-4-6 (10) 12"			
				3-4-6 (10) 10"			
			10	4-4-7 (11) 10"			
1003.4 12.0		SANDY LEAN CLAY (CL), trace Gravel, dark gray, moist, medium (GLACIAL TILL)		1-3-3 (6) 16"		24	
			15	1-2-3 (5) 12"			
			20	1-3-5 (8) 12"			
994.4 21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

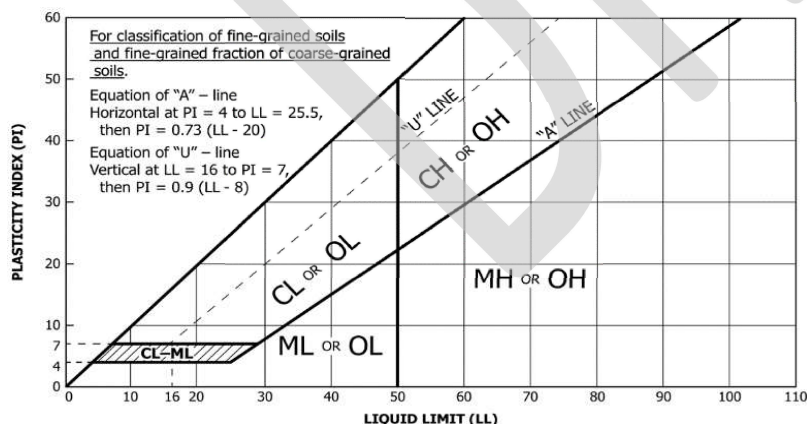
LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2508847 Geotechnical Evaluation Met-Con Mankato Office and Site Development E of Cty Hwy 12 between Adams St and Madison Ave Mankato, Minnesota					BORING: ST-24		
					LOCATION: Captured with RTK GPS.		
					DATUM: NAD 1983 HARN Adj MN Blue Earth (US Feet)		
					NORTHING: 216903.7	EASTING: 589417.6	
DRILLER: E. Rislov		LOGGED BY: I. Breitlow		START DATE: 10/07/25	END DATE: 10/07/25		
SURFACE ELEVATION: 1015.1 ft		RIG: 8505	METHOD: 3 1/4" HSA		SURFACING: Farm Field	WEATHER: Clear, 60°s	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
1014.2 0.8		SANDY LEAN CLAY (CL), trace Gravel, slightly organic, black, moist (TOPSOIL) SANDY LEAN CLAY (CL), trace Gravel, light gray, moist, soft to medium (GLACIAL LAKE)		1-2-3 (5) 4"	29		
			5	1-1-3 (4) 12"			
1008.1 7.0		SANDY LEAN CLAY (CL), trace Gravel, dark brown to dark gray, moist, medium to stiff (GLACIAL TILL)		2-3-5 (8) 10"			
			10	2-3-6 (9) 6"			
				1-2-5 (7) 14"			
			15	2-2-4 (6) 12"			
	20		2-3-4 (7) 14"				
994.1 21.0		END OF BORING					Water not observed while drilling.
		Boring then backfilled with bentonite grout					

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Soil Classification		
				Group Symbol	Group Name ^B	
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines ^C)	$C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel ^E	
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$) ^D	GP	Poorly graded gravel ^E	
		Gravels with Fines (More than 12% fines ^C)	Fines classify as ML or MH	GM	Silty gravel ^{EFG}	
			Fines Classify as CL or CH	GC	Clayey gravel ^{EFG}	
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines ^H)	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand ^I	
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$) ^D	SP	Poorly graded sand ^I	
		Sands with Fines (More than 12% fines ^H)	Fines classify as ML or MH	SM	Silty sand ^{FGI}	
			Fines classify as CL or CH	SC	Clayey sand ^{FGI}	
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silt and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{KLM}	
			PI < 4 or plots below "A" line ^I	ML	Silt ^{KLM}	
		Organic	Liquid Limit – oven dried	<0.75	OL	Organic clay ^{KLMN}
			Liquid Limit – not dried		Organic silt ^{KLMQ}	
	Silt and Clays (Liquid limit 50 or more)	Inorganic	PI plots on or above "A" line	CH	Fat clay ^{KLM}	
			PI plots below "A" line	MH	Elastic silt ^{KLM}	
		Organic	Liquid Limit – oven dried	<0.75	OH	Organic clay ^{KLMP}
			Liquid Limit – not dried		Organic silt ^{KLMQ}	
Highly Organic Soils		Primarily organic matter, dark in color, and organic odor		PT	Peat	

- A. Based on the material passing the 3-inch (75-mm) sieve.
B. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders," or both" to group name.
C. Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
D. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains $\geq 15\%$ sand, add "with sand" to group name.
F. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
G. If fines are organic, add "with organic fines" to group name.
H. Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
I. If soil contains $\geq 15\%$ gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is CL-ML, silty clay.
K. If soil contains 15 to < 30% plus No. 200, add "with sand" or "with gravel", whichever is predominant.
L. If soil contains $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains $\geq 30\%$ plus No. 200 predominantly gravel, add "gravelly" to group name.
N. $PI \geq 4$ and plots on or above "A" line.
O. $PI < 4$ or plots below "A" line.
P. PI plots on or above "A" line.
Q. PI plots below "A" line.



DD Dry density, pcf
WD Wet density, pcf
P200 % Passing #200 sieve
MC Moisture content, %
OC Organic content, %

Laboratory Tests

q_p Pocket penetrometer strength, tsf
q_u Unconfined compression test, tsf
LL Liquid limit
PL Plastic limit
PI Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions^{L-M}

trace..... 0 to 5%
little..... 6 to 14%
with..... $\geq 15\%$

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose 0 to 4 BPF
Loose 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils Blows Per Foot Approximate Unconfined Compressive Strength

Very soft..... 0 to 1 BPF..... < 0.25 tsf
Soft..... 2 to 4 BPF..... 0.25 to 0.5 tsf
Medium..... 5 to 8 BPF..... 0.5 to 1 tsf
Stiff..... 9 to 15 BPF..... 1 to 2 tsf
Very Stiff..... 16 to 30 BPF..... 2 to 4 tsf
Hard..... over 30 BPF..... > 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:

Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.

Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

Water Level: Indicates the water level measured by the drillers either while drilling (☒), at the end of drilling (☑), or at some time after drilling (☒).

Sample Symbols

☒	Standard Penetration Test	☒	Rock Core
☑	Modified California (MC)	☑	Thinwall (TW)/Shelby Tube (SH)
☒	Auger	☒	Texas Cone Penetrometer
☒	Grab Sample	☒	Dynamic Cone Penetrometer

Transaction Identification Data, for which the Company assumes no liability as set forth in Commitment Condition 5.e.:

Issuing Agent: Ryan L. Blumhoefer
Issuing Office: Blumhoefer, Yahnke, and Lancaster, LLP, 220 Division St. S., Northfield, MN 55057
Issuing Office's ALTA® Registry ID: 1051009
Loan ID Number:
Issuing Office's File No.: 23657
Property Address: XXXX Adams Street, Mankato, MN 56001
Revision Number: 1

**SCHEDULE A
COMMITMENT**

1. Commitment Date: October 14, 2025 at 8:00 a.m.
2. Policy to be issued:
 - (a) 2021 ALTA® Owner's Policy
Proposed Insured: McDonough Farms, LLC,
a Minnesota limited liability company
Proposed Amount of Insurance: \$1,625,000.00 (Optional)
The estate or interest to be insured: Fee Simple
 - (b) 2021 ALTA® Loan Policy
Proposed Insured:
Proposed Amount of Insurance:
3. The estate or interest in the Land described or referred to in this Commitment is fee simple.
4. Title to the estate or interest in the Land is at the Commitment date vested in:

BT Development, LLC, a Minnesota limited liability company
5. The Land is described as follows:

See attached Exhibit A

Informational purposes only - Abstract Property

Please contact Sandy at 507-645-9541 to schedule this closing. The closing will take place at Blumhoefer, Yahnke, and Lancaster, LLP, 220 S. Division Street, Northfield MN

Old Republic National Title Insurance Company


Authorized Signature

This page is only a part of a 2021 ALTA Commitment for Title Insurance issued by Old Republic National Title Insurance Company. This Commitment is not valid without the Notice; the Commitment to Issue Policy; the Commitment Conditions; Schedule A; Schedule B, Part I – Requirements; and Schedule B, Part II – Exceptions.

SCHEDULE B-I COMMITMENT

REQUIREMENTS

All of the following requirements must be met:

1. The Proposed Insured must notify the Company in writing of the name of any party not referred to in this Commitment who will obtain an interest in the Land or who will make a loan on the Land. The Company may then make additional Requirements or Exceptions.
2. Pay the agreed amount for the estate or interest to be insured.
3. Pay the premiums, fees and charges for the Policy to the Company.
4. Documents satisfactory to the Company that convey the Title or create the Mortgage to be insured, or both, must be properly authorized, executed, delivered and recorded in the Public Records.
5. Photo identification will be required from all parties required to sign documents at closing.
6. "Gap" coverage will only be provided to insureds who close with Old Republic National Title Insurance Company or one of its policy-issuing agents. Old Republic National Title Insurance Company will provide insurance coverage, subject to the terms of the title insurance policy, for any documents recorded with the County Recorder or Registrar of Titles for the period of time between the effective date of the title insurance commitment and the date of recording of the closing documents provided the closing occurs with Old Republic National Title Insurance Company or one of its policy-issuing agents.
7. Obtain and record a Warranty Deed from BT Development, LLC, a Minnesota limited liability company, to McDonough Farms, LLC, a Minnesota limited liability company.
8. Obtain and retain a Resolution from the board of governors or members of BT Development, LLC authorizing the sale of this property and appointing someone to sign the documents. This Resolution will not be recorded.
9. Obtain and retain a Resolution from the board of governors or members of McDonough Farms, LLC authorizing the purchase of this property and appointing someone to sign the documents. This Resolution will not be recorded.
10. Obtain and record release or satisfaction of mortgage to the following:

Dated: November 30, 2021
Recorded: December 2, 2021
Document No. 595CR438
Amount: \$735,000.00
Mortgagor: BT Development, LLC, a Minnesota limited liability company
Mortgagee: Community Bank Mankato

NOTE: This mortgage secures a line of credit. Written authorization to close this account must be obtained.

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11. Provide this examiner with a signed sworn construction statement prior to closing.

In the event the McDonough Farms, LLC obtains a mortgage to purchase the subject property, then subsequent to recording the mortgage, an inspection by this office must occur to verify no visible signs of improvements have been made to the property. Obtain priority pictures.

If this office is to do disbursements on the loan, obtain a Commercial Disbursing Agreement between parties.

If this office is to make disbursements on the loan, we must have a sworn construction statement with matching lien waivers at each draw.

After construction is complete, a plat drawing may be required on this property.

12. If there is a well on the property, a well certificate must be provided or in the alternative the conveyance documents must contain one of the following statements: The seller certifies that the seller does not know of any wells on the described real property or I am familiar with the property described in this instrument and I certify that the status and number of wells on the described real property have not changed since the last previously filed well disclosure statement.
13. Bare land – no plat drawing has been ordered.
14. Affidavit of Mortgagor or Affidavit of Buyer is required on all transactions. On sale transactions, a Seller's Affidavit is required.
15. If the property is subject to any private assessments for association dues or otherwise, we must be provided a current statement showing all sums are paid or the amount of any outstanding charges.
16. This examiner will order a final utilities bill for property to be paid at closing.
17. e-CRV information must be provided for each deed of conveyance to be recorded.
18. This Commitment is for the exclusive use of Blumhoefer, Yahnke, and Lancaster, LLP in closing the transaction described herein. Anyone else closing off this Commitment shall be liable to the Company for all loss and damage, including payment of all charges and fees incurred related to the preparation of this Commitment.
19. **NOTICE: We require funds be wired to our account in advance of closing.**
20. **NOTICE: BLUMHOEFER, YAHNKE, AND LANCASTER, LLP IS NOT RESPONSIBLE FOR PROVIDING THE BORROWER WITH A CLOSING DISCLOSURE PRIOR TO CLOSING.**

Chain of Title:

The current fee owner obtained title by a Warranty Deed dated November 30, 2021 and recorded December 2, 2021 as Doc. No. 595CR437.

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Schedule B-II COMMITMENT

EXCEPTIONS FROM COVERAGE

Some historical land records contain Discriminatory Covenants that are illegal and unenforceable by law. This Commitment and the Policy treat any Discriminatory Covenant in a document referenced in Schedule B as if each Discriminatory Covenant is redacted, repudiated, removed, and not republished or recirculated. Only the remaining provisions of the document will be excepted from coverage.

The Policy will not insure against loss or damage resulting from the terms and provisions of any lease or easement identified in Schedule A, and will include the following Exceptions unless cleared to the satisfaction of the Company:

1. Any defect, lien, encumbrance, adverse claim, or other matter that appears for the first time in the Public Records or is created, attaches, or is disclosed between the Commitment Date and the date on which all of the Schedule B, Part I – Requirements are met.
2. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term “encroachment” includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.
3. Rights and claims of parties in possession.
4. Any lien or right to lien for services, labor or materials heretofore or hereafter furnished, imposed by law and not shown by the public records.
5. Easements or claims of easements not shown by the public records.
6. No coverage is provided for municipal code compliance matters and fees including, but not limited to, utilities, water or sewer service, or fees for trees, weeds, grass, and snow or garbage removal, police boarding, vacant building registration and zoning.
7. Taxes and Assessments:

NOTE: Taxes due and payable in 2024 and all prior years are paid in full. 2025 taxes are as follows and are one-half paid:

PID No. R43.09.11.300.021	\$4,878.00
---------------------------	------------

NOTE: The first half taxes are due on or before May 15th; the second half taxes are due on or before October 15th or November 15th for certain agricultural properties.

NOTE: We find the following special assessments on the property:

Adams Street Extension Phase 3 – Deferred Assessment	\$222,385.99
Adams Street Extension – Deferred Assessment	\$104,528.15

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8. Highway Easement, dated August 15, 1936, recorded October 30, 1936 in Book 138 of Deeds, Page 449.
9. Highway Easement, dated July 31, 1936, recorded September 11, 1936 as Document No. 160208.
10. Blue Earth County Highway Right of Way Plat No. 22, dated May 23, 2008, recorded July 9, 2008 as Document No. 486CR081.
11. Blue Earth County Highway Right of Way Plat No. 27, dated April 5, 2011, recorded May 27, 2011 as Document No. 509CR874
12. Access control limitations set forth in that certain Warranty Deed, dated February 28, 2011, recorded May 27, 2011 as Document No. 509CR882.
13. Blue Earth County Highway Right of Way Plat No. 30, dated May 29, 2013, recorded May 31, 2013 as Document No. 526CR966.
14. Access control limitations set forth in that certain Warranty Deed, dated April 3, 2013, recorded June 18, 2013 as Document No. 527CR364.
15. Easement for access, ingress, egress and utility purposes set forth in that certain Warranty Deed dated March 1, 2019 and recorded March 4, 2019 as Document No. 570CR457.

NOTE: The following is not a part of Schedule B, and is shown for information only. This will not be included on the final loan policy.

PLEASE BE ADVISED THAT THE FOLLOWING INFORMATION IS REQUIRED AT CLOSING:

- a. Seller's tax identification number or social security number.
- b. Seller's full address after the closing.
- c. Picture identification will be required from all parties required to sign documents at closing.
- d. If any of the sellers will not be in attendance at closing, this examiner must be provided with a phone number of where that seller may be reached.

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EXHIBIT "A"

That part of the Southwest Quarter of Section 11, Township 108 North Range 26 West, Blue Earth County, Minnesota, described as:

Commencing at the southwesterly corner of Parcel D of Blue Earth County Highway Right Of Way Plat No. 27, on file and of record with the Blue Earth County Recorder; thence South 52 degrees 36 minutes 53 seconds East, (Minnesota County Coordinate System - Blue Earth County Zone - HARN NAD83 - 1996), along the southerly line of said Parcel D, 196.59 feet to the point of curvature of a circular curve to the left; thence southeasterly, along said southerly line, along a 500.00 foot radius curve, central angle = 01 degrees 42 minutes 19 seconds, an arc distance of 14.88 feet; thence South 00 degrees 22 minutes 32 seconds East, not radially to said curve, 763.46 feet to the point of beginning, said point being on a circular curve which center of radius bears South 28 degrees 10 minutes 32 seconds West; thence northwesterly, along a 283.15 foot radius curve, central angle = 28 degrees 33 minutes 27 seconds, an arc distance of 141.13 feet to the point of tangency of said curve; thence South 89 degrees 37 minutes 06 seconds West, along the tangent of said curve, 371.30 feet to the point of curvature of a circular curve to the right; thence northwesterly, along a 320.00 foot radius curve, central angle = 56 degrees 19 minutes 18 seconds, an arc distance of 314.56 feet to the point of tangency of said curve; thence North 34 degrees 03 minutes 36 seconds West, along the tangent of said curve, 25.30 feet; thence North 10 degrees 56 minutes 24 seconds East, 70.71 feet to a point on the southeasterly line of Parcel C of said Blue Earth County Highway Right Of Way Plat No. 27; thence South 55 degrees 56 minutes 24 seconds West, along said southeasterly line and along the southeasterly line of Parcel B of said Blue Earth County Highway Right Of Way Plat No. 27, a distance of 192.96 feet to the point of curvature of a circular curve to the left; thence southwesterly, along said southeasterly line, along a 971.35 foot radius curve, central angle = 49 degrees 57 minutes 56 seconds, an arc distance of 847.08 feet to the most northerly corner of Parcel K1 of Blue Earth County Highway Right Of Way Plat No. 30, on file and of record with the Blue Earth County Recorder; thence South 44 degrees 41 minutes 23 seconds East, not radially to said curve, along the northerly line of said Parcel K1, a distance of 118.21 feet; thence South 89 degrees 27 minutes 10 seconds East, along said northerly line, 376.49 feet; thence North 89 degrees 37 minutes 28 seconds East; along said northerly line, 366.29 feet to the northeasterly corner of said Parcel K1; thence North 00 degrees 18 minutes 44 seconds West, 245.61 feet; thence North 89 degrees 37 minutes 06 seconds East, 366.00 feet; thence South 00 degrees 18 minutes 44 seconds East, 245.65 feet to the northwest corner of Parcel K2 of said Blue Earth County Highway Right Of Way Plat No. 30; thence North 89 degrees 37 minutes 28 seconds East, along the north line of said Parcel K2, a distance of 33.00 feet; thence North 00 degrees 18 minutes 44 seconds West, 585.65 feet; thence North 89 degrees 37 minutes 06 seconds East, 135.35 feet; thence North 00 degrees 22 minutes 32 seconds West, 45.55 feet to the point of beginning.

EXCEPTING THEREFROM all of Freyberg Addition, Blue Earth County, Minnesota

Site Plan and Traffic Advisory Review Committee

1. 3.

Meeting Date: 09/08/2026

Title

CY43-26

Request of RJC Rental Properties LLC for a conditional use permit to allow the operation of an Intensive Outpatient Treatment clinic in the R-3, Limited Multiple dwelling zoning district. The subject properties are described as Lots 3, 4, and 5, Block 25, Mankato City subdivision (1618, 1620 and 1622 3rd Avenue).

Applicant

The applicant is RJC Rental Properties, LLC.

Request

The applicant is seeking a conditional use permit to allow the operation of an Intensive Outpatient Treatment clinic in the R-3, Limited Multiple dwelling zoning district.

Location

The subject building is located at 1618 3rd Avenue, and properties located at 1614 and 1620 are also shown on the current parking plan.

Existing Land Use

The subject property is currently vacant.

Zoning

The property is in the process of being rezoned to R-3, Limited Multiple dwelling, zoning district. The Mankato City Council will take action on the request to zone the property R-3 on September 14, 2026.

Environmentally Sensitive Areas

There are no known environmentally sensitive areas on the site.

Public Utilities

The site is currently served by public utilities.

Review

The applicant, RJC Rental Properties, LLC, has applied for a conditional use permit to allow an Intensive Outpatient Treatment, IOP, clinic in the R-3, Limited Multiple Family Dwelling district.

The property is addressed at 1618 3rd Avenue and is currently being rezoned to R-3, Limited Multiple Family Dwelling district to match the City's underlying Land Use Plan.

Plans provided do not show any site improvements, or any interior improvements associated with the request.

The applicant's narrative states that the use "will provide structured, evidence-based treatment services for adults experiencing substance use and co-occurring mental health disorders. The program is designed to help individuals achieve and maintain recovery while continuing to live independently within the community." The application states the Intensive Outpatient Treatment Program is a Minnesota Department of Human Services licensed behavioral health service that provides comprehensive outpatient treatment without requiring overnight

stays or residential occupancy. Participants attend scheduled treatment sessions several days per week and return to their homes following each session. Services offered include individual counseling, group therapy, family education and counseling, substance use disorder assessments, mental health support and care coordination, relapse prevention planning, recovery education and life skills development, and case management and referrals to community resources. The hours of operation are proposed as Monday through Friday, from 8:00 a.m. to 8:00 p.m. and the operation will be closed on Saturday and Sunday. Three staff members are onsite during business hours, and a maximum of 16 clients are proposed.

Attachments

General Location Map

Aerial

Site Plan

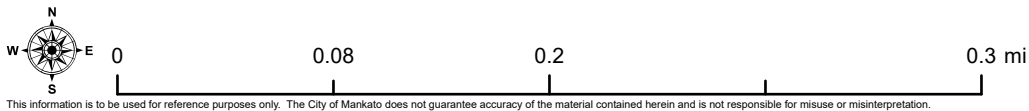
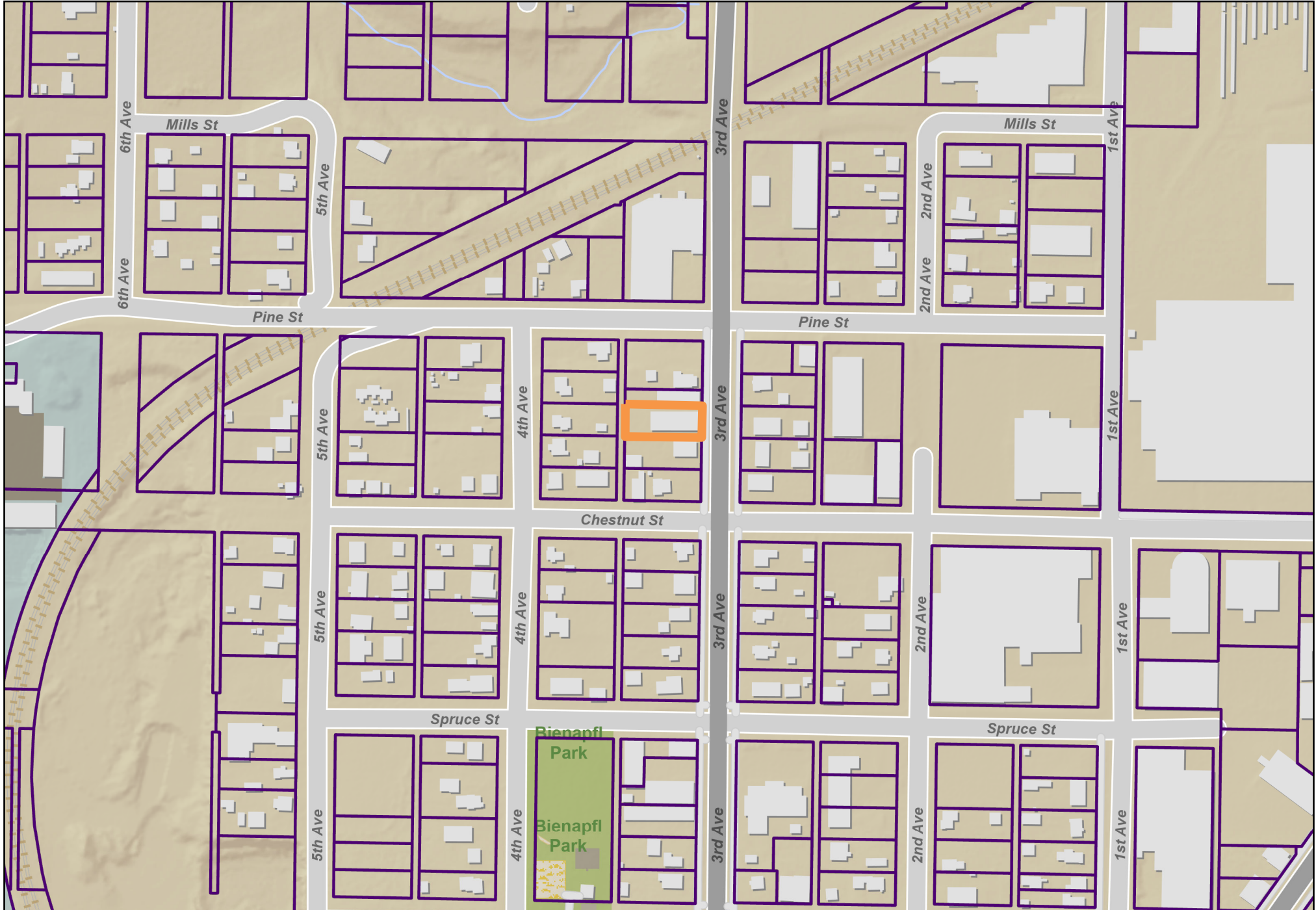
Floor Plans

Narrative

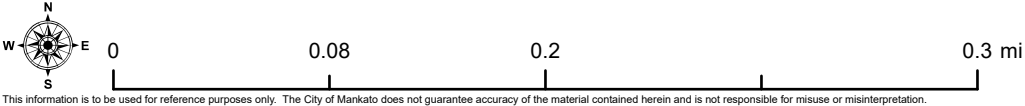
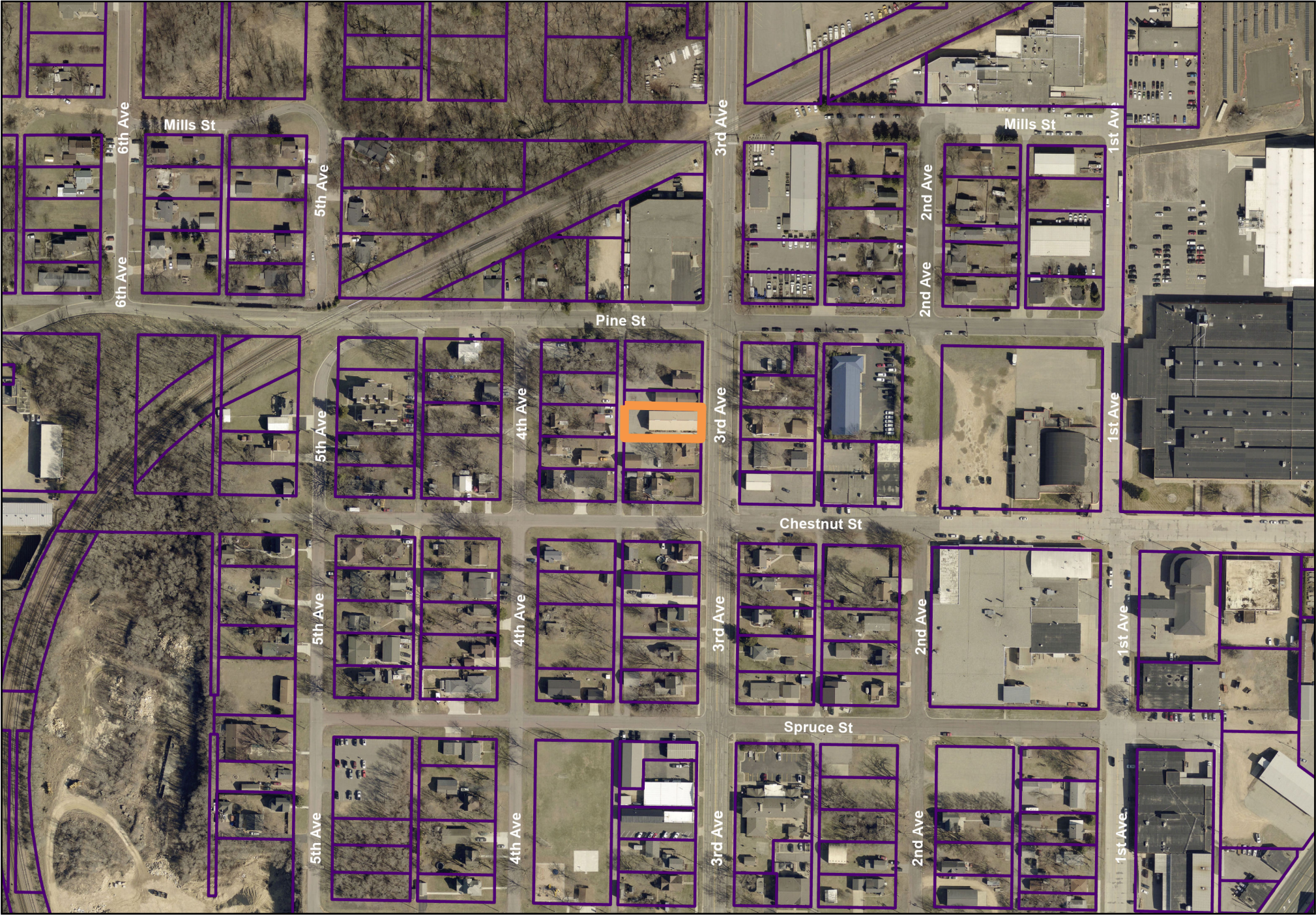
Additional Information

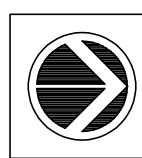
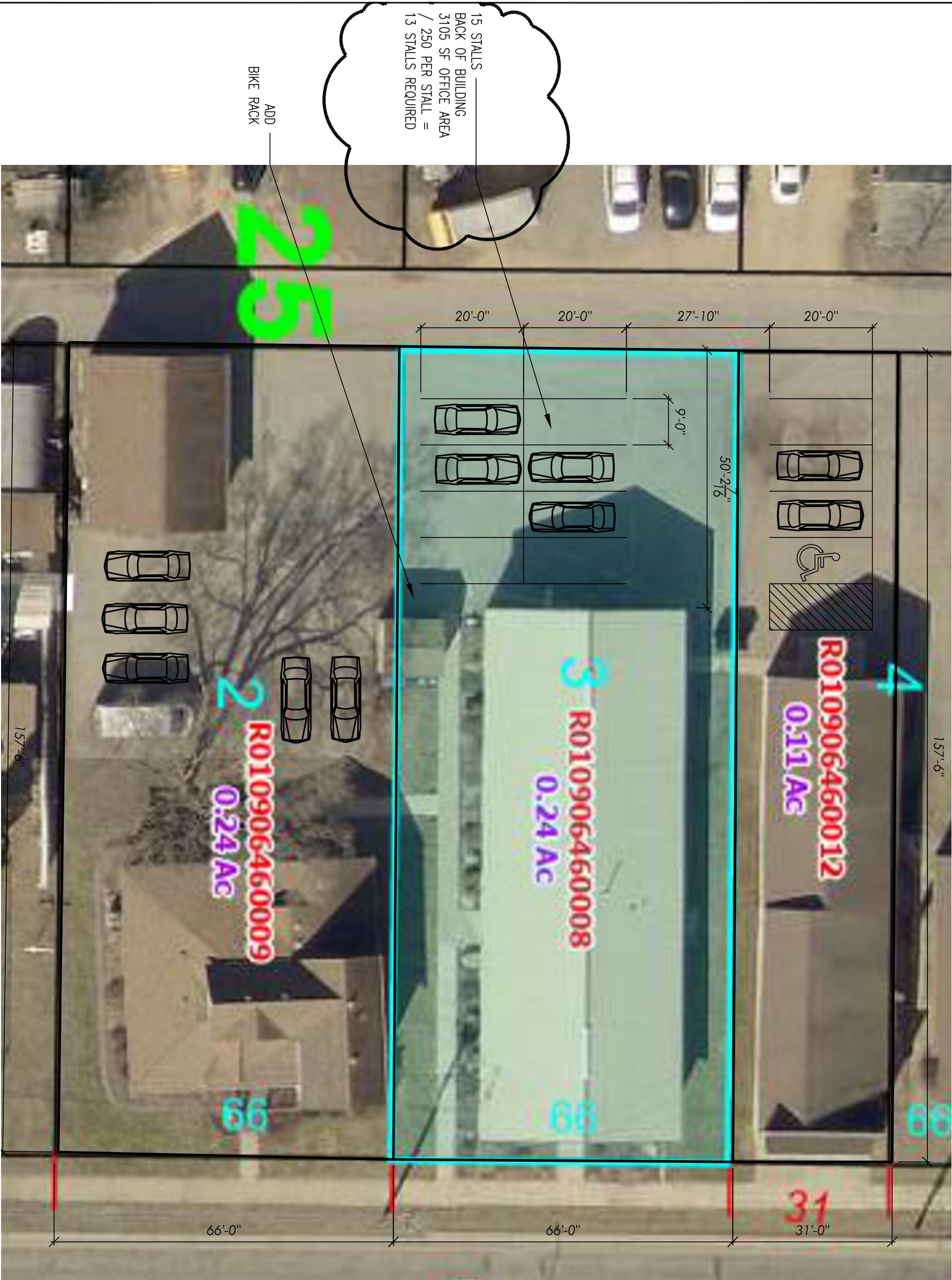
Traffic Information from applicant

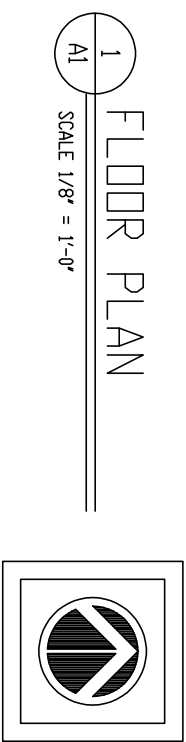
General Location Map



Aerial Map







Conditional Use Permit Narrative

Intensive Outpatient Treatment Program

Applicant: Golden Anchor Treatment Services

Property Address: 1618 3rd Ave.

Purpose of Request

This application requests approval of a Conditional Use Permit to operate an **Intensive Outpatient Treatment (IOP) Program** at the above-referenced property. The proposed use will provide structured, evidence-based treatment services for adults experiencing substance use and co-occurring mental health disorders. The program is designed to help individuals achieve and maintain recovery while continuing to live independently within the community.

Program Description

The Intensive Outpatient Treatment Program is a licensed behavioral health service that provides comprehensive outpatient treatment without requiring overnight stays or residential occupancy. Participants attend scheduled treatment sessions several days per week and return to their homes following each session.

Services offered include:

- Individual counseling
- Group therapy (Tues, Wed, Thurs - 8am-12pm or Mon - 1pm-4pm)
- Family education and counseling
- Substance use disorder assessments
- Mental health support and care coordination
- Relapse prevention planning
- Recovery education and life skills development
- Case management and referrals to community resources

The program operates in compliance with all applicable state licensing requirements and professional standards for behavioral health services. An application is pending with MN Dept of Human Services for a 245G program. Per the requirements of the license, a final walk through must be completed of the property to receive approval to open.

Hours of Operation

The proposed hours of operation are:

- Monday through Friday: 8am-8pm
- Saturday: Closed
- Sunday: Closed

Appointments and group sessions will be scheduled throughout the day to minimize traffic congestion and ensure efficient use of the facility.

Staffing

The facility will be staffed by qualified professionals, including licensed alcohol and drug counselors, licensed mental health professionals, clinical supervisors, and administrative personnel. Staffing levels will be appropriate to meet client needs while maintaining a safe and therapeutic environment. Golden Anchor will have 3-4 staff members with an average of 3 staff at the onsite throughout business hours.

Client Population & Attendance

The IOP program serves individuals age 18 and older within all demographic backgrounds.

Clients arrive at scheduled times for counseling or group sessions and depart immediately following completion of services. Participants are not housed at the facility, and no overnight accommodations are provided.

The anticipated daily attendance is approximately 16 clients, with staggered appointment times to reduce parking demand and vehicle traffic.

Parking and Traffic

The property provides adequate on-site parking to accommodate staff and clients. Appointment scheduling will be staggered to avoid peak traffic periods and minimize vehicle congestion.

Traffic generated by the proposed use is expected to be comparable to or less than other professional office or medical clinic uses permitted within the zoning district.

Safety and Security

Maintaining a safe, respectful, and professional environment is a priority. Policies and procedures include:

- Staff supervision during all operating hours
- Controlled building access
- Confidential client records maintained in compliance with HIPAA regulations
- Emergency response procedures
- Coordination with local emergency services when necessary
- Zero tolerance for violence, illegal activity, or substance use on the premises

Compatibility with Surrounding Area

The proposed Intensive Outpatient Treatment Program is consistent with the surrounding neighborhood as there are other sober homes, treatment providers, recovery community buildings and the like within the blocks surrounding the property.

Because the program functions similarly to a medical or professional office, it is not expected to negatively affect neighboring properties or surrounding land uses.

Community Benefit

The proposed facility addresses a significant community need by expanding access to behavioral health and substance use disorder treatment services. Providing local access to outpatient treatment helps individuals receive care close to home while maintaining employment, family responsibilities, and community connections.

Research consistently demonstrates that outpatient treatment reduces emergency department utilization, decreases criminal justice involvement, supports long-term recovery, and improves overall public health outcomes. Expanding these services benefits not only program participants but also families, employers, healthcare providers, and the broader community.

Findings

The proposed use meets the intent of the Conditional Use Permit standards because it:

- Is consistent with the goals and policies of the City's Comprehensive Plan.
- Is compatible with surrounding land uses.
- Will not create excessive traffic, noise, or parking impacts.
- Will not adversely affect the health, safety, or welfare of neighboring properties.
- Provides valuable community service by increasing access to behavioral health and substance use disorder treatment.
- Will operate in compliance with all applicable local, state, and federal regulations.

Conclusion

The proposed Intensive Outpatient Treatment Program represents a needed healthcare service that promotes recovery, public safety, and community well-being. The use is compatible with surrounding development, generates minimal impacts, and satisfies the standards for approval of a Conditional Use Permit.

For these reasons, the applicant respectfully requests approval of this Conditional Use Permit.

Sincerely,

Christina Rotert, LSW

Conditional Use Permit - additional information

Landscape - The current landscape is up to date with no changes being requested at this time.

Lighting - All lighting is provided by the building and paid for by the tenant of the building. City lighting is located on 3rd Ave as required by the City compliances.

Refuse- all refuse containers will be stored in an area designated and out of sight of the main roadways. If changes are required a permit will be completed at that time.

Signage - A permit will be submitted when the approval for the Conditional Use and rezone have been received.

TRAFFIC AND PARKING IMPACT DATA SHEET

Program: Golden Anchor Treatment Services

Program Type: Outpatient Substance Use Disorder Treatment Program

Property Address: 1618 3rd Ave. Mankato

Prepared for: City Planning / Conditional Use Permit Review

Date: 9/1/26

1. Program Overview

Golden Anchor will provide scheduled outpatient treatment services. The program will serve approximately 32 clients, divided between high-intensity and low-intensity programming.

Program	Clients	Schedule	Treatment Hours
High-Intensity	16	Tuesday, Wednesday & Thursday	8:00 AM–12:00 PM
Low-Intensity	16	Monday	12:00 PM–4:00 PM
Total Clients	32	—	—
Staff	4	During program operations	—

The high-intensity and low-intensity groups are scheduled on separate days and therefore do not overlap.

2. Weekly Client Visits

High-Intensity Program

16 clients × 3 days per week = **48 client visits per week**

Low-Intensity Program

16 clients × 1 day per week = **16 client visits per week**

Total

64 client visits per week

Although the program generates approximately 64 client visits per week, these visits represent approximately **32 unique clients** attending services at different frequencies.

3. Daily Attendance and Hours

Day	Program	Hours	Client s	Staff	Maximum Persons On-Site
Monday	Low-Intensity	12:00–4:00 PM	16	4	20
Tuesday	High-Intensity	8:00 AM–12:00 PM	16	4	20
Wednesday	High-Intensity	8:00 AM–12:00 PM	16	4	20
Thursday	High-Intensity	8:00 AM–12:00 PM	16	4	20
Friday	No scheduled group	—	0	—	—

Maximum anticipated treatment occupancy: 20 individuals at one time.

4. Anticipated Arrival and Departure Periods

Because treatment services are scheduled, client traffic will primarily occur immediately before and after each treatment session.

Monday – Low-Intensity Program

- Primary arrival period: approximately **11:30 AM–12:00 PM**
- Treatment: **12:00 PM–4:00 PM**
- Primary departure period: approximately **4:00–4:30 PM**

Tuesday–Thursday – High-Intensity Program

- Primary arrival period: approximately **7:30–8:00 AM**
- Treatment: **8:00 AM–12:00 PM**
- Primary departure period: approximately **12:00–12:30 PM**

Client traffic is therefore concentrated into predictable arrival and departure periods rather than occurring continuously throughout the day.

5. Conservative Vehicle Trip Estimate

For traffic-planning purposes, a conservative estimate assumes that all 16 clients and all 4 staff members arrive in separate vehicles.

Under this maximum-case assumption, a treatment day could generate:

- 16 client arrivals
- 16 client departures
- 4 staff arrivals
- 4 staff departures
- **Maximum: 40 one-way vehicle trips per treatment day**

Over four scheduled treatment days, the conservative estimate would be approximately **160 one-way vehicle trips per week** if every client and staff member drove independently each day.

Actual traffic is anticipated to be lower because some clients may utilize public transportation, ride-share services, medical or community transportation, family/support transportation, carpooling, walking, or biking.

6. Parking and Traffic Management

The program's structured schedule allows Golden Anchor to manage parking and traffic demand. High-intensity and low-intensity services occur on separate days, eliminating traffic overlap between the two treatment groups.

A maximum of approximately **16 clients and 4 staff members** will typically be present during scheduled treatment programming.

Golden Anchor will manage scheduling and transportation needs to minimize congestion, maintain appropriate parking availability, and reduce impacts on neighboring properties and the surrounding roadway system.

7. Traffic Impact Summary

Golden Anchor's proposed treatment schedule creates a predictable and limited traffic pattern. Approximately **16 clients will attend the facility at one time**, with approximately **4 staff members** present.

High-intensity services will operate **Tuesday through Thursday from 8:00 AM to 12:00 PM**, while low-intensity services will operate **Monday from 12:00 PM to 4:00 PM**. Because these programs operate on separate days, there will be no overlap between the two client groups.

The program anticipates approximately **64 client visits per week**. Traffic will primarily occur during short, predictable periods immediately before and after scheduled treatment sessions.

This scheduling model allows Golden Anchor to actively manage client volume, parking demand, and traffic flow while minimizing the program's impact on surrounding properties.

Prepared By: Christina Rotert

Title: CEO

Signature: Christina Rotert

Date: 9/1/26

Site Plan and Traffic Advisory Review Committee

1. 4.

Meeting Date: 09/08/2026

Title

CY44-26

Request of the Planning Agency to review Mankato Development District No. 51 Plan (“Plan”) to determine conformity of said plan to the General Development Plan for Development or Redevelopment of the Municipality as a whole. The subject properties are described as Lots 1 through 8, Block 1, Quarry View Addition subdivision.

For Information Purposes Only.

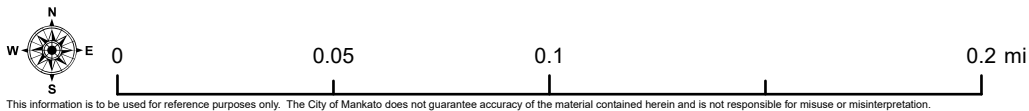
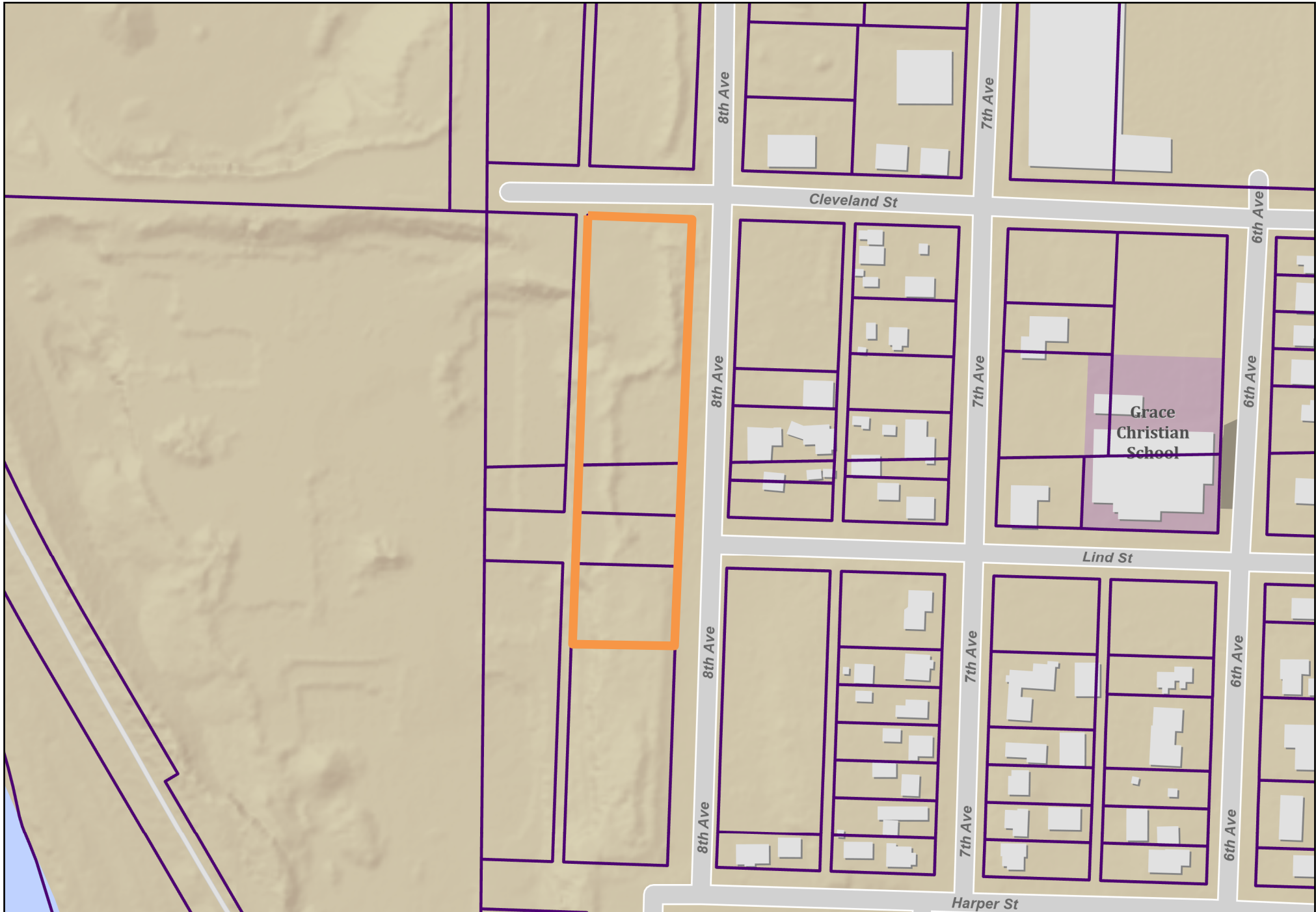
Attachments

General Location Map

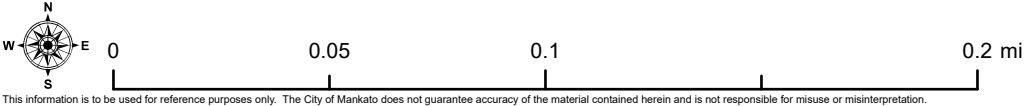
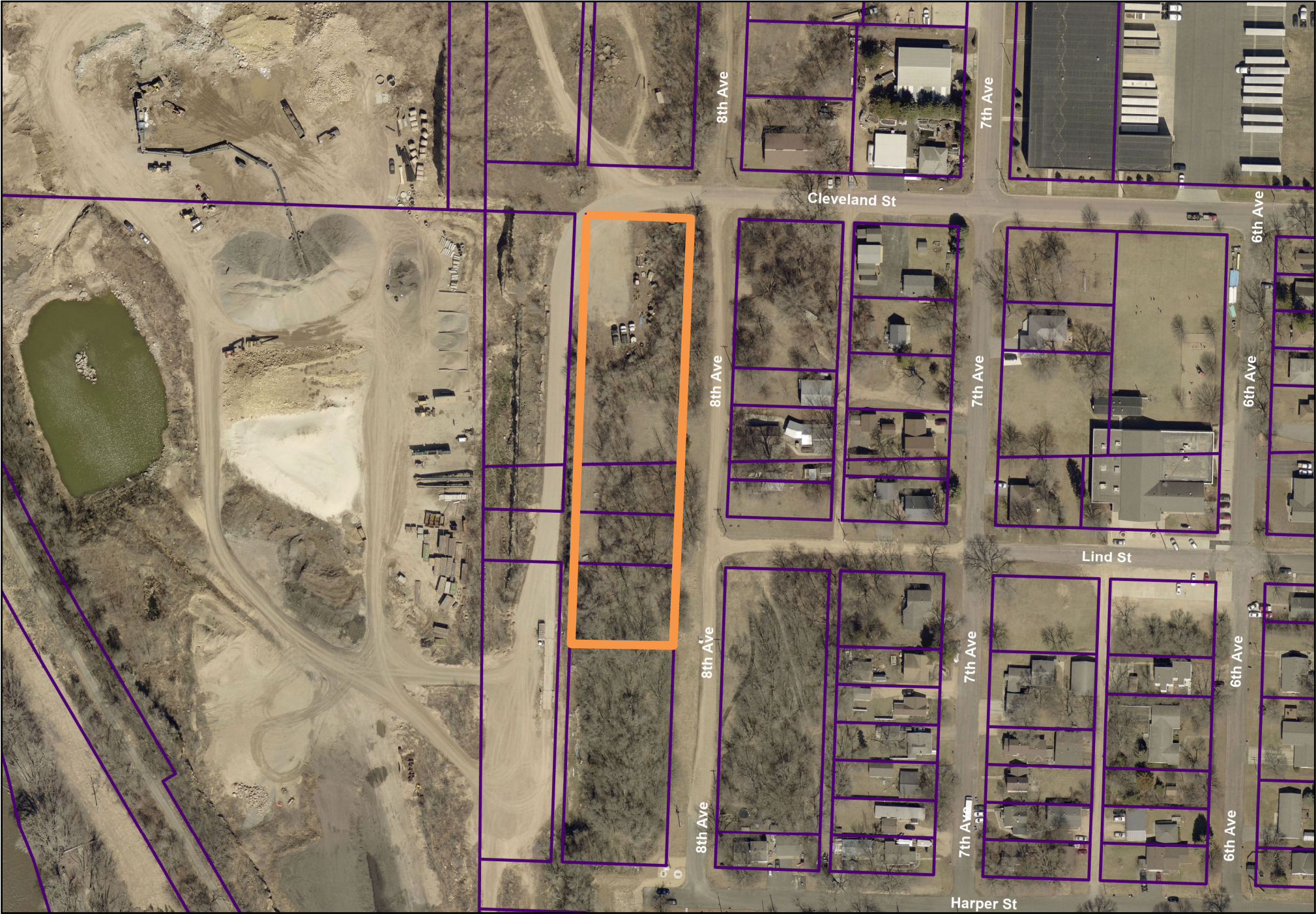
Aerial

Development District No. 51

General Location Map



Aerial Map





August 21, 2026

Version: Draft V2

Intended Distribution: August 25th

Development Program for

City of Mankato, Minnesota

Development District No. 51

(Quarry View Housing Project)

Coterminous with Tax Increment Financing (Housing) District No. 51-1

PREPARED BY

Baker Tilly Municipal Advisors, LLC
225 6th Street South
Suite 1100
Minneapolis, MN 55402

Public Hearing Held: [INSERT PUBLIC HEARING DATE]

Table of Contents

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Section 1A	Establishment and Overview
Section 1B	Statutory Authority
Section 1C	Statement of Need and Public Purpose
Section 1D	Statement of Objectives
Section 1E	Boundaries of Development District / Project Area
Section 1F	Development Activities
Section 1G	Payment of Public Development Costs
Section 1H	Environmental Controls and Land Use Regulations
Section 1I	Property Acquisition and Reuse
Section 1J	Administration of Development District
Section 1K	Amendments to Development Program
Exhibit I	Map of Development District No. 51 / Project Area and Coterminous TIF District
Exhibit II	Boundary / Legal Description of Development District No. 51 / Project Area

Section 1

Development Program for Development District No. 51

Section 1A

Establishment and Overview

The City of Mankato proposes to establish Development District No. 51 and adopt this Development Program in conjunction with the establishment of Tax Increment Financing (Housing) District No. 51-1 (Quarry View Housing Project). The Development District will serve as the “Project Area” for purposes of the TIF Act. The Development District and TIF District are coterminous and consist of Lots 1 through 8, Block 1, as depicted in Exhibit I. The coterminous boundary is limited to the eight project lots shown on the supplied plat / boundary exhibit and does not include the remaining lots shown on that exhibit.

This Development Program describes the City’s public-purpose objectives, authorized development activities, and administrative framework for the Development District. A separate Tax Increment Financing Plan for Tax Increment Financing (Housing) District No. 51-1 is proposed to be adopted in conjunction with this Development Program. The TIF District is proposed to be established within, and coterminous with, Development District No. 51.

Section 1B

Statutory Authority

The City proposes to establish Development District No. 51 and adopt this Development Program pursuant to Minnesota Statutes, Sections 469.124 through 469.134, as amended (the “Development District Act”). [CONFIRM THAT MINNESOTA STATUTES, SECTIONS 469.124 THROUGH 469.134 ARE THE INTENDED DEVELOPMENT-DISTRICT ENABLING AUTHORITY FOR THE CITY.]

The City is also authorized under Minnesota Statutes, Sections 469.174 through 469.1794, as amended (the “TIF Act”), to establish tax increment financing districts within a project area and to use tax increment to finance eligible public costs. The TIF District and the separate TIF Plan proposed to be adopted in conjunction with this Development Program are established under the TIF Act.

Section 1C

Statement of Need and Public Purpose

The City finds that establishment of the Development District and implementation of this Development Program are intended to serve public purposes by facilitating attainable owner-occupied housing, supporting necessary site and infrastructure improvements, encouraging private investment, and increasing taxable market value within the City. The Development Program is intended to provide a coordinated framework for public actions and financing needed to facilitate development that is not reasonably expected to proceed in the same manner within the reasonably foreseeable future without public involvement. [CONFIRM / SUPPLEMENT CITY-SPECIFIC FINDINGS REGARDING HOUSING NEED, UNDERUTILIZED PROPERTY, INFRASTRUCTURE NEEDS, AND PUBLIC PURPOSE.]

Section 1D

Statement of Objectives

The City intends, to the extent permitted by law, to accomplish the following objectives through implementation of the Development Program:

- Facilitate the orderly development of the Quarry View property for attainable, owner-occupied housing.

- Support land acquisition, entitlement, horizontal development, site preparation, public improvements, utility improvements, and related activities necessary to deliver finished residential lots.
- Encourage private investment and participation by third-party homebuilders by reducing the cost of delivering affordability-restricted residential lots to an economically supportable level.
- Increase the taxable value of property within the Development District and expand the tax base following expiration or decertification of the TIF District.
- Promote development consistent with the City's comprehensive plan, zoning, subdivision regulations, housing policies, and other applicable land-use controls.
- Provide a framework for the use of tax increment financing and other legally available sources to pay or reimburse eligible public development costs.
- [INSERT / CONFIRM ANY ADDITIONAL CITY DEVELOPMENT-DISTRICT OBJECTIVES.]

Section 1E

Boundaries of Development District / Project Area

The boundaries of Development District No. 51 are coterminous with the boundaries of Tax Increment Financing (Housing) District No. 51-1. The Development District / Project Area consists of Lots 1 through 8, Block 1, as shown in Exhibit I. The proposed district area is formed from portions of the three current Blue Earth County parcels identified in Section F. The final recorded plat name and complete legal description for Lots 1 through 8 will be inserted in Exhibit II when available. [INSERT FINAL RECORDED PLAT NAME AND LEGAL DESCRIPTION FOR LOTS 1 THROUGH 8, BLOCK 1.]

Section 1F

Development Activities

The City may perform or cause to be performed, to the extent permitted by law and as necessary to achieve the objectives of the Development Program, development activities within the Development District, including the following:

- Planning, studies, entitlement coordination, and administration of the Development Program.
- Acquisition or disposition of property or interests in property, if authorized and determined necessary by the City.
- Site preparation, grading, pad preparation, public improvements, streets, utilities, and other infrastructure supporting the Project.
- Execution and administration of development agreements, affordability covenants, assessment agreements, or other agreements related to the Project.
- Establishment and administration of tax increment financing districts within the Development District, including the issuance of pay-as-you-go notes, interfund loans, bonds, or other obligations permitted by law.
- Payment or reimbursement of eligible Public Development Costs from tax increment or other legally available revenues.

Section 1G

Payment of Public Development Costs

Public Development Costs associated with the Development District will be described in the applicable tax increment financing plan and related development agreements. The City currently anticipates that eligible costs associated with the Quarry View Project will be financed primarily through tax increment generated by TIF District No. 51-1 on a pay-as-you-go basis, subject to the limitations described in the TIF Plan. The City reserves the right to use other legally available sources, including special assessments, utility revenues, grants, loans, or other funds, where authorized and appropriate.

Section 1H

Environmental Controls and Land Use Regulations

All City actions, public improvements, and private development undertaken pursuant to this Development Program will be carried out in a manner consistent with applicable environmental requirements, zoning and subdivision ordinances, the City's comprehensive plan, and other applicable land-use regulations. [CONFIRM COMPREHENSIVE PLAN / LAND-USE CONSISTENCY AND IDENTIFY ANY APPLICABLE CITY PLAN OR POLICY REFERENCES.]

Section 1I

Property Acquisition and Reuse

The City may acquire, hold, convey, or otherwise assist with property within the Development District to the extent permitted by law and consistent with the objectives of the Development Program. The current Project materials indicate that the Applicant is responsible for land acquisition and holding. The City [DOES / DOES NOT] anticipate acquiring property in connection with the Project. [CONFIRM CITY PROPERTY-ACQUISITION INTENT AND ANY REUSE / CONVEYANCE CONDITIONS.]

Section 1J

Administration of Development District

Administration and maintenance of Development District No. 51 will be the responsibility of [INSERT CITY ADMINISTRATOR / DESIGNATED OFFICIAL OR DEPARTMENT], subject to the direction and authorization of the City Council. The administrator will carry out the Development Program and related agreements in accordance with applicable law and City policy.

Section 1K

Amendments to Development Program

The City reserves the right to amend the Development Program and the boundaries of Development District No. 51 as permitted by applicable law. Any amendment requiring notice, hearing, findings, or other approval procedures will be undertaken in accordance with the Development District Act and other applicable law.

Exhibit I

MAP OF COTERMINOUS DEVELOPMENT DISTRICT NO. 51 / PROJECT AREA (LOTS 1 THROUGH 8, BLOCK 1 - QUARRY VIEW HOUSING PROJECT)



Proposed coterminous Development District / Project Area and TIF District: Lots 1 through 8, Block 1.

Exhibit II

BOUNDARY / LEGAL DESCRIPTION OF COTERMINOUS DEVELOPMENT DISTRICT AND TIF DISTRICT

The Development District / Project Area and Tax Increment Financing (Housing) District No. 51-1 are coterminous and consist of Lots 1 through 8, Block 1, as depicted in Exhibit I. These proposed lots are being created from portions of current Blue Earth County Parcel IDs R01.09.06.180.008, R01.09.06.184.004, and R01.09.06.331.009. [INSERT FINAL RECORDED PLAT NAME AND COMPLETE LEGAL DESCRIPTION FOR LOTS 1 THROUGH 8, BLOCK 1.]

Site Plan and Traffic Advisory Review Committee

1. 5.

Meeting Date: 09/08/2026

Title

CY45-26

Request of the Planning Agency to amend Chapter 10 of Mankato City Code related to permitted and conditional units in the R-3, Limited Multiple-Family Dwelling District and the R-4, Multiple Family Dwelling District.

For Information Purposes Only.

Site Plan and Traffic Advisory Review Committee

1. 6.

Meeting Date: 09/08/2026

Title

CY46-26

Request of the Planning Agency to amend Chapter 10 of Mankato City Code in the M-1, Light Industrial District related to cannabis.

For Information Purposes Only.

Site Plan and Traffic Advisory Review Committee

2. 1.

Meeting Date: 09/08/2026

Title

STOP (R1 1) signs on the northbound and southbound approaches of Dane Street at the intersection of Marsh Street (west leg)

Attachments

Memorandum

Supplemental information



City of Mankato, MN
10 Civic Center Plaza
PO 3368
Mankato, MN 56002-3368.

MEMORANDUM

Date: 8/31/2026

To: Site Plan and Traffic Advisory Committee

From: Joe Smith, PE – Assistant City Engineer
Maury Hooper, PE – Traffic Engineer

Subject: Resolution for Directing Traffic Control Signage
Dane Street and Marsh Street (west leg) Intersection

Construction Services staff recommend installing STOP (R1-1) signs on the northbound and southbound approaches of Dane Street at the intersection of Marsh Street (west leg). Staff recommend sign installation on both sides of Dane Street to ensure visibility for the changed condition. The signs will be mounted on new supports to ensure proper placement and visibility.



As part of the 2026 E Main Street resurfacing project, the intersection of Dane St and Marsh St (westbound) was placed into a temporary all-way stop-controlled condition. Staff anticipated the E Main Street resurfacing project could cause an increase in traffic volumes at this intersection. In general, the intersection functions adequately; however, shift changes from the adjacent Mayo Clinic cause traffic delays. The temporary all-way stop condition provided an opportunity to see how the intersection would function under all-way stop control. City staff monitored the all-way stop operations on separate occasions, including during the afternoon Mayo shift change and noted no operational concerns with the all-way stop condition. No additional operational concerns have been received from the public regarding the all-way stop operations.

The Dane Street and Marsh Street intersection is in the Hilltop area near Mayo Clinic Health System, Bethany Lutheran College, Washington Elementary School, and Mount Olive Lutheran School. Dane Street and Marsh Street are both two-lane roadways with one travel lane in each direction. The intersection is side-street stop controlled on Marsh Street, which includes dedicated left and right-turn lanes. Dane Street provides a southbound through-right lane and a northbound through-left lane.



City of Mankato, MN
10 Civic Center Plaza
PO 3368
Mankato, MN 56002-3368.

On-street parking is permitted north of Marsh Street and restricted elsewhere near the intersection. Both roadways are posted at 30 mph and include sidewalks on all approaches. According to MnDOT's

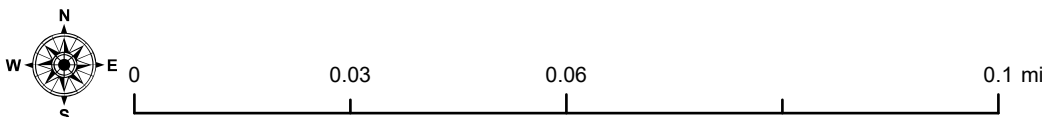
Enterprise MnDOT Mapping Application (EMMA), the AADT is 7,084 vehicles per day on Dane Street (2023) and 5,301 vehicles per day on the west leg of Marsh Street (2025). Dane Street is functionally classified as a major collector, while Marsh Street is a minor collector. A marked crosswalk is provided on the west leg of Marsh Street. However, based on available Google Street View imagery, accessible pedestrian connections appear incomplete, as no receiving curb ramps are present on the opposite side of Dane Street. As a result, pedestrians using wheelchairs or other mobility devices must travel to the east leg to cross Dane Street, creating out-of-direction travel and reducing accessibility. Street lighting is present at the intersection.

The City of Mankato has received feedback regarding safety concerns at the intersection of Dane Street (MSAS 131) and west leg of Marsh Street (MSAS 110). The City requested assistance in evaluating changing from a side-street stop to an all-way stop controlled (AWSC) condition to help address reported safety concerns, which include both pedestrian and right-angle conflicts. The results of the evaluation recommend a permanent AWSC condition.

Attachments:

- AWSC_Dane at Marsh St_Memo 8_26_2026.pdf

ArcGIS Web Map



This information is to be used for reference purposes only. The City of Mankato does not guarantee accuracy of the material contained herein and is not responsible for misuse or misinterpretation.



**BOLTON
& MENK**

Real People. Real Solutions.

MEMORANDUM

Date: 8/26/2026

To: Cory Bienfang, PE – City Engineer

From: Maury Hooper, PE – City Traffic Engineer

Subject: Dane Street and Marsh Street All-Way Stop Control (AWSC) Evaluation
City of Mankato, Minnesota
Project No.: 26X.143202
Task Order No.: 05

Introduction

The City of Mankato has received feedback regarding safety concerns at the intersection of Dane Street (MSAS 131) and west leg of Marsh Street (MSAS 110). The City requested assistance in evaluating changing from a side-street stop to an all-way stop controlled (AWSC) condition to help address reported safety concerns, which include both pedestrian and right-angle conflicts. The intersection is shown below in **Figure 1**.

Figure 1. Existing Conditions – Dane St./Marsh St. (West Leg) Intersection



The Dane Street and Marsh Street intersection is in the Hilltop area near Mayo Clinic Health System, Bethany Lutheran College, Washington Elementary School, and Mount Olive Lutheran School. Dane Street and Marsh Street are both two-lane roadways with one travel lane in each direction. The intersection is side-street stop controlled on Marsh Street, which includes dedicated left and right-turn lanes. Dane Street provides a southbound through-right lane and a northbound through-left lane. On-street parking is permitted north of Marsh Street and restricted elsewhere near the intersection.

Both roadways are posted at 30 mph and include sidewalks on all approaches. According to MnDOT's Enterprise MnDOT Mapping Application (EMMA), the AADT is 7,084 vehicles per day on Dane Street (2023) and 5,301 vehicles per day on the west leg of Marsh Street (2025). Dane Street is functionally classified as a major collector, while Marsh Street is a minor collector.

A marked crosswalk is provided on the west leg of Marsh Street. However, based on available Google Street View imagery, accessible pedestrian connections appear incomplete, as no receiving curb ramps are present on the opposite side of Dane Street. As a result, pedestrians using wheelchairs or other mobility devices must travel to the east leg to cross Dane Street, creating out-of-direction travel and reducing accessibility. Street lighting is present at the intersection.

AWSC Warrant Evaluation

Section 2B.12 of the Minnesota Manual for Minimum Uniform Traffic Control Devices (Mn MUTCD) establishes the engineering warrants under which all-way stop control should be considered. This evaluation is presented below.

Warrant A – Crash Experience:

Observed Existing Condition

Crash data obtained from MnCMAT2 indicates one (1) angle-related crash has been reported at the intersection within the last 10 years.

Source: Minnesota's crash database (MnCMAT2)

Warrant Requirements (3-leg Intersection)

Four (4) or more reported crashes within a 12-month period or five (5) or more reported crashes within a 36-month period, which are of a type susceptible to correction by the installation of all-way stop control.

Conclusion

Warrant A is not met.

Warrant B – Sight Distance:

Observed Existing Condition

For the posted speed of 30 mph on Dane Street, a minimum sight distance of 335 feet measured along the roadway to in both directions is required. Based on review of Google Maps and Street View imagery, there may be intermittent sightline limitations caused by vegetation in the northwest quadrant of the intersection. The presence of tree branches extending into the right of way may impact sightlines for vehicles approaching the intersection from Marsh Street, particularly during periods of full foliage. The existing vertical and horizontal alignment of the roadways does not appear to create sight distance concerns for the posted speed. Minor tree trimming and ongoing vegetation maintenance are expected to address the localized sight distance limitations at the intersection. On-street parking on the north approach (along the west curb line) may result in intermittent sight-line challenges without restriction.

Warrant Requirements

All-way stop control may be installed at an intersection where an engineering study indicates that sight distance on the minor-road approaches controlled by a stop sign is not adequate for a vehicle to turn onto or cross the major uncontrolled road.

Conclusion

Warrant B is not met. Existing site conditions can be addressed with regular maintenance of vegetation, and parking restrictions if necessary.

Warrant C – Transition to a Signal Control or Circular Intersection:

Observed Existing Condition

The intersection is not programmed for a traffic signal or circular intersection. It is acknowledged that the city's CIP will include future funding to further investigate whether long-term geometric changes at the intersection should be implemented.

Warrant Requirements

All-way stop control may be installed at locations where an all-way stop control is an interim measure that can be installed to control traffic while arrangements are being made for the installation of a traffic control signal or circular intersection.

Conclusion

Warrant C is not met.

Warrant D – 8 Hour Volume:

Observed Existing Condition

Existing traffic volumes were collected on Thursday, April 30, 2026. The combined motor vehicle, bicycle, and pedestrian volume on the major street approaches of Dane Street exceeded 300 vehicles per hour for 13 hours of the day, with a maximum hourly volume of 861.

The combined motor vehicle, bicycle, and pedestrian volume on the minor street approach of Marsh Street exceeded 200 vehicles per hour for 6 hours of the day and a maximum hourly volume of 313. It is worth noting that two additional hours approached the threshold but fell short. Minor street volumes were present for the same hours as major street volumes.

Warrant Requirements

All-way stop control may be installed at an intersection where an engineering study indicates:

- A. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the major- street approaches is at least 300 units per hour for each of any 8 hours of a typical day; **and**
- B. The combined motor vehicle, bicycle, and pedestrian volume entering the intersection from the minor- street approaches is at least 200 units per hour for each of the same 8 hours.

If the 85th-percentile approach speed of the major street traffic exceeds 40 mph, the minimum vehicular volume warrant may be reduced to 70 percent of the values given in Items A and B.

Conclusion

Warrant D is not technically met; however, the observed volumes indicate the warrant is very nearly satisfied because the major-street volume threshold was met for 13 hours and the minor-street volume threshold was met for 6 of the same hours, two additional hours approached the 200 combined motor vehicle, bicycle, and pedestrian volume threshold.

Warrant E – Other Factors:

Observed Existing Conditions

Data collection indicates that approximately 85 percent of vehicle volume from Marsh Street turns left onto Dane Street, and approximately 15 percent of northbound Dane Street volume turns left onto Marsh Street.

Dane Street and Marsh Street are both Municipal State Aid Streets (MSAS) and are similar in operating characteristics, with both streets functionally classified as collectors, serving a more significant role on the network. Both facilitate connections between other MSAS routes in the area including Glenwood Ave (MSAS 109), Madison Avenue (MSAS 123) and Main (MSAS 108).

Pedestrian counts were collected on Thursday, April 30th, 2026. Weather conditions were favorable for field observations, with mild spring temperatures, dry pavement conditions, and no significant precipitation. Pedestrian crossing activity was highest between 5:00 PM and 6:00 PM where pedestrian crossings at the intersection totaled 20 over the 1-hour period. A total of 43 pedestrians and cyclists were found to have crossed the intersection during the 13-hour data collection period. It should be noted that these counts may not fully capture overall pedestrian activity at the intersection as they represent just one spring day. There are institutional and residential uses near the intersection, including the Mayo Clinic Health System hospital, Cornerstone Lutheran School, and nearby multi-family residential developments along Marsh Street, which may generate increased pedestrian traffic.

As part of the city's CIP, this intersection was placed into a temporary all-way stop-controlled condition for the 2026 reconstruction of Main Street. This provided an opportunity to see how the intersection would function under all-way stop control. City staff monitored the all-way stop operations on separate occasions, including during the afternoon Mayo shift change and noted no operational concerns with this temporary condition. No additional operational concerns have been received from the public regarding the all-way stop operations.

Warrant Requirements

All-way stop control may be installed at an intersection where an engineering study indicates that all-way stop control is needed due to other factors not addressed in the other all-way stop control warrants. Such other factors may include, but are not limited to, the following:

- A. The need to control left-turn conflicts,
- B. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where all-way stop control would improve traffic operational characteristics of the intersection, or
- C. Where pedestrian and/or bicyclist movements support the installation of all-way stop control.

Conclusion

Warrant E is met. Based on engineering judgment, the observed conditions support all-way stop control under the other factors identified in Warrant E. The intersection experiences notable left-turn activity, including a high percentage of Marsh Street traffic turning left onto Dane Street, and both roadways function as collector-level Municipal State Aid Streets with similar operating characteristics. Pedestrian and bicyclist activity was also observed at the intersection, with nearby institutional and residential land uses expected to contribute to pedestrian demand. In addition, the temporary all-way stop condition implemented during the 2026 Main Street reconstruction was monitored by City staff and no operational concerns were noted. These factors support the installation of all-way stop control at this location. In addition, the volume warrant is very nearly satisfied, as the major-street volume threshold was met for 13 hours of the 8 required and the minor-street volume threshold was met for 6 of the same hours, noting that two additional hours approached the 200 combined vehicle/bicycle/pedestrian threshold.

Conclusion and Recommendation

An analysis of the study intersection finds that Warrant E supports the installation of all-way stop control based on observed left-turn activity, similar collector-street operating characteristics, pedestrian and bicyclist activity, and successful temporary all-way stop operations during the 2026 Main Street reconstruction project. While Warrants A, B, C, and D were not technically met, Warrant D is very nearly satisfied, with the major-street volume threshold met for 13 of 8 hours needed and the minor-street volume threshold met for 6 of the same 8 hours, noting two additional hours approaching the 200 combined vehicle/bicycle/pedestrian threshold. A summary of the warrant review is provided in **Table 1**.

Table 1 – Warrant Evaluation Summary

Warrant	Evaluation result
Warrant A – Crash Experience	Not met based on crash history.
Warrant B – Sight Distance	Not met because localized sight line issues can be addressed through maintenance and parking restrictions if needed.
Warrant C – Transition to Signal Control or Circular Intersection	Not met because the intersection is not currently being used as an interim measure before signal or circular intersection installation.
Warrant D – 8 Hour Volume	Not technically met, but very nearly satisfied.
Warrant E – Other Factors	Met based on other factors documented in the engineering study.

Based on the engineering study and the additional factors identified under Warrant E, all-way stop control is recommended at the intersection of Dane Street and Marsh Street. This recommendation is supported by notable left-turn activity, the comparable collector function of both roadways, a nearly satisfied volume warrant, and the lack of operational concerns observed during the temporary all-way stop condition implemented for the 2026 Main Street reconstruction.