AGENDA

Rogers Planning Commission

April 7, 2025 - 7:00 PM

1. CALL TO ORDER AND PLEDGE OF ALLEGIANCE

2. APPROVE AGENDA

Council members may add items to the agenda for discussion purposes or staff direction only. The Council will not normally take official action on items added to the agenda.

3. CONSENT AGENDA

These items are considered to be routine and will be enacted by one motion. There will be no separate discussion of these items unless a Councilmember so requests, in which event the item will be removed from the Consent Agenda and placed elsewhere on the agenda.

3.1 Approve Minutes From November 6, 2024.

4. PUBLIC HEARINGS

4.1 Consideration of a Site Plan and Variance Requests by Take 5 Oil Change for the Property at 13510 Rogers Drive (former Wells Fargo)

4.2 Consider Application by Rachel Development for Preliminary Plat and Planned Unit Development Request for Cowley Lake Preserve, 169 lot development.

4.3 Consider Applications by Creative Lawn and Landscapes for Site Plan approval and Conditional Use Permit approval related to exterior site improvements and outdoor storage at 14005 Northdale Blvd

5. NEW BUSINESS

6. OTHER BUSINESS

7. CORRESPONDENCE AND REPORTS

7.1 Past Planning Commission Items Review

8. ADJOURN

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: April 7, 2025

Agenda Item: 3.1

Subject: Approve Minutes From November 6, 2024.
Prepared By:

Recommended Council Action

Overview / Background / Analysis

Staff Recommendation
Motion to Approve Minutes from November 6th, 2024

Financial Impact: **Source Fund**:

Budgeted?

Supporting Documentation
A. November 6 2024 Planning Minutes.

1. CALL TO ORDER AND PLEDGE OF ALLEGIANCE

The meeting of the Rogers Planning Commission was held on Novermber 6th, 2024 at 7:00 p.m. and was called to order with Chair Carlson. Comissioners Carlson, Fisher, Sattersten, and Stiebinger were present.
Members absent: Alternate Commissioner Cartwright, Alternate Commissioner Kussman, Commissioner Lohr, Mullin, and Plansky.

Also Present: Staff Members Brett Angell and Alec Henderson, and Council Liason Alternative Kevin Jullie.

2. APPROVE AGENDA

Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to Approve the Agenda. Motion carried 4-0.

3. CONSENT AGENDA

Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to Approve the Consent Agenda. Motion carried 4-0.

3.1 Approve Minutes from October 7th, 2024

4. NEW BUSINESS

4.1 Consideration of a Site Plan Request by Ray Js for a Restaurant and Bar at Northdale Blvd and County Rd 144

Community Development Director Angell summarized the application by Ray Js for site plan approval. The lot is 2.7 acres, zoned RC, guided commercial. The applicant is proposing a bar and grill called Ray Js with an additional pad for a commercial user to be determined. This parcel was acquired in 2023 by the City and platted for redevelopment with a lot sold to Ripple Effect Brewery and a lot for this application. An additional lot is for sale in the NW part of the site.

The site plan includes 6,631 square feet freestanding structure, parking improvements with a pad for future commercial. The proposed plan is consistent with the performance standards, stormwater standards, and impervious surface. Landscaping is proposed on the east side, and building envelope landscaping is also proposed. The architecture is a mix of brick, EFIS, and wood. The elevations proposed are consistent with code.

Chair Carlson asked for questions of the Commission. No questions. Carlson asked if the applicant would like to address the Commission.

Mark Jacob, Paul Jacob, came forward as owners of the Ray Js business. They opened in Woodbury 18 years ago, followed by Minneapolis in 2013, and took over Schulers Tavern in 2020 and looking to expand and excited to be a part of Rogers. This proposal is a little more advanced than other locations.

Chair asked for a motion.
Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to Recommend approve Resolution 2024-108 subject to conditions in the resoltuion. Motion carried 4-0.

4.2 Consideration of a Site Plan Request by Discount Tire for a 1,028 Square Foot Addition at 21721 Diamond Lake Rd S

Henderson summarized the application. The report ultimately requests City Council approval for a 1,028-square-foot addition to the Discount Tire facility at 21721 Diamond Lake Road S, primarily for tire storage, with some internal remodeling. The addition meets zoning requirements for the RC Regional Employment Center district and aligns with the Rogers 2040 Comprehensive Plan for commercial use. Minimal site changes include relocating the trash enclosure and reestablishing turf, with no new landscaping proposed. The addition will use materials matching the existing structure. Staff recommends approval, contingent on revised civil plans being approved by Public Works and the City Engineer, and review by the Metropolitan Council for SAC determination.

Chair Carlson invited commission to ask any questions. No questions were posed.
Chair Carlson invited a motion.
Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to Recommend approval of Resolution 2024-111 for Site Plan approval for Discount Tire. Motion carried 4-0.

4.3 Review and Provide Comments for Residential Development Concept Plan by Benzinger Homes at 23415 Wood La - Wood Lane Villas

Henderson summarized the application. The Concept Plan application submitted by Benzinger Homes for a proposed residential subdivision called Wood Lane Villas, located at 23415 Wood Lane. The 4.82-acre site would feature 17 single-family, villa-style homes with lot sizes of approximately 7,400 square feet and 7.5 ft side setbacks, deviating from the R2 zoning standards. The development aligns with the city's Low-Density Residential designation in the 2040 Land Use Plan but requires approval through a Planned Unit Development (PUD) process to accommodate the smaller lot sizes and setbacks. Access would be provided via Wood Lane and existing streets in the adjacent Skye Meadows subdivision. Staff requests feedback from the Rogers City Council and Commission without requiring immediate action.

Chair Carlson invited the applicant representative to speak to the item.
Dave Nash, with Alliant Engineering, provided information related to the application. The applicant requests a plan similar to approvals in Skye Meadows. Additionally, the applicant would like to utilize the vacant outlot owned by the City South East of the property for stormwater purposes. The units themselves would have HOA maintenance for lawn and snow.

Stiebginer mentioned it's quite similar to the Lennar development. It is consistent with the ghost plat shown in the Skye Meadows development.

Carlson asked for clarification on the property to the west and stormwater.

Henderson explained that the property directly to the west is actually a Skye Meadows outlot and is adjacent to the property to the west which is an existing homestead and driveway access for a flag lot. The Stormwater pond could go into the vacant outlot which is currently not utilized.

No other concerns were voiced by the Commission.

5. PUBLIC HEARINGS

5.1 Consideration of Ordinances 2024-06 and 2024-07 Related to Cannabis Businesses

Brett Angell described the purpose of the hearing and summarized the history of state legalization where little discretion is permitted by state statute based on state legalization. Additionally model ordinance were development which this code closely mirrors. The ordinances established Cannabis Business definitions, inserts uses in the use table, and provides licensing processes in City Code and includes a cap on retailers based on population (1 per 12,500 residents), buffers include 1,000 from schools, 500 feet from park features geared toward childrnes, 500 feet from daycare, and 500 feet from another cannabis business. Hours were limited from 10 AM to 9 PM for retailers. The ordinance provides for any restrictions as allowed by state statute.

Staff recommends the Commission recommend approval of the ordinances, 2024-06 and 2024-07.

Carlson commented that most of this is focused on retailers, what language is there for manufacturing or other uses? Does that get clarified?

Angell responded that there are no specific restrictions for uses other than retailers. When legislation went through, it was heavily focused on retail rather than manufacturing, extraction, and cultivation.

Carlson asked for clarification on whether the cap is only for retail and imposing restrictions on number of cannabis manufacturing facilities?

Angell responded because it is not expressed in state statute that we cannot impose those restrictions.

Stiebinger asked if there were any restrictions on signage.

Angell responded that while the ordinance does not regulate the signage for cannabis, there are restriction in state statute.

Carlson, opened the public hearing at 7:43 pm.
Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to Close the public hearing at 7:44. Motion carried 4-0.

Chair Carlson asked if there was any other discussion.

Stiebinger commented that the draft is as close to state statute as possible.

Carlson asked if anything in the amendments hit other uses other than retail.

Angell outlined the cultivation, manufacturing, and low-potency hemp-specific uses for Rogers.

Fisher asked about any differences with neighboring cities.

Angell responded that every city is making a very similar amendment. Where it is denser and closer to Minneapolis you may see smaller buffers.

Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to Recommend Approval of Ord 2024-06 and 2024-07. Motion carried 4-0.

5.2 Consideration of Zoning Code Amendments to Ordinance Sections Related to Shoreland Regulations

Rita Trapp provided a history of shoreland management. This started in 1969 and there are state statute rules, but we, the City's actually regulate them. If we do not have approved shoreland regulations, then the DNR actually will have to review all developments in shoreland districts. The City of Rogers is proposing revised shoreland management regulations in collaboration with the Minnesota Department of Natural Resources (DNR). These updates aim to balance environmental protection with the city's development vision, as outlined in its 2040 Comprehensive Plan. The revisions include adopting alternative development standards that reduce minimum lot sizes in the shoreland overlay (utilizing base zoning standards) and impervious surface limits for properties near lakes, while introducing stricter stormwater management requirements and ensuring 35% open space dedication. The updated regulations will replace existing ones, enhancing flexibility and aligning with state guidelines.

Chair Carlson opened the public hearing at 8:33 PM.

Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to close the public hearing at 8:34 PM. Motion carried 4-0.

Carlson and other commissioners requested clarity on open space vs impervious surface.

Rita Trapp explained that if the developer chooses to use the alternative shoreland development standards, impervious surface would be capped 25% for the entire development and individual lots would have separate impervious surface caps depending on size (which makes enforcement easier after subdivision is complete). The open space is also a requirement and the shore impact zone dedication, wetlands, common areas, or stormwater facilities can count towards the open space requirement. Individual lot yards are not included in the open space calculations.

Commission Member Carlson moved, Commission Member Fisher seconded a motion to recommend approval of Ordinance Nos. 2024-08, 09, 10 regarding shoreland regulation updates. Motion carried 4-0.

5.3 Consideration of a Preliminary Plat, Final Plat, and Site Plan Request by Veit Related to a Building Addition at 14000 Veit Place

Brett Angell summarized the Veit Companies potential building expansion and replat. Veit & Company, LLC's has submitted a proposal for a 13,924-square-foot expansion of its headquarters at 14000 Veit Place. This expansion involves re-platting the current seven parcels into two, with the primary lot encompassing 21.33 acres and the second for exterior storage at 1.15 acres. The addition, designed to match the existing building's architecture, will enhance vehicle maintenance capabilities and adhere to zoning and design standards. The proposed re-platting also requires vacating easements and rights-of-way, subject to City Council review. Staff recommends approval of the preliminary and final plat and site plan.

Chair Carlson asked if there are existing utilities or need for easements?

Angell responded that the previous streets have been realigned and there are no needs for the easements or right of way.

Chair Carlson opens the public hearing at 8:49 PM. No one was present.
Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to close the public hearing at 8:50. Motion carried 4-0.

Chair Carlson asked if there were further questions for staff or the applicant.
The commission had no further questions.

Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to to Recommend approval of Resolution 2024-109, approving Site Plan, Pre

Plat, and Final Plat for Veit. Motion carried 4-0.

6. OTHER BUSINESS

7. ADJOURN

Commission Member Stiebinger moved, Commission Member Fisher seconded a motion to Adjourn at 8:54 PM. Motion carried 4-0.

Respectfully Submitted,

Alec Henderson, CIty Planner

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: April 7, 2025

Agenda Item: 4.1

Subject: Consideration of a Site Plan and Variance Requests by Take 5 Oil Change for the Property at 13510 Rogers Drive (former Wells Fargo)
Prepared By: Brett Angell, Community Development Director

Recommended Council Action

Overview / Background / Analysis
T5 Rogers, LLC ("Applicant") has submitted site plan and variance requests to the city pertaining to the property located at 13510 Rogers Drive ("Subject Property"). The Applicant is seeking to add a small addition to the existing building, expansion of the existing parking lot, and re-purposing of the existing building for new commercial users. The Applicant currently has the property under contract and would be the owner-operator of a Take 5 Oil Change facility at this location, which is the proposed addition to the building. The proposed variance request pertains to code requirements for parking lot setbacks and impervious surface requirements.

Property Details
The Subject Property is 1.07 acres in size and consists of an approximately 4,300 square-foot free-standing building which was previously a financial institution with an attached 1,000 square-foot canopy that was previously used for drive-through banking purposes. The existing building was built in 2002 and was occupied by Wells Fargo until they made the decision to close this branch location in early 2024. The building has been vacant for the past year as Wells Fargo has sought a buyer for the property. The Subject Property is zoned as RC and guided as commercial within the 2040 Comprehensive Plan. The proposed use as presented in the applications is consistent with the zoning and the guidance for the property.

Site Plan
The proposed site plan includes the expansion of the existing building by approximately 1,600 square feet extending to the south. The proposed addition would house Take 5 Oil Change, which is a drive-through style limited service auto repairs. The existing building is planned to be converted into a quick-service restaurant and one additional retail user. Said restaurant would have the ability to utilize the existing drive-through canopy area for their service. Additionally, the Applicant and existing property owner have an agreement in which the existing Wells Fargo ATM will be maintained at this location.

The Take 5 addition operates as a drive-in oil change facility. So as a consumer enters

the they stay within the vehicle as the service is performed. The proposed addition would accommodate a two-bay oil change facility. Outside of the entrance doors, there would be space for four additional cars to wait. Per the Applicant, who operates numerous Take 5 locations in the metro, they do not typically experience large waits or stacking of customers. Per staff review comments, two adjacent parking stalls shall be signed for overflow parking and the stacking area shall be properly marked on the pavement.

Traffic would enter the site from the north and extend south throughout the property. On the west and south sides of the property, it would allow for two-way vehicle access. The east side would be restricted to one-way traffic moving north.

Access and Parking
The proposed access to the property will remain the same as currently exists for the property. Both the access points are shared with the Dairy Queen property to the north. On the east side of the Subject Property there is a right-in access point. To exit the development, there is an access road that wraps around the east and west sides of the Dairy Queen property and connects back to Rogers Drive.

Currently, there are a total of 31 parking spaces (including 2 of which are ADA-accessible). The Applicant is proposing to expand the parking area to increase the total number of stalls on site to 45. The primary area which new stalls would be created is on the west side of the property along Rogers Drive,

Stormwater
The subject property is currently served by a regional stormwater system that is adjacent to the site. Said regional system has the capacity for the proposed site improvements. No on-site stormwater pounding is required.

Landscaping
Through the removals and landscaping plan, the Applicant is proposing to directly replace the existing number of trees being removed. Currently, the property includes two Ash trees and five Crabapple trees. The proposed Landscaping Plan includes two Honey Locust trees and five lilac trees. The Applicant is also proposing 19 additional shrubs and 26 additional perennials.

Architecture
The proposed addition would be a combination of brick, glass, and fiber cement siding. The proposed architecture was designed in an effort to match the existing structure on site and appear consistent with that structure. The proposed architecture meets City Code requirements.

Fire Review Comments
Per review by the Rogers Fire Department, with the proposed addition and new uses being introduced to the existing building, both the addition and existing structure will require fire sprinklers to be installed. Fire also expressed some concern related to if the

oil change facility hit very busy times and the stacking extended past its identified area as shown on the plans.

Variance Request

The Applicant is seeking a variance from City Code Section 125-57 related to parking setbacks and impervious surface requirements. Per City Code, properties within the RC district (within a defined Corridor area) are required to have a 20 ft parking setback and are limited to 65% impervious surface. The Applicant is requesting a 0' parking setback from Rogers Drive and an allowance for impervious surface to equal 86%.

The existing conditions at the Subject Property include a 0' parking setback. A variance request was required due to the expansion of the parking area in that location. Additionally, the Subject Property is currently above the allowable maximum impervious percentage allowed by code. While the property is seen as legally non-conforming currently for both of these items, the proposed variance request will bring the property up to requirements.

Criteria for Granting Variances

The Planning Commission must make findings of fact that the proposed variance is pursuant to, but not limited to, the following considerations:

1. Variances shall only be permitted when they are in harmony with the general purpose and intent of the City Code and consistent with the Comprehensive Plan;
2. Variances may only be permitted when the application establishes that there are non-economic practical difficulties in complying with the zoning ordinance, meaning the property owner proposes to use the lot or parcel reasonably permitted by the zoning code;
3. The plight of the property owner must be due to circumstances that are unique to the lot or parcel and that are not created by the property owner;
4. The variances must not alter the essential character of the locality, including all zoning district and overlay district provisions. Rogers code also include the following variance standards (beyond state statute):
5. Under the circumstances, the public interest underlying the proposed variance outweighs the public interest underlying the particular regulation for which the variance is granted; and
6. The granting of a variance will not be injurious to other properties and will not prevent the orderly subdivision of other property in the area, in accordance with these regulations.

Each variance request is processed and evaluated on its own merits. The Planning Commission should consider if the request meets the variance criteria as listed above. The following should be considered when determining the request. The State Statute specifically notes that economic conditions alone cannot create practical difficulties.

- Does the proposal put the property to use reasonably?

- Are there unique circumstances regarding the property not created by the landowner?
- Will the variance, if granted, alter the essential character of the area?

Staff Recommendation
Motion to open the public hearing to take public comment on the proposed variance request.

Motion to recommend approval of the proposed site plan and variance request by Take 5 Oil Change for the property at 13510 Rogers Drive, subject to the conditions as listed in the draft resolution.

Draft Resolution 2025-27 is included in the packet.

Financial Impact: Not applicable. **Source Fund**: Not applicable.

Budgeted? N/A

Supporting Documentation
A. Draft Resolution No. 2025-27 Take 5 Site Plan and Variance
B. Narrative
C. Variance Worksheet
D. Location Map
E. Civil Plans and Renderings

RESOLUTION NO. 2025-27

APPROVING A SITE PLAN AND VARIANCES RELATED TO TAKE 5 OIL CHANGE FOR THE PROPERTY LOCATED AT 13510 ROGERS DRIVE

WHEREAS, T5 Rogers, LLC ("Applicant") have submitted applications to the City of Rogers ("City"), requesting approval of a Site Plan and Variances for alterations to the property located at 13510 Rogers Drive – former bank building. The proposed development includes a 1,600 square foot addition to the building, expansion of the parking lot, and change of uses for the building. The proposed variances are related to parking setbacks and impervious surface requirements.; and

WHEREAS, the property is 1.07 acres and zoned Regional Employment Center (RC), located at 13510 Rogers Drive and legally described in Exhibit A ("Subject Property") (PID: 14-120-23-42-0006); and

WHEREAS, section 125-27 – Site Plan governs the procedures around site plan review processes, and subsection (b) states: "the Planning Commission shall evaluate the effects of the proposed site plans. This review shall be based upon, but not be limited to, compliance with the City's Comprehensive Plan and provisions of this Ordinance"; and

WHEREAS, the proposed use at the Subject Property for a multi-tenant commercial building comprised of an oil change business, restaurant, and retail use are permitted uses in the RC zoning district (§125-50 Table 4E); and

WHEREAS, the proposed development includes a parking plan of 45 total spaces allocated via City Code 125-86 Parking consisting of 5 spaces dedicated to the oil change use, 6 spaces for the retail use, 34 space for the restaurant use; and

WHEREAS, pursuant to Minnesota Statute §462.357, the Planning Commission ("Commission") held a Public Hearing ("Hearing") on April 7, 2025 to consider and receive public comment on the variance requests; and

WHEREAS, notice of the Hearing was posted, published in the City's official newspaper, mailed to any and all owners of affected properties, as required by State Statute; and,

WHEREAS, on April 7, 2025, the Commission reviewed the request and voted unanimously to recommend approval to the City Council of the Site Plan Review, with the following conditions:

a. Applicant entering into all required agreements with the City prior to issuance of a building permit.
b. All engineering comments shall be satisfied prior to construction.
c. Any necessary Elm Creek Watershed Permitting and Requirements shall be met prior to construction.
d. SAC Determination shall be submitted to the Metropolitan Council and all building and connection fees paid prior to issuance of the building permit.

e. The existing building and addition shall include sprinklers pursuant to the review and approval by the Fire Department.
f. The queuing area for the Take 5 Oil change shall be properly striped and displayed as a waiting area to limit additional queuing.
g. The applicant shall mark at least 2 parking stalls adjacent to the Take 5 queuing area as overflow parking to limit impacts to the drive aisle.
h. Applicant shall work with staff on the proposed location of the ordering/menu board for the restaurant use. Staff request the order board be shifted further to the north or for that line to be mobile order pick-up only and not a full drive through.

WHEREAS, following the Hearing, the Commission recommended approval of the variance requests for the parking setback and impervious surface requirements provided based on the following findings of fact:

1. The subject property is legally described as found in Exhibit A; and
2. The Applicant has applied to the City for variances to City Code 125-57 related to the required 20 foot parking setback and impervious surface limitations of 65%; and
3. The proposal would vary from the Code requirement via providing a 0-foot parking setback and the property would be at 86% impervious surface; and
4. Following a public hearing on the application, the Rogers Planning Commission has recommended approval of the variance on April 7, 2025; and
5. The City Council of the City of Rogers reviewed the requested variance at its April 22nd, 2025meeting; and
6. Variances are guided by applicable State Statute Section 462.357 Subd. 6 and City Ordinance Section 125-42(c); and
7. The Applicant is conforming with the existing conditions of the property due to the existing conditions already including a 0-foot parking setback and above the impervious surface limits; and
8. The Property has an effective 20-foot setback from back of curb to the property line due to the public right-of-way adjacent to this location;
9. The property is bound by roads and a wetland and other structuring of the development would not be possible;
10. The Property is served by regional stormwater systems which have the capacity to handle the excess impervious surface.
11. The Variance is in harmony with the general purpose and intent of City Code, and is consistent with the character of other uses in the zoning district.
12. There are non-economic practical difficulties in complying with the zoning ordinance, and the Variance is the result of circumstances caused by the City Code requirements related to the development.

NOW THEREFORE, BE IT RESOLVED, BY THE CITY COUNCIL OF THE CITY OF ROGERS, MINNESOTA, the Site Plan Review and Variance requests from T5 Rogers, LLC are hereby approved for the addition and site plan changes to 13510 Rogers Drive, and variances from City Code 125-57 related to the reduction of the parking setback from 20 feet to 0 feet and allowance to have 86% impervious surface compared to the code maximum of 65%, based on the conditions found in this resolution.

Moved by Councilmember , seconded by Councilmember

The following voted in favor of said resolution:

The following voted against the same:

The following abstained:

Whereupon said resolution was declared duly passed and adopted, and was signed by the Mayor, and attested by the City Clerk dated this 22nd day of April, 2025.

_____
Shannon Klick, Mayor

ATTEST:

_____
Stacie Brown, City Clerk

EXHIBIT A

LEGAL DESCRIPTION

Subject Property

LOT 2, BLOCK 1, WALTER DEHN COMMERCE CENTER 2ND ADDITION, HENNEPIN COUNTY, MINNESOTA

Abstract Property

PID #14-120-23-42-0006

WRITTEN STATEMENT FOR TAKE 5 OIL – ROGERS, MN

Land Use Submittal

The redevelopment of the previous Wells Fargo site is aimed at increasing the efficiency of a premium site in the City of Rogers, MN and to add valuable amenities and services to the community. The site is zoned as a Regional Employment Center (RC), which the city states is intended to promote the redevelopment of sites into the corridor into high intensity commercial use amongst other uses. The city encourages efficient use of land, and the proposed site plan addresses this intention by expanding the site from a single user to four users.

The major changes to the site include expanding the current footprint of the building by approximately 1,600 sq ft to add a Take 5 Oil Change business and expanding the parking field to accommodate a national, quick service restaurant (QSR), an ATM and a 1,500 sq ft retail space for a fourth user. The local developer currently owns and operates five other Take 5 Oil Change locations, which makes this an owner-occupied development. The goal of the building expansion is to match the look and feel of the current building while freshening up the exterior.

While the site would undergo significant changes, the overall compatibility of the new users would fit within the community feel of the site. Adding a restaurant to the site provides another amenity to the local community as well as those traveling through on the highways. An oil change facility adds another essential service to a growing community and having an ATM onsite preserves the financial service of the previous user. The fourth user is not currently identified but the developer desires to offer this space to a local business.

Adding these businesses increases the number of jobs available in the local community and offers additional amenities and services to its residents. From the beginning, the developer sought advice and input from the Planning and Development team at the city. Their input and encouragement were invaluable in putting together the proposed site plan.

VARIANCE WORKSHEET

1. Detail specifically the deviation(s) from code proposed (e.g. code requires X ft setback, requesting X ft setback).

Code requires 20' front parking setback on west and south. Requesting 0' setback on west and 12' setback on south.
Code requires 65% impervious area. Requesting 86.6%.

2. Describe how the request is in harmony with the general purpose and intent of zoning for the property.

This property is zoned RC (Regional Employment Center), which is intended to promote the redevelopment of the corridor into high intensity commercial and other uses. The city is encouraging land use efficiency in this district. The proposed redevelopment changes this site from a single use to four uses that will add additional amenities and services to the surrounding community.

3. Describe how the request is consistent with the Comprehensive Plan.

In the 2040 Comprehensive Plan for the city, there is an emphasis on job creation (p. 39) and redevelopment of existing sites to make more efficient use of land (p. 47). With this redevelopment, we plan to redevelop the site from one user (a financial institution) into four users (QSR, quick lube oil change, ATM and a retail space). Given the proximity to the highway and residential areas, a restaurant will draw traffic from both the city and highway users, the ATM will continue to support financial users and the oil change will provide a necessary service to the community.

4. Describe why the proposed use is reasonable.

This site is in a premium location within the city and was underutilized as a financial institution. The variance request to encroach into easement areas will allow additional parking for the new users. The site already has parking spaces on the west side on the property line. The request is to build additional parking spaces on the west side along the same line as the existing spaces and to add parking spaces into a utility easement on the south side of the property. The only interference with utility lines would be asphalt that could easily be torn up and replaced in the event that a utility line needed to be replaced.

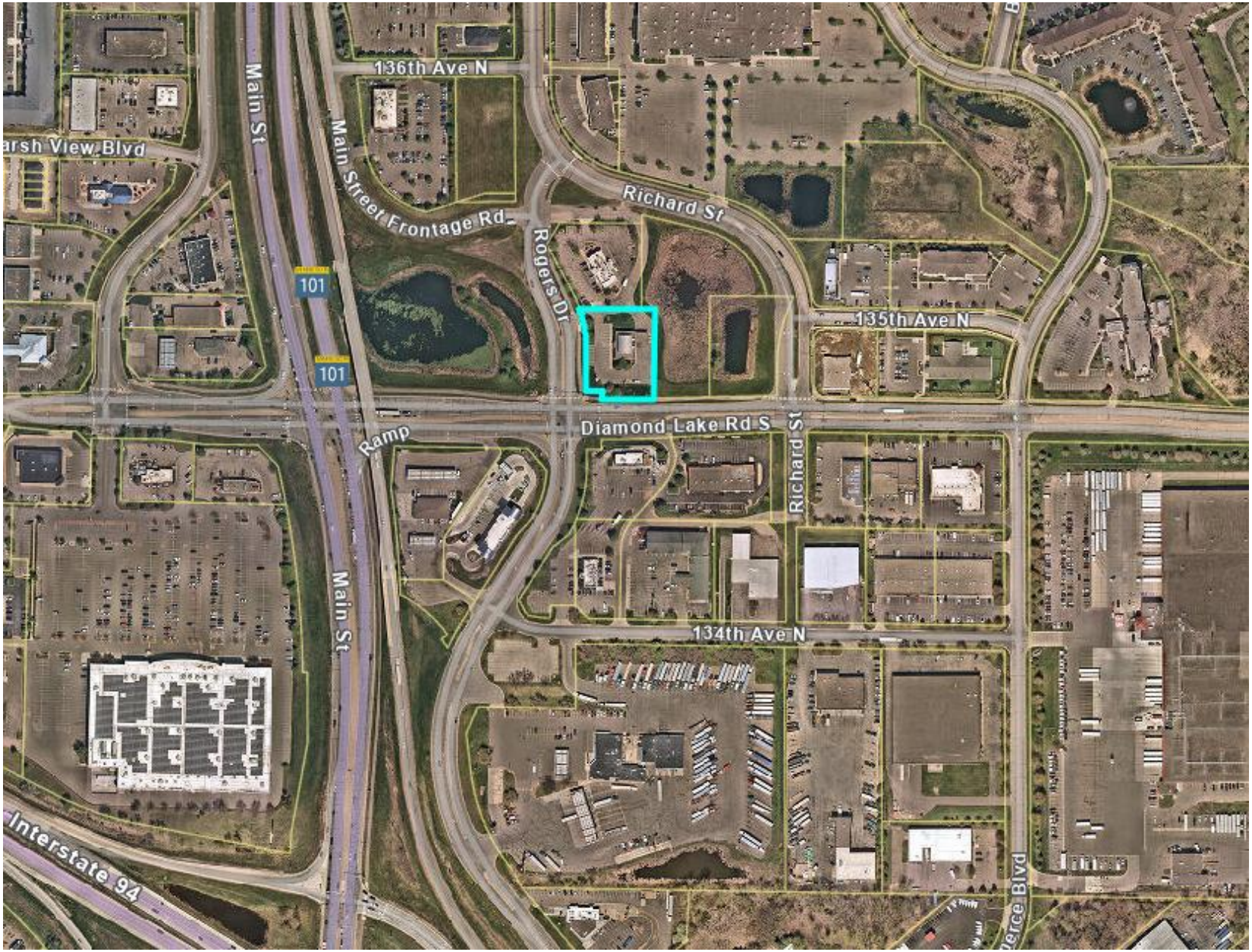
5. Describe the following: *circumstances unique to the property, why the need for the variance was not created by the property owner, and why the need is not solely based on economic considerations.*

This property has large easement areas given that it is at an intersection on Diamond Lake Road. It is a premium location within the community with the highest traffic counts at the intersection. Given the location, there is an opportunity to bring more amenities and essential services to the community. It will also create many more jobs than the previous use, which closed in 2024.

6. Describe why the variance would not alter the essential character of the neighborhood.

The redevelopment project would add approximately 1,600 sq ft to the existing building and remodel the financial institution into a restaurant. The changes apart from adding additional parking would be minimal and shouldn't change the look and feel of the neighborhood.

LOCATION MAP



Take 5 Oil- Rogers

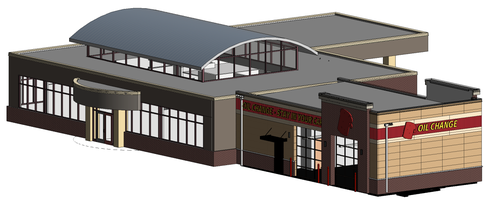
13510 Rogers Dr.
Rogers, MN 55374

Project Number: 025001.00

Abbreviations

ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
ALUM	ALUMINUM
APPROX	APPROXIMATE
ARCH	ARCHITECT
B.O. / BO	BOTTOM OF
B.SPLASH	BACKSPLASH
BLDG	BUILDING
BLKG	BLOCKING
BRG	BEARING
C-TOP	COUNTERTOP
CG	CORNER GUARD
CJ	CONTROL JOINT
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR(ANCE)
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINOUS
CPT	CARPET
CT	CERAMIC / PORCELAIN TILE
D	DEEP
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIM	DIMENSION
DISP	DISPENSER
DN	DOWN
DS	DOWNSPOUT
DW	DISHWASHER
DWG	DRAWING
EA	EACH
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
ELEC	ELECTRICAL
EPDM	ETHYLENE PROPYLENE DIENE TERPOLYMER ROOFING
EQ	EQUAL (EQUALLY)
EQUIP / EQPT.	EQUIPMENT
EXST / EX. / EXIST.	EXISTING
EXT	EXTERIOR
F.T.	FIRE TREATED
F.V.	FIELD VERIFY
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FFGB	FIBERGLASS FACED GYPSUM BOARD
FLR	FLOOR
FRP	FIBERGLASS REINFORCED PANEL
FTG	FOOTING
FUR	FURRING
GALV	GALVANIZED
GB	GRAB BAR
GLAZ	GLAZING
GYP. BD / G.BD / GBD	GYPSUM BOARD
H	HIGH
HC	HANDICAPPED
HM	HOLLOW METAL
HT	HEIGHT
ICF	INSULATED (OR INSULATING) CONCRETE FORM
INSUL	INSULATION
INT	INTERIOR
JST	JOIST
LAM	LAMINATE
LVT	LUXURY VINYL TILE
MANUF	MANUFACTURER
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTL	METAL
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NTS	NOT TO SCALE
OC / O.C.	ON CENTER
OFD	OVERFLOW DRAIN
OH	OVERHEAD
P.T.	PRESSURE TREATED
PC	PRECAST
PL	PLATE
PLAM / P.LAM.	PLASTIC LAMINATE
PLY / PLYWD	PLYWOOD
PNT	PAINT
PREFIN	PREFINISHED
PTD	PAPER TOWEL DISPENSER
QT	QUARRY TILE
QTY	QUANTITY
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REF	REFRIGERATOR
REINF	REINFORCED
REQD	REQUIRED
RPF STRIP	REINFORCED PERIMETER FASTENING STRIP
RTU	ROOF TOP UNIT (MECH.)
RWL	RAIN WATER LEADER
S.SPLASH	SIDESPLASH
SACT	SUSPENDED ACOUSTICAL CEILING TILE
SCHED	SCHEDULE
SD	SOAP DISPENSER
SEAL	SEALANT (SEALED)
SF	SQUARE FOOT (FEET)
SIM	SIMILAR
SIP	STRUCTURAL INSULATED (OR INSULATING) PANEL
SND	SANITARY NAPKIN DISPOSAL
SPEC	SPECIFICATION
SS	STAINLESS STEEL
SSM	SOLID SURFACE MATERIAL
STL	STEEL
STND	STANDARD
STRUCT	STRUCTURAL CONSULTANT
SV	SHEET VINYL
T.O.	TOP OF
TBB	TILE BACKER BOARD
TEMP	TEMPERED
TPD	TOILET PAPER DISPENSER
TRTD	TREATED
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VB	VINYL BASE
VCT	VINYL COMPOSITION TILE
VIF	VERIFY IN FIELD
VWC	VINYL WALL COVERING
W	WIDE
W/	WITH
W/O	WITHOUT
WD	WOOD
WRB	WEATHER RESISTIVE BARRIER
#	NUMBER (OR POUND)
&	AND
@	AT

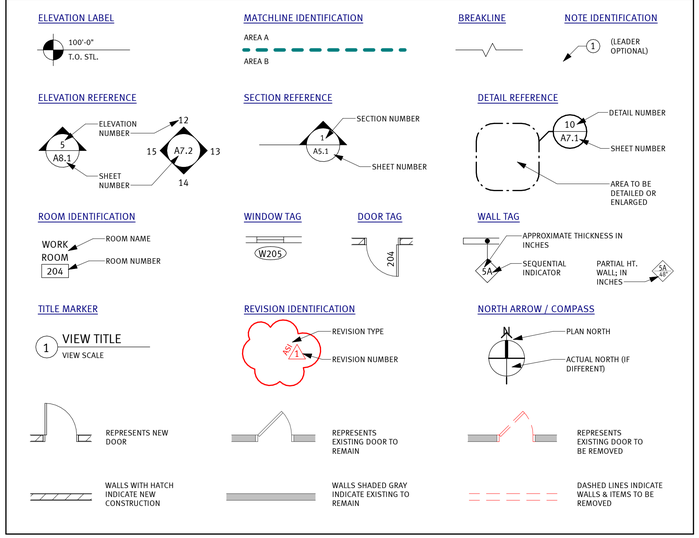
Perspective View



Architectural General Notes

1. General Notes apply to all drawing sheets.
2. Review the Construction Documents prior to start of construction. Notify Architect upon encountering any unforeseen conditions, discrepancies, errors, or inconsistencies.
3. Work shall be done in accordance with all rules and regulations of all applicable safety and building codes. The General Contractor is responsible for securing and paying for all permits required and for the scheduling of all required inspections during the course of the project.
4. The General Contractor shall take precautions and be responsible for the safety of all building occupants from construction procedures during construction to minimize disturbances to adjacent spaces and /or structures and their occupants, property, public thoroughfares, etc. Maintain all required exits during construction.
5. All materials and systems shall be installed as per manufacturer's specifications and all construction shall be of industry standard or better.
6. Do not scale drawings. Verify all dimensions in the field for accuracy prior to construction. No extra charge or compensation shall be allowed because of difference between actual dimensions and those indicated on the drawings, unless they contribute to a change in the scope of work.
7. In the event of conflict between data shown on drawings and data shown in the Specification, the Work of greater quality or quantity shall be provided, in accordance with the Architect's interpretation, and no change in the Contract Sum will be permitted. Detail drawings take precedent over drawings of larger scope. Notify Architect if at any time an error or discrepancy is discovered.
8. Immediately notify Architect of any long lead items that will affect the completion date
9. All wood in contact with concrete or concrete block to be pressure treated - typical.
10. Provide metal backing and / or treated wood blocking for all wall mounted equipment (grab bars, toilet room accessories, TV mounts, headwalls, equipment rails, etc.) Verify height and length with actual equipment.
11. Patch all disturbed fireproofing as required to maintain rating. Repair and install all fireproofing as required by code. Fireproof any new penetrations required by the work. Refer to code summary for ratings.
12. All exposed metal to receive paint unless otherwise noted
13. All adjacent dissimilar materials to receive caulking, including equipment mounted to walls

Graphic Symbols



Project Team

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Minnetonka, MN 55345
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Email: tim.eaton@garageholdingsllc.com

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LANDSCAPE ARCHITECT
Calyx Design Group
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St Paul, MN 55104
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Contact: Ben Hartberg
Email: ben@calyxdesigngroup.com

Location Map

★ Star Indicates Project Location

Sheet Index

0-General Sheets	
G0.1	Cover Sheet
4-Architectural	
A2.1	Floor Plans
A5.1	Exterior Elevations
A5.2	Exterior Elevations

Materials

EARTH	RIGID INSULATION
COMPACT FILL/SAND	BATT INSULATION
POROUS FILL/GRAVEL	GYPSUM BOARD
MORTAR/PLASTER	PLYWOOD
SPRAY FOAM INSUL.	OSB SHEATHING
FACE BRICK	CONT. ROUGH WOOD
CMU	WOOD BLOCKING
CONCRETE	FINISHED WOOD
STUD WALL/METAL	BITUMINOUS

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Take 5 Oil- Rogers

13510 Rogers Dr.
Rogers, MN 55374

project #: 025001.00
date: 3/5/2025 10:32:37 AM
drawn by: Author
checked by: Checker

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 Architect under the laws of the state of Minnesota.

signature:
printed name: John E. Erickson, NCARB, LEED AP
reg. #: 24199
sign date: Issue Date

PRELIMINARY NOT FOR CONSTRUCTION
3/5/2025 10:32:37 AM

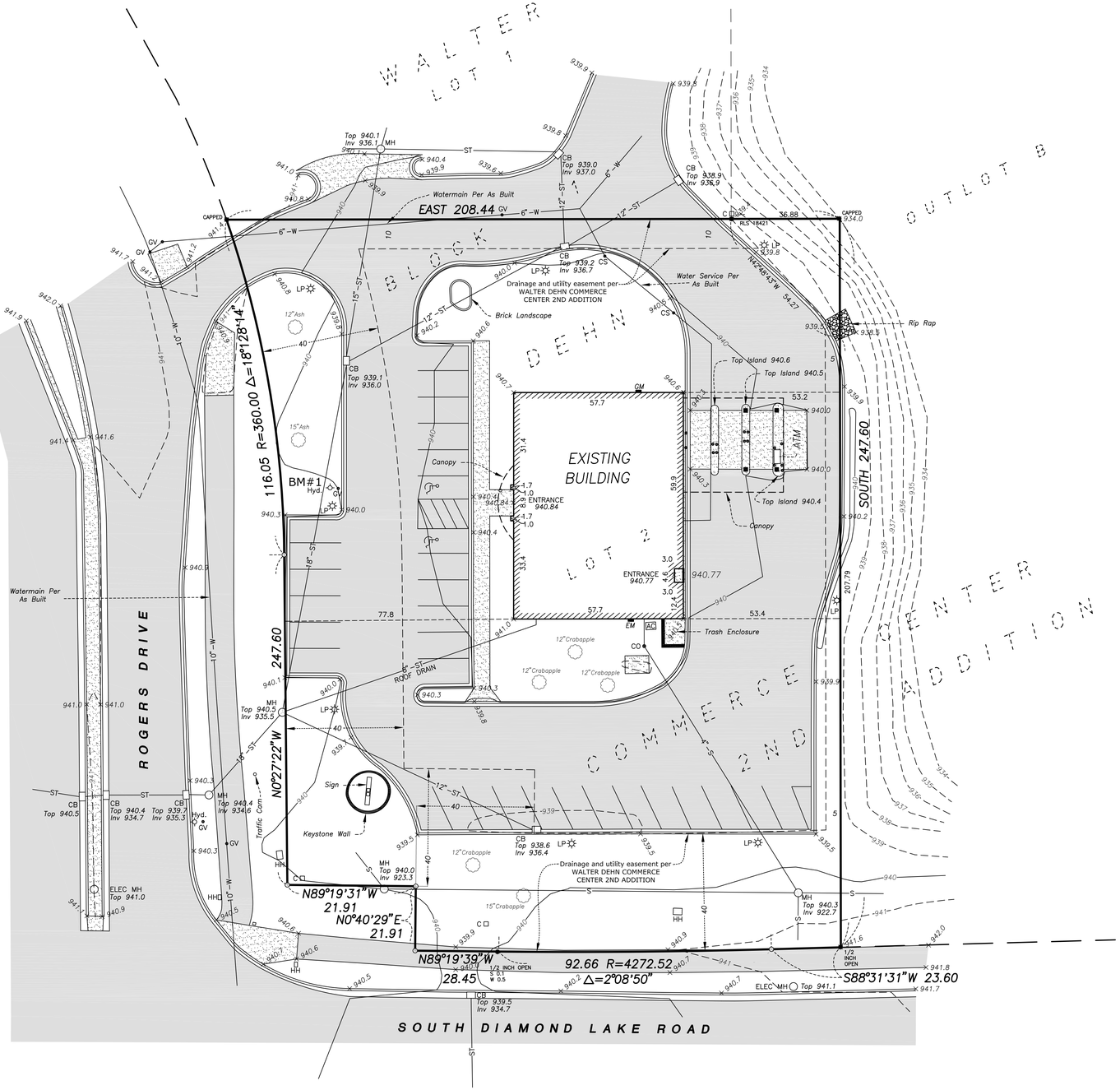
revision / issue	*no.*	*date*

sheet title: Cover Sheet
sheet number: G0.1

Boundary and Topographic Survey for:

T5 ROGERS LLC

at 13510 Rogers Drive, Rogers MN



PROPERTY DESCRIPTION

(Per First American Title Insurance Company Commitment No. NCS-1244502-SC, dated December 8, 2024)

Lot 2, Block 1, WALTER DEHN COMMERCE CENTER 2ND ADDITION, Hennepin County, Minnesota.

SURVEYOR NOTES

1. Orientation of the bearing system used for this survey is based on WALTER DEHN COMMERCE CENTER 2ND ADDITION, according to the recorded plat thereof, Hennepin County, Minnesota.
2. As shown on this survey map, underground utility lines and structures are shown in an approximate way only, according to information provided by others. Excavations were not made during the process of this survey to locate underground utilities and/or structures. A request that utilities be marked/located for this survey was made through Gopher State One Call (Ticket No. 250060977) and the City of Rogers. The underground utility lines and structures shown on this map represent the information provided to Rehder & Associates as a result of that request. The surveyor does not guarantee that the information provided was either complete or accurate or that there are no other underground utility lines and structures, active or abandoned, on or adjacent to the subject property.
3. Area = 46,697 square feet or 1.07 acres as surveyed.

LEGEND

- Found 1/2" Open Iron Monument, unless otherwise noted
- Iron Monument Set
- S — Sanitary Sewer
- ST — Storm Sewer
- W — Watermain
- Hyd. Hydrant
- GV Gate Valve
- MH Manhole
- CB Catch Basin
- CO Cleanout
- Guard Post
- Column
- LP Light Pole
- AC Air Conditioner
- HH Handhole
- C Communications Pedestal
- Concrete Surface
- Bituminous Surface
- GM Gas Meter
- EM Electric Meter
- CS Curb Stop

BENCHMARK

BM#1 Top of top nut of fire hydrant located ±60 feet west of front entrance of existing building
Elev.=942.77

CERTIFICATION

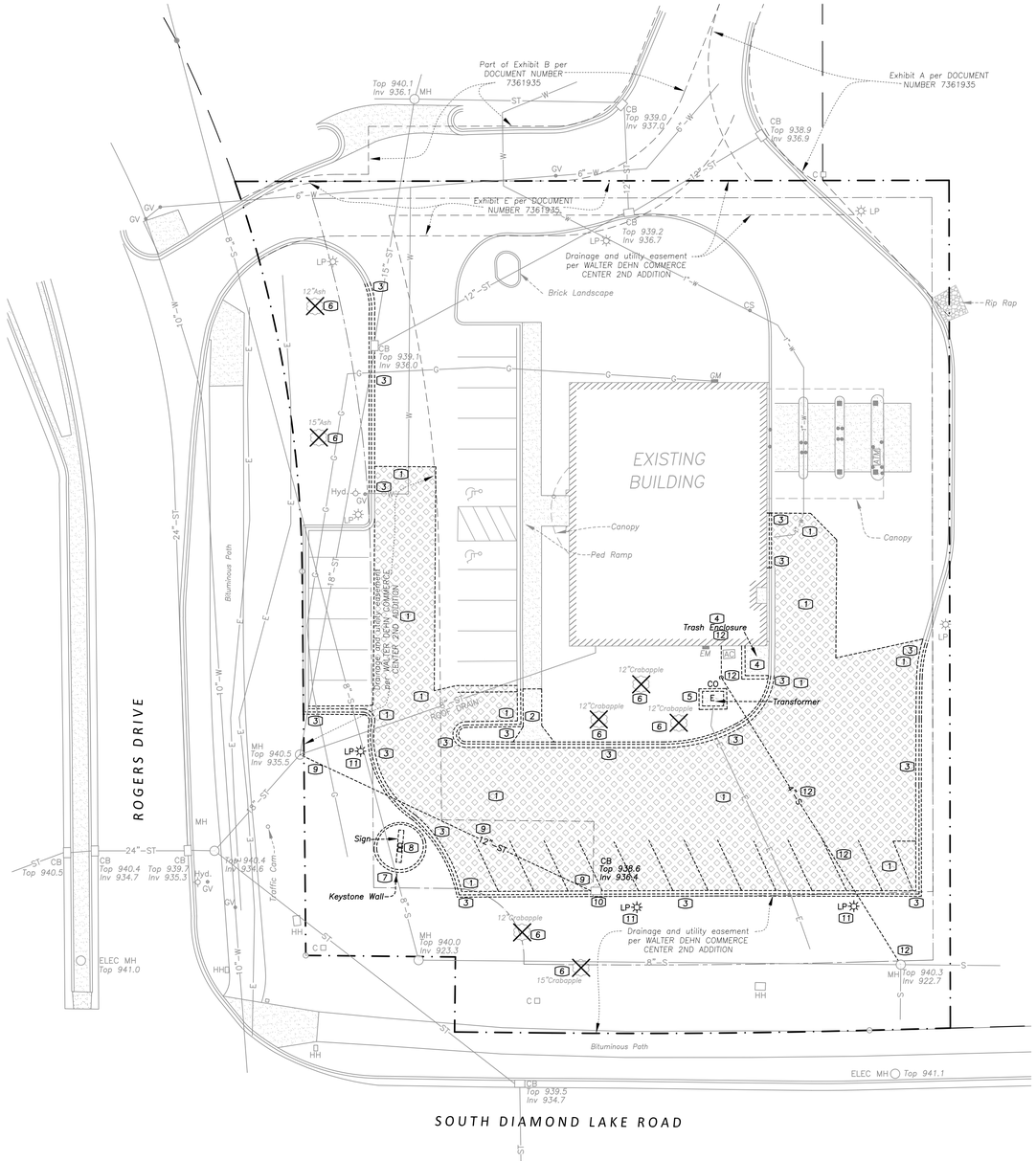
I hereby certify that this survey was prepared by me or under my direction and that I am a duly Licensed Land Surveyor under the laws of the State of Minnesota.

Dated this 20th day of January, 2025
REHDER & ASSOCIATES, INC.

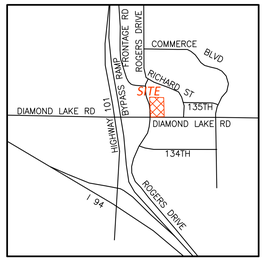
Matthew D. Thiel, Land Surveyor
Minnesota License No. 63458

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
Eagan, MN 55122
Telephone: 651-452-5051
www.rehder.com

JOB: 254-3452.013



VICINITY MAP



Section 14, Township 120, Range 23
Not to Scale

NOTE: SEE UTILITY PLAN FOR PROPOSED CONNECTION OF STORM AND SANITARY SEWER TO EXISTING MANHOLES TO REMAIN.

DEMOLITION NOTES

1 – Remove bituminous pavement
2 – Remove concrete sidewalk
3 – Remove curb & gutter
4 – Remove trash enclosure
5 – Remove, salvage & relocate transformer
6 – Remove tree(s)
7 – Remove modular block retaining wall
8 – Remove, salvage & relocate sign
9 – Remove storm sewer pipe
10 – Remove catch basin structure
11 – Remove light pole
12 – Remove sanitary sewer pipe

LEGEND

- EXISTING BITUMINOUS TO BE REMOVED
- EXISTING CONCRETE TO BE REMOVED
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE
- W — EXISTING WATERMAIN
- S — EXISTING SANITARY SEWER
- ST — EXISTING STORM SEWER
- G — EXISTING BURIED GAS LINE
- E — EXISTING BURIED ELECTRIC LINE
- 980 — EXISTING CONTOUR
- x 995.50 EXISTING ELEVATION

N

0 10 20 40 60
Scale in Feet

GOPHER STATE ONE CALL

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MN. TOLL FREE 1-800-252-1166

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Civil Engineers & Land Surveyors
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Eagan, MN 55122
Telephone: 651-452-5051
www.rehder.com

PROJECT NO.: 251-1989.052
DRAWING FILE: 1989052.DWG

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TAKE 5 OIL-ROGERS

13510 ROGERS DRIVE
ROGERS, MN 55374

project #: 025001.00
date: 03/05/2025
drawn by: BJQ
checked by: NPA

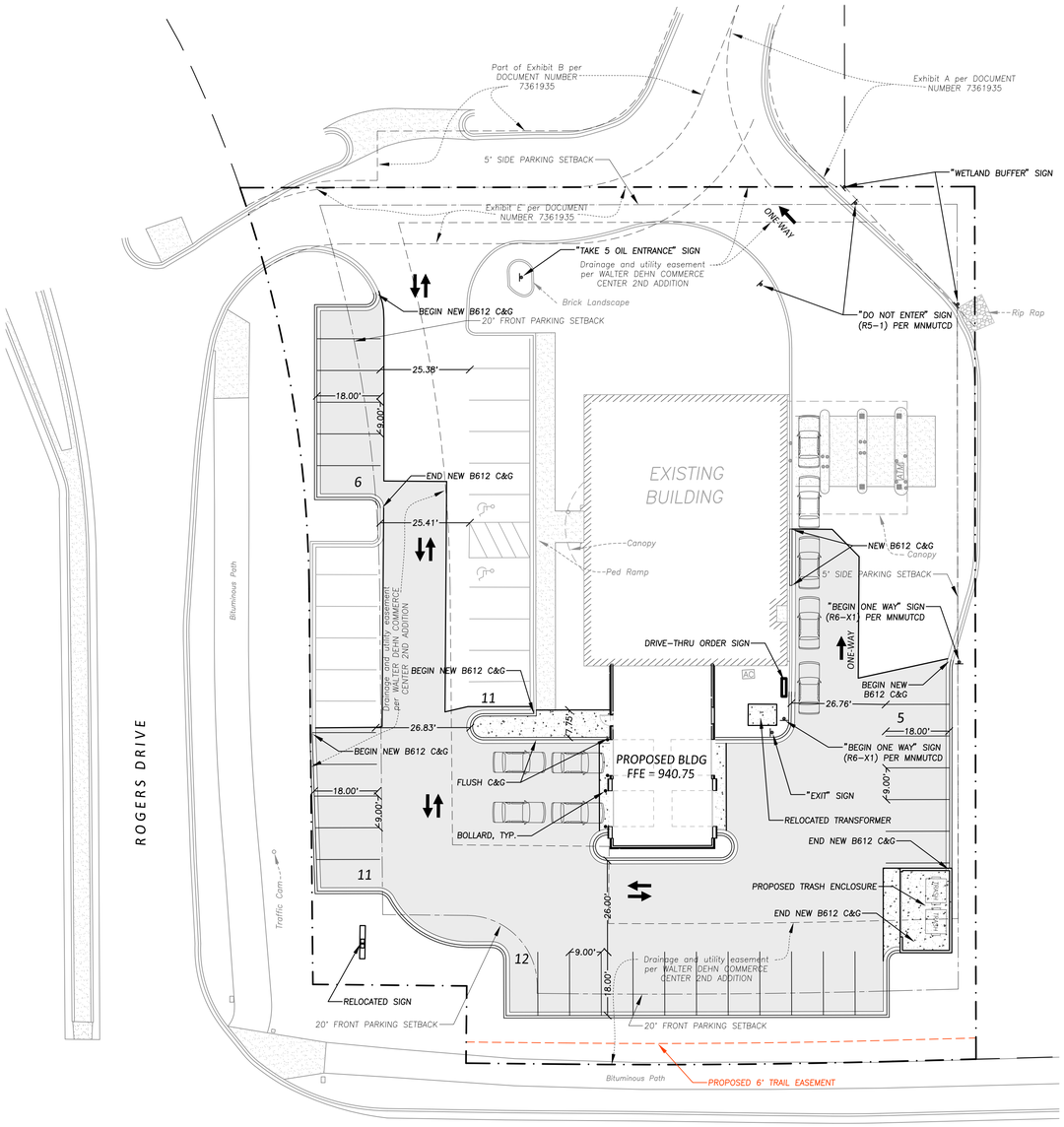
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

printed name: NICHOLAS P. ADAM
reg. #: 43856
sign date:

PRELIMINARY NOT FOR CONSTRUCTION
03/05/2025

revision / issue	no.	date

sheet title: SITE DEMOLITION PLAN
sheet number: C1.0



CODE COMPLIANCE:

1. WORK SHALL BE IN ACCORDANCE WITH APPLICABLE LAWS, CODES & REQUIREMENTS OF REGULATORY AGENCIES HAVING JURISDICTION.
2. NOTIFY THE OWNER'S ENGINEER OF DISCREPANCIES BETWEEN THE WORK AND APPLICABLE CODES. DO NOT WORK IN AN AFFECTED AREA UNTIL THE DISCREPANCY HAS BEEN RESOLVED.
3. VERIFY CODES IN EFFECT AT THE TIME OF THE NOTICE TO PROCEED AND STAY CURRENT WITH CODE CHANGES WHICH AFFECT THE WORK UNTIL SUBSTANTIAL COMPLETION.

SITE SUMMARY

SITE AREA = 1.07 ACRES
DISTURBED AREA = 0.37 ACRES
EXISTING IMPERVIOUS AREA = 0.68 ACRES
POST CONSTRUCTION IMPERVIOUS AREA = 0.82 ACRES (86.6%)

SITE NOTES

1. All dimensions between curbing and to radius points are to face of curb.
2. All dimensions abutting curbs are to back of curb.
3. All curb and gutter on private property shall be type B-612 unless otherwise noted.
4. All parking stall striping width is 9.00' unless otherwise noted.

PARKING STALLS PROVIDED

STANDARD STALLS	ACCESSIBLE STALLS	TOTAL
43	2	45

LEGEND

- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- BUILDING/PARKING SETBACK LINE
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS

N

0 10 20 40 60
Scale in Feet

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PROJECT NO.: 251-1989.052
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project #: 025001.00
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drawn by: BJQ
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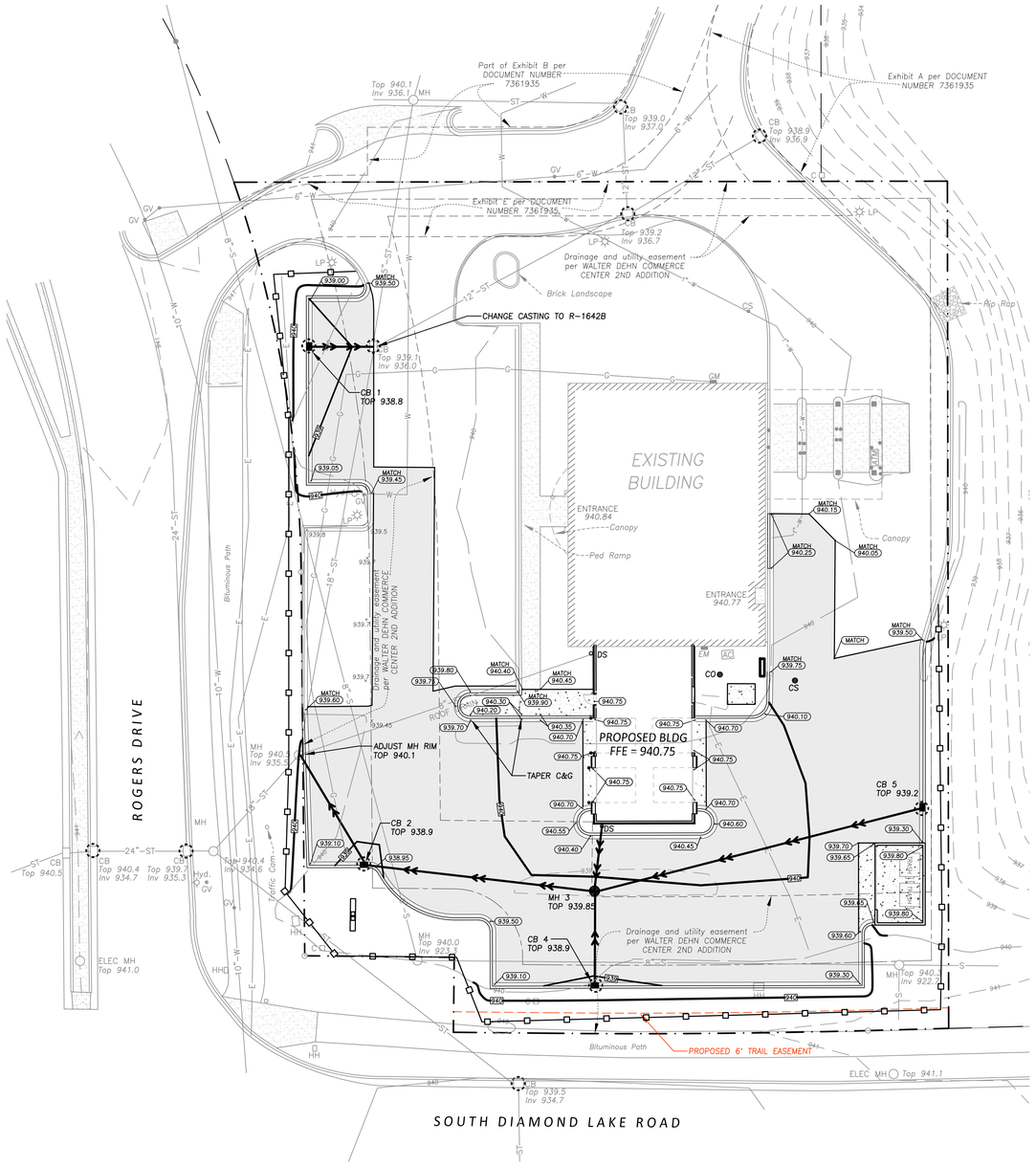
printed name: NICHOLAS P. ADAM
reg. #: 43856
sign date:

PRELIMINARY NOT FOR CONSTRUCTION 03/05/2025

revision / issue	no.	date

sheet title: SITE DIMENSION PLAN
sheet number: C2.0



CODE COMPLIANCE:

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2. NOTIFY THE OWNER'S ENGINEER OF DISCREPANCIES BETWEEN THE WORK AND APPLICABLE CODES. DO NOT WORK IN AN AFFECTED AREA UNTIL THE DISCREPANCY HAS BEEN RESOLVED.
3. VERIFY CODES IN EFFECT AT THE TIME OF THE NOTICE TO PROCEED AND STAY CURRENT WITH CODE CHANGES WHICH AFFECT THE WORK UNTIL SUBSTANTIAL COMPLETION.

GRADING NOTES

1 – All elevations shown are to final surfaces.
2 – Contractor is responsible for obtaining a National Pollutant Discharge Elimination System (NPDES) General Storm Water Permit for Construction Activity before construction begins.

EROSION CONTROL NOTES

1 – Contractor is responsible for all notifications and inspections required by General Storm Water Permit.
2 – All erosion control measures shown shall be installed prior to grading operations and maintained until all areas disturbed have been restored.
3 – Sweep paved public streets as necessary where construction sediment has been deposited.
4 – Each area disturbed by construction shall be restored per the specifications within 7 days after the construction activity in that portion of the site has temporarily or permanently ceased.
5 – Temporary soil stockpiles must have silt fence around them and cannot be placed in surface waters, including storm water conveyances such as curb and gutter systems, or conduits and ditches.
6 – All pipe outlets must be provided with temporary or permanent energy dissipation within 24 hours of connection to a surface water.
7 – Excess concrete/water from concrete trucks shall be disposed of in portable washout concrete basin or disposed of in a contained area.
8 – Erosion control measures must be installed at the initial stage of site grading operations.
9 – Upon completion of construction and restoration of disturbed areas, the contractor is responsible for the removal of all erosion control measures installed throughout the construction site.

LEGEND

- PROPOSED MANHOLE
- PROPOSED CLEAN OUT
- PROPOSED CORP. STOP
- PROPOSED CATCH BASIN
- PROPOSED STORM SEWER
- PROPOSED CONCRETE
- PROPOSED BITUMINOUS
- PROPOSED CONTOUR
- PROPOSED ELEVATION
- SILT FENCE
- INLET PROTECTION DEVICE
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- DRAINAGE ARROW
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING BURIED GAS LINE
- EXISTING BURIED ELECTRIC LINE
- EXISTING CONTOUR
- EXISTING ELEVATION

N

0 10 20 40 60
Scale in Feet

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reg. #: 43856
sign date:

PRELIMINARY NOT FOR CONSTRUCTION
03/05/2025

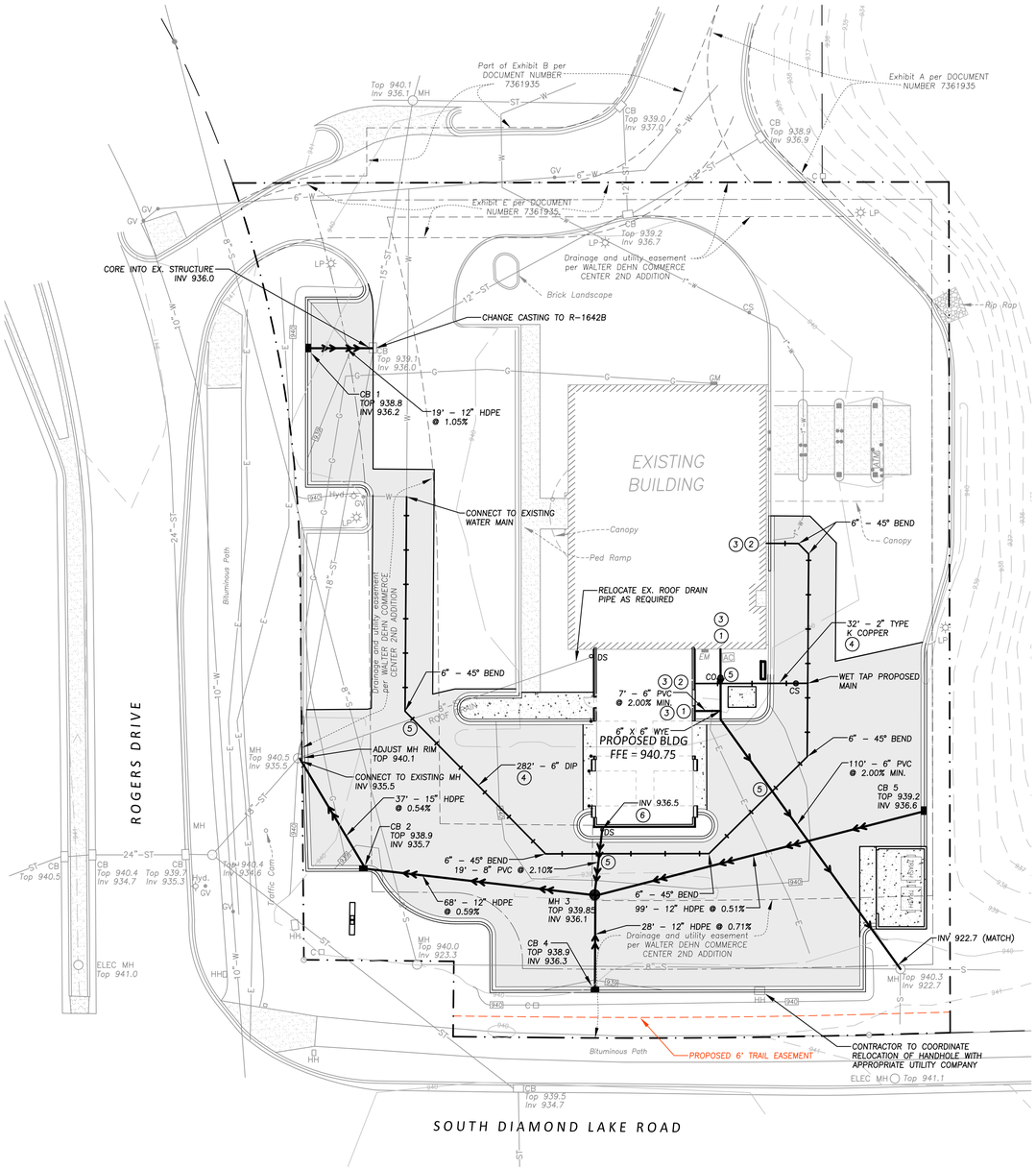
revision / issue	no.	date

GRADING, DRAINAGE & EROSION CONTROL PLAN

sheet title

sheet number

C3.0



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UTILITY NOTES

(1) – All sewer services to extend to a point 5' from proposed building.
(2) – Bring water main into proposed building and cap at the floor.
(3) – Verify all service locations and inverts with mechanical engineer before construction.
(4) – All watermain to have a minimum of 7.5' of cover.
(5) – Maintain a minimum of 18" vertical separation between watermain and sewer.
(6) – Downspout connection per detail 11/C5.

NOTE: SEE SITE DEMOLITION PLAN FOR THE REMOVAL OF EXISTING STORM AND SANITARY SEWER PIPE.

CATCH BASIN/MANHOLE SCHEDULE

STRUCTURE NO.	BARREL SIZE	NEENAH CASTING NO.
CB 1	24" X 36"	R-3067V
CB 2	48"	R-3067V
MH 3	48"	R-1642B
CB 4	24" X 36"	R-3067V
CB 5	24" X 36"	R-3067V

LEGEND

- PROPOSED MANHOLE
- PROPOSED CLEAN OUT
- PROPOSED CORP. STOP
- PROPOSED CATCH BASIN
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- PROPOSED CONCRETE
- PROPOSED STD. DUTY BITUMINOUS
- BOUNDARY/ROW/BLOCK LINE
- EASEMENT
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING BURIED GAS LINE
- EXISTING BURIED ELECTRIC LINE

N

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Scale in Feet

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project #: 025001.00
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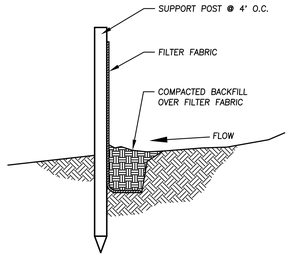
printed name: NICHOLAS P. ADAM
reg. #: 43856
sign date:

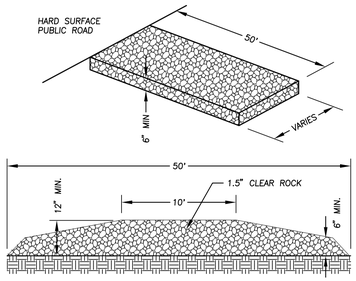
PRELIMINARY NOT FOR CONSTRUCTION 03/05/2025

revision / issue	no.	date

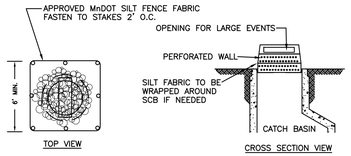
sheet title: UTILITY PLAN
sheet number: C4.0



1 C5 SILT FENCE
NO SCALE

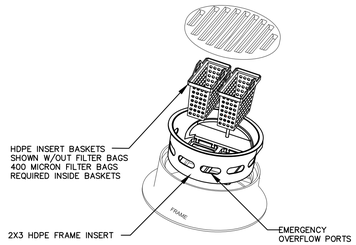


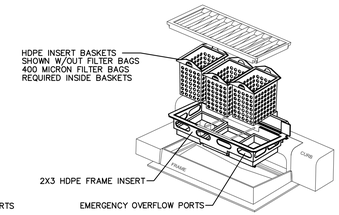
2 C5 ROCK CONSTRUCTION ENTRANCE
NO SCALE



NOTE: USE THIS TYPE OF INLET PROTECTION BEFORE THE CASTING IS INSTALLED.

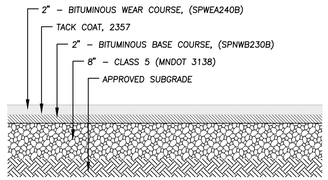
3 C5 INLET PROTECTION (INFRASAFE OR EQUAL)
NO SCALE





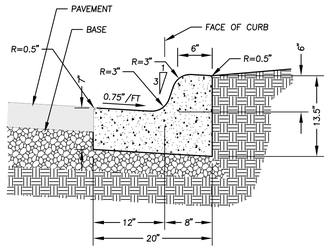
NOTE: USE THIS TYPE OF INLET PROTECTION AFTER THE CASTING IS INSTALLED.

4 C5 INLET PROTECTION (INFRASAFE OR EQUAL)
NO SCALE



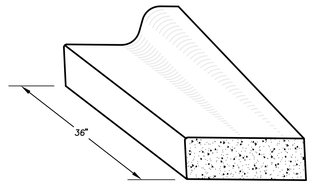
NOTE: VERIFY ADEQUACY OF PAVEMENT SECTION WITH ENGINEER AFTER SUBGRADE SOILS ARE EXPOSED AND BEFORE BITUMINOUS PAVEMENT IS PLACED

5 C5 STANDARD DUTY PAVEMENT SECTION
NO SCALE



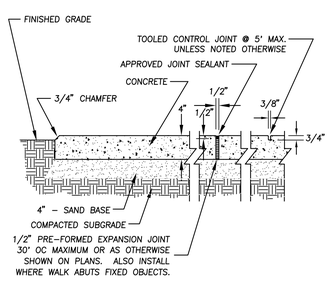
Note: Where contours indicate, ignore 0.75"/ft slope indicated above and match adjoining pavement slope to prevent gutter from "ponding".

6 C5 B612 CONCRETE CURB & GUTTER
NO SCALE

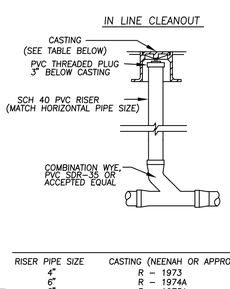


Note: Curb type B612 shown; similar for other curb types.

7 C5 CURB & GUTTER BEAVERTAIL
NO SCALE

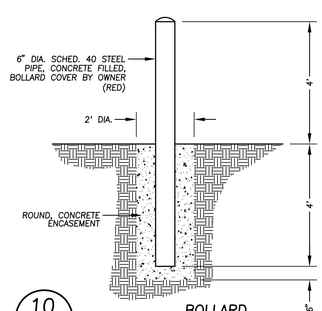


8 C5 CONCRETE SIDEWALK
NO SCALE

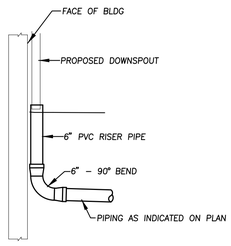


RISER PIPE SIZE	CASTING (NEENAH OR APPROVED EQUAL)
4"	R – 1973
6"	R – 1974A
8"	R – 1975A

9 C5 SANITARY SEWER CLEANOUT
NO SCALE



10 C5 BOLLARD
NO SCALE



11 C5 CONNECTION AT DOWNSPOUT
NO SCALE

REHDER & ASSOCIATES, INC.
Civil Engineers & Land Surveyors
3440 Federal Drive, Suite 110
Eagan, MN 55122
Telephone: 651-452-5051
www.rehder.com

PROJECT NO.: 251–1989.052
DRAWING FILE: 1989052.DWG

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TAKE 5 OIL-ROGERS

13510 ROGERS DRIVE
ROGERS, MN 55374

project #: 025001.00
date: 03/05/2025
drawn by: BJQ
checked by: NPA

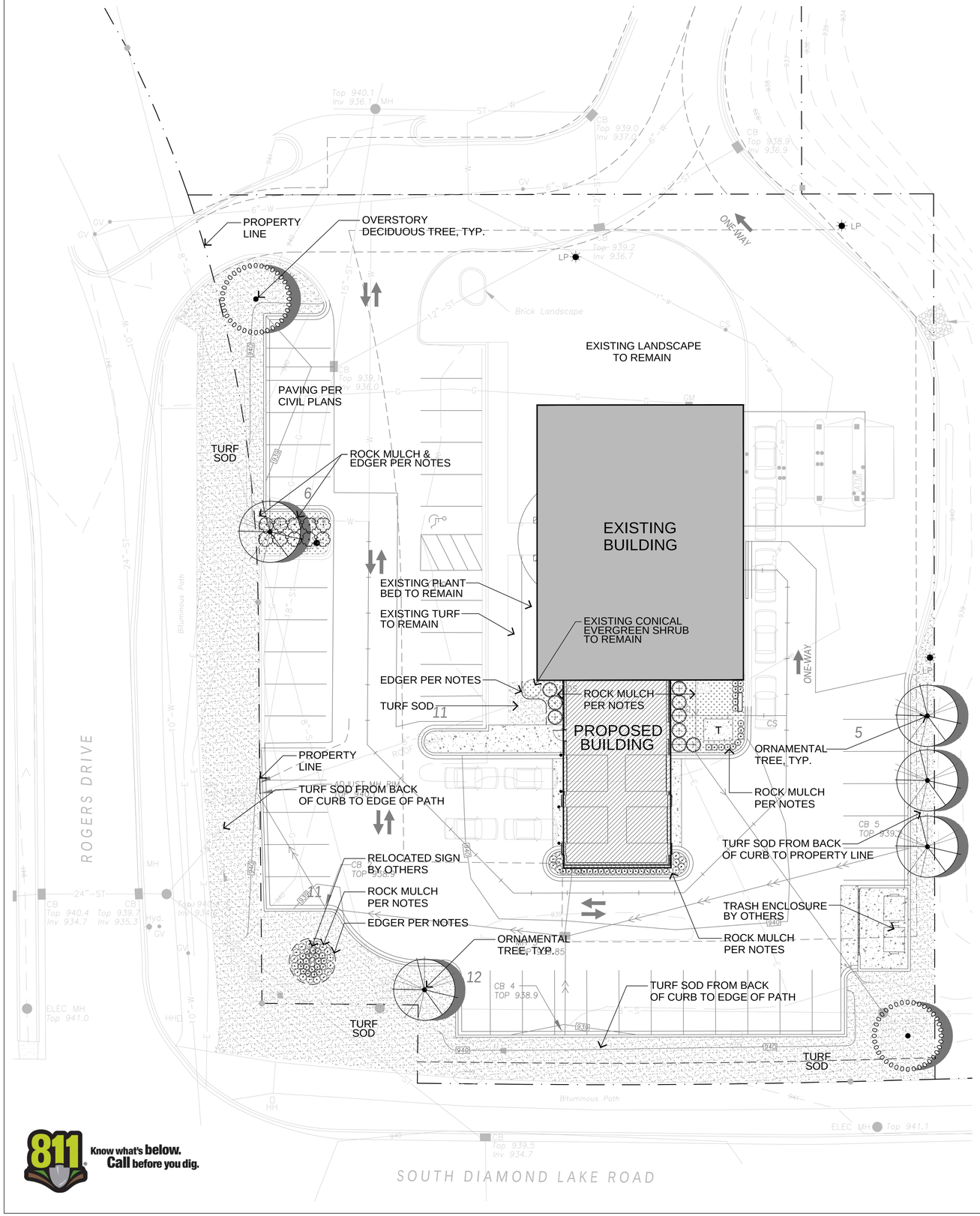
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

printed name: NICHOLAS P. ADAM
reg. #: 43856
sign date:

PRELIMINARY NOT FOR CONSTRUCTION
03/05/2025

revision / issue	no.	date

sheet title: DETAILS
sheet number: C5.0



General Notes:

1. Landscape contractor to provide a new irrigation layout plan for the property. See Landscape Notes.
2. See Civil Engineer's plans for grading layout and requirements
3. Contractor to coordinate any work in the right-of-way with City of Rogers Public Works Department.
4. Sod all disturbed areas except plant beds and areas noted to receive mulch.
5. Place a minimum of 4" topsoil, with not more than 35% sand content. Topsoil inspection is required prior to installing sod and trees.
6. See Sheet L2.1 for Landscape Details, Notes, and Schedules.
7. Landscape contractor is responsible for verification of soils and graded condition prior to mobilization and shall notify the General Contractor if earthwork is not acceptable. Landscape contractor is responsible for fine grading, or grade to within 1" of final set elevation.
8. Any landscape disturbance beyond the property line shall be restored to existing conditions.

Landscape Requirements:

Minimum Plant Sizes
Overstory Shade Trees: 2.5" caliper
Ornamental Understory Trees: 1.5" caliper
Evergreen Trees: 4' - 6' Hgt.
Tall Shrubs & Hedges: 3' - 4' Hgt.
Low Shrubs: 5 gallon pot

Parking Lot Islands
(1) Tree per parking lot island

Existing Trees to be Removed: 07
- Overstory Trees: 2
- Ornamental Trees: 5

New Trees Proposed: 07
- Overstory Trees: 2
- Ornamental Trees: 5

Landscape Legend:

New Turf Sod

New Rock Mulch

PLANT SCHEDULE

SYMBOL	CODE	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	QTY	REMARKS
OVERSTORY TREE							
	GD	Gleditsia triacanthos inermis 'Draves' TM	Street Keeper Honey Locust	2.5" Cal.	B&B	2	
UNDERSTORY TREE							
	SI	Syringa reticulata `Ivory Silk`	Ivory Silk Japanese Tree Lilac	1.5" Cal.	B&B	5	
SHRUBS							
	Am	Aronia melanocarpa `Morton` TM	Iroquis Beauty Black Chokeberry	5 gal. (Min. 24" Hgt.)	Pot	9	
	Ra	Rhus aromatica 'Gro Low'	Gro Low Sumac	5 gal. (Min. 24" Hgt.)	Pot	10	
ANNUALS/PERENNIALS							
	Nr	Nepeta racemosa `Walker`s Low`	Catmint	1 gal.	Pot	26	
GRASSES							
	Ck	Calamagrostis x acutiflora `Karl Foerster`	Feather Reed Grass	1 gal.	Pot	54	

Know what's below. Call before you dig.

SCALE: 1" = 15'-0"

NORTH

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Saint Paul, MN 55104
Phone: (651) 788-9018
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Take 5 Oil-Rogers

13510 Rogers Dr.
Rogers, MN 55374

project #: 025001.00
date: 3/05/2025
drawn by: HL
checked by: BH

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 Landscape Architect under the laws of the State of Minnesota.

signature:
printed name: Benjamin Hartberg, PLA
reg. #: 48084
sign date: XX-XX-XXXX

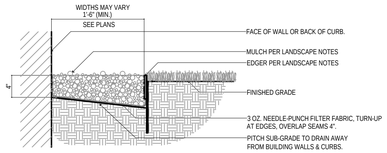
Preliminary Not For Construction

revision / issue	no.	date

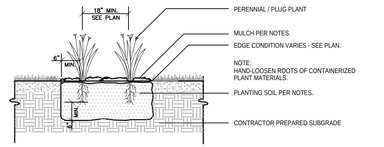
sheet title: Landscape Plan
sheet number: L1.1

Landscape Notes & Requirements:

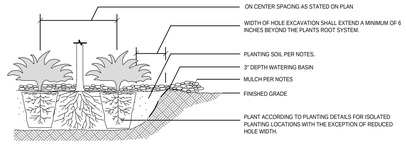
1. Tree saucer mulch to be four inches (4") depth natural single-shred hardwood mulch for trees outside of a plant bed. Install per tree planting detail, including PVC trunk guards.
2. Refer to civil plan sheets for grading, drainage, site dimensions, survey, proposed utilities & erosion control.
3. All plant material shall comply with the latest edition of the American Standard for Nursery Stock, American Association of Nurserymen. Unless noted otherwise, deciduous shrubs shall have at least 5 canes at the specified shrub height. Plant material shall be delivered as specified. Deciduous tree diameter is measured at breast-height (40" above final grade), in accordance with National Forestry and ANSI standards. Coniferous tree height is measured following planting installation, and is measured from final grade to the tip of the central leader. Bidders submitting pricing accept the above measurement conditions.
4. Plan takes precedence over plant schedule if discrepancies in quantities exist.
5. All proposed plants shall be located and staked as shown.
6. The project landscape contractor shall be held responsible for watering and properly handling all plant materials brought on the site both before and after installation. Schedule plant deliveries to coincide with expected installation time within 36 hours.
7. All plant materials shall be fertilized upon installation as specified.
8. The landscape contractor shall provide the owner with a watering schedule appropriate to the project site conditions and to plant material growth requirements.
9. If the landscape contractor is concerned or perceives any deficiencies in the plant selections, soil conditions, drainage or any other site condition that might negatively affect plant establishment, survival or guarantee, they must bring these deficiencies to the attention of the landscape architect & client prior to bid submission. Plant bed drainage concerns during plant installation shall be brought to the attention of the Owner and General Contractor immediately.
10. Contractor shall establish to their satisfaction that soil and compaction conditions are adequate to allow for proper drainage at and around the building site.
11. Contractor is responsible for ongoing maintenance of all newly installed material until time of owner acceptance. Any acts of vandalism or damage which may occur prior to owner acceptance shall be the responsibility of the contractor. Contractor shall provide the owner with a maintenance program including, but not limited to, pruning, fertilization and disease/pest control.
12. The contractor shall guarantee newly planted material through ONE calendar years from the date of passing the City landscape inspection. Plants that exhibit more than 20% die-back damage shall be replaced at no additional cost to the owner. The contractor shall provide PVC tree trunk guards for all deciduous trees. Landscape contractor shall provide additional deer browse fencing protection measures for the plantings during the warranty period, as needed.
13. This layout plan constitutes our understanding of the landscape requirements listed in the ordinance. Changes and modifications may be requested by the city based on applicant information, public input, council decisions, etc.
14. The landscape contractor shall be responsible for obtaining any permits and coordinating inspections as required throughout the work process.
15. Both plant species substitutions and plan changes to plant locations will require approval of the City of Rogers prior to installation. Landscape contractor is required to document approved changes.
16. Irrigation: It is unknown whether there is an existing irrigation system on site. If an existing system is present, the landscape contractor shall provide a proposal to repair and modify the existing system to cover the new landscape areas shown. If no existing system in present, the landscape contractor shall provide the Owner with a cost for a high efficiency irrigation system to provide full coverage of all landscape areas on property. Include an Irrigation Layout Plan for head-to-head coverage of all tree, turf and shrub planting areas on property. Use commercial-grade irrigation equipment and provide product cut-sheets and (4) copies of the proposed layout plan to the Owner for review and approval. Coordinate irrigation connection point, controller, back-flow, rain sensor, sleeving, and valve locations with the general contractor. All irrigation systems must include a rain sensor and utilize water efficient technology, such as a weather-smart controller, moisture sensor, etc.
17. All edger shall be black polyvinyl landscape edging to match existing, field verify. Submit sample.
18. Landscape Contractor is responsible for coordination with the General Contractor, to protect the new improvements on and off-site during landscape work activities. Report any damage to the General Contractor immediately.
19. Rock Mulch: Where noted per plan, rock mulch areas shall receive 4" depth of locally available 1" dia granite chips to match existing, field verify. Install over fabric weed mat, per detail. Submit mulch sample for Owner approval. Do not install weed mat under perennials, with the exception of ornamental grasses.
20. Ensure topsoil inspection is scheduled with the City of Rogers no less than 5 days before planting is scheduled to occur. Corrections required by the city must be made & approved by the city prior to the start of landscape work.
21. All planting, seeding, and sodded areas shall be prepared prior to installation activities with a harley power box rake or equal to provide a firm planting bed free of stones, sticks, construction debris, etc.
22. Turf installation activity shall conform to all rules and regulations as established in the MnDOT Seeding Manual, 2014 edition, for turf bed preparation, installation, maintenance, and warranty.
23. The Landscape Contractor shall furnish samples of all landscape materials for approval prior to installation.
24. The Landscape Contractor shall clear and grub the underbrush from within the work limits to remove dead branches, leaves, trash, weeds and foreign materials. Remove trees where noted on the plan, including the stump to 30" below grade.
25. The landscape contractor shall contact Gopher State One Call no less than 48 hours before digging for field utility locations.
26. The landscape contractor shall be responsible for the removal of erosion control measures once vegetation has been established to the satisfaction of the municipal staff. This includes silt curtain fencing and sediment logs placed in the landscape.
27. The landscape contractor shall be responsible for visiting the site to become familiar with the conditions prior to bidding and installation. Coordinate with the general contractors on matters such as fine grading, landscaped area conditions, staging areas, irrigation connection to building, etc.
28. See Site and Civil plans for grading, utilities, and additional information regarding the project.
29. Landscape contractor must prove the open sub-grade of all planting areas after their excavation is capable of infiltrating a minimum requirement of 1/4-inch of water per hour prior to installation of plant materials, topsoil, irrigation, weed mat, and mulch. Planting areas not capable of meeting this requirement shall have 4" diameter X 48" depth holes augured every 36" on-center and filled with MnDOT Free-Draining Coarse Filter Aggregate. Re-test sub-grade percolation for compliance to infiltration minimum requirement.



1 L2.1 TYP. MULCH DETAIL
NOT TO SCALE



2 L2.1 TYP. PERENNIAL PLANTING DETAIL
NOT TO SCALE



3 L2.1 TYP. SHRUB PLANTING - SECTION
NOT TO SCALE

NOTES:
DO NOT HEAVILY PRUNE THE TREE AT PLANTING. PRUNE ONLY CROSSOVER LIMBS, CO-DOMINANT LEADERS, AND BROKEN OR DEAD BRANCHES. SOME INTERIOR TWIGS AND LATERAL BRANCHES MAY BE PRUNED; HOWEVER, DO NOT REMOVE THE TERMINAL BUDS OF BRANCHES THAT EXTEND TO THE EDGE OF THE CROWN.

LANDSCAPE CONTRACTOR RESPONSIBLE TO KEEP TREE STRAIGHT AND PLUM.

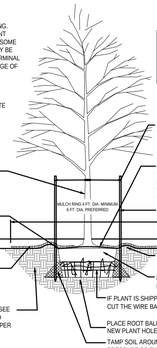
LANDSCAPE CONTRACTOR TO INSTALL 6" WHITE PVC TRUNK GUARD AT TIME OF PLANTING.

MARK THE NORTH SIDE OF THE TREE IN THE NURSERY, AND ROTATE TREE TO FACE NORTH AT THE SITE WHEN EVER POSSIBLE.

SET TOP OF ROOT BALL FLUSH TO GRADE OR 1-2 IN. HIGHER IN SLOWLY DRAINING SOILS.

WOOD MULCH. DO NO PLACE MULCH IN CONTACT WITH TREE TRUNK. MAINTAIN THE MULCH WEED-FREE FOR AFTER PLANTING.

NOTE: FOR DIMENSIONS OF PLANTING AREAS SEE PLAN, SOIL BACKFILL SHALL BE GARDEN BLEND SOIL (EQUAL MIX OF COMPOST, SAND & SOIL) PER NOTES.



TREE PLANTING REQUIREMENTS:
-REMOVE ALL TWINE, ROPE, WIRE, AND BURLAP FROM THE TOP HALF OF THE ROOT BALL AND DISPOSE OF OFF-SITE.
-REMOVE THE WIRE BASKET DOWN TO THE SECOND HORIZONTAL WIRE FROM THE BOTTOM AND DISPOSE OF OFF-SITE.
-EXPOSE ROOT FLARE AND SET AT GRADE

DOUBLE STAKE WITH POLYPROPYLENE WEBBING THROUGH THE EYE OF THE CINCH-TIE RUBBER SUPPORT. AVOID DAMAGE TO THE ROOT BALL WITH SUPPORT STAKES.

EACH TREE MUST BE PLANTED SUCH THAT THE TRUNK FLARE IS VISIBLE AT THE TOP OF THE ROOT BALL. TREES WHERE THE TRUNK FLARE IS NOT VISIBLE SHALL BE REJECTED. DO NOT COVER THE TOP OF THE ROOT BALL WITH SOIL.

NURSERY GRADE FIBERGLASS TREE STAKES, 1" X 6'-0"

2 IN. HIGH EARTH SAUCER BEYOND EDGE OF ROOT BALL (FOR ISOLATED TREES ONLY).

REMOVE ALL TWINE, ROPE AND WIRE, AND BURLAP FROM TOP HALF OF ROOT BALL

IF PLANT IS SHIPPED WITH A WIRE BASKET AROUND THE ROOT BALL, CUT THE WIRE BASKET OFF AND REMOVE. DISPOSE OFF OFF-SITE.

PLACE ROOT BALL ON UNEXCAVATED OR TAMPED SOIL. ENSURE NEW PLANT HOLES PASS THE REQUIRED INFILTRATION TEST.

TAMP SOIL AROUND ROOT BALL BASE FIRMLY WITH FOOT PRESSURE SO THAT ROOT BALL DOES NOT SHIFT.

4 L2.1 DECIDUOUS TREE PLANTING - SECTION
NOT TO SCALE

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Saint Paul, MN 55104
Phone: (651) 788-9018
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Take 5 Oil-Rogers

13510 Rogers Dr.
Rogers, MN 55374

project #: 025001.00
date: 3/05/2025
drawn by: HL
checked by: BH

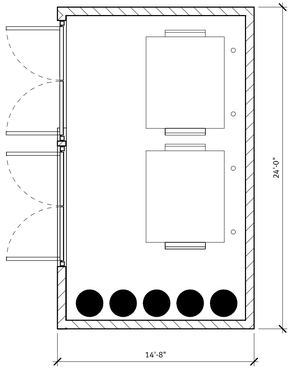
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly licensed Professional Landscape Architect under the laws of the State of Minnesota.

signature:
printed name: Benjamin Hartberg, PLA
reg. #: 48084
sign date: XX-XX-XXXX

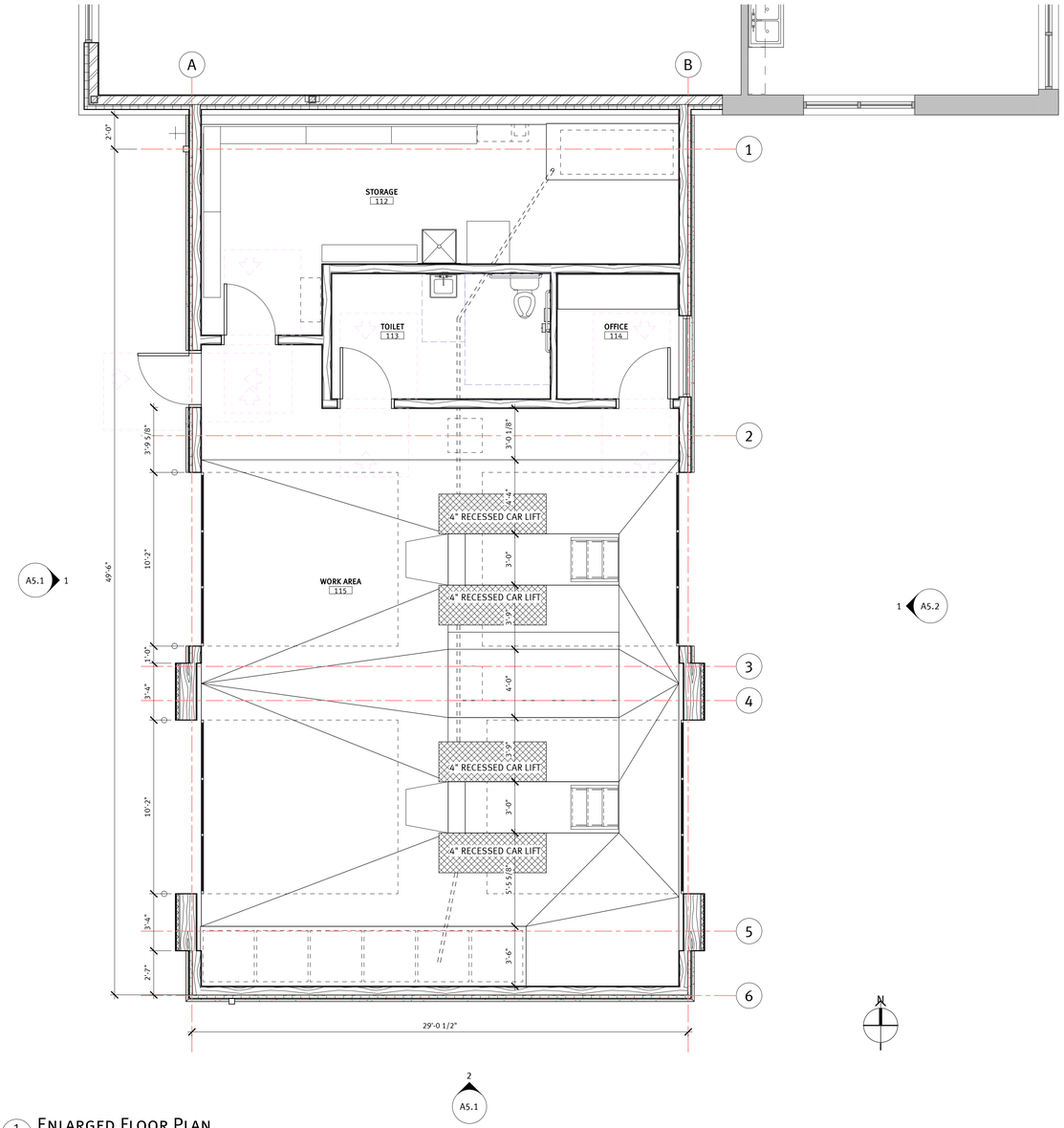
Preliminary Not For Construction

revision / issue	no.	date

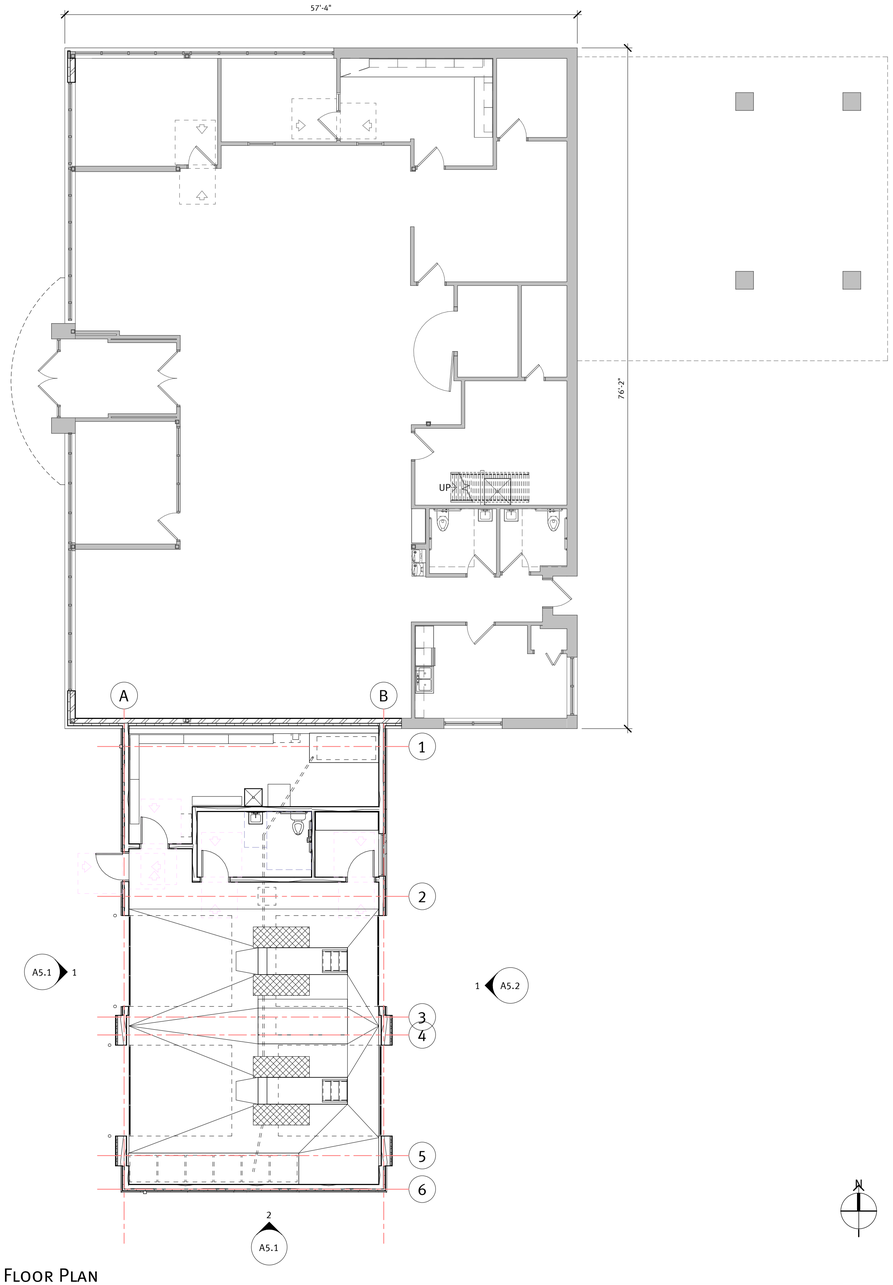
sheet title: Landscape Details
sheet number: L2.1



2 A2.1 **Trash Enclosure Plan**
3/16" = 1'-0"



1 A2.1 **Enlarged Floor Plan**
1/4" = 1'-0"



3 A2.1 **Floor Plan**
1/8" = 1'-0"

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Rogers, MN 55374

project #: 025001.00
date: 3/5/2025 10:28:16 AM
drawn by: Author
checked by: Checker

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 Architect under the laws of the state of Minnesota.

signature:
printed name: John E. Erickson, NCARB, LEED AP
reg. #: 24199
sign date: Issue Date

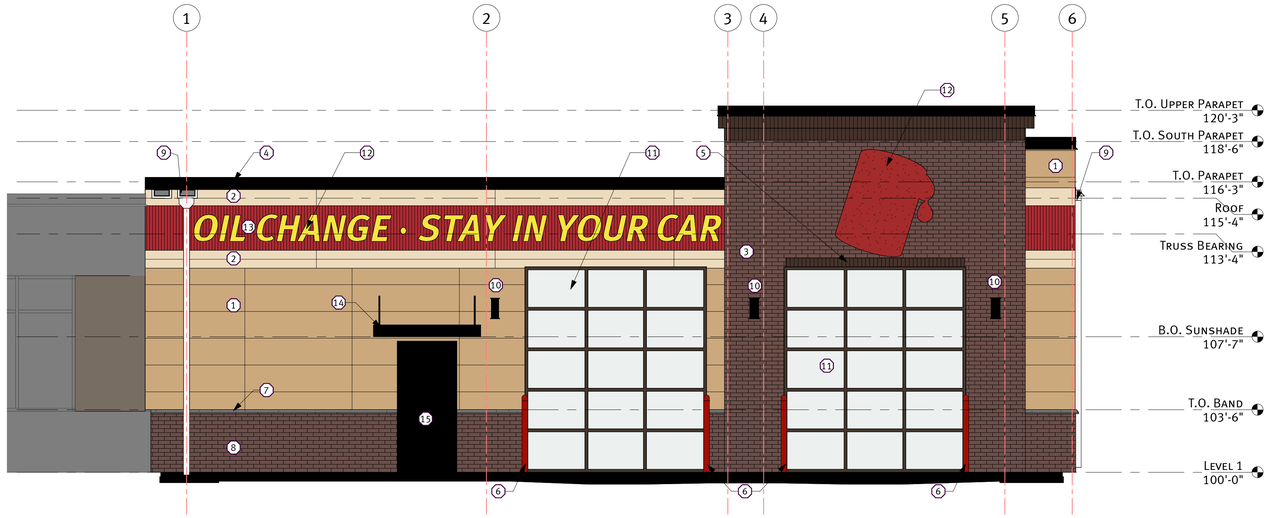
Preliminary Not For Construction
3/5/2025 10:28:16 AM

revision / issue	*no.*	*date*

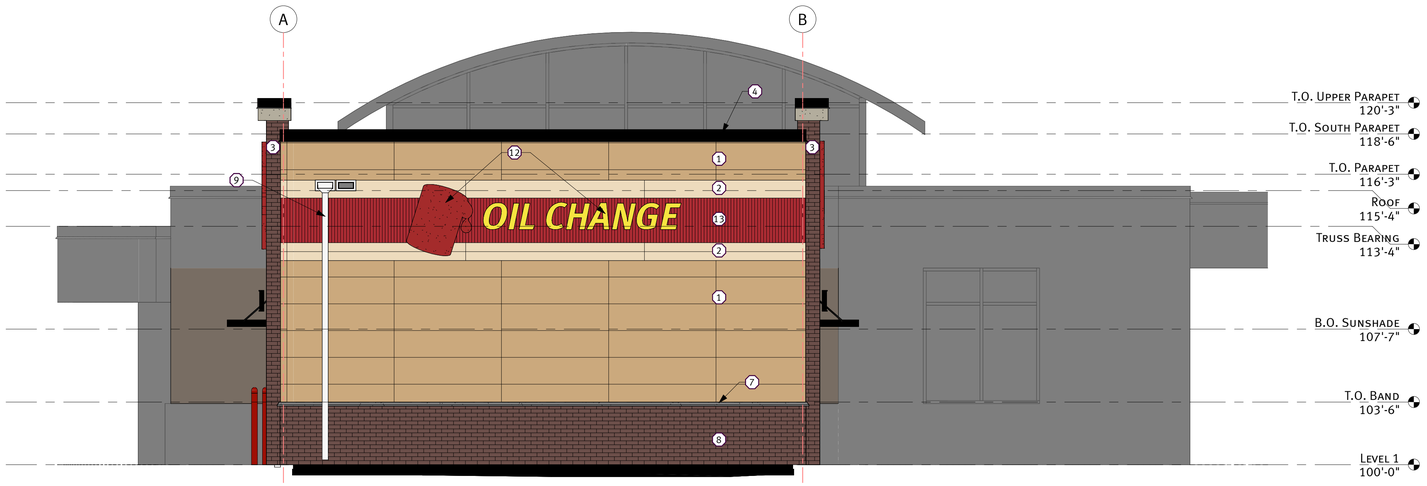
sheet title: Floor Plans
sheet number: A2.1

Exterior Elevation Notes

1	Fiber Cement Panel Siding	Match SW Color #7693, Stonebriar
2	Fiber Cement Panel Siding	Match SW color #7678, cottage cream
3	Brick	Endicott "Dark velour" or approved equal. Modular thin veneer size, mortar, raked joint. Joint to be buff in color.
4	Prefinished mtl coping & flashing	Firestone "Matte black" Finish to be kynar 500 prefinished
5	Brick soldier course band	Endicott "Dark velour" or approved equal. Modular thin veneer size, mortar, raked joint. Joint to be buff in color.
6	Concrete filled steel bollard. Bollard cover by Owner. See Civil for detail	Positive red bollard cover.
7	Stone wainscotting band	Color - Taupe. Stone to be by cultured stone or approved equal.
8	Brick wainscott	Endicott "Dark velour" or approved equal. Modular thin veneer size, mortar, raked joint. Joint to be buff in color.
9	Scupper and downsprout; jog surfaces from elevation to brick	Finish to be "Black".
10	Light fixture see elec.	Firestone "Matte black" Finish to be kynar 500 prefinished
11	Overhead door - By others under separate contract	Firestone "Matte black" Finish to be kynar 500 prefinished
12	Signage - By others under separate contract	By others under separate contract
13	Fiber Cement Panel Siding	Match SW Color #6871, Positive red
14	Pre-manufactured aluminum canopy	General Awnings - Imperial Marquee Awning w/ Lattice Tubes. "Black" Finish. 72" long x 36" deep.
15	HM Man Door	Firestone "Matte black" Finish to be kynar 500 prefinished



1 A5.1 **West Elevation**
1/4" = 1'-0"



2 A5.1 **South Elevation**
1/4" = 1'-0"

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13510 Rogers Dr.
Rogers, MN 55374

project #: 025001.00
date: 3/5/2025 10:28:17 AM
drawn by: Author
checked by: Checker

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 Architect under the laws of the state of Minnesota.

signature:
printed name: John E. Erickson, NCARB, LEED AP
reg. #: 24199
sign date: Issue Date

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3/5/2025 10:28:17 AM

revision / issue	*no.*	*date*

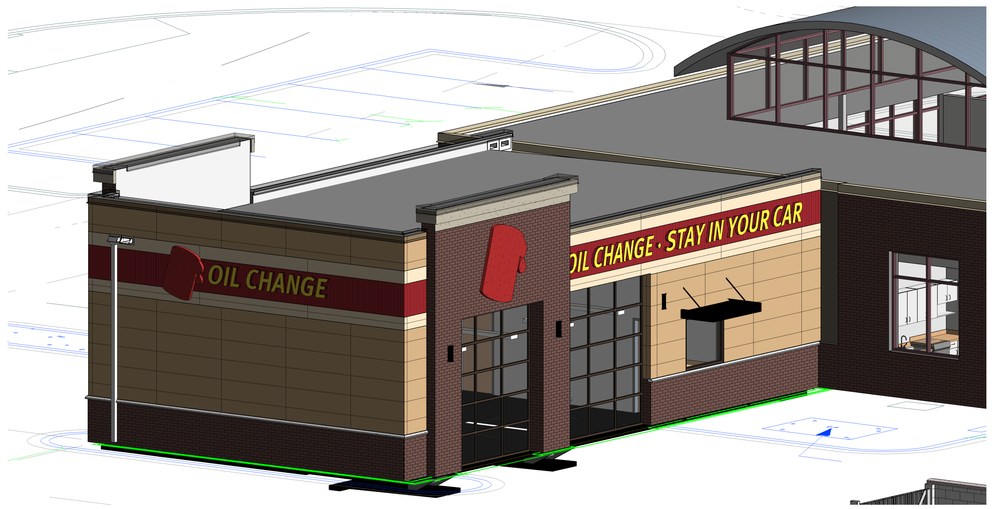
sheet title: Exterior Elevations
sheet number: A5.1

1 A5.2 East Elevation

1/4" = 1'-0"

Exterior Elevation Notes

1	Fiber Cement Panel Siding	Match SW Color #7693, Stonebriar
2	Fiber Cement Panel Siding	Match SW color #7678, cottage cream
3	Brick	Endicott "Dark velour" or approved equal. Modular thin veneer size, mortar, raked joint. Joint to be buff in color.
4	Prefinished mtl coping & flashing	Firestone "Matte black" Finish to be kynar 500 prefinished
5	Brick soldier course band	Endicott "Dark velour" or approved equal. Modular thin veneer size, mortar, raked joint. Joint to be buff in color.
6	Concrete filled steel bollard. Bollard cover by Owner. See Civil for detail	Positive red bollard cover.
7	Stone wainscotting band	Color - Taupe. Stone to be by cultured stone or approved equal.
8	Brick wainscott	Endicott "Dark velour" or approved equal. Modular thin veneer size, mortar, raked joint. Joint to be buff in color.
9	Scupper and downsprout; jog surfaces from elevation to brick	Finish to be "Black".
10	Light fixture see elec.	Firestone "Matte black" Finish to be kynar 500 prefinished
11	Overhead door - By others under separate contract	Firestone "Matte black" Finish to be kynar 500 prefinished
12	Signage - By others under separate contract	By others under separate contract
13	Fiber Cement Panel Siding	Match SW Color #6871, Positive red
14	Pre-manufactured aluminum canopy	General Awnings - Imperial Marquee Awning w/ Lattice Tubes. "Black" Finish. 72" long x 36" deep.
15	HM Man Door	Firestone "Matte black" Finish to be kynar 500 prefinished



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Take 5 Oil-Rogers

13510 Rogers Dr.
Rogers, MN 55374

project #: 025001.00
date: 3/5/2025 10:28:19 AM
drawn by: Author
checked by: Checker

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 Architect under the laws of the state of Minnesota.

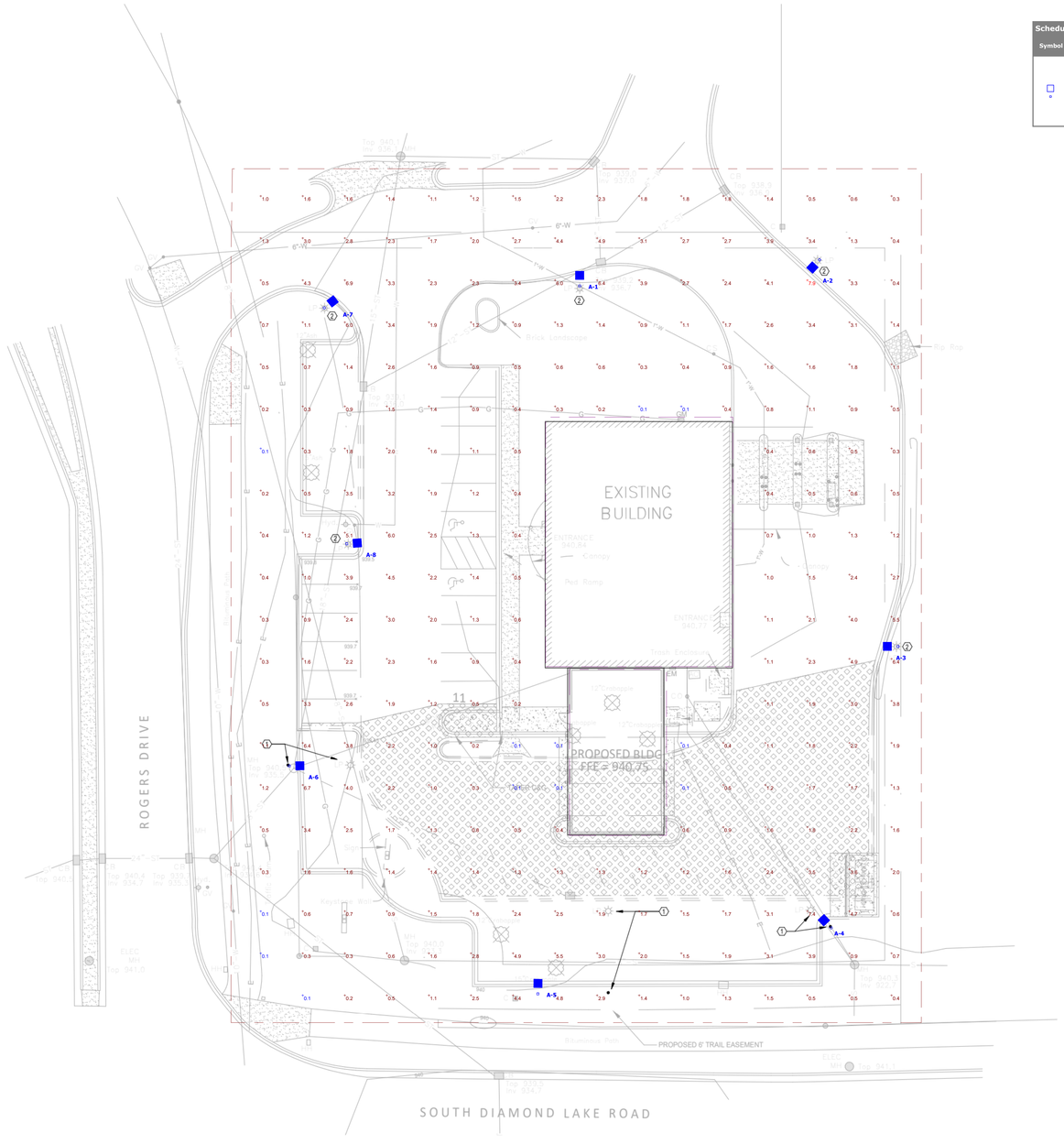
signature:
printed name: John E. Erickson, NCARB, LEED AP
reg. #: 24199
sign date: Issue Date

Preliminary Not For Construction
3/5/2025 10:28:19 AM

revision / issue	*no.*	*date*

sheet title: Exterior Elevations

sheet number: A5.2



1 / E102 ELECTRICAL SITE PLAN
1/16" = 1'-0"

Plan View
Scale - 1" = 20ft

C:\Users\cwilkens\Documents\Take 5_Rogers_E2024_cwilkens@muskaelectric.com.rvt
3/4/2025 1:59:58 PM

KEYNOTES

1 UTILIZE EXISTING LIGHTPOLES AND CIRCUITRY.
REMOVE (3) LIGHT POLES TO ACCOMMODATE NEW PARKING SPACES.
INSTALL (3) NEW CONCRETE BASES IN THE GREEN SPACE AND REINSTALL POLES.
2 NO WORK. EXISTING LIGHT POLE TO REMAIN.

Schedule

Symbol	Label	Image	QTY	Catalog Number	Description	Lamp	Number Lamps	Lumens per Lamp	LLF	Wattage	Polar Plot
□	A		8	RSX1 LED P4 40K R4	RSX Area Fixture Size 1 P4 Lumen Package 4000K CCT Type R4 Distribution		1	16573	0.93	133.14	Max: 9774cd

Statistics

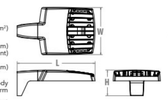
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Site Lighting	+	1.8 fc	7.9 fc	0.1 fc	79.0:1	18.0:1

Note
1. Poles to be relocated w/new heads
2.
3.

RSX1 LED
Area Luminaire

Specifications

EPA (ft²/80°):	0.57 ft² (0.05 m²)
Length:	21.8" (55.4 cm) (SPA mount)
Width:	13.3" (33.8 cm)
Height:	3.0" (7.6 cm) Main Body 7.2" (18.4 cm) Arm
Weight: (SPA mount):	22.0 lbs (10.0 kg)



Introduction
The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX1 delivers 7,000 to 17,000 lumens allowing it to replace 70W to 400W HID luminaires.
The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor, adjustable integral slipfitter and other mounting configurations are available.

ds design select
Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Design Select options indicated by this color background.

Ordering Information
EXAMPLE: RSX1 LED P4 40K R3 MVOLT SPA DDBXD

RSX1 LED

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX1 LED	P1 P2 P3 P4	30K 3000K 40K 4000K 50K 5000K	R2 Type 2 Wide R3 Type 3 Wide R3S Type 3 Short R4 Type 4 Wide R4S Type 4 Short R5 Type 5 Wide [1] R5S Type 5 Short [1] AFR Automotive Front Row AFRRHO Automotive Front Row Right Rotated AFRLHO Automotive Front Row Left Rotated	MVOLT (120V-277V) [2] HVOLT (347V-480V) [2] XVOLT (277V-480V) [2] **Use specific voltage for options as noted)** 120 [3] 277 [3] 208 [3] 347 [3] 240 [3] 480 [3]	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°) RPA Round pole mounting (3.2" min. dia. RND pole for 2, 3, 4 at 90°, 3.0" min. dia. RND pole for 1 at 90°, 2 at 180°, 3 at 120°) MA Mast arm adapter (fits 2-3/8" OD horizontal tenon) IS Adjustable slipfitter (fits 2-3/8" OD tenons) [4] WBA Wall bracket [4] WBASC Wall bracket with surface-conduit box AASP Adjustable tilt arm square pole mounting [4] AARP Adjustable tilt arm round pole mounting [4] AAWB Adjustable tilt arm with wall bracket [4] AAWSC Adjustable tilt arm wall bracket and surface-conduit box [4]

Options		Finish	
Shipped Installed		DDBXD	Dark Bronze
HS House-side shield [5]		DBLXD	Black
PE Photocontrol, button style [6,7]		DNAXD	Natural Aluminum
PER7 Seven-wire twist-lock receptacle only (no controls) [5,6,7]		DWHXD	White
SF Single fuse (120, 277, 347) [3]		DDBTXD	Textured Dark Bronze
DF Double fuse (208, 240, 480) [3]		DBLBXD	Textured Black
SPD20KV 20KV Surge pack (10KV standard)		DNATXD	Textured Natural Aluminum
FAO Field adjustable output [8]		DWHGXD	Textured White
DMG 0-10V dimming extend out back of housing for external control (control ordered separate) [9]			

Shipped Installed
*Standalone and Networked Sensors/Controls (factory default settings, see table page 9)
NLTAIR2 PIRHN nLight AIR generation 2, with Networked, Bi-Level motion/ambient sensor [6,9,10,11]
BAA Buy American Act and/or Build America Buy America Qualified
CCE Coastal Construction [12]
*Note: NLTAIR2 PIRHN with nLight Air can be used as a standalone or networked solution. Sensor coverage pattern is affected when luminaire is tilted.

Shipped Separately (requires some field assembly)
EGS External glare shield [1]
EGFV External glare full visor (360° around light aperture) [1]
BS Bird spikes [9]

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MUSKA ELECTRIC
1985 OAKCREST AVENUE
ROSEVILLE, MN 55113
TEL: 612-636-5820
www.muskaelectric.com

CLIENT:

.

0' 2' 4' 8'

NO	DATE	REVISION
1	03/04/2024	PERMIT SET

PROJECT NAME:
TAKE 5 - ROGERS

ROGERS, MN

DRAWING TITLE:
ELECTRICAL SITE PLAN

DRAWN BY: Author
CHECKED BY: Checker
PROJ. NO: Project Number
DRAWING NO: **E102**

Muska Electric

Take 5 Oil - Rogers

Designer
Date 03/04/2025
Scale Not to Scale
Drawing No.
Summary

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: April 7, 2025

Agenda Item: 4.2

Subject: Consider Application by Rachel Development for Preliminary Plat and Planned Unit Development Request for Cowley Lake Preserve, 169 lot development.
Prepared By: Alec Henderson, City Planner

Recommended Council Action

Overview / Background / Analysis
Rachel Development has applied for Preliminary Plat and Planned Unit Development for a residential subdivision consisting of 169 lots. The development proposes a range of detached single-family home styles. The development is within the shoreland overlay district and proposes the Alternative Development Standards framework as outlined in the Shoreland ordinance as well as a request for Planned Unit Development Rezoning deviating from the Standard R2 Performance standards.

Concept Plan
The developer previously went through concept plan review and multiple meetings over a year ago preceding the recent Shoreland updates which were codified in early 2025. The Concept Plan initially showed 182 units with fewer lots meeting 10 ft setbacks. The feedback provided by the city included: reduction in units, increased setbacks and more consideration of the shoreline in regards to buffering and open space. The developer has since reworked the plan to increase setbacks for the majority of the lots to 10 ft side setbacks. A block of the development does differ more greatly from the standard R2 requirements with 42 ft wide lots with 6 ft side yard setbacks for a smaller single-family home product.

Primary Issues to Consider

1. Land Use & Zoning
2. Development Plan
3. Conservation Easement

Analysis of Primary Issues

1. **Land Use & Zoning**

The development consists of two existing parcels (Scherber Trust 2112023240005 and Casco Ventures LLC 2112023130004) and a portion of a third parcel (Weber

LP2112023110003). The subject area falls within the Low Density Residential (LDR) land use designation. The LDR designation permits **2-5 units per acre** and allows for single-family development.

The subject area currently falls within the R2 district which permits, by right (meaning without additional land use approvals), 10,000 square foot lots (65 ft wide minimum), 10 ft side setbacks, 25 ft front and corner setbacks and 20 ft rear setbacks. Additionally, the area falls within the Shoreland Overlay district which applies additional development restrictions related to shoreland protection. Traditional R2 development can generally reach around, or slightly above 2 units an acre. Anything above the minimum density of 2 units/acre – depending on the existing conditions – would require Planned Unit Development approvals which provides a new zoning district specific to a development plan. The Developer proposes a Planned Unit Development to deviate from the R2 standards.

Proposed Zoning

The developer is requesting a Planned Unit Development (PUD) to deviate from the R2 zoning requirements for their development area. PUDs can be requested and reviewed by the City. PUDs are typically an exchange where the developer proposes different performance standards in exchange for developing or proposing public benefits which are created by the developer. The benefits can be development specific or related to comprehensive plan goals, or offsite improvements. The theory behind PUDs is that the public benefits proposed by the developer outweigh the benefits of keeping to the by right zoning district standards. PUDs effectively rezoning property to allow different standards. Because PUDs rezoning the property, this is a legislative or policy decision for the council with high discretion. PUDs have previously been approved for other residential developments within the community including Skye Meadows, Grass Lake Preserve, and Laurel Creek.

PUD Deviations

The proposed PUD includes three lot standards for four different single-family product types: a 70 ft wide lot (8,750 sq ft minimum) with 10 ft side setbacks; a 60 ft wide line (7,500 sq ft minimum) with 10 ft side setbacks for a standard single-family home and a villa style home; and a 42 ft wide lot (5,460 sq ft minimum) with 6 ft side setbacks. All other setbacks are proposed to meet the minimum required (25 ft front/corner, 20 ft rear).

- 59 lots are proposed to be the 70 ft wide lots with standard single-family homes
- 74 lots are proposed to be 60 ft wide lots
    1. 48 lots are proposed to be 60 ft wide lots with standards single-family homes
    2. 26 lots are proposed to be 60 ft wide lots with villa style homes
- 36 lots are proposed to be 42 ft wide lots with carriage style homes

All lots are proposed to deviate from the R2 minimum lot size (59 exceed the lot width

minimum but are shy the 10,000 sq ft lot size by reason of depth). However, 133 lots would meet the required R2 setbacks. The 74 proposed 60-ft wide lots are under the 65 ft R2 minimum.

PUD Benefits
The narrative includes additional information regarding the proposed products and their identified benefits.
Developer Identified Benefits:

- Preservation of wetland and natural drainage features
- Ensuring a smooth transition to adjacent [planned] higher density properties – [The Land use plan shows higher density land uses to the south east of the subject property]
- Offer a variety of home types to serve diverse household sizes and price points

City Analysis of benefits
The development does preserve natural drainage features and wetlands, however, existing wetland regulations already accomplishes much of the wetland protection. That being said there are a number of benefits that could be argued that the developer is providing through this development.

- The shoreland ordinance Alternative Development Standards requires a 75 ft shoreline buffer to be dedicated to the city. The developer is proposing on average double that buffer which increases shoreland protection (ranges from 122 ft to 536 fr). This is identified as a benefit.
- The shoreland ordinance would require 22.8 acres of open space for the development. The developer proposes 32.86 acres. This exceed the Alternative Development standards and is identified as a benefit
- Trail and boardwalk with in the buffer area is proposed for the development that would be available to the public.
- The developer proposes the extension of trunk utilities to Willandale Rd through the development which is a public benefit.
- The developer proposes turn lane improvements within Territorial Road which is a public benefit.

Shoreland Overlay
When within the shoreland overlay district, properties may development in two ways, traditional shoreland development, or Alternative Development Standards (ADS). Traditional shoreland development requires much larger minimum lot sizes – 20,000 to 40,000 square feet depending on the DNR designated type of lake – and allows new riparian lot creation (meaning lots which touch the shoreland). Traditional shoreland development would not permit a development to reach the minimum density required by the Comprehensive Plan for LDR.

The Alternative Development Standards (as proposed in this application) would permit the lots created to match the underlying zoning in exchange for dedication of shoreland buffer land, decreased impervious surface, open space, and more stringent stormwater management requirements. The Alternative Shoreland Development Standards do permit Planned Unit Development which alter the underlying zoning provided the deviations requested only impact the performance standards of the zoning district and not the requirements of the shoreland overlay (e.g. open space requirements must be met, impervious surface limitations, shoreland setbacks, etc). All of the shoreland protections measures required by the Alternative Development Standards are being met as proposed by the developer: the site is under 25% impervious surface, open spaces have been provided, the shoreland buffer zone provided exceeds the minimum, the shoreline setbacks are met, and the stormwater management plan meets the increased standards required by the ADS.

The plans are consistent with the comprehensive plan, and shoreland ordinance. Planned Unit Developments are processes identified in ordinance which require Council authorization and approval. Assuming a PUD is approved, the plan would be consistent with land use and zoning requirements.

2. **Development Plan**

Transportation
The development plan includes the extension of Edgewater Parkway within the project boundary (two-lane divided by a median), and the extension of 133rd Ave to the west and South to Willandale. Three additional offshoots of proposed road ways end in cul-de-sacs. The plan also includes turn lane improvements on Territorial Road (left turn lane for east bound traffic on Territorial and right turn lane for west bound traffic). No turn lanes are proposed from Willandale Road. The Transportation Study did not identify additional roadway improvements. County permitting and review is ongoing. It should be noted that Street F proposed 50 ft right of way as a public street. The City standard is 60 ft. This is a deviation from code and included in the deviations.

Utilities
The Plan includes the construction of water, sewer, and stormwater facilities consistent with the Comprehensive Plan goals. Sewer and water is planned to go through conservation easement through an established easement identified as a street and utility corridor within the easement. All public infrastructure proposes is planned within right of way and drainage and utility easements. The utility plans are under review by the Engineer and will require approval prior to final plat application and ultimately construction.

Park and Trails
Trails are planned or accounted for through construction or creation of Trail easement. A park search area is not in the subject property and lies generally to the south the east of the development area nearer to 129th Avenue. Park dedication is expected through

fees in lieu of land dedication.
The Development adequately plans for utility and infrastructure delivery consistent with the needs for the development and meeting the goals of the Comprehensive Plan.

3. **Conservation Easement**

A conservation easement exists within the Casco Ventures Property. The plan identifies the extension of road and utilities through a corridor which is allowed for by the easement. However, some construction activities and stormwater infrastructure are shown outside of identified areas. The Developer and City are working with Hennepin County (owners of the Easement) on reviewing impacts and determining if these improvements are meeting the terms of the easement or if modifications to the easement are warranted. Continued coordination is required of the developer. If the County is not willing to amend terms, some revisions to the stormwater plan will be required. A condition of approval related to this item is included in the proposed motions.

4. **Miscellaneous**

Homeowners Association (HOA)

The villas and carriage homes will be under an HOA. HOA documentation will be required to be submitted with future final plats.

Eagle Nest
An eagle nest is within the site boundary but not within the construction area. Meaning no direct impacts are expected. However, disturbance from construction will need review by the US Fish and Wildlife. The Developer is in contact and coordination with the Wildlife Service and is in the process of gaining any required permits prior to construction activity. The permits include review if the nest, buffer requirements, review of mating season timing, and monitoring of the nest.

Staff Recommendation
City staff recommends opening the public hearing and determining if a recommendation to council can be made.

City Staff would recommend the following preliminary plat and PUD conditions:

1. The Developer shall revise plans to the satisfaction of the Public Works Department and City Engineer.
2. Elm Creek Watershed Commission permitting shall be required prior to construction.

3. The Developer shall continue to work with Hennepin County's Natural Resources Department regarding impacts to the Conservation Easement and ensuring the development meets the terms of the Conservation Easement. Revisions to the plan may be required to satisfy the requirements of Hennepin County.
4. The Developer shall be responsible for constructing turn lane improvements at Territorial Road at their cost. The Developer shall meet the requirements of the Hennepin County Transportation Department and improvements shall be permitted prior to construction.
5. The developer shall construct the proposes trail and boardwalk improvements within the shoreland buffer and conservation easement.
6. The Shoreland Buffer shall be dedicated to the City when the public improvements are accepted by the City.
7. The developer shall be responsible for constructing trunk utilities through the development to Willandale Road and shall continue to review options to extend water main to the east for potential watermain looping.
8. The developer shall ensure the public benefits outlined in the resolution are provided.
9. A Lot Split shall be processed prior to Final Plat approval.
10. A vacation request shall be processed prior to the plat including the existing half right of way of Hawkins Drive within the subject property.

Potential Motion:
Motion to recommend staff draft a resolution approving the preliminary plat for Cowley Lake Preserve with the conditions as presented in this staff report and an ordinance for PUD approval for City Council consideration.

Financial Impact: NA **Source Fund**: NA

Budgeted? N/A

Supporting Documentation

A. Previous Concept 1
B. Previous Concept 2
C. Rachel Development -Narrative
D. Cowley Lake Preserve - Preliminary Plan Set 02-24-2025
E. Cowley Lake Preserve - Net Density Exhibit 02-24-2025
F. Cowley Lake Preserve - Preliminary Turn Lanes - Territorial Road 02-24-2025
G. MNR Cowley Lake Site Wetland Delineation Report 6-27-22
H. Draft_ScherberPropertyDevelopment_TrafficStudy
I. Cowley Lake Preserve - Preliminary Plat - Outlot ownership plan
J. High Level Engineering Review of Preliminary Plat_PUD Application – Cowley Lake Preserve

SITE DATA

70' WIDE LOTS (BLOCKS 1–7, 15) – 63 LOTS
MINIMUM LOT AREA – 9,450 S.F. (70'x135')

52' WIDE LOTS (BLOCKS 8–10, 13–14, & LOTS 21–23, BLOCK 11) – 83 LOTS
MINIMUM LOT AREA – 6,760 S.F. (52'x130')

42' WIDE LOTS (BLOCK 12, & LOTS 1–20, BLOCK 11) – 36 LOTS
MINIMUM LOT AREA – 5,460 S.F. (42'x130')

TOTAL LOT COUNT – 182 LOTS

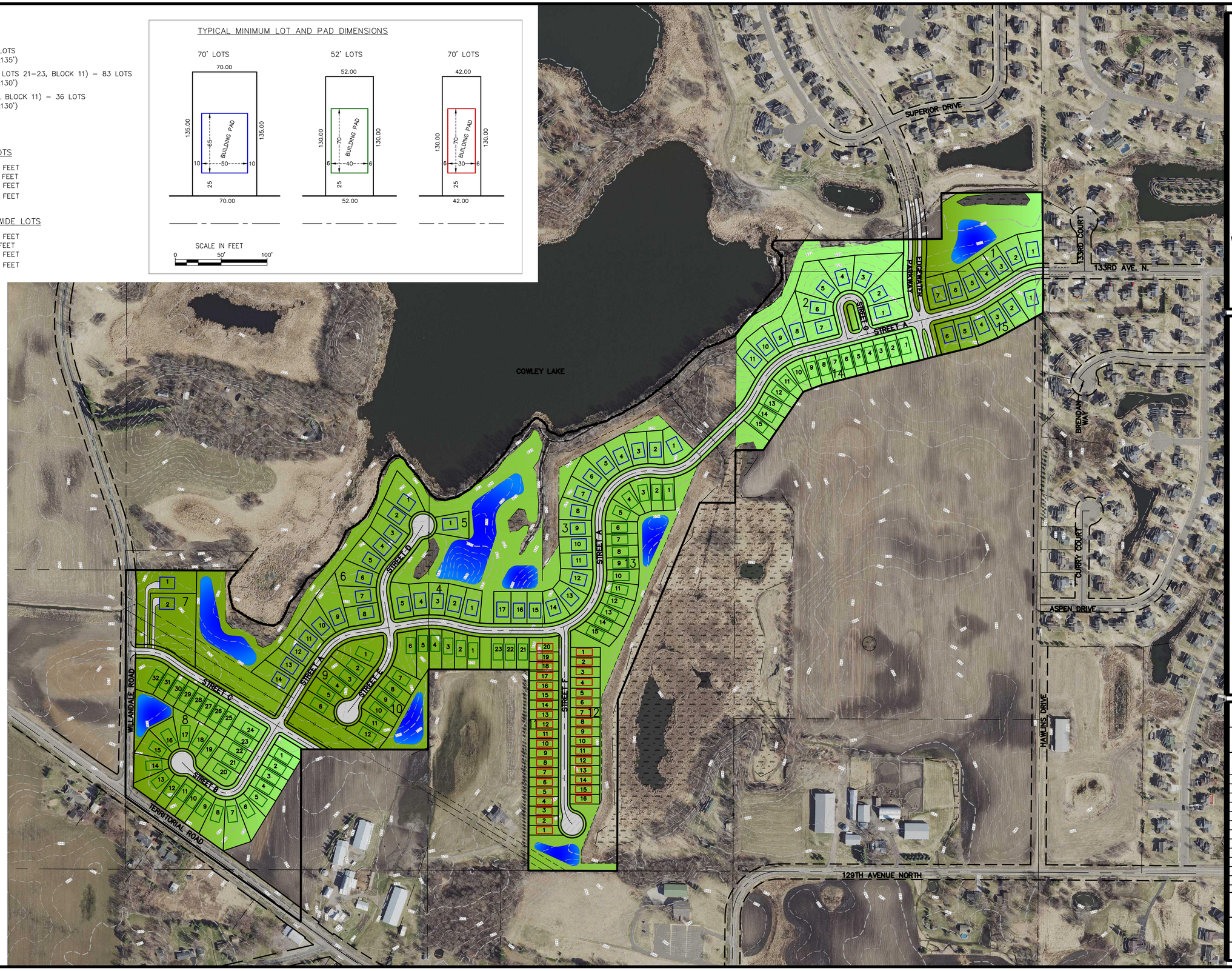
MINIMUM SETBACKS – 70' WIDE LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	10 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET

MINIMUM SETBACKS – 42' & 52' WIDE LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	5 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET

TYPICAL MINIMUM LOT AND PAD DIMENSIONS



James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

SCHERBER PROPERTY

ROGERS, MINNESOTA

CONCEPTUAL SITE PLAN

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	JSO
DATE	08/16/2022
REVISIONS	
CAD FILE	23970CP
PROJECT NO.	23970
SHEET	1 OF 1

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SITE DATA

70' WIDE STANDARD LOTS – 62 LOTS
(BLOCKS 1–6, 13)
MINIMUM LOT AREA – 8,750 S.F. (70'x125')

60' WIDE STANDARD LOTS – 44 LOTS
(BLOCKS 7, 12, & LOT 1, BLOCK 8 & LOTS 21–23, BLOCK 9)
MINIMUM LOT AREA – 7,800 S.F. (60'x130')

60' WIDE VILLA LOTS – 31 LOTS
(BLOCK 11 & LOTS 2–19, BLOCK 8)
MINIMUM LOT AREA – 7,800 S.F. (60'x130')

42' WIDE CARRIAGE LOT – 36 LOTS
(BLOCK 10, & LOTS 1–20, BLOCK 9)
MINIMUM LOT AREA – 5,460 S.F. (42'x130')

TOTAL LOT COUNT – 173 LOTS

MINIMUM SETBACKS – 60' & 70' WIDE STANDARD LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	10 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET

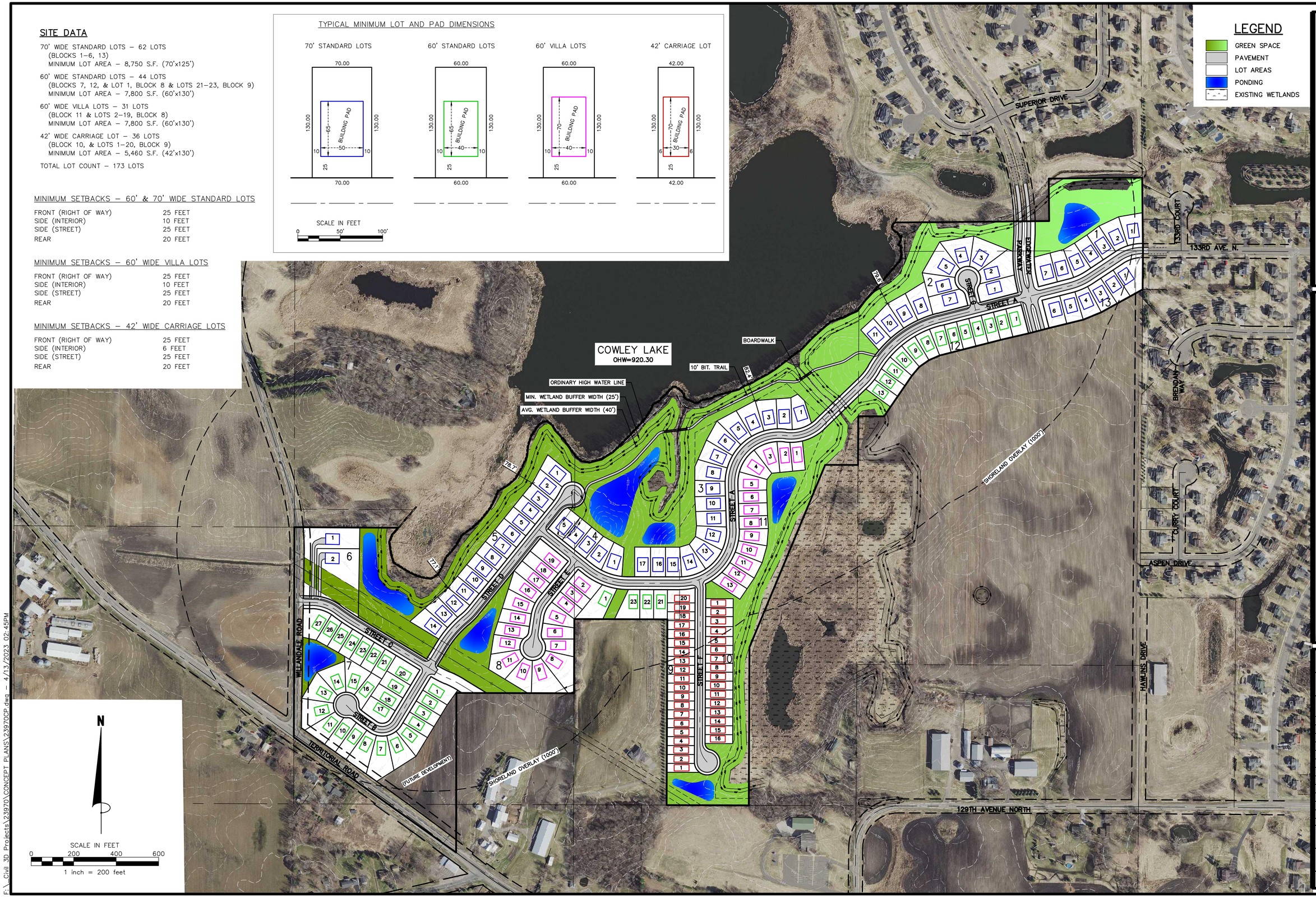
MINIMUM SETBACKS – 60' WIDE VILLA LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	10 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET

MINIMUM SETBACKS – 42' WIDE CARRIAGE LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	6 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET

TYPICAL MINIMUM LOT AND PAD DIMENSIONS



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PHONE: (952)890-6044 FAX: (952)890-6244

SCHERBER PROPERTY

ROGERS, MINNESOTA

CONCEPTUAL SITE PLAN

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	JSO
DATE	04/13/2023
REVISIONS	
CAD FILE	23970CP
PROJECT NO.	23970
SHEET	1 OF 1

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Rachel Development is pleased to submit the enclosed preliminary plat and Planned Unit Development (PUD) application for Cowley Lake Preserve for the City of Rogers' consideration. Additionally, we are requesting a simple subdivision of Hennepin County PID 2112023110003 to separate the project portion owned by Keith and Jody Weber ahead of the final platting process, which will occur in the coming months.

Project Overview

The subject property is located in the northeast quadrant of Willandale and Territorial Roads, extending northeasterly to the current termination of Edgewater Parkway, along the southern shore of Cowley Lake within the City of Rogers. The site encompasses approximately 87 acres, including 19 acres of delineated wetlands, wetland buffers, and conservation easements. A gas pipeline easement crosses the site from Willandale Road, running southeasterly.

The property comprises three ownership parcels:

- **Parcel 1 - PID 2112023240005:** 42 acres (owned by Marlene Scherber)
- **Parcel 2 - PID 2112023130004:** 26 acres (owned by Casco Ventures)
- **Parcel 3 - PID 2112023110003:** 19 acres- to be split (owned by Keith and Jody Weber)

Hennepin County GIS aerial maps of these parcels are included with this submission.

Background & Planning Process

The development of this property has been under discussion for several years. In March and April 2023, City staff and Rachel Development reviewed a concept development plan with the Planning Commission and City Council, featuring a range of lot sizes and single-family housing styles. The plan received positive feedback and formed the foundation for this preliminary plat/PUD application.

A key consideration in our planning process was the City's Shoreland Ordinance, which required updates to better align with the DNR's model shoreland code and the City's Comprehensive Guide Plan. As the Planning Commission and Council well know, City staff worked tirelessly with the DNR to produce an updated shoreland ordinance. The revised ordinance was approved in January 2025, and Cowley Lake Preserve complies fully with these new regulations.

Zoning & Land Use Compliance

The subject property is designated for low-density residential use in the City's 2040 Comprehensive Guide Plan, with a residential density requirement of 2 to 6 dwelling units per net acre. The property, currently used for agricultural purposes, is zoned R-2, which mandates:

- **Minimum lot width:** 65 feet

- **Minimum lot size:** 10,000 sq. ft.
- **Setbacks:** 25 ft (front), 20 ft (rear), 10 ft (side)

During the concept review discussions with Planning Commission and City Council we discussed many of the unique characteristics of the subject property that create challenges and limitations for developing the site under strict R-2 zoning standards. Strict adherence to R-2 zoning does not allow the project to meet the City's minimum density of 2 units per net acre. Through PUD flexibilities, we have designed a better-planned neighborhood that aligns with the City's goals while preserving site characteristics.

PUD Flexibilities & Benefits

Our PUD request includes provisions to:

- **Preserve wetlands and natural drainage features**
- **Ensure a smooth transition** to adjacent higher-density properties
- **Offer a variety of home types** to serve diverse household sizes and price points

A table containing our requested PUD flexibility is included with this narrative and in our project submittal. Our proposed development will also effectively serve the City's goals for obtaining a public water and sewer trunk connection from the existing termination of Edgewater Parkway through our project and connecting with Territorial Road.

Development Plan

Cowley Lake Preserve consists of 169 single-family residential lots, achieving a density of 2.32 dwelling units per net acre, consistent with low-density residential guidance. The neighborhood offers three distinct lot sizes to serve a variety of market segments:

1. **Standard Single-Family Lots (59 lots, 70' wide, 10' side yard setbacks)**
    - Larger rambler and two-story style home
    - Home sizes: 2,500+ sq. ft.
    - Price range: Upper $600Ks+
    - Product Line: M/I Homes "Prestige Series"
    - Due to impervious surface and open space requirements under the new shoreland ordinance, lot sizes are slightly below the 10,000 square foot size minimum in the R-2 district.

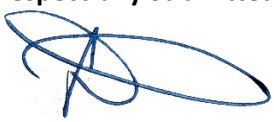
- Rachel has a project in the southeastern area of Delano called Legacy Woods that includes this home product.

2. **Medium Single-Family Lots (74 lots, 60' wide, 10' side yard setbacks, Avg. 7,500 SF)**
    - Villa homes as well as rambler and two-story style homes
    - Home sizes: 1,700–2,600 sq. ft.
    - Price range: Upper $400Ks – Mid $700Ks
    - Product Line: M/I Homes “Smart Series” & Hans Hagen Patio & Villa Homes
    - Currently being sold in numerous areas throughout the Twin Cities metro area
3. **Small Single-Family Lots (36 lots, 42' wide, 5' side yard setbacks)**
    - One and two-level homes
    - Home sizes: 1,600–2,200 sq. ft.
    - Price range: Upper $300Ks – Low $500Ks
    - Product Line: M/I Homes “Carriage Series”
    - Empty nesters as well as smaller families and single homeowners
    - These homes are well-received in neighborhoods throughout the Twin Cities.

Conclusion

We are excited to present Cowley Lake Preserve for the City Council’s review. This thoughtfully designed neighborhood balances preservation, transition, and diversity while ensuring key infrastructure connections for future development. We appreciate the City’s consideration and look forward to working together to bring this project to fruition.

Respectfully Submitted,

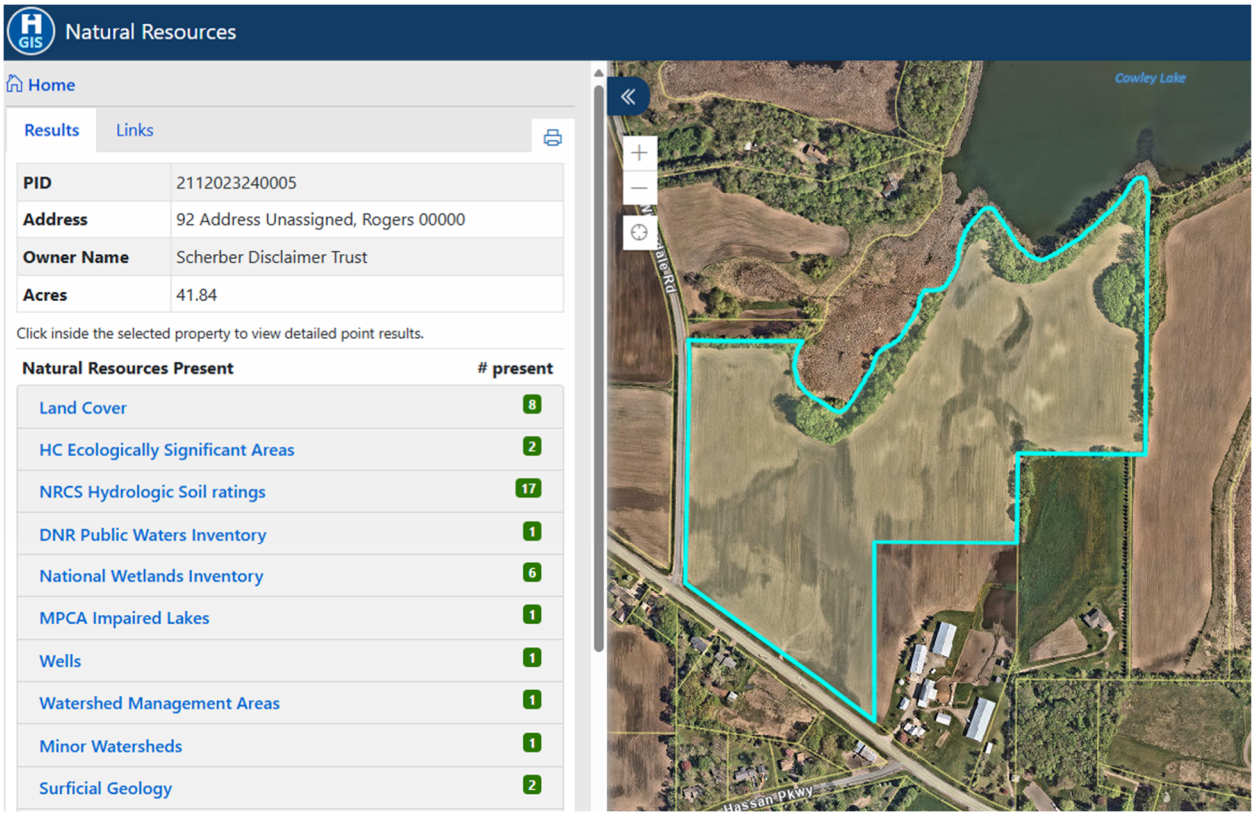


_____

Rachel Development, Inc.
David Stradtman
Vice President of Development

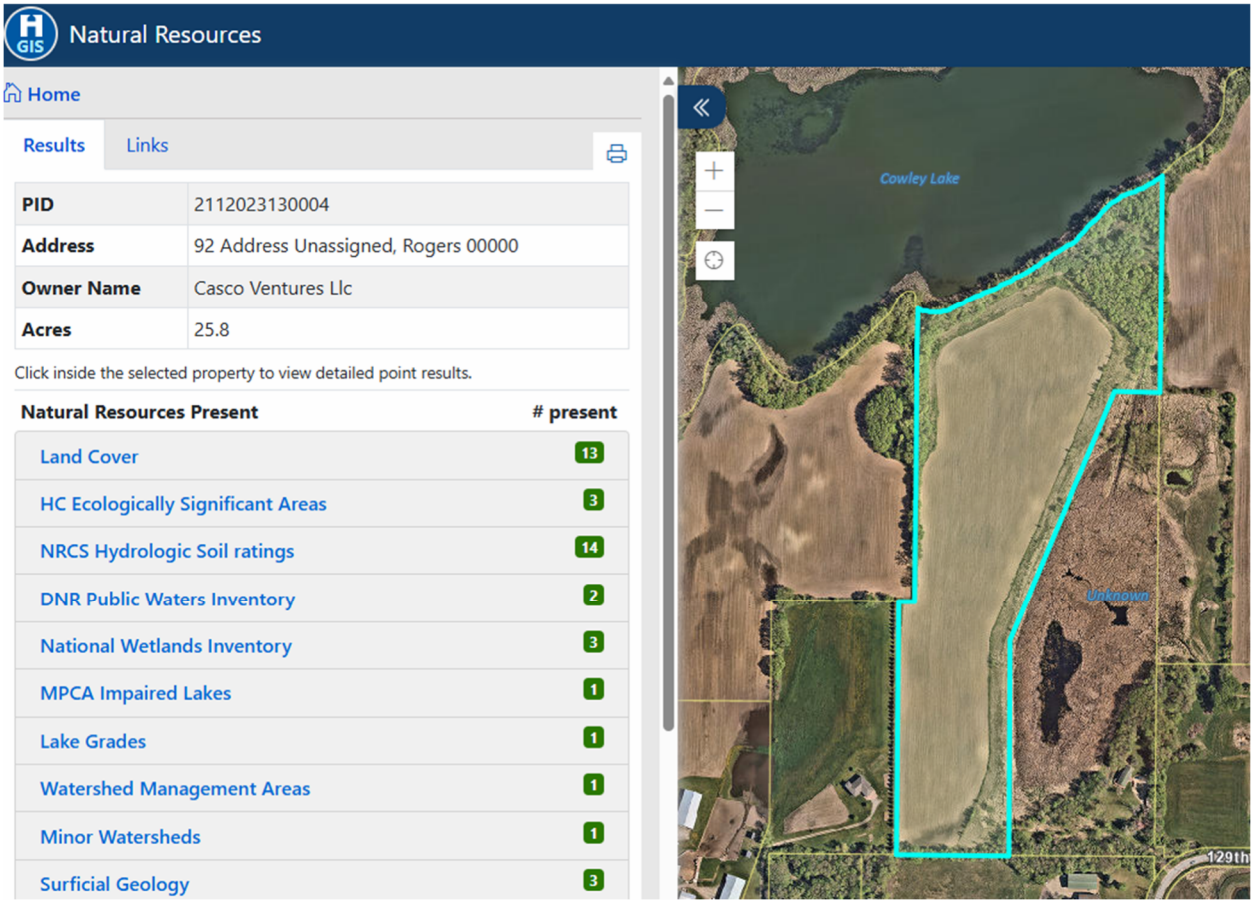
Parcel 1:

PID 2112023240005: 42 acres (owned by Marlene Scherber)



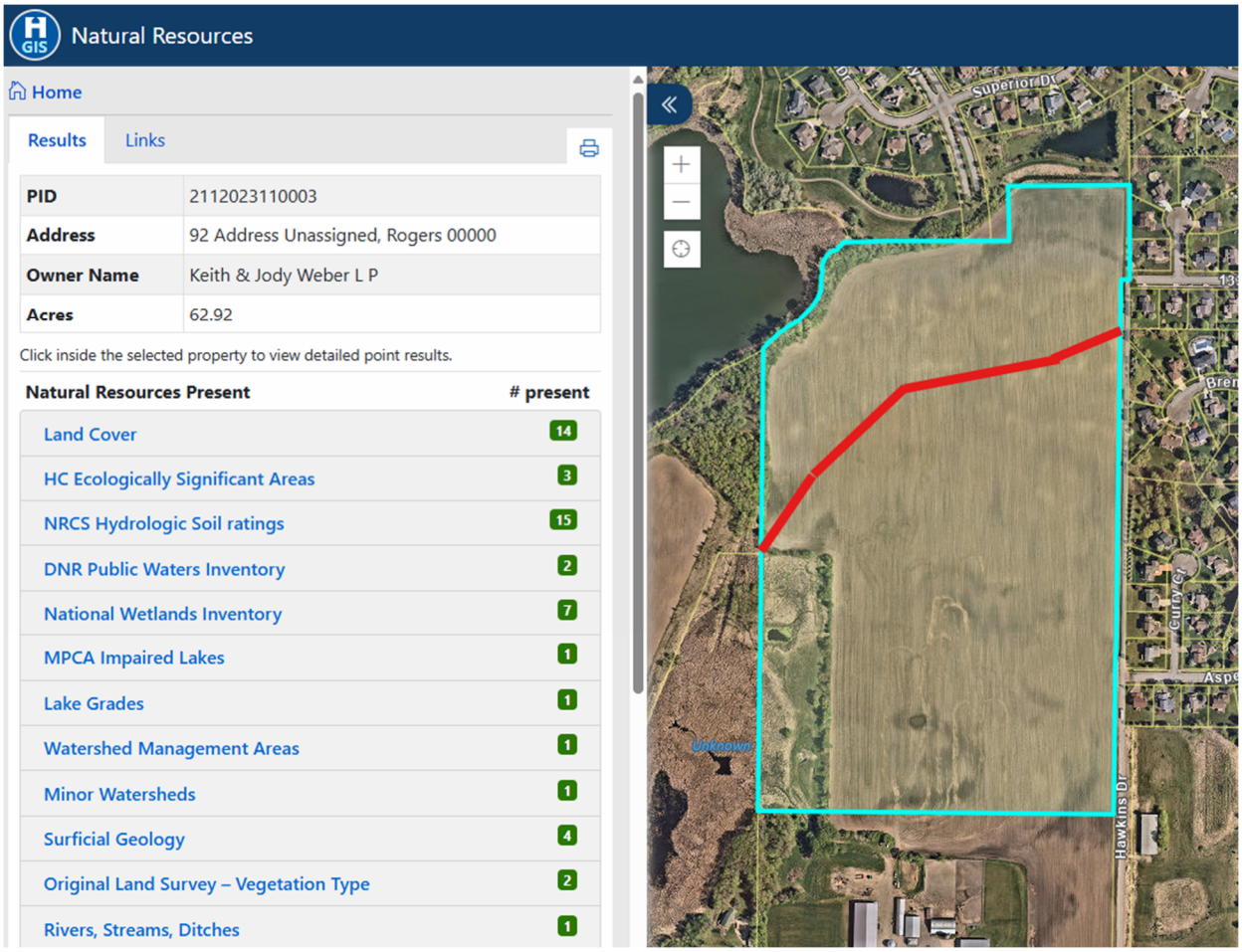
Parcel 2:

PID 2112023130004: 26 acres (owned by Casco Ventures)



Parcel 3:

PID 2112023110003: 19 acres- to be split (owned by Keith and Jody Weber)



Proposed PUD Standards:

COWLEY LAKE PRESERVE

PROPOSED PUD STANDARDS

(SHORELAND ALTERNATIVE DEVELOPMENT STANDARDS, WITHIN 1000' OVERLAY AREA, ARE APPLIED)

	ROGERS R2 ZONING	70-FT WIDE LOTS 59 LOTS	60-FOOT WIDE LOTS 48 LOTS	60-FOOT WIDE LOTS 26 LOTS	42-FOOT WIDE LOTS 36 LOTS
MIN LOT WIDTH	65 FT	70 FT	60 FT	60 FT	42 FT
MIN LOT AREA	10,000 SF	8,750 SF	7,500 SF	7,500 SF	5,460 SF
FRONT SB	25 FT	25 FT	25 FT	25 FT	25 FT
SIDE YARD SB - INT	10 FT	10 FT	10 FT	10 FT	6 FT
SIDE YARD SB - COR	25 FT	25 FT	25 FT	25 FT	25 FT
REAR YARD SB	20 FT	20 FT	20 FT	20 FT	20 FT
SB TO COUNTY ROW	50 FT	50 FT	50 FT	50 FT	50 FT
MAX HARD COVER	75%	50%	50%	50%	50%
DENSITY	2.0 TO 6.0 UNITS PER ACRE	AVE DENSITY = 2.32 UNITS PER ACRE			
MAX BUILDING HT	35 FT	35 FT	35 FT	35 FT	35 FT

BENCHMARKS

#1 TOP NUT HYDRANT EAST PROPERTY LINE, NORTH SIDE OF 133RD AVE N ELEV=930.85

COWLEY LAKE PRESERVE

ROGERS, MINNESOTA

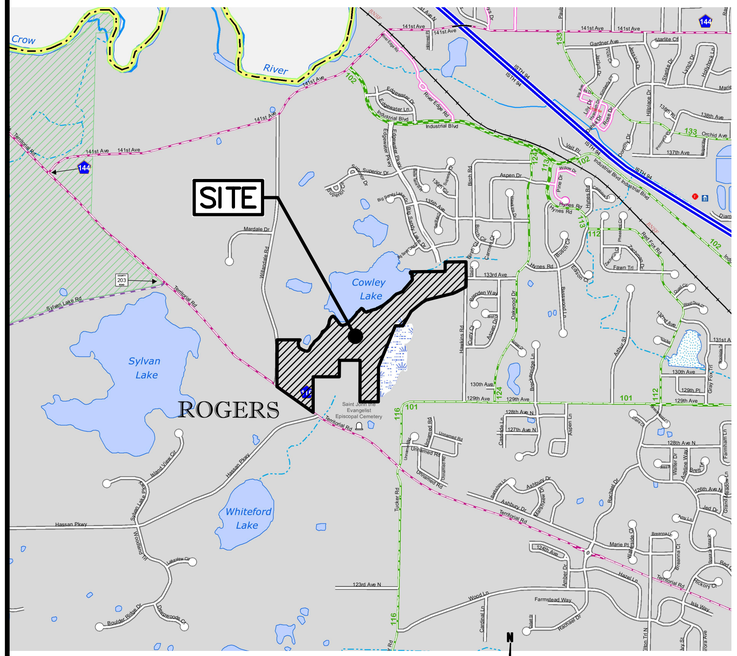
PRELIMINARY PLAT EXHIBITS

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

PHONE: (763) 424-1525

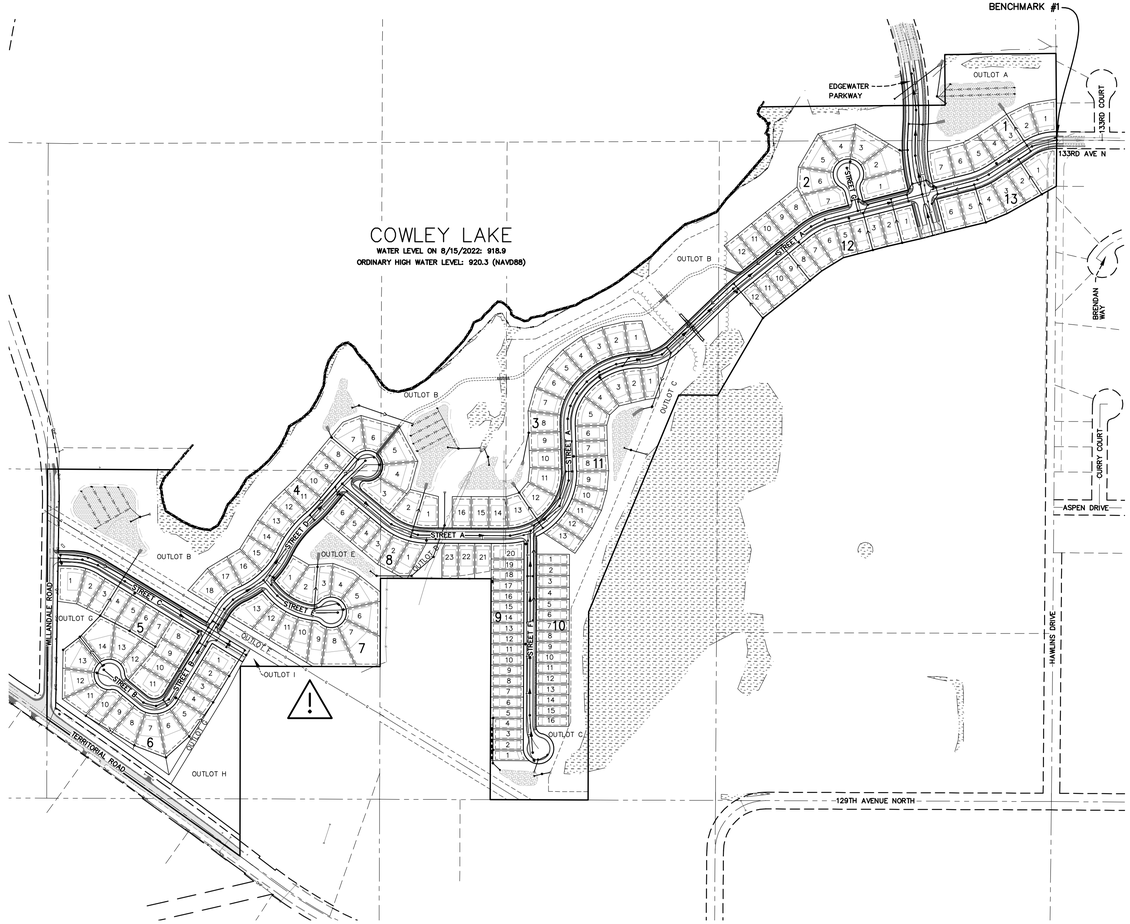


LOCATION MAP

1" = 1600'

N

PROJECT COORDINATES
N 45° 11' 30"
W 93° 35' 40"



INDEX

TITLE SHEET	1.0
EXISTING CONDITIONS	1.1
OVERALL SITE PLAN	1.2
SHORELAND OVERLAY EXHIBIT	1.3
PRELIMINARY PLAT	2.0–2.6
EROSION & SEDIMENT CONTROL PLAN	3.0–3.1
EROSION & SEDIMENT CONTROL DETAILS	3.2–3.4
DRAINAGE MAPS	3.5
PRELIMINARY GRADING & DRAINAGE PLAN	4.0–4.7
OVERALL UTILITY PLAN	5.0
PRELIMINARY SANITARY SEWER & WATERMAIN PLAN	5.1–5.7
PRELIMINARY STORM SEWER PLAN	5.8–5.14
EXISTING GAS MAIN EXHIBIT	5.15
CONSTRUCTION DETAILS	6.0–6.7
WETLAND IMPACTS AND BUFFERS EXHIBIT	7.0–7.1

LEGEND

EXISTING WATERMAIN
EXISTING SANITARY SEWER
EXISTING SANITARY FORCEMAIN
EXISTING STORM SEWER
EXISTING UNDERGROUND GAS
EXISTING UNDERGROUND ELECTRIC
EXISTING UNDERGROUND TELEPHONE
EXISTING UNDERGROUND FIBER OPTIC
EXISTING OVERHEAD POWER LINE
EXISTING ELECTRIC OUTLET POST
EXISTING GUY WIRE
EXISTING LIGHT POLE
EXISTING MANHOLE (WATER)
EXISTING SIGN
EXISTING TRANSFORMER
EXISTING TELEPHONE PEDESTAL
EXISTING TV PEDESTAL
EXISTING VAULT
EXISTING CURB & GUTTER
EXISTING RETAINING WALL
EXISTING FENCE
EXISTING CONTOUR
EXISTING WETLAND EDGE
EXISTING SOIL BORING LOCATION
EXISTING TREELINE/TREES
EXISTING ASPHALT
EXISTING CONCRETE
EXISTING GRAVEL
EXISTING WETLAND
PROPOSED WATERMAIN
PROPOSED SANITARY SEWER
PROPOSED SANITARY SERVICE
PROPOSED WATER SERVICE
PROPOSED STORM SEWER
PROPOSED CURB & GUTTER
PROPOSED CONCRETE
PROPOSED ASPHALT SURFACE
PROPOSED SEDIMENT BASIN

SITE DATA

70' WIDE LOTS – 59 LOTS
(BLOCKS 1–4 & 13)
MINIMUM LOT AREA – 8,750 S.F. (70'x125')

60' WIDE LOTS – 48 LOTS
(BLOCKS 5, 6, 8, & 12 & LOTS 21–23, BLOCK 9)
MINIMUM LOT AREA – 7,500 S.F. (60'x125')

60' WIDE VILLA LOTS – 26 LOTS
(BLOCK 7 & 11)
MINIMUM LOT AREA – 7,500 S.F. (60'x125')

42' WIDE CARRIAGE LOT – 36 LOTS
(BLOCK 10, & LOTS 1–20, BLOCK 9)
MINIMUM LOT AREA – 5,460 S.F. (42'x130')

TOTAL LOT COUNT – 169 LOTS

MAXIMUM IMPERVIOUS (ALL LOTS) = 50%

EXISTING ZONING IS R2
PROPOSED ZONING IS PUD

TOTAL SITE AREA	±88.99 AC.
LOT AREA	35.64 AC.
–(70' WIDE LOTS)	(14.41 AC.)
–(60' WIDE LOTS)	(10.60 AC.)
–(60' WIDE VILLA LOTS)	(6.01 AC.)
–(42' WIDE CARRIAGE LOT)	(4.62 AC.)
OUTLOT AREA	±39.16 AC.
–(OPEN SPACE – OUTLOTS A–G)	(±36.98 AC.)
–(FUTURE DEVELOPMENT – OUTLOTS H–I)	(2.18 AC.)
RIGHT OF WAY AREA	14.19 AC.
–(EXISTING ROADS – WILLANDALE & TERRITORIAL)	(2.44 AC.)
–(SUBDIVISION ROADS)	(11.75 AC.)

MINIMUM SETBACKS – 60' & 70' WIDE STANDARD LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	10 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET
COWLEY LAKE – OHW (ALL STRUCTURES)	150 FEET

MINIMUM SETBACKS – 60' WIDE VILLA LOTS

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REAR	20 FEET
COWLEY LAKE – OHW (ALL STRUCTURES)	150 FEET

MINIMUM SETBACKS – 42' WIDE CARRIAGE LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	6 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET
COWLEY LAKE – OHW (ALL STRUCTURES)	150 FEET

WARNING!
UNDERGROUND HIGH PRESSURE PIPELINE CONTACT ENERGY TRANSFER REPRESENTATIVE AT 1–800–753–5531 PRIOR TO PERFORMING WORK WITHIN THE PIPELINE EASEMENT

PROJECT CONTACTS

PROJECT ENGINEER:	RICK L. OSBERG, P.E. – JAMES R. HILL, INC.	952–890–6044 (O)
DEVELOPER:	DAVID STRADTMAN – RACHEL DEVELOPMENT	763–424–1525 (O)
CITY ENGINEER:	DORAN COTE	763–428–8580 (O)
NPDES OFFICER:	JOSH NORMAN – MPCA	651–757–2389 (O)
GENERAL CONTRACTOR REPRESENTATIVE:	TBD	

Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 300 600 900
1 inch = 300 feet

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

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.

PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
TITLE SHEET
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/JSO

DATE
02/24/2024

REVISIONS

CAD FILE
23970TS

PROJECT NO.
23970

1.0

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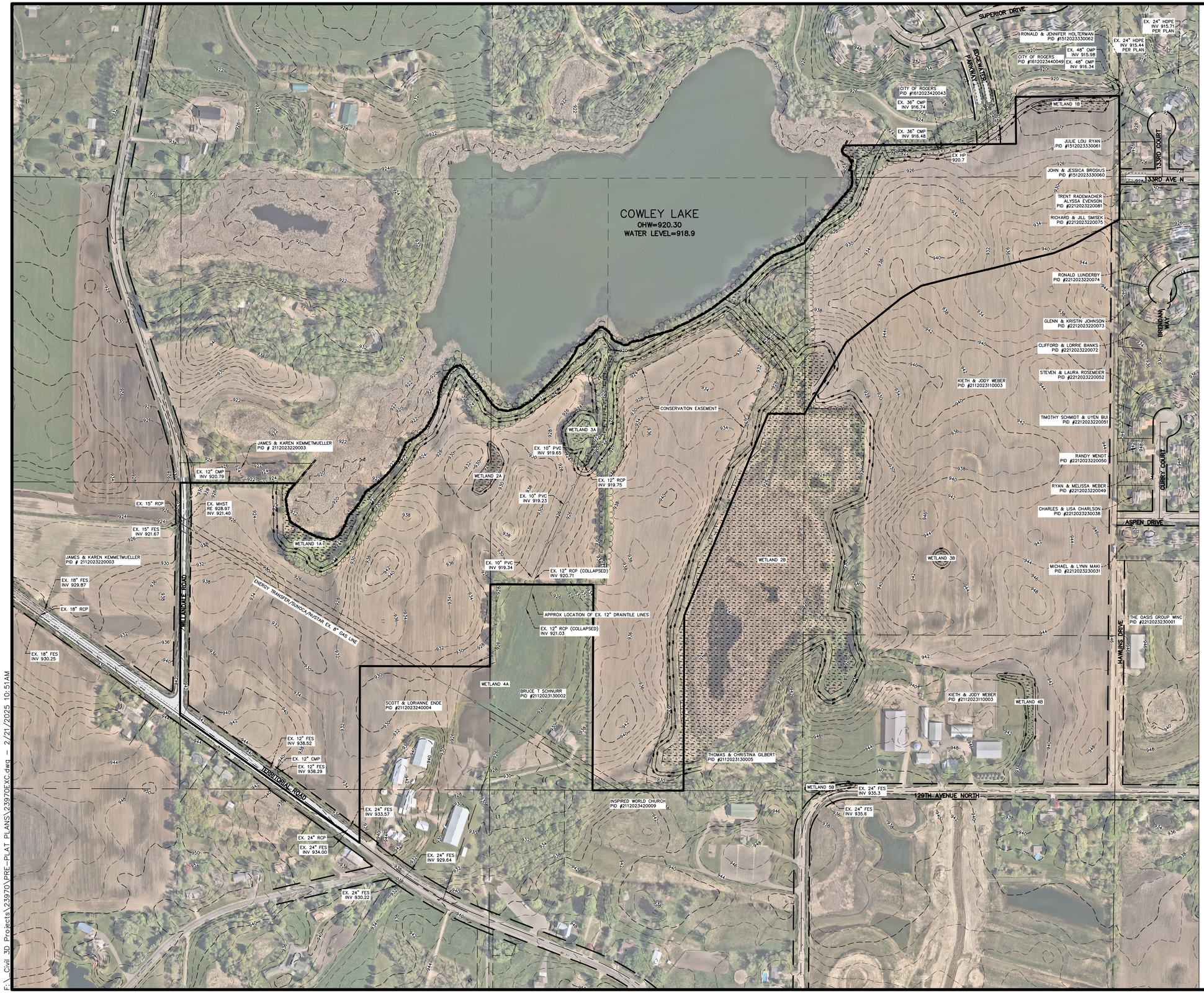

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND FIBER OPTIC
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COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
EXISTING CONDITIONS
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY VUN
DATE 02/24/2024
REVISIONS
CAD FILE 23970EXC
PROJECT NO. 23970
1.1

Know what's **below.** **Call** before you dig.

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SCALE IN FEET
0 200 400 600
1 inch = 200 feet

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TYPICAL MINIMUM LOT AND PAD DIMENSIONS

LEGEND

- 70' LOTS – STANDARD
- 60' LOTS – STANDARD
- 60' LOTS – VILLA
- 42' LOTS – CARRIAGE

SITE DATA

70' WIDE LOTS – 59 LOTS
(BLOCKS 1–4 & 13)
MINIMUM LOT AREA – 8,750 S.F. (70'x125')

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REAR	20 FEET
COWLEY LAKE – OHW (ALL STURCTURES)	150 FEET

MINIMUM SETBACKS – 60' WIDE VILLA LOTS

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COWLEY LAKE – OHW (ALL STURCTURES)	150 FEET

MINIMUM SETBACKS – 42' WIDE CARRIAGE LOTS

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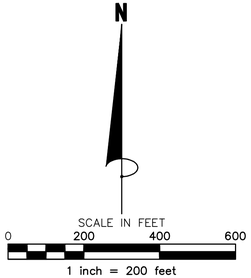

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PRELIMINARY

Date:_____ Reg.No._____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
OVERALL SITE PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/EPF

DATE
02/24/2024

REVISIONS

CAD FILE
23970SITE

PROJECT NO.
23970

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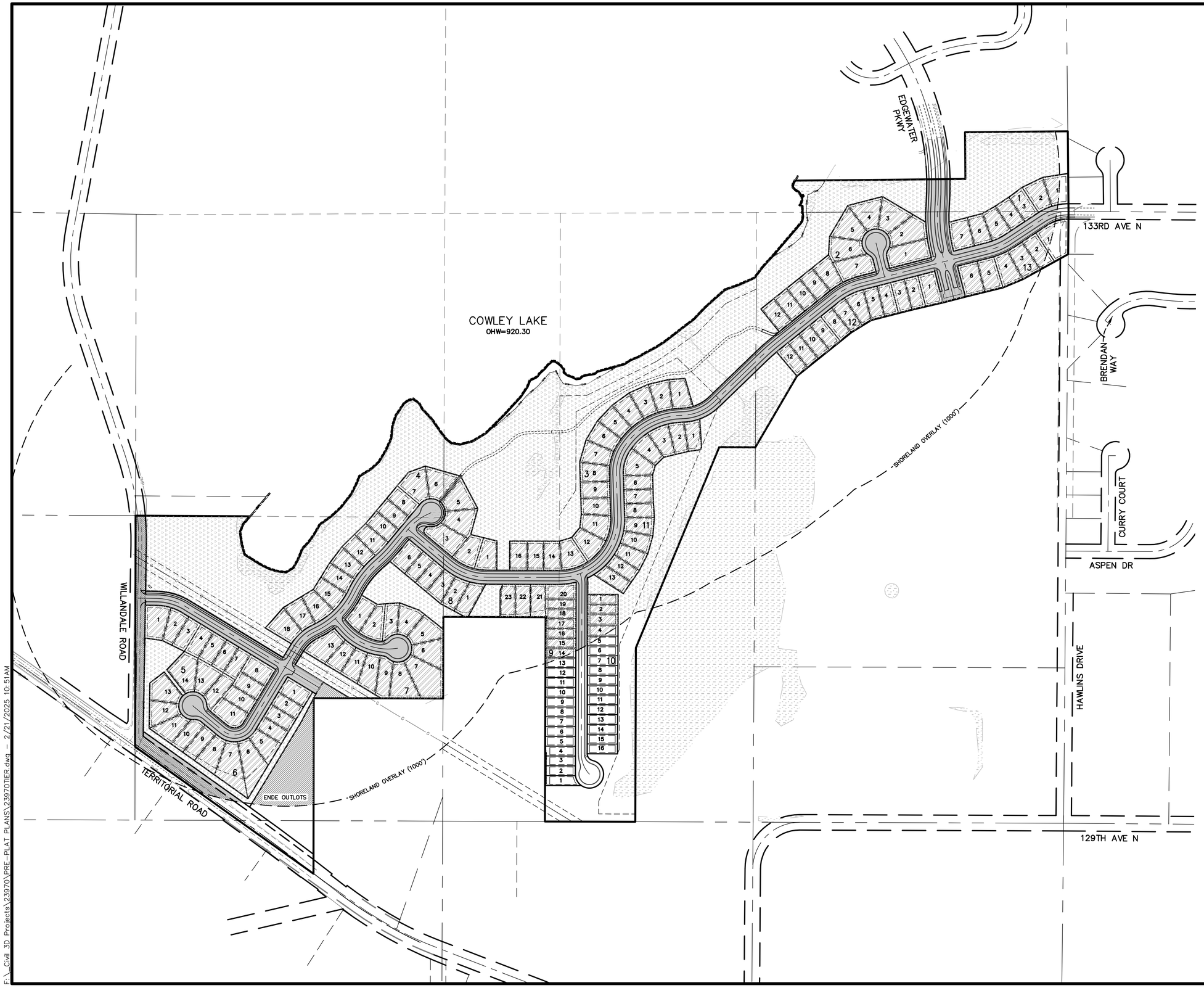

LEGEND

- DELINEATED WETLAND
- RIGHT-OF-WAY (TERRITORIAL/WILLANDALE)
- ENDE OUTLOTS
- OPEN SPACE
- PROPOSED RIGHT-OF-WAY
- PROPOSED LOT AREA

PROJECT AREA SUMMARY

COMPUTE NET PROJECT AREA	
GROSS AREA (AREA WITHIN 1000 FT OF OHW AND HAVING AN ELEVATION ABOVE OT OHW.)	79.19 AC
SUBTRACT EXISTING ROW (WILLANDALE & TERRITORIAL)	-1.44 AC
SUBTRACT PROPOSED ROW	-11.06 AC
SUBTRACT OUTLOTS TO BE DEEDED TO ENDE	-1.51 AC
NET PROJECT AREA	65.18 AC

COMPUTE PROJECT IMPERVIOUS	
PROPOSED LOT AREA	32.08 AC
PROPOSED IMPERVIOUS (50% OF LOT AREA = 32.08 X 0.5)	16.04 AC
% IMPERVIOUS (IMPERVIOUS AREA / NET PROJECT AREA = 16.04/65.18)	24.6 %
MAXIMUM IMPERVIOUS ALLOWABLE	25.0 %

COMPUTE OPEN SPACE	
PROPOSED OPEN SPACE (NET PROJECT AREA - LOT AREA)	33.10 AC
% OPEN SPACE (OPEN SPACE AREA / NET PROJECT AREA = 33.1 / 65.18)	50.8 %
MINIMUM OPEN SPACE REQUIRED	35.0 %

SCALE IN FEET
0 200 400 600
1 inch = 200 feet

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PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
SHORELAND OVERLAY EXHIBIT
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/EPF

DATE
02/24/2024

REVISIONS

CAD FILE
23970TIER

PROJECT NO.
23970

1.3

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SURVEYED PROPERTY

Scherber Parcel:

Parcel 1:
Beginning at a point on the East line of Government Three (3) distant 525 feet North 0 degrees 14 minutes 28 seconds West from the Southeast corner thereof; thence South 89 degrees 44 minutes 7 seconds West parallel with the South line thereof distant 553.53 feet; thence South 0 degrees 21 minutes East to center line of county road; thence Northwesterly along said center line to the West line thereof; thence Northerly to the Northwest corner thereof; thence along the Northerly line thereof to the Northeast corner thereof; thence Southerly to the point of beginning. Also that part of the West 30 rods of Government Lot 2 lying North of the South 53 rods thereof, except roads, in Section Twenty-one (21), Township One Hundred Twenty (120), Range Twenty-three (23), Hennepin County, State of Minnesota.

Casco Parcel:

That part of Government Lot 2 in Section 21, Township 120, Range 23, described as commencing at the Southwest corner thereof, thence South 89 degrees 48 minutes 24 seconds East, assumed bearing along the South line of Government Lot 2, a distance of 438.00 feet to the point of beginning; thence North 00 degrees 13 minutes 06 seconds East parallel to the West line of Government Lot 2, a distance of 874.50 feet; thence South 89 degrees 48 minutes 24 seconds East a distance of 57.00 feet; thence North 0 degrees 13 minutes 06 seconds East a distance of 891.00 feet, more or less, to the shore of Crowley Lake; thence Northeasterly along said shoreline a distance of 1043.00 feet, more or less, to the East line of Government Lot 2; thence South 00 degrees 20 minutes 20 seconds West along said East line to a point which is 1604.32 feet North of the Southeast corner of Government Lot 2; thence North 89 degrees 39 minutes 40 seconds West a distance of 154.63 feet; thence South 22 degrees 32 minutes 57 seconds West a distance of 930.19 feet; thence South 00 degrees 13 minutes 06 seconds West distance 744.43 feet to the South line of Government Lot 2; thence North 89 degrees 48 minutes 24 seconds West along said South line a distance of 387.00 feet to the point of beginning, Hennepin County, Minnesota.

Weber Parcel:

That part of Government Lot 1, Section 16, Township 120 North, Range 23 West, Hennepin County, Minnesota, which lies southerly of a line, and its westerly extension, described as commencing at the southeast comer of said Government Lot 1; thence northerly along the east line of said Government Lot 1, a distance of 343.00 feet to the point of beginning of the line to be described; thence westerly, deflecting to the left, 90 degrees 00 minutes 00 seconds a distance of 440.00 feet; thence southerly, deflecting to the left, 90 degrees 00 minutes 00 seconds a distance of 200 feet; thence westerly deflecting to the right, 90 degrees 00 minutes 00 seconds to the west line of said Government Lot 1 and said line there terminating; AND

That part of Government Lot 1, Section 21, Township 120, Range 23, Hennepin County, Minnesota , which lies northerly of a line described as commencing at the northeast corner of said Government Lot 1; thence on an assumed bearing of South 00 degrees 27 minutes 31 seconds West, along the east line of said Government Lot 1, a distance of 182.88 feet to the point of beginning of the line to be described; thence South 61 degrees 03 minutes 26 seconds West a distance of 222.02 feet; thence South 67 degrees 30 minutes 11 seconds West a distance of 91.95 feet; thence South 76 degrees 13 minutes 23 seconds West a distance of 165.87 feet; thence South 75 degrees 35 minutes 51 seconds West a distance of 100.00 feet; thence South 76 degrees 59 minutes 00 seconds West a distance of 124.04 feet; thence South 75 degrees 35 minutes 51 seconds West a distance of 191.00 feet; thence South 58 degrees 41 minutes 05 seconds West a distance of 100.13 feet; thence South 51 degrees 12 minutes 52 seconds West a distance of 298.78 feet; thence South 30 degrees 17 minutes 17 seconds West a distance of 353.33 feet to a point in the west line of said Government Lot 1 which is 1604.32 feet north of the southwest corner of the Southeast Quarter of the Northeast Quarter of said Section 21, and said line there terminating.

EXISTING ZONING IS R2
PROPOSED ZONING IS PUD

TOTAL SITE AREA	±88.99 AC.
LOT AREA	35.64 AC.
–(70' WIDE LOTS)	(14.41 AC.)
–(60' WIDE LOTS)	(10.60 AC.)
–(60' WIDE VILLA LOTS)	(6.01 AC.)
–(42' WIDE CARRIAGE LOT)	(4.62 AC.)
OUTLOT AREA	±39.16 AC.
–(OPEN SPACE – OUTLOTS A–G)	(±36.98 AC.)
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MINIMUM LOT AREA – 8,750 S.F. (70'x125')

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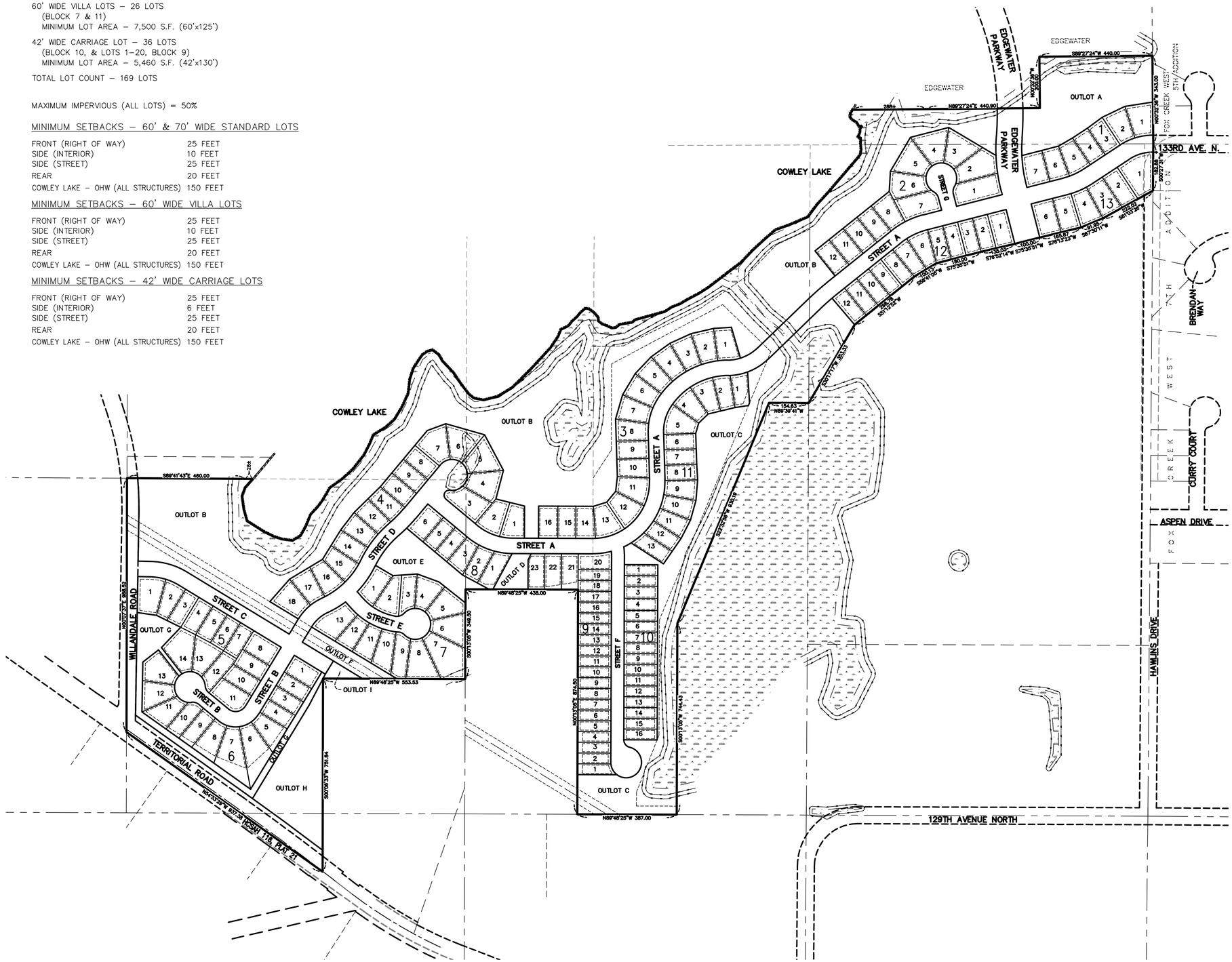

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SCALE IN FEET
0 200' 400'

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2999 WEST C.R. 42, SUITE 100, BURNSVILLE, MN 55306
PHONE: 952.890.6044 mhampton@jrhinc.com
www.jrhinc.com

COWLEY LAKE PRESERVE
PRELIMINARY PLAT
FOR
RACHEL DEVELOPMENT
ROGERS, MINNESOTA
4180 NAPPER COURT, ST. MICHAEL, MN 55376

DRAWN BY
PLM
DATE
2/24/2025
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PROJECT NO.
23970-00
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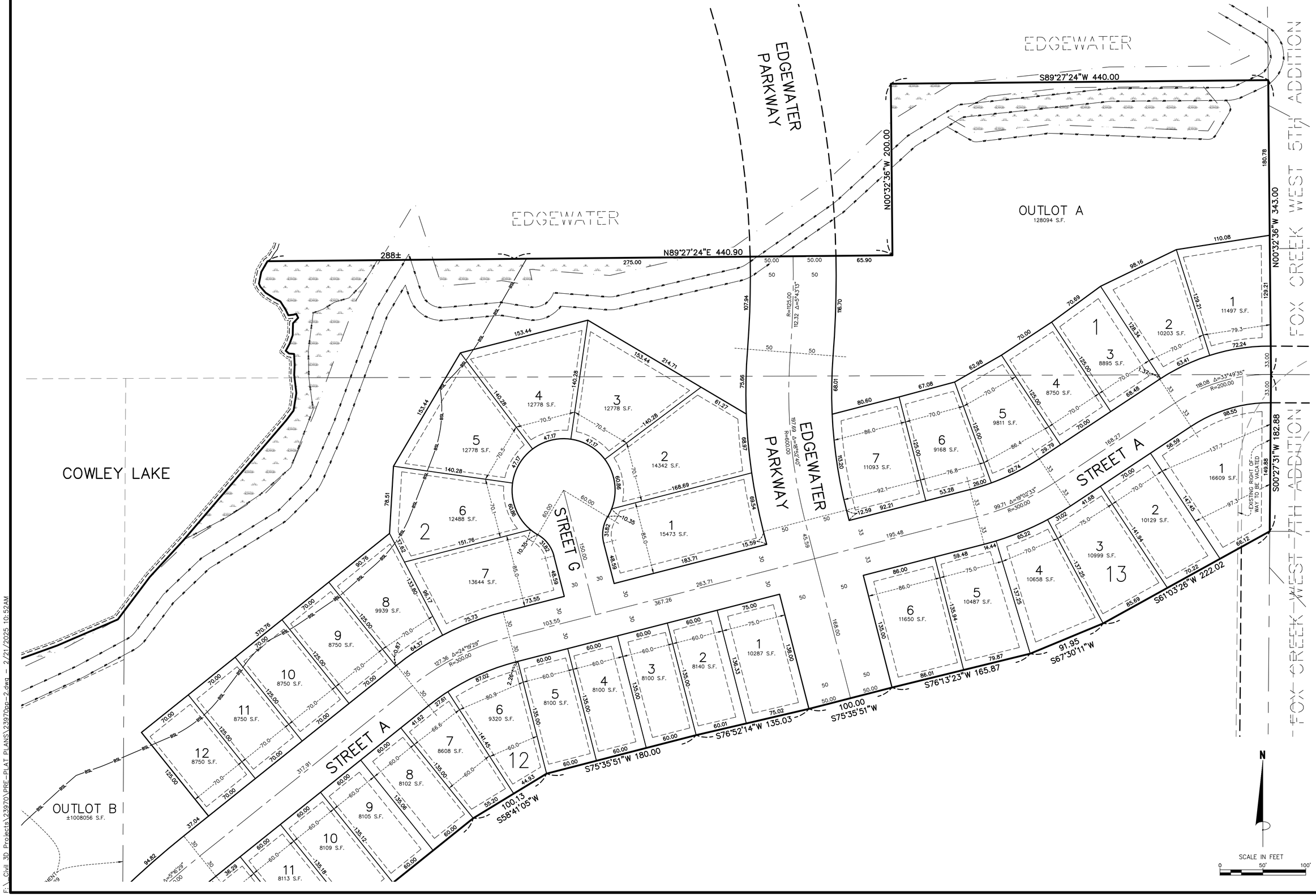

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www.jrhinc.com

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY PLAT
FOR
RACHEL DEVELOPMENT
4180 INNPER COURT, ST. MICHAEL, MN 55376

DRAWN BY
PLM
DATE
2/24/2025
REVISIONS
CAD FILE
23970pp-2.dwg
PROJECT NO.
23970-00
2.1

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COWLEY LAKE

OUTLOT B
±1008056 S.F.

OUTLOT C
340687 S.F.

STREET A

CONSERVATION EASEMENT PER DOC. NO. 10326709

CONSERVATION EASEMENT PER DOC. NO. 10326709

APPROXIMATE LOCATION OF 60' WIDE "BAND FOR ROAD AND EASEMENT" PER DOC. NO. 10326819

N89°39'41"W 154.63

S30°17'17"W 353.33

S51°12'52"W 298.78

100.13
S58°41'05"W

STREET A
R=300.00 Δ=56°32'00" 296.01
R=200.00 Δ=43°20'30" 151.29
R=200.00 Δ=34°33'33" 120.63
R=600.00 Δ=5°16'29" 92.06
R=300.00 Δ=24°19'29" 127.36

1	10038 S.F.	
2	9757 S.F.	
3	9757 S.F.	
4	9757 S.F.	
5	9791 S.F.	
6	10041 S.F.	
7	10245 S.F.	
8	9604 S.F.	
1	7985 S.F.	
2	8292 S.F.	
3	9455 S.F.	
4	9227 S.F.	
5	10658 S.F.	
6	7500 S.F.	
1	8102 S.F.	
2	8195 S.F.	
3	8113 S.F.	
4	8109 S.F.	
5	8105 S.F.	
6	8608 S.F.	
7	9320 S.F.	
8	9939 S.F.	
9	8750 S.F.	
10	8750 S.F.	
11	8750 S.F.	
12	8750 S.F.	
6	12488 S.F.	
7	13644 S.F.	

SCALE IN FEET
0 50' 100'

N

James R. Hill, Inc.
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COWLEY LAKE PRESERVE
ROGERS, MINNESOTA

PRELIMINARY PLAT
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4160 NAPPER COURT, ST. MICHAEL, MN 55376

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COWLEY LAKE

OUTLOT B
±1008056 S.F.

OUTLOT C
340687 S.F.

OUTLOT D
14079 S.F.

OUTLOT E
43412 S.F.

STREET A
311.46

STREET D

STREET F

N89°48'25"W 438.00

N89°39'41"W 154.63

S22°37'56"W 930.19

SCALE IN FEET
0 50' 100'

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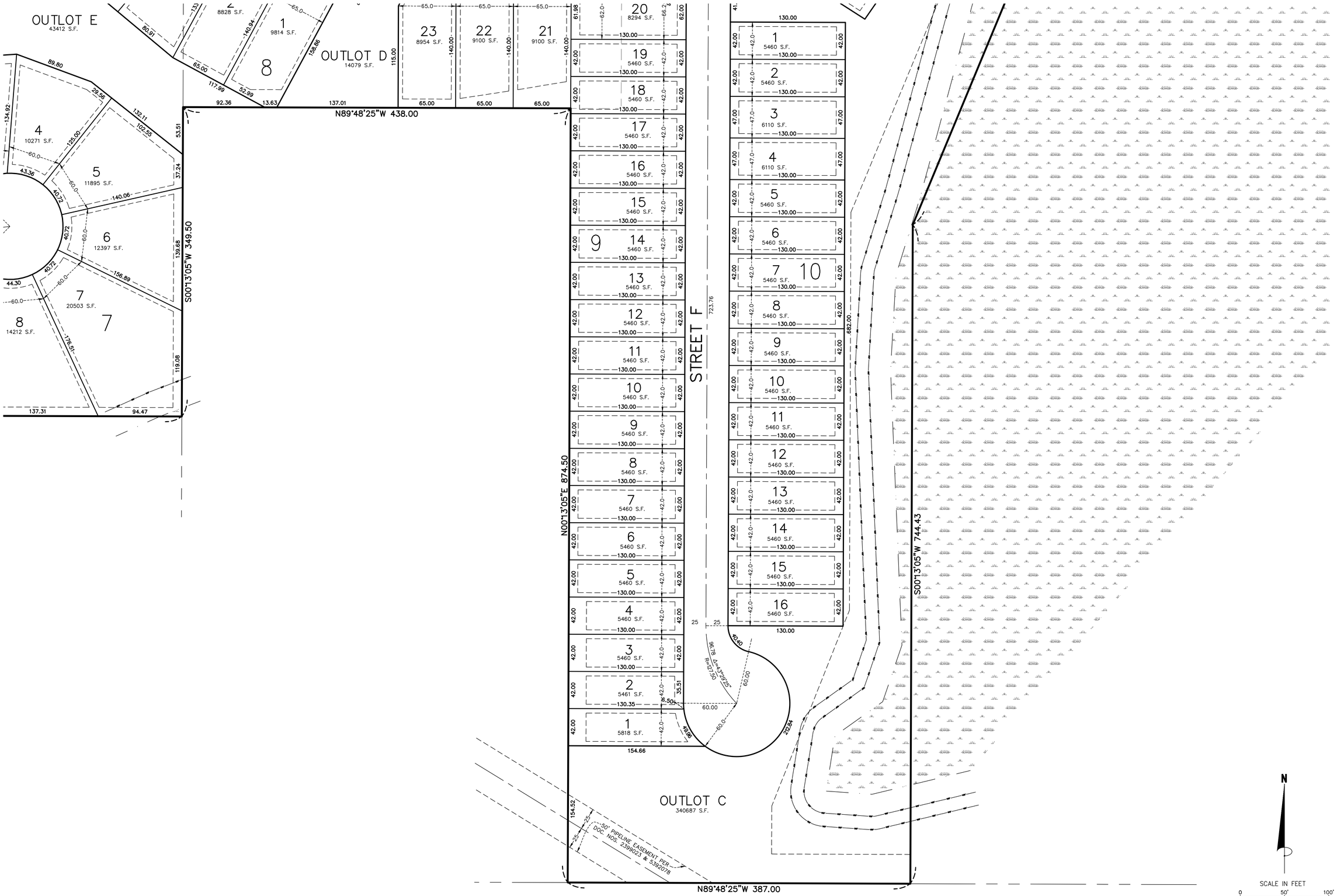

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RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

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COWLEY LAKE

S89°41'43"E 460.00
418.44

28±

OUTLOT B
±1008056 S.F.

WILLANDALE ROAD
N00°07'37"E 988.52
625.85

WILLANDALE ROAD

STREET C

STREET D

STREET B

STREET E

OUTLOT E
43412 S.F.

OUTLOT F
22877 S.F.

OUTLOT G
53602 S.F.

OUTLOT H
89641 S.F.

OUTLOT I
5336 S.F.

PROPOSED GASLINE CONFINEMENT EASEMENT BY OTHERS

N89°48'25"W 553.53

S00°13'05"W 349.50

SCALE IN FEET
0 50' 100'

N

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PRELIMINARY PLAT
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4160 INNPER COURT, ST. MICHAEL, MN 55376

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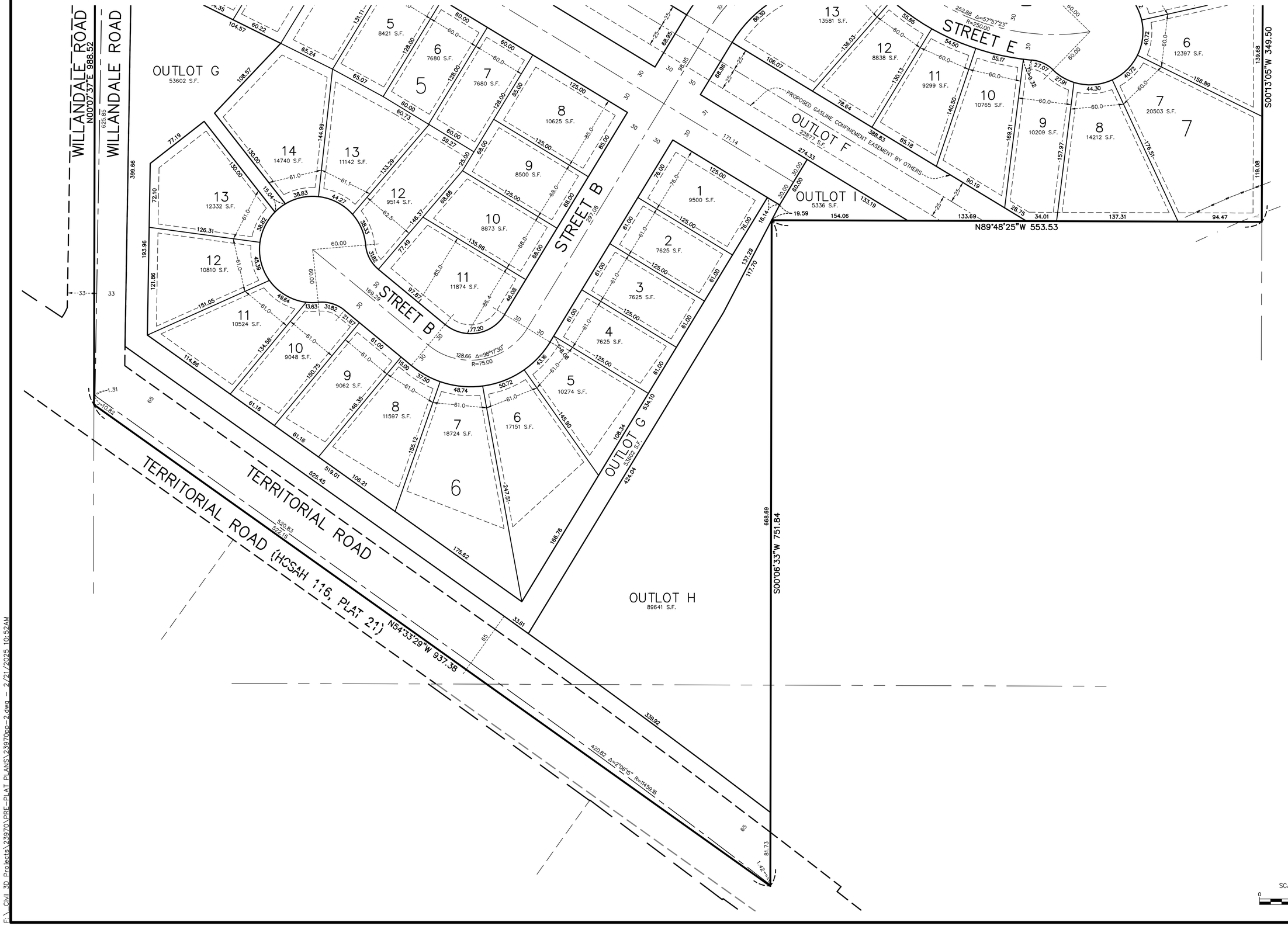

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COWLEY LAKE PRESERVE

ROGERS, MINNESOTA

PRELIMINARY PLAT

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

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SCALE IN FEET
0 50' 100'

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LEGEND

- EXISTING WATERMAIN
- EXISTING RAW WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCEMAIN
- EXISTING STORM SEWER
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND TELEPHONE
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING OVERHEAD POWER LINE
- EXISTING ELECTRIC OUTLET POST
- EXISTING GUY WIRE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (WATER)
- EXISTING SIGN
- EXISTING TRANSFORMER
- EXISTING TELEPHONE PEDESTAL
- EXISTING TV PEDESTAL
- EXISTING VAULT
- EXISTING CURB & GUTTER
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING CONTOUR
- EXISTING WETLAND EDGE
- EXISTING WETLAND BUFFER

- SB-1 EXISTING SOIL BORING LOCATION
- EXISTING TREELINE/TREES
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- EXISTING WETLAND

- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED PERFORATED DRAINTILE
- PROPOSED CURB & GUTTER
- PROPOSED RETAINING WALL
- PROPOSED CONTOUR
- PROPOSED GRADING LIMITS
- PROPOSED EMERGENCY OVERFLOW

- PROPOSED CONCRETE
- PROPOSED ASPHALT SURFACE
- PROPOSED SEDIMENT BASIN
- PROPOSED INFILTRATION BASIN
- PROPOSED SILT FENCE
- PROPOSED SILT FENCE POST CONSTRUCTION
- PROPOSED WIMCO OR EQUAL POST STORM SEWER CONSTRUCTION
- PROPOSED YARD CB INLET PROTECTION POST STORM SEWER CONSTRUCTION
- PROPOSED DITCH CHECK – POST GRADING/UTILITY CONSTRUCTION
- PROPOSED TEMPORARY ROCK CONSTRUCTION ENTRANCE
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED MNDOT "SOUTHERN TALLGRASS ROADSIDE" SEED MIX
- PROPOSED MNDOT "WET DITCH" SEED MIX

NOTES

1. ALL DISTURBED GREEN SPACE AREAS NOT NOTED ON THE PLAN SHALL BE SEEDED & MULCH WITH MNDOT "SOUTHERN BOULEVARD" SEED MIX.
3. OUTLOTS AND FARMED AREAS OUTSIDE OF GRADING LIMITS SHALL BE RESTORED WITH MNDOT "SOUTHERN TALLGRASS ROADSIDE" SEED MIX. SEE PLAN FOR LOCATIONS.
4. REDUNDANT PERIMETER CONTROL REQUIRED FOR ALL DISTURBANCES WITHIN 50' OF THE EXISTING WETLAND EDGE, SUCH AS DOUBLE ROW OF SILT FENCE. A SLASH MULCH BERM AT LEAST 12" HIGH IS ACCEPTABLE AS A SECONDARY PERIMETER CONTROL.

811 Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 100 200 300
1 inch = 100 feet

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
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PHONE: (952)890-6044 FAX: (952)890-6244

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.

PRELIMINARY

Date:_____ Reg.No._____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
EROSION & SEDIMENT CONTROL PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

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NOTES

1. ALL DISTURBED GREEN SPACE AREAS NOT NOTED ON THE PLAN SHALL BE SEEDED & MULCH WITH MNDOT "SOUTHERN BOULEVARD" SEED MIX.
3. OUTLOTS AND FARMED AREAS OUTSIDE OF GRADING LIMITS SHALL BE RESTORED WITH MNDOT "SOUTHERN TALLGRASS ROADSIDE" SEED MIX. SEE PLAN FOR LOCATIONS.
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N

SCALE IN FEET
0 100 200 300
1 inch = 100 feet

WARNING!
UNDERGROUND HIGH PRESSURE PIPELINE
CONTACT ENERGY TRANSFER REPRESENTATIVE
AT 1-800-753-5531 PRIOR TO PERFORMING WORK
WITHIN THE PIPELINE EASEMENT

LEGEND

- EXISTING WATERMAIN
- EXISTING RAW WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCEMAIN
- EXISTING STORM SEWER
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND TELEPHONE
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING OVERHEAD POWER LINE
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- EXISTING GUY WIRE
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- EXISTING MANHOLE (WATER)
- EXISTING SIGN
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- EXISTING CURB & GUTTER
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING CONTOUR
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- EXISTING WETLAND BUFFER
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- PROPOSED SILT FENCE
- PROPOSED SILT FENCE POST CONSTRUCTION
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- PROPOSED YARD CB INLET PROTECTION POST STORM SEWER CONSTRUCTION
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- PROPOSED TEMPORARY ROCK CONSTRUCTION ENTRANCE
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED MNDOT "SOUTHERN TALLGRASS ROADSIDE" SEED MIX
- PROPOSED MNDOT "WET DITCH" SEED MIX

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PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

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.

PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
EROSION & SEDIMENT CONTROL PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/JSO

DATE
02/24/2024

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CAD FILE
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PROJECT NO.
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COWLEY LAKE PRESERVE - ROGERS, MN
These plans shall be considered part of the project Storm Water Pollution Prevention Plan (SWPPP.) A copy of the SWPPP shall remain on site throughout active construction.

PROJECT SUMMARY
COWLEY LAKE PRESERVE is a single-family residential development project. The project includes construction of building pads, streets, utilities and stormwater management basins.

TYPE OF PROJECT: Platting and development of 169 Single-family Residential Lots

TYPE OF WORK: Clearing and grubbing, demolition of existing houses, mass grading, utility and street construction and installation of phone, communication, gas and electric utilities.

TOTAL SITE AREA: 88.32 AC

TOTAL DISTURBED AREA: 67.17 AC

EXISTING IMPERVIOUS AREA: 1.04 AC

PROPOSED (DESIGN) IMPERVIOUS AREA: 22.32 AC

IMPAIRED WATERS:
Cowley Lake has an EPA-approved impairment for: Nutrients.

Crow River has an EPA-approved impairment for: Benthic macroinvertebrates bioassessments; Fecal coliform; Fish bioassessments; Mercury in fish tissue; Nutrients; Turbidity.

These impairment(s) are considered to be construction related parameters and require the additional best management practices (BMPs) found in items 23.9 and 23.10 of the permit if the project has a discharge point on the project within 1 mile (aerial radius measurement) of, and flows to the impaired water.

23.9:
Permittees must immediately initiate stabilization of exposed soil areas, as described in item 8.4, and complete the stabilization within seven (7) calendar days after the construction activity in that portion of the site temporarily or permanently ceases.

23.10:
Permittees must provide a temporary sediment basin as described in Section 14 for common drainage locations that serve an area with five (5) or more acres disturbed at one time.

A mandatory Stormwater Pollution Prevention Plan (SWPPP) review is required by the MPCA if the project will disturb over 50 acres and has a discharge point on the project within 1 mile (aerial radius measurement) of, and flows to the impaired water. Owners must submit the application for coverage and the SWPPP at least 30-days before the construction start date. The SWPPP can be attached electronically when using the online application.

ENVIRONMENTAL REVIEW
No environmental reviews were performed for the site, nor were any required by the City of Rogers or for other agency approvals.

ENDANGERED SPECIES
Endangered species summary:
Bald Eagles: A single nest has been identified on-site. Clearing, external construction, and landscaping within 330 feet and up to 660 feet of the nest may be restricted. Construction activity allowed between August 15th and January 15th, or outside of breeding season. Removal of the nest and/or existing vegetation adjacent to the nest is not anticipated.

In the event any other endangered species are identified on-site, construction shall cease and the U.S. Fish and Wildlife Service shall be contacted to coordinate all necessary protection and mitigation measures.

CONSTRUCTION PHASING
Mass grading will be in multiple phases. Site grading and demolition may occur simultaneously. Mass grading is anticipated to take 6 months, which will include the construction of the stormwater basins. Utility installation will immediately follow grading. Upon completion of utilities, street construction will take place. Final construction work prior to home construction includes installation of phone, cable, gas and electric utilities, as well as retaining wall construction.

MPCA STORMWATER PERMIT - RESPONSIBILITY
Rachel Development is the Owner for the development. The owner will apply for the Stormwater Permit and shall remain responsible for implementation of the SWPPP until final stabilization and filing of the N.O.T. or Subdivision Registration Form.

OWNER:
Rachel Development - David Stradtman - 763-424-1525
PERMITTEE:
TBD

OPERATOR(S):
TBD

ENGINEER:
Rick Osberg, PE, Proj. Mgr - James R. Hill, Inc. - 952-890-6044

LGU CONTACT:

MPCA COMPLIANCE:
Josh Norman - 651-757-2389

The Contractor shall follow the implementation sequence as described on these plans. Amendments shall be made as site conditions change. Amendments shall be reviewed by the engineer.

IMPLEMENTATION OF THE SWPPP
The GENERAL CONTRACTOR (GC) or their subcontractor is responsible for implementation of the SWPPP. Contractor has or will provide trained personnel responsible for inspection of erosion and sediment control BMPs. Either the Contractor or their subcontractor will provide trained personnel responsible for installing and maintaining erosion and sediment control BMPs.

Long term operation and maintenance of the permanent stormwater management system will the responsibility of City of Rogers.

DOCUMENTATION OF TRAINED INDIVIDUALS
Prior to start of construction, GC and/or their subcontractors shall ensure they have proper documentation for all individuals involved in implementing the SWPPP, as well as all involved individuals as described in section 21 of the General Stormwater Permit.

SWPPP Design: RICK OSBERG, PE, training by University of Minnesota "Design of Construction SWPPP, 6/1/2023-5/31/2026. Instructor: Online.

SWPPP Contact for Contractor:

Alternate SWPPP Contact for Contractor:

REQUIREMENTS FOR NOTICE OF TERMINATION (NOT)
Before the submitting the NOT, the permittee must meet the following requirements:

1. All construction activity associated with the project must be completed.
2. All pervious surfaces must be stabilized with permanent vegetative cover having a growth density of 70% of the expected full growth density (unless a specific area of the site specifies no vegetation.)
3. The stormwater treatment system (basins, pipes, structures, ditches, swales, etc.) is cleaned, removing all accumulation of sediment and debris.
4. All synthetic erosion and sediment prevention BMPs have removed.

RECORD RETENTION
During construction, the Contractor must retain a copy of the SWPPP and any amendments thereto on site at all times (or on the portion of the site for which the Contractor has control.) The SWPPP may be kept in a designated repository, in the construction field office or in an on-site vehicle during normal working hours. Copies of all maintenance records, inspection reports shall also be retained on site with the SWPPP.

Upon completion of all construction and submittal of the NOT, the Owner shall retain the SWPPP documents for no less than three years, including the final SWPPP, other stormwater related permits, inspection and maintenance records, SWMP operational and maintenance agreements, and any other documents or binding agreements that relate to the operation and maintenance of the SWMP.

GC and/or their subcontractors shall ensure they have proper documentation for all individuals involved.

POTENTIONAL FOR EROSION AND DISCHARGE OF SEDIMENT
There is moderate potential for erosion to occur. Certain portions of the site have grades exceeding 5% and shall be closely managed to prevent erosion. Temporary sediment traps or basins shall be considered in the final SWPPP implementation. Redundant protection is required along all wetlands. Contractor shall be required to appropriately manage individual erosion-prone areas, using BMP's suitable for the particular application.

GENERAL CONSTRUCTION SEQUENCING
1. Install perimeter control. Install inlet protection on existing structures.
2. Perform any clearing, as needed.
3. Perform demolition and debris removal.
4. Place topsoil perimeter berms and stabilize with seed and mulch.
5. Grade stormwater basins. Perform mass grading. As sheet drainage patterns develop, place silt fence or filter dikes as necessary to dissipate sediment transfer.
6. Construct utilities and pavements.
7. Construct buildings and structures.
8. Install phone, cable, gas and electric utilities.
9. Stabilize basins and swales with final stabilization. Stabilize landscape areas with final permanent vegetation, landscaping or turf. Stabilize future development areas with temp seed and mulch until final site development stage.

GUIDANCE FOR TIMING OF BMP INSTALLATION
Prior to Start of Construction
1. Install all new perimeter control BMPs as specified on plans prior to start of construction. Ensure that all existing perimeter control BMPs are functional.
2. Install or establish stabilized construction entrance.
3. Install protection devices on existing ponds, outlets, storm sewer inlets, etc. prior to start of construction.
4. Install sediment control practices on down gradient site perimeters.

During Construction
1. Identify topsoil stockpile locations and stabilize with temporary seed and mulch.
2. Areas in which construction becomes inactive must have stabilization commence immediately and be completed no later than 7 days after construction activity in that area has either temporarily or permanently ceased.
3. Provide temporary or permanent energy dissipation at all pipe outlets within 24 hours of connection to a Surface Water.
4. Minimize active construction areas. Where possible, establish final grade and stabilize with permanent vegetation, particularly around stormwater basins, filter strips, berms, etc.
5. During grading construction, utilize street "hold down" areas for sediment trapping. Direct overland construction runoff towards stormwater basins to the fullest extent practicable.

6. After construction is completed and grades are certified in a particular area of the site, review that the area is ready for permanent vegetation or other permanent cover.
7. Identify locations where topsoil stockpiles will be placed for builders. Stabilize with temporary seed and mulch and install perimeter control around stockpile circumference. Stockpiles shall be located outside of natural buffers or surface waters, included stormwater conveyances, unless there is a bypass in place.

During Inactivity or After Construction
1. Areas in which construction becomes inactive must have stabilization commence immediately and be completed no later than **7 days** after construction activity in that area has either temporarily or permanently ceased.
2. Final stabilization cover types are shown on **Sheet 3.0** of the plan set. Final cover consists of vegetation, paved or gravel surfaces, sod, landscaping and buildings.
3. At the point where vegetated cover has achieved 70% of expected full growth density, vegetated areas can be considered fully stabilized. Removal of synthetic sediment control BMPs can be initiated.
4. Basins that have received sediment deposits shall be re excavated to plan grade, removing accumulated sediment. Verify final grade and basin capacities.
5. Inlet protection devices can be removed from structures as the attributing drainage area becomes fully stabilized.
6. Maintain street and drive sweeping activities until construction activities are fully completed.

EROSION CONTROL BMPs
The construction plans anticipate the use of, but are not limited to, the following Erosion Control BMPs:
1. Stabilized Construction Entrance
2. Temporary straw mulch as needed.
3. Seed and mulch
4. Erosion Control Blanket
5. Turf Reinforcement Mat (TRM)
6. Rip rap
7. Minimize active or disturbed work areas

SEDIMENT CONTROL BMPs
The construction plans anticipate the use of, but are not limited to, the following Sediment Control BMPs
1. Sediment traps constructed in street subcut or other strategic locations.
2. Rock filter dikes in street subcut.
3. Utilize permanent stormwater basins as Temporary Sediment Basins.
4. Silt fence at project perimeter or toe of slopes.
5. Inlet protection on existing catch basins.
6. Inlet protection on existing culverts.
7. Inlet protection after utility construction.
8. Rock checks or bio roll checks.
9. Linear control along back of new curb and gutter or concrete (bio-roll or silt fence).
10. Post construction silt fence along normal wetted perimeters of basins and filter strips.
11. Routine street sweeping adjacent to construction entrance.

Refer to plans for designated locations of BMPs, details and implementation notes.
All BMP's selected and implemented shall be appropriate for the time of year, the current site conditions and for the estimated duration of use.

Enhancing sedimentation with the use chemicals and chemical treatment systems is NOT anticipated for this project.

BASIN AND TRAP DEWATERING BMPs
Should the need arise for basin or trap dewatering, Contractor shall utilize a floating skimmer pump intake, such that the water is drawn from the surface of the basin. Pumped effluent shall be discharged, to the extent feasible, over well-vegetated upland areas. Effluent shall not be discharged into Surface Waters in a visually turbid state. Turbid effluent shall be filtered with mechanical devices, chemical filtering, or a combination thereof, until it is no longer visually turbid.

POLLUTION CONTROL BMPs
BMP's and good housekeeping should be implemented to prevent spills, pollutants or chemicals from entering the drainage system.

1. Fueling: A fixed fueling station is not anticipated. Contractor will be required to implement BMPs for onsite re-fueling of equipment.
2. Concrete Washout: Refer to MPCA's recommendation for concrete washouts. The developer has the ability to adjust location or to provide alternative washout containment.
3. There is not an anticipated need for storing chemicals, paints, solvents or other potentially toxic or hazardous materials on site. If at some point there is a need to store them on site, they must be stored in a receptacle or container capable of retaining spills. The container must be fenced and locked from unauthorized access.
4. Portable toilets shall be positioned and secured to prevent tipping over.

SEED & MULCH SPECIFICATIONS
Seed placed for permanent cover or final stabilization requires 6" minimum topsoil cover. Exception: Infiltration basins - see basin details for soil type). Multiple site visits will be required to accommodate permanent or temporary stabilization as required during the phases of construction. Refer to MnDOT Seeding Manual, Latest Edition for more details.

1) Boulevards and Urban Roadsides:
A. Seed: Southern Boulevard (SB) at a rate of 160 lb/acre
B. Fertilizer: Type 1 20-10-20 NPK at a rate of 200 lb/acre
C. Mulch: MNDOT Type 1 at a rate of 2 tons/acre
2) Commercial/Residential Yards:
A. Seed: Residential Turfgrass (RT) at a rate of 200 lb/acre
B. Fertilizer: Type 1 20-10-20 NPK at a rate of 200 lb/acre
C. Mulch: MNDOT Type 1 at a rate of 2 tons/acre
3) Stormwater Basins/Wet Soils
A. Seed: Wet Ditch (WD) at a rate of 35 lb/acre
B. Fertilizer: Type 3 slow release 22-5-10 NPK at a rate of 200 lb/acre
C. Mulch: MNDOT Type 3 at a rate of 2 tons/acre
4) Tallgrass Native/Moderately Wet Soils/Wetland Buffers
A. Seed: Southern Tallgrass Roadside (STR) at a rate of 26 lb/acre
B. Fertilizer: Type 3 slow release 22-5-10 NPK at a rate of 350 lb/acre
C. Mulch: MNDOT Type 3 at a rate of 2 tons/acre
5) Shortgrass Native/Dryer Soils
A. Seed: Southern Shortgrass Roadside (SSR) at a rate of 26 lb/acre
B. Fertilizer: Type 3 slow release 22-5-10 NPK at a rate of 350 lb/acre
C. Mulch: MNDOT Type 3 at a rate of 2 tons/acre

INSPECTION AND MAINTENANCE OF BMPs
Routine Inspection
1. Rock Entrances - Inspect weekly. If rock becomes filled with sediment and tracked material to the extent the purpose ceases to function, remove the contaminated rock and replace with new rock.
2. Stabile Concrete Entrance - Inspect weekly. Remove dirt and debris and sweep regularly to control dust.
3. Silt fence - Inspect weekly, particularly for damaged sections, breaches, down-gradient areas, flow concentration points, scour areas and sections adjacent to sensitive areas. Where capacity is filled to more than 50% of depth, sediment shall be removed to restore capture capacity.
4. Sediment traps and basins - Inspect weekly. Where capacity is filled to more than 50% of depth, sediment shall be removed to restore capture capacity within 72 hours of discovery.
5. Inlet Protection - Inspect weekly or more frequently as needed after multiple rainfalls less than 0.5". Verify intake capacity is not compromised. Where capacity is filled to more than 50% of depth, sediment shall be removed to restore capture capacity.
6. Slope - inspect steep slopes for rills and gullies, often forming after placement of topsoil, seed and erosion control blanket. As a guide, repair and re stabilize eroded areas where rills exceed 6" in depth.
7. Inspect other site-specific BMP's on a weekly basis minimum.

Rain Event Inspection - Mandatory, within 24 hours after a rain event 0.5" or greater. Complete all items associated with Routine Inspection. Furthermore, inspect site for breaches, failures, scours and gullying. Take corrective actions as necessary to restore functionality to the BMP's. If a given situation is discovered to be prone to repetitive failure, advise the Engineer and Contractor for SWPPP and BMP amendments.

ADDITIONAL SWPPP NOTES
1. All Erosion and Sediment Control facilities shall be maintained by the Contractor during the construction operations. Any temporary facilities which are to be removed as called for on these plans and specifications shall be removed by the Contractor at the time directed by the engineer. The Contractor shall then restore the subsequently disturbed areas in accordance with these plans and specifications.
2. Wherever practical and feasible, the Contractor shall protect and preserve existing natural trees, grass and other vegetative cover in effort to provide natural buffering and filtering of runoff.
3. Contractor shall be adaptable in adjusting construction schedules in anticipation of weather forecasts of precipitation, in order to minimize risk of erosion and sediment transport.
4. It is the responsibility of the Contractor to keep public streets, travel ways, parking lots and trails utilized for ingress to and egress from the construction site free of dirt, sediment and debris, resulting from construction activity. Cost for this shall be considered incidental to the contract.
5. Adequate control of dust shall be maintained by the Contractor. Cost for dust control shall be considered incidental to the contract.
6. Perimeter controls shall not be removed until final stabilization of areas draining toward the control devices.
7. When temperatures do not exceed 40° F, areas that require seed and mulch stabilization shall be dormant seeded. Application rate shall be two times the normal rate. No dormant seeding shall be done on ice or snow greater than 2" in depth.
8. Any areas that were seeded that do not achieve 70% coverage shall be reseeded at the Contractor's expense, where coverage limitation is caused by lack of seed germination and growth.

STORMWATER BASIN MAINTENANCE
All stormwater basins within the project will be owned and maintained by the City. Suggested practices are as follows:

1. For the first three years after construction, basins should be inspected for obvious signs of erosion, such as gullies, rills or sediment plumes. Identify the cause and take corrective measures such that grades are restored and surfaces re-established with appropriate vegetation.

2. During the first year after final stabilization, mow the slopes of stormwater basins, approximately 30-day intervals, 6"-8" high. Over-seed any areas not fully established.
3. Inspect for sediment accumulation at the pipe outlets into the pond at the completion of sod installation of last lot in plat. Remove sediment. Re-inspect every 3-5 years.
4. Inspect inlets and outlets for blockage or debris buildup annually. Remove debris as necessary to allow for inlets and outlets to function as designed.
5. Verify basin design capacity after 15 to 20 years of service.

TURF AND VEGETATION MAINTENANCE

Boulevard Mixes and Salt-tolerant Sod (SB)
Planting Season:
Seed: April 1 - June 1 and July 20 - Sept 20; Sod: April 15 - June 10

Year 1:
1. Watch for germination in 1-2 weeks.
2. Initial seedling density should be at least 1 per square inch.
3. Water if rainfall is less than 1" per week, continue until established.
4. Mow when grass reaches 5" to 6" high, cut back to 3" to 4" height.
5. Re-seed any bare patches - plants do no spread quickly like bluegrass does.

Long Term Maintenance:
1. Mow 4-8 times per year, if turfgrass appearance is desired
2. Spot spray weeds only if necessary.
3. Re-seed any bare patches - plants do no spread quickly like bluegrass does.

Shortgrass Native (SSR), Tall Grass Native (STR) and Stormwater (WD)
Planting Season:
Seed: April 1 - June 1 and July 20 - Sept 20 (Some mixes can be planted April 15 - October 20)

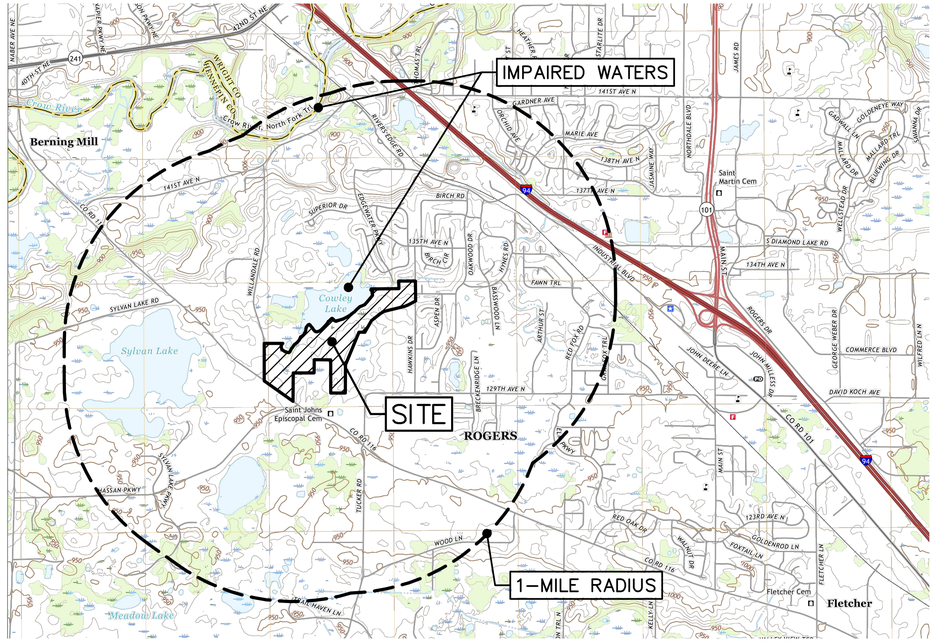
Year 1:
1. Watch for indicator species to emerge in 3-5 weeks.
2. Perennial seedling density should be 4-6 plants per square foot.
3. Water if conditions get very dry after germination.
4. Mow 2 to 3 times, when 18" high or before weeds flower. Cut to 6" to 10" height.

Year 2:
1. Look for at least 1 perennial plant per square foot.
2. Planted vegetation should cover 50% of soil surface by mid-summer.
3. Mow 1 to 2 times, before weeds flower. Cut to 8" to 12" height.
4. Spot spray perennial noxious weeds and birdsfoot trefoil.

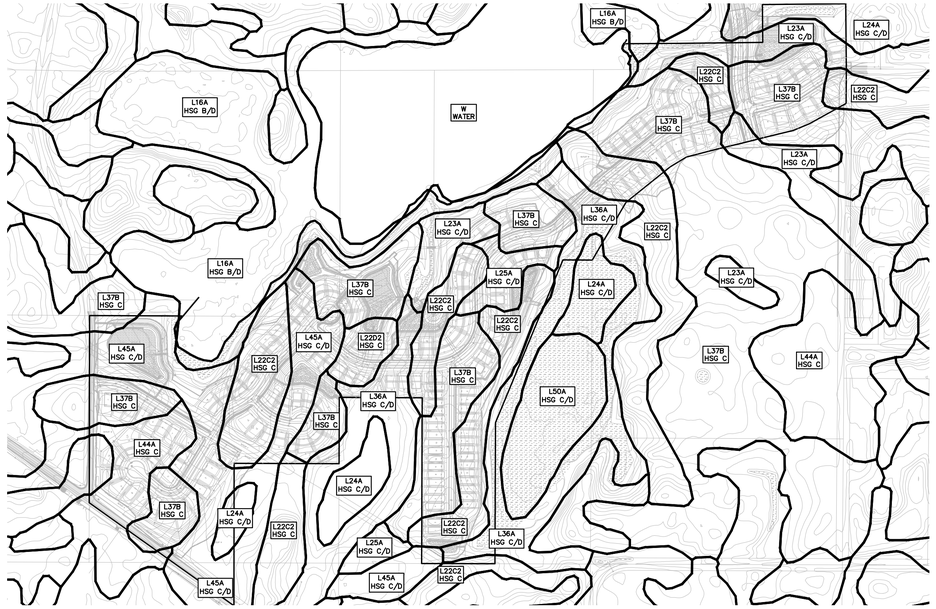
Long Term Maintenance:
1. Mow or burn every 3-5 years. Spot spray weeds and brush, as needed.

ESTIMATED EROSION AND SEDIMENT CONTROL QUANTITIES

CONSTRUCTION ROCK ENTRANCE	EA	4
STANDARD DUTY SILT FENCE	LF	17,100
STANDARD DUTY SILT FENCE - POST CONSTRUCTION	LF	5,800
MNDOT SEED MIX - WET DITCH (STORMWATER BASINS) - 1.5X	AC	8.0
MNDOT SEED MIX - SOUTHERN TALLGRASS ROADSIDE (OUTLOTS) - 1.5X	AC	19.0
MNDOT SEED MIX - SOUTHERN BOULEVARD (GENERAL MIX) - 1.5X	AC	50.0
REAR YARD INLET PROTECTION	EA	21
WIMCO OR APPROVED EQUAL INLET PROTECTION	EA	74



USGS MAP
1" = 2000'



USDA SOIL MAP
1" = 400'

GENERAL PERMIT NOTE
VISIT THE MPCA WEB SITE FOR THE LATEST INFORMATION ON THE CONSTRUCTION STORMWATER PERMIT:
https://www.pca.state.mn.us/business-with-us/construction-stormwater

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

I hereby certify that this plan, report or specification 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.
PRELIMINARY
Date: ____ Reg.No. ____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
EROSION & SEDIMENT CONTROL DETAILS
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY: JSO
DATE: 02/24/2024
REVISIONS
CAD FILE: 23970ERD
PROJECT NO.: 23970
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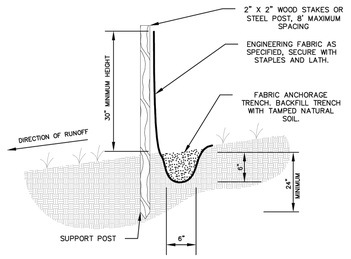
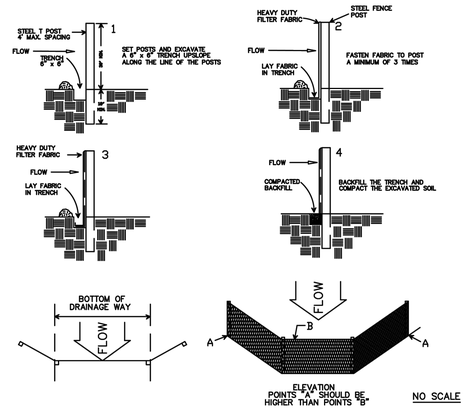


DOUBLE SILT FENCE TO BE REQUIRED NEAR WETLANDS

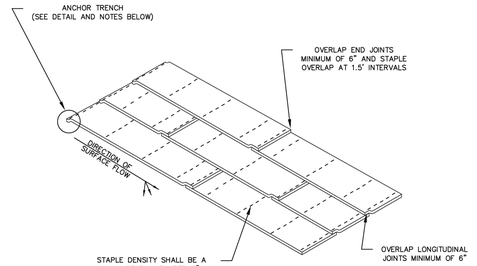
CITY OF ROGERS	STANDARD SILT FENCE	Standard Details	EROS–1
		Date: SEPTEMBER, 2020 Revised:	



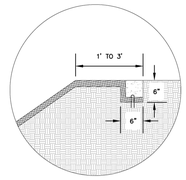
Maintenance

1. FILTER BARRIERS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL. ANY REQUIRED REPAIRS SHALL BE MADE IMMEDIATELY.
2. SHOULD THE FABRIC DECOMPOSE OR BECOME INEFFECTIVE PRIOR TO THE END OF THE EXPECTED USEABLE LIFE AND THE BARRIER STILL BE NECESSARY. THE FABRIC SHALL BE REPLACED PROMPTLY.
3. SEDIMENT DEPOSITS MUST BE REMOVED WHEN DEPOSITS REACH APPROXIMATELY 1/3 HEIGHT OF THE BARRIER, OR AS DIRECTED BY THE ENGINEER.
4. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SILT FENCE OR FILTER BARRIER IS NO LONGER REQUIRED, SHALL BE DRESSED TO CONFORM WITH THE EXISTING GRADE, PREPARED AND SEEDED.
5. WETLANDS ARE TO BE PROTECTED BY TWO ROWS OF H.D. SILT FENCE. DOUBLE H.D. SILT FENCE IS REQUIRED AROUND WATER BODIES, STEEP SLOPES AND HIGHLY ERODIBLE SOILS.
6. ALL MATERIAL & INSTALLATION MUST CONFORM TO THE REQUIREMENTS OF THE CURRENT EDITION OF THE MNDOT CONSTRUCTION SPECIFICATIONS TABLE 3886-1.

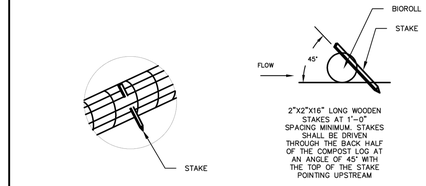
CITY OF ROGERS	SILT FENCE ALONG WETLAND	Standard Details	EROS–4
		Date: SEPTEMBER, 2020 Revised:	



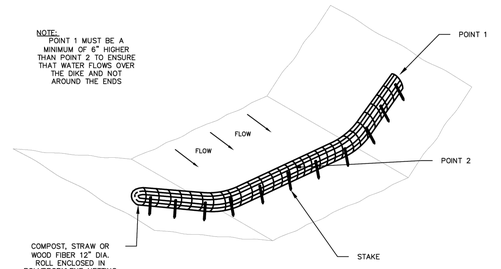
ANCHOR TRENCH
1. DIG 6" X 6" TRENCH
2. LAY BLANKET IN TRENCH
3. STAPLE AT 1.5' INTERVALS
4. BACKFILL WITH NATURAL SOIL AND COMPACT
5. BLANKET LENGTH SHALL NOT EXCEED 100' WITHOUT AN ANCHOR TRENCH



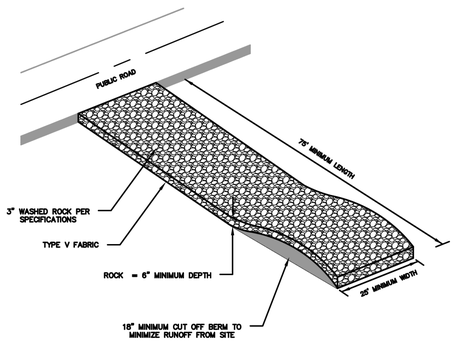
CITY OF ROGERS	EROSION CONTROL BLANKET INSTALLATION	Standard Details	EROS–5
		Date: SEPTEMBER, 2020 Revised:	



NOTE:
POINT 1 MUST BE A MINIMUM OF 6" HIGHER THAN POINT 2 TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS



CITY OF ROGERS	BIOLOG DITCH CHECK	Standard Details	EROS–8
		Date: SEPTEMBER, 2020 Revised:	



NOTE:
TYPE V FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH MATERIAL.

THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.

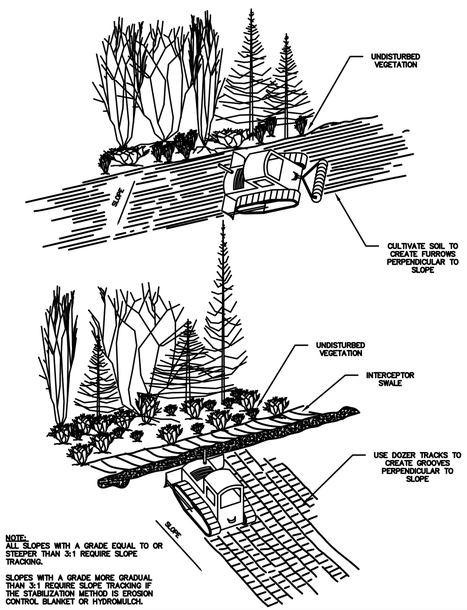
WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, OTHER MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM

IN AREAS WITH CONCRETE WALK THERE SHALL BE 6" OF SAND PLACED OVERTOP THE SIDEWALK PRIOR TO PLACEMENT OF THE 3" WASHED ROCK.

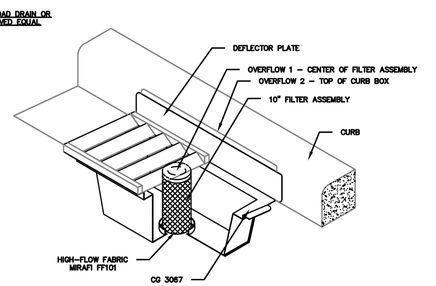
CITY OF ROGERS	CONSTRUCTION ROCK ENTRANCE	Standard Details	EROS–10
		Date: SEPTEMBER, 2020 Revised:	

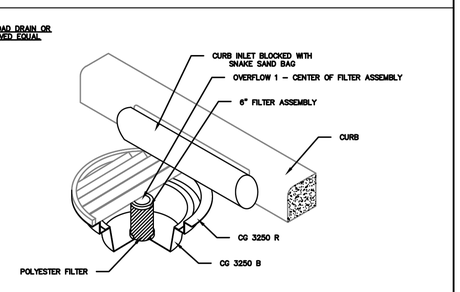


NOTE:
ALL SLOPES WITH A GRADE EQUAL TO OR STEEPER THAN 3:1 REQUIRE SLOPE TRACKING.

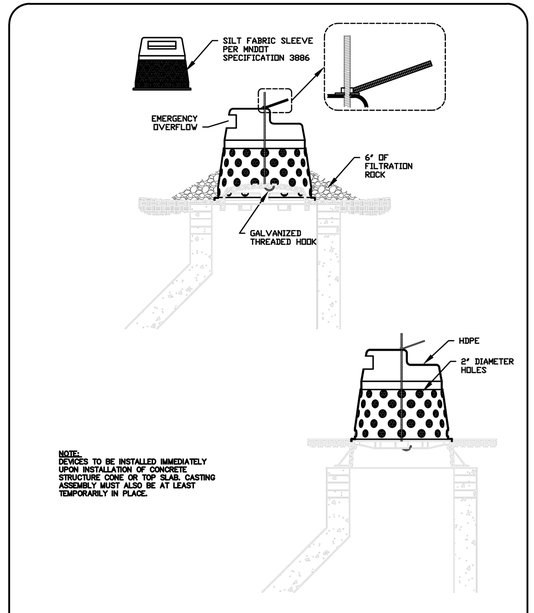
SLOPES WITH A GRADE MORE GRADUAL THAN 3:1 REQUIRE SLOPE TRACKING IF THE STABILIZATION METHOD IS EROSION CONTROL BLANKET OR HYDROMULCH.

CITY OF ROGERS	SLOPE TRACKING	Standard Details	EROS–12
		Date: SEPTEMBER, 2020 Revised:	





CITY OF ROGERS	CURB INLET PROTECTION	Standard Details	EROS–15
		Date: SEPTEMBER, 2020 Revised:	



NOTE:
DEVICES TO BE INSTALLED IMMEDIATELY UPON INSTALLATION OF CONCRETE STRUCTURE CONE OR TOP SLAB. CASTING ASSEMBLY MUST ALSO BE AT LEAST TEMPORARILY IN PLACE.

CITY OF ROGERS	INFRASAFE – SEDIMENT CONTROL BARRIER	Standard Details	EROS–16
		Date: SEPTEMBER, 2020 Revised:	

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PHONE: (952)890-6044 FAX: (952)890-6244

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.

PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
EROSION & SEDIMENT CONTROL DETAILS
FOR
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4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY: JSO
DATE: 02/24/2024
REVISIONS

CAD FILE: 23970ERD
PROJECT NO.: 23970
3.3

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NPDES REQUIREMENTS

1.1 Permit Coverage. [Minn. R. 7090]
1.2 This permit is required for construction activity that results in land disturbance of equal to or greater than one (1) acre or if a project is part of a common plan of development or sale that ultimately will disturb greater than one (1) acre, and authorizes, subject to the terms and conditions of this permit, the discharge of stormwater associated with construction activity. [Minn. R. 7090]
1.3 Construction activity covered by this permit cannot commence until coverage under this permit is effective as described in Item 3.3 through 3.4 or, if applicable, until the Minnesota Pollution Control Agency (MPCA) has issued an individual National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) construction stormwater permit for the project. [Minn. R. 7090]
1.4 This permit covers all areas of the State of Minnesota except land wholly within the boundaries of a federally recognized Indian Reservation owned by a tribe or a tribal member or land held in trust by the federal government for a tribe or tribal member.[Minn. R. 7090]
1.5 Coverage under this permit is not required when all stormwater from construction activity is routed directly to and treated by a "treatment works," as defined in Minn. Stat. Section 115.01, subd. 21, operated under an individual NPDES/SDS permit with a Total Suspended Solids (TSS) effluent limit. [Minn. R. 7090]
1.6 This permit covers ongoing projects covered under any previous construction stormwater permit that are not complete on the issuance date of this permit. Permittees must either remain in compliance with the previous permit and terminate coverage within 18 months of the issuance date of this permit or comply with this permit, including updating the Stormwater Pollution Prevention Plan (SWPPP), within the 18-month period. Permittees of previously permitted projects are not required to incorporate any additional requirements regarding the permanent stormwater treatment system included in this reissued permit. [Minn. R. 7090]
1.7 Coverage for projects that extend beyond the expiration date of this permit remains effective for a grace period of 18 months. If Permittees cannot complete projects during the grace period, the MPCA will extend coverage under the next permit and permittees must comply with the requirements of the new permit including updating the SWPPP. Permittees are not required to follow changes to the permanent stormwater treatment section of the next permit. [Minn. R. 7090]
2.1 Prohibitions and Limitations of Coverage. [Minn. R. 7090]
2.2 The owner must develop a complete and accurate SWPPP that complies with item 5.2 prior to submitting the application for coverage and starting construction activity. Failure to prepare a SWPPP prior to submitting the application may result in permit revocation. [Minn. R. 7090]
2.3 This permit prohibits discharges of any material other than stormwater treated in compliance with this permit and discharges from dewatering or basin draining activities in accordance with Section 10. Prohibited discharges include, but are not limited to, wastewater from washout of concrete, stucco, paint, form release oils, curing compounds and other construction materials, fuels, lubricants, oils, or other pollutants used in vehicle and equipment operation and maintenance, soaps or solvents used in vehicle and equipment washing and maintenance, and other hazardous substances or wastes. [Minn. R. 7090]
2.4 This permit does not authorize stormwater discharges related to the placement of fill into waters of the state requiring local, state or federal authorizations (such as U.S. Army Corps of Engineers Section 404 permits, Minnesota Department of Natural Resources (DNR) Public Waters Work permits or local governmental unit (LGU) Wetland Conservation Act replacement plans or determinations). [Minn. R. 7090]
2.5 This permit does not authorize stormwater discharges associated with industrial activity except for construction activity. Permittees must obtain coverage for discharges associated with industrial activity under a separate NPDES/SDS permit once day-to-day operational activities commence even if construction is ongoing. [Minn. R. 7090]
2.6 This permit does not authorize discharges from non-point source agricultural and silvicultural activities excluded from NPDES permit requirements under 40 CFR pt. 122.3(e). [Minn. R. 7090]
2.7 This permit does not authorize stormwater discharges to Prohibited, Restricted, Special or Impaired waters unless permittees follow the additional stormwater requirements in Section 23. [Minn. R. 7090]
2.8 This permit does not replace or satisfy any environmental review requirements including those under the Minnesota Environmental Policy Act or the National Environmental Policy Act. The owner must verify completion of any environmental review required by law, including any required Environmental Assessment Work Sheets or Environmental Impact Statements, Federal, state, or local agency review, or other required review prior to applying for coverage under this permit. If any part of your common plan of development or sale requires environmental review, coverage under this permit cannot be obtained until such environmental review is complete. [Minn. R. 7090]
2.9 This permit does not replace or satisfy any review requirements for discharges adversely impacting State or Federally designated endangered or threatened species or a designated critical habitat. The owner must comply with the National Historic Preservation Act and conduct all required review and coordination related to historic preservation, including significant anthropological sites and any burial sites, with the Minnesota Historic Preservation Officer. [Minn. R. 7090]
2.10 This permit does not authorize discharges to wetlands unless permittees comply with the requirements in Section 22. Coverage under this permit cannot be issued until the requirements for wetland permits, decisions, other determinations, or the mitigative sequence required in section 22 have been finalized and documented. [Minn. R. 7050.0186]
3.1 Application and Coverage Effective Date. [Minn. R. 7090]
3.2 The owner and operator must submit a complete and accurate on-line application with the appropriate fee to the MPCA for each project that disturbs one (1) or more acres of land or for a common plan of development or sale that will ultimately disturb one (1) or more acres. [Minn. R. 7090]
3.3 For projects or common plans of development or sale that disturb less than 50 acres or do not discharge stormwater within 1 mile (aerial radius measurement) of a special or impaired water, permittees do not need to submit the SWPPP with the application. Permit coverage for these projects is effective upon application and completing the payment process. [Minn. R. 7090]
3.4 For certain projects or common plans of development or sale disturbing 50 acres or more, the complete SWPPP must be included with the application and submitted at least 30 days before the start of construction activity. This applies if there is a project within one mile (aerial radius measurement) of, and discharges stormwater to, a special water listed in Item 23.3 through 23.6 or an impaired water as described in item 23.7. Permit coverage for these projects is effective upon submitting the application and complete SWPPP, completing the payment process and receiving a determination from the MPCA that the review of the SWPPP is complete. The determination may take longer than 30 days if the SWPPP is incomplete. If the MPCA fails to contact the permittee(s) within 30 days of application receipt, coverage is effective 30 days after completing the payment process. [Minn. R. 7090]
3.5 The application requires listing all persons meeting the definition of owner and operator as permittees. The owner is responsible for compliance with all terms and conditions of this permit. The operator is responsible for compliance with Sections 3, 4, 5, 7, 22, 24 and applicable requirements for construction activity in Sections 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21. [Minn. R. 7090]
3.6 Permittees will receive coverage notification in a manner determined by the MPCA. [Minn. R. 7090]
3.7 For construction projects where the owner or operator changes (e.g., an original developer sells portions of the property to various homebuilders or sells the entire site to a new owner), the current owner and the new owner or operator must submit a complete permit termination form provided by the MPCA. The current owner and the new owner or operator must submit the form prior to the new owner or operator commencing construction activity or no later than 30 days after taking ownership of the property. [Minn. R. 7090]
3.8 For construction projects where the owner or operator changes, the current owner must provide a SWPPP to the new owner and operator that specifically addresses the remaining construction activity. The new owner or operator can implement the original SWPPP, modify the SWPPP, or develop a new SWPPP. Permittees must ensure their activities do not render another party's erosion prevention and sediment control BMPs ineffective. [Minn. R. 7090]
4.1 Termination of Coverage. [Minn. R. 7090]
4.2 Permittees must submit a NOT within 30 days after all termination conditions listed in Section 13 are complete.[Minn. R. 7090]
4.3 Permittees must submit a NOT within 30 days after selling or otherwise legally transferring the entire site, including permit responsibility for roads (e.g., street sweeping) and stormwater infrastructure final clean out, or transferring portions of a site to another party. The permittees' coverage under this permit terminates at midnight on the submission date of the NOT.[Minn. R. 7090]
4.4 Permittees may terminate permit coverage prior to completion of all construction activity if they meet all of the following conditions:
a. construction activity has ceased for at least 90 days; and
b. at least 90 percent (by area) of all originally proposed construction activity has been completed and permanent cover has been established on those areas; and
c. on areas where construction activity is not complete, permanent cover has been established; and
d. the site complies with item 13.3 through 13.7.
After permit coverage is terminated under this item, any subsequent development on the remaining portions of the site will require permit coverage if the subsequent development itself or as part of the remaining common plan of development or sale will result in land disturbing activities of one (1) or more acres in size. [Minn. R. 7090]
4.5 Permittees may terminate permit coverage upon MPCA approval after submitting information documenting the owner cancelled the project. [Minn. R. 7090]
5.1 Stormwater Pollution Prevention Plan (SWPPP) Content. [Minn. R. 7090]
5.1 The owner must develop and implement a SWPPP. The SWPPP must include items 5.3 through 5.26. [Minn. R. 7090]
5.3 The SWPPP must incorporate specific Best Management Practices (BMP) used to comply with the requirements of this permit. [Minn. R. 7090]
5.4 The SWPPP must include a narrative describing the timing for installation of all erosion prevention and sediment control BMPs and a description of the permanent stormwater treatment system. [Minn. R. 7090]
5.5 The SWPPP must include the location and type of all temporary and permanent erosion prevention and sediment control BMPs along with procedures used to establish additional temporary BMPs as necessary for the site conditions during construction. Standard details and/or specifications for BMPs must be included in the final plans and specifications for the project. [Minn. R. 7090]
5.6 The SWPPP must include the calculations and other information used for the design of temporary sediment basins and any of the permanent stormwater treatment systems required in Section 15. [Minn. R. 7090]
5.7 The SWPPP must include estimated quantities anticipated at the start of the project for the life of the project for all erosion prevention and sediment control BMPs (e.g., linear feet of silt fence or square feet of erosion control blanket). [Minn. R. 7090]
5.8 The SWPPP must include the number of acres of impervious surface for both pre- and post-construction. [Minn. R. 7090]
5.9 The SWPPP must include a site map with existing and final grades, including drainage area boundaries, directions of flow and all discharge points where stormwater is leaving the site or entering a surface water. The site map must indicate the areas of steep slopes. The site map must also include impervious surfaces, soil types and locations of potential pollutant-generating activities as identified in Section 12. [Minn. R. 7090]
5.10 The SWPPP must include a map of all surface waters, existing wetlands, and stormwater ponds or basins that can be identified on maps such as United States Geological Survey 7.5-minute quadrangle maps, the National Wetland Inventory map or similar maps and within one mile (aerial radius measurement) from the project boundaries that will receive stormwater from the construction site, during or after construction. The SWPPP must identify if the surface waters are special or impaired waters. [Minn. R. 7090]
5.11 The SWPPP must include a site map showing construction activity areas that are adjacent to and drain to Public Waters for which the DNR has promulgated "work in water restrictions" during specified fish spawning time frames. [Minn. R. 7090]
5.12 Permittees must identify locations of 50' buffer zones as required in item 9.17 and 100' permanent buffer zones as required in item 23.11, on plan sheets in the SWPPP. [Minn. R. 7090]
5.13 If permittees cannot meet the full volume reduction requirement on-site, (e.g., the site has infiltration prohibitions, see item 16.14 through item 16.21) the permittee must document the reasons in the SWPPP. [Minn. R. 7090]
5.16 The SWPPP must include any stormwater mitigation measures proposed to be part of the final project in any environmental review document, endangered species review, archeological or other required local, state or federal review conducted for the project. For purposes of this permit, mitigation measures mean actions necessary to avoid, minimize, or mitigate for impacts related to erosion prevention, sediment control, the permanent stormwater treatment system, pollution prevention management measures and discharges associated with the project's construction activity. [Minn. R. 7090]
5.17 The SWPPP must describe the methods used for permanent cover of all exposed soil areas. [Minn. R. 7090]
5.18 Permittees must identify the locations of areas where construction will be phased to minimize the duration of exposed soil areas in the SWPPP. [Minn. R. 7090]
5.19 For projects with a discharge point on the project within one (1) mile (aerial radius measurement) of and which flows to an impaired water, permittees must identify the impaired water(s), and any Total Allocated Pollutant Reduction Agency (USEPA)-approved Total Maximum Daily Load (TMDL) for the pollutant(s) or stressor(s) described in item 23.7. Permittees' identification must include those TMDLs approved at any time prior to permit application submittal and are still in effect. [Minn. R. 7090]
5.20 Permittees must document in the SWPPP, all trained individuals identified in item 21.2. Documentation must include:
a. names of personnel required to be trained; and
b. dates of training and name of instructor(s) and entity providing training; and
c. content of training course.
If permittees do not know the names of the individuals at the time of application, the permittees must ensure they document training before construction activity commences. [Minn. R. 7090]
5.21 The SWPPP must identify a person knowledgeable and experienced in the application of erosion prevention and sediment control BMPs who will coordinate with all contractors, subcontractors, and operators on-site to oversee the implementation of the SWPPP. [Minn. R. 7090]
5.22 The SWPPP must describe any specific chemicals and chemical treatment systems used for enhancing the sedimentation process and how it achieves compliance with item 9.19. [Minn. R. 7090]
5.23 The SWPPP must identify the person(s), organizations, or entities responsible for long-term operation and maintenance of permanent stormwater treatment systems. [Minn. R. 7090]
5.24 The SWPPP must describe methods to minimize soil compaction and preserve topsoil. Minimizing soil compaction is not required where the function of a specific area dictates compaction. [Minn. R. 7090]
5.25 The SWPPP must include any site assessments for groundwater or soil contamination required in item 16.15.[Minn. R. 7090]
5.26 The SWPPP must account for the following factors in designing temporary erosion prevention and sediment control BMPs:
a. the expected amount, frequency, intensity, and duration of precipitation; and
b. the nature of stormwater runoff and run-on at the site, including factors such as expected flow from impervious surfaces, slopes, and site drainage features; and
c. the stormwater volume, velocity, and peak flowrates to minimize discharge of pollutants in stormwater and to minimize channel and streambank erosion and scour in the immediate vicinity of discharge points; and
d. the range of soil particle sizes expected to be present. [Minn. R. 7090]
6.1 SWPPP Amendment. [Minn. R. 7090]
6.2 One of the individuals described in item 21.2.a or item 21.2.b or another qualified individual must complete all SWPPP changes. Changes involving the use of a less stringent BMP must include a justification describing how the replacement BMP is effective for the site characteristics. [Minn. R. 7090]
6.3 Permittees must amend the SWPPP within 7 days to include additional or modified BMPs whenever there is a change in design, construction, operation, maintenance, weather or seasonal conditions having a significant effect on the discharge of pollutants to surface waters or groundwater. [Minn. R. 7090]
6.4 Permittees must amend the SWPPP within 7 days to include additional or modified BMPs whenever inspections or investigations by the site owner or operator, USEPA or MPCA officials indicate the SWPPP is not effective in eliminating or significantly minimizing the discharge of pollutants to surface waters or groundwater or the discharges are causing water quality standard exceedances (e.g., nuisance conditions as defined in Minn. R. 7050.0210, subp. 2) or the SWPPP is not consistent with the objectives of a USEPA approved TMDL. [Minn. R. 7050.0210]
7.1 BMP Selection and Stormwater Management. [Minn. R. 7090]
7.2 Permittees must select, install, and maintain the BMPs identified in the SWPPP and in this permit in an appropriate and functional manner and in accordance with relevant manufacturer specifications and accepted engineering practices to minimize the discharge of pollutants in stormwater from construction activities. Examples of stormwater management practices for this section include but are not limited to wet sedimentation basins, temporary depressions to hold stormwater, stormwater routing, dikes, berms, pumping, and stormwater treatment BMPs. Permittees must phase and incorporate stormwater management principles as the construction progresses. Unless infeasible, temporary or permanent wet sedimentation basins (where required, see section 14 and 15) should be constructed as a first step in the process and stormwater routed to these. [Minn. R. 7090]
7.3 Permittees must not disturb more land (i.e., phasing) than can be effectively inspected and maintained in accordance with Section 11. [Minn. R. 7090]
7.4 If permittees are using some type of erosion control netting on the site as part of the soil stabilization techniques, permittees are encouraged to use products that have been shown to minimize impacts on wildlife. The U.S. Fish & Wildlife Service recommends using types of netting practices that are considered "wildlife friendly," including those that use natural fiber or 100 percent biodegradable materials and that use a loose weave with a non-welded, movable jointed netting. Products that do not use wildlife friendly include square plastic netting that are plastic netting (e.g., photodegradable, UV-degradable, oxo-degradable), netting made from polypropylene, nylon, polyethylene, or polyester. Other recommendations include removing the netting product when it is no longer needed. More information may be found at: https://www.fws.gov/initiative/protecting-wildlife/make-change-wildlife-friendly-erosion-control-products. There also may be State, Tribal, or local requirements about using wildlife friendly erosion control products. See Minnesota Department of Transportation requirements at: https://www.mndot.gov/environment/erosion/rolled-erosion-prevention-products.html. [Minn. R. 7050]
8.1 Erosion Prevention Practices. [Minn. R. 7090]
8.2 Before work begins, permittees must delineate the location of areas not to be disturbed. [Minn. R. 7090]
8.3 Permittees must minimize the need for disturbance of portions of the project with steep slopes. When steep slopes must be disturbed, permittees must use techniques such as phasing and stabilization practices designed for steep slopes (e.g., slope draining and terracing). [Minn. R. 7090]
8.4 Permittees must stabilize all exposed soil areas, including stockpiles. Stabilization must be initiated immediately to limit soil erosion when construction activity has permanently or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days (7 days for sites discharging to special or impaired waters, see section 24). Stabilization must be completed no later than 14 calendar days after the construction activity has ceased. Stabilization is not required on constructed base components of roads, parking lots and similar surfaces. Stabilization of temporary stockpiles without significant silt, clay or organic components (e.g., clean aggregate stockpiles, demolition concrete stockpiles, sand stockpiles) but permittees must provide sediment controls at the base of the stockpile. [Minn. R. 7090]
8.5 For Public Waters that the Minnesota DNR has promulgated "work in water restrictions" during specified fish spawning time frames, permittees must complete stabilization of all exposed soil areas within 200 feet of the water's edge, and that drain to these waters, within 24 hours during the restriction period. [Minn. R. 7090]
8.6 Permittees must stabilize the normal wetted perimeter of the last 200 linear feet of temporary or permanent drainage ditches or swales that discharge to surface waters or stormwater conveyance systems to a functional vegetative or rock surface or property edge. Permittees must complete stabilization of remaining portions of temporary or permanent ditches or swales within 14 calendar days (7 days for sites discharging to special or impaired waters, see section 24) after connecting to a surface water or property edge and construction in that portion of the ditch temporarily or permanently ceases. [Minn. R. 7090]
8.7 Temporary or permanent ditches or swales being used as a sediment containment system during construction (with properly designed rock-ditch checks, bio rolls, silt dikes, etc.) do not need to be stabilized. Permittees must stabilize these areas within 24 hours after their use as a sediment containment system ceases. [Minn. R. 7090]
8.8 Permittees must not use mulch, hydromulch, tackifier, polyacrylamide or similar erosion prevention practices within any portion of the normal wetted perimeter of a temporary or permanent drainage ditch or swale section with a continuous slope of greater than 2 percent. Examples of acceptable erosion prevention practices include blankets, poly, riprap, etc. [Minn. R. 7090]
8.9 Permittees must provide temporary or permanent energy dissipation at all pipe outlets within 24 hours after connection to a surface water or permanent stormwater treatment system. [Minn. R. 7090]
9.1 Sediment Control Practices. [Minn. R. 7090]
9.2 Permittees must establish sediment control BMPs on all downgradient perimeters of the site and downgradient areas of the site that drain to any surface water, including curb and gutter systems. Permittees must locate sediment control practices upgradient of any buffer zones. Permittees must establish sediment control BMPs upgradient of stockpiles, ditches and soil stockpiling activities begin and must keep the sediment control practices in place until they establish permanent cover. [Minn. R. 7090]
9.3 If downgradient sediment controls are overloaded, based on frequent failure or excessive maintenance requirements, permittees must install additional upgradient sediment control practices or both practices within 24 hours of discovery or before the next predicted storm event, whichever is sooner, to eliminate the overloading and amend the SWPPP to identify these additional practices as required in item 6.3. [Minn. R. 7090]
9.4 Temporary or permanent drainage ditches and sediment basins designed as part of a sediment containment system (e.g., ditches with rock-check dams) require sediment control practices only as appropriate for site conditions. [Minn. R. 7090]
9.5 A floating silt curtain placed in the water is not a sediment control BMP to satisfy Item 9.2 except when working on a shoreline or below the waterline. Immediately after the construction activity (e.g., installation of rip rap along the shoreline) in that area is complete, permittees must install an upland perimeter control practice if exposed soils still drain to a surface water. [Minn. R. 7090]
9.6 Permittees must re-install all sediment control practices adjusted or removed to accommodate short-term activities such as clearing or grubbing, or passage of vehicles, immediately after the short-term activity is completed. Permittees must re-install sediment control practices before the next precipitation event even if the short-term activity is not complete. [Minn. R. 7090]
9.7 Permittees must protect all storm drain inlets using appropriate BMPs during construction until they establish permanent cover on all areas with potential for discharging to the inlet. [Minn. R. 7090]
9.8 Permittees may remove inlet protection for a particular inlet if a specific safety concern (e.g. street flooding/freezing) is identified by the permittees or the jurisdictional authority (e.g., city/county/township/Minnesota Department of Transportation engineer). Permittees must document the need for removal in the SWPPP. [Minn. R. 7090]
9.9 Permittees must provide silt fence or other effective sediment controls at the base of stockpiles on the downgradient perimeter prior to the initiation of stockpiling. Sediment controls must be managed in accordance with section 9.6. [Minn. R. 7090]
9.10 Permittees must locate stockpiles outside of natural buffers or surface waters, including stormwater conveyances such as curb and gutter systems unless there is a bypass in place for the stormwater. [Minn. R. 7090]
9.11 Permittees must install a vehicle tracking BMP to minimize the track out of sediment from the construction site or onto paved roads within the site. [Minn. R. 7090]
9.12 Permittees must use street sweeping in addition to vehicle tracking BMPs if vehicle tracking BMPs alone are not adequate to prevent sediment tracking onto the street. [Minn. R. 7090]
9.13 Permittees must install temporary sediment basins as required in Section 14. [Minn. R. 7090]
9.14 In any areas of the site where final vegetative stabilization will occur, permittees must restrict vehicle and equipment use to minimize soil compaction. [Minn. R. 7090]
9.15 Permittees must preserve topsoil on the site, unless infeasible. [Minn. R. 7090]
9.16 Permittees must direct discharges from BMPs to vegetated areas unless infeasible. [Minn. R. 7090]
9.17 Permittees must preserve a 50-foot natural buffer or, if a buffer is infeasible on the site, provide redundant (double) perimeter sediment controls when a surface water is located within 50 feet of the project's earth disturbances and stormwater flows to the surface water. Permittees must install perimeter sediment controls at least 5 feet apart unless limited by lack of available space. Natural buffers are not required adjacent to road ditches, judicial ditches, county ditches, stormwater conveyance channels, storm drain inlets, and sediment basins. If preserving the buffer is infeasible, permittees must document the reasons in the SWPPP. Sheet piling and other impermeable barriers installed in a manner that retains all stormwater are considered redundant perimeter control. [Minn. R. 7090]
9.18 Any sediment control made of soil must be temporarily or permanently stabilized within 24 hours. [Minn. R. 7090]
9.19 Permittees must use polymers, flocculants, or other sedimentation treatment chemicals only in accordance with accepted engineering practices, dosing specifications and sediment removal design specifications provided by the manufacturer or supplier. The permittees must use conventional erosion and sediment controls prior to chemical addition and must direct treated stormwater to a sediment control system for filtration or settlement of the floc prior to discharge. [Minn. R. 7090]
10.1 Dewatering and Basin Draining. [Minn. R. 7090]
10.2 Permittees must not cause nuisance conditions (see Minn. R. 7050.0210, subp. 2) in surface waters from dewatering and basin draining (e.g., pumped discharges, trench/ditch cuts for drainage) discharges. Permittees must discharge turbid or sediment-laden waters related to dewatering or basin draining to a sediment control (e.g. sediment trap or basin, filter bag) designed to prevent discharges with visual turbidity. To the extent feasible, use well-vegetated (e.g., grassy or wooded), upland areas of the site to infiltrate dewatering water before discharge. Permittees are prohibited from using receiving waters as part of the treatment area. Permittees must visually check and photograph the discharge at the beginning and at least once every 24 hours of operation to ensure adequate treatment has been obtained and nuisance conditions will not result from the discharge. [Minn. R. 7050.0210]
10.3 If nuisance conditions result from the discharge, Permittees must cease dewatering immediately and corrective actions must occur before dewatering is resumed. Nuisance conditions includes, but is not limited to, a sediment plume in the discharge or the discharge appears cloudy, or opaque, or has a visible contrast, or has a visible oil film, or has aquatic habitat degradation that can be identified by an observer. [Minn. R. 7050.0210]
10.4 If permittees must discharge water containing oil or grease, they must use an oil-water separator or suitable filtration device (e.g., cartridge filters, absorbents pads) prior to discharge. [Minn. R. 7090]
10.5 Permittees must discharge all water from dewatering or basin-draining activities in a manner that does not cause erosion or scour in the immediate vicinity of discharge points or inundation of wetlands in the immediate vicinity of discharge points that causes significant adverse impact to the wetland. [Minn. R. 7090]
10.6 If permittees pump-filter with backwash water, they must haul the backwash water away for disposal, return the backwash water to the beginning of the treatment process, or incorporate the backwash water into the site in a manner that does not cause erosion. [Minn. R. 7090]
11.1 Inspections and Maintenance. [Minn. R. 7090]
11.2 Permittees must ensure a trained person, as identified in item 21.2.b, will inspect the entire construction site at least once every seven (7) days during active construction and within 24 hours after a rainfall event greater than 1/2 inch in 24 hours. [Minn. R. 7090]
11.3 Permittees must inspect and maintain all permanent stormwater treatment BMPs. [Minn. R. 7090]
11.4 Permittees must inspect all erosion prevention and sediment control BMPs and Pollution Prevention Management Measures to ensure integrity and effectiveness. Permittees must repair, replace or supplement all nonfunctional BMPs with functional BMPs by the end of the next business day after discovery unless another time frame is specified in item 11.5 or 11.6. Permittees may take additional time if field conditions prevent access to the area. [Minn. R. 7090]
11.5 During each inspection, permittees must inspect areas adjacent to the project, surface waters, including drainage ditches and conveyance systems but not curb and gutter systems, for evidence of erosion and sediment deposition. Permittees must remove all deltas and sediment deposited in areas adjacent to the project, surface waters, including drainage ways, catch basins, and other drainage systems and restabilize the areas where sediment removal results in exposed soil. Permittees must complete removal and stabilization within seven (7) calendar days of discovery unless precluded by legal, regulatory, or physical access constraints. Permittees must use all reasonable efforts to obtain access. If precluded, removal and stabilization must take place within seven (7) days of obtaining access. Permittees are responsible for contacting all local, regional, state and federal authorities and receiving any applicable permits, prior to conducting any work in surface waters. [Minn. R. 7090]
11.6 Permittees must inspect construction site vehicle exit locations, streets and curb and gutter systems within and adjacent to the project for sedimentation from erosion or tracked sediment from vehicles. Permittees must remove sediment from all paved surfaces within one (1) calendar day of discovery or, if applicable, within a shorter time to avoid a safety hazard to users of public streets. [Minn. R. 7090]
11.7 Permittees must repair, replace or supplement all perimeter control devices when they become nonfunctional or the sediment reaches 1/2 of the height of the device. [Minn. R. 7090]
11.8 Permittees must drain temporary and permanent sedimentation basins and remove the sediment when the depth of sediment collected in the basin reaches 1/2 the storage volume within 72 hours of discovery. [Minn. R. 7090]
11.9 Permittee's must inspect and photograph dewatering discharges at the beginning and at least once every 24 hours during operation. Dewatering discharges that only last for minutes, as opposed to hours, and do not reach a surface water, do not require photographs or documentation. [Minn. R. 7090]
11.10 Permittees must ensure that at least one individual present on the site (or available to the project site in three (3) calendar days) is trained in the job duties described in item 21.2.b. [Minn. R. 7090]
11.11 Permittees may adjust the inspection schedule described in item 11.2 as follows:
a. inspections of areas with permanent cover can be reduced to once per month, even if construction activity continues on other portions of the site; or
b. where sites have permanent cover on all exposed soil and no construction activity is occurring anywhere on the site, inspections can be reduced to once per month and, after 12 months, may be suspended completely until construction activity resumes. Permittees must document MPCA may require inspections to resume if conditions warrant; or
c. where construction activity has been suspended due to frozen ground conditions, inspections may be suspended. Inspections must resume within 24 hours of runoff occurring, or upon resuming construction, whichever comes first.
d. for projects where a pollinator habitat or native prairie type vegetated cover is being established, inspections may be reduced to once per month after the vegetation has emerged and has reached 70% temporary vegetation cover. If after 24 months no significant erosion problems are observed, inspections may be suspended completely until the termination requirements in section 13 have been met. [Minn. R. 7090]
11.12 Permittees must document all inspection and maintenance activities within 24 hours of being conducted and these records must be retained with the SWPPP. These records must include:
a. date and time of inspections; and
b. name of persons conducting inspections; and
c. accurate findings of inspections, including the specific location where corrective actions are needed; and
d. corrective actions taken (including dates, times, and party completing maintenance activities); and
e. date of all rainfall events greater than 1/2 inches in 24 hours, and the amount of rainfall for each event. Permittees must obtain rainfall amounts by either a properly maintained rain gauge installed on-site, a weather station that is within one (1) mile of your location, or a weather reporting system that provides site specific rainfall data from radar summaries; and
f. if permittees observe a discharge during the inspection, they must record and should photograph and describe the location of the discharge (i.e., color, odor, settled or suspended solids, oil sheen, and other obvious indicators of pollutants); and
g. any amendments to the SWPPP proposed as a result of the inspection must be documented as required in Section 6 within seven (7) calendar days; and
h. all photographs of dewatering activities and documentation of nuisance conditions resulting from dewatering activities as described in section 10. [Minn. R. 7090]
12.1 Pollution Prevention Management Measures. [Minn. R. 7090]
12.2 Permittees must place construction materials and landscape materials under cover (e.g., plastic sheeting or temporary days) or protect them by similarly effective means designed to minimize contact with stormwater. Permittees are not required to cover or protect products which are either not a source of contamination to stormwater or are designed to be exposed to stormwater. [Minn. R. 7090]
12.3 Permittees must place pesticides, fertilizers and treatment chemicals under cover (e.g., plastic sheeting or temporary roofs) or protect them by similarly effective means designed to minimize contact with stormwater. [Minn. R. 7090]
12.4 Permittees must store hazardous materials and toxic waste, (including oil, diesel fuel, gasoline, hydraulic fluids, paint solvents, petroleum-based products, scrap metal, batteries, additives, curing compounds, and acids) in sealed containers to prevent spills, leaks or other discharge. Storage and disposal of hazardous waste materials must be in compliance with Minn. R. ch. 7045 including secondary containment as applicable. [Minn. R. 7090]
12.5 Permittees must properly store, collect and dispose solid waste in compliance with Minn. R. ch. 7035. [Minn. R. 7035]
12.6 Permittees must position portable toilets so they are secure and will not tip or be knocked over. Permittees must properly dispose sanitary waste in accordance with Minn. R. ch. 7041. [Minn. R. 7041]
12.7 Permittees must take reasonable steps to prevent the discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded including the use of drip pans or absorbents unless infeasible. Permittees must ensure adequate supplies are available at all times to clean up discharged materials and that an appropriate disposal method is available for recovered spilled materials. Permittees must report and clean up spills immediately as required by Minn. Stat. 115.061, using dry clean up measures where possible. [Minn. Stat. 115.061]
12.8 Permittees must properly dispose of concrete waste, concrete truck and equipment to a defined area of the site. Permittees must contain runoff from the washing area in a sediment basin or other similarly effective controls and must dispose waste from the washing activity properly. Permittees must properly use and store soaps, detergents, or solvents. [Minn. R. 7090]
12.9 Permittees must provide effective containment for all liquid and solid wastes generated by washout operations (e.g., concrete, stucco, paint, form release oils, curing compounds and other construction materials) related to the construction activity. Permittees must prevent liquid and solid washout wastes from contacting the ground and must design the containment so it does not result in runoff from the washout operations or areas. Permittees must properly dispose liquid and solid wastes in compliance with MPCA rules. Permittees must install a sign indicating the location of the washout facility. [Minn. R. 7035, Minn. R. 7090]
13.1 Permit Termination Conditions. [Minn. R. 7090]
13.2 Permittees must complete all construction activity and must install permanent cover over all areas prior to submitting the NOT. Vegetative cover must consist of a uniform perennial vegetation with a density of 70 percent of its expected final growth Vegetation is not adequate if erosion is occurring in areas of the site where the function of a specific area dictates no vegetation, such as impervious surfaces or the base of a sand filter. [Minn. R. 7090]
13.3 Permittees must clean the permanent stormwater treatment system of any accumulated sediment and must ensure the system meets all applicable requirements in Section 15 through 19 and is operating as designed. [Minn. R. 7090]
13.4 Permittees must remove all sediment from conveyance systems prior to submitting the NOT. [Minn. R. 7090]
13.5 Permittees must remove all temporary synthetic erosion prevention and sediment control BMPs prior to submitting the NOT. Permittees may leave BMPs designed to decompose on-site in place. [Minn. R. 7090]
13.6 For residential construction only, temporary erosion prevention and downgradient perimeter control is not required on individual lots if the lot is sold to the homeowner, structures are finished, and permanent cover has been established. For lots that are sold to the homeowner where permanent cover has not been established, coverage terminates if temporary erosion prevention and downgradient perimeter control is properly installed and the permittee distributes the MPCA's "Homeowner Fact Sheet" to the homeowner. [Minn. R. 7090]
13.7 For construction projects on agricultural land (e.g., pipelines across cropland), permittees must return the disturbed land to its preconstruction agricultural use prior to submitting the NOT. [Minn. R. 7090]
13.8 When submitting the NOT, Permittees must include either ground or aerial photographs showing the requirements of 13.2 have been met. Permittees are not required to take photographs of every distinct part of the site, however the photographs must be portrayed must be substantially similar to those areas that are not photographed. Photographs must be clear and in focus and must include the date the photo was taken. [Minn. R. 7090]
14.1 Temporary Sediment Basins. [Minn. R. 7090]
14.2 Where ten (10) or more acres of disturbed soil (5 acres for sites discharging to special or impaired waters, see section 24) drain to a common location, permittees must provide a temporary sediment basin to provide treatment of the runoff before it leaves the construction site or enters surface waters. Permittees may convert a temporary sediment basin to a permanent basin after construction is complete. The temporary basin is no longer required when permanent cover has reduced the amount of disturbed soil to less than ten (10) acres draining to a common location. [Minn. R. 7090]
14.3 The temporary basin must provide live storage for a calculated volume of runoff from a two (2)-year, 24-hour storm from each acre drained to the basin or 1,800 cubic feet of live storage per acre drained, whichever is greater. [Minn. R. 7090]
14.4 Where permittees have not calculated the two (2)-year, 24-hour storm runoff amount, the temporary basin must provide 3,600 cubic feet of live storage per acre of the basins' drainage area. [Minn. R. 7090]
14.5 Permittees must design basin outlets to prevent short-circuiting and the discharge of floating debris. [Minn. R. 7090]
14.6 Permittees must design the outlet structure to withdraw water from the surface to minimize the discharge of pollutants. Permittees temporarily suspend the use of a surface withdrawal system during frozen conditions. The basin must include a stabilized emergency overflow to prevent failure of pond integrity. [Minn. R. 7090]
14.7 Permittees must provide energy dissipation for the basin outlet within 24 hours after connection to a surface water. [Minn. R. 7090]
14.8 Permittees must locate temporary basins outside of surface waters and any buffer zone required in item 23.11.[Minn. R. 7090]
14.9 Permittees must construct the temporary basins prior to disturbing 10 or more acres of soil draining to a common location. [Minn. R. 7090]
14.10 Where a temporary sediment basin meeting the requirements of item 14.3 through 14.9 is infeasible, permittees must install effective sediment controls such as smaller sediment basins and/or sediment traps, silt fences, vegetative buffer strips or any appropriate combination of measures as dictated by individual site conditions. In determining whether installing a sediment basin is infeasible, permittees must consider public safety and may consider factors such as site soils, slope, and available area on-site. Permittees must document this determination of infeasibility in the SWPPP.[Minn. R. 7090]
15.1 Permanent Stormwater Treatment System. [Minn. R. 7090]
15.2 Permittees must design and implement the project so all stormwater discharged from the project during and after construction activities does not cause a violation of state water quality standards, including nuisance conditions, erosion in receiving channels or on downslope properties, or a significant adverse impact to wetlands caused by inundation or decrease of flow. [Minn. R. 7090]
15.3 Permittees must design and construct a permanent stormwater treatment system to treat the water quality volume if the project's ultimate development replaces vegetation and/or other pervious surfaces creating a net increase of one (1) or more acres of cumulative impervious surface. [Minn. R. 7090]
15.4 Permittees must calculate the water quality volume as one (1) inch times the net increase of impervious surfaces created by the project. [Minn. R. 7090]
15.5 Permittees must first consider volume reduction practices on-site (e.g., infiltration or other) when designing the permanent stormwater treatment system. If this permit prohibits infiltration as described in item 16.14 through item 16.21, permittees may consider a wet sedimentation basin, filtration basin or regional pond. This permit does not consider wet sedimentation basins and filtration systems to be volume reduction practices. [Minn. R. 7090]
15.6 For projects on sites where the full volume reduction requirement cannot be met on-site, (e.g., the site has infiltration prohibitions), permittees must document the reasons in the SWPPP. [Minn. R. 7090]
15.7 Permittees must discharge the water quality volume to a permanent stormwater treatment system prior to discharge to a surface water. For purposes of this item, surface waters do not include man-made drainage systems that convey stormwater to a permanent stormwater treatment system. [Minn. R. 7090]
15.8 Where the proximity to bedrock precludes the installation of any of the permanent stormwater treatment practices required by Sections 15 through 19, permittees must install other treatment such as grassed swales, smaller ponds, or grit chambers, prior to the discharge of stormwater to surface waters. [Minn. R. 7090]
15.9 For linear projects where permittees cannot treat the entire water quality volume within the existing right-of-way, permittees must make a reas

LEGEND

1P — POND AREA

1R — REACH

1S — DRAINAGE AREA (TOTAL DRAINAGE AREA / IMPERVIOUS AREA)

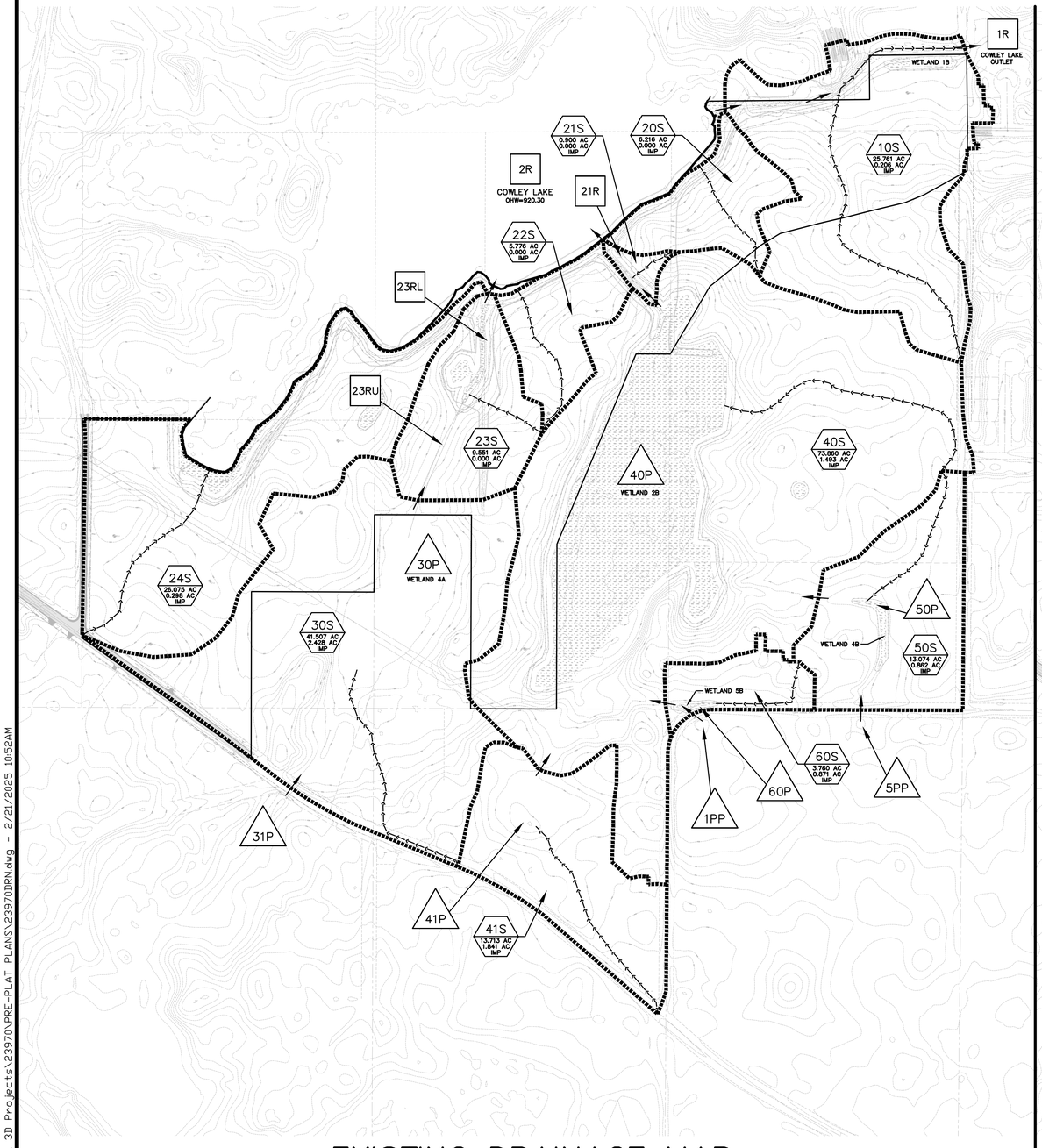
FLOW DIRECTION

ToC PATH

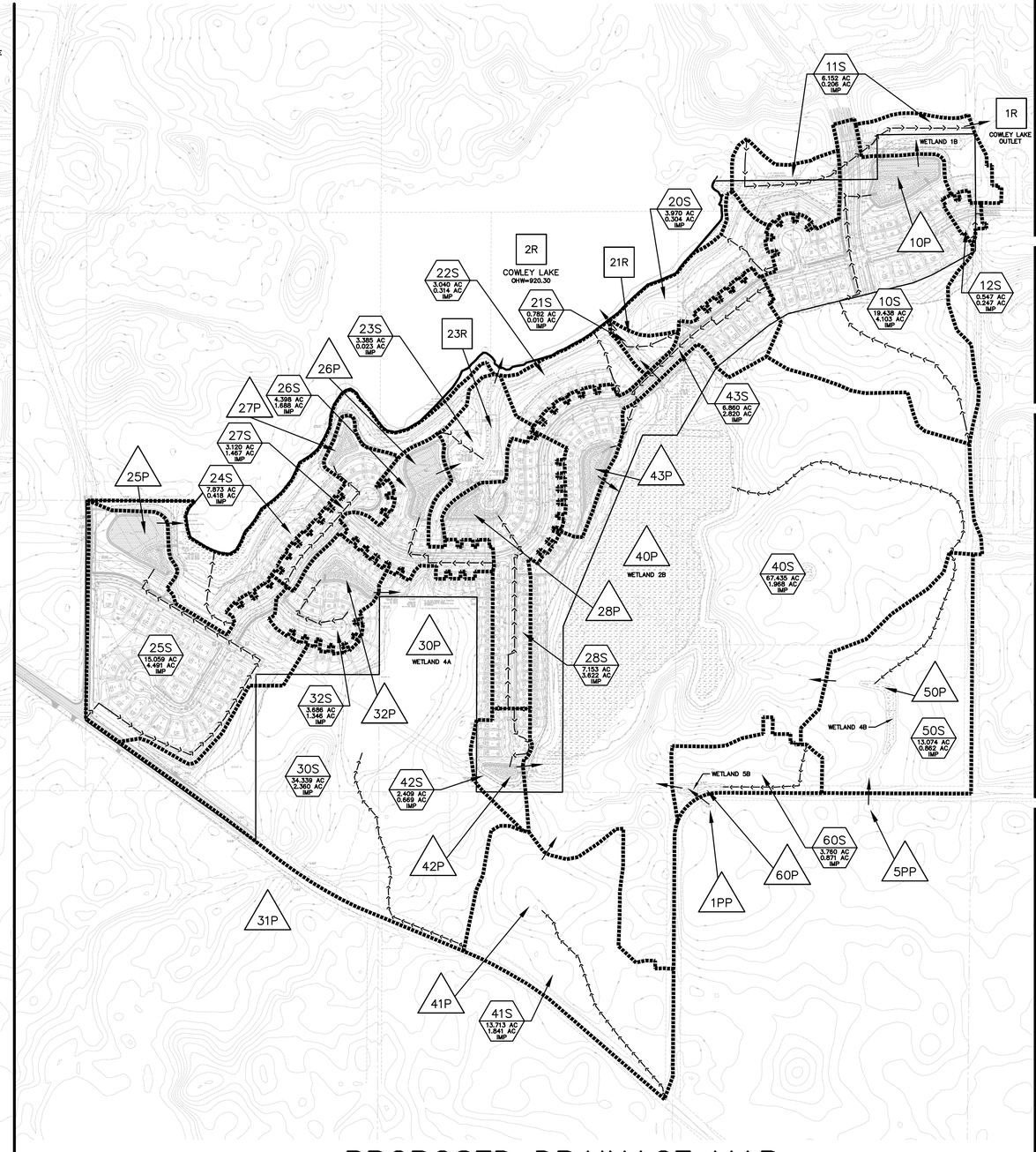
DRAINAGE BOUNDARY

SCALE IN FEET
0 300 600 900
1 inch = 300 feet

N



EXISTING DRAINAGE MAP



PROPOSED DRAINAGE MAP

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Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE

ROGERS, MINNESOTA

DRAINAGE MAPS

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
JSO

DATE
02/24/2024

REVISIONS

CAD FILE
23970DRN

PROJECT NO.
23970

3.5

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LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND TELEPHONE
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING OVERHEAD POWER LINE
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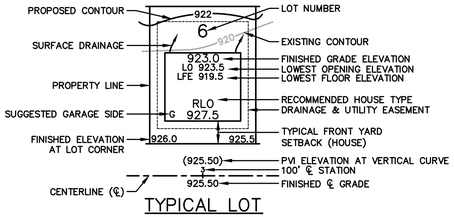
- PROPOSED FILTRATION BASIN
- PROPOSED MAINTENANCE ACCESS
- WETLAND BUFFER SIGN



TYPICAL LOT

WARNING!
UNDERGROUND HIGH PRESSURE PIPELINE
CONTACT ENERGY TRANSFER REPRESENTATIVE
AT 1-800-753-5531 PRIOR TO PERFORMING WORK
WITHIN THE PIPELINE EASEMENT

811 Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 200 400 600
1 inch = 200 feet

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PRELIMINARY GRADING & DRAINAGE PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	VUN/JSO
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CITY OF ROGERS
PID #1612023440049

CITY OF ROGERS
PID #1612023420043

RONALD & JENNIFER HOLTERMAN
PID #1512023330062

JULIE LOU RYAN
PID #1512023330061

JOHN & JESSICA BROSIUS
PID #1512023330060

TRENT RADEMACHER
ALYSSA EVENSON
PID #2212023220081

RICHARD & JILL SMISEK
PID #2212023220075

RONALD LUNDERBY
PID #2212023220074

GLENN & KRISTIN JOHNSON
PID #2212023220073

KIETH & JODY WEBER
PID #2112023110003

EDGEWATER PARKWAY

133RD AVE N

STREET A

STREET G

OUTLOT A

OUTLOT B

POND 10P (SED./FILT.)
BOTTOM 913.00
FILT. OLE 921.00
PRIMARY OLE 922.00
100-YR HWL 923.77

POND EOF
SEE DETAIL
EOF
924.0

WETLAND 1B
10' MINIMUM BUFFER

10' MAINTENANCE ACCESS (TYP)

40' AVERAGE BUFFER
25' MINIMUM BUFFER

WETLAND BUFFER SIGN (TYP)
PROPOSED WETLAND BUFFER

10' BIT. TRAIL

TEMP. TURNAROUND

ST-14
ST-13

EX. 36" CMP
INV 916.48

EX. 36" CMP
INV 916.74

EX. 48" CMP
INV 916.34

EX. 48" CMP
INV 915.98

LEGEND

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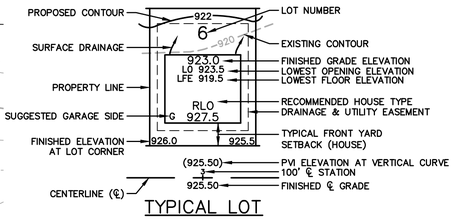

TYPICAL LOT

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FOR
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ROGERS, MINNESOTA
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	VUN/JSO
DATE	02/24/2024
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PROJECT NO.	23970
	4.1

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COWLEY LAKE
WATER LEVEL ON 8/15/2022: 918.9
ORDINARY HIGH WATER LEVEL: 920.3 (NAVD88)

OUTLOT B
OUTLOT C
STREET A
STREET B
10' TRAIL
10' BIT. TRAIL
EX. CONSERVATION EASEMENT
BOARDWALK
5' CONC. WALK
EOF 932.5
EOF 932.5
EOF 929.2
POND EOF SEE DETAIL
POND 40P WETLAND 2B OLE 923.90 100-YR HWL 926.18
POND 43P (SED.) BOTTOM 918.50 OLE 926.50 100-YR HWL 929.13
40' AVERAGE BUFFER
25' MINIMUM BUFFER
PROPOSED WETLAND BUFFER
WETLAND BUFFER SIGN (TYP)
WETLAND 2B
THOMAS & CHRISTINA GILBERT
PID #2112023130005
28+75.00 100' VC (934.95) 934.73
28+00.00 150' VC (931.96) 932.52
31+90.00 100' VC (934.30) 934.48
34+00.00 100' VC (938.50) 938.32
24+00.00 100' VC (936.60) 936.45
LP 28+44.92 932.32
HP 24+00.00 936.45
RE 934.5
RE 936.9
RE 934.7
RE 936.7
RE 936.3
RE 936.1
RE 934.9
RE 936.9
RE 938.1
RE 939.1
RE 939.7
RE 939.9
RE 940.1
RE 940.3
RE 940.5
RE 940.7
RE 940.9
RE 941.2
RE 941.4
RE 941.6
RE 941.8
RE 942.0
RE 942.2
RE 942.4
RE 942.6
RE 942.8
RE 943.0
RE 943.2
RE 943.4
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RE 944.6
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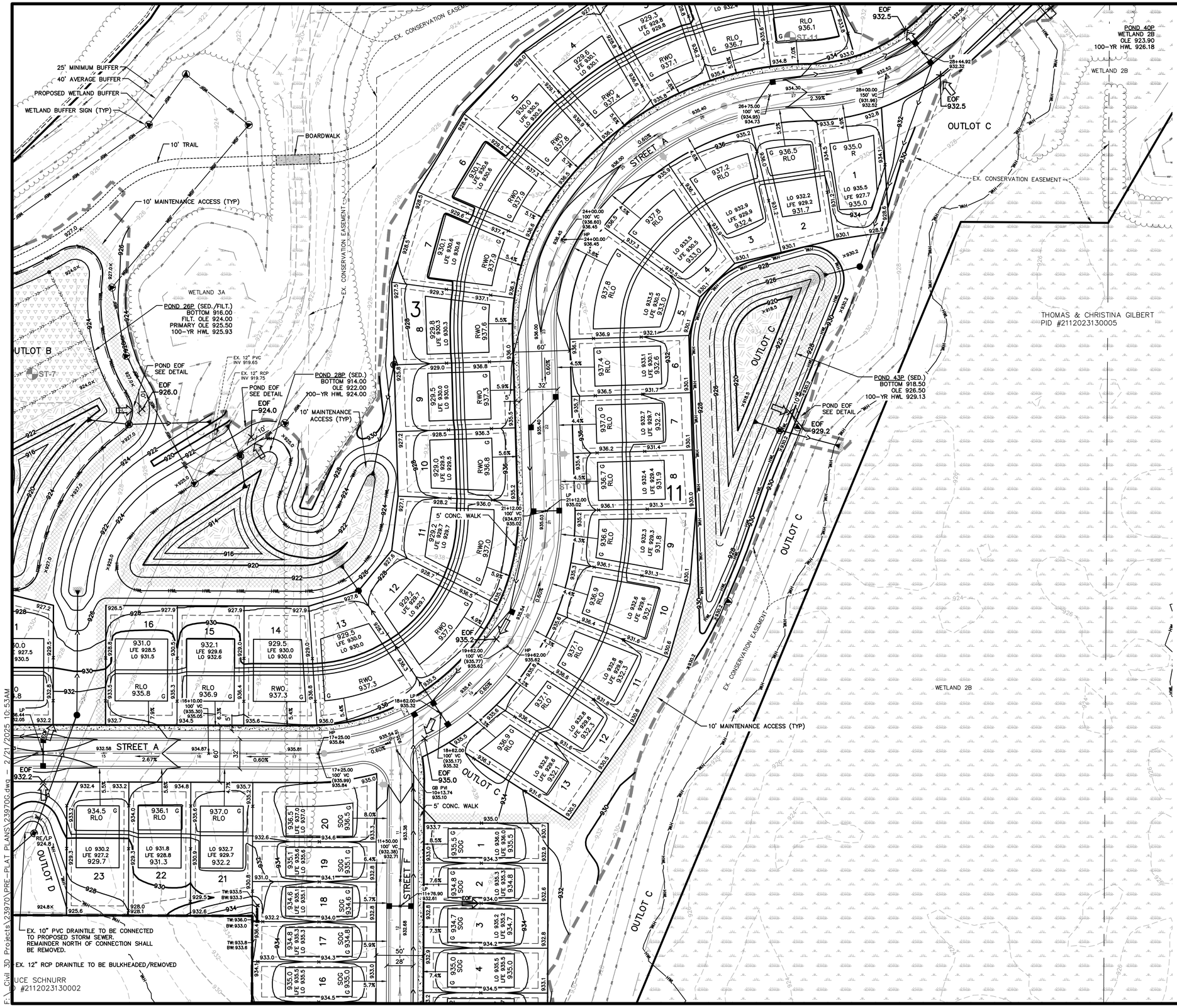
RE 945.0
RE



LEGEND

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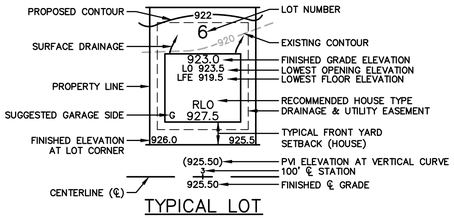

TYPICAL LOT

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N

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FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/JSO

DATE
02/24/2024

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PROJECT NO.
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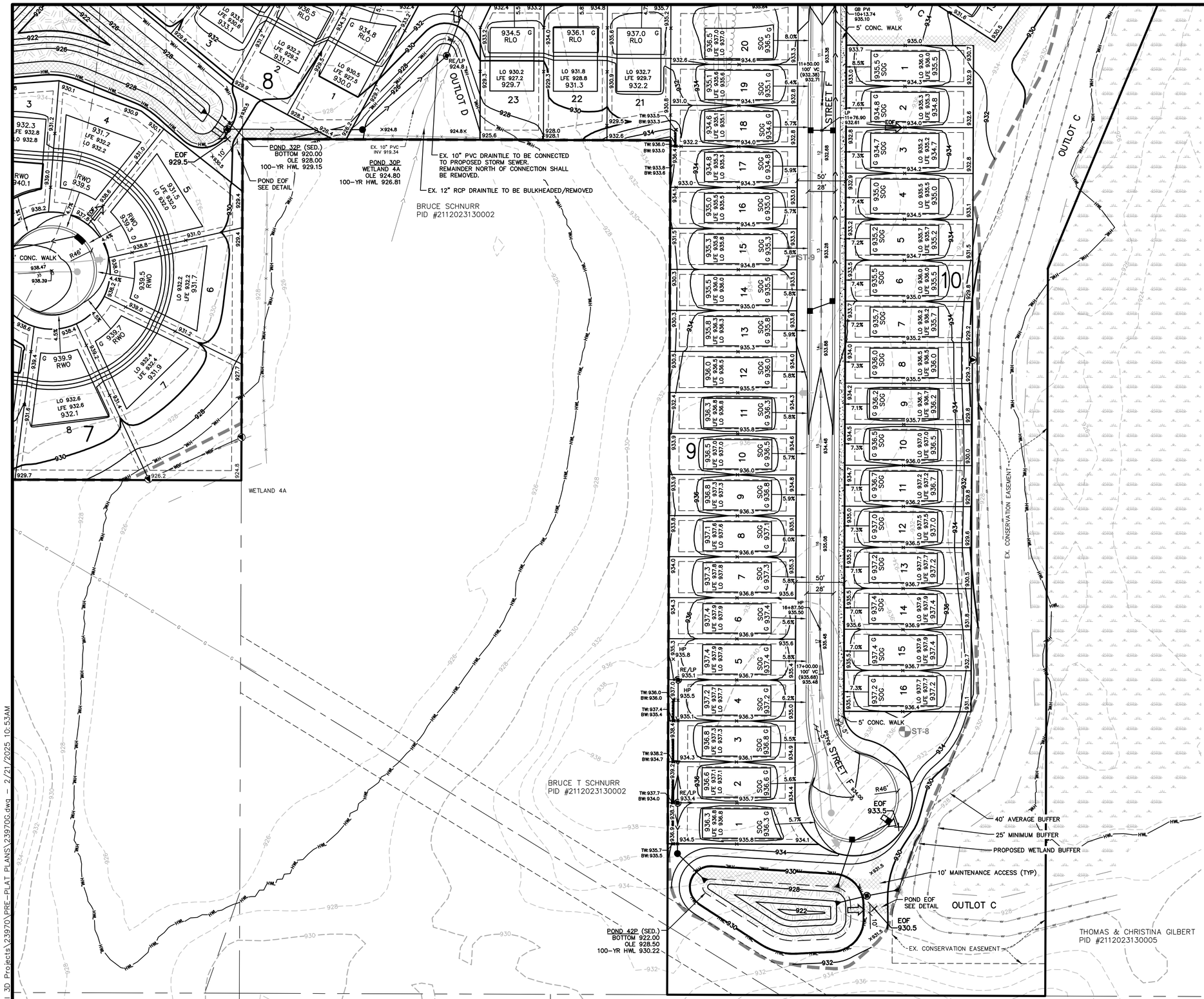

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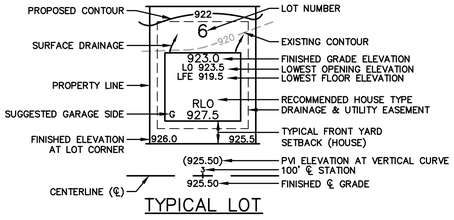

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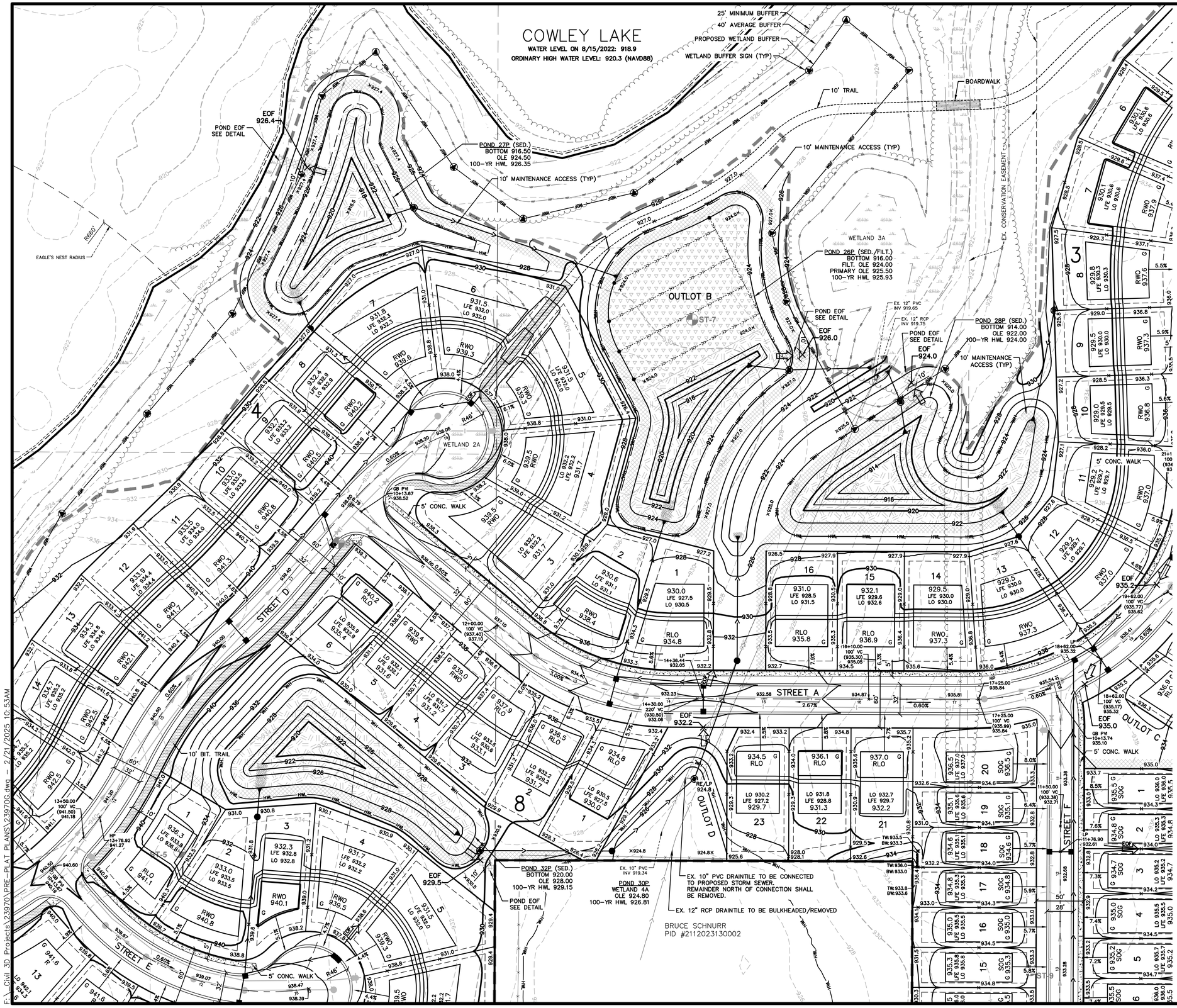

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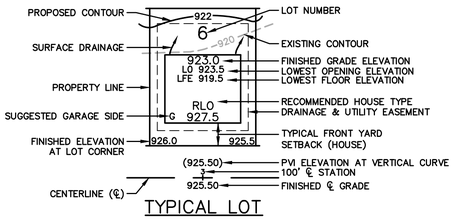

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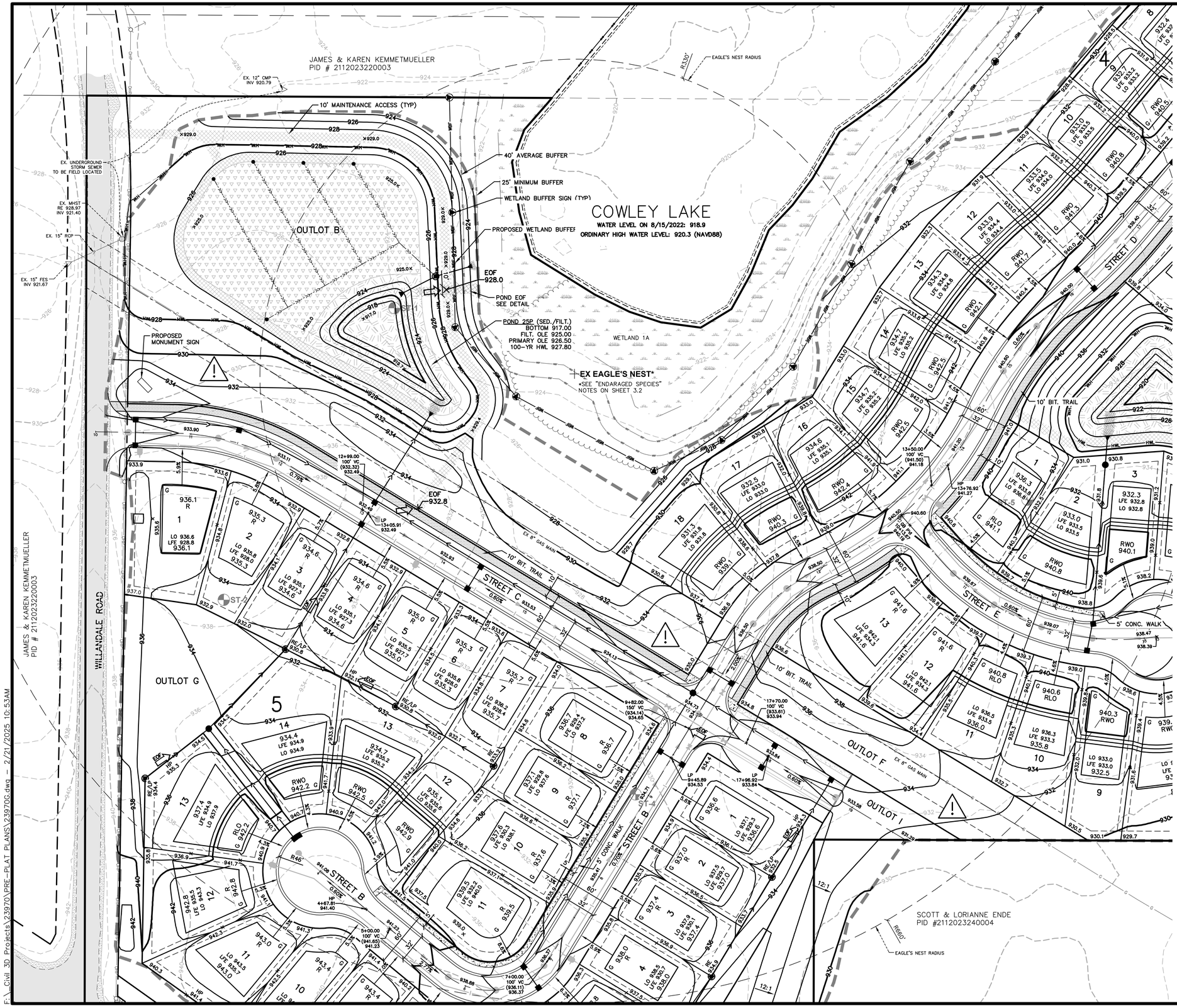

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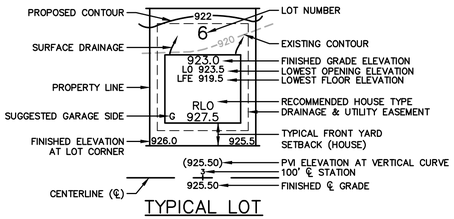

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PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY GRADING & DRAINAGE PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/JSO

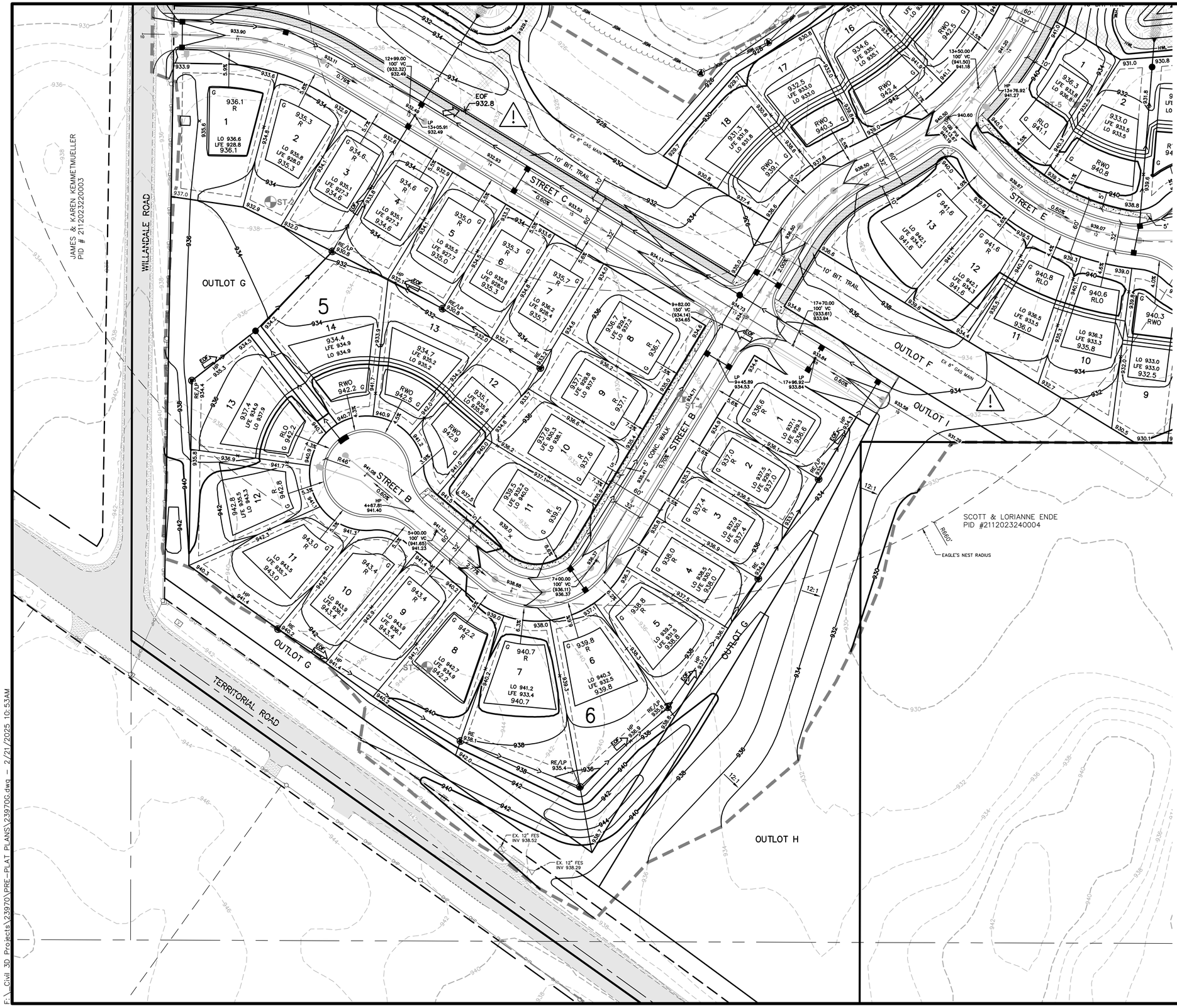
DATE
02/24/2024

REVISIONS

CAD FILE
23970G

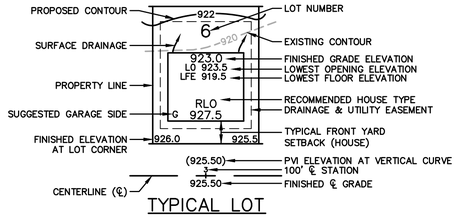
PROJECT NO.
23970

4.6



LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND TELEPHONE
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING OVERHEAD POWER LINE
- EXISTING LIGHT POLE
- EXISTING TRANSFORMER
- EXISTING TELEPHONE PEDESTAL
- EXISTING TV PEDESTAL
- EXISTING CURB & GUTTER
- EXISTING FENCE
- EXISTING CONTOUR
- EXISTING WETLAND EDGE
- EXISTING SOIL BORING LOCATION
- EXISTING TREELINE/TREES
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- EXISTING WETLAND
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY SERVICE
- PROPOSED WATER SERVICE
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED PERFORATED DRAINTILE
- PROPOSED CURB & GUTTER
- PROPOSED RETAINING WALL
- PROPOSED CONTOUR
- PROPOSED GRADING LIMITS
- PROPOSED EMERGENCY OVERFLOW
- PROPOSED CONCRETE
- PROPOSED ASPHALT SURFACE
- PROPOSED SEDIMENT BASIN
- PROPOSED FILTRATION BASIN
- PROPOSED MAINTENANCE ACCESS
- WETLAND BUFFER SIGN



TYPICAL LOT

WARNING!
UNDERGROUND HIGH PRESSURE PIPELINE
CONTACT ENERGY TRANSFER REPRESENTATIVE
AT 1-800-753-5531 PRIOR TO PERFORMING WORK
WITHIN THE PIPELINE EASEMENT

Know what's **below.**
Call before you dig.

N

SCALE IN FEET
0 50 100 150
1 inch = 50 feet

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
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COWLEY LAKE PRESERVE

PRELIMINARY GRADING & DRAINAGE PLAN

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

ROGERS, MINNESOTA

DRAWN BY VUN/JSO
DATE 02/24/2024
REVISIONS
CAD FILE 23970G
PROJECT NO. 23970
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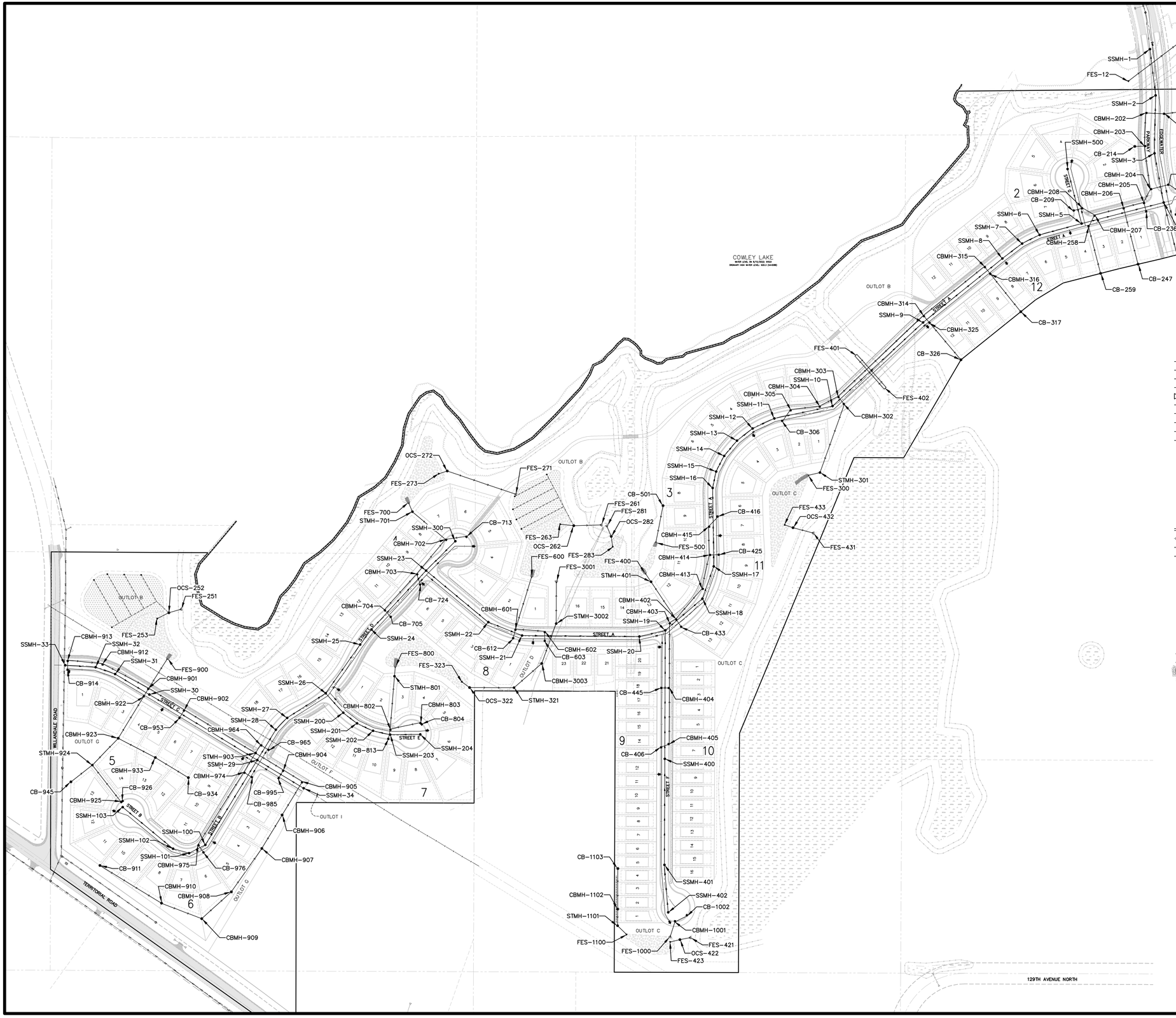

LEGEND

- EXISTING WATERMAIN
- EXISTING RAW WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING SANITARY FORCEMAIN
- EXISTING STORM SEWER
- EXISTING UNDERGROUND GAS
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND TELEPHONE
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING OVERHEAD POWER LINE
- EXISTING ELECTRIC OUTLET POST
- EXISTING GUY WIRE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (WATER)
- EXISTING SIGN
- EXISTING TRANSFORMER
- EXISTING TELEPHONE PEDESTAL
- EXISTING TV PEDESTAL
- EXISTING VAULT
- EXISTING CURB & GUTTER
- EXISTING RETAINING WALL
- EXISTING FENCE
- EXISTING WETLAND EDGE
- SB-1 EXISTING SOIL BORING LOCATION
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- EXISTING WETLAND
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CURB & GUTTER
- PROPOSED BITUMINOUS TRAIL
- PROPOSED CONCRETE
- PROPOSED WET SEDIMENTATION POND
- PROPOSED FILTRATION BASIN

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SCALE IN FEET
0 150 300 450
1 inch = 150 feet

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COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
OVERALL UTILITY PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

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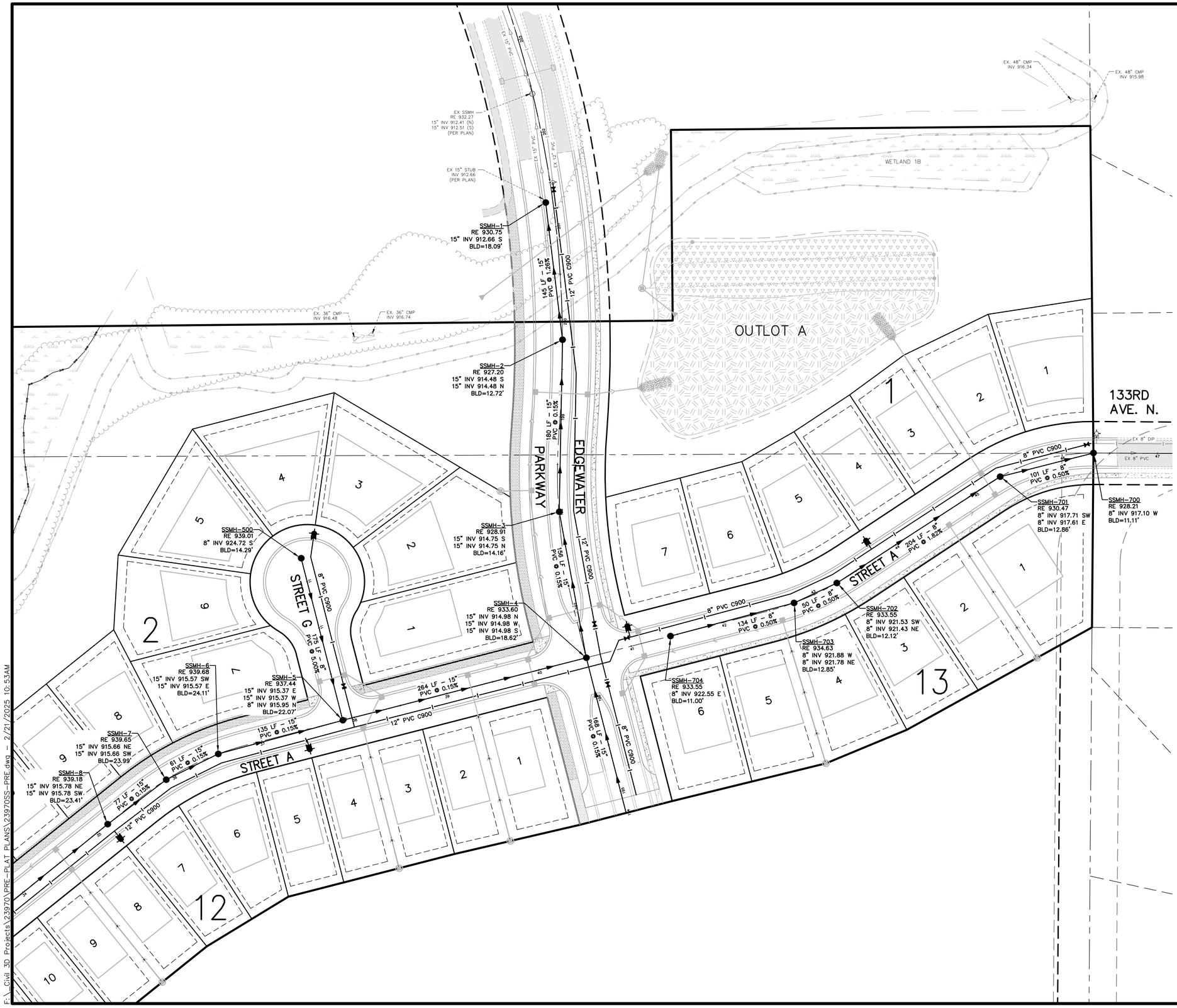

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS VALVE
- EXISTING GUY WIRE
- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (ELECTRIC)
- EXISTING MANHOLE (WATER)
- EXISTING SEMAPHORE
- EXISTING SIGN
- EXISTING TELEPHONE PEDESTAL
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- EXISTING FENCE
- SB-1 EXISTING SOIL BORING LOCATION
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- EXISTING TREELINE/TREES
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
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- PROPOSED STORM SEWER
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- PROPOSED CONCRETE
- PROPOSED ASPHALT SURFACE
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PRELIMINARY SANITARY SEWER & WATERMAIN PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

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COWLEY LAKE
WATER LEVEL ON 8/15/2022: 918.9
ORDINARY HIGH WATER LEVEL: 920.3 (NAVD88)

OUTLOT B

OUTLOT C

WETLAND 2B

STREET A

SSMH-7
RE 939.65
15" INV 915.66 NE
15" INV 915.66 SW
BLD=23.99'

SSMH-8
RE 939.18
15" INV 915.78 NE
15" INV 915.78 SW
BLD=23.41'

SSMH-9
RE 934.57
15" INV 916.25 SW
15" INV 916.25 NE
BLD=18.32'

SSMH-10
RE 932.42
15" INV 916.82 NE
15" INV 916.82 W
BLD=15.60'

SSMH-11
RE 935.24
15" INV 917.10 SW
15" INV 917.10 E\
BLD=18.14'

SSMH-12
RE 935.69
15" INV 917.21 SW
15" INV 917.21 NE
BLD=18.48'

SSMH-13
RE 936.06
15" INV 917.30 SW
15" INV 917.30 NE
BLD=18.76'

SSMH-14
RE 936.40
15" INV 917.39 NE
15" INV 917.39 SW
BLD=19.01'

SSMH-15
RE 936.40
15" INV 917.47 NE
15" INV 917.47 S
BLD=18.93'

SSMH-16
RE 936.12
15" INV 917.55 N
15" INV 917.55 S
BLD=18.57'

61 LF - 15" PVC @ 0.15%
77 LF - 15" PVC @ 0.15%
317 LF - 15" PVC @ 0.15%
381 LF - 15" PVC @ 0.15%
185 LF - 15" PVC @ 0.15%
74 LF - 15" PVC @ 0.15%
62 LF - 15" PVC @ 0.15%
62 LF - 15" PVC @ 0.15%
55 LF - 15" PVC @ 0.15%
52 LF - 15" PVC @ 0.15%
12" PVC C900

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS VALVE
- EXISTING GUY WIRE
- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (ELECTRIC)
- EXISTING MANHOLE (WATER)
- EXISTING SEMAPHORE
- EXISTING SIGN
- EXISTING TELEPHONE PEDESTAL
- EXISTING TRANSFORMER
- EXISTING TV PEDESTAL
- EXISTING VAULT
- EXISTING CURB & GUTTER
- EXISTING RETAINING WALL
- EXISTING FENCE
- SB-1 EXISTING SOIL BORING LOCATION
- TP-1 EXISTING TEST PIT LOCATION
- EXISTING TREELINE/TREES
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED PERFORATED DRAINTILE
- PROPOSED CURB & GUTTER
- PROPOSED RETAINING WALL
- PROPOSED CONCRETE
- PROPOSED ASPHALT SURFACE
- PROPOSED SEDIMENT BASIN
- PROPOSED FILTRATION BASIN

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0 50 100 150
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ROGERS, MINNESOTA
PRELIMINARY SANITARY SEWER & WATERMAIN PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
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DATE
02/24/2024
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CAD FILE
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PROJECT NO.
23970
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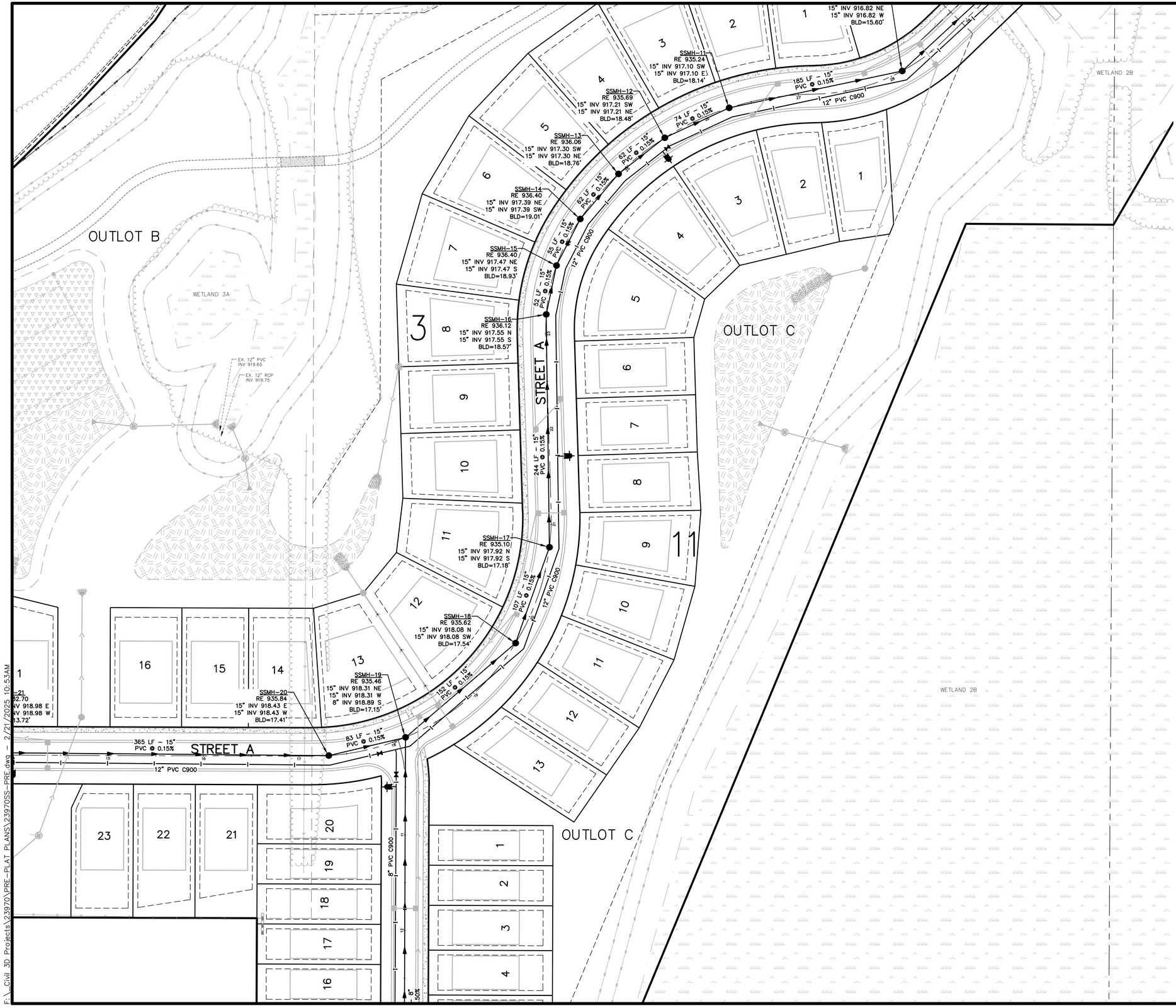

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
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COWLEY LAKE PRESERVE

ROGERS, MINNESOTA

PRELIMINARY SANITARY SEWER & WATERMAIN PLAN

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

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REVISIONS	
CAD FILE	23970SS-PRE
PROJECT NO.	23970
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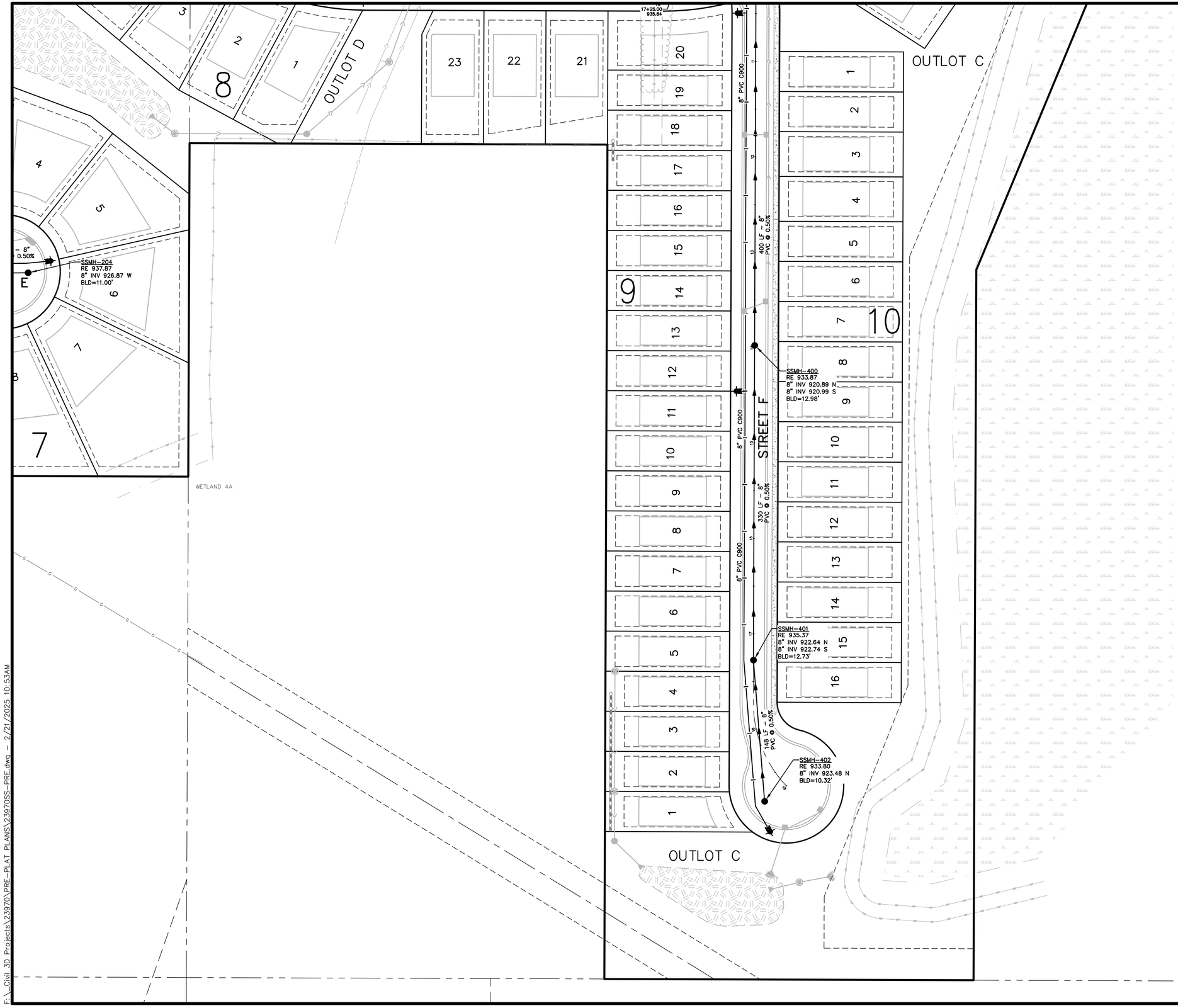

LEGEND

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- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
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- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (ELECTRIC)
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PRELIMINARY SANITARY SEWER & WATERMAIN PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

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PROJECT NO.
23970

5.4

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OUTLOT B

WETLAND 3A

WETLAND 2A

EX. 12" PVC
INV 919.65

EX. 12" RCP
INV 919.75

SSMH-300
RE 937.80
8" INV 926.55 SW
BLD=11.24'

129 LF - 8"
PVC @ 5.00%

8" PVC C900

SSMH-23
RE 938.79
15" INV 919.53 SE
15" INV 919.53 SW
8" INV 920.11 NE
BLD=19.26'

250 LF - 15"
PVC @ 0.15%

12" PVC C900

252 LF - 15"
PVC @ 0.15%

SSMH-22
RE 935.85
15" INV 919.15 E
15" INV 919.15 NW
BLD=16.70'

SSMH-21
RE 932.70
15" INV 918.98 E
15" INV 918.98 W
BLD=13.72'

113 LF - 15"
PVC @ 0.15%

SSMH-20
RE 935.84
15" INV 918.43 E
15" INV 918.43 W
BLD=17.41'

SSMH-19
RE 935.46
15" INV 918.31 NE
15" INV 918.31 W
8" INV 918.89 S
BLD=17.15'

152 LF - 15"
PVC @ 0.15%

SSMH-18
RE 935.62
15" INV 918.08 N
15" INV 918.08 SW
BLD=17.54'

365 LF - 15"
PVC @ 0.15%

STREET A

83 LF - 15"
PVC @ 0.15%

SSMH-24
RE 940.30
15" INV 919.91 NE
15" INV 919.91 SW
BLD=20.39'

STREET D

SSMH-25
RE 940.65
15" INV 920.00 NE
15" INV 920.00 SW
BLD=20.65'

59 LF - 15"
PVC @ 0.15%

186 LF - 15"
PVC @ 0.15%

SSMH-26
RE 940.60
15" INV 920.28 SW
8" INV 920.86 SE
15" INV 920.28 NE
BLD=20.32'

OUTLOT D

82 LF - 8"
PVC @ 5.00%

6" PVC C900

54 LF - 8"
PVC @ 0.50%

55 LF - 8"
PVC @ 0.50%

55 LF - 8"
PVC @ 0.50%

94 LF - 8"
PVC @ 0.50%

SSMH-200
RE 939.78
8" INV 924.95 NW
8" INV 925.05 SE
BLD=14.83'

SSMH-201
RE 939.45
8" INV 925.66 SE
8" INV 925.56 NW
BLD=13.89'

SSMH-202
RE 939.12
8" INV 926.02 E
8" INV 925.93 NW
BLD=13.19'

SSMH-203
RE 938.79
8" INV 926.30 W
8" INV 926.40 E
BLD=12.49'

SSMH-204
RE 937.87
8" INV 926.87 W
BLD=11.00'

STREET E

OUTLOT F

Ex 8" GAS MAIN

SSMH-34

8" PVC C900

400 LF - 8"
PVC @ 0.50%

SSMH-400
RE 933.87
8" INV 920.89 N
8" INV 920.99 S
BLD=12.98'

LEGEND

- EXISTING WATERMAIN
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COWLEY LAKE PRESERVE

ROGERS, MINNESOTA

PRELIMINARY SANITARY SEWER & WATERMAIN PLAN

FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

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	5.5

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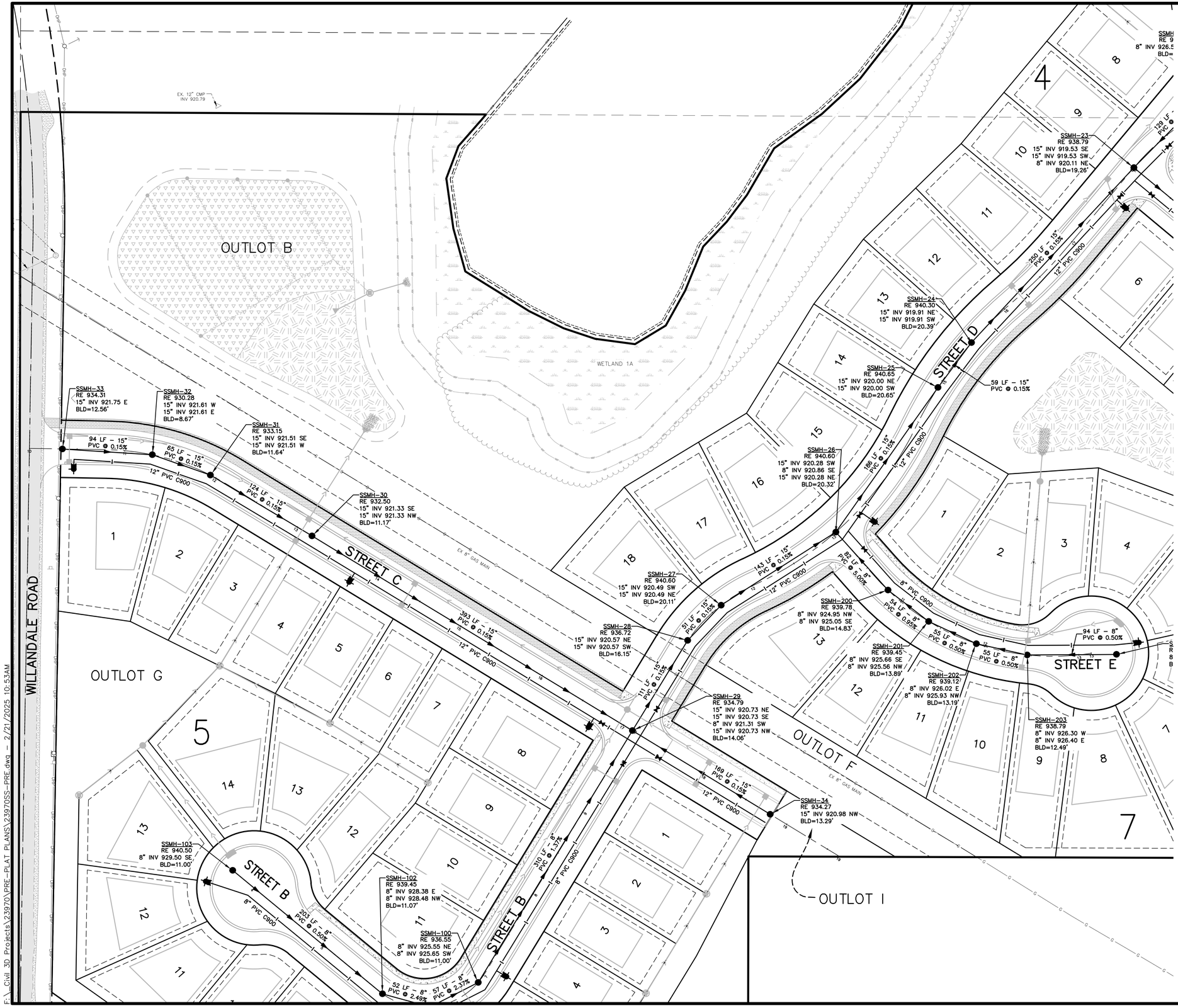

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS VALVE
- EXISTING GUY WIRE
- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (ELECTRIC)
- EXISTING MANHOLE (WATER)
- EXISTING SEMAPHORE
- EXISTING SIGN
- EXISTING TELEPHONE PEDESTAL
- EXISTING TRANSFORMER
- EXISTING TV PEDESTAL
- EXISTING VAULT
- EXISTING CURB & GUTTER
- EXISTING RETAINING WALL
- EXISTING FENCE
- SB-1 EXISTING SOIL BORING LOCATION
- TP-1 EXISTING TEST PIT LOCATION
- EXISTING TREELINE/TREES
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED PERFORATED DRAINTILE
- PROPOSED CURB & GUTTER
- PROPOSED RETAINING WALL
- PROPOSED CONCRETE
- PROPOSED ASPHALT SURFACE
- PROPOSED SEDIMENT BASIN
- PROPOSED FILTRATION BASIN

Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 50 100 150
1 inch = 50 feet

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

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PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE

ROGERS, MINNESOTA

PRELIMINARY SANITARY SEWER & WATERMAIN PLAN

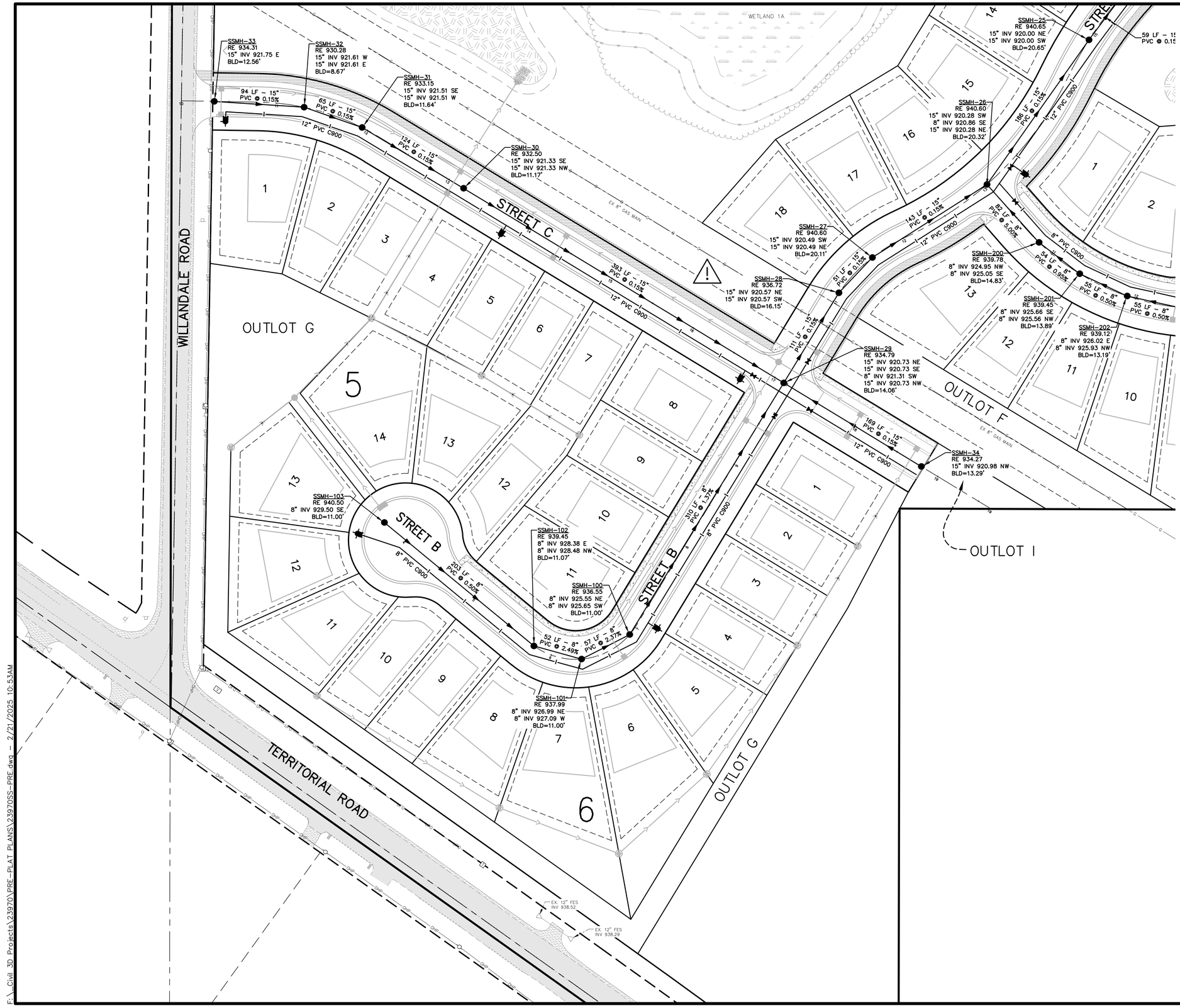
FOR

RACHEL DEVELOPMENT

4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY VUN/EPF/JSO
DATE 02/24/2024
REVISIONS
CAD FILE 23970SS-PRE
PROJECT NO. 23970
5.6

F:_Civil 3D Projects\23970\PRE-PLAT PLANS\23970SS-PRE.dwg - 2/21/2025, 10:53AM



LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
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- EXISTING GAS VALVE
- EXISTING GUY WIRE
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- PROPOSED CONCRETE
- PROPOSED ASPHALT SURFACE
- PROPOSED SEDIMENT BASIN
- PROPOSED FILTRATION BASIN

WARNING!
UNDERGROUND HIGH PRESSURE PIPELINE
CONTACT ENERGY TRANSFER REPRESENTATIVE
AT 1-800-753-5531 PRIOR TO PERFORMING WORK
WITHIN THE PIPELINE EASEMENT

Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 50 100 150
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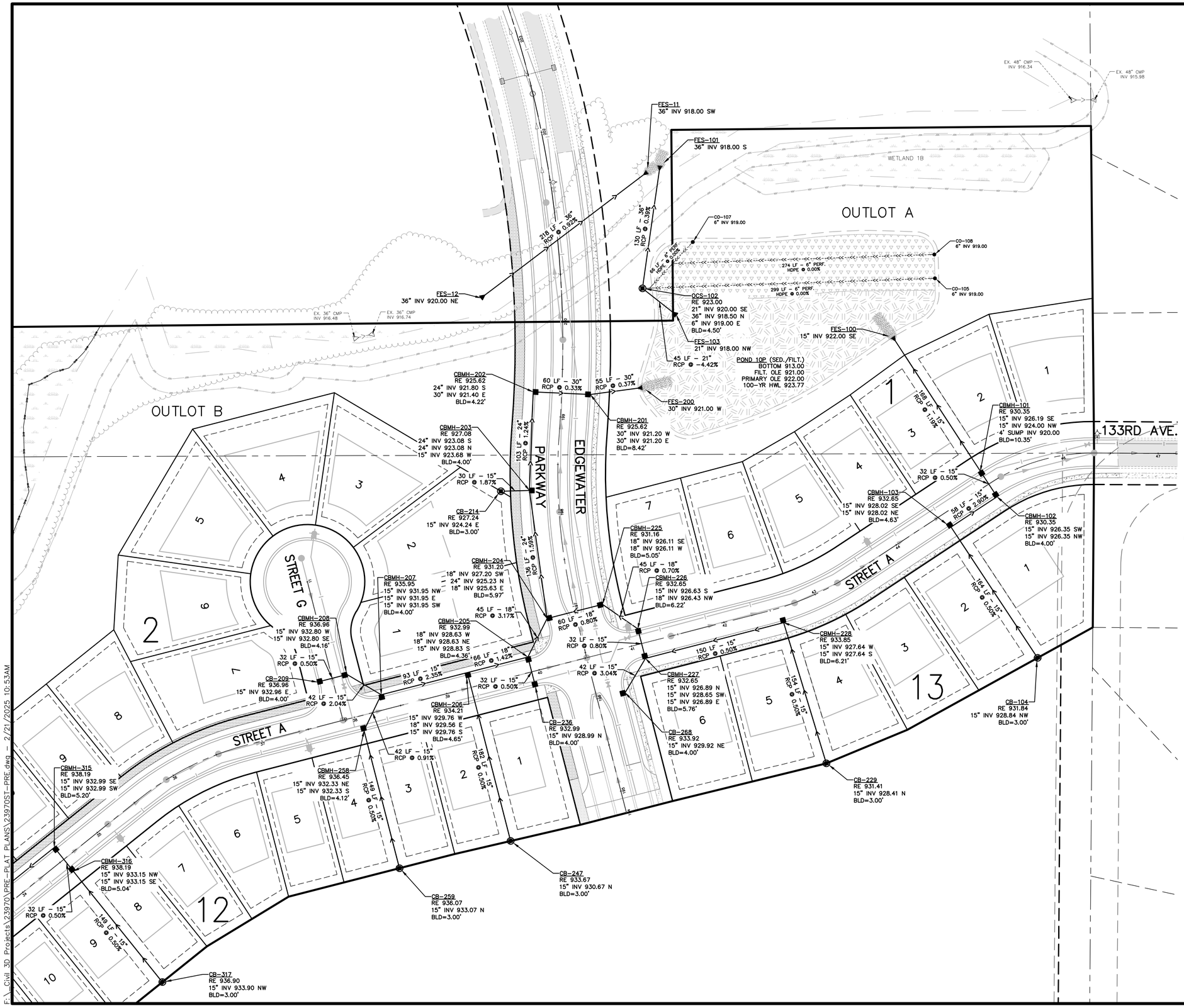
PRELIMINARY

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY SANITARY SEWER & WATERMAIN PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/EPF/JSO
DATE
02/24/2024
REVISIONS
CAD FILE
23970SS-PRE
PROJECT NO.
23970
5.7

F:_Civil 3D Projects\23970\PRE-PLAT PLANS\23970SS-PRE.dwg - 2/21/2025, 10:53AM



LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
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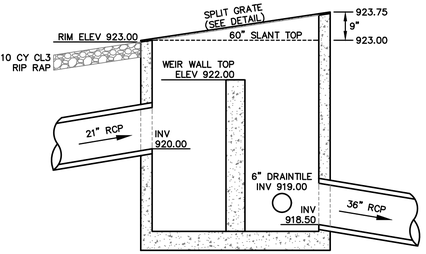

POND 10P
OUTLET STRUCTURE 102 (OCS-102)
NOT TO SCALE

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Call before you dig.

N

SCALE IN FEET
0 50 100 150
1 inch = 50 feet

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PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY STORM SEWER PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	VUN/EPF/JSO
DATE	02/24/2024
REVISIONS	
CAD FILE	23970ST-PRE
PROJECT NO.	23970
	5.8

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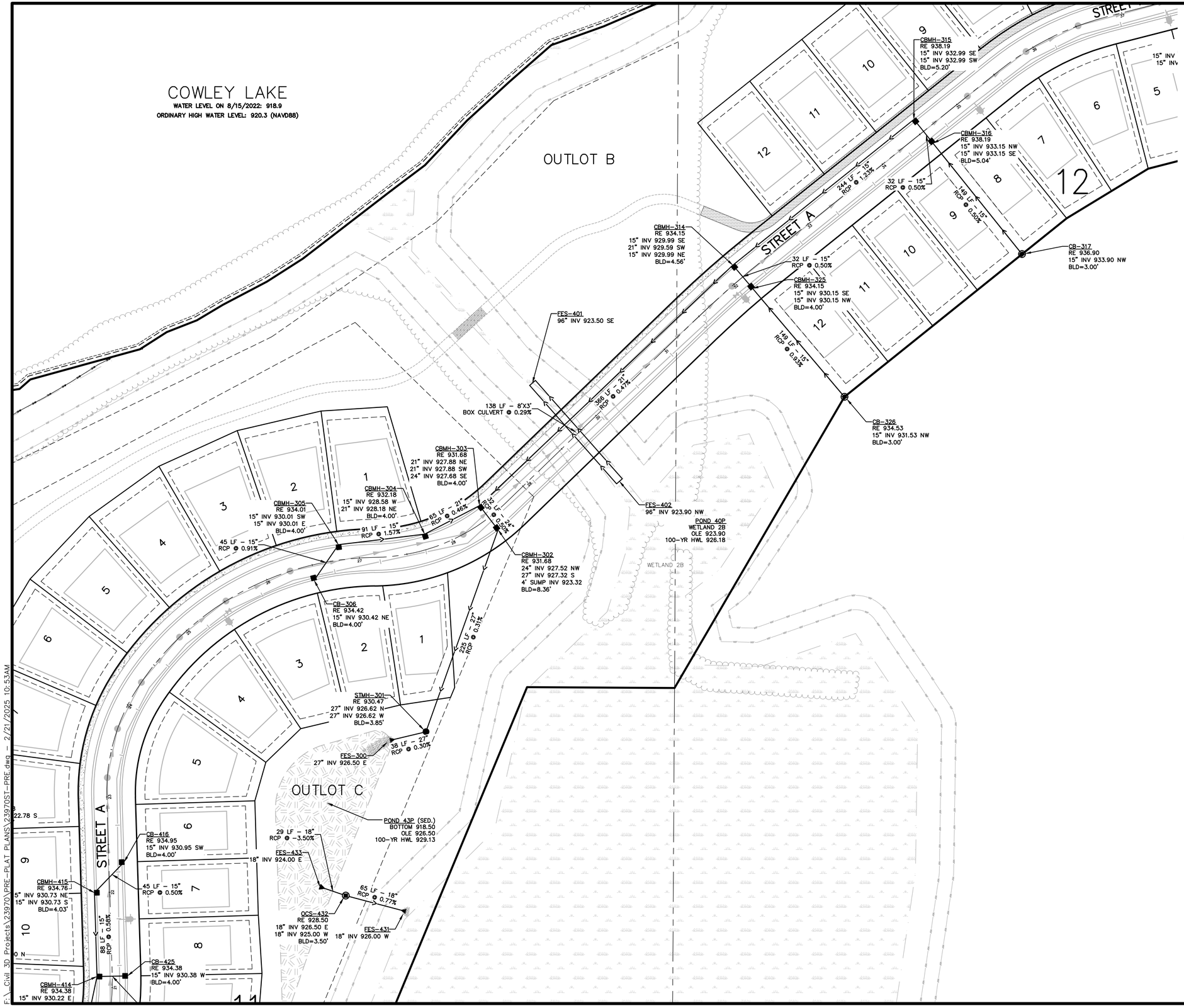

LEGEND

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- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
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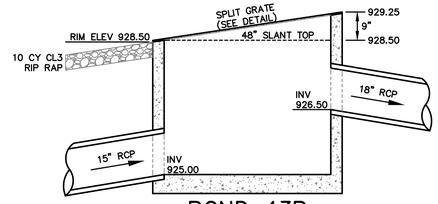

POND 43P
OUTLET STRUCTURE 432 (OCS-432)
NOT TO SCALE

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N

SCALE IN FEET
0 50 100 150
1 inch = 50 feet

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Date: Reg.No.

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY STORM SEWER PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/EPF/JSO

DATE
02/24/2024

REVISIONS

CAD FILE
23970ST-PRE

PROJECT NO.
23970

5.9

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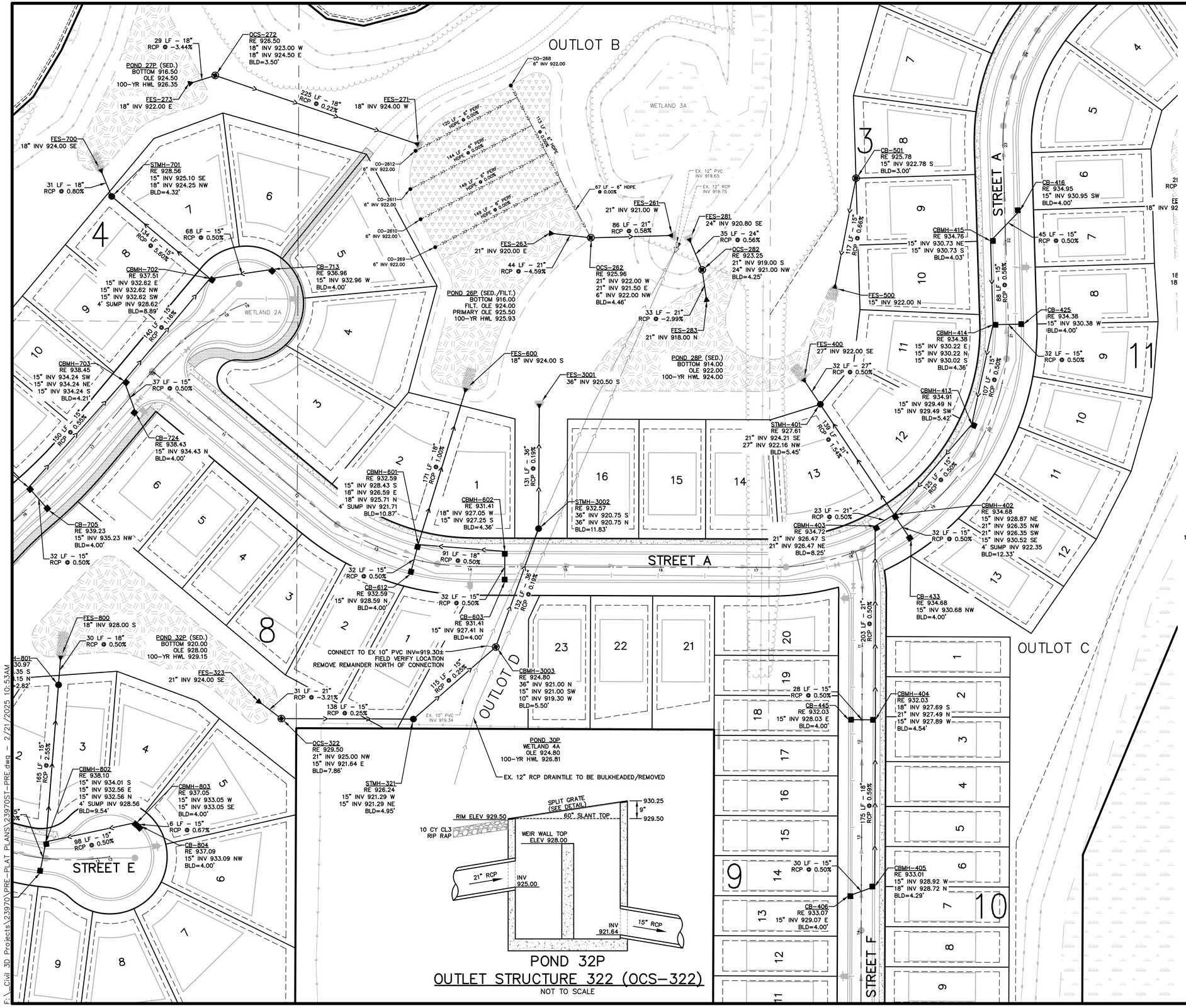

POND 32P
OUTLET STRUCTURE 322 (OCS-322)
NOT TO SCALE

POND 28P
OUTLET STRUCTURE 282 (OCS-282)
NOT TO SCALE

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
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DATE	02/24/2024
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CAD FILE	23970ST-PRE
PROJECT NO.	23970
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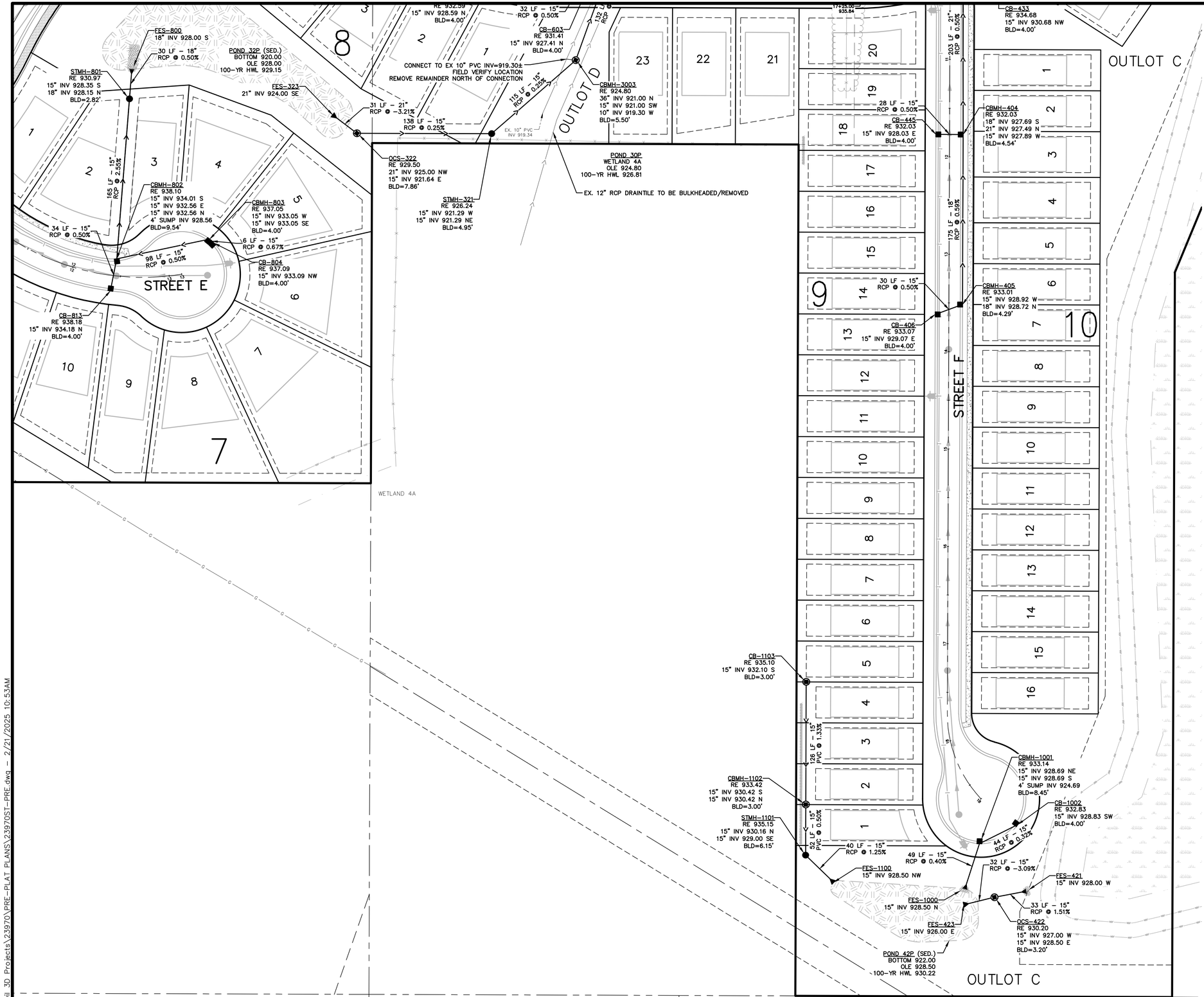

LEGEND

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- EXISTING STORM SEWER
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- EXISTING UNDERGROUND FIBER OPTIC
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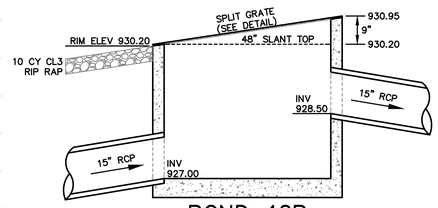

POND 42P
OUTLET STRUCTURE 422 (OCS-422)
NOT TO SCALE

Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 50 100 150
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PRELIMINARY STORM SEWER PLAN
FOR
RACHEL DEVELOPMENT
ROGERS, MINNESOTA
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	VUN/EPF/JSO
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PROJECT NO.	23970
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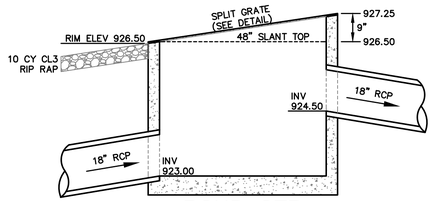


POND 27P

OUTLET STRUCTURE 272 (OCS-272)

NOT TO SCALE

COWLEY LAKE

WATER LEVEL ON 8/15/2022: 918.9

ORDINARY HIGH WATER LEVEL: 920.3 (NAVD88)

OUTLOT B

WETLAND 3A

WETLAND 2A

29 LF - 18" RCP @ -3.44%

OCS-272
RE 926.50
18" INV 923.00 W
18" INV 924.50 E
BLD=3.50'

POND 27P (SED.)
BOTTOM 916.50
OLE 924.50
100-YR HWL 926.35

FES-273
18" INV 922.00 E

225 LF - 18" RCP @ 0.22%

FES-271
18" INV 924.00 W

FES-700
18" INV 924.00 SE

STMH-701
RE 928.56
15" INV 925.10 SE
18" INV 924.25 NW
BLD=4.32'

31 LF - 18" RCP @ 0.80%

68 LF - 15" RCP @ 0.50%

134 LF - 15" RCP @ 5.60%

CBMH-702
RE 937.51
15" INV 932.62 E
15" INV 932.62 NW
15" INV 932.62 SW
4' SUMP INV 928.62
BLD=8.89'

CB-713
RE 936.96
15" INV 932.96 W
BLD=4.00'

140 LF - 15" RCP @ 2.16%

37 LF - 15" RCP @ 0.50%

CBMH-703
RE 938.45
15" INV 934.24 SW
15" INV 934.24 NE
15" INV 934.24 S
BLD=4.21'

150 LF - 15" RCP @ 0.55%

CB-724
RE 938.43
15" INV 934.43 N
BLD=4.00'

CBMH-704
RE 939.23
15" INV 935.07 SE
15" INV 935.07 NE
BLD=4.16'

CB-705
RE 939.23
15" INV 935.23 NW
BLD=4.00'

32 LF - 15" RCP @ 0.50%

STREET D

CO-268
6" INV 922.00

CO-2612
6" INV 922.00

CO-2611
6" INV 922.00

CO-2610
6" INV 922.00

CO-269
6" INV 922.00

120 LF - 6" HDPE @ 0.00%

113 LF - 6" HDPE @ 0.00%

144 LF - 6" PERF HDPE @ 0.00%

140 LF - 6" PERF HDPE @ 0.00%

149 LF - 6" PERF HDPE @ 0.00%

67 LF - 6" HDPE @ 0.00%

EX. 12" PVC
INV 919.65

EX. 12" RCP
INV 919.75

FES-261
21" INV 921.00 W

86 LF - 21" RCP @ 0.58%

FES-281
24" INV 920.80 SE

35 LF - 24" RCP @ 0.56%

OCS-282
RE 923.25
21" INV 919.00 S
24" INV 921.00 NW
BLD=4.25'

FES-263
21" INV 920.00 E

44 LF - 21" RCP @ -4.59%

OCS-262
RE 925.96
21" INV 922.00 W
21" INV 921.50 E
6" INV 922.00 NW
BLD=4.46'

POND 26P (SED./FILT.)
BOTTOM 916.00
FILT. OLE 924.00
PRIMARY OLE 925.50
100-YR HWL 925.93

33 LF - 21" RCP @ -2.99%

FES-283
21" INV 918.00 N

POND 28P (SED.)
BOTTOM 914.00
OLE 922.00
100-YR HWL 924.00

FES-600
18" INV 924.00 S

FES-3001
36" INV 920.50 S

171 LF - 18" RCP @ 1.00%

131 LF - 36" RCP @ 0.19%

CBMH-601
RE 932.59
15" INV 928.43 S
18" INV 926.59 E
18" INV 925.71 N
4' SUMP INV 921.71
BLD=10.87'

CBMH-602
RE 931.41
18" INV 927.05 W
15" INV 927.25 S
BLD=4.36'

STMH-3002
RE 932.57
36" INV 920.75 S
36" INV 920.75 N
BLD=11.83'

STMH-401
RE 927.61
21" INV 924.21 SE
27" INV 922.16 NW
BLD=5.45'

STREET A

91 LF - 18" RCP @ 0.50%

32 LF - 15" RCP @ 0.50%

CB-612
RE 932.59
15" INV 928.59 N
BLD=4.00'

32 LF - 15" RCP @ 0.50%

CB-603
RE 931.41
15" INV 927.41 N
BLD=4.00'

132 LF - 36" RCP @ 0.19%

CONNECT TO EX 10" PVC INV=919.30±
FIELD VERIFY LOCATION
REMOVE REMAINDER NORTH OF CONNECTION

CBMH-3003
RE 924.80
36" INV 921.00 N
15" INV 921.00 SW
10" INV 919.30 W
BLD=5.50'

115 LF - 15" RCP @ 0.25%

OUTLOT D

EX. 10" PVC
INV 919.34

FES-800
18" INV 928.00 S

30 LF - 18" RCP @ 0.50%

POND 32P (SED.)
BOTTOM 920.00
OLE 928.00
100-YR HWL 929.15

FES-323
21" INV 924.00 SE

STMH-801
RE 930.97
15" INV 928.35 S
18" INV 928.15 N
BLD=2.82'

31 LF - 21" RCP @ -3.21%

138 LF - 15" RCP @ 0.25%

OCS-322
RE 929.50
21" INV 925.00 NW
15" INV 921.64 E
BLD=7.86'

STMH-321
RE 926.24
15" INV 921.29 W
15" INV 921.29 NE
BLD=4.95'

POND 30P
WETLAND 4A
OLE 924.80
100-YR HWL 926.81

EX. 12" RCP DRAINTILE TO BE BULKHEADED/REMOVED

165 LF - 15" RCP @ 2.55%

CBMH-802
RE 938.10
15" INV 934.01 S
15" INV 932.56 E
15" INV 932.56 N
4' SUMP INV 928.56
BLD=9.54'

34 LF - 15" RCP @ 0.50%

CBMH-803
RE 937.05
15" INV 933.05 W
15" INV 933.05 SE
BLD=4.00'

6 LF - 15" RCP @ 0.67%

CB-804
RE 937.09
15" INV 933.09 NW
BLD=4.00'

98 LF - 15" RCP @ 0.50%

STREET E

32 LF - 15" RCP @ 0.50%

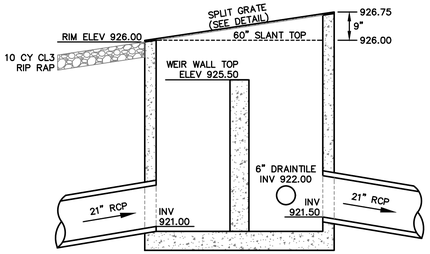
CB-965
RE 934.78
15" INV 930.78 NW
BLD=4.00'

CBMH-904
RE 933.20
18" INV 928.64 SE
18" INV 928.64 NW

CB-813
RE 938.18
15" INV 934.18 N
BLD=4.00'

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS VALVE
- EXISTING GUY WIRE
- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (ELECTRIC)
- EXISTING MANHOLE (WATER)
- EXISTING SEMAPHORE
- EXISTING SIGN
- EXISTING TELEPHONE PEDESTAL
- EXISTING TRANSFORMER
- EXISTING TV PEDESTAL
- EXISTING VAULT
- EXISTING CURB & GUTTER
- EXISTING RETAINING WALL
- EXISTING FENCE
- SB-1 EXISTING SOIL BORING LOCATION
- TP-1 EXISTING TEST PIT LOCATION
- EXISTING TREELINE/TREES
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED DRAINTILE
- PROPOSED PERFORATED DRAINTILE
- PROPOSED CURB & GUTTER
- PROPOSED RETAINING WALL
- PROPOSED CONCRETE
- PROPOSED ASPHALT SURFACE
- PROPOSED SEDIMENT BASIN
- PROPOSED FILTRATION BASIN



POND 26P

OUTLET STRUCTURE 262 (OCS-262)

NOT TO SCALE

Know what's **below.** **Call** before you dig.

811

N

SCALE IN FEET
0 50 100 150
1 inch = 50 feet

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
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PHONE: (952)890-6044 FAX: (952)890-6244

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.

PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY STORM SEWER PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
VUN/EPF/JSO

DATE
02/24/2024

REVISIONS

CAD FILE
23970ST-PRE

PROJECT NO.
23970

5.12

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COWLEY LAKE
WATER LEVEL ON 8/15/2022: 918.9
ORDINARY HIGH WATER LEVEL: 920.3 (NAVD88)

OUTLOT B

OUTLOT G

OUTLOT F

OUTLOT I

WETLAND 1A

WILLANDALE ROAD

STREET B

STREET C

STREET D

EX. 12" CMP
INV 920.79

EX. MHST
RE 928.97
INV 921.40

EX. 15" RCP

EX. 15" FES
INV 921.67

CO-2511
6" INV 923.00

CO-2510
6" INV 923.00

CO-259
6" INV 923.00

CO-2512
6" INV 923.00

CO-258
6" INV 923.00

FES-253
18" INV 921.00 NE

42 LF - 18"
RCP @ -2.40%

POND 25P (SED./FILT.)
BOTTOM 917.00
FILT. OLE 925.00
PRIMARY OLE 926.50
100-YR HWL 927.80

40 LF - 21"
RCP @ 1.26%

FES-251
21" INV 922.00 W

OCS-252
RE 927.40
18" INV 922.00 SW
21" INV 922.50 E
6" INV 923.00 NW
BLD=5.40'

CBMH-913
RE 933.72
15" INV 929.56 S
15" INV 929.56 E
BLD=4.16'

CBMH-912
RE 932.88
15" INV 928.88 W
15" INV 928.88 SE
BLD=4.00'

110 LF - 15"
RCP @ 0.62%

32 LF - 15"
RCP @ 0.50%

CB-914
RE 933.72
15" INV 929.72 N
BLD=4.00'

162 LF
RCP @ 0.64%

FES-900
36" INV 925.00 SW

CBMH-901
RE 931.85
30" INV 925.72 SE
36" INV 925.32 NE
24" INV 926.12 SW
15" INV 927.85 NW
4' SUMP INV 921.32
BLD=10.53'

109 LF
RCP @ 0.28%

CBMH-902
RE 932.50
27" INV 926.42 SE
30" INV 926.22 NW
15" INV 928.34 SW
BLD=6.28'

32 LF - 24"
RCP @ 0.40%

CBMH-922
RE 931.85
24" INV 926.25 NE
24" INV 926.25 SW
BLD=5.60'

130 LF - 30"
RCP @ 0.38%

151 LF
RCP @ 0.25%

32 LF - 15"
RCP @ -3.78%

CB-953
RE 932.50
15" INV 927.13 NE
BLD=5.37'

259 LF
RCP @ 0.35%

CBMH-923
RE 930.84
15" INV 927.19 SW
15" INV 927.19 SE
24" INV 926.59 NE
BLD=4.25'

116 LF - 15"
HDPE @ 3.23%

130 LF - 15"
HDPE @ 0.50%

CBMH-933
RE 930.84
15" INV 927.84 NW
15" INV 927.84 SE
BLD=3.00'

STMH-924
RE 934.49
15" INV 930.94 SE
15" INV 930.94 NE
15" INV 930.94 SW
BLD=3.55'

85 LF - 15"
HDPE @ 0.50%

130 LF - 15"
HDPE @ 2.00%

CB-945
RE 934.36
15" INV 931.36 NE
BLD=3.00'

144 LF
RCP @ 3.47%

CB-926
RE 939.96
15" INV 935.96 SW
BLD=4.00'

6 LF - 15"
RCP @ 0.67%

CBMH-925
RE 939.92
15" INV 935.92 NW
15" INV 935.92 NE
BLD=4.00'

CB-934
RE 933.24
15" INV 930.24 NW
BLD=3.00'

CBMH-974
RE 933.89
15" INV 929.73 SW
15" INV 929.73 NE
15" INV 929.73 SE
BLD=4.16'

71 LF
RCP @ 2.28%

32 LF - 15"
RCP @ 0.50%

CB-985
RE 933.89
15" INV 929.89 NW
BLD=4.00'

CB-995
RE 933.20
15" INV 929.20 NE
BLD=4.00'

167 LF
RCP @ 0.90%

CBMH-975
RE 936.30

CBMH-964
RE 934.76
15" INV 930.62 SE
15" INV 930.62 SW
BLD=4.14'

29 LF - 15"
RCP @ 0.75%

STMH-903
RE 934.64
15" INV 930.40 NE
27" INV 927.33 NW
15" INV 928.13 SW
18" INV 927.93 SE
BLD=7.31'

32 LF - 15"
RCP @ 0.50%

CB-965
RE 934.78
15" INV 930.78 NW
BLD=4.00'

CBMH-904
RE 933.20
18" INV 928.64 SE
18" INV 928.64 NW
15" INV 929.04 SW
BLD=4.56'

102 LF - 18"
RCP @ 0.70%

68 LF - 18"
RCP @ 0.40%

CBMH-905
RE 933.55
18" INV 928.92 SW
18" INV 928.92 NW
BLD=4.63'

122 LF - 18"
RCP @ 0.30%

CBMH-906
RE 932.49
15" INV 929.49 SW
18" INV 929.29 NE
BLD=3.20'

CBMH-704
RE 939.23
15" INV 935.07 SE
15" INV 935.07 NE
BLD=4.16'

STMH-801
RE 930.97
15" INV 928.35 S
18" INV 928.15 N
BLD=2.82'

165 LF - 15"
RCP @ 2.55%

34 LF - 15"
RCP @ 0.50%

CB-813
RE 938.18
15" INV 934.18 N
BLD=4.00'

31 I
RCP

32
RC

15" INV
15" INV
15" INV

10
11
12
13
14
15
16
17
18

1
2
3
4
5
6
7
8
9
10
11
12
13
14

EX. 8" GAS MAIN

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS VALVE
- EXISTING GUY WIRE
- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (ELECTRIC)
- EXISTING MANHOLE (WATER)
- EXISTING SEMAPHORE
- EXISTING SIGN
- EXISTING TELEPHONE PEDESTAL
- EXISTING TRANSFORMER
- EXISTING TV PEDESTAL
- EXISTING VAULT
- EXISTING CURB & GUTTER
- EXISTING RETAINING WALL
- EXISTING FENCE
- SB-1 EXISTING SOIL BORING LOCATION
- TP-1 EXISTING TEST PIT LOCATION
- EXISTING TREELINE/TREES
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER
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- PROPOSED DRAINTILE
- PROPOSED PERFORATED DRAINTILE
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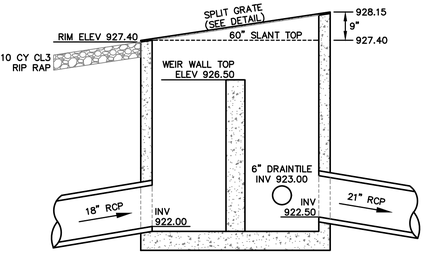
- PROPOSED ASPHALT SURFACE
- PROPOSED SEDIMENT BASIN
- PROPOSED FILTRATION BASIN



POND 25P
OUTLET STRUCTURE 252 (OCS-252)
NOT TO SCALE

WARNING!
UNDERGROUND HIGH PRESSURE PIPELINE
CONTACT ENERGY TRANSFER REPRESENTATIVE
AT 1-800-753-5531 PRIOR TO PERFORMING WORK
WITHIN THE PLINELINE EASEMENT

811 Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 50 100 150
1 inch = 50 feet

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

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PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY STORM SEWER PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	VJN/EPF/JSO
DATE	02/24/2024
REVISIONS	
CAD FILE	23970ST-PRE
PROJECT NO.	23970
	5.13

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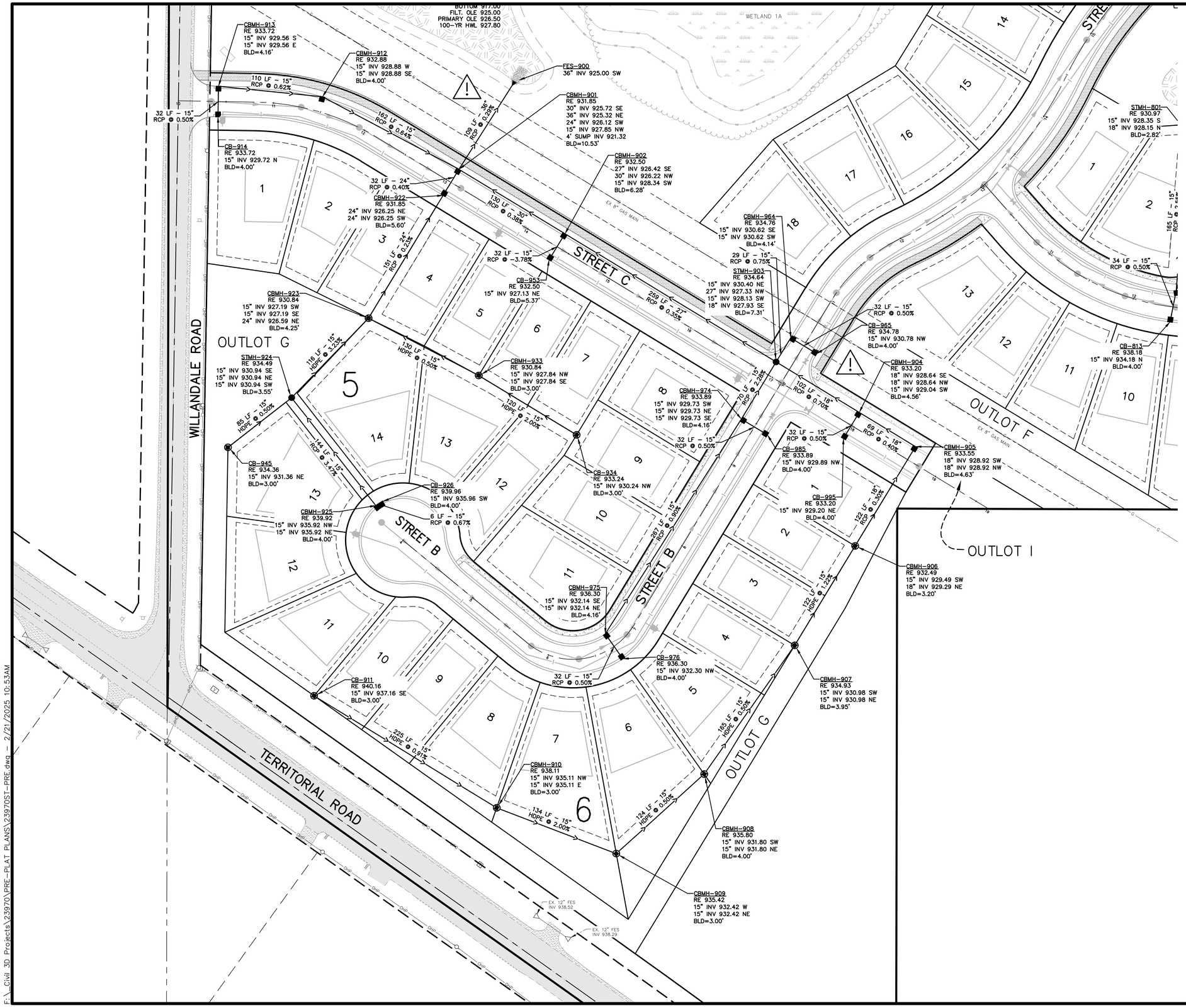

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND ELECTRIC
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING UNDERGROUND GAS
- EXISTING OVERHEAD POWER LINE
- EXISTING GAS VALVE
- EXISTING GUY WIRE
- EXISTING HANDHOLE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (ELECTRIC)
- EXISTING MANHOLE (WATER)
- EXISTING SEMAPHORE
- EXISTING SIGN
- EXISTING TELEPHONE PEDESTAL
- EXISTING TRANSFORMER
- EXISTING TV PEDESTAL
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WARNING!
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CONTACT ENERGY TRANSFER REPRESENTATIVE
AT 1-800-753-5531 PRIOR TO PERFORMING WORK
WITHIN THE PIPELINE EASEMENT

Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 50 100 150
1 inch = 50 feet

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Date: _____ Reg.No. _____

PRELIMINARY

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY STORM SEWER PLAN
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY VUN/EPF/JSO
DATE 02/24/2024
REVISIONS
CAD FILE 23970ST-PRE
PROJECT NO. 23970
5.14

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VICINITY MAP
NOT TO SCALE

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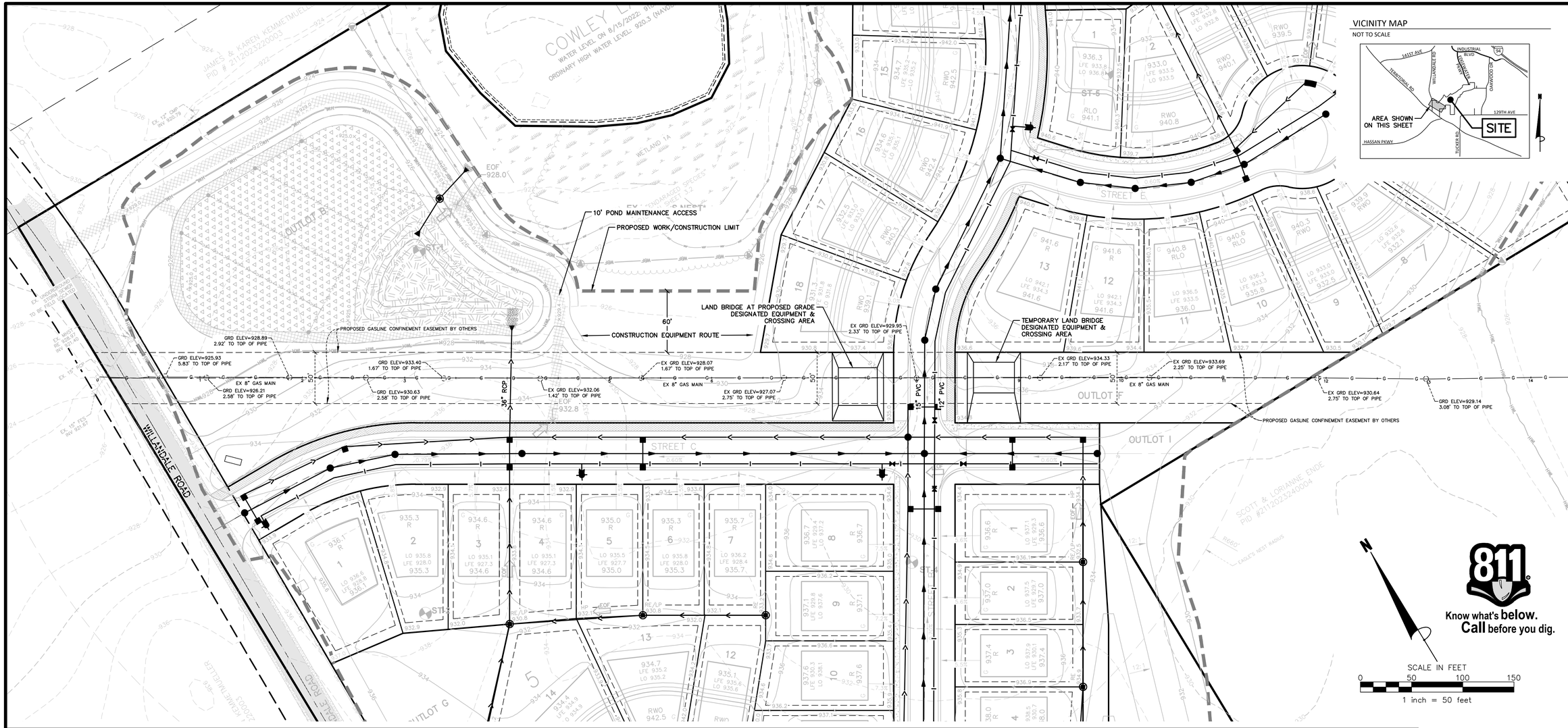
PRELIMINARY

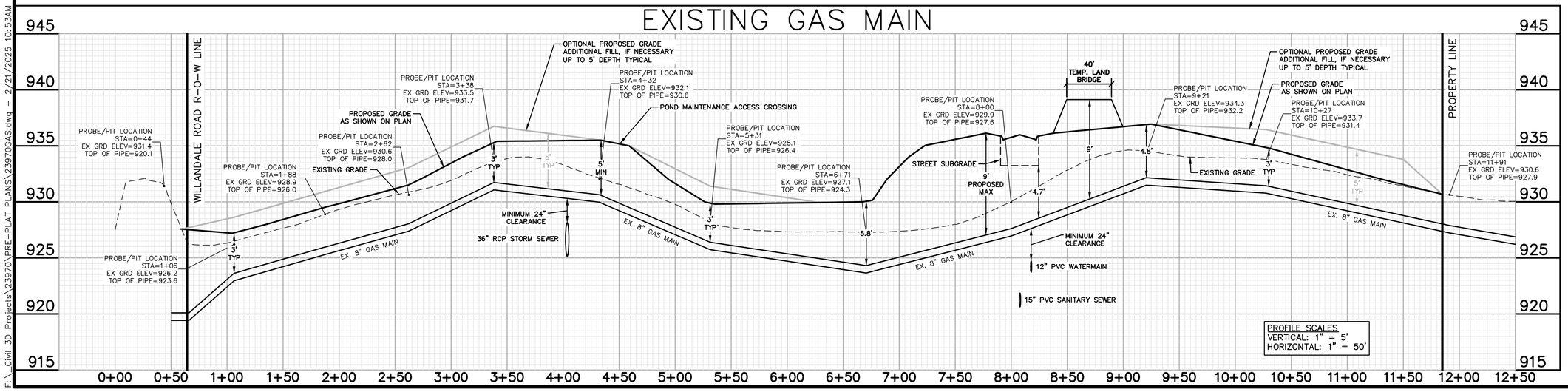
Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
EXISTING GAS MAIN EXHIBIT
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376



811
Know what's below.
Call before you dig.

SCALE IN FEET
0 50 100 150
1 inch = 50 feet



PROFILE SCALES
VERTICAL: 1" = 5'
HORIZONTAL: 1" = 50'

DRAWN BY
JSO

DATE
02/24/2024

REVISIONS

CAD FILE
23970GAS

PROJECT NO.
23970

5.15

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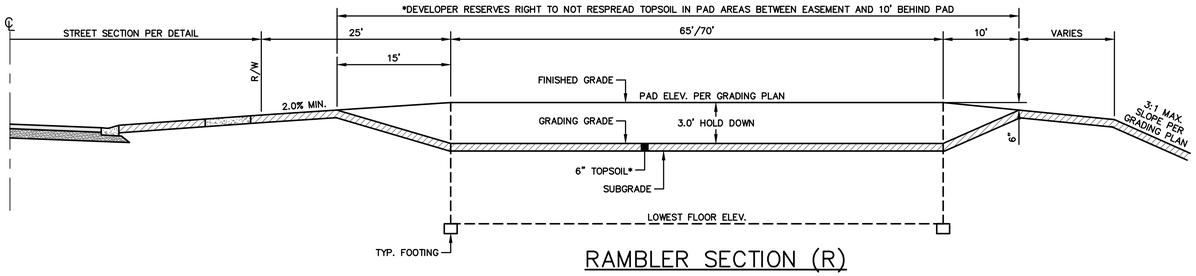
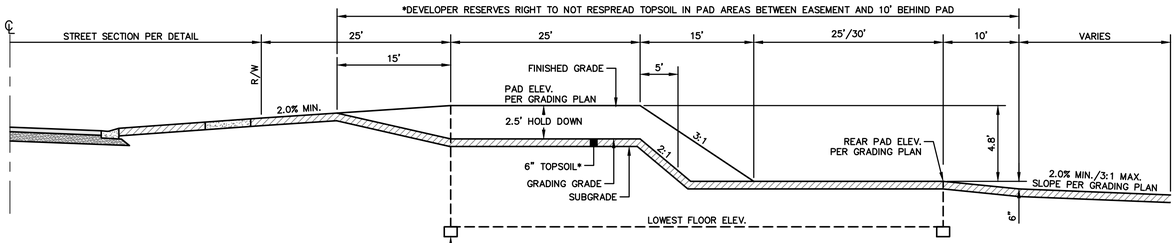
65' DEPTH STANDARD/70' DEPTH VILLA LOT HOLD DOWNS



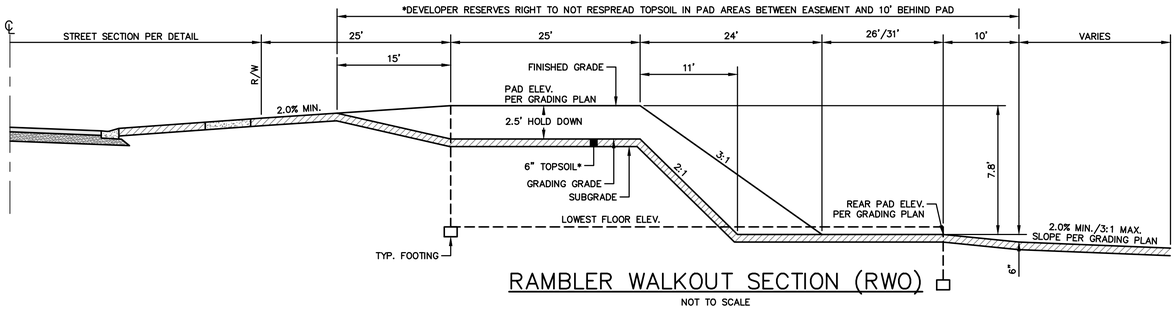
RAMBLER SECTION (R)

NOT TO SCALE



RAMBLER LOOKOUT SECTION (RLO)

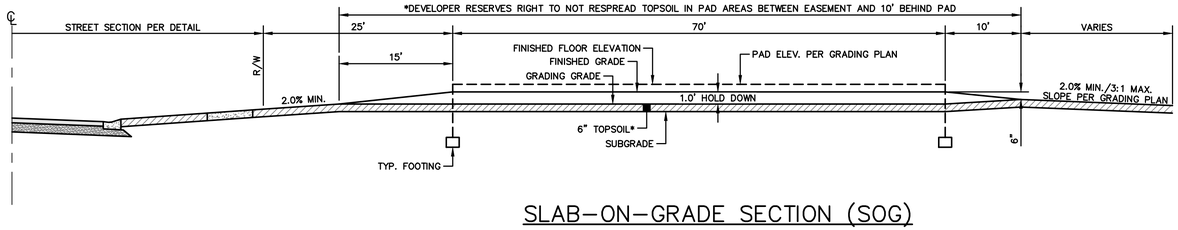
NOT TO SCALE



RAMBLER WALKOUT SECTION (RWO)

NOT TO SCALE

CARRIAGE LOTS



SLAB-ON-GRADE SECTION (SOG)

NOT TO SCALE

RECOMMENDED HOUSE TYPES

SOG	SLAB ON GRADE LOT – ELEVATION IS THE SAME AT THE FRONT AND REAR OF THE HOUSE. LOT CAN ACCOMODATE A SLAB ON GRADE HOME. LOWEST FLOOR ELEVATION/OPENING IS 0.5' ABOVE FINISHED GROUND ELEVATION SHOWN.
R	STANDARD LOT – FINISHED GROUND ELEVATION IS THE SAME AT THE FRONT AND REAR OF HOUSE. LOT CAN ACCOMMODATE RAMBLER, SPLIT ENTRY OR TWO STORY HOME. BASEMENT FLOOR ELEVATION IS 7.3' LOWER THAN FINISHED GROUND ELEVATION SHOWN AT FRONT OF HOUSE.
RLO	LOOKOUT LOT – FINISHED GROUND ELEVATION FOR LOOKOUT IS 4.8' LOWER THAN FINISHED GROUND ELEVATION SHOWN AT FRONT OF HOUSE. WINDOW OPENINGS ARE 0.5' ABOVE FINISHED GROUND ELEVATION SHOWN AT LOOKOUT.
RWO	WALKOUT LOT – FINISHED GROUND ELEVATION FOR WALKOUT IS 7.8' LOWER THAN FINISHED GROUND ELEVATION SHOWN AT FRONT OF HOUSE. BASEMENT FLOOR ELEVATION/OPENING IS 0.5' ABOVE FINISHED GROUND ELEVATION SHOWN AT WALKOUT.

NOTE: FOR ALL RECOMMENDED HOUSE TYPES, GARAGE FLOOR ELEVATION IS 0.3' ABOVE FINISHED GROUND ELEVATION SHOWN AT FRONT OF HOUSE. TOP OF BLOCK ELEVATION IS 0.7' ABOVE FINISHED GROUND ELEVATION SHOWN AT FRONT OF HOUSE.

STANDARD GRADING NOTES:

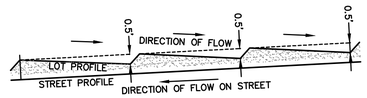
1. SPECIFICATIONS WHICH APPLY ARE THE MOST RECENT EDITIONS OF THE MUNICIPALITY IN WHICH THE WORK IS LOCATED AND THE MINNESOTA DEPARTMENT OF TRANSPORTATION SPECIFICATIONS FOR HIGHWAY CONSTRUCTION UNLESS MODIFIED HEREIN ON THESE CONTRACT DOCUMENTS.
2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UTILIZE THE "GOPHER STATE ONE CALL" EXCAVATION NOTICE SYSTEM AS REQUIRED UNDER MINNESOTA STATUTE CHAPTER 216D. CALL 811 OR SUBMIT A TICKET AT gopherstateonecall.org AT LEAST 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION.
3. GRADING CONTRACTOR SHALL VERIFY LOCATIONS AND ELEVATIONS OF ALL UNDERGROUND UTILITIES WITH THE RESPECTIVE UTILITY COMPANIES PRIOR TO CONSTRUCTION.
4. ALL CONSTRUCTION AS CALLED FOR ON THESE CONTRACT DOCUMENTS SHALL BE PERFORMED IN ACCORDANCE WITH ALL OSHA REQUIREMENTS.
5. ALL LOT AND EASEMENT DIMENSIONS ARE SUBJECT TO FINAL PLAT.
6. IT IS THE RESPONSIBILITY OF THE GRADING CONTRACTOR TO DISPOSE OFF-SITE ALL TREES, STUMPS, BRUSH, OR OTHER DEBRIS THAT EXISTS WITHIN THE CONSTRUCTION AREAS. TREES TO REMAIN SHALL BE DESIGNATED BY THE ENGINEER.
7. THE GRADING CONTRACTOR SHALL SCHEDULE THE SOILS ENGINEER SO THAT CERTIFICATION OF ALL CONTROLLED FILLS CAN BE FURNISHED TO THE OWNER DURING AND UPON COMPLETION OF THE PROJECT.

MINIMUM DENSITY REQUIREMENTS NOTES 8-10 (REFER TO GEOTECHNICAL REPORT FOR DENSITY RECOMMENDATIONS)

8. DENSITY TESTS SHALL BE TAKEN TO EVALUATE THE COMPACTION WITHIN THE STREETS, TRAVEL WAYS OR PARKING LOTS, WITHIN THE UPPER 3 FEET OF STREET, TRAVEL WAYS OR PARKING LOT SUBGRADE, THE CONTRACTOR SHALL INSURE THAT ALL SOILS BE NOT MORE THAN ONE PERCENTAGE POINT OVER THE SOIL'S STANDARD PROCTOR OPTIMUM MOISTURE CONTENT, AND THAT COMPACTION TO A MINIMUM OF 100% OF STANDARD PROCTOR DENSITY BE PROVIDED. IN AREAS BELOW THE UPPER THREE FEET OF SUBGRADE OF THE STREETS, TRAVEL WAYS OR PARKING LOTS, THE CONTRACTOR SHALL INSURE THAT ALL SOILS BE NOT MORE THAN THREE PERCENTAGE POINTS OVER THE SOIL'S STANDARD PROCTOR OPTIMUM MOISTURE CONTENT, AND THAT COMPACTION TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY BE PROVIDED. THE GRADING TOLERANCE FOR THESE AREAS SHALL BE WITHIN 0.1'±.
9. LOT GRADING AND/OR THE PREPARATION OF BUILDING PADS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. THE GRADING TOLERANCE SHALL BE 0.30'±. ALL EARTHWORK OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE HUD-FHA DATA SHEET 79G "LAND DEVELOPMENT WITH CONTROLLED EARTHWORK", PROVIDING FOR A MINIMUM OF 95% STANDARD DENSITY, OR AS OTHERWISE SPECIFIED BY THE GEOTECHNICAL ENGINEER.
10. IN AREAS WHERE RETAINING WALLS ARE PROPOSED ON CONTROLLED FILL AREAS, A MINIMUM 95% STANDARD DENSITY NEEDS TO BE ATTAINED WHERE FILL THICKNESS EXCEEDS 10' BELOW WALL FOUNDATION ELEVATIONS, A HIGHER MINIMUM OF 98% SHALL BE ATTAINED
11. BUILDING PADS SHOWN ON EACH LOT ARE TYPICAL ONLY. THE DEPTH OF THE PAD FROM FRONT TO BACK SHALL BE GRADED THROUGHOUT THE FULL WIDTH OF THE LOT OR AS NECESSARY TO ALLOW FOR CONSTRUCTION OF A BUILDING AT THE MINIMUM SIDE YARD SETBACKS. (REFER TO THE PLANS FOR SPECIFIC SETBACK DISTANCES.) IF UNSUITABLE SOIL CONDITIONS ARE ENCOUNTERED WITHIN A PROPOSED BUILDING PAD THAT CANNOT BE CORRECTED OR REMOVED, IT IS THE RESPSONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENGINEER OF THE CONDITIONS AND TO LOCATE THE LIMITS OF THE UNSUITABLE AREAS.
12. THE SITE GRADING TOLERANCE FOR THE SITE SHOULD BE ±0.1' FOR STREETS AND ±0.30' FOR LANDSCAPED/OPEN AREAS.
13. TOPSOIL SHALL BE RE-SPREAD AT A MINIMUM DEPTH OF 6" ON ALL DISTURBED AREAS TO BE VEGETATED.

SPECIFIC GRADING NOTES:

1. THE EXISTING TOPOGRAPHY AND CONTOUR ELEVATIONS ON THE PLANS WERE PROVIDED BY MNTOPO LIDAR, AND SUPPLEMENTED WITH FIELD ELEVATIONS AND OBTAINED BY JAMES R. HILL FROM 6/7/2022 TO 12/17/2024. THE DEGREE OF ACCURACY OF THE EXISTING CONTOURS SHOWN ON THE PLAN IS EQUAL TO ± ONE HALF THE CONTOUR INTERVAL.



LOT BENCHING DETAIL

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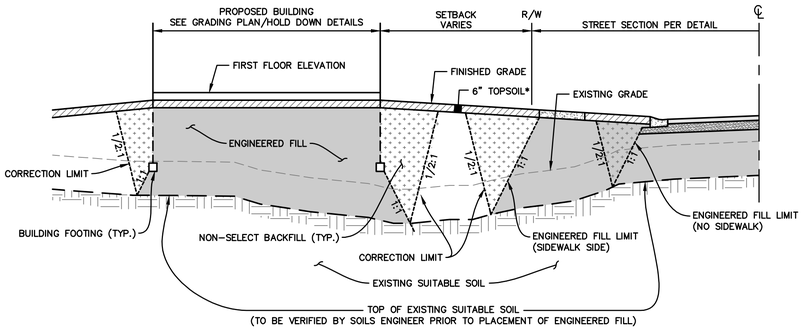

SUBGRADE CORRECTION DETAIL

NOT TO SCALE

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

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.

PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
CONSTRUCTION DETAILS
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
JSO

DATE
02/24/2024

REVISIONS

CAD FILE
23970D

PROJECT NO.
23970

6.0

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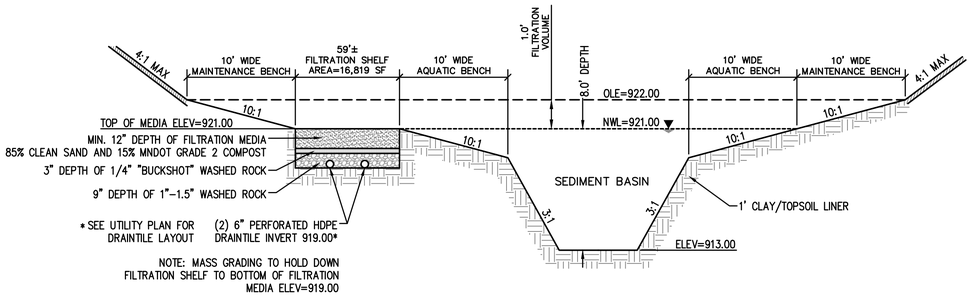

POND 10P W/ FILTRATION SHELF CROSS SECTION

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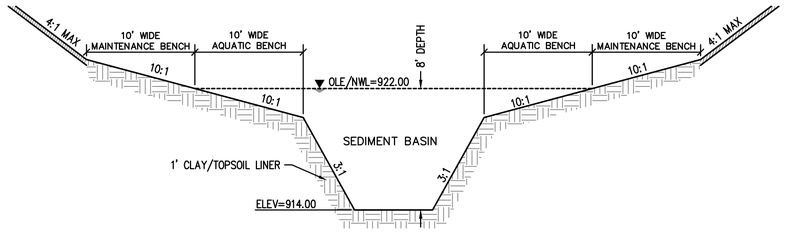

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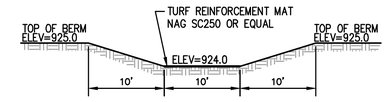
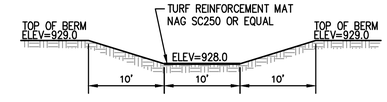


POND 10P STABILIZED EMERGENCY OVERFLOW



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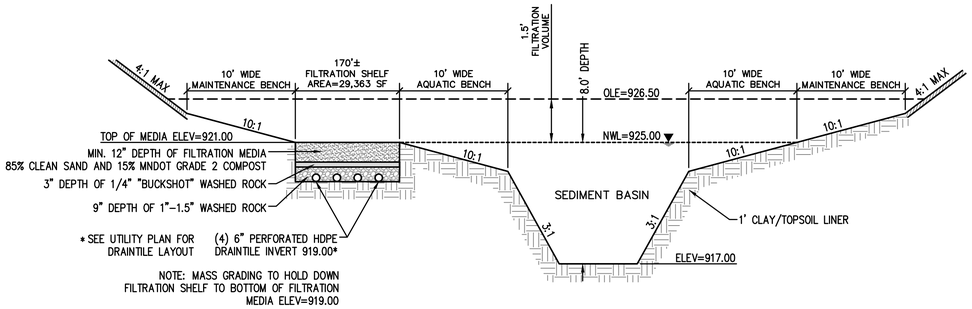

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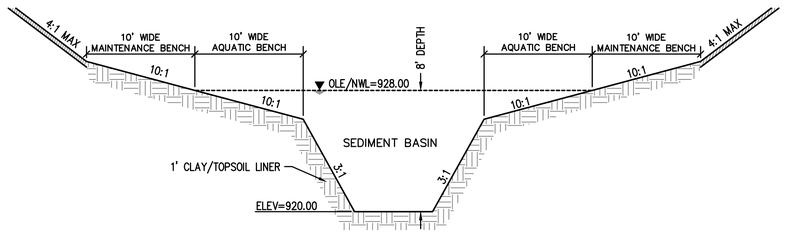

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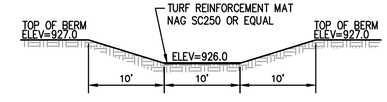

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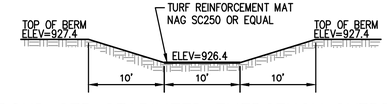

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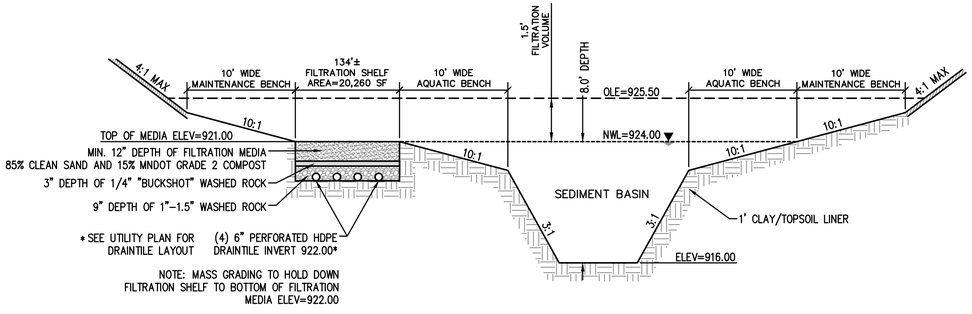

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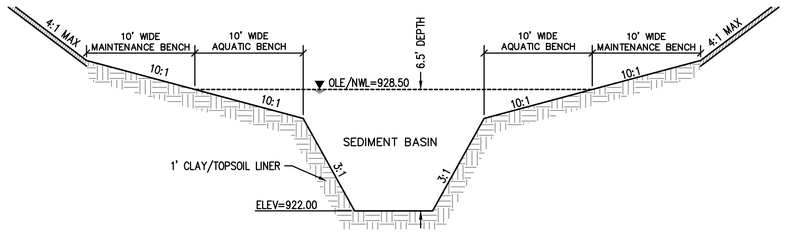

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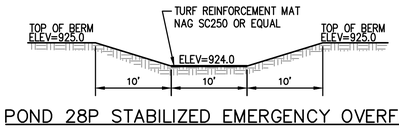

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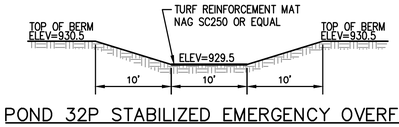

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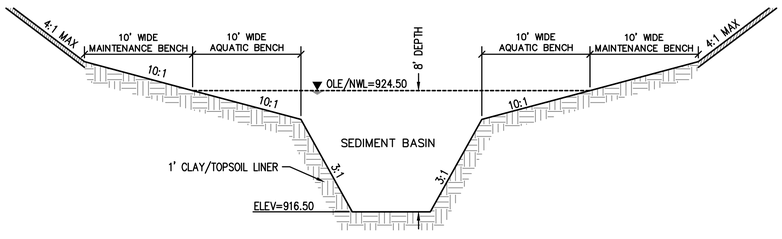

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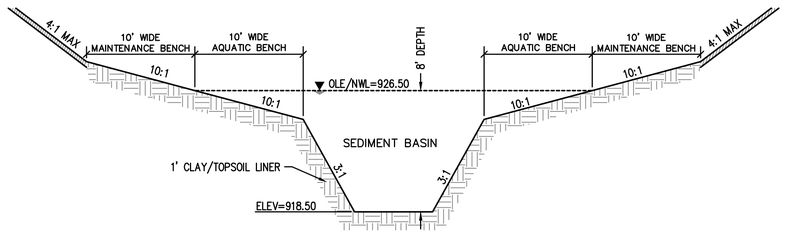

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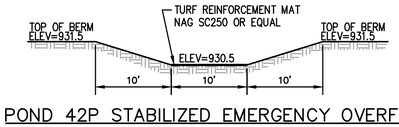

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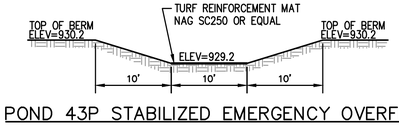

POND 43P STABILIZED EMERGENCY OVERFLOW

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CAD FILE
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PROJECT NO.
23970

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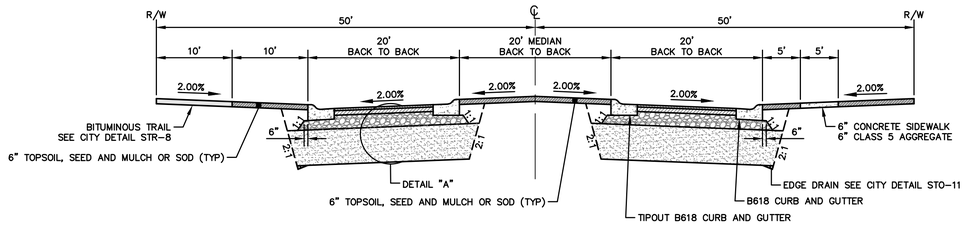
100' R-O-W EDGEWATER PARKWAY STREET SECTION

NOT TO SCALE

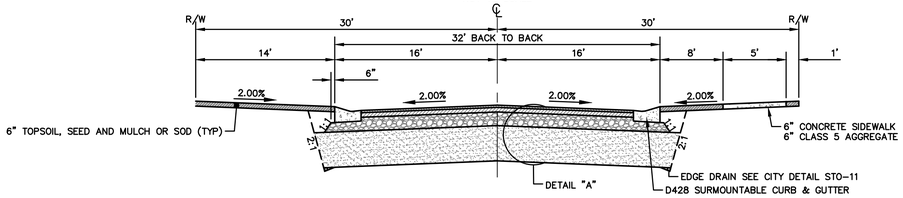
TYPICAL EQUATION
B618 CURB: TC=CL-0.64'
TIPOUT B618 CURB: TC=CL-0.20'

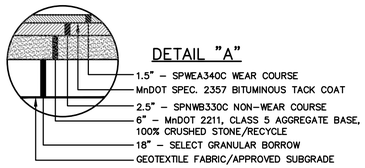


60' R-O-W RESIDENTIAL STREET SECTION

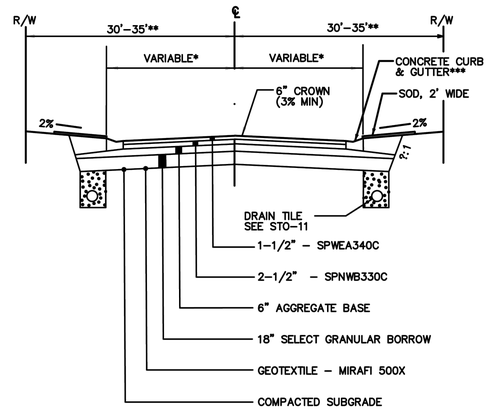
NOT TO SCALE

TYPICAL EQUATION
STD SURMOUNTABLE: TC=CL-0.14'





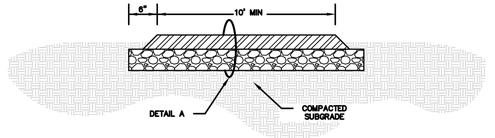
NOTE: ALL ORGANIC OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM BENEATH THE ROADWAY.

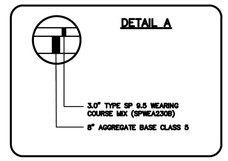


* 16' FOR RESIDENTIAL URBAN
19.5' FOR LOW VOLUME MINOR COLLECTOR
21' FOR HIGH VOLUME MINOR COLLECTOR
** 30' FOR RESIDENTIAL URBAN
35' FOR MINOR COLLECTORS
*** SURMOUNTABLE FOR RESIDENTIAL URBAN
B618 OR SURMOUNTABLE FOR MINOR COLLECTORS

BITUMINOUS STREET WITH CONCRETE CURB AND GUTTER

CITY OF ROGERS	TYPICAL SECTION FOR COLLECTOR & RESIDENTIAL STREETS –URBAN SECTION	Standard Details Date: SEPTEMBER, 2019 Revised	STR-7A





NOTES:

PLACE ALL ASPHALT IN ONE LIFT TO PROVIDE A MINIMUM OF 3.0" COMPACTED DEPTH.

PROVIDE A MINIMUM BASE OF 8" COMPACTED AGGREGATE. IMPORT ADDITIONAL MATERIALS IF MILLING FAILS TO PRODUCE ADEQUATE BASE MATERIAL.

TAMP ALL TRAIL EDGES AT A 45° BEVEL.

CONTRACTOR IS RESPONSIBLE FOR ROUGH GRADING EDGES OF TRAIL CORRIDOR WITH ON-SITE MATERIAL. HOLD GRADES 3" LOWER THAN FINISHED TRAIL SURFACE TO ALLOW FOR ADDITIONAL TOPSOIL PLACEMENT AND SEED.

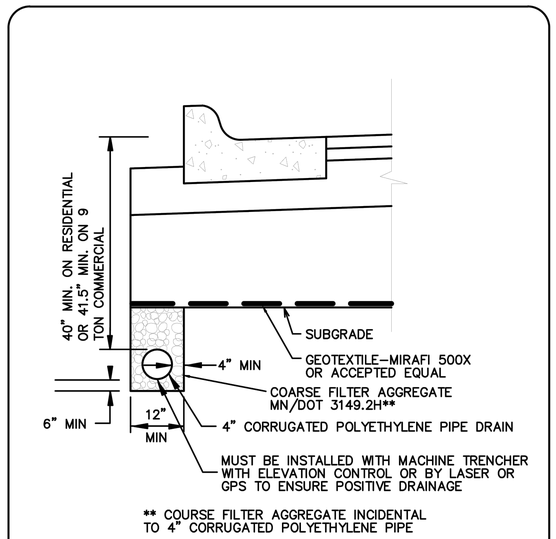
SLOPE OF BITUMINOUS TRAIL SHALL BE A MINIMUM OF 1% TO A MAXIMUM OF 2% TO THE DOWNHILL EDGE.

SIDEWALKS OR TRAIL CROSSING COMMERCIAL OR INDUSTRIAL DRIVEWAYS SHALL BE CONSTRUCTED TO DRIVEWAY REQUIREMENTS.

SUBGRADE MUST BE APPROVED BY THE ENGINEER.

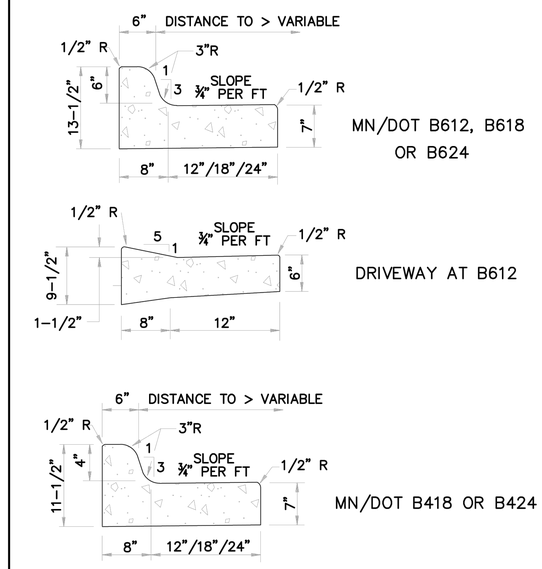
SUBCUT WHERE UNSUITABLE MATERIALS EXIST AS DIRECTED BY THE ENGINEER IN THE FIELD. SUBCUT AREAS SHALL BE BACKFILLED WITH SUITABLE MATERIAL AS DETERMINED BY THE ENGINEER.

CITY OF ROGERS	BITUMINOUS TRAIL TYPICAL SECTION	Standard Details Date: SEPTEMBER, 2020 Revised	STR-8

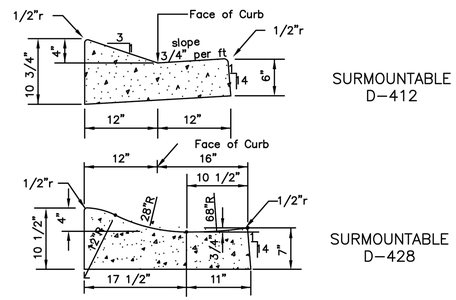


** COURSE FILTER AGGREGATE INCIDENTAL TO 4" CORRUGATED POLYETHYLENE PIPE

CITY OF ROGERS	POLYETHYLENE PERFORATED PIPE	Standard Details Date: SEPTEMBER, 2020 Revised	STO-11



CITY OF ROGERS	CURB SECTIONS	Standard Details Date: SEPTEMBER, 2020 Revised	CON-1



CITY OF ROGERS	CURB RADIUS	Standard Details Date: SEPTEMBER, 2020 Revised	CON-1A

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DRAWN BY	JSO
DATE	02/24/2024
REVISIONS	
CAD FILE	23970D
PROJECT NO.	23970
	6.2

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GENERAL UTILITY CONSTRUCTION NOTES:

1. SPECIFICATIONS: THE WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF ROGERS GENERAL SPECIFICATIONS AND STANDARD DETAIL PLATES FOR STREET AND UTILITY CONSTRUCTION.

2. EXISTING FACILITIES: IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION OF ALL EXISTING UTILITIES BEFORE STARTING CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO SANITARY AND STORM SEWER, WATERMAIN, NATURAL GAS, ELECTRIC, TELEPHONE AND CABLE TELEVISION SERVICES.

   THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICT BETWEEN THE EXISTING UTILITIES AND THE PROPOSED CONSTRUCTION. THE ENGINEER IN COOPERATION WITH THE UTILITY COMPANIES, SHALL DETERMINE THE NECESSITY FOR ANY RELOCATION OF THESE FACILITIES.

   THE CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND FACILITIES SO THAT THEY WILL CONTINUE TO FUNCTION IN THEIR PROPER MANNER BOTH DURING CONSTRUCTION AND IN THE FUTURE. ANY SUPPORTING STRUCTURE THAT MAY BE REQUIRED BECAUSE OF THE CONTRACTOR'S OPERATION SHALL BE PROVIDED BY THE CONTRACTOR.

   THE CONTRACTOR SHALL BRING TO THE ATTENTION OF THE ENGINEER ANY CONDITIONS SUCH AS SAND IN MANHOLES OR VALVE BOXES EXISTING PRIOR TO THE CONTRACTOR'S EXCAVATION. ONCE EXCAVATION HAS COMMENCED, IT WILL BE ASSUMED THAT ALL DAMAGE TO UNDERGROUND UTILITIES HAS BEEN CAUSED BY THE CONTRACTOR'S OPERATIONS AND IT WILL BE HIS RESPONSIBILITY TO MAKE THE NECESSARY REPAIRS.

3. CONTRACTOR RESPONSIBILITIES:
   THE CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENTS FOR RECEIVING WATER FROM PUBLIC OR PRIVATE SOURCES AND SECURE NECESSARY PERMITS AND PAY REGULAR CHARGES. ALL CITY WATER SHALL BE METERED. DISPOSAL OF ANY WASTEWATER OR ANY TEST WATER INTO THE CITY SANITARY SEWER SYSTEM IS SUBJECT TO CITY CHARGE. CONTRACTORS ARE NOT TO OPERATE GATE VALVES OR HYDRANTS ON CITY WATER SUPPLY.

   THE CITY ENGINEER AND THE ENGINEER SHALL BE NOTIFIED 48 HOURS PRIOR TO COMMENCING WORK. CONTRACTORS SHALL BE SUBJECT TO SHUT DOWN IF PROPER NOTIFICATION IS NOT GIVEN TO THE ENGINEER.

   CITY STREETS THAT ARE UTILIZED FOR INGRESS TO OR EGRESS FROM THE CONSTRUCTION SITE SHALL BE KEPT FREE OF DIRT AND OTHER DEBRIS RESULTING FROM SAID CONSTRUCTION. COST FOR THIS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.

   THE CONTRACTOR SHALL BE RESPONSIBLE TO MAINTAIN ADEQUATE STORM DRAINAGE PROTECTION OF THE SITE IN ORDER TO PREVENT EROSION AND SILTING OF ON-SITE AND OFF-SITE AREAS. THIS SHALL BE ACCOMPLISHED BY PLACEMENT OF HAY BALES OR FILTER FABRIC FENCE AROUND THE DRAINAGE INLETS AND OUTLETS AND BY CONSTRUCTION OF DITCHES, BERMS, DEBRIS BASINS, FILTER FABRIC FENCING AND BY ANY OTHER ON-SITE PROTECTION AS DETERMINED BY THE ENGINEER. UNLESS SPECIFICALLY CALLED OUT AS A BID ITEM ON THE BID FORM, ANY TEMPORARY DITCHING, CULVERTS, HAY BALES, AND FILTER FABRIC FENCE NECESSARY TO ACCOMPLISH THIS SHALL BE AT THE CONTRACTOR'S EXPENSE.

   IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AND LEAVE UNDISTURBED THOSE MARKERS OR MONUMENTS SET FOR THE SUBDIVISION OF LAND.

   IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO UTILIZE THE "GOPHER STATE ONE CALL" EXCAVATION NOTICE SYSTEM AS REQUIRED UNDER MINNESOTA STATUTE CHAPTER 216D. CALL 811 OR SUBMIT A TICKET AT gopherstateonecall.org AT LEAST 48 HOURS PRIOR TO PERFORMING ANY EXCAVATION.

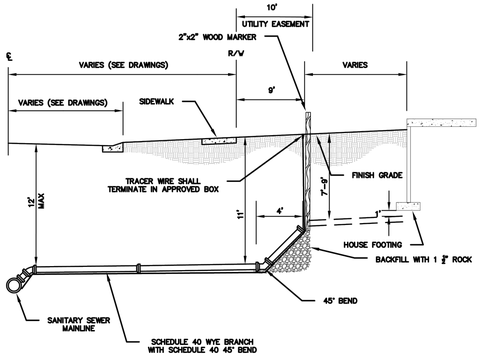
2. COMPACTION: DENSITY TESTS SHALL BE TAKEN ON ALL TRENCHES WITHIN THE STREET CROSS SECTION AND THE PAD AREAS TO EVALUATE THE COMPACTION ACHIEVED DURING UTILITY CONSTRUCTION. WITHIN THE UPPER 3 FEET OF STREET SUBGRADE THE CONTRACTOR SHALL INSURE THAT ALL SOILS BE NOT MORE THAN ONE PERCENTAGE POINT OVER THE SOIL'S STANDARD PROCTOR OPTIMUM MOISTURE CONTENT, AND THAT COMPACTION TO A MINIMUM OF 100% OF STANDARD PROCTOR DENSITY (AASHTO T-99) BE PROVIDED. WITHIN UTILITY TRENCHES IN OPEN SPACE AREAS (PAD AREAS) AND AREAS BELOW THE UPPER 3 FEET OF STREET SUBGRADE, THE CONTRACTOR SHALL INSURE THAT ALL SOILS BE NOT MORE THAN THREE PERCENTAGE POINTS OVER THE SOIL'S STANDARD PROCTOR OPTIMUM MOISTURE CONTENT, AND THAT COMPACTION TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY BE PROVIDED. THE SURFACE OF ALL UTILITY TRENCHES SHALL BE FINISHED GRADED TO THE ELEVATIONS AS STAKED BY THE ENGINEER TO WITHIN A TOLERANCE OF ±0.3' IN OPEN SPACE AREAS AND ± 0.1' WITHIN STREET RIGHT OF WAYS. THE DENSITY WILL BE TESTED BY AN APPROVED TESTING LABORATORY. AN APPROVED TESTING METHOD WHICH UTILIZES A NUCLEAR DENSITY METER MAY BE USED FOR THE DENSITY TESTS. THE LOCATION OF THE TESTS WILL BE AT THE DIRECTION OF THE ENGINEER.

   THE OWNER SHALL BEAR ALL COSTS OF THE TESTING. FAILURE TO MEET THE COMPACTION REQUIREMENTS OUTLINED IN THIS SECTION SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE. ALL COSTS FOR ANY RE-TESTING ASSOCIATED WITH ANY CORRECTIVE WORK SHALL BE AT THE EXPENSE OF THE CONTRACTOR.

3. ALL PVC WATERMAIN TO BE INSTALLED WITH 8.5' MINIMUM COVER. ALL DIP WATERMAIN TO BE INSTALLED WITH 7.5' MINIMUM COVER.

4. ALL 8" WATERMAIN TO BE CONSTRUCTED OF CLASS C900 PVC W/ TRACER WIRE.

5. SANITARY SEWER PIPE TYPE & CLASS AS FOLLOWS:
   a. 0' – 18' DEEP = PVC SDR 35
   b. 18' – 28' DEEP = PVC SDR 26
   c. 28' – 32' DEEP = PVC SDR 18, AWWA C900
   d. 32' + DEEP = POLYBOND LINED DIP, ASTM A746



NOTES:

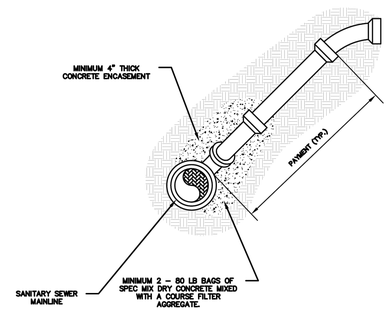
SEWER SERVICE, PVC SCHEDULE 40 4" OR 6" AS SPECIFIED

2% MINIMUM SLOPE OR 12% MAXIMUM SLOPE, ½" PER FOOT

ALL PIPE SHALL BE BEDDED IN GRANULAR BORROW 3149 B.1 OR COURSE FILTER AGGREGATE 3149H

END OF SERVICE SHALL BE 7' TO 8' DEEP AT END OF SERVICE. THE END SHALL BE A FACTORY JOINT WITH PLUG, USING A FACTORY MANUFACTURED ADAPTOR WHERE NECESSARY

CITY OF ROGERS	SANITARY SEWER SERVICE	Standard Details: Date: SEPTEMBER, 2020; Revised:	SAN-1



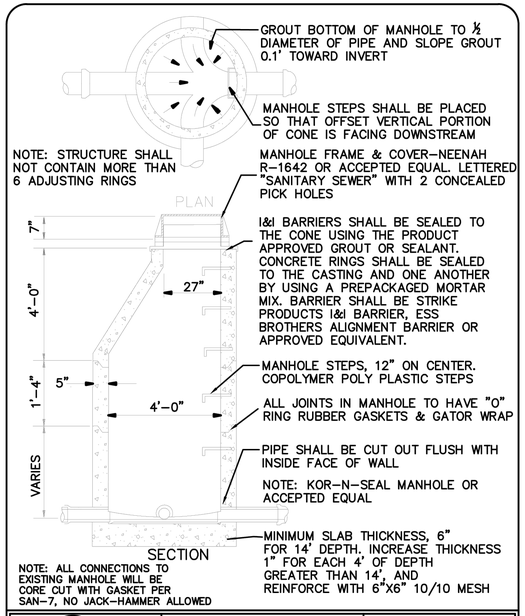
NOTES:

SERVICE CONNECTION TO BE AT 2:00 OR 10:00 WITH APPROVED FACTORY INSTALLED SCHEDULE 40 WYE.

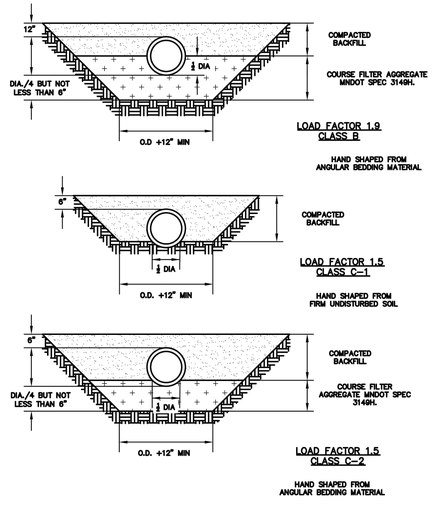
4" OR 6" SANITARY SEWER SERVICE RISER SUPPORT ON TRENCH SLOPE 1:1 MAX

SCHEDULE 40 PVC SERVICES

CITY OF ROGERS	SANITARY SEWER SERVICE RISER	Standard Details: Date: SEPTEMBER, 2020; Revised:	SAN-2



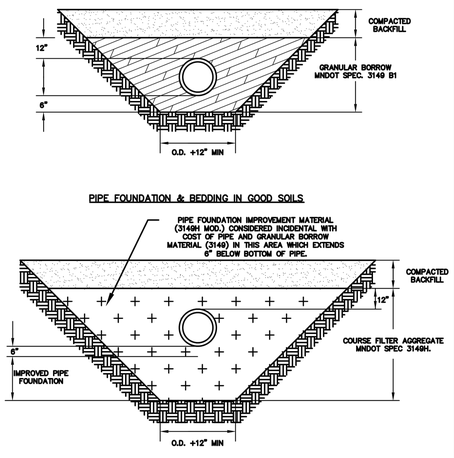
CITY OF ROGERS	STANDARD SANITARY MANHOLE	Standard Details: Date: SEPTEMBER, 2020; Revised:	SAN-4



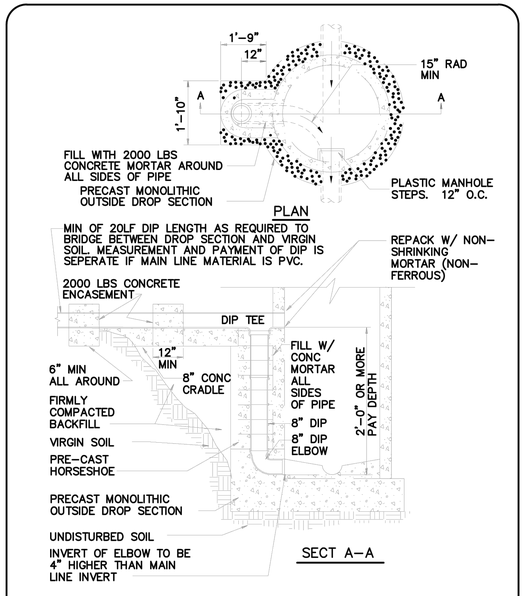
NOTES:

"DIA" DENOTES OUTSIDE DIAMETER OF PIPE

CITY OF ROGERS	PIPE BEDDING METHODS FOR RCP OR DIP	Standard Details: Date: SEPTEMBER, 2020; Revised:	SAN-11



CITY OF ROGERS	PIPE BEDDING METHODS FOR PVC	Standard Details: Date: SEPTEMBER, 2020; Revised:	SAN-12



CITY OF ROGERS	SANITARY MANHOLE OUTSIDE DROP SECTION	Standard Details: Date: SEPTEMBER, 2020; Revised:	SAN-13

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Date: Reg.No.

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
CONSTRUCTION DETAILS
FOR
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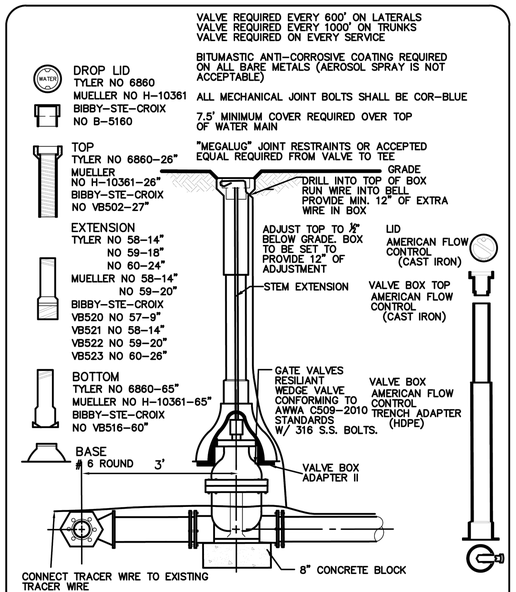
4180 NAPIER COURT, ST. MICHAEL, MN 55376

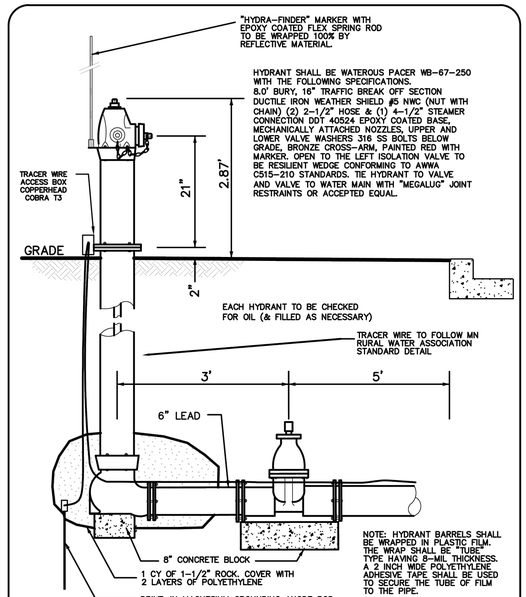
DRAWN BY: JSO
DATE: 02/24/2024
REVISIONS:
CAD FILE: 23970D
PROJECT NO.: 23970
6.3

F:_Civil 3D Projects\23970\PRE-PLAT PLANS\23970D.dwg - 2/21/2025 10:53AM



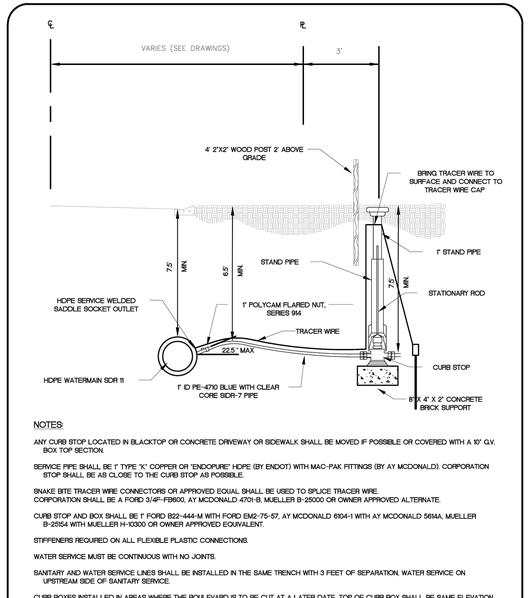
GATE VALVE AND BOX INSTALLATION

Standard Details — Date: SEPTEMBER, 2020 — Revised: — WAT-01



GATE VALVE AND HYDRANT INSTALLATION

Standard Details — Date: SEPTEMBER, 2020 — Revised: — WAT-03



NOTES:

ANY CURB STOP LOCATED IN BLACKTOP OR CONCRETE DRIVEWAY OR SIDEWALK SHALL BE MOVED IF POSSIBLE OR COVERED WITH A 10" G.V. BOX TOP SECTION.

SERVICE PIPE SHALL BE 1" TYPE "K" COPPER OR "ENDOPURE" HDPE (BY ENDOT) WITH MAC-PAK FITTINGS (BY AY MCDONALD). CORPORATION STOP SHALL BE AS CLOSE TO THE CURB STOP AS POSSIBLE.

SNAKE BITE TRACER WIRE CONNECTORS OR APPROVED EQUAL SHALL BE USED TO SPLICE TRACER WIRE. CORPORATION SHALL BE A FORD 3/4F-FB600, AY MCDONALD 4701-B, MUELLER B-25000 OR OWNER APPROVED ALTERNATE.

CURB STOP AND BOX SHALL BE 1" FORD B22-444-M WITH FORD EM2-75-57, AY MCDONALD 6104-1 WITH AY MCDONALD 569A, MUELLER B-20254 WITH MUELLER H-10300 OR OWNER APPROVED EQUIVALENT.

STIFFENERS REQUIRED ON ALL FLEXIBLE PLASTIC CONNECTIONS.

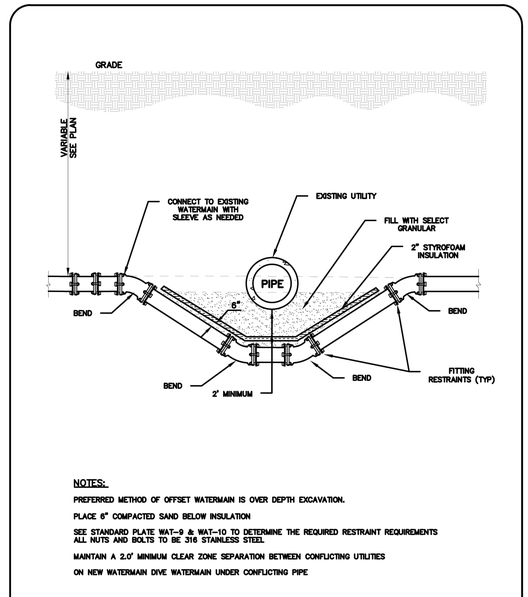
WATER SERVICE MUST BE CONTINUOUS WITH NO JOINTS.

SANITARY AND WATER SERVICE LINES SHALL BE INSTALLED IN THE SAME TRENCH WITH 3 FEET OF SEPARATION. WATER SERVICE ON UPSTREAM SIDE OF SANITARY SERVICE.

CURB BOXES INSTALLED IN AREAS WHERE THE BOULEVARD IS TO BE CUT AT A LATER DATE, TOP OF CURB BOX SHALL BE SAME ELEVATION AS TOP OF CURB.

1" WATER SERVICE WITH HDPE WATERMAIN

Standard Details — Date: JUNE, 2021 — Revised: — WAT-06



NOTES:

PREFERRED METHOD OF OFFSET WATERMAIN IS OVER DEPTH EXCAVATION.

PLACE 6" COMPACTED SAND BELOW INSULATION

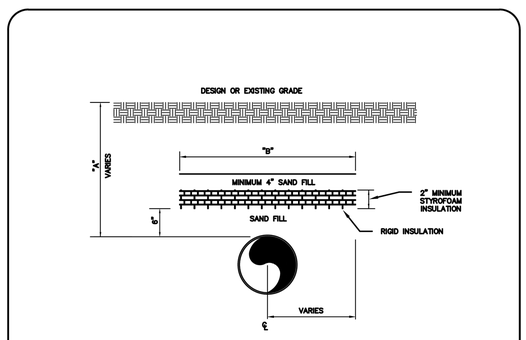
SEE STANDARD PLATE WAT-9 & WAT-10 TO DETERMINE THE REQUIRED RESTRAINT REQUIREMENTS
ALL NUTS AND BOLTS TO BE 316 STAINLESS STEEL.

MAINTAIN A 2.0' MINIMUM CLEAR ZONE SEPARATION BETWEEN CONFLICTING UTILITIES

ON NEW WATERMAIN DIVE WATERMAIN UNDER CONFLICTING PIPE

OFFSET WATERMAIN

Standard Details — Date: SEPTEMBER, 2020 — Revised: — WAT-07



NOTES:

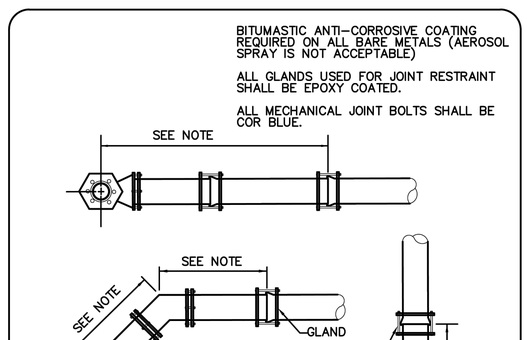
PIPE SHALL BE CENTERED UNDER INSULATION UNLESS OTHERWISE SPECIFIED

COVER OVER PIPE - "A"	WIDTH OF INSULATION BOARD - "B"
4'-5'	12'
3'-4'	10'
2'-3'	8'

2" OF INSULATION = 2' OF COVER

INSULATION DETAIL

Standard Details — Date: SEPTEMBER, 2020 — Revised: — WAT-08



WATERMAIN TYING DETAIL

Standard Details — Date: SEPTEMBER, 2020 — Revised: — WAT-09

TRACER WIRE

TRACER WIRE SHALL BE COPPERHEAD #12 AWG CCS COMPLYING WITH ASTM-D-1248, 30 VOLT RATING,GREEN FOR SEWER SERVICES AND FORCEMAIN AND BLUE FOR WATER MAIN
- #1230HS HIGH STRENGTH FOR OPEN CUT
- #1245EHS EXTRA HIGH STRENGTH FOR HORIZONTAL DIRECTIONAL DRILLING AND JACK/BORING.
- SPLICING 2 WIRES, DRYCONN KING 6 BLUE
- SPLICING 3 OR MORE, DRYCONN DIRECT BURY LUG YELLOW
- WIRE SPLICING WILL BE ALLOWED WHEN APPROVED ONLY

ALL NEW TRACER WIRE INSTALLATIONS SHALL BE LOCATED USING TYPICAL LOW FREQUENCY (512 HZ) LINE TRACING EQUIPMENT, WITNESSED BY THE CONTRACTOR, ENGINEER AND FACILITY OWNER AS APPLICABLE, PRIOR TO ACCEPTANCE OF OWNERSHIP.

POLYVINYL CHLORIDE PIPE (PVC) - C900

PVC WATER DISTRIBUTION PIPE AND JOINTS SHALL CONFORM TO:
AWWA C-900 (DR)
ASTM D3139

NOTE: TRACER WIRE ACCESSES SHALL NOT EXCEED 500-FT

DUCTILE IRON PIPE

DIP WATER DISTRIBUTION PIPE SHALL BE PRESSURE CLASS 350 AWWA C150/151.

PLASTIC FILM WRAP FOR DIP

WATER DISTRIBUTION PIPE, RISER PIPE, AND HYDRANT BARRELS SHALL BE WRAPPED IN PLASTIC FILM. THE WRAP SHALL BE "TUBE" TYPE HAVING 8-MIL THICKNESS. A 2 INCH WIDE POLYETHYLENE ADHESIVE TAPE SHALL BE USED TO SECURE THE TUBE OF FILM TO THE PIPE.

DUCTILE IRON FITTINGS

WATER MAIN FITTINGS SHALL CONFORM TO ANSI A21.53, A21.11 & A21.4. FITTINGS SHALL BE COATED WITH 6 - 8 MM MINIMUM THICKNESS FUSION BONDED EPOXY CONFORMING TO ANSI/AWWA C550 AND C116/A21.16.

THRUST RESTRAINT

ALL WATER MAIN, VALVES, SERVICES, FITTINGS, STUBS, EXTENSIONS, BLIND FLANGES, AND PLUGS USED FOR RETAINING WATER PRESSURE MUST BE TIED WITH "MEGALUG" JOINT RESTRAINTS OR ACCEPTED EQUAL, BASED UPON A 150 PSI TEST PRESSURE AND 7.5' COVER, THE FOLLOWING SHOWS THE MINIMUM LENGTH OF PIPE EACH WAY OF A FITTING TO BE RESTRAINED. JOINT RESTRAINTS TO BE EPOXY COATED AS REQUIRED ON WATER MAIN FITTINGS.

PIPE DIAMETER	DEAD END OR 90^BEND	TEE BRANCH 45^BEND	TEE BRANCH 22-1/2^BEND
4" (SERVICE)	22 LF	5 LF	2 LF
6"	23 LF	7 LF	3 LF
8"	30 LF	10 LF	5 LF
10"	38 LF	12 LF	5 LF
12"	50 LF	16 LF	5 LF

ALL TEES WITH A VALVE IMMEDIATELY AFTER A TEE BRANCH SHOULD BE TREATED AS A 90 DEGREE BEND.

WHERE RESTRAINED JOINTS ARE REQUIRED AND THE PIPE IS IN A CASING NEAR THE FITTING TO BE RESTRAINED, THE LENGTH OF PIPE IN THE CASING SHALL NOT BE INCLUDED IN THE LENGTH OF PIPE NECESSARY TO DEVELOP SUFFICIENT SOIL FRICTION TO OVERCOME THRUST.

ALL BARE METALS SHALL HAVE TWO COATS OF BITUMASTIC OR ACCEPTED EQUAL. (AEROSOL SPRAY IS NOT ACCEPTABLE) ALL MECHANICAL JOINT BOLTS SHALL BE COR-BLUE.
ALL JOINT TIE RODS AND NUTS SHALL BE 316 STAINLESS STEEL.

WATER MAIN DETAILS AND TIE SCHEDULE TABLE

Standard Details — Date: SEPTEMBER, 2020 — Revised: — WAT-10

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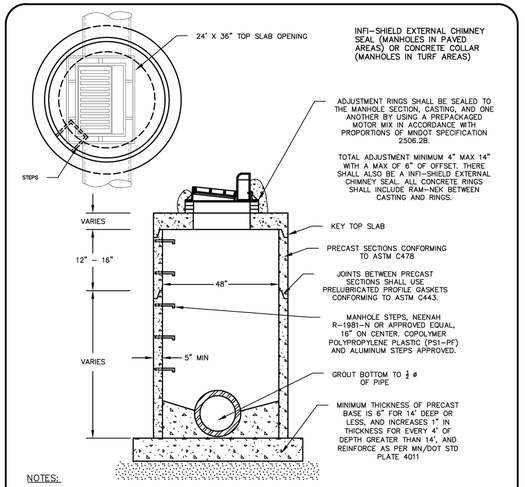


NOTES:

FRAME AND GRATE FOR BULKHEAD STYLE CURB SHALL BE A NEENAH R-3067-V OR NEENAH R-3067-VB

FRAME AND GRATE FOR SURMOUNTABLE STYLE CURB OR DRIVEWAYS SHALL BE A NEENAH R-3501-TR OR R-3501-TL LOW POINTS 3501-TB

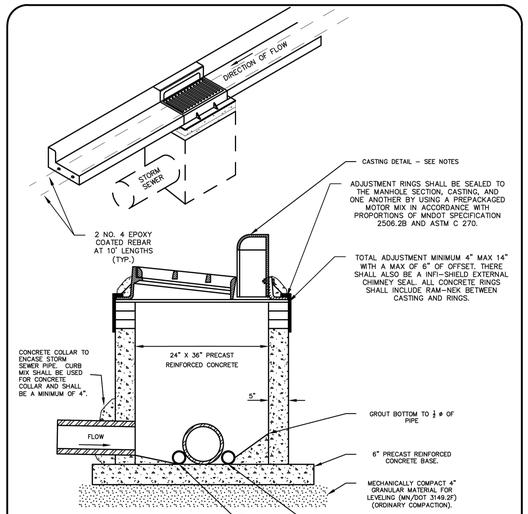
FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH GRATE, STOOL TYPE) R-4342

ALL MANHOLES WITH FRAME AND LID IN A PAVED AREA SHALL USE A NEENAH R-1642 WITH SOLID B LID WITH 2 CONCEALED PICK HOLES OR APPROVED EQUAL. LID SHALL BE LETTERED "STORM SEWER" WITH 2" RAISED LETTERS

DOG HOUSES SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE OF THE STRUCTURE

DRAINTILE OPENING MUST BE CORE-DRILLED OR PRECAST AND GROUTED INSIDE AND OUTSIDE OF THE STRUCTURE.

CITY OF ROGERS	STORM SEWER MANHOLE	Standard Details	STO-1
		Date: SEPTEMBER, 2020	
		Revised:	



NOTES:

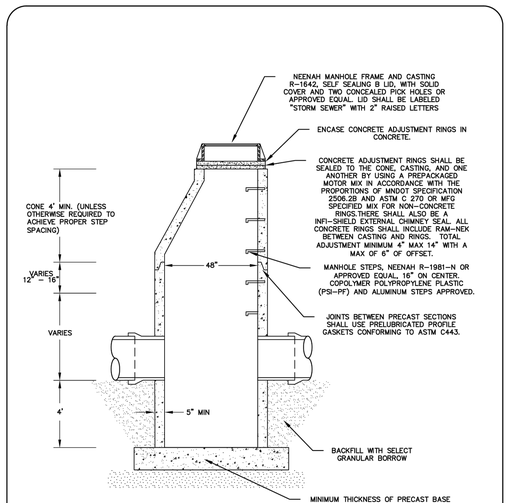
FRAME AND GRATE FOR BULKHEAD STYLE CURB SHALL BE A NEENAH R-3067-V OR NEENAH R-3067-VB

FRAME AND GRATE FOR SURMOUNTABLE STYLE CURB OR DRIVEWAYS SHALL BE A NEENAH R-3501-TR OR R-3501-TL. LOW POINTS SHALL BE R-3501-TB

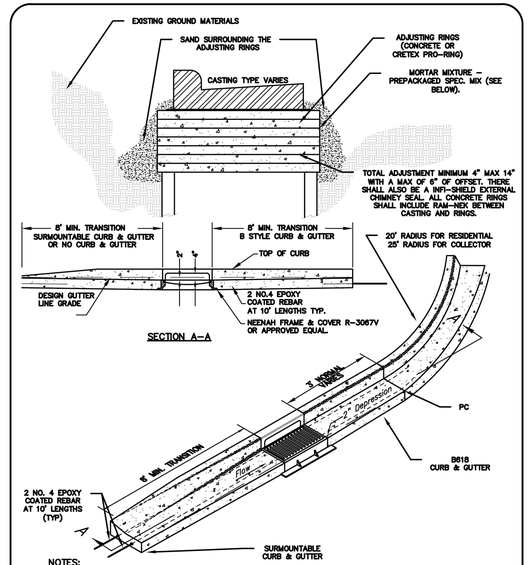
FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH GRATE, STOOL TYPE) R-4342

DOG HOUSES AND RINGS SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE OF THE STRUCTURE

CITY OF ROGERS	STORM SEWER JUNCTION MANHOLE	Standard Details	STO-2
		Date: JUNE, 2021	
		Revised:	



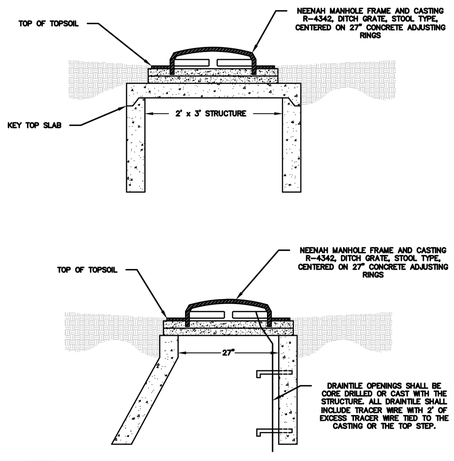
CITY OF ROGERS	STANDARD MANHOLE WITH SUMP	Standard Details	STO-3
		Date: SEPTEMBER, 2020	
		Revised:	



NOTES:

THE CONCRETE ADJUSTMENT RINGS SHALL BE SEALED TO THE CONE, CASTING AND ONE ANOTHER BY USING A PREPACKAGED MORTAR MIX IN ACCORDANCE WITH PROPORTIONS OF MNDOT SPECIFICATION 2506.2B AND ASTM C 270. THIS WILL ALSO BE USED FOR ALL "MUD WORK" INSIDE OF CONCRETE STRUCTURES

CITY OF ROGERS	CB ADJUSTMENT AND CB PLACEMENT IN CONCRETE CURB AND GUTTER	Standard Details	STO-5
		Date: SEPTEMBER, 2020	
		Revised:	



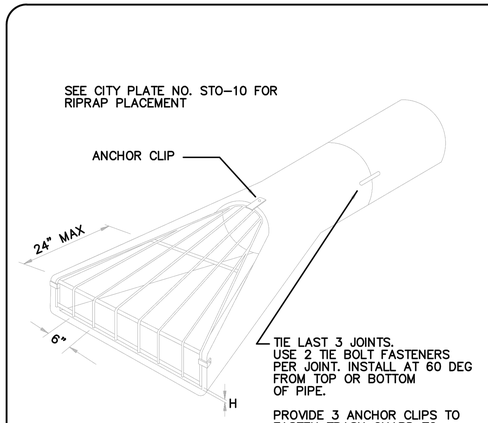
NOTES:

THE CONCRETE ADJUSTING RINGS SHALL BE SEALED TO THE CONE AND ONE ANOTHER BY USING MORTAR MIX IN ACCORDANCE WITH THE PROPORTIONS OF MNDOT SPECIFICATION 2506.2B AND ASTM C 270.THERE SHALL ALSO BE A INFI-SHIELD EXTERNAL CHIMNEY SEAL

THIS WILL ALSO BE USED FOR ALL "MUD WORK" INSIDE OF CONCRETE STRUCTURES

THE CASTING SHALL NOT BE SEALED TO THE ADJUSTMENT RINGS TO FACILITATE IN THE REMOVAL OF THE CASTING IF NECESSARY.

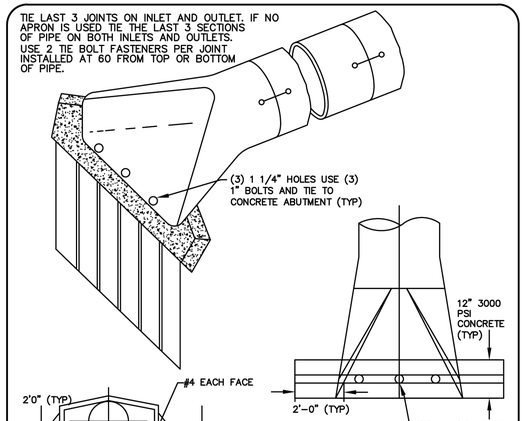
CITY OF ROGERS	CATCH BASIN FOR R-4342 CASTING	Standard Details	STO-6
		Date: SEPTEMBER, 2020	
		Revised:	



TRASH GUARD SIZING

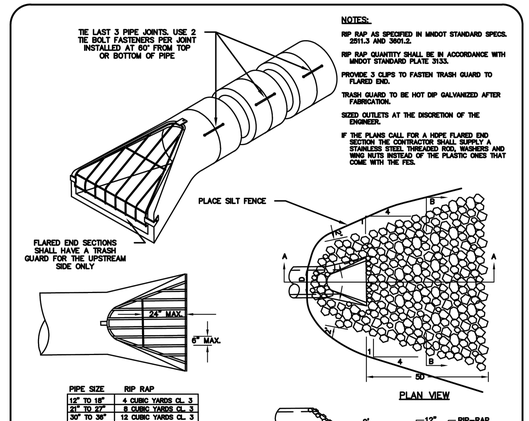
PIPE SIZE	BARS	"H"	BOLTS
12"-18"	¾" DIA	4"	⅝"
21"-42"	1" DIA	6"	¾"
48"-72"	1-1/4" DIA	12"	1"

CITY OF ROGERS	FLARED END SECTION AND TRASH GUARD	Standard Details	STO-7
		Date: SEPTEMBER, 2020	
		Revised:	



NOTE:
THIS DRAWING IS TYPICAL FOR ALL FLARED END SECTIONS 30 INCHES IN DIAMETER OR LARGER.

CITY OF ROGERS	OUTLET SHEET PILING	Standard Details	STO-9
		Date: SEPTEMBER, 2020	
		Revised:	



NOTES:

RIP RAP AS SPECIFIED IN MNDOT STANDARD SPECS. 2511.3 AND 3601.2.

RIP RAP QUANTITY SHALL BE IN ACCORDANCE WITH MNDOT STANDARD PLATE 3133.

PROVIDE 3 CLIPS TO FASTEN TRASH GUARD TO FLARED END.

TRASH GUARD TO BE HOT DIP GALVANIZED AFTER FABRICATION.

SIZED OUTLETS AT THE DISCRETION OF THE ENGINEER.

IF THE PLANS CALL FOR A HDPE FLARED END SECTION THE CONTRACTOR SHALL SUPPLY A STAINLESS STEEL THREADED ROD, WASHERS AND WING NUTS INSTEAD OF THE PLASTIC ONES THAT COME WITH THE PES.

PIPE SIZE	RIP RAP
12" TO 18"	4 CUBIC YARDS CL. 3
21" TO 27"	8 CUBIC YARDS CL. 3
30" TO 36"	12 CUBIC YARDS CL. 3
42" TO 48"	16 CUBIC YARDS CL. 3
54" AND UP	20 CUBIC YARDS CL. 4

PIPE SIZE	BAR SIZE	"H"	BOLT SIZE
12" TO 18"	3/4"ø	6"	5/8"
21" TO 42"	1"ø	6"	3/4"
48" TO 72"	1 1/4"ø	12"	1"

CITY OF ROGERS	RIPRAP AT OUTLETS	Standard Details	STO-10
		Date: SEPTEMBER, 2020	
		Revised:	

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JSO

DATE
02/24/2024

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PROJECT NO.
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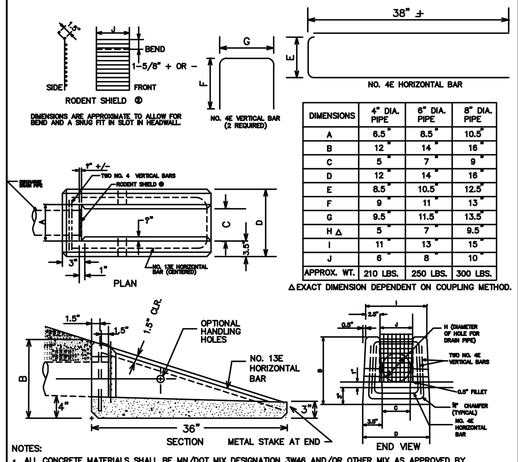


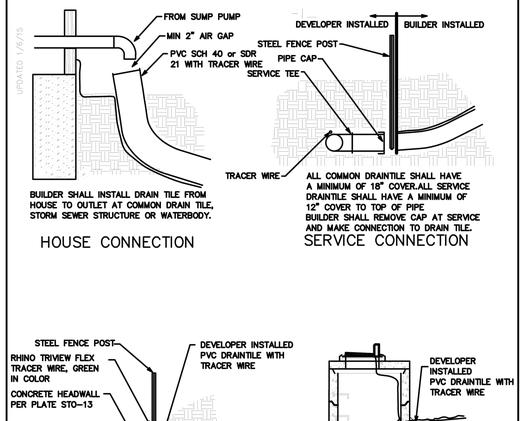
DIMENSIONS	4" DIA. PIPE	6" DIA. PIPE	8" DIA. PIPE
A	6.5"	8.5"	10.5"
B	12"	14"	16"
C	5"	7"	9"
D	12"	14"	16"
E	8.5"	10.5"	12.5"
F	9"	11"	13"
G	9.5"	11.5"	13.5"
H △	5"	7"	9.5"
I	11"	13"	15"
J	6"	8"	10"
APPROX. WT.	210 LBS.	250 LBS.	300 LBS.

△EXACT DIMENSION DEPENDENT ON COUPLING METHOD.

NOTES:

1. ALL CONCRETE MATERIALS SHALL BE MN/DOT MIX DESIGNATION 3W46 AND/OR OTHER MIX AS APPROVED BY THE STATE MATERIALS ENGINEER. HEADWALLS SHALL NOT BE SHIPPED UNTIL CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF 5000 PSI. THE EPOXY BARS SHALL BE SECURELY RETAINED SO THEY ARE NOT DISPLACED DURING CONCRETE PLACEMENT. TIE WIRE SHALL BE EPOXY COATED. WELDING WILL NOT BE PERMITTED. THE FABRICATOR SHALL PROVIDE A QUALITY CONTROL PROGRAM APPROVED BY THE MATERIALS ENGINEER.
2. THE RODENT SHIELD SHALL BE FABRICATED FROM CARBON STEEL FLATTENED EXPANDED METAL, STYLE 4" NO 4F. IT SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION. ACTUAL SCREEN DIMENSIONS SHALL BE SUCH AS WILL SNUGLY FIT THE PROVIDED SLOT (TAPERED IF NECESSARY), WITH THE SCREEN LIP FITTING FLUSH WITH THE CASTING TOP AND THE BOTTOM FITTING TIGHT TO THE FLOW LINE.
3. THE MANUFACTURER'S NAME AND DATE OF PRODUCTION (MONTH AND YEAR) SHALL BE CLEARLY CAST (NOT INK STAMPED) INTO EITHER THE BOTTOM OF EACH HEADWALL OR NEAR THE BOTTOM OF THE LARGE END. IF A MANUFACTURER HAS MORE THAN ONE PLANT, THEY SHALL BE APPROPRIATELY CODED.

CITY OF ROGERS	PRECAST CONCRETE HEADWALL FOR SUBSURFACE DRAINS	Standard Details Date: SEPTEMBER, 2020 Revised: STO–13



CITY OF ROGERS	SUMP PUMP DISCHARGE REQUIREMENTS	Standard Details Date: SEPTEMBER, 2020 Revised: STO–14

CITY OF ROGERS MINIMUM DRAIN TILE REQUIREMENTS

(REQUIREMENTS FOR ALL NEW HOMES AS OF JANUARY, 2016)

- PIPE SIZE – 4" PVC
- TYPE OF PIPE – SCH 40 OR ASTM 1785, OR SDR 21
- DEPTH OF PIPE – 12" TO TOP OF PIPE FROM FINISH GRADE
- TRACER WIRE – MINIMUM GAUGE #12 COPPERHEAD COPPER CLAD STEEL TRACER WIRE, GREEN IN COLOR.

NOTE: ALL STORM SEWER PIPE CROSSINGS THAT PENETRATE THE TYPICAL SECTION SHALL INCLUDE DRAINTILE THAT RUNS PARALLEL TO THE CROSSING. THIS DRAINTILE SHALL TIE INTO BOTH DRAINAGE STRUCTURES AND BE PLACED AT THE BOTTOM OF THE PIPE TRENCH.

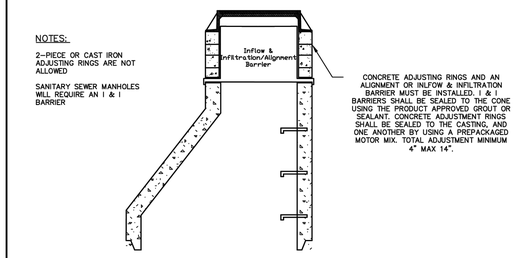
NOTE: CORRECT FITTINGS MUST BE USED WITH ALL PIPE, NO TAPING OR SPLICING WILL BE ACCEPTED. A TRACER WIRE SHALL BE INSTALLED ALONG WITH THE PIPE, THIS WIRE MUST BE COPPERHEAD #12 AWG CCS #1230HS COMPLYING WITH ASTM–D–1248, 30 VOLT RATING BE EXPOSED A MINIMUM LENGTH OF 12 INCHES AT THE HOUSE AND SHALL DEAD END AT THE CONNECTION OR TILE DISCHARGE. NO WIRE SHALL BE ACCEPTED EXCEPT AS SPECIFIED ABOVE.

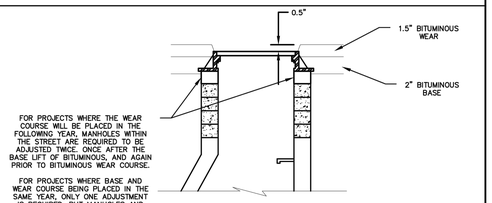
NOTE: THE TRENCH MUST BE LEFT OPEN AT ALL CONNECTIONS FOR INSPECTION PURPOSES. IF A TILE LINE IS TO DEAD END INTO A POND OR WET LAND A FENCE POST SHALL CLEARLY MARK ITS END. ALL INSPECTIONS SHALL REQUIRE A 24 HOUR NOTICE. ALL TRENCHES MUST BE BACK FILLED WITHIN 24 HOURS. IT IS RECOMMENDED THAT A REPRESENTATIVE OF THE BUILDER BE PRESENT AT ALL INSPECTIONS.

CITY OF ROGERS	SUMP PUMP DISCHARGE REQUIREMENTS	Standard Details Date: SEPTEMBER, 2020 Revised: STO–14A

Notes

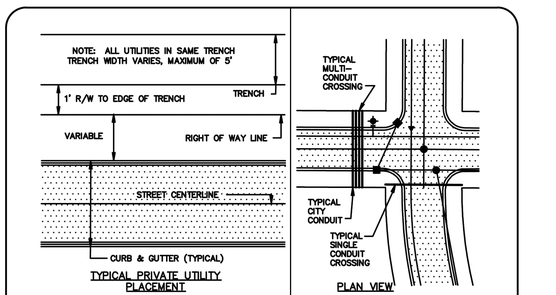
Barrier shall be Strike Products I&I Barrier, Ess Brothers Alignment Barrier or approved equivalent.



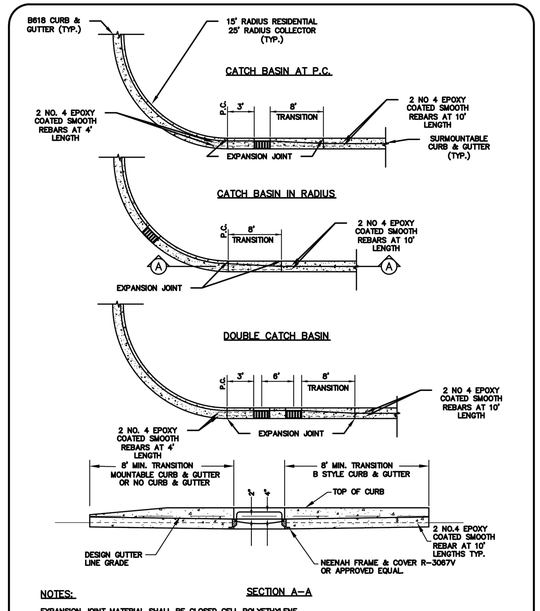


BITUMINOUS WEAR COURSE ADJUSTMENT DETAIL

CITY OF ROGERS	MANHOLE CASTING ADJUSTMENT DETAIL	Standard Details Date: SEPTEMBER, 2020 Revised: STR–10



CITY OF ROGERS	PRIVATE UTILITY CONDUIT CROSSING	Standard Details Date: SEPTEMBER, 2020 Revised: STR–11



NOTES:
EXPANSION JOINT MATERIAL SHALL BE CLOSED CELL POLYETHYLENE

CITY OF ROGERS	CURB RADIUS	Standard Details Date: SEPTEMBER, 2020 Revised: CON–2

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890–6044 FAX: (952)890–6244

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.

PRELIMINARY

Date: Reg.No.

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
CONSTRUCTION DETAILS
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY: JSO
DATE: 02/24/2024
REVISIONS
CAD FILE: 23970D
PROJECT NO.: 23970
6.6

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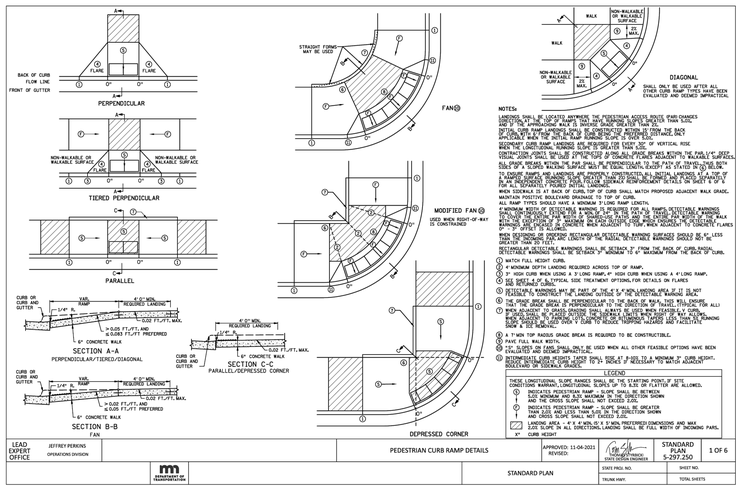


NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS, AND EVERY 30 VERTICAL INCHES (2.5 FEET) OF RISE. LANDING WIDTH SHALL BE EQUAL TO OR GREATER THAN THE WIDTH OF THE RAMP RUN LEADING INTO THE LANDING. LANDING LENGTH SHALL BE NO LESS THAN 5.00'.

ENTRY/EXIT CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN BY FROM THE BACK OF CURB AT THE BOTTOM OF CURB RAMPS WHERE THE PEDESTRIAN ACCESS ROUTE (PAR) IS ADJACENT TO AN UNPROTECTED EDGE. THE OUTSIDE RAMP SURFACE SHALL SLOPE AWAY FROM THE LANDING AT A MAXIMUM SLOPE OF 5.00% (1:20) FOR A MINIMUM DISTANCE OF 1.00' (PERPENDICULAR TO THE RAMP).

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE OF THE PAR EXCEEDS 5.00%.

CONSTRUCTION JOINTS SHALL BE LOCATED AT OPPOSITE ENDS OF THE PAR, 1/4" JOINT MATERIAL SHALL BE USED AT ALL CONSTRUCTION JOINTS AND EXPANSION JOINTS IN WALKABLE SURFACES.

ALL SLOPE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. WHERE BOTH SIDES OF A SLOPED WALKING SURFACE MEET, THEY SHALL BE FLUSH.

TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED ALL INITIAL LANDINGS AT THE TOP OF A RAMP SHALL BE INSPECTED BY THE ENGINEER PRIOR TO PLACING CONCRETE. SEE SHEET 6 OF 6 FOR ALL SEPARATELY POURED INITIAL LANDINGS.

MAINTAIN POSITIVE BOULEVARD DRAINAGE TO TOP OF CURB.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 5'LONG RAMP LENGTH.

A MINIMUM WIDTH LANDING IS DESIGNED FOR ALL RAMPS DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE RAMP AND 2.00' MINIMUM DEPTH IN THE DIRECTION OF TRAVEL. DETECTABLE WARNINGS SHALL BE SET BACK FROM THE BACK OF CURB AT THE BOTTOM OF THE RAMP WITH THE EXCEPTION OF MAXIMUM ON EACH OUTSIDE CURB RAMP CHANNEL TO PROTECTION AGAINST DRAINAGE FLOWS. SEE DETECTABLE WARNING PLACEMENT DETAILS ON SHEET 6 OF 6.

WHEN DESIGNING OR ORDERING RECTANGULAR DETECTABLE WARNING SURFACES SHOULD BE 60" LESS THAN THE WIDTH OF THE RAMP. THE DETECTABLE WARNING SURFACE SHOULD NOT BE GREATER THAN 70 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 8" FROM THE BACK OF CURB/RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 24" MINIMUM FROM THE BACK OF CURB.

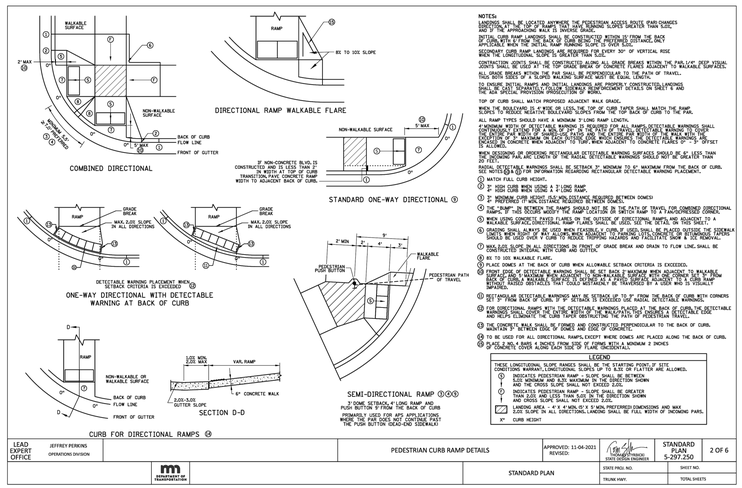
① MATCH FULL HEIGHT CURB.
② 4" MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
③ 5" HIGH CURB WHEN USING A 3'LONG RAMP, 4" HIGH CURB WHEN USING A 4'LONG RAMP, AND 3" HIGH CURB WHEN USING A 5'LONG RAMP. SIDE TREATMENT OPTIONS ARE SHOWN IN DETAILS ON SHEET 6 OF 6.
④ DETECTABLE WARNINGS MAY BE PART OF THE 4'X 4' MIN LANDING AREA IF IT IS NOT LOCATED IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS.
⑤ THE "TRUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. THIS SHOULD MINIMIZE THE NEED FOR A RAMP CHANGE DIRECTION AND FORCE A 90° TURN.
⑥ WHEN USING CONCRETE PAVERS FLARES IN THE OUTSIDE OF DIRECTIONAL RAMPS AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARE SHALL BE USED. SEE THE DETAIL ON THIS SHEET.
⑦ STRAIGHT FLARES SHALL BE USED WHEN RIGHT-OF-WAY IS CONSTRAINED. WHEN USING STRAIGHT FLARES THE MAXIMUM SLOPE OF THE FLARE SHALL BE 10.00% AND THE MAXIMUM RUNNING SLOPE OF THE PAR SHALL BE 5.00%. SEE DETAIL ON THIS SHEET.
⑧ A 1' MIN TOP RADIUS GRADE BREAK IS REQUIRED TO BE CONSTRUCTIBLE.
⑨ PAVE FULL WIDTH.
⑩ 12" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.
⑪ PERPENDICULAR CURB RAMPS WITHOUT FLARES SHALL BE AT LEAST AS WIDE AS THE WIDEST ADJACENT WALKABLE SURFACE LEADING TO THE RAMP. SEE DETAIL ON THIS SHEET.
⑫ BOULEVARD OR SIDEWALK GRADE.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE STARTING POINT/2 SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.33% OR FLATTER ARE ALLOWED.

① INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.00 MINIMUM AND 8.33 MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.00.
② INDICATES PEDESTRIAN AREA - SLOPE SHALL BE GREATER THAN 2.00 AND LESS THAN 5.00 IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.00.
LANDING AREA - 4' X 4' MIN./5' X 5' MIN. PREFERRED DIMENSIONS AND MAX 2.00 SLOPE IN ALL DIRECTIONS/LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
6" CURB HEIGHT

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	STANDARD PLAN 5-297.250	1 OF 6
	STANDARD PLAN	STATE PROJ. NO.	SHEET NO.	TOTAL SHEETS	
		TRUNK HWY.		TOTAL SHEETS	



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③ 4" HIGH CURB WHEN USING A 4'LONG RAMP.
④ 3" MINIMUM CURB HEIGHT AND MAX DISTANCE REQUIRED BETWEEN DOMED DETECTABLE WARNINGS FOR COMBINED DIRECTIONAL RAMPS.
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6" CURB HEIGHT

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	STANDARD PLAN 5-297.250	2 OF 6
	STANDARD PLAN	STATE PROJ. NO.	SHEET NO.	TOTAL SHEETS	
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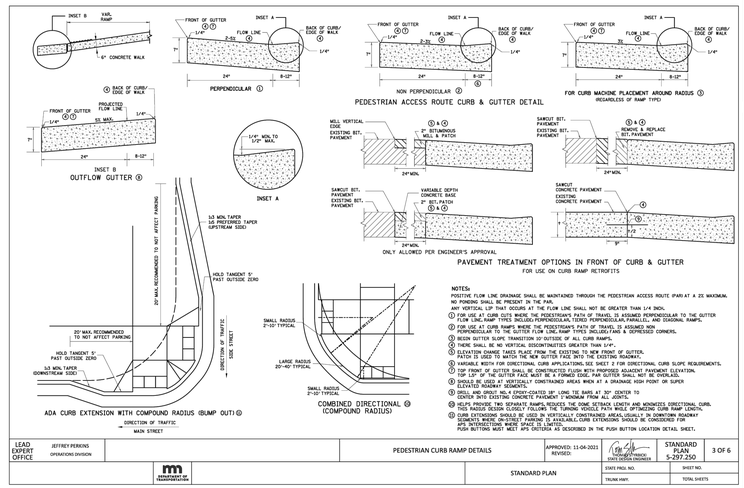

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM. NO PONDING SHALL BE PRESENT IN THE PAR.

CURB VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FLOW LINE RAMP TYPES INCLUDED PERPENDICULAR PATH OF TRAVEL IS ASSUMED NON-PERPENDICULAR TO THE GUTTER FLOW LINE RAMP TYPES INCLUDED FAN & DEPRESSED CORNERS.
② BEGIN SLOPE TRANSITION OUTSIDE OF ALL CURB RAMPS.
③ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".
④ CONSTRUCT CONCRETE GUTTER PAN AT THE SAME GRADE AS THE FLOW LINE OF GUTTER.
⑤ CONSTRUCT CONCRETE GUTTER PAN AT THE SAME GRADE AS THE EXISTING ROADWAY.
⑥ VARIABLE WIDTH FOR CONSTRUCTION APPLICATIONS, SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.
⑦ TOP FRONT OF GUTTER SHALL BE LONGITUDINALLY FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.25" OF THE GUTTER PAN MUST BE A FORMED EDGE, PAN GUTTER SHALL NOT BE OVERLAID.
⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SECTIONS.
⑨ DOWEL BARS SHALL BE #4 BARS CROSS-CUTTED 18" LONG TIE BARS AT 30" CENTER TO CENTER TO CREATE A FULL DEPTH CONCRETE PAVEMENT WIDENING FROM AN EXISTING JOINT.
⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME DETECTABLE LENGTH AND WIDENESS DIRECTIONAL CURB. THIS REDUCES DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE MAINTAINING CURB RAMP LENGTH.
⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, ESPECIALLY IN DOWNTOWN ROADWAY SECTIONS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR INTERSECTIONS WHERE SPACE LIMITED.
PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	STANDARD PLAN 5-297.250	3 OF 6
	STANDARD PLAN	STATE PROJ. NO.	SHEET NO.	TOTAL SHEETS	
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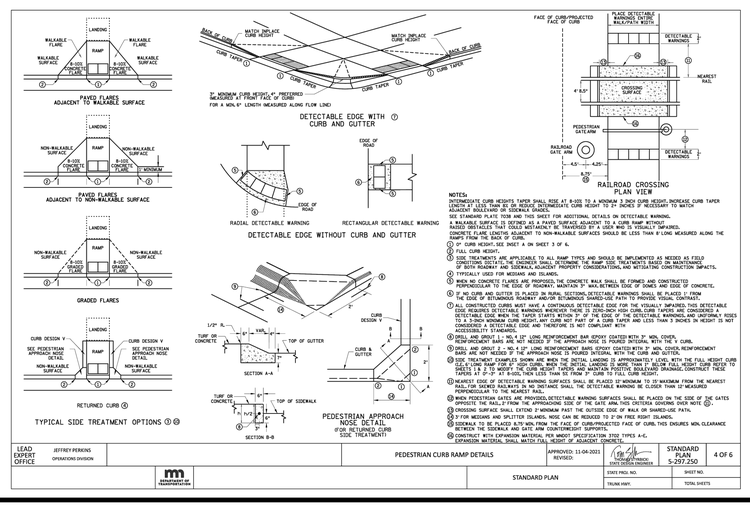

NOTES:

INTERMEDIATE CURB HEIGHTS TAPER SHALL RISE AT A 6.00 TO A MINIMUM 3 INCH CURB HEIGHT. INCREASE CURB TAPER LENGTH AT LESS THAN 3" OR REQUIRED INTERMEDIATE CURB HEIGHT TO 21" INCHES IF NECESSARY TO MATCH EXISTING CURB HEIGHT OR GUTTER.

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED. CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8'LONG MEASURED ALONG THE BACK OF CURB.

① 0" CURB HEIGHT, SEE INSET A ON SHEET 3 OF 6.
② FULL CURB HEIGHT.
③ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE/THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.
④ TYPICALLY USED FOR MEDIANS AND ISLANDS.
⑤ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED TO THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
⑥ IN NO CASE SHALL CURB TAPER BE LESS THAN 2'LONG. IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 6" FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.
⑦ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB.TAPERS ARE CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS. CURB HEIGHTS THAT TAPER FROM 0 TO 3-INCH MINIMUM CURB HEIGHT, AND CURB THAT IS LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.
⑧ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BARS EPOXY GROUTED WITH A MINIMUM 6" EMBEDMENT INTO CONCRETE, 3" CLEAR BETWEEN BARS AND EDGES OF CONCRETE.
⑨ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS EPOXY GROUTED WITH A MINIMUM 6" EMBEDMENT INTO CONCRETE, 3" CLEAR BETWEEN BARS AND EDGES OF CONCRETE.
⑩ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE DETAIL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB ADJACENT TO THE NEAREST RAIL. WHEN THE DETAIL LANDING IS NOT APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB ADJACENT TO THE NEAREST RAIL, THE DETECTABLE WARNING SHALL BE CLOSEST TO THE NEAREST RAIL.
⑪ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 13' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAILROAD GATE. THE DETECTABLE WARNING SHALL BE CLOSEST TO THE NEAREST RAIL.
⑫ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE WHILTHIS CRITERIA OVERRIDING OVER NOTE ⑪.
⑬ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.
⑭ 3' FOR MEDIANS AND SPLITTER ISLANDS, NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.
⑮ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB.THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.
⑯ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3150 TYPES A-C. SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	STANDARD PLAN 5-297.250	4 OF 6
	STANDARD PLAN	STATE PROJ. NO.	SHEET NO.	TOTAL SHEETS	
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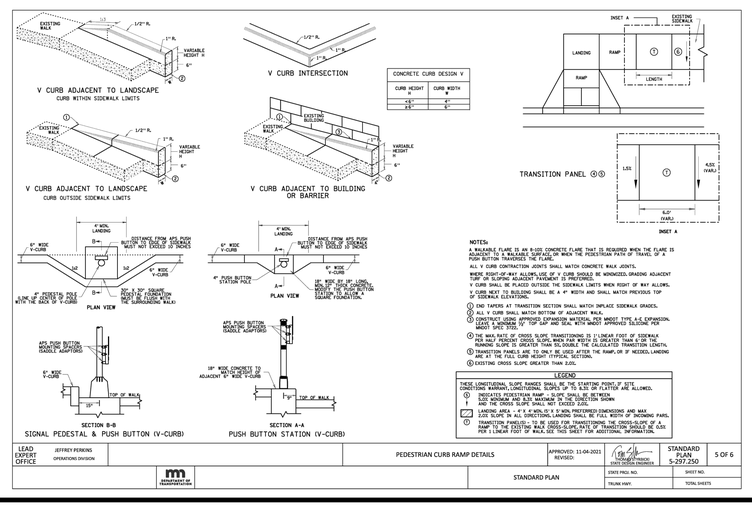


NOTES:

A WALKABLE FLARE IS AN 8.00% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON STATION IS LOCATED.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

ALL V CURB ADJACENT TO LANDSCAPE CURB SHOULD BE MONOLITHICALLY ENGINEERED ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB MEET TO BUILDING SHALL BE 0" MINIMUM WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

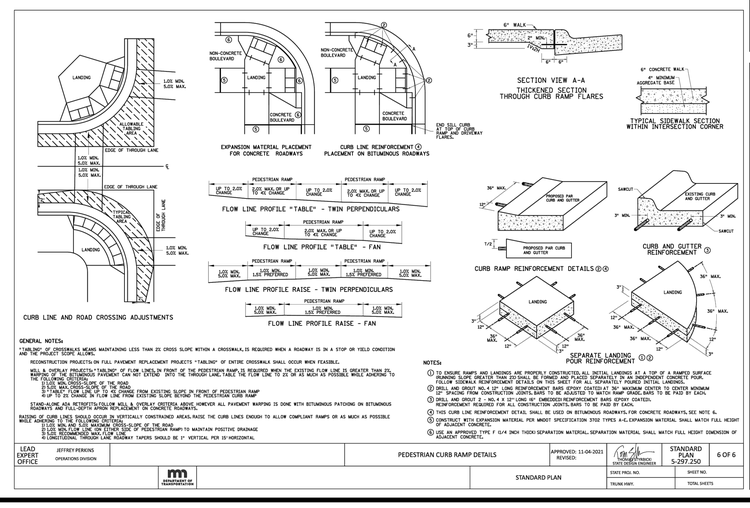
① END TAPERS AT TRANSITION SECTION SHALL MATCH INFLARE SIDEWALK ELEVATIONS.
② ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.
③ CONSTRUCT USING APPROVED CONCRETE MATERIAL AND CUT MNDOT TYPE K-4 EXPANSION. LEAVE A MINIMUM 1/2" TOP GAP AND SEAL WITH MNDOT APPROVED SILICONE PER MNDOT 3723.
④ THE MAX RATE OF CROSS SLOPE TRANSITION IS 1-INCH IN 2-FEET PROPORTIONALLY PER HALF PERCENT CROSS SLOPE. MIN PAVER WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5.00%, THE CROSS SLOPE SHALL BE A CONSTANT TRANSITION LENGTH.
⑤ TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE TO THE FULL CURB HEIGHT TRANSITION.
⑥ EXISTING CROSS SLOPE GREATER THAN 2.0%.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT/2 SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.33% OR FLATTER ARE ALLOWED.

① INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.00 MINIMUM AND 8.33 MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.00.
LANDING AREA - 4' X 4' MIN./5' X 5' MIN. PREFERRED DIMENSIONS AND MAX 2.00 SLOPE IN ALL DIRECTIONS/LANDING SHALL BE FULL WIDTH OF INCOMING PARS.
② TRANSITION PANEL/ED - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO MATCH THE CROSS-SLOPE OF THE ROAD. SEE DETAIL ON THIS SHEET FOR PUSH BUTTON POST / LINEAR POST OF WALK.SEE THIS SHEET FOR ADDITIONAL INFORMATION.

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	STANDARD PLAN 5-297.250	5 OF 6
	STANDARD PLAN	STATE PROJ. NO.	SHEET NO.	TOTAL SHEETS	
		TRUNK HWY.		TOTAL SHEETS	



GENERAL NOTES:

*TURN/BOT-OF-DRIVEWAYS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A DRIVEWAY IS ON A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS ON FULL PAVEMENT REPLACEMENT PROJECTS *TAILING* OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS *TAILING* OF FLOW LINE/LIP FRONT OF THE PEDESTRIAN RAMP IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. MAPPING OF THE EXISTING CONDITIONS CAN NOT EXTEND INTO THE THROUGH LANE/TAILS THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

① 2% MAX CROSS-SLOPE OF THE ROAD.
② 5.00% MAX RUNNING SLOPE OF THE RAMP.
③ 2% MAX CROSS-SLOPE OF THE RAMP, RAMPS FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP.
④ UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEHIND THE PEDESTRIAN RAMP.

STAND-ALONE ADA RETROFITS/FOLLOW MILL & OVERLAY CRITERIA ABOVE.HOWEVER ALL PAVEMENT MAPPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD occur IN VERTICALLY CONSTRAINED AREAS WHERE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA:

① 2% MAX CROSS-SLOPE OF THE ROAD.
② 5.00% MAX RUNNING SLOPE OF THE RAMP.
③ 2% MAX CROSS-SLOPE OF THE RAMP, RAMPS FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP.
④ UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEHIND THE PEDESTRIAN RAMP.

NOTES:

① TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED ALL INITIAL LANDINGS AT A TOP OF A RAMP/2 SURFACE DRAINING SLOPE GREATER THAN 20:1/SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
② DRILL AND GROUT NO.4 12" LONG REINFORCEMENT BARS EPOXY GROUTED WITH A MINIMUM 6" EMBEDMENT INTO CONCRETE, 3" CLEAR BETWEEN BARS AND EDGES OF CONCRETE.
③ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS EPOXY GROUTED WITH A MINIMUM 6" EMBEDMENT INTO CONCRETE, 3" CLEAR BETWEEN BARS AND EDGES OF CONCRETE. REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS.BARS TO BE PAID BY EACH.
④ THIS CURB LINE REINFORCEMENT DETAIL SHALL BE USED ON BITUMINOUS ROADWAYS.FOR CONCRETE ROADWAYS, SEE NOTE 6.
⑤ CONSTRUCT WITH EXPANSION MATERIAL PER MNDOT SPECIFICATION 3150 TYPES A-C.EXPANSION MATERIAL SHALL MATCH FULL HEIGHT OF ADJACENT CONCRETE.
⑥ USE AN APPROVED TYPE F 0.4 INCH THICK/SEPARATION MATERIAL; SEPARATION MATERIAL SHALL MATCH FULL HEIGHT DIMENSION OF ADJACENT CONCRETE.
⑦ 4% LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 25' HORIZONTAL

LEAD EXPERT OFFICE	JEFFREY PERKINS OPERATIONS DIVISION	PEDESTRIAN CURB RAMP DETAILS	APPROVED: 11-04-2021 REVISED:	STANDARD PLAN 5-297.250	6 OF 6
	STANDARD PLAN	STATE PROJ. NO.	SHEET NO.	TOTAL SHEETS	
		TRUNK HWY.		TOTAL SHEETS	

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 W. Cty. Rd. 42, Suite 100, Burnsville, MN 55306
PHONE: (952)890-6044 FAX: (952)890-6244

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.

PRELIMINARY

Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
CONSTRUCTION DETAILS
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
JSO

DATE
02/24/2024

REVISIONS

CAD FILE
23970D

PROJECT NO.
23970

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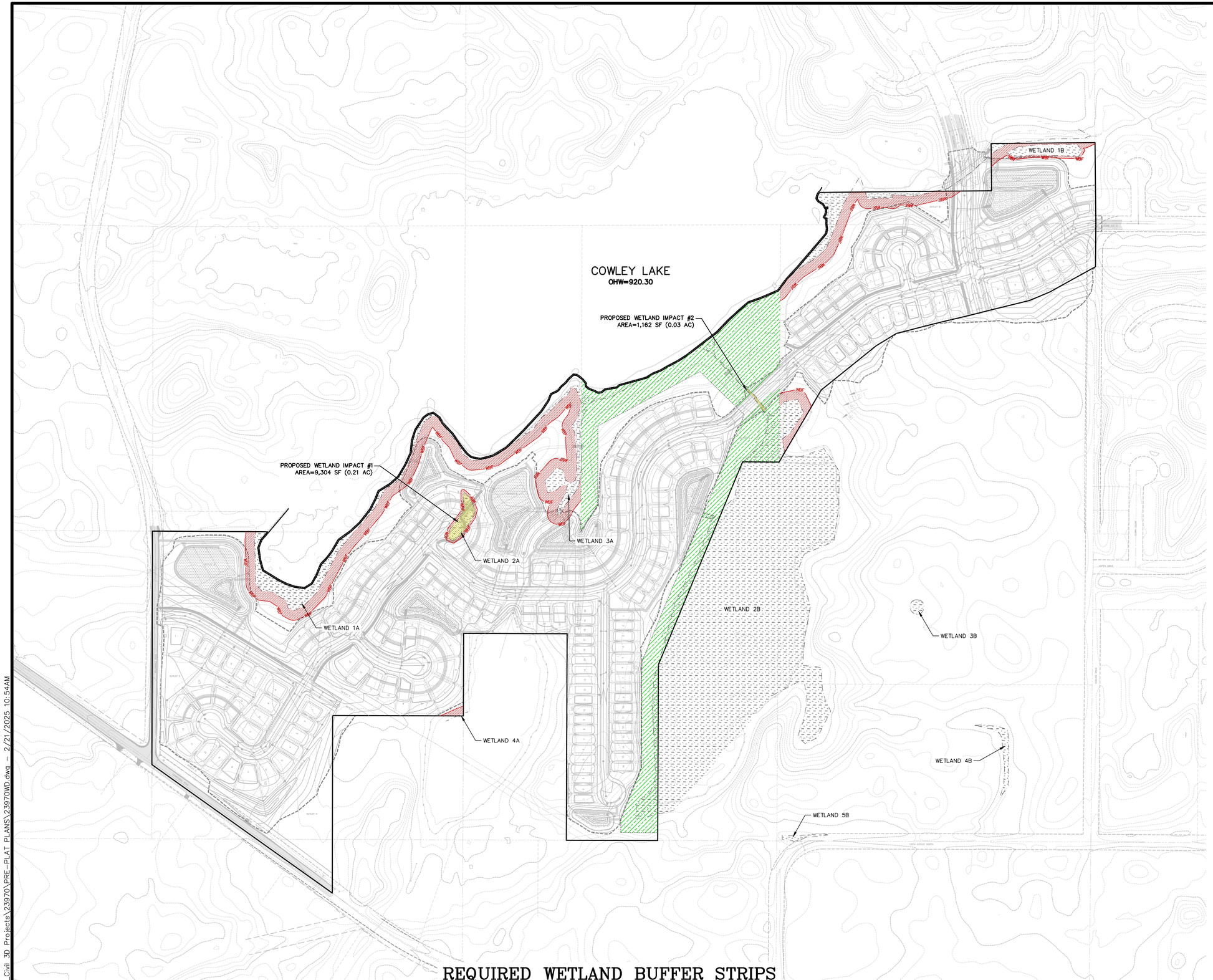

REQUIRED WETLAND BUFFER STRIPS

LEGEND

- EXISTING WETLAND
- EXISTING CONSERVATION EASEMENT
- PROPOSED WETLAND FILL
- REQUIRED WETLAND BUFFER
- PROPOSED WETLAND BUFFER

WETLAND SUMMARY

TOTAL PROPOSED IMPACT AREA	10,466 SF (0.24 AC)
REQUIRED BUFFER AREA	194,755 SF (4.47 AC)
PROPOSED BUFFER AREA	254,103 SF (5.83 AC)

NOTES

1. REQUIRED WETLAND BUFFER STRIPS PER CITY OF ROGERS IS 40 FEET AVERAGE WIDTH, 25 FEET MINIMUM FOR HIGH QUALITY WETLAND AND 10 FEET MINIMUM FOR ALL OTHER WETLANDS.
2. WETLANDS 1A, 3A AND 2B ARE CONSIDERED HIGH QUALITY.
3. WETLANDS 1A THRU 4A DELINEATED BY MIDWEST NATURAL RESOURCES, INC., REPORT DATED 6/27/2022.
4. WETLANDS 1B THRU 5B DELINEATED BY ANDERSON ENGINEERING OF MINNESOTA, REPORT DATED 11/10/2021.
5. BUFFER STRIPS WITHIN THE EXISTING CONSERVATION EASEMENT AREA EXCLUDED FROM THE CALCULATIONS.
6. REQUIRED BUFFER AREA EXCLUDES WETLAND 2A.

Know what's **below.** **Call** before you dig.

N

SCALE IN FEET
0 200 400 600
1 inch = 200 feet

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PRELIMINARY

Date:_____ Reg.No._____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
WETLAND IMPACTS AND BUFFERS
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY	JSO
DATE	02/24/2024
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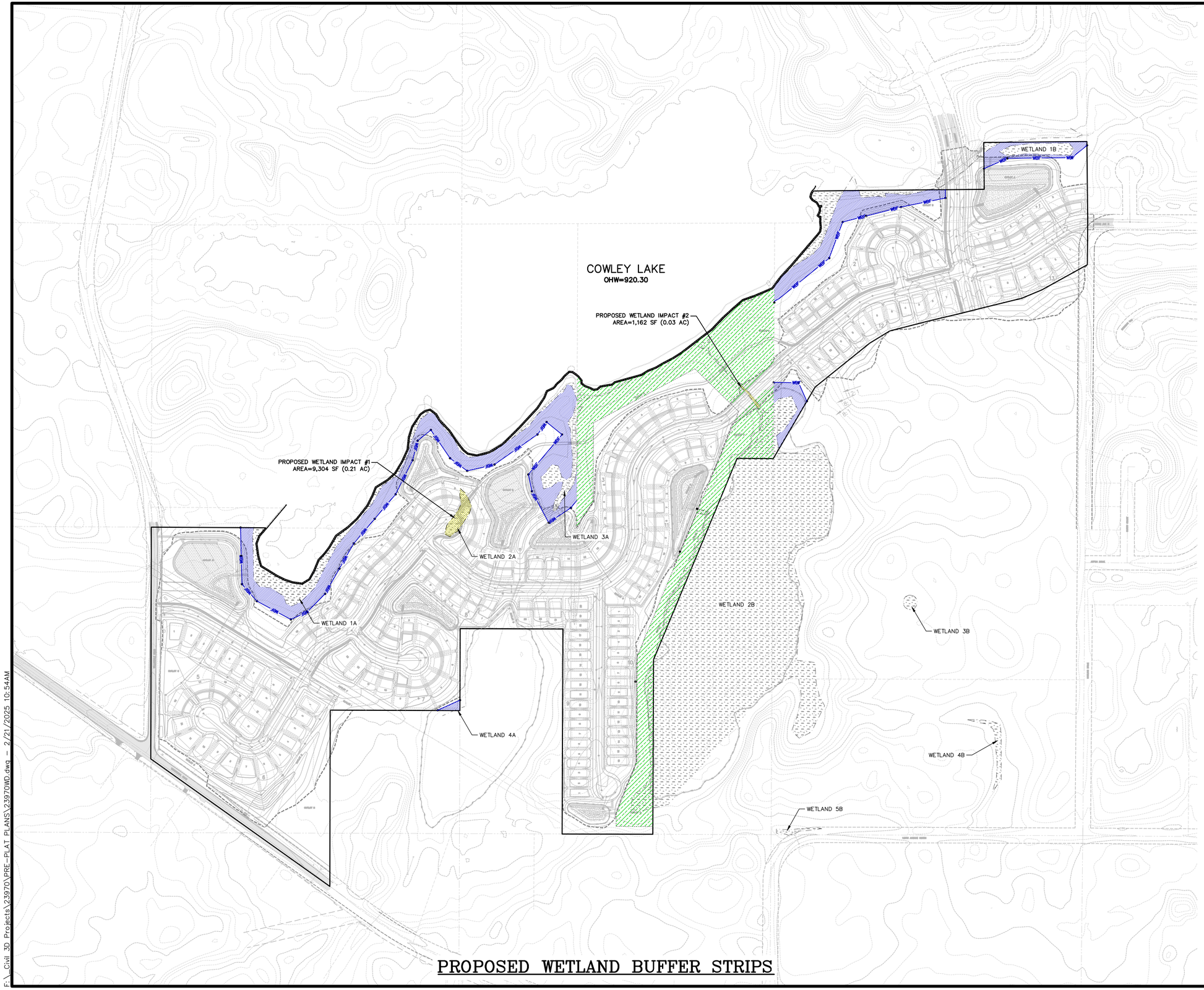

PROPOSED WETLAND BUFFER STRIPS

LEGEND

- EXISTING WETLAND
- EXISTING CONSERVATION EASEMENT
- PROPOSED WETLAND FILL
- REQUIRED WETLAND BUFFER
- PROPOSED WETLAND BUFFER

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6. REQUIRED BUFFER AREA EXCLUDES WETLAND 2A.

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N

SCALE IN FEET
0 200 400 600
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Date: _____ Reg.No. _____

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
WETLAND IMPACTS AND BUFFERS
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

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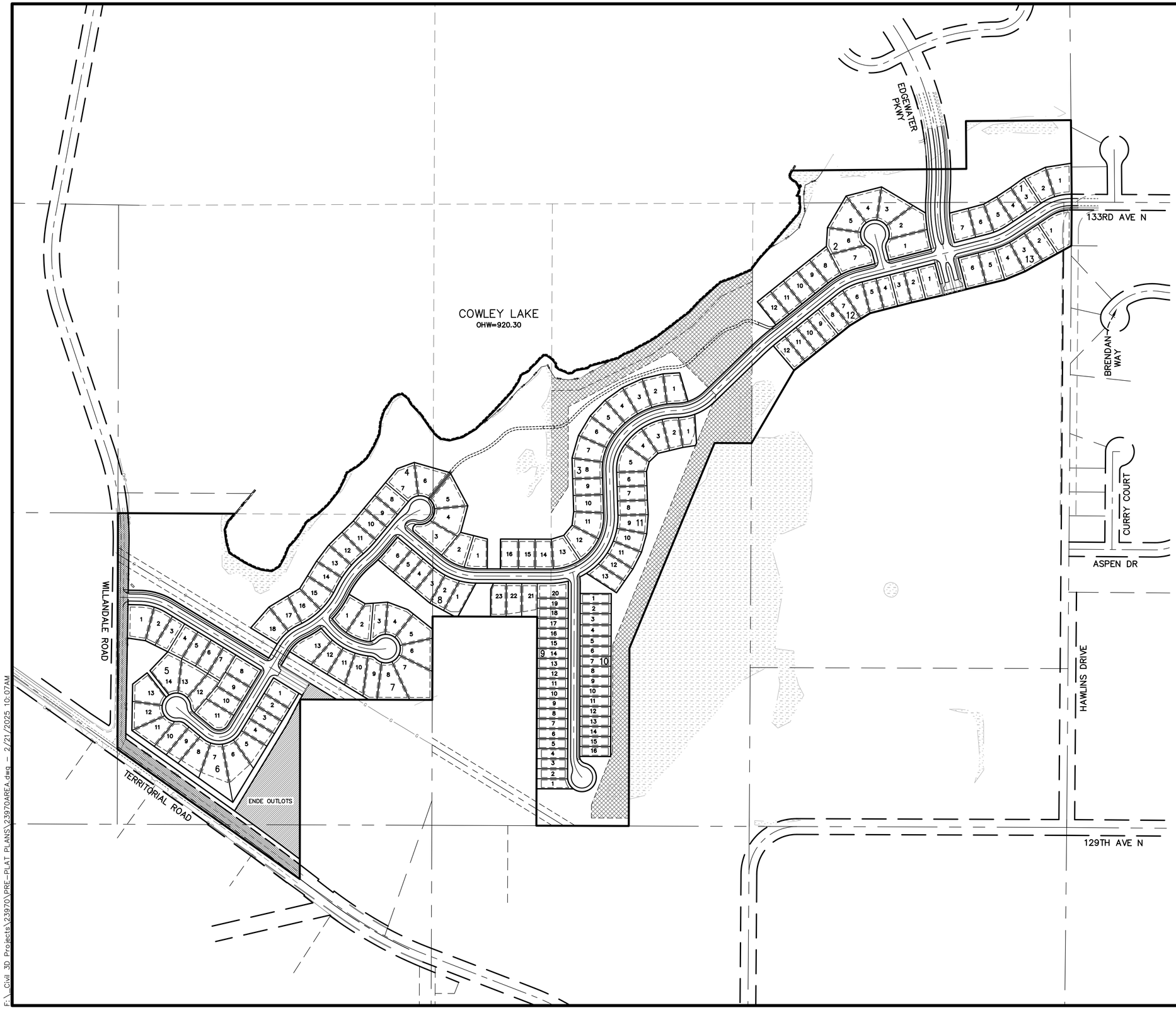

LEGEND

- DELINEATED WETLAND
- RIGHT-OF-WAY (TERRITORIAL/WILLANDALE)
- ENDE OUTLOTS
- CONSERVATION EASEMENT

PROJECT AREA SUMMARY

COMPUTE NET PROJECT AREA	
GROSS AREA (AREA HAVING AN ELEVATION ABOVE THE OHW)	87.63 AC
SUBTRACT EXISTING ROW (WILLANDALE & TERRITORIAL)	−2.07 AC
SUBTRACT OUTLOTS TO BE DEEDED TO ENDE	−2.18 AC
SUBTRACT EXISTING WETLAND	−2.46 AC
SUBTRACT EXISTING CONSERVATION EASEMENT	−8.20 AC
NET PROJECT AREA	72.72 AC
TOTAL NUMBER OF LOTS	169 LOTS
DENSITY (# LOT / NET PROJECT AREA = 169 / 72.72)	2.32 UNIT/AC

SCALE IN FEET
0 200 400 600
1 inch = 200 feet

N

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Date: Reg.No.

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
NET DENSITY EXHIBIT
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

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VICINITY MAP

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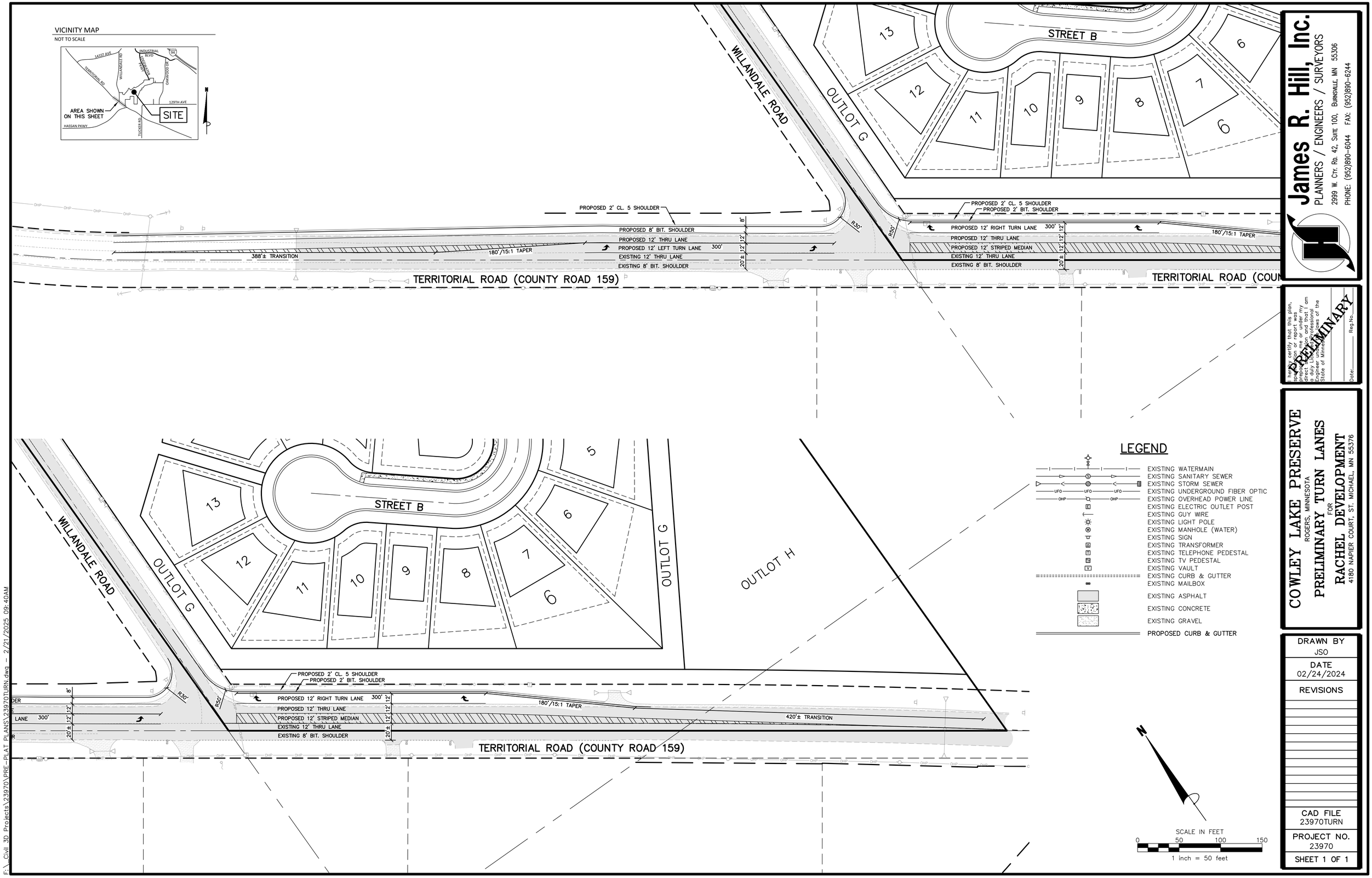

LEGEND

- EXISTING WATERMAIN
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING UNDERGROUND FIBER OPTIC
- EXISTING OVERHEAD POWER LINE
- EXISTING ELECTRIC OUTLET POST
- EXISTING GUY WIRE
- EXISTING LIGHT POLE
- EXISTING MANHOLE (WATER)
- EXISTING SIGN
- EXISTING TRANSFORMER
- EXISTING TELEPHONE PEDESTAL
- EXISTING TV PEDESTAL
- EXISTING VAULT
- EXISTING CURB & GUTTER
- EXISTING MAILBOX
- EXISTING ASPHALT
- EXISTING CONCRETE
- EXISTING GRAVEL
- PROPOSED CURB & GUTTER

SCALE IN FEET

0 50 100 150

1 inch = 50 feet

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PRELIMINARY

Date: Reg.No.

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY TURN LANES
FOR
RACHEL DEVELOPMENT
4180 NAPIER COURT, ST. MICHAEL, MN 55376

DRAWN BY
JSO

DATE
02/24/2024

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23970

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WETLAND DELINEATION REPORT
COWLEY LAKE SITE, ROGERS, MN

Prepared for:
Rachel Development
4180 Napier Court NE
St. Michael, MN 55376

JUNE 27, 2022

Prepared by:
Midwest Natural Resources, Inc.
1032 West 7th Street, Suite 150
St. Paul, Minnesota 55102
www.mnrinc.us

TABLE OF CONTENTS

Table of Contents 1
Introduction 2
Desktop Review 2
Methods 2
Results 3
Wetlands 3
Channels 4
Non-Wetland Areas 4
Historic Imagery Review 5

Tables

Table 1. Delineated Wetland Features 2
Table 2. Summary of Wetland Hydrology Assessment Using Aerial Imagery 6
Table 3. Wetland Determination from Aerial Imagery 6

Appendices

Appendix A Supporting Site Figures
Figure 1. Survey Site Location
Figure 2. MN DNR Public Waters Inventory
Figure 3. US FWS National Wetlands Inventory
Figure 4. Hennepin County Soil Survey – SSURGO Soil Map Units
Figure 5. Delineated Wetlands

Appendix B Climate Data
Table 1. Precipitation Worksheet Using Gridded Database
Table 2. Recent Precipitation
Table 3. Monthly Average High Temperature

Appendix C Wetland Determination Forms
Appendix D Representative Site Photos
Appendix E Historic Imagery Figures
Appendix F Precipitation Worksheets (using gridded database)
Appendix G Hydrology Assessment Worksheets

INTRODUCTION

Midwest Natural Resources, Inc. (MNR) was contracted by Rachel Development to provide wetland delineation services for the approximate 42-acre Cowley Lake site which is located north of Territorial Road and east of Willandale Road in Rogers, Hennepin County, Minnesota (**Appendix A, Figure 1**). On May 16th, 2022 MNR conducted a routine wetland delineation within the site to determine any wetland boundaries. In all, the boundaries of three wetlands and two linear waterbodies were delineated within the site. Two other areas were reviewed for the presence of wetland but after review of historic imagery both areas were determined not to be wetland.

DESKTOP REVIEW

Prior to conducting the field surveys, MNR staff conducted a desktop review to evaluate existing data within the project area including the following. All data are illustrated in the figures in **Appendix A**.

- MN DNR Public Waters Inventory (PWI) (**Figure 2)**
- US FWS National Wetlands Inventory (NWI) (**Figure 3**)
- Hennepin County Soil Survey (**Figure 4**)
- LiDAR elevation
- Aerial imagery
- Recent and short-term climate data (**Appendix B**)

METHODS

The entire survey area was surveyed via pedestrian surveys to investigate the presence of wetlands, and the potential wetland features identified in the desktop review were targeted for investigation. All potential wetlands were evaluated utilizing the Routine "Onsite" Determination Method contained in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region for the 1987 Wetlands Delineation Manual Technical Report Y-87-1. For each potential wetland within the survey area, the three wetland parameters (vegetation, hydrology, and soils) were examined to determine wetland status. If positive wetland status was determined, a sample transect was established where the wetland/upland transition occurs. In each transect, the three parameters (vegetation, hydrology, and soils) were documented at a sample point within the wetland and in the adjacent upland.

Vegetation was assessed at each sample point by identifying the dominant species present and noting wetland indicator status. Hydrologic indicators were evaluated for characteristics including, but not limited to, the presence or absence of inundated or saturated soils, high water table, drift lines, drainage patterns, and landscape position. The final parameter, soils, was assessed by digging a soil pit to at least 18 inches, where feasible, and examining the soil profile for indicators of hydric soils. In locations where a soil pit could not be dug due to the presence of buried utilities, soils were assumed hydric or non-hydric based on the dominant vegetation and presence or absence of hydrologic indicators, respectively.

All data and information pertaining to each wetland and upland sample point were collected using the applicable Corps wetland determination forms, and representative photos of each feature reviewed were collected. Wetland boundaries were recorded spatially with GPS units (Trimble GeoXT 6000) and were flagged in the field. Areas not meeting wetland criteria were documented with a non-wetland sample point and a representative photograph.

All spatial data was collected in WGS84 and post-processed in ArcMap using Trimble Positions Desktop Add-in.

RESULTS

MNR conducted the field survey of the Cowley Lake Site on May 16, 2022 and it was noted that the survey area consists primarily of land in agricultural row crop production, with areas of deciduous woodland and three wetland areas. In total five features were mapped within the site including three wetlands and two linear waterbodies.

Wetlands

A total of three wetlands were mapped across the survey area (**Figure 5**). Below is a table that summarizes each delineated wetland by Circular 39 type, Cowardin classification, Eggers and Reed Plant Community, and by size in acres followed by a general description for each feature. More information pertaining to the documented wetland features is available in the wetland determination forms provided in **Appendix C** with photos of each feature in **Appendix D**.

Table 1. Delineated Wetland Features[1]

Wetland ID	Feature ID	Cowardin Classification	Circ. 39 Type/s	Eggers & Reed Plant Community Type	Acres
Wetland 1	22-211-w1	PEM/FOB & PEMC	Type 2/3/7	Fresh (Wet) Meadow, Shallow Marsh & Wooded Swamp	1.24
Wetland 2	22-211-w2	PEMAf	Type 1	Seasonally Flooded Basin	0.21
Wetland 3	22-211-w3	PEM/FOA	Type 1	Seasonally Flooded Basin & Floodplain	0.42

[1]The Feature ID corresponds to the sampling point name on the Wetland Determination Forms and in the spatial data

Wetland 1

Wetland 1 is a Type 2/3/7 (PEM/FOB & PEMC; Fresh Wet Meadow/Shallow Marsh/Wooded Swamp) wetland complex located along the northern property boundary and is approximately 1.24 acres in area within the site. The wetland extends off-site to the north as a similar type wetland that is associated with Cowley Lake. Wetland 1 is a complex of fresh wet meadow dominated by reed canary grass, shallow marsh dominated by cattail, and wooded swamp along the edge of Cowley Lake that is dominated by green ash with silver maple. The transition from upland to wetland was typical of having a change in plant community and elevation. A small drainage channel flows into Wetland 1 along the western part of the wetland boundary. The DNR updated National Wetlands Inventory (June, 2013) maps the area of the site where Wetland 1 is located as a PEM1A and PFO1A wetland complex. The MN DNR Public Waters Inventory maps this wetland as part of public waters Cowley (27016900-P).

Wetland 2

Wetland 2 is a farmed Type 1 (PEMAf; Seasonally Flooded Basin) depressional wetland located in the northeastern part of the survey area and is approximately 0.21 acre in area. This wetland is entirely farmed through from year to year with row crops. At the time of the survey, crops for this year had not been planted yet and several inches of standing water was observed within the wetland. The DNR updated National Wetlands Inventory (June, 2013) does not map the area of the site where Wetland 2 is located as any type of wetland. The MN DNR Public Waters Inventory does not map any public waters where Wetland 2 is located.

From the review of historical imagery for Wetland 2, there was an obvious signature of wetland in 100% of years with normal precipitation.

Wetland 3

Wetland 3 is a Type 1 (PEM/FOA; Seasonally Flooded Basin & Floodplain) wetland located along the eastern site boundary and is approximately 0.42 acre in area within the site. This wetland extends off-site to the north as a similar type wetland with channel. Part of this wetland includes an open water channel from the southern

wetland boundary north up to the edge of Cowley Lake and also includes a low-lying wooded area dominated by box-elder with a sparsely vegetated ground layer. The box elder wooded area connects to the main waterbody channel by way of a narrow swale area. Along both sides of the open water channel is seasonally flooded basin dominated by reed canary grass with scattered cottonwood and willow trees. The DNR updated National Wetlands Inventory (June, 2013) maps the area of the site where Wetland 3 is located as a PFO1A wetland. The MN DNR Public Waters Inventory does not map any public waters where Wetland 3 is located.

Channels

Channel 1

Channel 1 is located in the northwestern part of the site, is approximately 55 LF in length, and varies in width from 2'- 4' wide with 1' high side slopes. The channel connects to Wetland 1 where at times of the year it will have flowing water present including at the time of the site survey. The channel itself starts at the edge of an agricultural field and is the result of a drain tile outlet discharging water into it the area.

Channel 2

Channel 2 is an excavated channel that flows through Wetland 3 and is located in the northeastern part of the site. This channel is approximately 458 LF in length, varies in width from 4'- 10', and has 1'-2' high side slopes. The depth of the water in the channel was not measured but is likely 1-2' deep from general observations made along it. Channel 2 starts at the edge of an agricultural field at the southern edge of Wetland 3 and is the result of two drain tile outlets discharging water into this wetland area. Channel 2 eventually flows into Cowley Lake from an area just off-site.

Non-Wetland Areas

In addition to the documented wetland features, two areas were investigated as potential wetland but were determined to be upland based on historical imagery review. More information pertaining to the documented non-wetland features is available in the wetland determination forms provided in **Appendix C** with photos of these areas provided in **Appendix D**. The following is a general description of each non-wetland area.

Area 1

Area 1 is a nearly level low point within an agricultural field that is located around an elevation of 928' along the south and east property lines. This part of the property was investigated for the presence of wetland since in a couple of years of historical imagery there was an apparent wetland signature observed and it's a low point in this part of the site where runoff is directed. The DNR updated National Wetlands Inventory (June, 2013) does not map any type of wetland in the vicinity of Area 1. Since this area is farmed through every year and crops had not been planted at the time of the survey, no vegetation was observed growing.

The area did not meet the criteria for being considered wetland which was based on a lack of adequate wetland hydrology and having 50% of years with normal precipitation showing a wetland signature. In order to be considered having wetland hydrology, there needs to be greater than 50% of years with normal precipitation showing an obvious wetland signature. Signatures from the air photo review that were observed for Area 1 include wetland signature, soil wetness, and crop stress.

Area 2

Area 2 is a nearly level area in a farm field that is located just below an elevation of 926' along the south property line. This part of the property was investigated for the presence of wetland since in a couple of years of historical imagery there was an apparent wetland signature of the area itself and the larger adjacent wetland located just off-site to the south and east. The DNR updated National Wetlands Inventory (June, 2013) maps a PEM1A wetland in the vicinity of Area 2. Since this area is farmed through every year and crops had not

been planted at the time of the survey, no vegetation was observed growing. Just off-site to the south of this area was a farmed wetland with a few inches of standing water observed and to the east of the site was a hayfield dominated by reed canary grass.

The area did not meet the criteria for being considered wetland which was based on a lack of adequate wetland hydrology and having 50% of years with normal precipitation showing a wetland signature. In order to be considered having wetland hydrology, there needs to be greater than 50% of years with normal precipitation showing an obvious wetland signature. Signatures from the air photo review that were observed for Area 2 include wetland signature and soil wetness.

Historic Imagery Review

As part of the routine wetland delineation process, MNR reviewed additional information for determining the extent of wetland hydrology for Wetland 2, Area 1, and Area 2. These areas were evaluated for wetland hydrology using aerial imagery in addition to standard wetland delineation methods since these areas are being farmed through year to year. Wetland hydrology was investigated utilizing the procedures outlined in the US Army Corps of Engineers *Guidance for Offsite Hydrology/Wetland Determinations* (July 2016).

The purpose of using rainfall data in combination with historical imagery is to evaluate the aerial imagery in the context of antecedent moisture conditions to determine if wetland hydrology is observed. The guidance document referenced above recommend evaluating precipitation for three months prior to the date when the imagery was obtained, for each year of historic imagery. Precise dates were available for the imagery used (2000, 2003, 2004, 2006, 2008-2010, and 2012-2021). For these years, precipitation was evaluated using the Minnesota Climatology Office website (climate.umn.edu/gridded_data/precip/wetland/wetland.asp). Detailed precipitation data for each year evaluated (corresponding to each year of available aerial photography) are included in **Appendix F**.

Seventeen years of imagery was evaluated from sources that include: MnGeo WMS service (aerial photography) on geoint.lmic.state.mn.us for the years 2000, 2003, 2006, 2008-2010, 2013, 2015, 2017, and 2019 and Google Earth for the years 2004, 2012, 2014, 2016, 2018, 2020, and 2021. Each year's aerial imagery was overlaid with the delineated wetlands and the two non-wetland areas in order to interpret potential wetland hydrology and to compare wetland signatures from previous years (**Appendix E: Figures 1-17**).

MnGeo and Google Earth imagery were reviewed for the presence of specific wetland features that were noted with the following terminology in the Hydrology Assessment with Aerial Imagery – Recording Forms.

Wet: Outline of the wetland in question can readily be seen and photographic signatures are caused by wetness.

- **WS** – wetland signature: obvious sign of wetland signature
- **CS** – crop stress: obvious difference in crop condition for crop at site due to wetness versus crop in surrounding field(s); may include color (photo tone), size of crop, different planting dates
- **DO** – drowned out: site appears to have been tilled through and possibly planted; however, pattern of crop appears as though all or part has been drowned out
- **NC** – not cropped: site appears to have natural vegetative cover rather than annual crops; no obvious tillage pattern lines through the site; adjacent cropped area squared-up or otherwise planted to avoid the area
- **SW** – standing water: surface water visible on image
- **AP** – altered pattern: detectable differences in vegetation or cropping patterns resulting from delayed planting dates or other alteration to standard farming practices as a result of wetness
- **SS**– soil wetness signature: images taken during the early portion of the growing season may show dark photo tones in areas where the soils are saturated

Dry: Outline of wetland in question cannot readily be seen. Photographic signatures are not due to wetness, and are due to soil or other factors.

- **NV** – normal vegetation: the outline of the area in question cannot be readily distinguished from the surrounding upland area or the signature on the image is not due to wetness
- **NSS** – no soil wetness: use when the area is bare soil and not cropped

Appendix G provides the recording forms used to organize the information collected and interpreted for the hydrology assessment for Wetland 2, Area 1, and Area 2 the three area that were reviewed within the site. These recording forms list for each year of available aerial imagery: the image source, climate conditions (wet, dry, or normal), and the interpretation of any visible wetland signatures.

For this type of wetland hydrology determination, the procedure requires reviewing a minimum of five years of photography which represent normal precipitation, or an equal number of wet and dry years must be added to the analysis. An area is considered to have wetland hydrology if wet signatures (as described above) are observed in the imagery from greater than 50% of normal years. For this site, six years with normal precipitation out of a total of seventeen years were evaluated (**Table 2**).

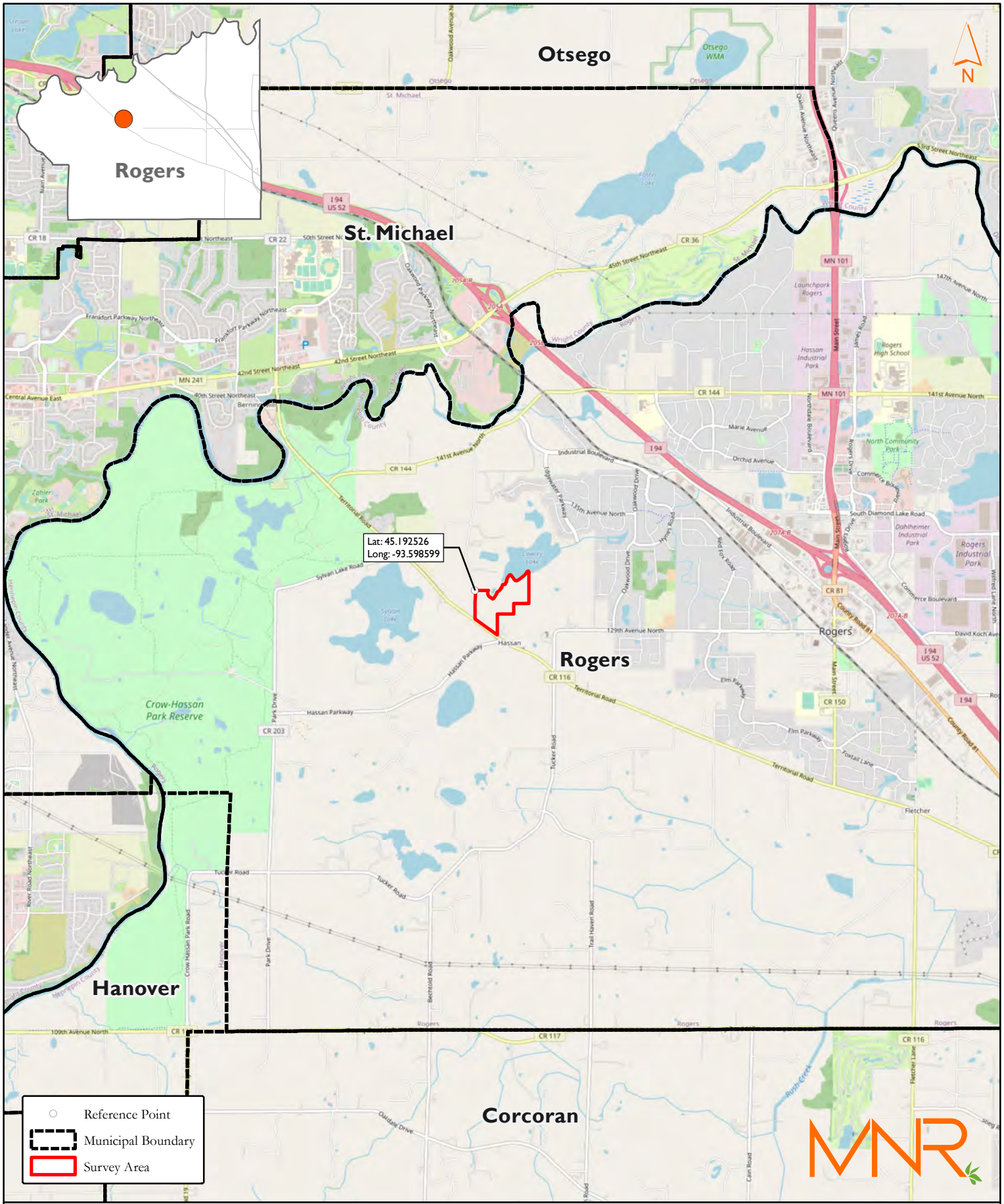
Table 2. Summary of Wetland Hydrology Assessment Using Aerial Imagery

	Wetland 2	Area 1	Area 2
No. of Normal Years	6	6	6
No. of Normal Years w/Wetland Signature	6	3	3
% of Normal Years w/wet signature	100%	50%	50%
Imagery Indicates Wetland Hydrology Present?	Yes	No	No

Table 3. Wetland Determination from Aerial Imagery

	Hydric Soils Present	Identified on NWI or other Wetland Map	% of Years with Wet Signature	Other Hydrology Indicators Present	Wetland
Wetland 2	Yes	No	100%	FAC-Neutral Test & Geo Position	Y
Area 1	Yes	No	50%	Geo Position	N
Area 2	Yes	Yes	50%	none	N

Appendix A – Supporting Site Figures



Source: OpenStreetMap, US Census Bureau, Date: 6/21/2022

0 0.5 1 Miles

Survey Site Location
Rachel Development
Cowley Lake Site
Rogers, Hennepin County, Minnesota

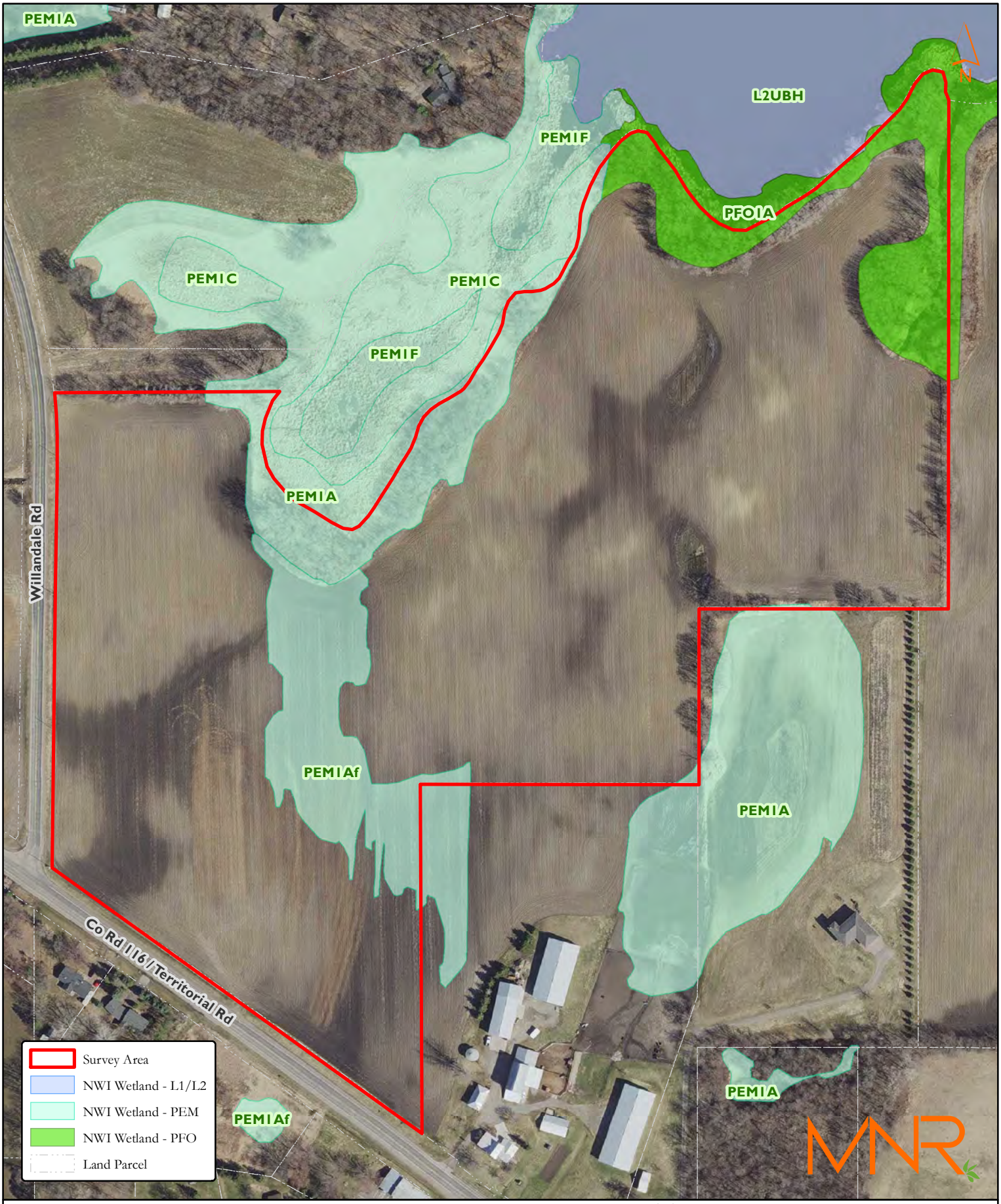
Figure 1

Source: Metropolitan Council Aerial Imagery, 2020, MnGeo, MN Department of Natural Resources, US Census Bureau, Date: 6/21/2022

0 500 1,000 Feet

MN DNR Public Waters Inventory
Rachel Development
Cowley Lake Site
Rogers, Hennepin County, Minnesota

Figure 2

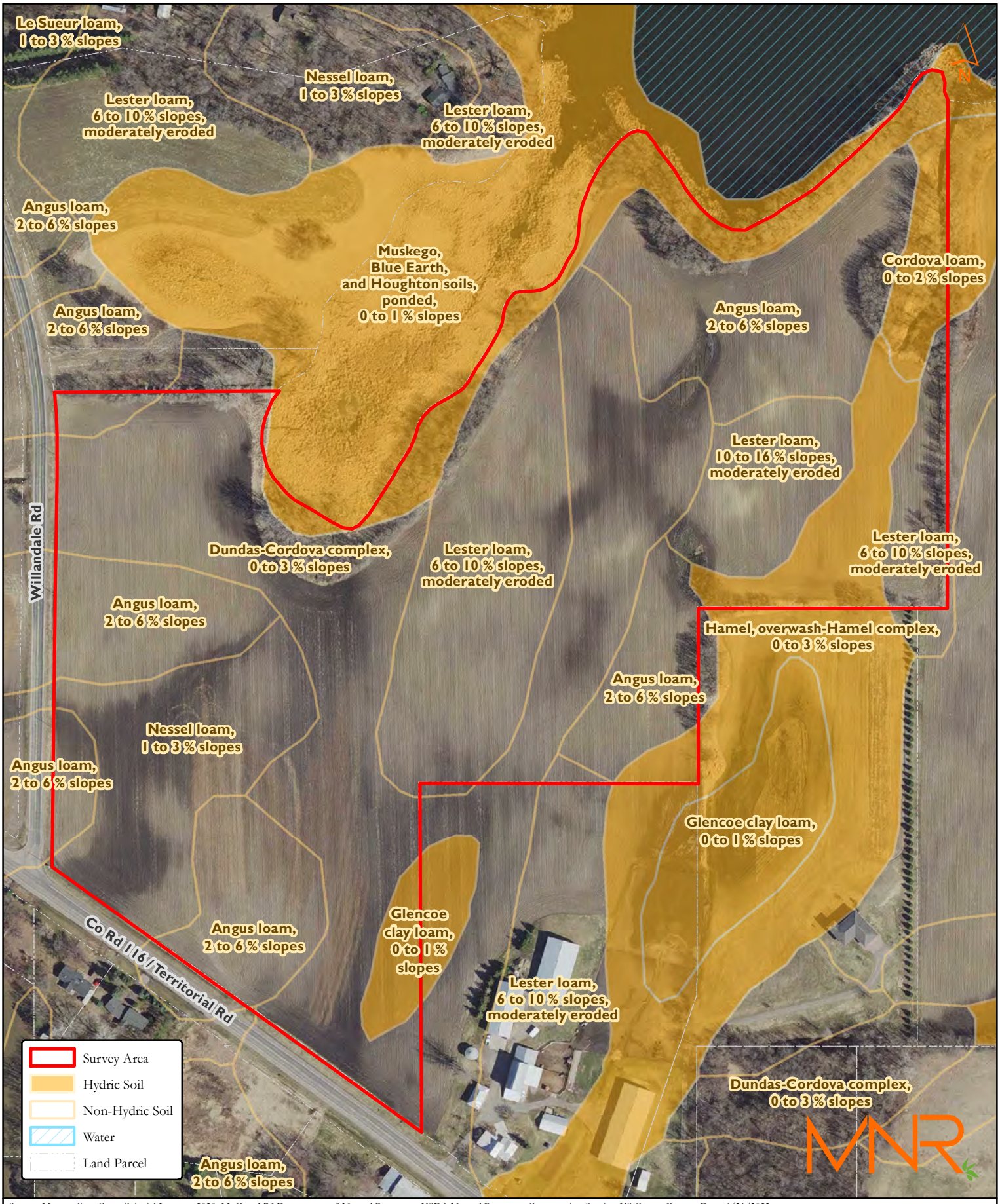


Source: Metropolitan Council Aerial Imagery, 2020, MnGeo, MN Department of Natural Resources, US Fish and Wildlife Service, US Census Bureau, Date: 6/21/2022

0 200 400 Feet

US FWS National Wetlands Inventory
Rachel Development
Cowley Lake Site
Rogers, Hennepin County, Minnesota

Figure 3

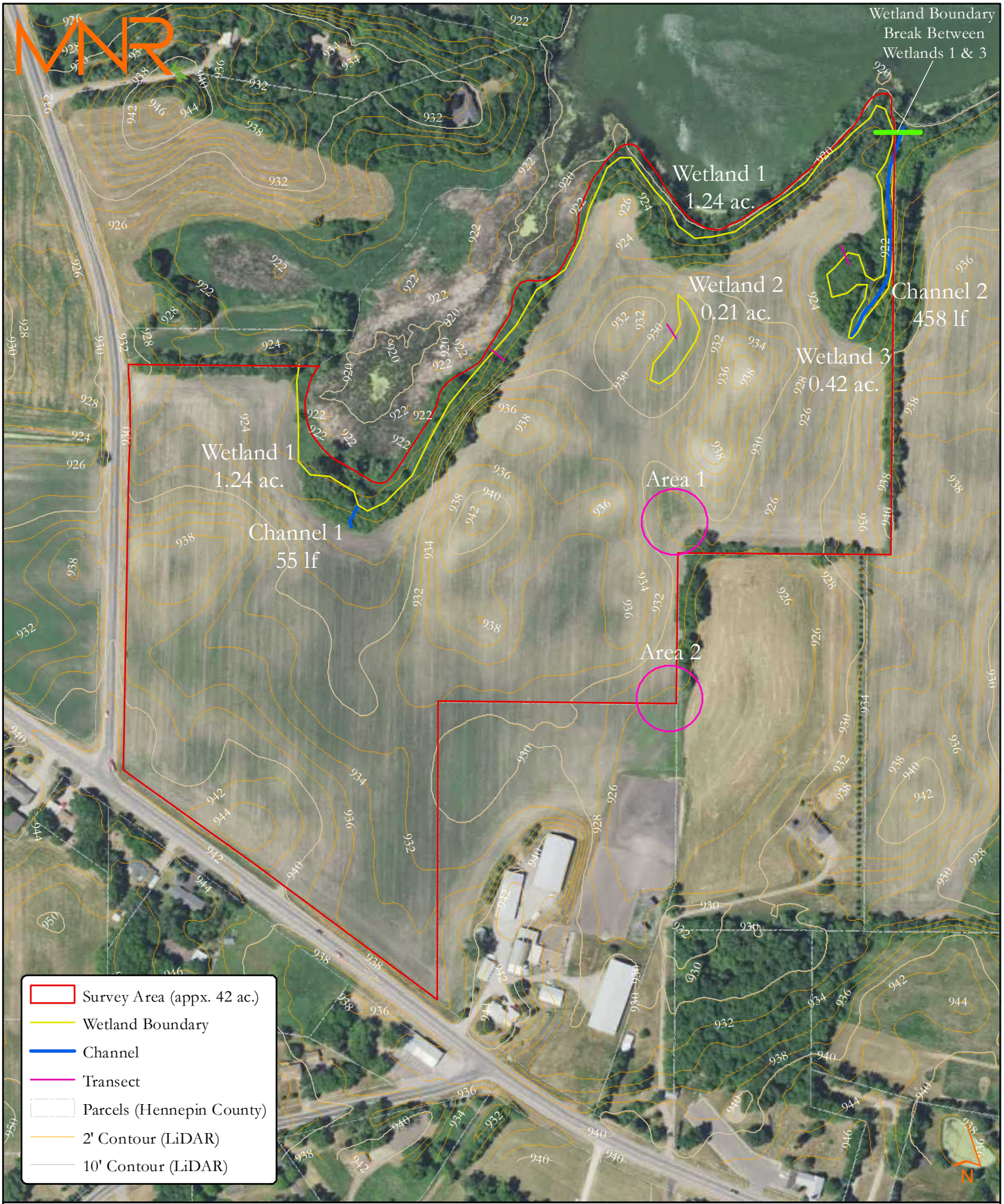


Source: Metropolitan Council Aerial Imagery, 2020, MnGeo, MN Department of Natural Resources, USDA Natural Resources Conservation Service, US Census Bureau, Date: 6/21/2022

0 200 400 Feet

Figure 4

Hennepin County Soil Survey – SSURGO Soil Map Units
Rachel Development
Cowley Lake Site
Rogers, Hennepin County, Minnesota



Source: USDA Farm Service Agency NAIP Imagery, 2021, MnGeo, MN Department of Natural Resources, US Census Bureau, Date: 6/28/2022

0 150 300 Feet

Figure 5

Delineated Wetlands
Rachel Delveopment
Cowley Lake Site
Rogers, MN

Appendix B – Recent Climatic Conditions

Past Year's Precipitation Data from Gridded Database
Source: Minnesota Climatology Working Group website: *http://climate.umn.edu/*

Since the delineation of the Cowley Lake site was conducted on May 16th, 2022 daily precipitation data from the months of February, March, and April were reviewed. Precipitation data for the three months prior to May were obtained from the Minnesota Climatology Working Group for the area of Hennepin County where the nearest precipitation data was collected. Precipitation data was obtained using the following as the target location:

County: Wright
Township Name: Unnamed
Nearest Community: Rogers
Township Number: 120N
Range Number: 23W
Section Number: 21

Aerial photograph or site visit date: Monday, May 16, 2022

Table 1. Precipitation Worksheet Using Gridded Database (Score Using 1991-2020 Normal Period)

values are in inches	first prior month: **April 2022**	second prior month: **March 2022**	third prior month: **February 2022**
estimated precipitation total for this location:	3.60R	1.84R	0.51R
there is a 30% chance this location will have less than:	1.96	1.13	0.56
there is a 30% chance this location will have more than:	3.05	1.82	1.02
type of month: dry normal wet	**wet**	**wet**	**dry**
monthly score	3 * **3** = 9	2 * **3** = 6	1 * **1** = 1
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**16 (Wet)**		

Table 2. Recent Precipitation from Saint Michael 2.0 ENE Weather Station

	February	March	April	1st 16 Days of May
Precipitation (in.)	0.48"	1.72"	4.0"	4.85"

Average Temperature Climate Data
Source: Minnesota Climatology Working Group website: *http://climate.umn.edu/*

Average monthly high temperature for the three months preceding the month of the site visit as well as the day of the survey are recorded in Table 3 below. Temperature data were obtained from the MN Department of Natural Resources Local Climatological Data website and is based on weather measurements collected by the National Weather Service and the Federal Aviation Administration.

Table 3. Monthly Average High Temperature

	February	March	April	May 16th, 2022
Temperature (°F)	24.6°	39.5°	48.6°	71°

Appendix C – Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-w1-w

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0-2% Lat: 45.192672 Long: -93.595367 Datum: WGS84

Soil Map Unit Name: Muskego, Blue Earth, & Houghton soils, 0-1% slopes NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:
Within the site, Wetland 1 is primarily a Type 3 wetland dominated by cattail, with a fringe of Type 2 wetland dominated by reed canary grass. Wetland 1 is associated with Cowley Lake to the north. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	75	Y	FACW
2. *Typha angustifolia*	20	N	OBL
3. *Urtica dioica*	10	N	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	105 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		190 (B)

Prevalence Index = B/A = 1.81

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 22-211-w1-w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	95	10YR 5/6	5	C	M	SL	
16-20	10YR 5/1	85	7.5YR 4/6	15	C	M	SC	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ✔ No ___ Depth (inches): 4

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 1

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-w1-u

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): Convex

Slope (%): 3-7% Lat: 45.192438 Long: -93.595292 Datum: WGS84

Soil Map Unit Name: Lester loam, 6-10% slopes, moderately eroded NWI classification: na

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
The upland sample point is located on a slope between the wetland feature and an active agricultural field. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	20	Y	FAC
2.			
3.			
4.			
5.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Rubus occidentalis*	15	Y	
2. *Ribes missouriense*	5	Y	
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	80	Y	FACU
2. *Arctium minus*	5	N	FACU
3. *Galium aparine*	5	N	FACU
4. *Impatiens capensis*	2	N	FACW
5.			
6.			
7.			
8.			
9.			
10.			
	92 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	2	x 2 =	4
FAC species	20	x 3 =	60
FACU species	90	x 4 =	360
UPL species	0	x 5 =	0
Column Totals:	112 (A)		424 (B)

Prevalence Index = B/A = 3.79

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 22-211-w1-u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/2	100		0			SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Soils are non-hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-w2-w

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0-2% Lat: 45.192673 Long: -93.593682 Datum: WGS84

Soil Map Unit Name: Angus loam, 2-6% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:
The feature is a closed depression in an active agricultural field. The depression was ponded at the time of survey. No vegetation was actively growing within the sample plot within the ag. field. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1.	0	N	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: NaN (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = nan

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

No vegetation was observed in the sample plot. Sample point is within an ag. field that was not planted at the time of the survey.

SOIL

Sampling Point: 22-211-w2-w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/1	95	7.5YR 4/6	5	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 1

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-w2-u

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Side Slope Local relief (concave, convex, none): Convex

Slope (%): 3-7% Lat: 45.192810 Long: -93.593728 Datum: WGS84

Soil Map Unit Name: Angus loam, 2-6% slopes NWI classification: na

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes _____	No ✔	
Wetland Hydrology Present?	Yes _____	No ✔	

Remarks:
The upland sample point is located on a slope in an active agricultural field. No vegetation was actively growing within the sample plot within the ag. field. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1.	0	N	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: NaN (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = nan

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation was observed in the sample plot.

SOIL

Sampling Point: 22-211-w2-u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 2/2	100		0			SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Soils are non-hydric.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-w3-w

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0-2% Lat: 45.193181 Long: -93.591948 Datum: WGS84

Soil Map Unit Name: Cordova loam, 0-2% slopes NWI classification: PFO1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ✔ No ____
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:
Wetland 3 has a channel flowing through it where water from two drain tile outlets discharge. This wetland includes a depressional basin surrounded by a box elder woodland. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer negundo*	80	Y	FAC
2.			
3.			
4.			
5.			
	80	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Sambucus racemosa*	10	Y	FACU
2. *Ribes missouriense*	10	Y	
3.			
4.			
5.			
	20	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Laportea canadensis*	70	Y	FACW
2. *Ranunculus abortivus*	5	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	75	x 2 =	150
FAC species	80	x 3 =	240
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	165 (A)		430 (B)

Prevalence Index = B/A = 2.61

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: 22-211-w3-w

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/1	90	7.5YR 4/6	10	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

The feature is low-lying and is likely saturated or inundated following periods of high precipitation.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-w3-u

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Rise Local relief (concave, convex, none): Convex

Slope (%): 0-2% Lat: 45.193403 Long: -93.592252 Datum: WGS84

Soil Map Unit Name: Angus loam, 2-6% slopes NWI classification: na

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ✔

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ✔	No ____	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:
The upland sample point is located on a rise in an active agricultural field. Soils are hydric, though no indicators of wetland hydrology or evidence of seepage were observed. No vegetation was actively growing within the sample plot within the ag. field. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1.	0	N	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: NaN (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = nan

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

No vegetation was observed in the sample plot.

SOIL

Sampling Point: 22-211-w3-u

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100		0			SCL	
4-20	10YR 3/1	95	7.5YR 4/6	5	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ **No** ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No indicators of wetland hydrology were observed.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-area1

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0-2% Lat: 45.191488 Long: -93.593577 Datum: WGS84

Soil Map Unit Name: Hamel, overwash-Hamel complex, 0-3% slopes NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Area 1 is a slight depressional area in an agricultural field. At the time of the survey, no vegetation was actively growing within this farmed area. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1.	0	N	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: NaN (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = nan

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)
No vegetation was observed in the sample plot. Sample point is within an agricultural field that was not planted at the time of the survey.

SOIL

Sampling Point: 22-211-area1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	95	7.5YR 4/6	5	C	M	SCL	
10-20	10YR 2/2	85	7.5YR 4/6	15	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Cowley Lake Site City/County: Rogers/Hennepin Sampling Date: 2022-05-16

Applicant/Owner: Rachel Development State: MN Sampling Point: 22-211-area2

Investigator(s): J. Walden/K. Arndt Section, Township, Range: 21/120/23

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave

Slope (%): 0-2% Lat: 45.190443 Long: -93.593670 Datum: WGS84

Soil Map Unit Name: Hamel, overwash-Hamel complex, 0-3% slopes NWI classification: PEM1A

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ✔ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ✔, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes _____ No ✔

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✔	**Is the Sampled Area within a Wetland?** Yes _____ No ✔
Hydric Soil Present?	Yes ✔	No _____	
Wetland Hydrology Present?	Yes ✔	No _____	

Remarks:
Area 2 is a nearly level area that is unvegetated and actively being farmed annually both within the site and outside of the site to the south. To the east of this area on the adjacent property is a hayfield dominated by reed canary grass. The three months prior to the site visit is considered a wet period.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1.	0	N	
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 0 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: NaN (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = nan

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks: (Include photo numbers here or on a separate sheet.)

No vegetation was observed in the sample plot. Sample point is within an ag. field that was not planted at the time of the survey.

SOIL

Sampling Point: 22-211-area2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/1	95	7.5YR 4/6	5	C	M	SCL	
10-20	10YR 2/1	85	7.5YR 4/6	15	C	M	SCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Dark Surface (S7)
- ___ Iron-Manganese Masses (F12)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ✔ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ✔ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Appendix D – Representative Photos

Wetland 1

Photo of Wetland 1, view from wetland edge near transect facing north at cattail dominated wetland.

Wetland 1

Photo of the typical transition from wetland (right) to upland/agricultural field (left).

Wetland 2

Photo of Wetland 2 view from northern side facing south at open water in a depressional area of the field.

Wetland 3

Photo of Wetland 3 view from western side of the wetland facing east at open area within box elder woodland.

Area 1

Photo of Area 1 view from southern side facing north at a slight depressional area in the field.

Photo of Area 2 in foreground of photo with a farmed wetland with standing water and saturated soils located off-site to the south.

Channel 1/Wetland 1

Photo of Channel 1, view of intermittent waterbody facing south at feature which drains a tile outlet to the north and into the wetland associated with Cowley Lake.

Channel 2/Wetland 3

Typical view of Channel 2 which flows from two drain tile outlets at the edge of an agricultural field through Wetland 3 to the north and into Cowley Lake.

Appendix E – Historic Imagery Figures

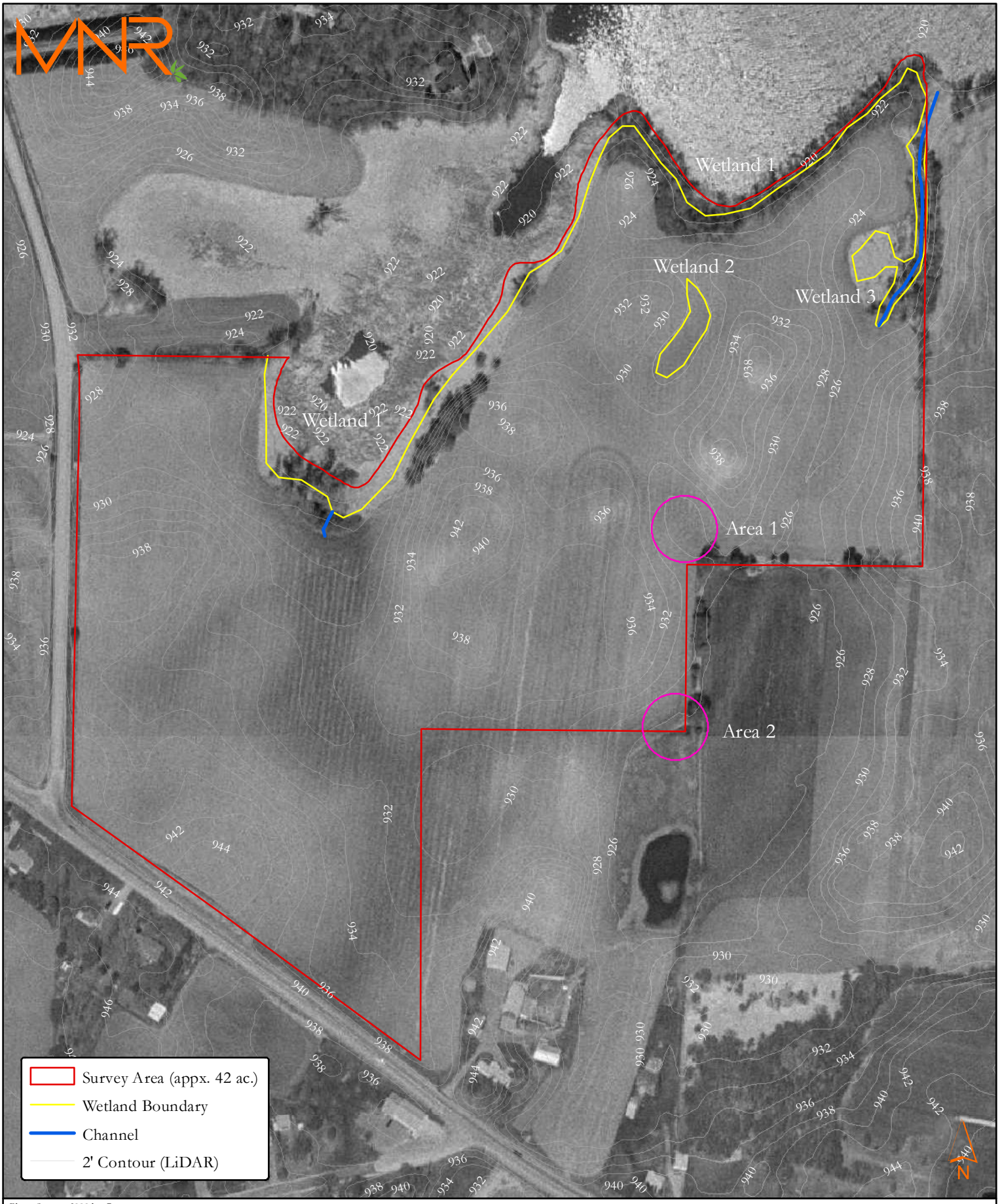


Photo Source: 2000 bw 7-county

0 250 500 Feet

Historic Imagery Review (2000)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 1

Precipitation (Dry)

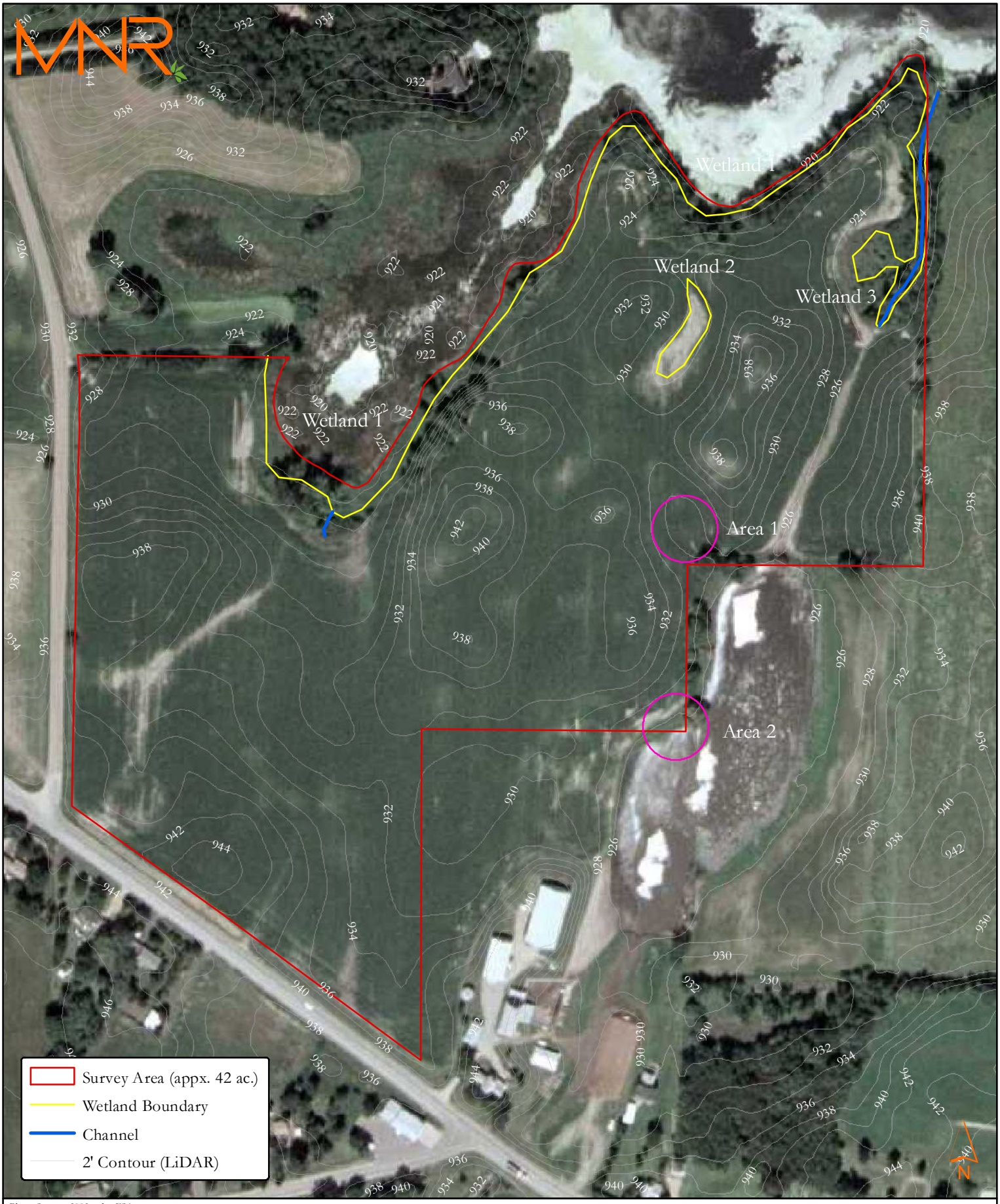


Photo Source: 2003 color FSA

0 250 500 Feet

Historic Imagery Review (2003)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 2

Precipitation (Wet)

Photo Source: 2004 Google Earth

0 250 500 Feet

Historic Imagery Review (2004)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 3

Precipitation (Wet)

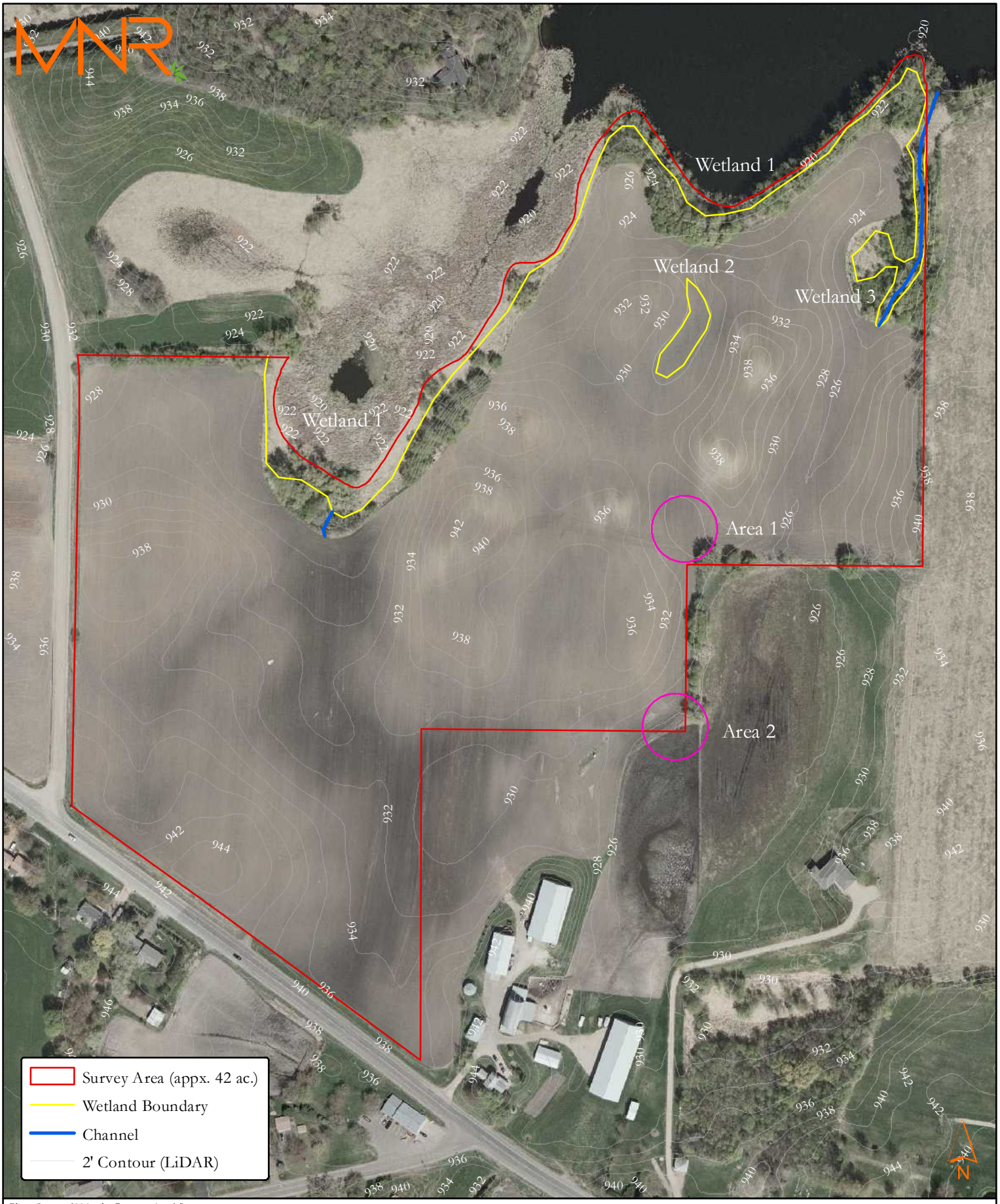


Photo Source: 2006 color 7-county (partial)

0 250 500 Feet

Historic Imagery Review (2006)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 4

Precipitation (dry)

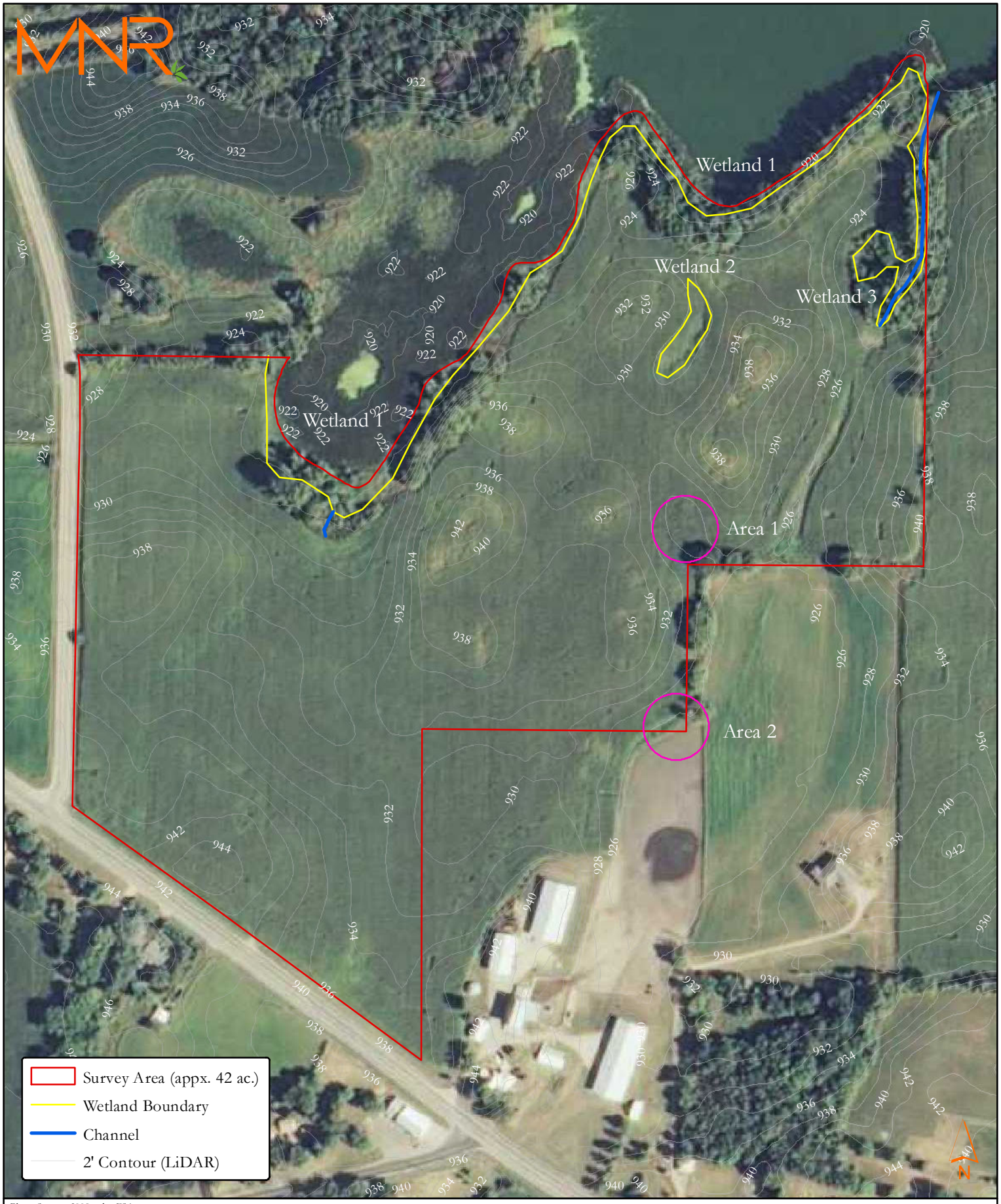


Photo Source: 2008 color FSA

0 250 500 Feet

Historic Imagery Review (2008)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 5

Precipitation (dry)

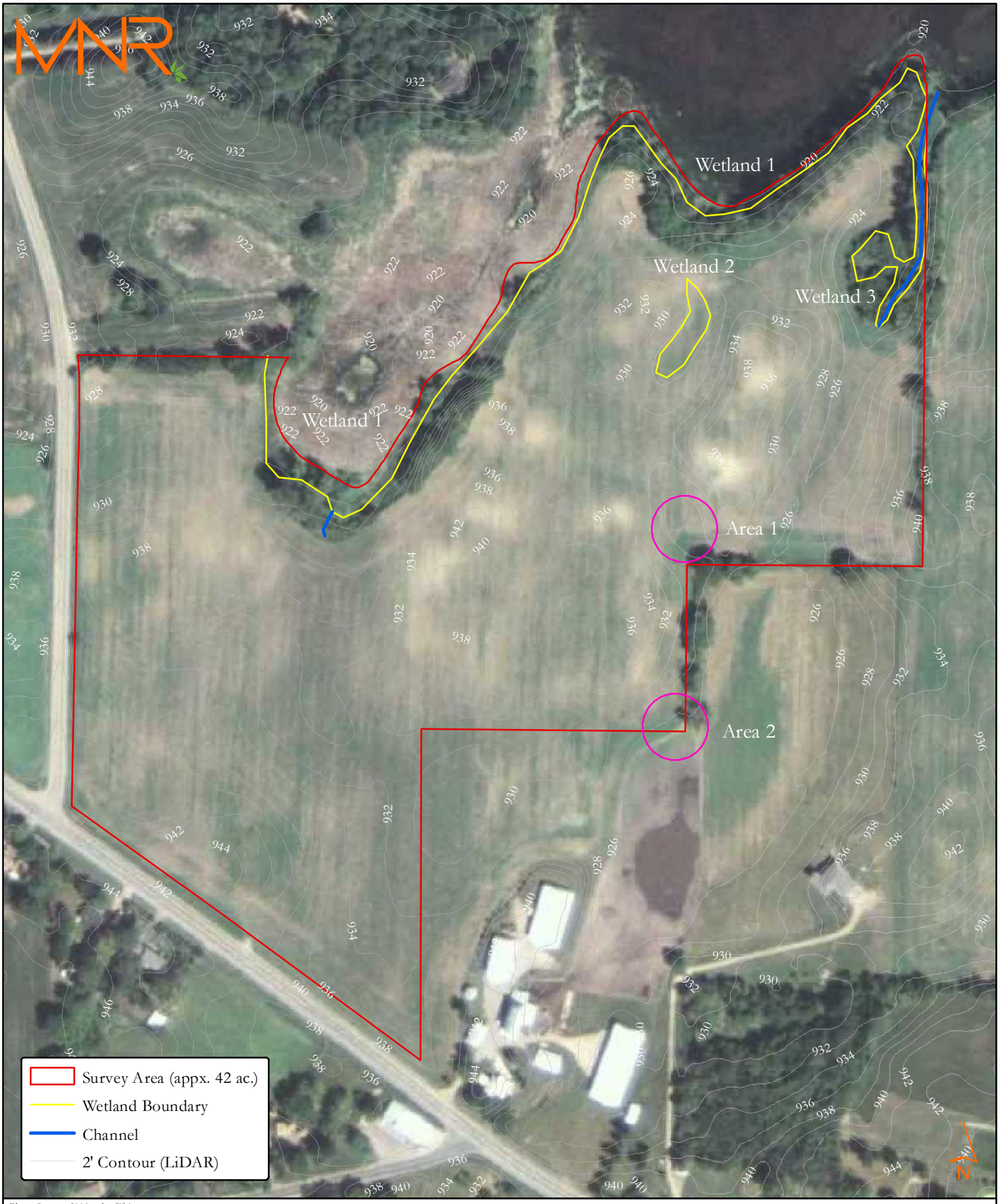


Photo Source: 2009 color FSA

0 250 500 Feet

Historic Imagery Review (2009)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 6

Precipitation (dry)

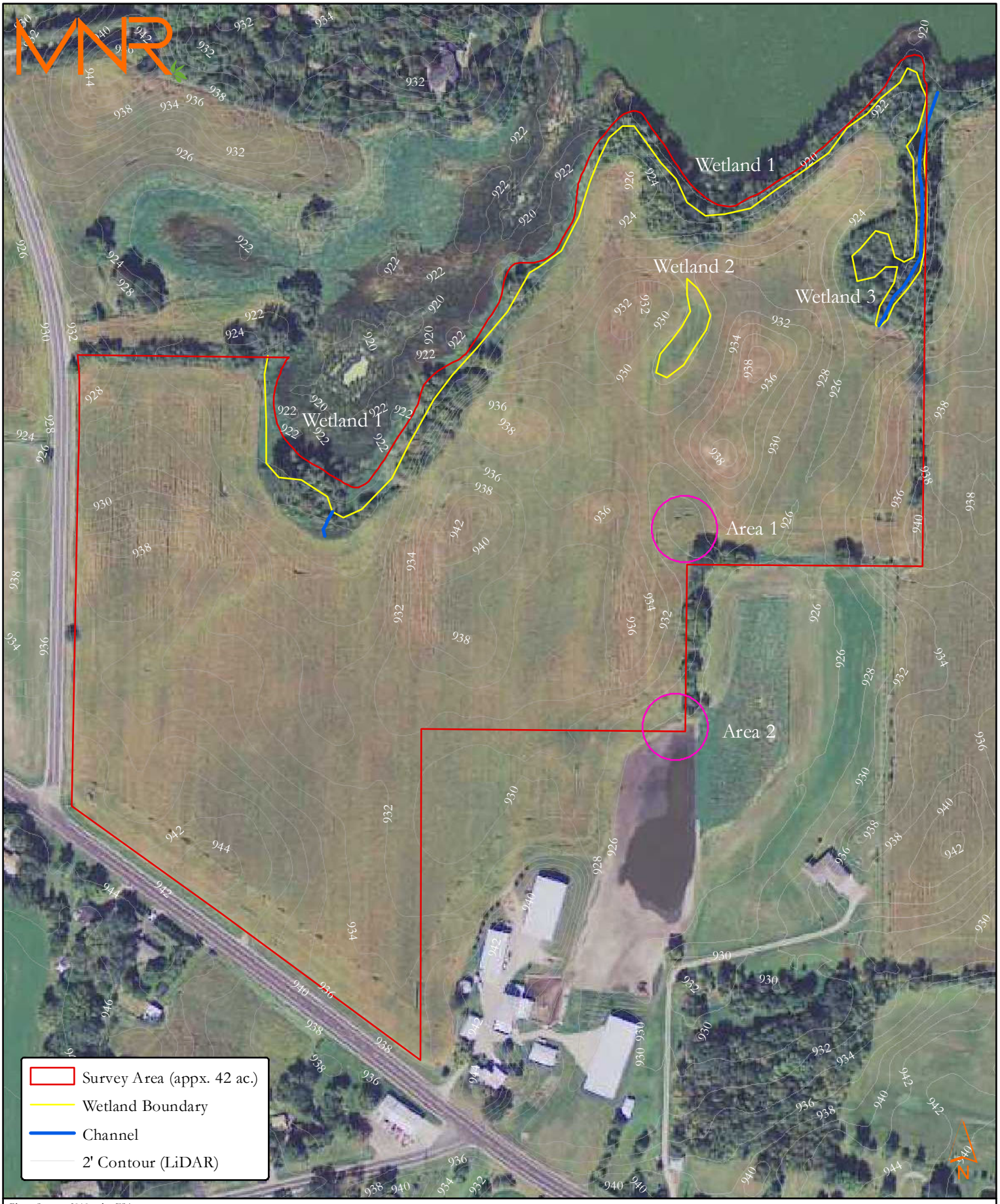


Photo Source: 2010 color FSA

0 250 500 Feet

Historic Imagery Review (2010)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 7

Precipitation (normal)

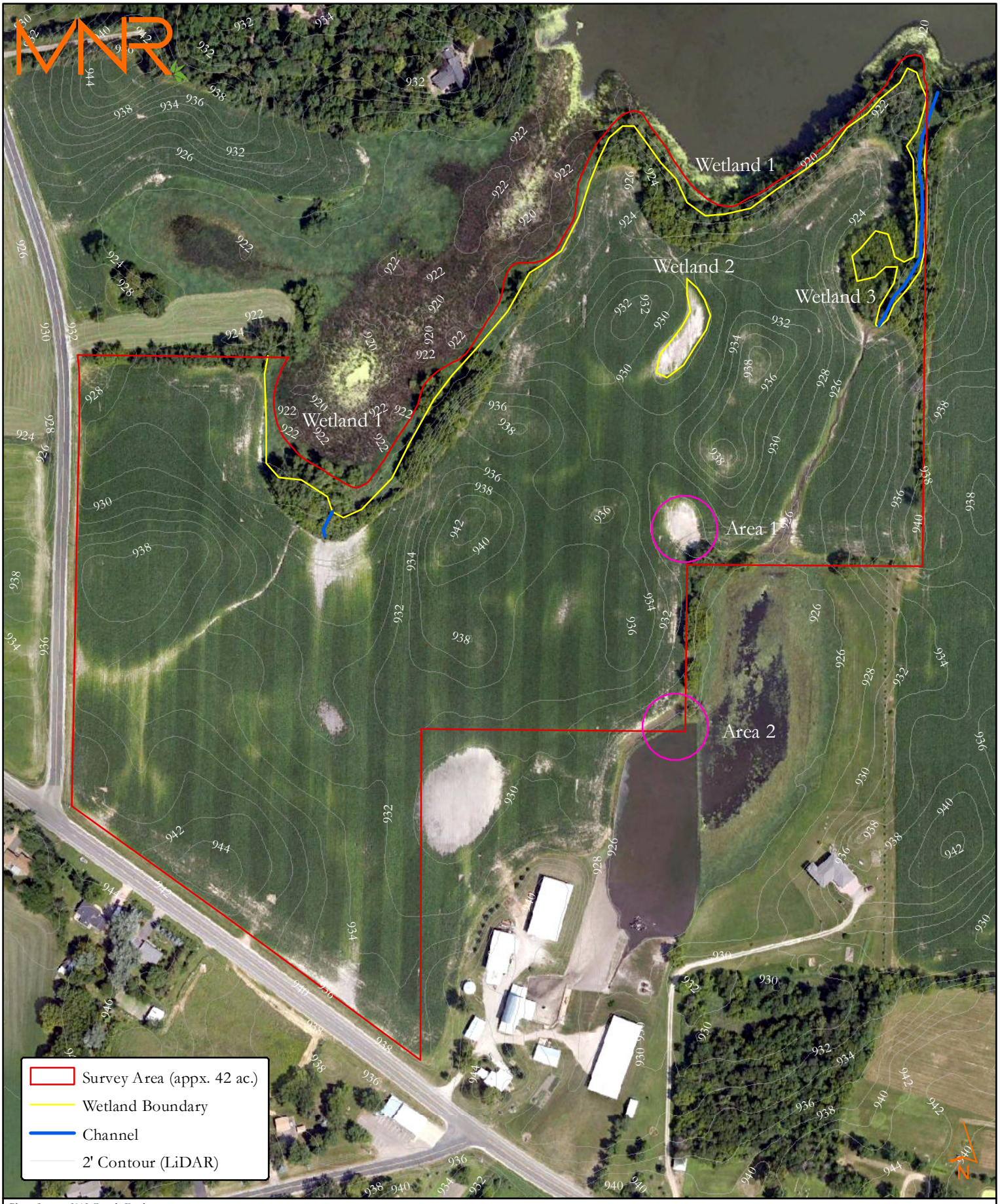


Photo Source: 2012 Google Earth

0 250 500 Feet

Historic Imagery Review (2012)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 8

Precipitation (wet)

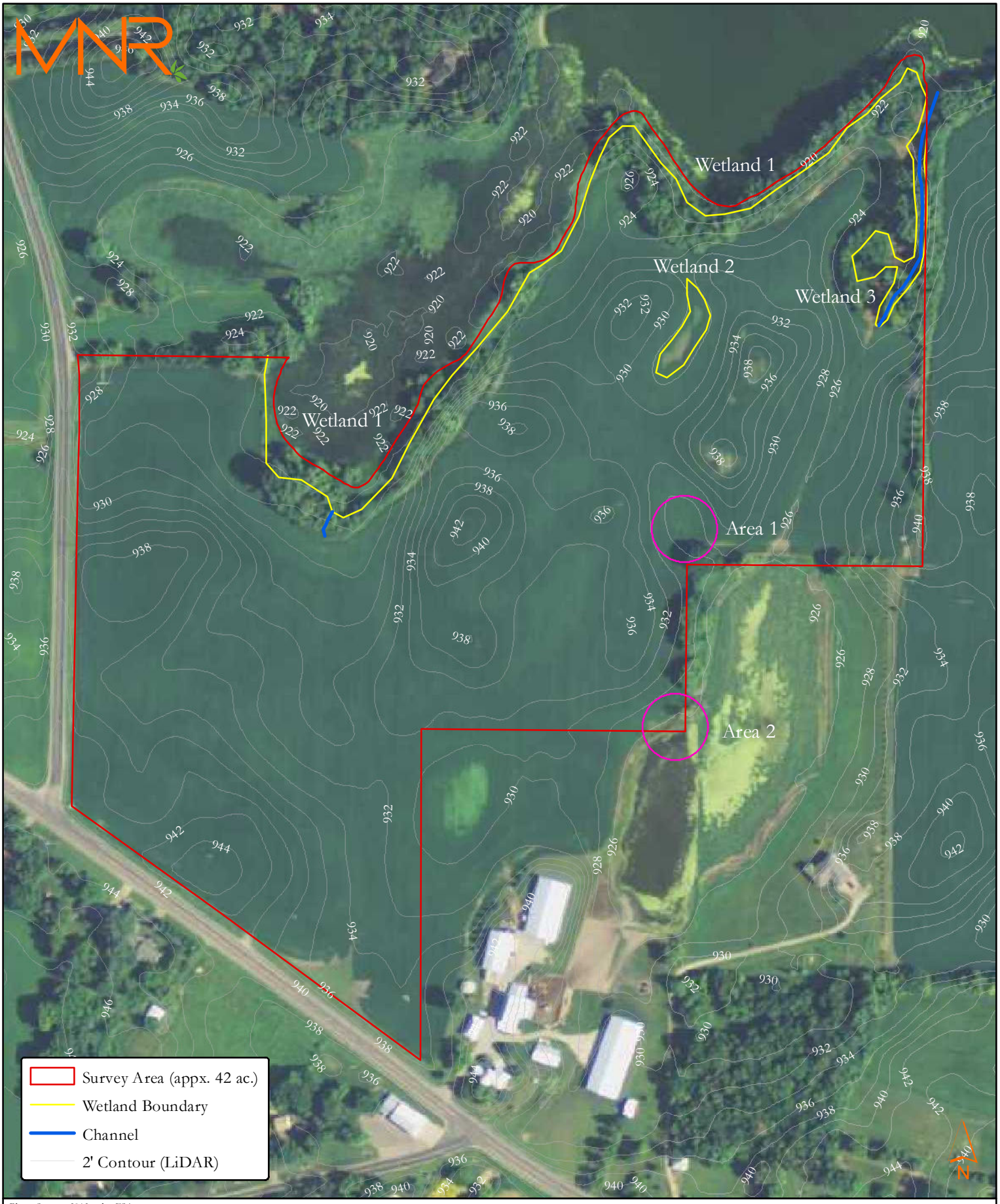


Photo Source: 2013 color FSA

0 250 500 Feet

Historic Imagery Review (2013)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 9

Precipitation (wet)

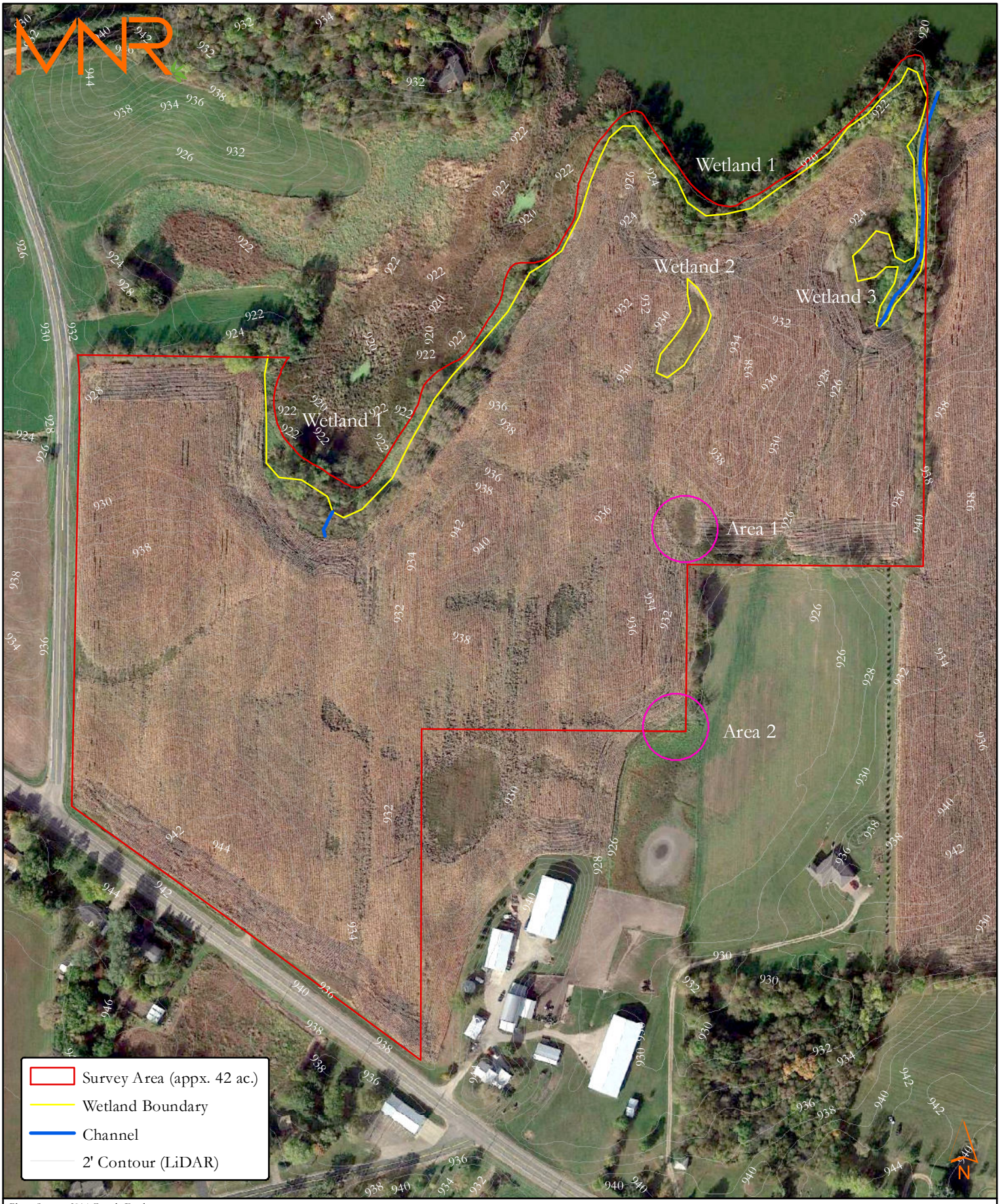


Photo Source: 2014 Google Earth

0 250 500 Feet

Historic Imagery Review (2014)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 10

Precipitation (dry)

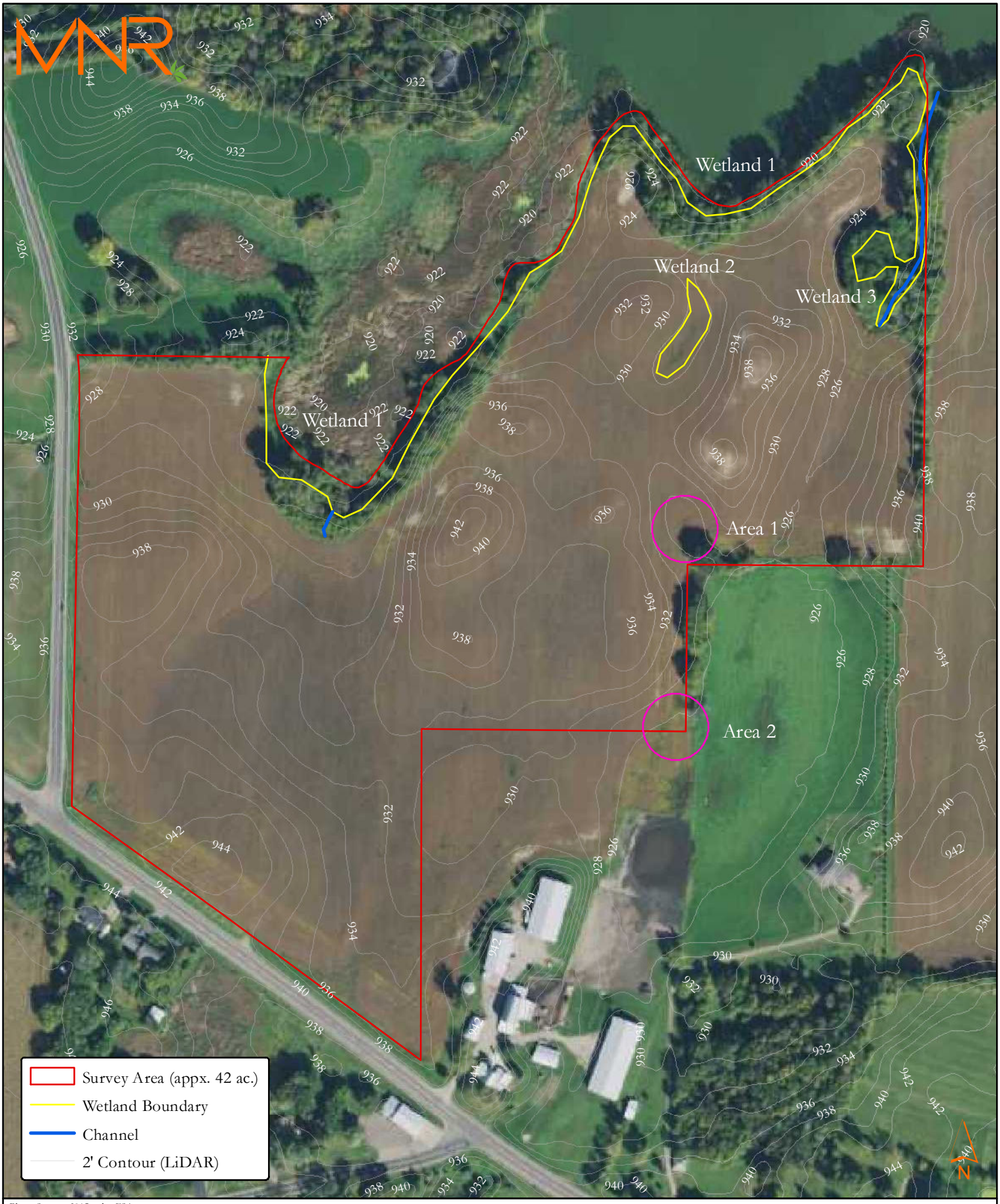


Photo Source: 2015 color FSA

0 250 500 Feet

Historic Imagery Review (2015)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 11

Precipitation (normal)

Photo Source: 2016 Google Earth

0 250 500 Feet

Historic Imagery Review (2016)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 12

Precipitation (normal)

Photo Source: 2017 color FSA

0 250 500 Feet

Historic Imagery Review (2017)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 13

Precipitation (normal)

Photo Source: 2018 Google Earth

0 250 500 Feet

Historic Imagery Review (2018)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 14

Precipitation (normal)

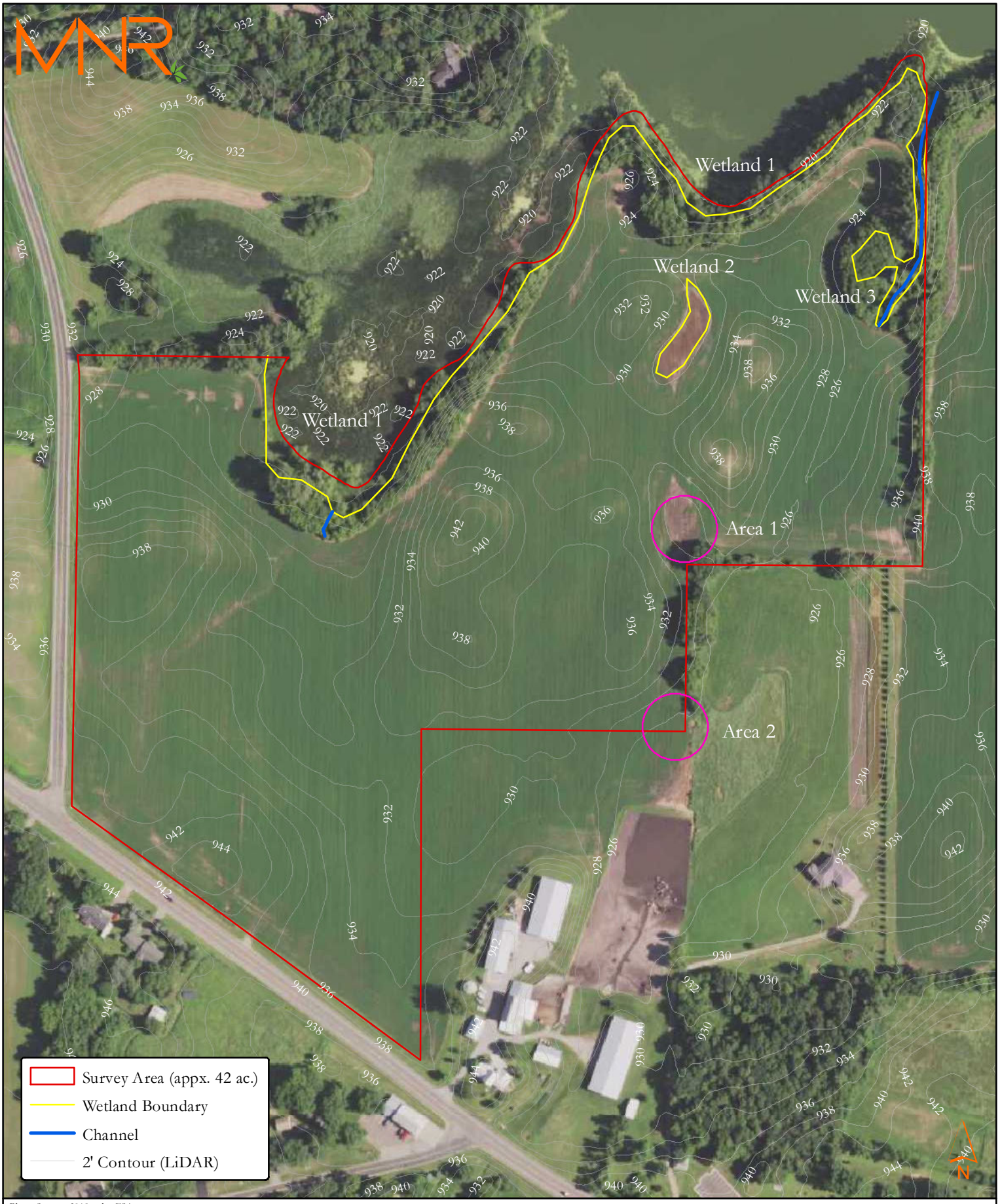


Photo Source: 2019 color FSA

0 250 500 Feet

Historic Imagery Review (2019)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 15

Precipitation (wet)

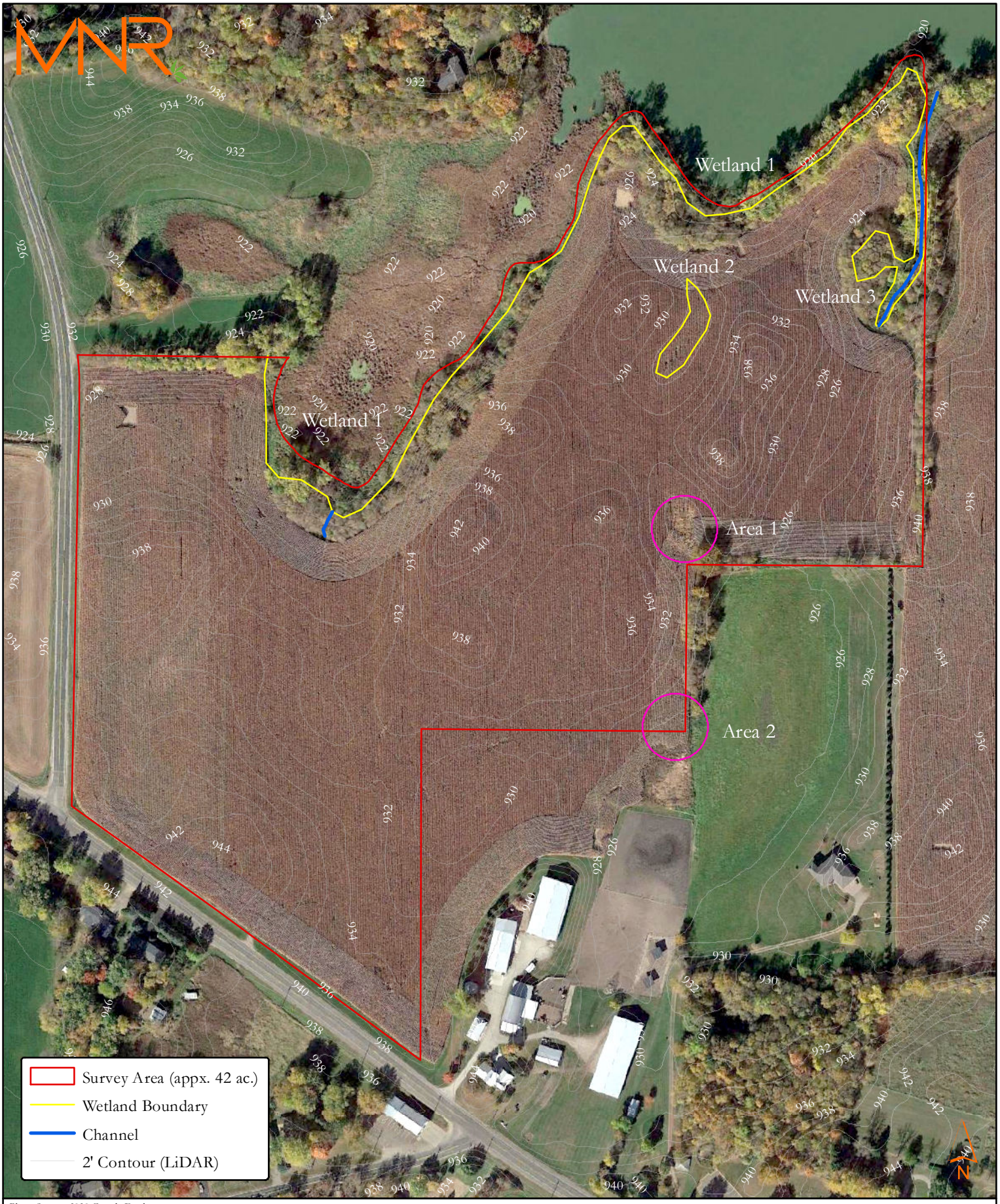


Photo Source: 2020 Google Earth

0 250 500 Feet

Historic Imagery Review (2020)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 16

Precipitation (normal)

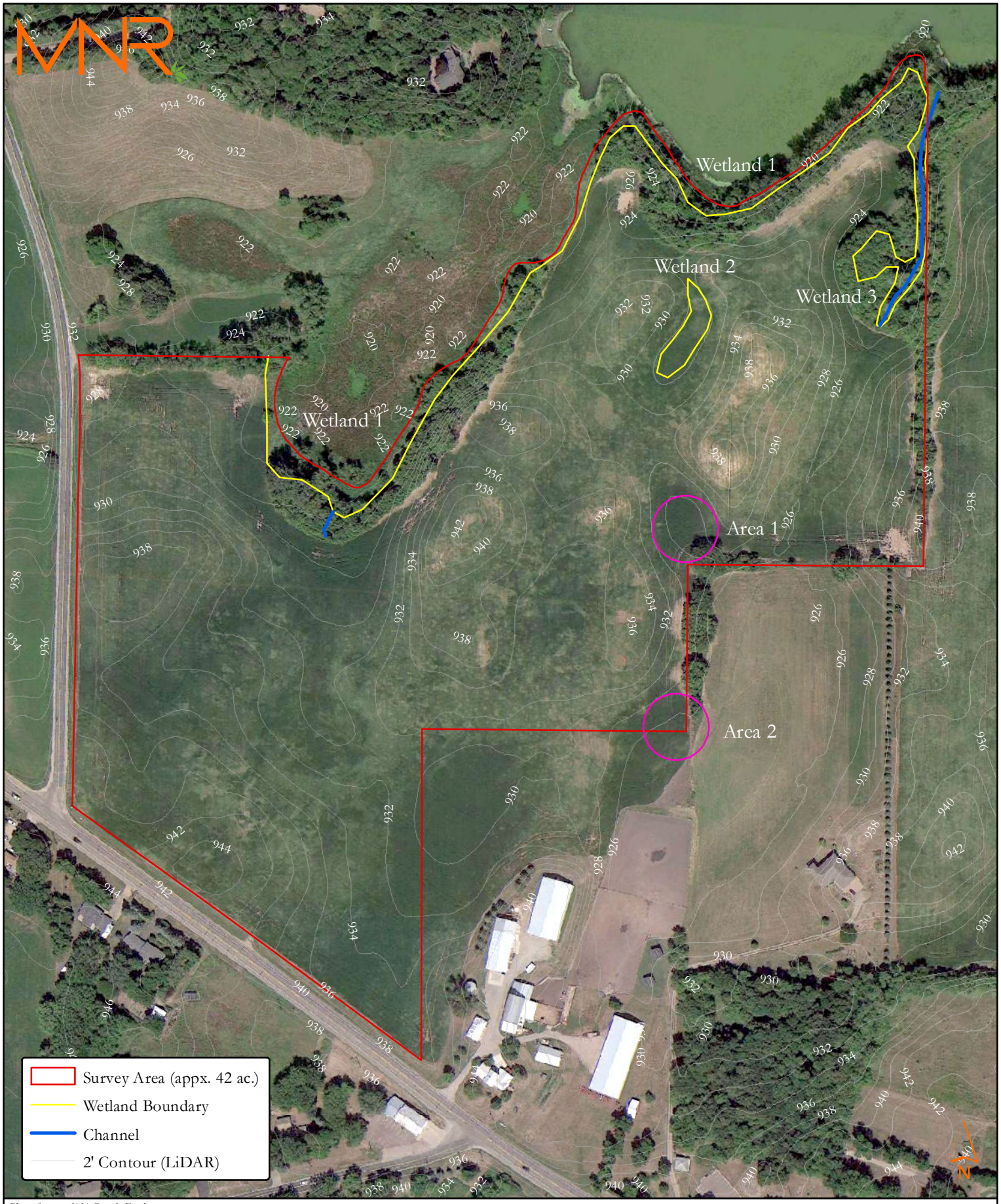


Photo Source: 2021 Google Earth

0 250 500 Feet

Historic Imagery Review (2021)
Rachel Development
Cowley Lake Site
Rogers, MN

Figure 17

Precipitation (dry)

Appendix F – Precipitation Worksheets (using gridded database)

Precipitation Worksheet Using Gridded Database for target location:

County: Wright
Township Name: Unnamed
Nearest Community: Berning Mill
Township Number: 120N
Range Number: 23W
Section Number: 21

Scores for all years based on using 1991-2020 normal period

2000

Aerial photograph or site visit date: Monday, May 1, 2000

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **April 2000**	second prior month: **March 2000**	third prior month: **February 2000**
estimated precipitation total for this location:	**1.34**	**1.07**	**0.87**
there is a 30% chance this location will have less than:	1.77	1.14	0.39
there is a 30% chance this location will have more than:	2.94	1.74	0.87
type of month: dry normal wet	**dry**	**dry**	**normal**
monthly score	**3 * 1 = 3**	**2 * 1 = 2**	**1 * 2 = 2**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

7 (Dry)

2003

Aerial photograph or site visit date: Friday, July 18, 2003

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **June 2003**	second prior month: **May 2003**	third prior month: **April 2003**
estimated precipitation total for this location:	**7.76**	**4.76**	**2.90**
there is a 30% chance this location will have less than:	3.19	2.10	1.77
there is a 30% chance this location will have more than:	5.20	4.17	2.94
type of month: dry normal wet	**wet**	**wet**	**normal**
monthly score	**3 * 3 = 9**	**2 * 3 = 6**	**1 * 2 = 2**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

17 (Wet)

2004

Aerial photograph or site visit date: Monday, August 2, 2004

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **July 2004**	second prior month: **June 2004**	third prior month: **May 2004**
estimated precipitation total for this location:	**3.30**	**6.06**	**5.06**
there is a 30% chance this location will have less than:	2.77	3.19	2.10
there is a 30% chance this location will have more than:	3.97	5.20	4.17
type of month: dry normal wet	**normal**	**wet**	**wet**
monthly score	**3 * 2 = 6**	**2 * 3 = 6**	**1 * 3 = 3**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

15 (Wet)

2006

Aerial photograph or site visit date: Sunday, August 6, 2006

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **July 2006**	second prior month: **June 2006**	third prior month: **May 2006**
estimated precipitation total for this location:	**0.97**	**2.68**	**2.82**
there is a 30% chance this location will have less than:	2.77	3.19	2.10
there is a 30% chance this location will have more than:	3.97	5.20	4.17
type of month: dry normal wet	**dry**	**dry**	**normal**
monthly score	**3 * 1 = 3**	**2 * 1 = 2**	**1 * 2 = 2**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

7 (Dry)

2008

Aerial photograph or site visit date: Sunday, August 17, 2008

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **July 2008**	second prior month: **June 2008**	third prior month: **May 2008**
estimated precipitation total for this location:	**1.77**	**4.08**	**3.04**
there is a 30% chance this location will have less than:	2.77	3.19	2.10
there is a 30% chance this location will have more than:	3.97	5.20	4.17
type of month: dry normal wet	**dry**	**normal**	**normal**
monthly score	**3 * 1 = 3**	**2 * 2 = 4**	**1 * 2 = 2**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

9 (Dry)

2009

Aerial photograph or site visit date: Saturday, June 20, 2009

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **May 2009**	second prior month: **April 2009**	third prior month: **March 2009**
estimated precipitation total for this location:	**0.76**	**0.96**	**2.07**
there is a 30% chance this location will have less than:	2.10	1.77	1.14
there is a 30% chance this location will have more than:	4.17	2.94	1.74
type of month: dry normal wet	**dry**	**dry**	**wet**
monthly score	**3 * 1 = 3**	**2 * 1 = 2**	**1 * 3 = 3**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

8 (Dry)

2010

Aerial photograph or site visit date: Monday, September 13, 2010

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **August 2010**	second prior month: **July 2010**	third prior month: **June 2010**
estimated precipitation total for this location:	**3.92**	**3.31**	**6.88**
there is a 30% chance this location will have less than:	3.20	2.77	3.19
there is a 30% chance this location will have more than:	4.48	3.97	5.20
type of month: dry normal wet	**normal**	**normal**	**wet**
monthly score	**3 * 2 = 6**	**2 * 2 = 4**	**1 * 3 = 3**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

13 (Normal)

2012

Aerial photograph or site visit date: Thursday, June 28, 2012

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **May 2012**	second prior month: **April 2012**	third prior month: **March 2012**
estimated precipitation total for this location:	**10.98**	**2.36**	**1.20**
there is a 30% chance this location will have less than:	2.10	1.77	1.14
there is a 30% chance this location will have more than:	4.17	2.94	1.74
type of month: dry normal wet	**wet**	**normal**	**normal**
monthly score	**3 * 3 = 9**	**2 * 2 = 4**	**1 * 2 = 2**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

15 (Wet)

2013

Aerial photograph or site visit date: Monday, August 12, 2013

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **July 2013**	second prior month: **June 2013**	third prior month: **May 2013**
estimated precipitation total for this location:	**3.63**	**6.53**	**4.43**
there is a 30% chance this location will have less than:	2.77	3.19	2.10
there is a 30% chance this location will have more than:	3.97	5.20	4.17
type of month: dry normal wet	**normal**	**wet**	**wet**
monthly score	**3 * 2 = 6**	**2 * 3 = 6**	**1 * 3 = 3**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**15 (Wet)**		

2014

Aerial photograph or site visit date: Saturday, October 11, 2014

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **September 2014**	second prior month: **August 2014**	third prior month: **July 2014**
estimated precipitation total for this location:	**2.17**	**3.05**	**2.30**
there is a 30% chance this location will have less than:	2.30	3.20	2.77
there is a 30% chance this location will have more than:	4.74	4.48	3.97
type of month: dry normal wet	**dry**	**dry**	**dry**
monthly score	**3 * 1 = 3**	**2 * 1 = 2**	**1 * 1 = 1**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**6 (Dry)**		

2015

Aerial photograph or site visit date: Sunday, September 27, 2015

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **August 2015**	second prior month: **July 2015**	third prior month: **June 2015**
estimated precipitation total for this location:	**3.61**	**6.86**	**4.34**
there is a 30% chance this location will have less than:	3.20	2.77	3.19
there is a 30% chance this location will have more than:	4.48	3.97	5.20
type of month: dry normal wet	**normal**	**wet**	**normal**
monthly score	**3 * 2 = 6**	**2 * 3 = 6**	**1 * 2 = 2**
multi-month score: 6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)	**14 (Normal)**		

2016

Aerial photograph or site visit date: Friday, March 11, 2016

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **February 2016**	second prior month: **January 2016**	third prior month: **December 2015**
estimated precipitation total for this location:	**0.72**	**0.27**	**1.68**
there is a 30% chance this location will have less than:	0.39	0.39	0.50
there is a 30% chance this location will have more than:	0.87	0.69	1.34
type of month: dry normal wet	**normal**	**dry**	**wet**
monthly score	**3 * 2 = 6**	**2 * 1 = 2**	**1 * 3 = 3**

multi-month score: **11 (Normal)**
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

2017

Aerial photograph or site visit date: Thursday, August 31, 2017

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **July 2017**	second prior month: **June 2017**	third prior month: **May 2017**
estimated precipitation total for this location:	**2.39**	**3.42**	**5.62**
there is a 30% chance this location will have less than:	2.77	3.19	2.10
there is a 30% chance this location will have more than:	3.97	5.20	4.17
type of month: dry normal wet	**dry**	**normal**	**wet**
monthly score	**3 * 1 = 3**	**2 * 2 = 4**	**1 * 3 = 3**

multi-month score: **10 (Normal)**
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

2018

Aerial photograph or site visit date: Saturday, April 28, 2018

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **March 2018**	second prior month: **February 2018**	third prior month: **January 2018**
estimated precipitation total for this location:	**1.42**	**1.31**	**0.50**
there is a 30% chance this location will have less than:	1.14	0.39	0.39
there is a 30% chance this location will have more than:	1.74	0.87	0.69
type of month: dry normal wet	**normal**	**wet**	**normal**
monthly score	**3 * 2 = 6**	**2 * 3 = 6**	**1 * 2 = 2**

multi-month score: **14 (Normal)**
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

2019

Aerial photograph or site visit date: Tuesday, July 30, 2019

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **June 2019**	second prior month: **May 2019**	third prior month: **April 2019**
estimated precipitation total for this location:	**3.27**	**6.99**	**3.61**
there is a 30% chance this location will have less than:	3.19	2.10	1.77
there is a 30% chance this location will have more than:	5.20	4.17	2.94
type of month: dry normal wet	**normal**	**wet**	**wet**
monthly score	**3 * 2 = 6**	**2 * 3 = 6**	**1 * 3 = 3**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

15 (Wet)

2020

Aerial photograph or site visit date: Friday, October 9, 2020

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **September 2020**	second prior month: **August 2020**	third prior month: **July 2020**
estimated precipitation total for this location:	**1.28**	**5.62**	**3.53**
there is a 30% chance this location will have less than:	2.30	3.20	2.77
there is a 30% chance this location will have more than:	4.74	4.48	3.97
type of month: dry normal wet	**dry**	**wet**	**normal**
monthly score	**3 * 1 = 3**	**2 * 3 = 6**	**1 * 2 = 2**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

11 (Normal)

2021

Aerial photograph or site visit date: Friday, August 13, 2021

values are in inches A 'R' following a monthly total indicates a provisional value derived from radar-based estimates.	first prior month: **July 2021**	second prior month: **June 2021**	third prior month: **May 2021**
estimated precipitation total for this location:	**2.05**	**0.92**	**3.06**
there is a 30% chance this location will have less than:	2.77	3.19	2.10
there is a 30% chance this location will have more than:	3.97	5.20	4.17
type of month: dry normal wet	**dry**	**dry**	**normal**
monthly score	**3 * 1 = 3**	**2 * 1 = 2**	**1 * 2 = 2**

multi-month score:
6 to 9 (dry) 10 to 14 (normal) 15 to 18 (wet)

7 (Dry)

Appendix G – FSA Hydrology Assessment Worksheets

Hydrology Assessment

Wetland 2

Year	Image Source	Climate Condition (wet, dry, normal)*	Interpretation (list hydrology indicators observed, e.g. crop stress, drowned out, standing water, etc)**
			Wetland 2
2010	Color FSA	normal	SS – area appears as soil wetness signature that matches up closely with the delineated line
2015	Color FSA	normal	SS – area appears as soil wetness well within the delineated boundary
2016	Google Earth	normal	SS – area appears as soil wetness well within the delineated boundary
2017	Color FSA	normal	WS – area appears as wetland signature that matches up closely with the delineated boundary
2018	Google Earth	normal	SS – area appears as soil wetness signature within delineated boundary
2020	Google Earth	normal	CS – very small area within delineated boundary appears as crop stress

Area 1

Year	Image Source	Climate Condition (wet, dry, normal)*	Interpretation (list hydrology indicators observed, e.g. crop stress, drowned out, standing water, etc)**
			Area 1
2010	Color FSA	normal	NV – area appears as normal vegetation
2015	Color FSA	normal	NV – area appears as normal vegetation
2016	Google Earth	normal	NV – area appears as normal vegetation
2017	Color FSA	normal	WS – area appears as wetland signature that matches up closely with the 928' elevation
2018	Google Earth	normal	SS – area appears as soil wetness below the 928' elevation
2020	Google Earth	normal	CS – area below the 928' elevation appears as crop stress

*Use MN State Climatology website to determine USDA/NRCS climate condition for parcel being investigated

*Use MN State Climatology website to determine USDA/NRCS climate condition for parcel being investigated
**Use key below to label photo interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in the box below.

WS – wetland signature	SW – standing water	NV – normal vegetation cover
CS – crop stress	SS – soil wetness	NSS – no soil wetness
DO – drowned out	AP – altered pattern	
NC – not cropped		

Area 2

Year	Image Source	Climate Condition (wet, dry, normal)*	Interpretation (list hydrology indicators observed, e.g. crop stress, drowned out, standing water, etc)**
			Area 2
2010	Color FSA	normal	WS – area appears as wetland signature below the 925-926' elevation
2015	Color FSA	normal	WS – area appears as wetland signature below the 926' elevation
2016	Google Earth	normal	NV – area appears as normal vegetation
2017	Color FSA	normal	NV – area appears as normal vegetation
2018	Google Earth	normal	SS – area appears as soil wetness signature below the 926' elevation
2020	Google Earth	normal	NV – area appears as normal vegetation

*Use MN State Climatology website to determine USDA/NRCS climate condition for parcel being investigated

*Use MN State Climatology website to determine USDA/NRCS climate condition for parcel being investigated

**Use key below to label photo interpretations. It is imperative that the reviewer read and understand the guidance associated with the use of these labels. If alternate labels are used, indicate in the box below.

WS – wetland signature	SW – standing water	NV – normal vegetation cover
CS – crop stress	SS – soil wetness	NSS – no soil wetness
DO – drowned out	AP – altered pattern	
NC – not cropped		

DRAFT REPORT

To: David Stradtman, VP of Development
Rachel Development

From: Matt Pacyna, PE, Principal
Transportation Collaborative & Consultants, LLC

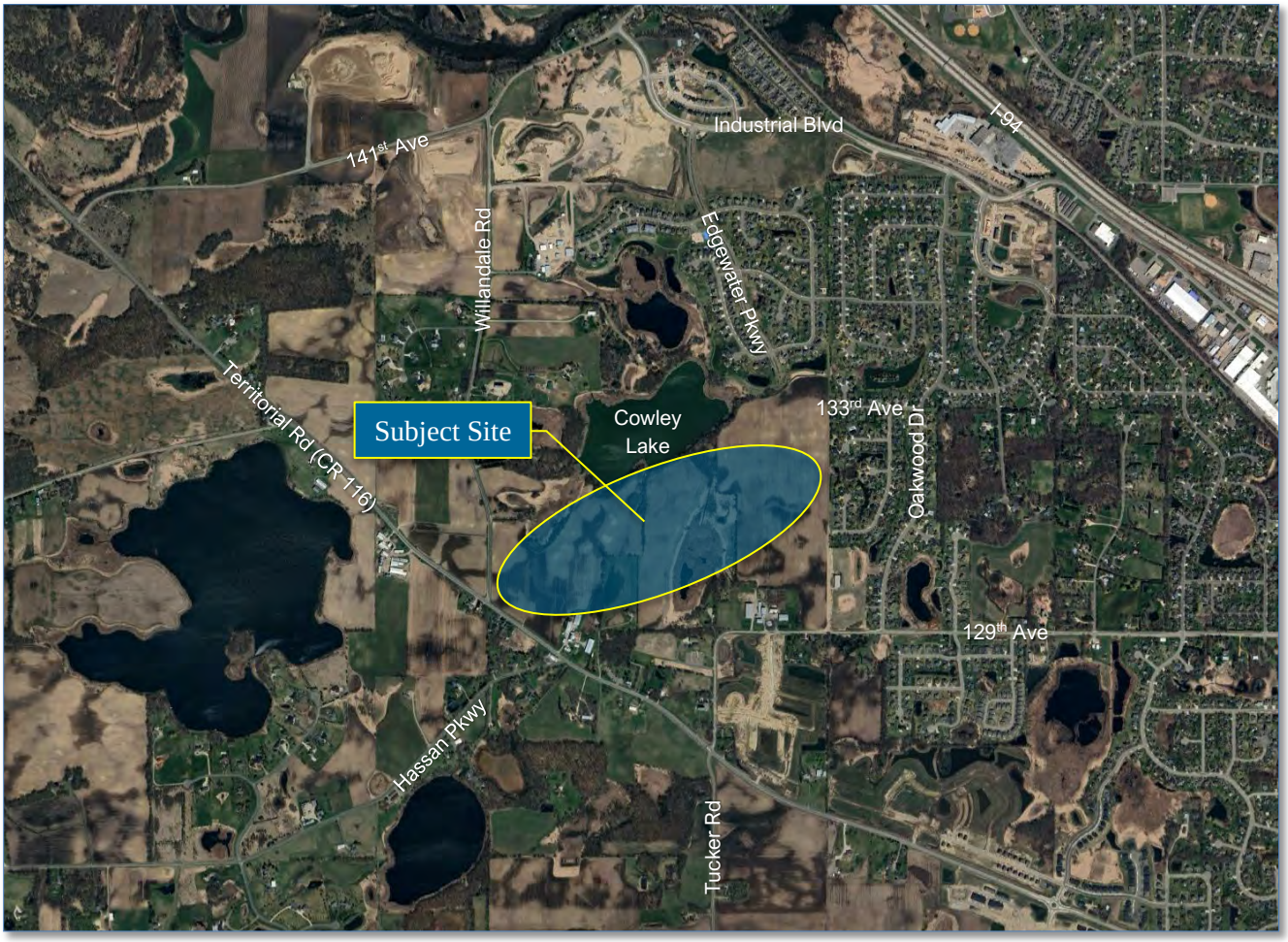
Date: March 19, 2025

Subject: Scherber Property Development Traffic Study, Rogers, MN

INTRODUCTION

TC2 completed a traffic study for the proposed Scherber Property Residential Development in Rogers, MN. The site under consideration, shown in Figure 1, is generally bound by Territorial Road (CR 116) to the south, Willandale Road to the west, Cowley Lake to the north, and Hawkins Drive to the east. The main objectives of the study are to quantify existing traffic operations within the study area, evaluate potential impacts of the proposed development, and recommend improvements, if necessary, to ensure safe and efficient operations for all users. The following study assumptions, methodology, and findings are offered for consideration.

Figure 1 Subject Site



EXISTING CONDITIONS

Existing conditions were reviewed within the study area to establish current traffic conditions to help determine impacts associated with the proposed development. The evaluation of existing conditions included collecting traffic volumes, observing transportation characteristics, and analyzing crash history and intersection capacity, which are described in the following sections.

Traffic Volumes

Vehicular intersection turning movement counts were collected at the following locations on Tuesday, February 4, 2025. The counts were collected from 6 a.m. to 7 p.m. at each study intersection.

- Territorial Road (CR 116) and Willandale Road
- Edgewater Parkway and Industrial Boulevard
- Oakwood Drive and 133rd Avenue

The a.m. and p.m. peak hours represent 7 to 8 a.m. and 4:15 to 5:15 p.m., respectively. Average daily traffic (ADT) volumes were provided by MnDOT or estimated based on the data collected.

Transportation Characteristics

Observations were conducted within the study area to identify various transportation characteristics such as roadway geometry, traffic controls, speed limits, and multimodal facilities. A general overview of key roadways within the study area is as follows:

- ***Territorial Road (CR 116)*** – a 2-lane undivided minor arterial roadway with no turn lanes at Willandale Road. There are no multimodal facilities and the speed limit is 50-mph.
- ***Willandale Road*** – a 2-lane undivided local roadway with no turn lanes at Territorial Road (CR 166). There are no multimodal facilities and the speed limit is 45-mph.
- ***Industrial Boulevard*** – a 2-lane divided major collector roadway with periodic left and right turn lanes at key intersections. There is sidewalk along north side of the roadway, as well as the south side to the east of Edgewater Parkway; the speed limit is 30 mph.
- ***Edgewater Parkway*** – a 2-lane divided local roadway with no turn lanes. There is a multiuse trail along the west side and a sidewalk along the east side of the roadway; the speed limit is 20 mph.
- ***133rd Avenue*** – a 2-lane undivided local roadway with no turn lanes. There is sidewalk along the south side of the roadway; the speed limit is 25 mph.
- ***Oakwood Drive*** – a 2-lane undivided minor collector roadway with no turn lanes. There is sidewalk along the west side of the roadway; the speed limit is 25 mph.

The Oakwood Drive and 133rd Avenue intersection has all-way stop control, while all other study intersections have side-street stop control. Existing conditions are illustrated in Figure 2.

Crash History

Five years of crash history within the study area (January 2020 through December 2024) was reviewed using data from *MnDOT's Crash Mapping Analysis Tool* (MnCMAT). There were two (2) non-animal reported crashes within the study area; one (1) at both the Territorial Road (CR 116) / Willandale Road and Industrial Boulevard / Edgewater Parkway intersections. Both reported crashes were property damage only. Therefore, there are no existing safety issues within the study area from a crash frequency or severity perspective

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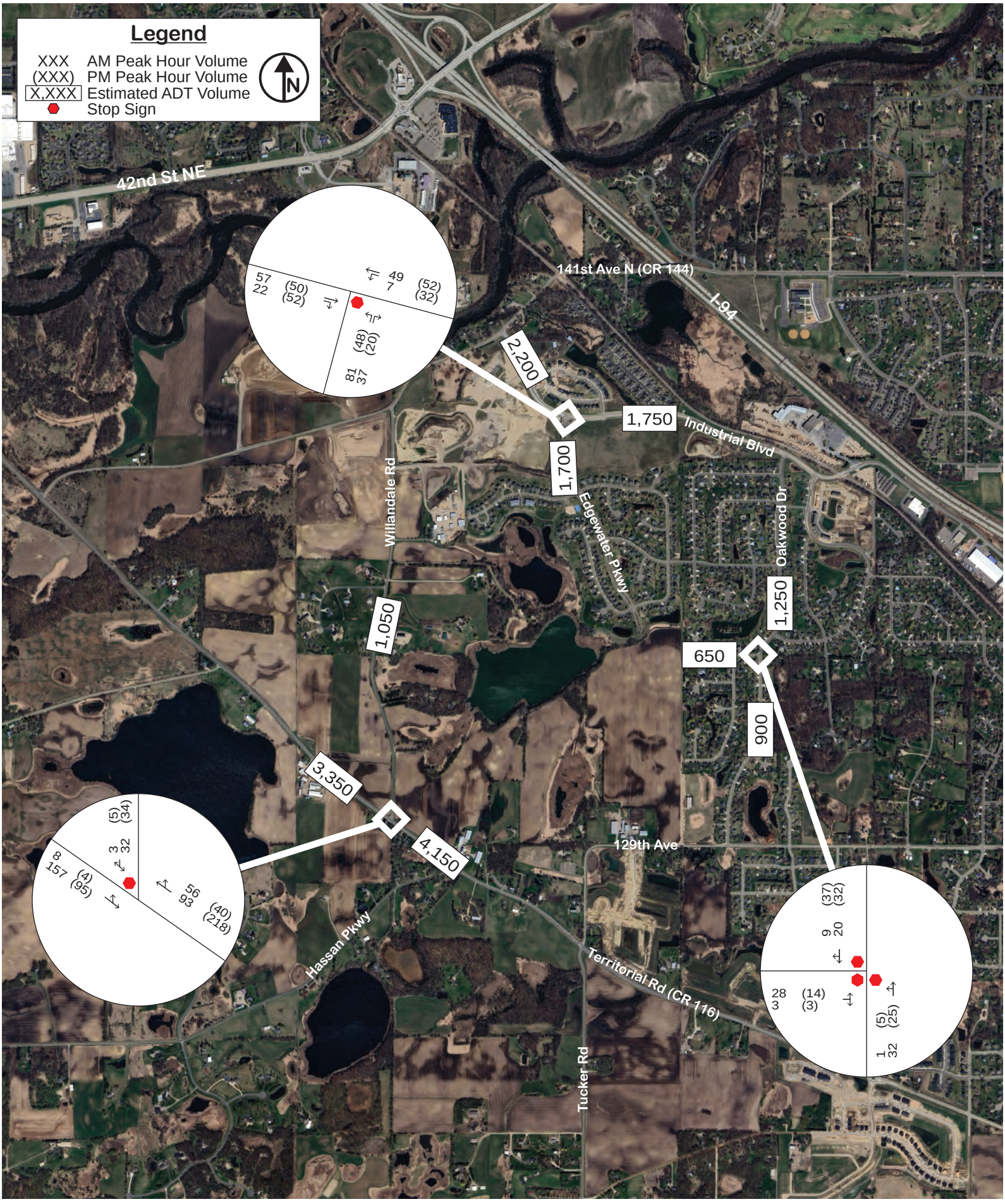

Legend
XXX AM Peak Hour Volume
(XXX) PM Peak Hour Volume
X,XXX Estimated ADT Volume
Stop Sign
N
42nd St NE
141st Ave N (CR 144)
I-94
Industrial Blvd
Willandale Rd
Edgewater Pkwy
Oakwood Dr
129th Ave
Hassan Pkwy
Territorial Rd (CR 116)
Tucker Rd
2,200
1,750
1,700
1,050
1,250
650
900
3,350
4,150
57
22
(50)
(52)
49
7
(52)
(32)
(48)
(20)
81
37
(5)
(34)
3
32
8
157
(4)
(95)
56
93
(40)
(218)
(37)
(32)
9
20
28
3
(14)
(3)
(5)
(25)
1
32

Intersection Capacity

Intersection capacity was evaluated using Synchro / SimTraffic Software (version 11), which uses methods outlined in the *Highway Capacity Manual, 6th Edition*. The software is used to develop calibrated models that simulate observed traffic operations and identify key metrics such as intersection Level of Service (LOS) and queues. These models incorporate collected traffic, pedestrian, and bicyclist volumes, traffic controls, peaking characteristics, and driver behavior factors. Level of Service (LOS) quantifies how an intersection is operating. Intersections are graded from LOS A to LOS F, which corresponds to the average delay per vehicle values shown. LOS A indicates the best traffic operation, while LOS F indicates an intersection where demand exceeds capacity. An overall intersection LOS A though LOS D is generally considered acceptable in the study area.

Level of Service	Average Delay / Vehicles	
	Stop, Yield, and Roundabout	Signalized
A	< 10 seconds	< 10 seconds
B	10 to 15 seconds	10 to 20 seconds
C	15 to 25 seconds	20 to 35 seconds
D	25 to 35 seconds	35 to 55 seconds
E	35 to 50 seconds	55 to 80 seconds
F	> 50 seconds	> 80 seconds

For side-street stop-controlled intersections, special emphasis is given to providing an estimate for the level of service of the side-street approach. Traffic operations at an unsignalized intersection with side-street stop control can be described in two ways. First, consideration is given to the overall intersection level of service, which takes into account the total number of vehicles entering the intersection and the capability of the intersection to support the volumes. Second, it is important to consider the delay on the minor approach. Since the mainline does not have to stop, most delay is attributed to the side-street approaches. It is typical of intersections with higher mainline traffic volumes to experience high-levels of delay (i.e., poor levels of service) on the side-street approaches, but an acceptable overall intersection level of service during peak hour conditions.

The existing intersection capacity analysis results, summarized in Table 2, indicate that all study intersections and approaches currently operate at an acceptable LOS B or better during the typical weekday a.m. and p.m. peak hours. Peak queues for all approaches are generally 50 feet or less (i.e., 2 to 3 vehicles). Thus, there are currently no significant issues within the study area from an intersection capacity perspective.

Table 1 Existing Intersection Capacity

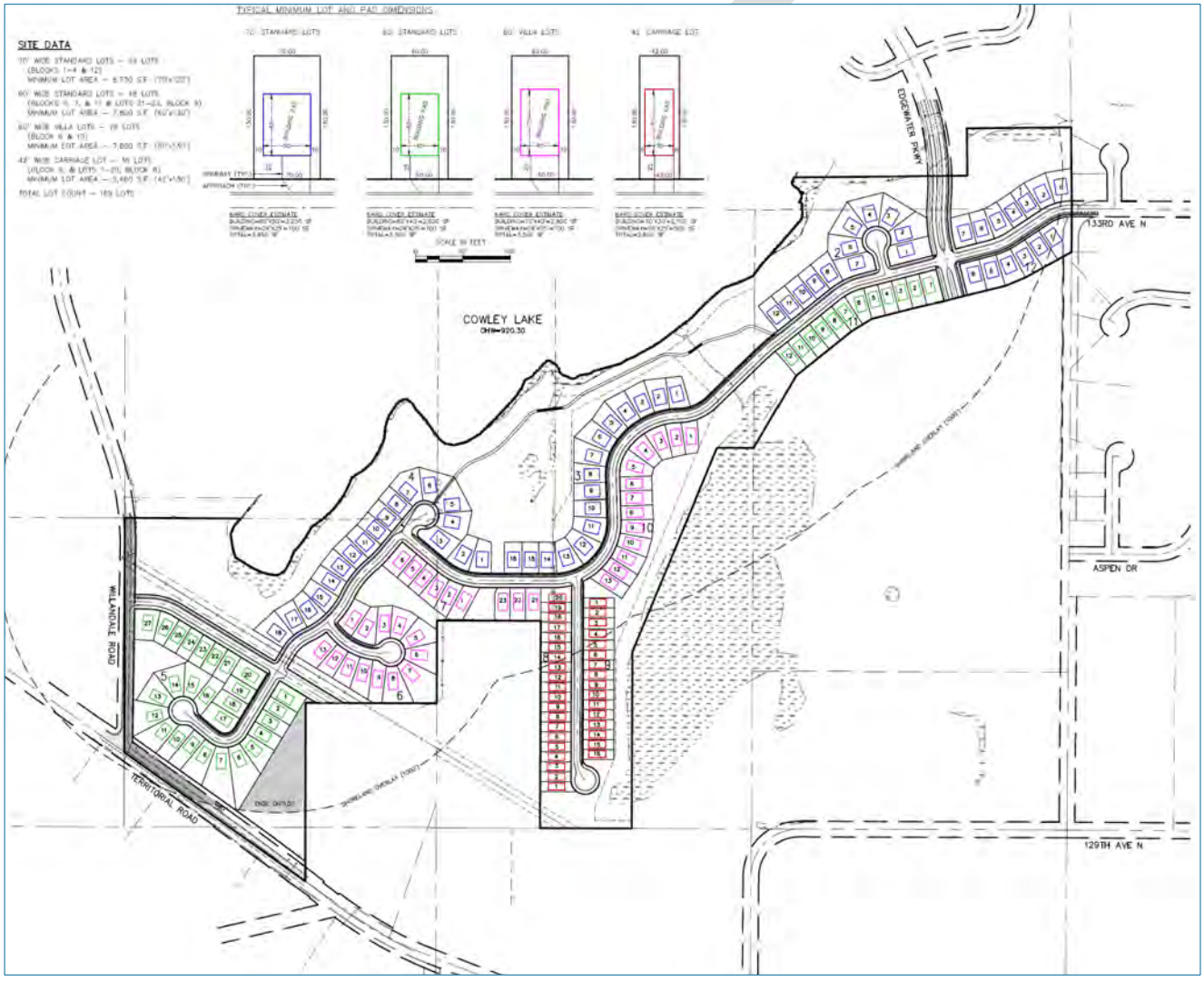
Intersection	Traffic Control	Level of Service (Delay)	
		AM Peak Hour	PM Peak Hour
Willandale Road and Territorial Road (CR 116)	SSS	A / B (11 sec)	A / B (12 sec)
Edgewater Parkway and Industrial Boulevard	SSS	A / B (10 sec)	A / B (10 sec)
Oakwood Drive and 133rd Avenue	AWSC	A (7 sec)	A (7 sec)

AWSC – All Way Stop Control *SSS – Side-Street-Stop*

PROPOSED DEVELOPMENT

The proposed development, shown in Figure 3, is generally bound by Territorial Road (CR 116) to the south, Willandale Road to the west, Cowley Lake to the north, and Hawkins Drive to the east. As proposed, the project would include a total of 169 single-family residential homes and complete a roadway connection between Willandale Road and both Edgewater Parkway and 133rd Avenue. The development would also provide for future roadway extensions of Edgewater Parkway and 129th Avenue. Sidewalk is proposed throughout the site along one side of each roadway and includes connections to adjacent facilities. Construction was assumed to be fully completed by 2030.

Figure 3 Proposed Site Plan



TRAFFIC FORECASTS

Traffic forecasts were developed for year 2030 conditions and account for general background growth, travel pattern changes associated with the new roadway connections, and trip generation from the proposed development. The following information summarizes the traffic forecast development process.

Background Growth

To account for general background growth in the study area, an annual growth rate of three (3) percent was applied to the existing traffic volumes to develop year 2030 background traffic forecasts. This growth rate is consistent with historical ADT volumes over the last 20-years, as well as future year 2040 traffic forecasts within the *Hennepin County Mobility 2040 Plan*.

Roadway Network Travel Pattern Changes

The proposed development would complete a roadway connection between Willandale Road and both Edgewater Parkway and 133rd Avenue. This roadway connection would provide existing area residents to the north and east additional route options to / from their residences. With this roadway connection, approximately 150 to 250 daily motorists could be expected to change current travel patterns and utilize the new roadway connections. A corresponding reduction in motorists along portions of Edgewater Parkway and / or Oakwood Drive could also be expected. At this level of travel pattern change, no significant impacts would be expected and therefore existing travel patterns were not modified as part of this study to better understand traffic volume impacts associated with the proposed development. Note that travel pattern changes associated with the future extension of Edgewater Parkway and 129th Avenue were also not evaluated as part of this study.

Proposed Development Trip Generation

The trip generation estimate for the proposed development was created using the *ITE Trip Generation Manual, 11th Edition* and includes trips for typical weekday a.m. and p.m. peak hours, as well as daily. The proposed development, shown in Table 2, is estimated to generate 120 a.m. peak hour (30 in / 90 out), 163 p.m. peak hour (103 in / 60 out), and 1,636 daily trips. No modal reductions were applied to provide a more conservative estimate.

Table 2 Trip Generation Summary

Land Use Type *(ITE Code)*	**Size**	**AM Peak Hour**		**PM Peak Hour**		**Daily**
		In	**Out**	**In**	**Out**	
Single-Family Residential *(210)*	169 homes	30	90	103	60	1,636

Site generated trips were distributed throughout the study area using the directional distribution shown in Figure 4, which is based on a combination of existing area travel patterns and engineering judgment. The resultant year 2030 build condition traffic forecasts are illustrated in Figure 5.

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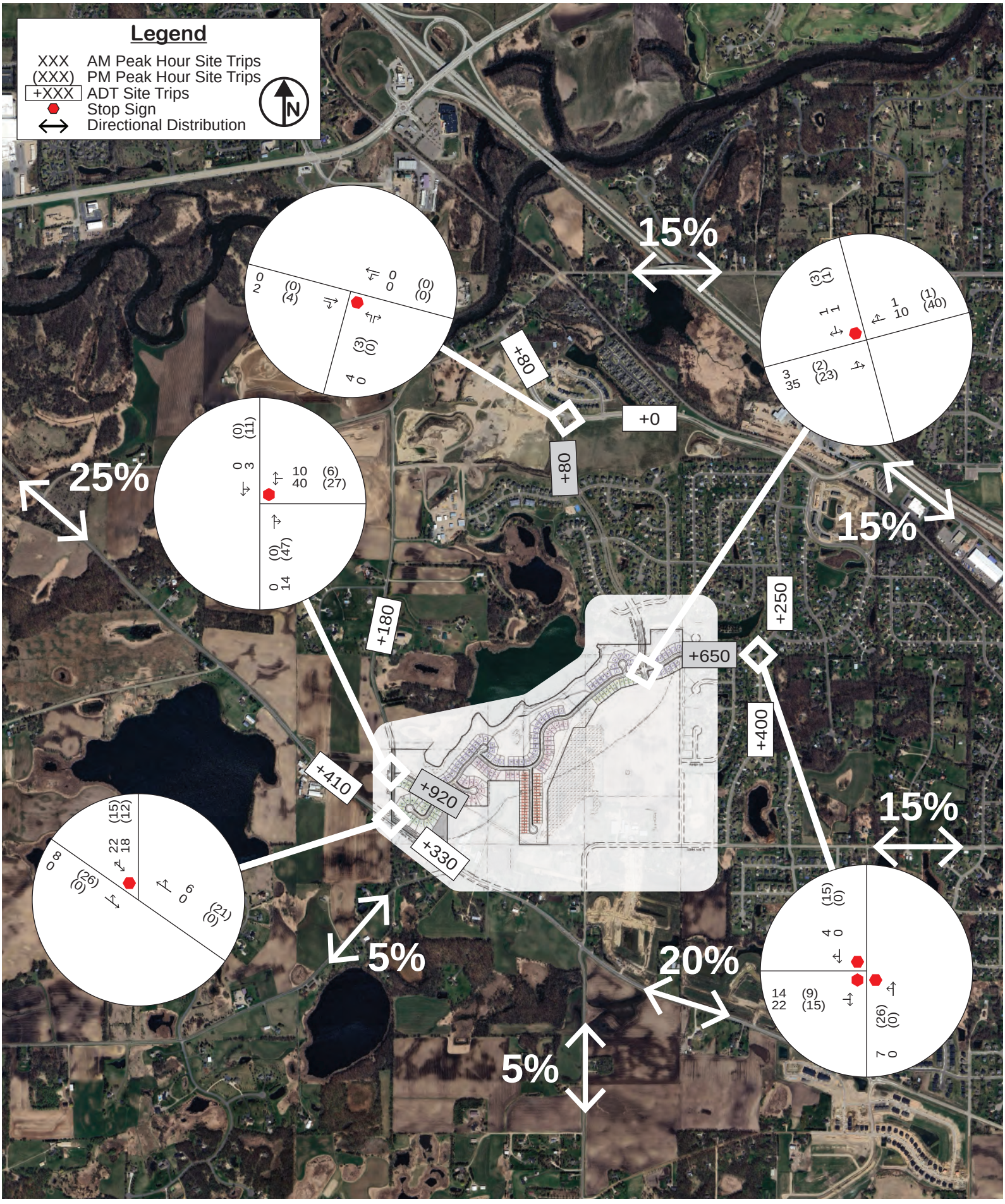
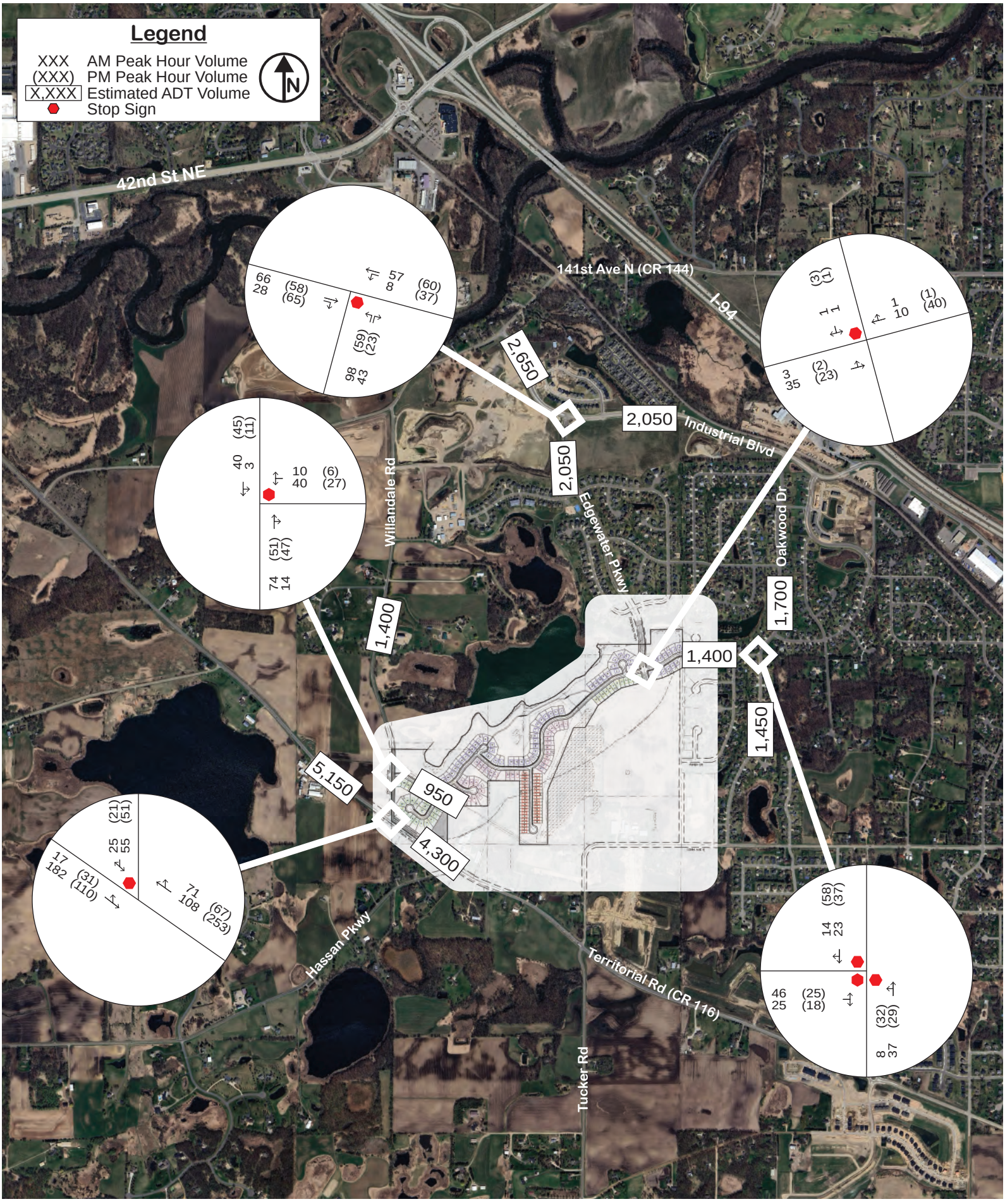


Site Generated Trips

Scherber Property Development Traffic Study

Figure 4


Legend
XXX AM Peak Hour Volume
(XXX) PM Peak Hour Volume
X,XXX Estimated ADT Volume
Stop Sign
N
42nd St NE
141st Ave N (CR 144)
I-94
Industrial Blvd
Willandale Rd
Edgewater Pkwy
Oakwood Dr
Hassan Pkwy
Territorial Rd (CR 116)
Tucker Rd
2,650
2,050
2,050
1,400
1,400
1,700
1,450
5,150
950
4,300

YEAR 2030 CONDITIONS

To understand impacts associated with the proposed development, a year 2030 build condition intersection capacity analysis was conducted. Results of the future analysis shown Table 3 indicate that all study intersections and approaches will continue to operate at an acceptable LOS B or better during the typical weekday a.m. and p.m. peak hours. In addition, peak queues for all approaches will also continue to be generally 50 feet or less (i.e., 2 to 3 vehicles). Thus, the overall change in operations as a result of the proposed development from an intersection capacity perspective is relatively minimal and within acceptable industry standards. No additional infrastructure is needed to support the proposed development from a roadway capacity perspective.

Table 3 Year 2030 Build Intersection Capacity

Intersection	Traffic Control	Level of Service (Delay)	
		AM Peak Hour	PM Peak Hour
Willandale Road and West Site Access	SSS	A / B (10 sec)	A / B (10 sec)
Willandale Road and Territorial Road (CR 116)	SSS	A / B (12 sec)	A / B (13 sec)
Edgewater Parkway and Industrial Boulevard	SSS	A / B (10 sec)	A / B (10 sec)
Edgewater Parkway and 133rd Avenue	SSS	A / A (9 sec)	A / A (9 sec)
Oakwood Drive and 133rd Avenue	AWSC	A (8 sec)	A (8 sec)

AWSC – All Way Stop Control *SSS – Side-Street-Stop*

TURN LANE REVIEW

Although not needed from an intersection capacity perspective, turn lanes can provide safety benefits by limiting conflicts between thru and turning vehicles. To determine if turn lanes are warranted within the study area, specifically along Willandale Avenue at both the West Site Access and Territorial Road (CR 116) intersections, a turn lane analysis was conducted. Guidance from *MnDOT's Access Management Manual*, *AASHTO's Geometric Design of Highways and Streets*, and the *NCHRP Report on Evaluating Intersection Improvements: An Engineering Study Guide* were reviewed. Each of these guidelines consider traffic volumes along the roadways, including hourly directional, left- / right-turning, and ADT volumes.

Results of the turn lane review indicate that the traffic volumes at the Territorial Road (CR 116) and Willandale Road intersection will meet the guidance to warrant a westbound right-turn lane. However, the eastbound left-turn and opposing volumes do not meet the guidance to warrant an eastbound left-turn lane. In addition, the anticipated traffic volumes along Willandale Road at the West Site Access do not meet the guidance for either a northbound right-turn lane or a southbound left-turn lane. Therefore, further coordination with area agencies, including Hennepin County, should occur to discuss the turn lane needs. Detailed information used for the turn lane analysis is included in the Appendix.

DRAFT

SITE PLAN / OTHER CONSIDERATIONS

A review of the proposed site plan does not indicate any major issues. However, the following items are offered for further consideration between the City, County, and / or project team.

- Locate signage and landscaping to avoid creating any sight distance issues.
- Increase the curve radius near the internal cul-de-sac intersection or reorientate the roadway so the roadway / cul-de-sac are the continue roadway and the east approach intersects at 90 degrees.
- Add internal traffic controls (i.e., stop signs) per direction from the City Engineer; traffic controls should be reviewed further upon the future extension of Edgewater Parkway and / or 129th Avenue.
- Review truck maneuverability to limit potential circulation conflicts.

CONCLUSIONS

Based on the findings of the study, the following conclusions are offered for consideration.

1) There does not appear to be any significant safety issues within the study area from a crash history perspective.
2) All study intersections and approaches currently operate at an acceptable overall LOS B or better during the typical weekday a.m. and p.m. peak hours and there are no significant existing intersection capacity issues within the study area.
3) The proposed development includes 169 single-family residential homes with construction anticipated to be fully completed by the year 2030.
4) Traffic forecasts were developed for year 2030 build conditions, which included a three (3) percent annual background growth and trip generation from the proposed development; the proposed development is estimated to generate 120 a.m. peak hour (30 in / 90 out), 163 p.m. peak hour (103 in / 60 out), and 1,636 daily trips.
5) Key takeaways from the future year 2030 build capacity analysis, include:
    a. All study intersections and approaches are expected to continue to operate at an acceptable LOS B or better during typical weekday a.m. and p.m. peak hours.
    b. The overall change in operations as a result of the proposed development is relatively minimal and within acceptable industry standards and no additional infrastructure is needed to support the proposed development from an intersection capacity perspective.
6) Traffic volumes at the Territorial Road (CR 116) and Willandale Road intersection are expected to meet the guidance to warrant a westbound right-turn lane; no other locations will meet the guidance to warrant any additional turn lanes. Thus, further coordination with area agencies, including Hennepin County, should occur to discuss the turn lane needs.
7) A review of the proposed site plan does not indicate any major issues although the site plan items noted above are offered for further consideration between the City, County, and / or project team.

DRAFT

APPENDIX

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

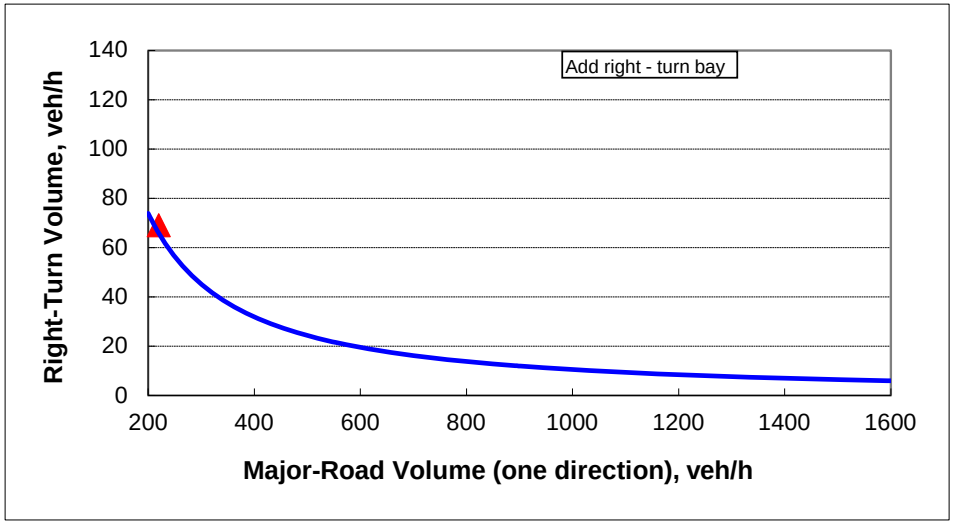
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	50
Major-road volume (one direction), veh/h:	220
Right-turn volume, veh/h:	69

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	66
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Add right-turn bay.	



Territorial Road (CR 116) / Willandale Road Intersection
Year 2030 Build Traffic Volumes

	EBLT	EBT	WBT	WBR
6:00 AM	5	89	48	25
7:00 AM	17	182	108	71
8:00 AM	21	110	75	43
9:00 AM	17	74	68	32
10:00 AM	22	65	58	28
11:00 AM	23	58	75	29
12:00 PM	31	58	79	34
1:00 PM	26	77	104	37
2:00 PM	34	71	147	58
3:00 PM	34	102	169	74
4:00 PM	31	89	255	69
5:00 PM	36	107	190	58
6:00 PM	26	68	85	50

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

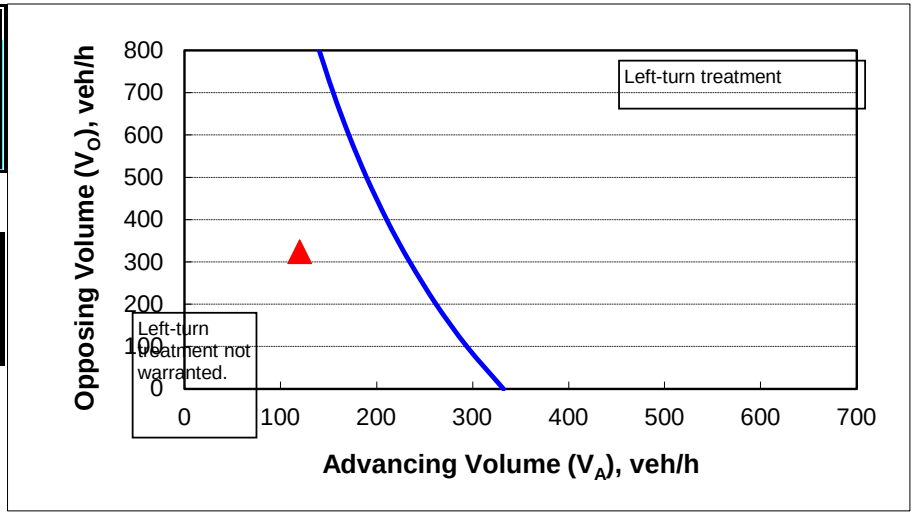
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	55
Percent of left-turns in advancing volume (V_A), %:	22%
Advancing volume (V_A), veh/h:	120
Opposing volume (V_O), veh/h:	324

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	228
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane , s:	1.9

Territorial Road (CR 116) / Willandale Road Intersection
Year 2030 Build Traffic Volumes

	EBLT	EBT	WBT	WBR
6:00 AM	5	89	48	25
7:00 AM	17	182	108	71
8:00 AM	21	110	75	43
9:00 AM	17	74	68	32
10:00 AM	22	65	58	28
11:00 AM	23	58	75	29
12:00 PM	31	58	79	34
1:00 PM	26	77	104	37
2:00 PM	34	71	147	58
3:00 PM	34	102	169	74
4:00 PM	31	89	255	69
5:00 PM	36	107	190	58
6:00 PM	26	68	85	50

Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

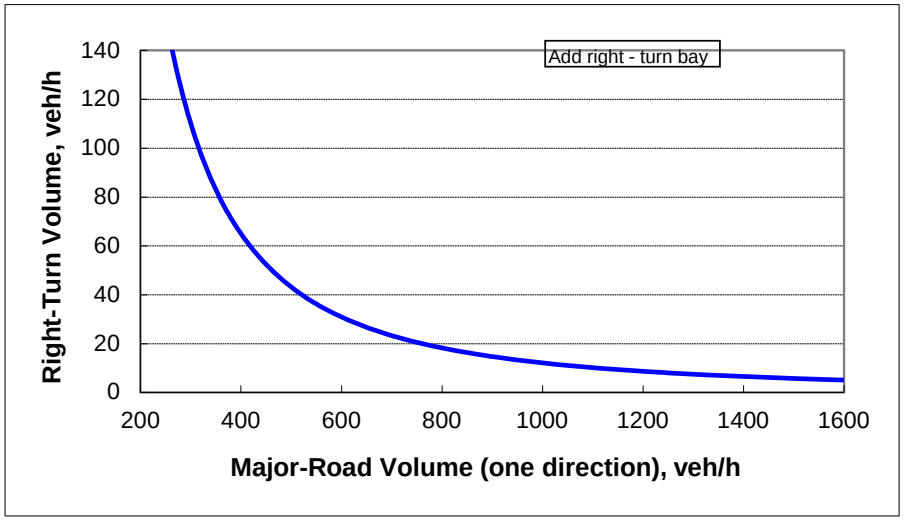
INPUT

Roadway geometry:	2-lane roadway

Variable	Value
Major-road speed, mph:	45
Major-road volume (one direction), veh/h:	100
Right-turn volume, veh/h:	47

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	824
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



	Willandale Road / West Site Access Intersection Year 2030 Build Traffic Volumes			
	SBL	SBT	NBT	NBR
6:00 AM	2	22	23	7
7:00 AM	3	41	74	14
8:00 AM	7	37	35	29
9:00 AM	7	24	20	29
10:00 AM	8	9	14	37
11:00 AM	8	14	16	37
12:00 PM	10	16	20	44
1:00 PM	10	22	19	44
2:00 PM	12	34	39	51
3:00 PM	12	60	56	51
4:00 PM	11	57	52	47
5:00 PM	12	45	42	51
6:00 PM	10	29	31	44

Figure 2 - 5. Guideline for determining the need for a major-road left-turn bay at a two-way stop-controlled intersection.

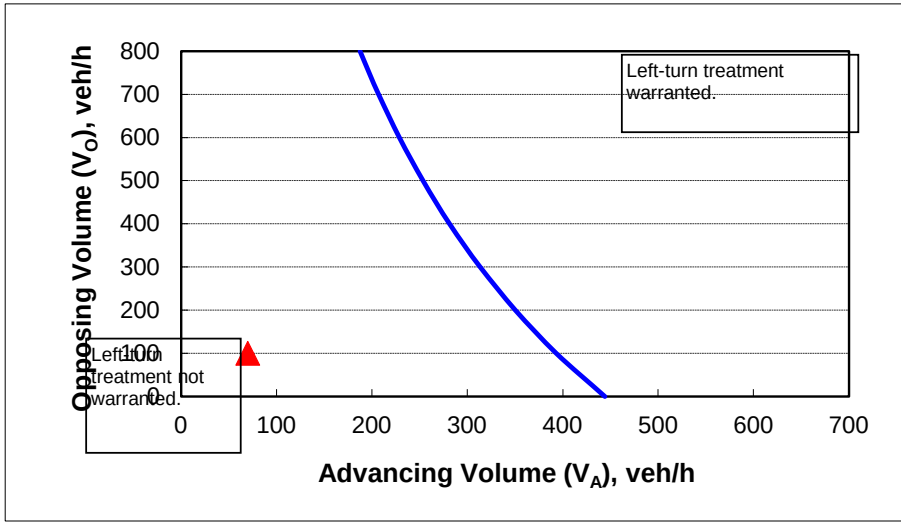
2-lane roadway (English)

INPUT

Variable	Value
85th percentile speed, mph:	45
Percent of left-turns in advancing volume (V_A), %:	16%
Advancing volume (V_A), veh/h:	70
Opposing volume (V_O), veh/h:	100

OUTPUT

Variable	Value
Limiting advancing volume (V_A), veh/h:	393
Guidance for determining the need for a major-road left-turn bay:	
Left-turn treatment NOT warranted.	



CALIBRATION CONSTANTS

Variable	Value
Average time for making left-turn, s:	3.0
Critical headway, s:	5.0
Average time for left-turn vehicle to clear the advancing lane , s:	1.9

	Willandale Road / West Site Access Intersection Year 2030 Build Traffic Volumes			
	SBL	SBT	NBT	NBR
6:00 AM	2	22	23	7
7:00 AM	3	41	74	14
8:00 AM	7	37	35	29
9:00 AM	7	24	20	29
10:00 AM	8	9	14	37
11:00 AM	8	14	16	37
12:00 PM	10	16	20	44
1:00 PM	10	22	19	44
2:00 PM	12	34	39	51
3:00 PM	12	60	56	51
4:00 PM	11	57	52	47
5:00 PM	12	45	42	51
6:00 PM	10	29	31	44

SURVEYED PROPERTY

Scherber Parcel:

Parcel 1:
Beginning at a point on the East line of Government Three (3) distant 525 feet North 0 degrees 14 minutes 28 seconds West from the Southeast corner thereof; thence South 89 degrees 44 minutes 7 seconds West parallel with the South line thereof distant 553.53 feet; thence South 0 degrees 21 minutes East to center line of county road; thence Northwesterly along said center line to the West line thereof; thence Northerly to the Northwest corner thereof; thence along the Northerly line thereof to the Northeast corner thereof; thence Southerly to the point of beginning. Also that part of the West 30 rods of Government Lot 2 lying North of the South 53 rods thereof, except roads, in Section Twenty-one (21), Township One Hundred Twenty (120), Range Twenty-three (23), Hennepin County, State of Minnesota.

Casco Parcel:

That part of Government Lot 2 in Section 21, Township 120, Range 23, described as commencing at the Southwest corner thereof, thence South 89 degrees 48 minutes 24 seconds East, assumed bearing along the South line of Government Lot 2, a distance of 438.00 feet to the point of beginning; thence North 00 degrees 13 minutes 06 seconds East parallel to the West line of Government Lot 2, a distance of 874.50 feet; thence South 89 degrees 48 minutes 24 seconds East a distance of 57.00 feet; thence North 0 degrees 13 minutes 06 seconds East a distance of 891.00 feet, more or less, to the shore of Crowley Lake; thence Northeasterly along said shoreline a distance of 1043.00 feet, more or less, to the East line of Government Lot 2; thence South 00 degrees 20 minutes 20 seconds West along said East line to a point which is 1604.32 feet North of the Southeast corner of Government Lot 2; thence North 89 degrees 39 minutes 40 seconds West a distance of 154.63 feet; thence South 22 degrees 32 minutes 57 seconds West a distance of 930.19 feet; thence South 00 degrees 13 minutes 06 seconds West distance 744.43 feet to the South line of Government Lot 2; thence North 89 degrees 48 minutes 24 seconds West along said South line a distance of 387.00 feet to the point of beginning, Hennepin County, Minnesota.

Weber Parcel:

That part of Government Lot 1, Section 16, Township 120 North, Range 23 West, Hennepin County, Minnesota, which lies southerly of a line, and its westerly extension, described as commencing at the southeast comer of said Government Lot 1; thence northerly along the east line of said Government Lot 1, a distance of 343.00 feet to the point of beginning of the line to be described; thence westerly, deflecting to the left, 90 degrees 00 minutes 00 seconds a distance of 440.00 feet; thence southerly, deflecting to the left, 90 degrees 00 minutes 00 seconds a distance of 200 feet; thence westerly deflecting to the right, 90 degrees 00 minutes 00 seconds to the west line of said Government Lot 1 and said line there terminating; AND

That part of Government Lot 1, Section 21, Township 120, Range 23, Hennepin County, Minnesota , which lies northerly of a line described as commencing at the northeast corner of said Government Lot 1; thence on an assumed bearing of South 00 degrees 27 minutes 31 seconds West, along the east line of said Government Lot 1, a distance of 182.88 feet to the point of beginning of the line to be described; thence South 61 degrees 03 minutes 26 seconds West a distance of 222.02 feet; thence South 67 degrees 30 minutes 11 seconds West a distance of 91.95 feet; thence South 76 degrees 13 minutes 23 seconds West a distance of 165.87 feet; thence South 75 degrees 35 minutes 51 seconds West a distance of 100.00 feet; thence South 76 degrees 59 minutes 00 seconds West a distance of 124.04 feet; thence South 75 degrees 35 minutes 51 seconds West a distance of 191.00 feet; thence South 58 degrees 41 minutes 05 seconds West a distance of 100.13 feet; thence South 51 degrees 12 minutes 52 seconds West a distance of 298.78 feet; thence South 30 degrees 17 minutes 17 seconds West a distance of 353.33 feet to a point in the west line of said Government Lot 1 which is 1604.32 feet north of the southwest corner of the Southeast Quarter of the Northeast Quarter of said Section 21, and said line there terminating.

EXISTING ZONING IS R2
PROPOSED ZONING IS PUD

TOTAL SITE AREA	±88.99 AC.
LOT AREA	35.64 AC.
–(70' WIDE LOTS)	(14.41 AC.)
–(60' WIDE LOTS)	(10.60 AC.)
–(60' WIDE VILLA LOTS)	(6.01 AC.)
–(42' WIDE CARRIAGE LOT)	(4.62 AC.)
OUTLOT AREA	±39.16 AC.
–(OPEN SPACE – OUTLOTS A–G)	(±36.98 AC.)
–(FUTURE DEVELOPMENT – OUTLOTS H–I)	(2.18 AC.)
RIGHT OF WAY AREA	14.19 AC.
–(EXISTING ROADS – WILLANDALE & TERRITORIAL)	(2.44 AC.)
–(SUBDIVISION ROADS)	(11.75 AC.)

SITE DATA

70' WIDE LOTS – 59 LOTS
(BLOCKS 1–4 & 13)
MINIMUM LOT AREA – 8,750 S.F. (70'x125')

60' WIDE LOTS – 48 LOTS
(BLOCKS 5, 6, 8, & 12 & LOTS 21–23, BLOCK 9)
MINIMUM LOT AREA – 7,500 S.F. (60'x125')

60' WIDE VILLA LOTS – 26 LOTS
(BLOCK 7 & 11)
MINIMUM LOT AREA – 7,500 S.F. (60'x125')

42' WIDE CARRIAGE LOT – 36 LOTS
(BLOCK 10, & LOTS 1–20, BLOCK 9)
MINIMUM LOT AREA – 5,460 S.F. (42'x130')

TOTAL LOT COUNT – 169 LOTS

MAXIMUM IMPERVIOUS (ALL LOTS) = 50%

MINIMUM SETBACKS – 60' & 70' WIDE STANDARD LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	10 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET
COWLEY LAKE – OHW (ALL STRUCTURES)	150 FEET

MINIMUM SETBACKS – 60' WIDE VILLA LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	10 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET
COWLEY LAKE – OHW (ALL STRUCTURES)	150 FEET

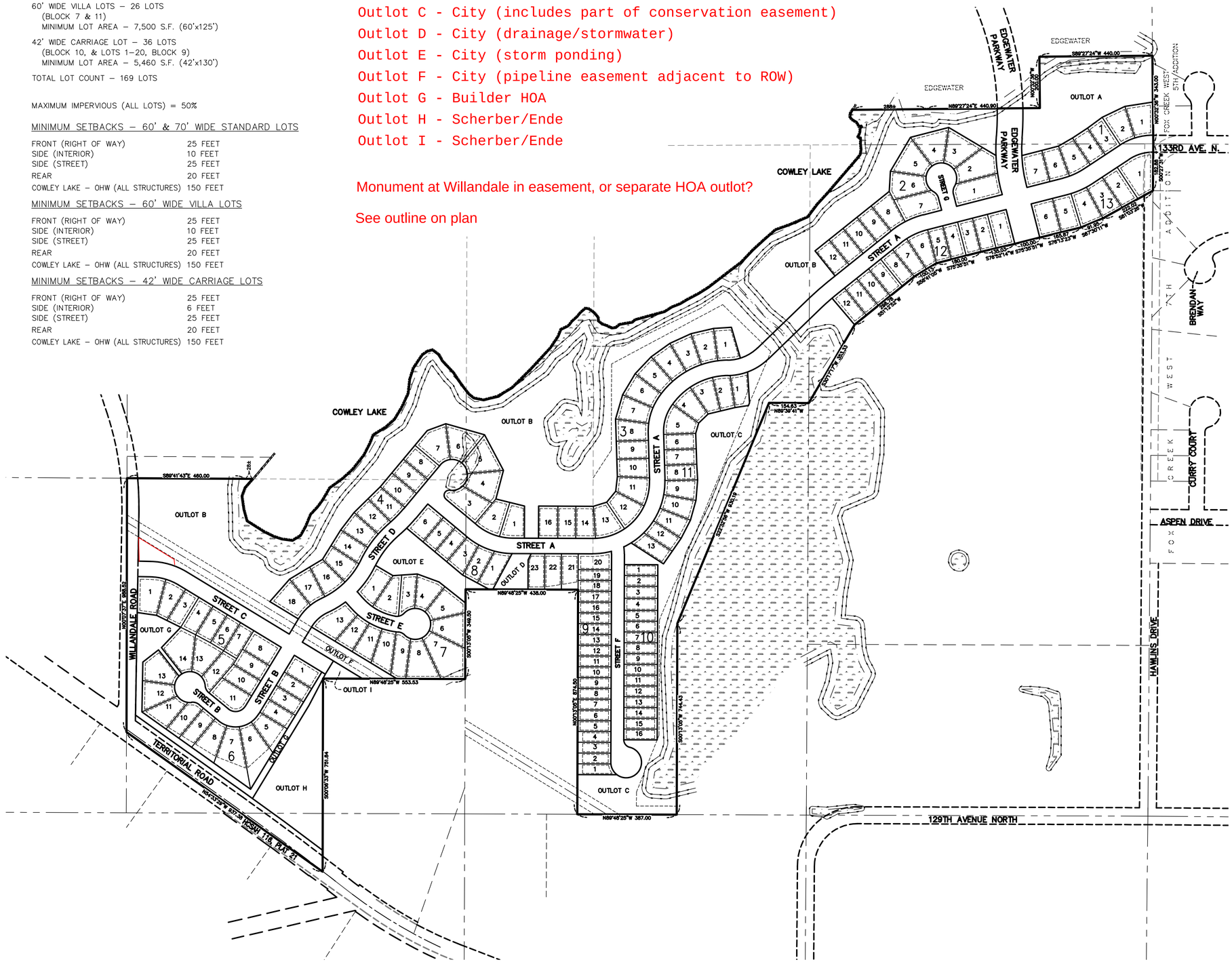
MINIMUM SETBACKS – 42' WIDE CARRIAGE LOTS

FRONT (RIGHT OF WAY)	25 FEET
SIDE (INTERIOR)	6 FEET
SIDE (STREET)	25 FEET
REAR	20 FEET
COWLEY LAKE – OHW (ALL STRUCTURES)	150 FEET

OUTLOT OWNERSHIP
Outlot A - City (storm ponding)
Outlot B - City (shoreland req'd)
Outlot C - City (includes part of conservation easement)
Outlot D - City (drainage/stormwater)
Outlot E - City (storm ponding)
Outlot F - City (pipeline easement adjacent to ROW)
Outlot G - Builder HOA
Outlot H - Scherber/Ende
Outlot I - Scherber/Ende

Monument at Willandale in easement, or separate HOA outlot?

See outline on plan



N

SCALE IN FEET
0 200' 400'

James R. Hill, Inc.
PLANNERS / ENGINEERS / SURVEYORS
2999 WEST C.R. 42, SUITE 100, BURNSVILLE, MN 55306
PHONE: 952.890.6044 mhampton@jrhinc.com
www.jrhinc.com

COWLEY LAKE PRESERVE
ROGERS, MINNESOTA
PRELIMINARY PLAT
FOR
RACHEL DEVELOPMENT
4180 NAPPER COURT, ST. MICHAEL, MN 55376

DRAWN BY
PLM
DATE
2/24/2025
REVISIONS

CAD FILE
23970pp.dwg
PROJECT NO.
23970-00
2.0

F:\Civil 3D Projects\23970\PRE-PLAT PLANS\23970pp.dwg – 2/21/2025 10:51AM

Alec Henderson

From: Mike Albers
Sent: Friday, March 14, 2025 9:43 AM
To: Alec Henderson; Patrick Farrens; Jason Albers; Doran Cote
Cc: Eric Burtness; Brett Angell
Subject: RE: Submission of Preliminary Plat/PUD Application – Cowley Lake Preserve

Alec,
I apologize for the delay in providing the PW high-level comments. There was quite a bit to unpack with this submittal.

Items for the Developer:

- Missing Item - Phasing Plan
- Missing Item - Signage Plan
- Missing Item - Lighting Plan
- Missing Item - Traffic Study
- Missing item - Tree removal plan
    - Removal of trees is not allowed within the conservation easement per section 2.12.
- Ensure Compliance with the Conservation Easement Land Use Restrictions (2.1-2.13).
    - Identify any tree removals, grading or utility placement within the conservation easement area and ensure it does not conflict with land preservation goals.

- Written Statement
    - Provide details on the vacation of the Hawkins Drive Right of Way (ROW), including its boundaries and how the vacation affects the surrounding area or planned development.
    - Identify all private streets and public streets. For public streets, indicate if they meet city standards. Note any streets that does not meet city standards. Recommend Street F be updated to meets the City's standard for roadway width.
    - Provide details on the disposition of the conservation easement and Outlot C. Specify who will own and maintain these areas (e.g., HOA, city, or another entity).
        - Verify who meets the requirement of a qualified organization to take over the conservation easement per 7.1 of the conservation easement. Typically, conservation easements are managed by qualified land trusts or environmental organizations.

- Site Plan
    - Provide a list of proposed street names for review and approval
    - Provide a trail along the north side of Street A, extending from Edgewater Parkway to the east property line.
    - Provide a 10-foot wide boulevard along the trail on Street C.
    - Remove trail on Street D between Lots 3-5, Block 4.
    - Evaluate the driveway locations on Street F to maximize space for street parking. This will help improve the overall flow of traffic and parking availability.
    - Provide turn lanes on Willandale Road at the intersection with Street C that meet municipal state aid (MSA) standard.
    - Provide a summary of all outlots, specifying the intended owners (HOA, City, Other).
        - Outlot F: Confirm it will be owned by a HOA.
        - Outlot G: Confirm it will be owned by a HOA.
        - Outlot C: Verify who meets the requirement of a qualified organization to take over the conservation easement per 7.1 of the conservation easement.

- 7.1 of the conservation easement: “This Easement or a Grantee's interest in this Easement may be assigned or transferred only to a conservation organization which is a qualified organization under Section l 70(h) of the Internal Revenue Code and related regulations and which is authorized to hold conservation easements under Minnesota law. Any future holder of this Easement shall have all of the rights conveyed to the Grantee by this Easement.”

- Grading Plan
  - Retaining wall on Block 9, Lots 1-5, and 18 will require an encroachment agreement.
  - Provide additional access to Pond 43P to allow for future maintenance or other needs. Additionally, there is concern over the proximity of this access to the conservation easement. Ensure that this access does not compromise the integrity of the conservation area or violate any land use restrictions. You may need to adjust the access route or take additional mitigation steps.
  - Revised plans to clearly show no grading within the conservation easement as per section 2.10. Ensure the grading plans are revised to reflect this and include appropriate buffers to protect the easement area.
  - Provide details for the unpaved trails and boardwalks in Outlot B.
  - Clarify where basin 31P drains in the proposed stormwater system.

- Street & Utility Plan
  - Provide watermain extension from the cul-de-sac on Street F to the south property line.
  - Discuss improvements to the watermain along the 129th Avenue corridor to loop the watermain from Lawrence Way to Street F, as previously recommended in past comments. This loop will improve the water supply reliability and overall system performance.
  - Revise the plans to ensure no utilities (e.g., FES 421, FES 401, FES 402, FES-321, CBMH 302, STMH 301) are placed within the conservation easement as outlined in sections 2.4 and 2.7. These elements are difficult to replace without impacting the conservation easement, so alternatives need to be identified for routing utilities around this area.
  - Provide additional information on the two existing drain tile lines on Outlot D, including their current location and function. Also, clarify the plans for removal of the 12” drain tile and the measures being taken to address any potential drainage issues resulting from this removal.

- Landscape Plan
  - Review and reduce the number of tree plantings in the public outlots to avoid excessive planting that may obstruct other utilities or adjacent to access route.
  - Indicate on the landscape plans if there will be additional plantings or mulch around the development sign in outlot B.
- Provide an exhibit showing all trail easements across the site. Trail easements should be a minimum of 3 feet beyond the edge of the trail to allow for maintenance, safety, and future improvements.
- Provide a trail easement over the future trail located within the Hawkins Drive ROW vacation area. Consider including grading as part of the easement to ensure proper trail design and functionality.
- Provide an exhibit showing all D&U easement encroachments for structures like retaining walls, development signs, and other elements that extend into easement area.

Items for Planning:
- Verify if the developer has formally submitted a petition to vacate the Hawkins Drive Right-of-Way (ROW).
  - Once the Hawkins Drive ROW is vacated, a D&U easement will need to be maintained over the vacated area. Additionally, a separate trail easement must be established for the future trail, as specified in the comprehensive plan.
- Verify if the City meets the requirement of a qualified organization to take over the conservation easement per 7.1 of the conservation easement. Typically, conservation easements are managed by qualified land trusts or environmental organizations, not municipalities.

- Confirm that the construction of unpaved trails and boardwalks in Outlot B will be included in the Development Agreement. The developer should be responsible for building these elements as part of the project.
- Street F will require a variance for its narrower street width and Right-of-Way (ROW) width as currently presented in the plans.
    - After reviewing the City Council policy for acceptance of existing private streets into the City street system per the 4/25/23 CC meeting. Engineering recommends Street F meet the City's standard for roadway width (32' B-B) to be compliance with the city council's discussion about accepting private streets. The 50' ROW would be acceptable per the policy.
    - Coordinate with the Fire Department to determine appropriate no parking locations on Street F if the project continues with the narrower street width.
- Easement encroachment agreements will be need for retaining walls on Block 9, Lots 1-5,18 and the development sign and the landscaping in outlot B.
- The project will require a stormwater maintenance agreement.
- Confirm if an HOA (Homeowners Association) will be established to handle the ongoing maintenance of retaining walls, development sign and the landscaping.

Mike Albers, PE
City of Rogers, MN | Assistant City Engineer
Public Works: 763.428.8580 | Direct: 763.428.0911

From: Alec Henderson <ahenderson@rogersmn.gov>
Sent: Tuesday, March 4, 2025 2:46 PM
To: Patrick Farrens <pfarrens@rogersmn.gov>; Jason Albers <jalbers@rogersmn.gov>; Doran Cote <dcote@rogersmn.gov>; Andrew Simmons <asimmons@rogersmn.gov>; Mike Albers <malbers@rogersmn.gov>
Cc: Eric Burtness <eburtness@rogersmn.gov>; Brett Angell <bangell@rogersmn.gov>
Subject: RE: Submission of Preliminary Plat/PUD Application – Cowley Lake Preserve

All please let me know by next Monday 3/11 if there are any missing items you need for review. Otherwise, payment is in and review can commence. A transportation study is being conducted and should be sent our way this month.

Assuming we have everything, we are shooting for April meetings for hearing and approval (PC meeting on April 7th, tentative council action on April 22nd). High level review should be completed with major issues identified to be worked into conditions of approval by the first week of April.

-Alec

Alec Henderson, AICP
CITY PLANNER

ahenderson@rogersmn.gov
22350 S. Diamond Lake Rd.
Rogers, MN 55374
Office: 763-428-0912

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: April 7, 2025

Agenda Item: 4.3

Subject: Consider Applications by Creative Lawn and Landscapes for Site Plan approval and Conditional Use Permit approval related to exterior site improvements and outdoor storage at 14005 Northdale Blvd

Prepared By: Alec Henderson, City Planner

Recommended Council Action

Overview / Background / Analysis

Jordan Roberdeau of Creative Lawn & Landscaping has submitted a Zoning & Land Use application, requesting City approval of a Site Plan and Conditional Use Permit (CUP) for an expansion to the parking lot and Outdoor Storage at Creative Lawn & Landscaping, 14005 Northdale Boulevard (PID: 14-120-23-21-0010) (Subject Property). The proposal would reconstruct the gravel drive and parking areas in the front and rear to asphalt and include stormwater improvements to the property. The use of the property would include a CUP allowing, as an accessory use, the storage of materials in certain sections site in the rear of the building and north of the rear parking lot. The rear parking lot would include areas for parking and loading of vehicles and equipment related to the business.

Creative Lawn and Landscapes initially purchased the parcel in 2014 and planned these improvements (Res No 2014-66). However, the improvements were never made and ultimately approvals were revoked in 2019 (Res No 2019-106) and Creative Lawn reduced their presence at the property. An application was received in 2020 which was later withdrawn due to issues with the plans. A new application was received in 2023 and deemed incomplete due to issues with the plans and stormwater plan. A revised application was received in March 2025.

Primary Issues to Consider

1. Land Use & Zoning
2. Site Plan & CUP

Analysis of Primary Issues

1. **Land Use & Zoning**

When Creative Lawn purchased property in 2014, the guidance was Commercial and

zoning was B-3 General Business. During the span of time where Creative Lawn was creating new and revising plans, the 2040 Comprehensive Plan process reguided and rezoned the property. The Subject Property is now guided **High Density** in the Rogers 2040 Comprehensive Plan and the corresponding zoning for the Subject Property is **RC Regional Employment Center District**. The intent for the properties along Northdale Blvd is a redevelopment, mixed used district which allows for a mix of residential, commercial and light industrial uses. The existing use of the property is technically permitted in the RC district as Contractor Services (falling within the light manufacturing definition). Outdoor storage of materials is permitted through a Conditional Use Permit in the RC district.

2. **Site Plan and Outdoor Storage**

The existing use on the site – Creative Lawn – will not be changed. Proposed changes to the site would include reconstructing the parking and drive aisles and the creation of two storage areas directly behind the building and to the north of the rear loading and parking area. The outdoor storage area includes approximately 6,300 sq ft of outdoor storage consisting of bins directly behind the building, and a plant storage area north of the parking lot. The site plan also indicates a seasonal greenhouse area. The planned improvements are consistent with previous plans and ultimately previous approvals. Outdoor Storage is regulated by section 125-84

The improvements include stormwater pond improvements. It is expected that the applicant will be required to enter into an agreement to ensure that the stormwater pond improvements are guaranteed (through surety) and ultimately completed per the plans. Elm Creek Watershed Commission permitting will be required prior to construction.

The Parking code requires 7 stalls. 9 stalls are to be included initially, with the potential for 14 stalls through proof of parking. Parking requirements are satisfied.

No building modifications are planned. No lighting is planned for the lot other than maintaining existing building or site lighting already in place.

<u>Landscaping</u>
Landscaping is currently proposed to consist of 5 trees, turf, as well as 64 shrubs, perennial and flower plantings in front of the building and at the corners of the front parking areas. The property is within the Corridor overlay district and should also include a landscaped area in front of the front parking area adjacent to Northdale ROW (within the property). Additional landscaping will be required as a condition.

Staff Recommendation
City Staff recommend the Planning Commission recommend approval to the City Council for the Site Plan and Conditional Use Permit for outdoor storage of materials

for Creative Lawn & Landscaping at 14005 Northdale Boulevard. Conditions should include:

1. Any gates shall have Knox Boxes or similar for emergency access by the Fire Department in case of an emergency.
2. The outdoor storage area shall not exceed 30% of the building and shall meet the performance standards for outdoor storage as regulated by section 125-84.
3. The Plans shall be revised to the satisfaction of the City Engineer, City Planner and Fire Department. Revisions shall be submitted and approved by the city prior to construction.
4. The Applicant shall be required to enter into any required agreements to ensure the improvements to the property are completed and post surety to guarantee the work.
5. The Applicant shall revise the landscape plan to include a landscape area east of the front parking area adjacent to Right of Way consistent with Corridor rules per Section 125-67.
6. A screening fence shall be installed around the rear parking and storage areas to screen and secure the storage and parking areas in the rear of the building outside the Drainage and Utility Easement.
7. The only storage and parking permitted on site shall be related to the use of the business and shall only be in the areas designated as storage on the plans. No personal vehicles or materials unrelated to the business shall be stored or parked on site.
8. Elm Creek Watershed Commission permitting shall be required prior to construction.

Financial Impact: NA **Source Fund**: NA

Budgeted? N/A

Supporting Documentation

A. Resolution No. 2025-XX_Creative Lawn - Site Plan and CUP
B. Creative Lawn project 14005 Northdale Blvd Rogers -- site plans 2025-03-17
C. Creative Lawn Drainage Analysis 2025-03-17

CITY OF ROGERS
RESOLUTION NO. 2025-XX

A RESOLUTION APPROVING A CONDITIONAL USE PERMIT TO ALLOW THE OUTDOOR STORAGE OF MATERIALS AND SITE PLAN FOR IMPROVEMENTS AT THE CREATIVE LAWN & LANDSCAPE LOT AT 14005 NORTHDALE BOULEVARD

WHEREAS, Creative Property Management LLC ("Owner") submitted a request for approval of a Conditional Use Permit ("CUP") to allow the outdoor storage of materials on designated sections of the property, and Site Plan approval for exterior improvements to the property located at 14005 Northdale Boulevard ("Subject Property"), as legally described in Exhibit A; and,

WHEREAS, the Subject Property is approximately 3.01 acres and guided as High Density, per the Rogers 2040 Comprehensive Plan, and zoned Regional Employment Center District (R); and,

WHEREAS, the Applicant has owned the property and operated at a reduced capacity at the property since 2014 is requesting approval for improvements to property and to store materials outdoors as it is related and accessory to the use of the building as a landscape business. The site plan as shown in Exhibit B; and,

WHEREAS, the Applicant has defined "materials" as including landscaping materials and live plants; and,

WHEREAS, the outdoor storage of materials is defined as a conditional use in the RC zoning district [§125-50 Table 4]; and,

WHEREAS, the Planning Commission ("Commission") considered the CUP request based on the current zoning regulations and the Comprehensive Plan designation; and,

WHEREAS, pursuant to Minnesota Statue §462.357 the Commission held a Public Hearing ("Hearing") on April 7th, 2025 to consider and receive public comment on said request for the outdoor storage of materials; and

WHEREAS, notice of the Hearing was posted, published in the City's official newspaper, and mailed to any and all owners of affected properties, as required by State Statute; and

WHEREAS, verbal comment was received and entered into the record; and,

WHEREAS, following the Hearing the Commission recommended approval of the said request for the outdoor storage of materials and site plan based on the following findings:

1. The CUP request is consistent and meets the criteria for conditional uses as regulated by Section 125-24 (c).

2. The outdoor storage of materials meets the performance standards as regulated by section 125-84 (e)(7).
3. The Site Plan is consistent with the requirements of Section 125-27.

NOW THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF ROGERS, MINNESOTA, the CUP request from Creative Property Management, LLC (Creative Lawn & Landscapes) is hereby approved to allow outdoor storage materials, as defined, in the designated area of the site, and the Site Plan for improvements is approved subject to the following conditions:

1. Any gates shall have Knox Boxes or similar for emergency access by the Fire Department in case of emergency
2. The outdoor storage area shall not exceed 20% of the building area and shall meet the performance standards for outdoor storage as regulated by section 125-84.
3. The Plans shall be revised to the satisfaction of the City Engineer, City Planner and Fire Department. Revisions shall be submitted and approved by the city prior to construction.
4. The Applicant shall be required to enter into any required agreements to ensure the improvements to the property are completed and post surety to guarantee the work.
5. The Applicant shall revise to the landscape plan to include a landscape area east of the front parking area adjacent to Right of Way consistent with Corridor rules per Section 125-67.
6. A screening fence shall be installed around the rear parking and storage areas to screen and secure the storage and parking areas in the rear of the building outside of the Drainage and Utility Easement.
7. The only storage and parking permitted on site shall be related to the use of the business and shall only be in the areas designated as storage on the plans. No personal vehicles or materials unrelated to the business shall be stored or parked on site.
8. Elm Creek Watershed Commission permitting shall be required prior to construction.

Moved by Councilmember , seconded by Councilmember

The following voted in favor of said resolution:

The following voted against the same:

The following abstained:

Whereupon said resolution was declared duly passes and adopted, and was signed by the Mayor, and attested by the Clerk dated 26th day of September, 2023.

_____
Rick Ihli, Mayor

ATTEST:

_____
Stacie Brown, City Clerk

EXHIBIT A

LEGAL DESCRIPTION

Lot 1, Block 2, Remus Industrial Park 2nd Addition, Hennepin County, Minnesota

PID: 1412023210010

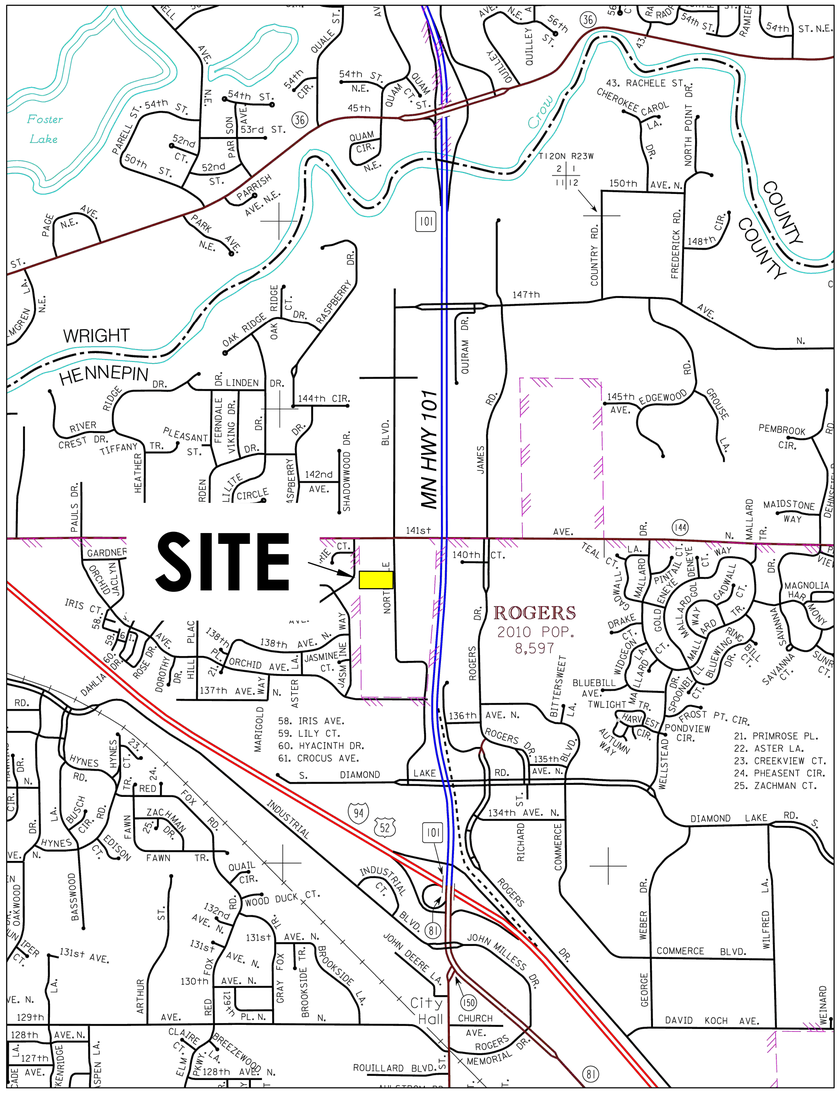
EXHIBIT B
SITE PLAN
[Revised Plan to be Inserted]

CREATIVE LAWN AND LANDSCAPE

SITE IMPROVEMENT PROJECT

VICINITY MAP

NO SCALE



INDEX OF CIVIL SITE DRAWINGS:

C0	PROJECT LOCATION PLAN
C1	SITE PLAN
C2	GRADING AND DRAINAGE PLAN
C3	UTILITY PLAN
C4	STORM WATER POLLUTION PREVENTION PLAN
C5	EXISTING CONDITIONS AND REMOVALS PLAN
C6	DETAILS
C7	LANDSCAPE PLAN

CLIENT:

CREATIVE LAWN & LANDSCAPES Inc.
CREATIVE IDEAS FOR YOUR OUTDOOR LIFESTYLE

14005 Northdale Blvd
Rogers, MN

Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT

14005 Northdale Boulevard Rogers, MN

PROJECT LOCATION PLAN

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.

Date: 03/17/25 Reg. No. 24348

PREPARED BY: CIVIL ENGINEERING SITE DESIGN

118 East Broadway St.
PO Box 36
Monticello, MN 55362
Phone: 763-314-0929
www.civilesd.com

REVISIONS
05/18/15 REVISE POND & GRADING
10/20/15 UPDATED STORM WATER DESIGN
01/22/25 UPDATED CITY SUBMITTAL
03/17/25 CITY COMMENTS

HORIZONTAL SCALE 1 inch = feet (FOR 11x17 SHEET 24 x 36)

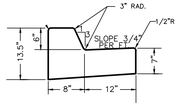
VERTICAL SCALE 1 inch = ____ feet

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

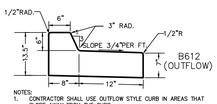
FILE NO. 00495

C0

Cover



B612 CURB & GUTTER STANDARD

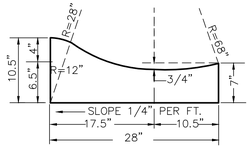


NOTES:
1. CONTRACTOR SHALL USE OUTFLOW STYLE CURB IN AREAS THAT SLOPE AWAY FROM THE CURB.

B612 OUTFLOW CURB & GUTTER (TIP-OUT FLOWLINE)

NOTES:
1) CONTROL JOINTS SHALL BE 7' MAXIMUM AND STABBED FRONT AND BACK.
2) AT ALL TRENCHES 2#4 REINFORCING RODS SHALL BE PLACED IN THE LOWER PORTION OF THE CURB 20 FEET IN LENGTH.
3) 2-#4 REINFORCING RODS AT CATCH BASINS NO LESS THEN 10 FEET IN LENGTH.

B612 CONCRETE CURB AND GUTTER DETAILS



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3) 2-#4 REINFORCING RODS AT CATCH BASINS NO LESS THEN 10 FEET IN LENGTH.

SUMOUNTABLE CONCRETE CURB AND GUTTER DETAILS

SITE DATA:

ZONING: RC – REGIONAL EMPLOYMENT CENTER DISTRICT

PROPOSED USE: COMMERICAL / INDUSTRIAL

GROSS LOT AREA: 130,914 SF = 3.0 ACRES

EXISTING BUILDING FOOTPRINT AREA: (GFA) 5,000 SF

PERCENT BUILDING COVERAGE: (% of gross lot 1 area)	3.8 %
FLOOR AREA RATIO (5,000 / 130,914)	0.038
EXISTING IMPERVIOUS AREA: (building, sidewalk, & pavement)	16,859 SF
EXISTING IMPERVIOUS AREA: (% of gross lot area)	12.9 %
PROPOSED IMPERVIOUS AREA: (building, sidewalk, & pavement including future greenhouse and future parking areas)	51,613 SF
PERCENT IMPERVIOUS AREA: (% of gross lot area)	39.4 %
PROPOSED PERVIOUS AREA: (landscape, turf area, & pond including plant storage areas)	79,301 SF
PERCENT PERVIOUS AREA: (% of gross lot area)	60.6 %

SETBACK: MINIMUM REQUIREMENTS

LOCATION:	BUILDING	PARKING
FRONT YARD	50	10
SIDE YARD	20*	10
REAR YARD	20*	10

* 50' IF ABUTTING RESIDENTIAL

PARKING DATA:

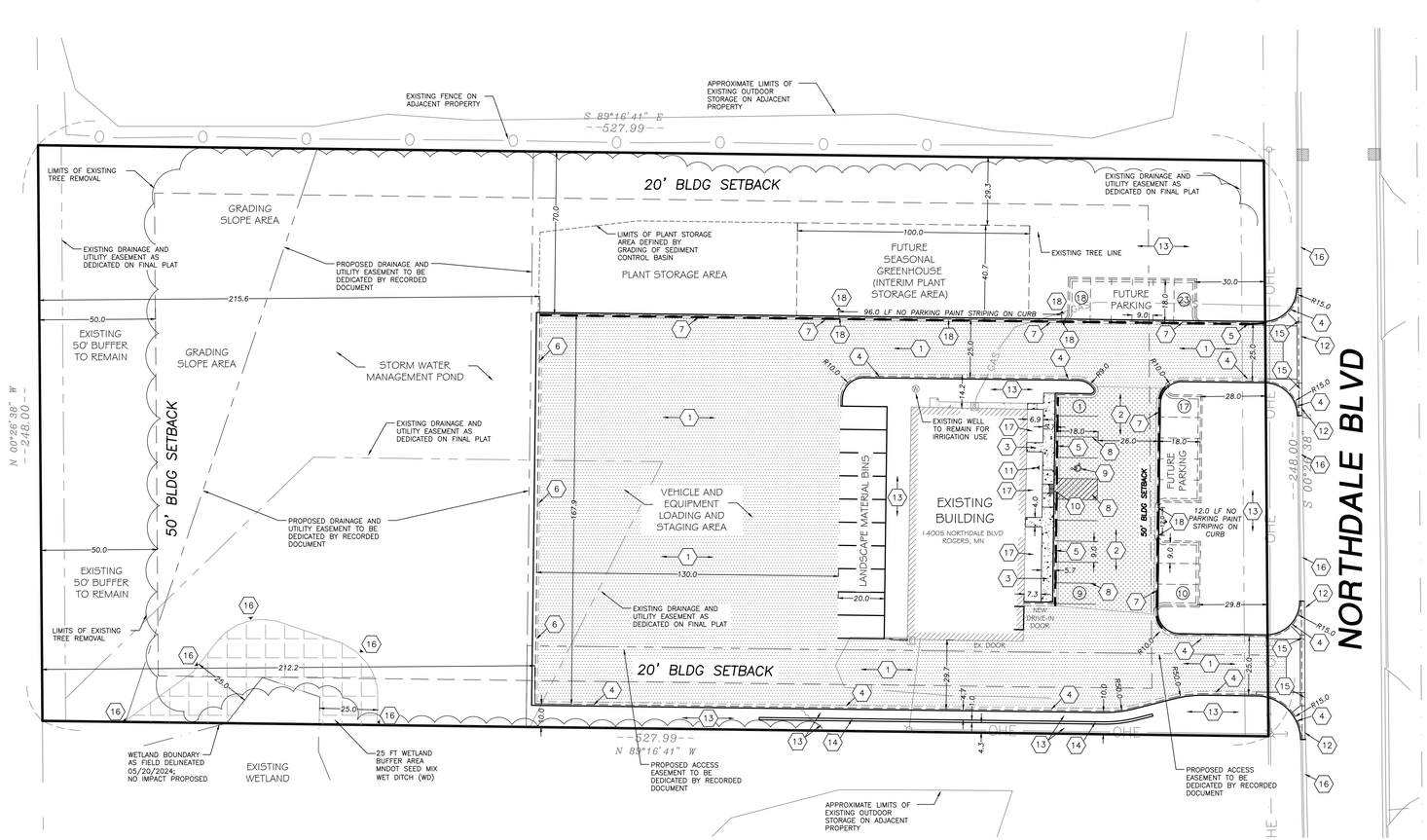
PROVIDED PARKING STALLS:
9 PARKING STALLS (INCL 1 HC STALL)
14 FUTURE PARKING STALLS
23 TOTAL

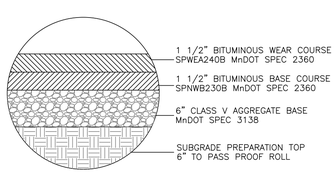
REQUIRED PARKING STALLS:
1/200 OFFICE x 1,000sf = 5 STALLS
1/2000 WAREHOUSE x 4,000sf = 2 STALLS
7 STALLS

WETLAND DELINEATION:

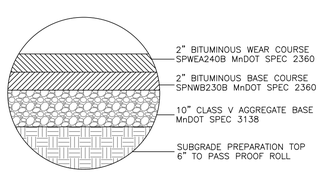
WETLAND DELINEATION PROVIDED BY:
ANDERSON ENGINEERING OF MINNESOTA, LLC
13605 1ST AVE N #100
PLYMOUTH, MN 55441

DATED: MAY 20, 2024





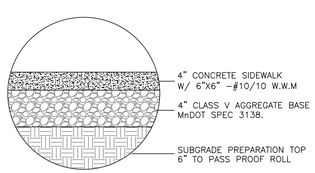
LIGHT DUTY



HEAVY DUTY

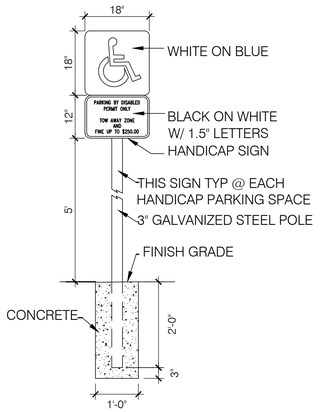
NOTE: SOILS SPECIFICATIONS SUPERSEDE ABOVE LISTED SPECIFICATIONS

BITUMINOUS PAVEMENT

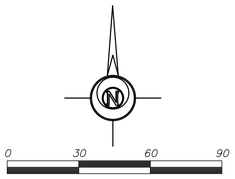


NOTES:
1. CONCRETE MIX SHALL CONFORM TO MNDOT SPEC. 2461 MIX No. 3Y22A FOR SLIPFORM PLACEMENT MIX No. 3Y32A FOR MANUAL PLACEMENT
2. CONTRACTOR SHALL SPACE THE CONTRACTION JOINTS AT 6'–0" O.C.
3. SOILS SPECIFICATIONS SUPERSEDE ABOVE LISTED SPECIFICATIONS

CONCRETE SIDEWALK



HANDICAP SIGN



SURVEY DATA

SURVEY INFORMATION PROVIDED BY:
MEYER ROHLIN LAND SERVICES
708 1st AVENUE NE
BUFFALO, MN 55313

DATED: JUNE 20, 2014

BENCHMARK:
MNDOT GEODETIC MONUMENT "STER MNDT" AT NORTHWEST QUADRANT OF CR144 AND HEATHER RIDGE DRIVE. ELEV.=912.505
DATUM: NAVD88

SITE PLAN LEGEND:

- LIGHT DUTY BITUMINOUS PAVEMENT
- HEAVY DUTY BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT – SIDEWALK
- B612 CURB AND GUTTER STANDARD OR SURMOUNTABLE STANDARD
- B612 CURB AND GUTTER TIP–OUT OR SURMOUNTABLE TIP–OUT
- EXISTING EDGE OF PAVEMENT
- (#) PARKING COUNT

PROJECT LOCATION

PART OF THE E½ of the NW¼, SECTION 14 TOWNSHIP 120, RANGE 23, HENNEPIN COUNTY, MINNESOTA.

LEGAL DESCRIPTION

LOT 2, BLOCK 2,
REMUS INDUSTRIAL PARK SECOND ADDITION,
HENNEPIN COUNTY.

KEY NOTES

1. BITUMINOUS PAVEMENT – HEAVY DUTY. SEE SECTION THIS PAGE.
2. BITUMINOUS PAVEMENT – LIGHT DUTY. SEE SECTION THIS PAGE.
3. CONCRETE SIDEWALK – MAXIMUM 2% CROSS SLOPE.
4. B612 (6") CONCRETE CURB & GUTTER. MnDOT 2461 MIX 3Y22A SLIPFORM PLACEMENT OR MnDOT 2461 MIX 3Y32A MANUAL PLACEMENT.
5. B612 (6") CONCRETE OUTFLOW CURB & GUTTER. (TIP–OUT FLOWLINE). MnDOT 2461 MIX 3Y22A SLIPFORM PLACEMENT OR MnDOT 2461 MIX 3Y32A MANUAL PLACEMENT.
6. SURMOUNTABLE CONCRETE CURB & GUTTER. MnDOT 2461 MIX 3Y22A SLIPFORM PLACEMENT OR MnDOT 2461 MIX 3Y32A MANUAL PLACEMENT.
7. SURMOUNTABLE CONCRETE OUTFLOW CURB & GUTTER. (TIP–OUT FLOWLINE). MnDOT 2461 MIX 3Y22A SLIPFORM PLACEMENT OR MnDOT 2461 MIX 3Y32A MANUAL PLACEMENT.
8. PAINT 4" WIDE SOLID STRIPE – WHITE LATEX PAINT. (TYPICAL)
9. PAINT INTERNATIONAL SYMBOL OF ACCESSIBILITY – WHITE LATEX PAINT. (TYPICAL)
10. ACCESSIBLE PEDESTRIAN RAMP INCLUDING METAL DETECTABLE WARNING PLATES. COMPLY WITH MNDOT STANDARD PLAN 5–297.250
11. ACCESSIBLE PARKING SIGN (MNDOT #'S R7–8A AND R7–8B) ON BOLLARD POST. CENTER SIGN ON PARKING STALL. LOCATION PER GENERAL CONTRACTOR.
12. SAWCUT PAVEMENT AT MATCHLINE. MILL 18" WIDE AND 2" DEPTH OVERLAP FOR CLEAN EDGE
13. GREEN AREA – SEE LANDSCAPE PLAN.
14. LANDSCAPE RETAINING WALL. MAXIMUM 2.0' TALL. SEE ELEVATIONS ON SHEET C2. CONFIRM RETAINING WALL MATERIALS AND COLOR WITH OWNER.
15. COMMERCIAL DRIVE APRON (SEE DETAIL CON–12)
16. WETLAND BUFFER SIGN (SEE DETAIL)
17. ROCK AREA – SEE LANDSCAPE PLAN.
18. NO PARKING FIRE LANE SIGNS W/ 4" SOLID–YELLOW PAINT LATEX STRIPING ON CURB

PLAN NOTES:

1. ALL DIMENSIONS SHOWN ARE TO FACE OF CURB, EDGE OF SIDEWALK OR EXTERIOR OF BUILDING UNLESS OTHERWISE NOTED. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS AND SPECIFICATIONS FOR LOCATION OF EXITS, RAMPS, CONCRETE APRONS AND STOOPS.
2. TACK SHALL BE USED ON BITUMINOUS EDGE PRIOR TO PATCHING. MATCH EXISTING GRADES.
3. ALL CONCRETE SIDEWALKS ADJACENT TO BUILDING SHALL BE SEPARATED WITH A ½" EXPANSION JOINT.
4. CONTRACTOR SHALL VERIFY ALL CONDUIT REQUIREMENTS FOR LIGHTING, IRRIGATION, COMMUNICATION PEDESTAL, ETC WITH OWNER PRIOR TO PAVING.
5. ACCESSIBLE ROUTE SHALL BE PROVIDED FROM ACCESSIBLE STALLS TO BUILDING ENTRANCE (SEE ADAAG REQUIREMENTS). POLE MOUNT APPROVED SIGNS CENTERED ON STALLS. PAINT INTERNATIONAL SYMBOL OF ACCESSIBILITY ON STALL.
6. CONSTRUCT ACCESSIBLE PEDESTRIAN RAMP PER ADAAG AND MNDOT STANDARDS. PROVIDE CONTRASTING DETECTABLE WARNING STRIP.
7. CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH FIRE MARSHAL FOR POSTING OF FIRE LANES, CURB MARKING AND SIGNAGE IF NEEDED.
8. CONTRACTOR IS RESPONSIBLE FOR DEMOLITION AND REMOVAL OF ALL EXISTING SITE FEATURES THAT INTERFERE WITH NEW WORK AS SHOWN.

INDEX OF CIVIL SITE DRAWINGS:

C0	PROJECT LOCATION PLAN
C1	SITE PLAN
C2	GRADING AND DRAINAGE PLAN
C3	UTILITY PLAN
C4	STORM WATER POLLUTION PREVENTION PLAN
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C6	DETAILS
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CLIENT:

CREATIVE LAWN & LANDSCAPES, Inc.
CREATIVE IDEAS FOR YOUR OUTDOOR LIFESTYLE

14005 Northdale Blvd
Rogers, MN

Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT
14005 Northdale Boulevard Rogers, MN
SITE PLAN

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.

Date: 03/17/25 Reg. No. 24348

PREPARED BY: CIVIL ENGINEERING SITE DESIGN

Sarah Dahl
118 East Broadway St.
PO Box 685
Monticello, MN 55362
Phone: 763–314–0929
www.civilesd.com

REVISIONS
05/16/15 REVISE POND & GRADING
10/20/15 UPDATED STORM WATER DESIGN
01/22/25 UPDATED CITY SUBMITTAL
03/17/25 CITY COMMENTS

VERTICAL SCALE 1 inch = ____ feet

HORIZONTAL SCALE 1 inch = ____ feet (FULL SIZE SHEET 24 x 36)

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

FILE NO. 00495

C1

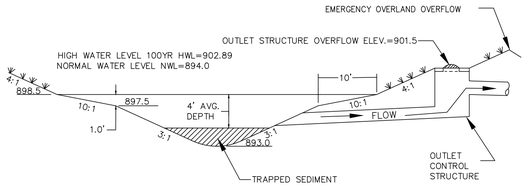
Site Plan

PROJECT LOCATION

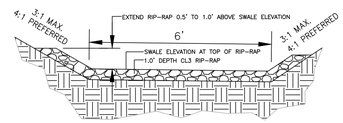
PART OF THE E½ of the NW¼,
SECTION 14 TOWNSHIP 120, RANGE 23,
HENNEPIN COUNTY, MINNESOTA.

LEGAL DESCRIPTION

LOT 2, BLOCK 2,
REMUS INDUSTRIAL PARK SECOND ADDITION,
HENNEPIN COUNTY.



TYPICAL POND BENCH GRADING



NOTE:
1. CONTRACTOR SHALL CLEAN OUT SWALE AS NECESSARY TO KEEP FREE FROM SEDIMENT OR AS DIRECTED BY CITY OR ENGINEER.

OVERFLOW SWALE/SPILLWAY DETAIL

LEGEND

- X 932.0 — Existing Spot Elevation
- 908 — Existing Contour
- Existing Tree Line
- Existing Wetland Boundary
- Existing Storm Sewer
- Propsed Storm Sewer
- × 925.30 — Proposed Spot Elevation
- 908 — Proposed Contour
- 1.9% — Pavement Grade
- Proposed Tree Line

0 30 60 90
GRAPHIC SCALE IN FEET

SURVEY DATA

SURVEY INFORMATION PROVIDED BY:
MEYER ROHLIN LAND SERVICES
708 1st AVENUE NE
BUFFALO, MN 55313

DATED: JUNE 20, 2014

BENCHMARK:
MNDOT GEODETIC MONUMENT "STER MNDT" AT NORTHWEST QUADRANT OF CR144 AND HEATHER RIDGE DRIVE. ELEV.=912.505
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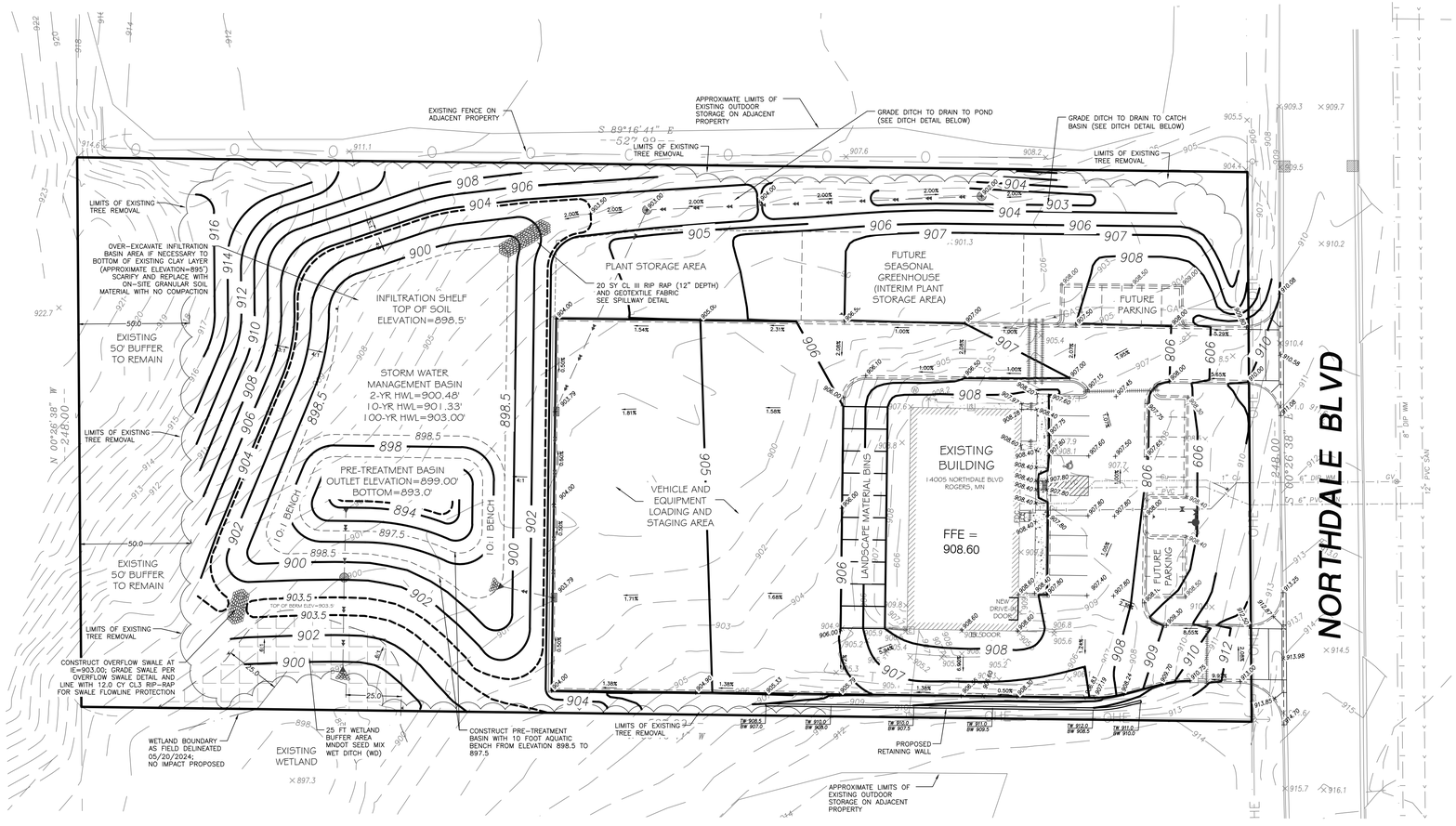
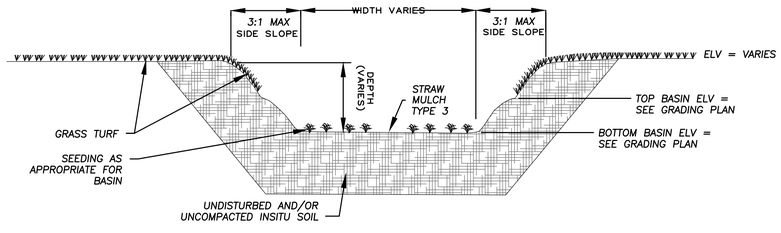


GENERAL GRADING NOTES:

1. Specifications applicable for this project: Current standard specifications for Rogers, MN, and the latest Minnesota Department of Transportation Specifications for Highway Construction and all NPDES requirements except where modified by these contract documents.
2. OSHA requirements shall be followed for all work on this project.
3. The Contractor shall notify "Gopher State One Call" 48 hours prior to any excavation (1-800-252-1166.)
4. The Grading Contractor shall verify all locations and elevations of underground utilities with utility companies prior to any construction, and immediately notify the Engineer of any conflicts.
5. Erosion Control shall be constructed, as applicable, as sequenced below:
   A. Silt Fence.
   B. Rock Construction Entrance.
   C. Demolition
   D. Common excavation (grading).
   E. Seed and mulch or sod (See notes on Landscape plan).
6. Final Plat shall govern for easements and lot dimensions.
7. Any erosion control items necessary to protect adjacent properties shall be constructed by the Grading Contractor.
8. Erosion control maintenance shall be performed by the Grading Contractor, and removed as per the Contract Documents or as directed by the Engineer, followed by all necessary restoration of disturbed area. This work shall be incidental to the grading contract.
9. The Grading Contractor shall schedule the soils engineer to facilitate certification of all controlled fills in a timely fashion. Density tests shall meet the following:
   A. Within the upper 3' of streets, the Grading Contractor shall utilize approved soils that are within 1% of the optimum moisture content as defined by the Standard Proctor Test-ASTM: D-698 with compaction meeting 100% Standard Proctor Density and not exceeding this compaction by more than 1%. Below the upper 3', compaction shall meet 95% Standard Proctor Density, and be within 3% of the optimum moisture content. Grading tolerances shall be 0.1'.
   B. Grading tolerances for the remainder of the site shall be 0.25'.
10. All areas of unsuitable soils found in the pad described above that cannot be corrected shall be located in the field by the Grading Contractor. The Grading Contractor shall immediately notify the Engineer of these areas and provide information as to their size and location.
11. The Grading contractor shall provide positive drainage on the site at all times.
12. The Grading Contractor shall keep public streets and travel ways clear of soil and debris. Daily cleaning at the construction entrance shall be performed, especially at the end of each day's work.
13. All silt fence shall be removed at project completion.
14. All proposed elevations are at flow line unless otherwise noted.
15. All erosion control best manage practices shall be per City standards.
16. Modular Block and Concrete Cast-In-Place retaining walls are to be engineered as necessary per local code requirements. Retaining wall elevations shown denote the exposed portion of the wall only.



TYPICAL INFILTRATION BASIN CROSS-SECTION
NOT TO SCALE

INFILTRATION BASIN GENERAL NOTES:

1) INSTALL ALL TEMPORARY EROSION CONTROL MEASURES (IN ACCORDANCE WITH MnDOT GENERAL CONDITIONS 2573) PRIOR TO THE START OF ANY CONSTRUCTION OPERATION THAT MAY CAUSE ANY SEDIMENTATION OR SILTATION AT THE SITE.

2) INSTALL STORM DRAIN INLET PROTECTION TO PREVENT CLOGGING OF THE STORM SEWER AND SEDIMENT LOADS TO DOWNSTREAM STORM WATER FACILITIES OR WATERBODIES.

3) IF THE STORM WATER BMP IS BEING DESIGNED TO SERVE AS A TEMPORARY SEDIMENT BASIN, GRADE THE BMP TO WITHIN 12" ABOVE THE FINAL GRADE TO PROTECT THE UNDERLYING MATERIAL FROM CLOGGING. ONCE CONSTRUCTION IN THE CONTRIBUTING DRAINAGE AREA HAS BEEN COMPLETED AND THE SITE ISSTABILIZED, EXCAVATE THE INFILTRATION BASIN TO FINAL GRADE AND COMPLETE CONSTRUCTION OF THE INFILTRATION BASIN.

4) GRADING OF THE INFILTRATION BASIN SHALL BE ACCOMPLISHED USING LOW-IMPACT EARTH MOVING EQUIPMENT TO PREVENT COMPACTION OF THE UNDERLYING SOILS. SMALL TRACKED DOZERS AND BOBCATS WITH RUNNER TRACKS ARE RECOMMENDED.

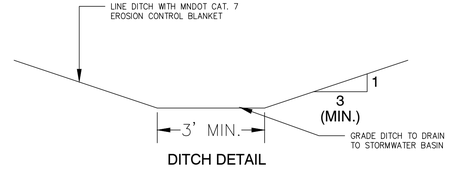
5) EXCAVATE THE INFILTRATION BASIN TO THE SPECIFIED DEPTH (ELEVATION). ALL SUB MATERIAL BELOW THE SPECIFIED ELEVATION SHALL BE LEFT UNDISTURBED, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

6) IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE BMP DURING OR IMMEDIATELY FOLLOWING EXCAVATION, THIS MATERIAL WILL NEED TO BE REMOVED FROM THE INFILTRATION BASIN PRIOR TO INITIATING THE NEXT STEP IN THE INFILTRATION BASIN CONSTRUCTION PROCESS. THIS IS ESPECIALLY IMPORTANT IF THE INFILTRATION BASIN HAS BEEN DESIGNED TO INFILTRATE STORM WATER. SEDIMENT THAT HAS BEEN WASHED INTO THE INFILTRATION BASIN DURING THE EXCAVATION PROCESS CAN SEAL THE PERMEABLE MATERIAL, SIGNIFICANTLY REDUCING THE INFILTRATION CAPACITY OF THE SOILS.

7) INFILTRATION BASIN TO BE SEEDED WITH MNDOT SEED MIX WET DITCH (WD) AT 20 LB/AC OR APPROVED EQUAL. SEEDING SHALL CONFORM TO MnDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

8) BOTTOM OF INFILTRATION BASIN TO BE SEEDED AND SHALL BE MULCHED WITH CLEAN GRAIN STRAW (MnDOT TYPE 3) AT A RATE OF 2 TONS PER ACRE.

9) SEEDING AND INSTALLATION OF ANY EROSION CONTROL BLANKET NECESSARY SHALL BE COMPLETED WITHIN SEVEN DAYS (7) DAYS OF FINAL GRADING.



DITCH DETAIL

INDEX OF CIVIL SITE DRAWINGS:

C0	PROJECT LOCATION PLAN
C1	SITE PLAN
C2	GRADING AND DRAINAGE PLAN
C3	UTILITY PLAN
C4	STORM WATER POLLUTION PREVENTION PLAN
C5	EXISTING CONDITIONS AND REMOVALS PLAN
C6	DETAILS
C7	LANDSCAPE PLAN

CLIENT:

CREATIVE LAWN & LANDSCAPES, Inc.
CREATIVE IDEAS FOR YOUR OUTDOOR LIFESTYLE

14005 Northdale Blvd
Rogers, MN

Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT
14005 Northdale Boulevard
Rogers, MN

GRADING AND DRAINAGE PLAN

REVISIONS
05/16/15 REVISE POND & GRADING
10/20/15 UPDATED STORM WATER DESIGN
01/22/25 UPDATED CITY SUBMITTAL
03/17/25 CITY COMMENTS

VERTICAL SCALE
1 inch = ____ feet

HORIZONTAL SCALE
1 inch = ____ feet
(FULL SIZE SHEET 24 x 36)

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

FILE NO. 00495

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.

Date: 03/17/25 *Reg. No.* 24348

PREPARED BY:
CIVIL ENGINEERING & SITE DESIGN
118 East Broadway St.
PO Box 185
Monticello, MN 55362
Phone: 763-314-0929
www.civilesd.com

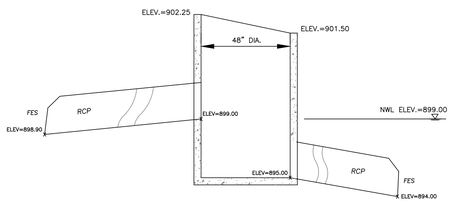
C2
Grading and Drainage Plan

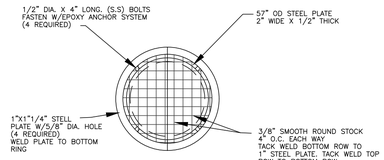
PROJECT LOCATION

PART OF THE E½ of the NW¼,
SECTION 14 TOWNSHIP 120, RANGE 23,
HENNEPIN COUNTY, MINNESOTA.

LEGAL DESCRIPTION

LOT 2, BLOCK 2,
REMUS INDUSTRIAL PARK SECOND ADDITION,
HENNEPIN COUNTY.





LEGEND:

- EXISTING BITUMINOUS EDGE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER SERVICE
- EXISTING WATER SERVICE
- PROPOSED CURB AND GUTTER
- PROPOSED WATER SERVICE
- PROPOSED STORM SEWER

0 30 60 90

GRAPHIC SCALE IN FEET

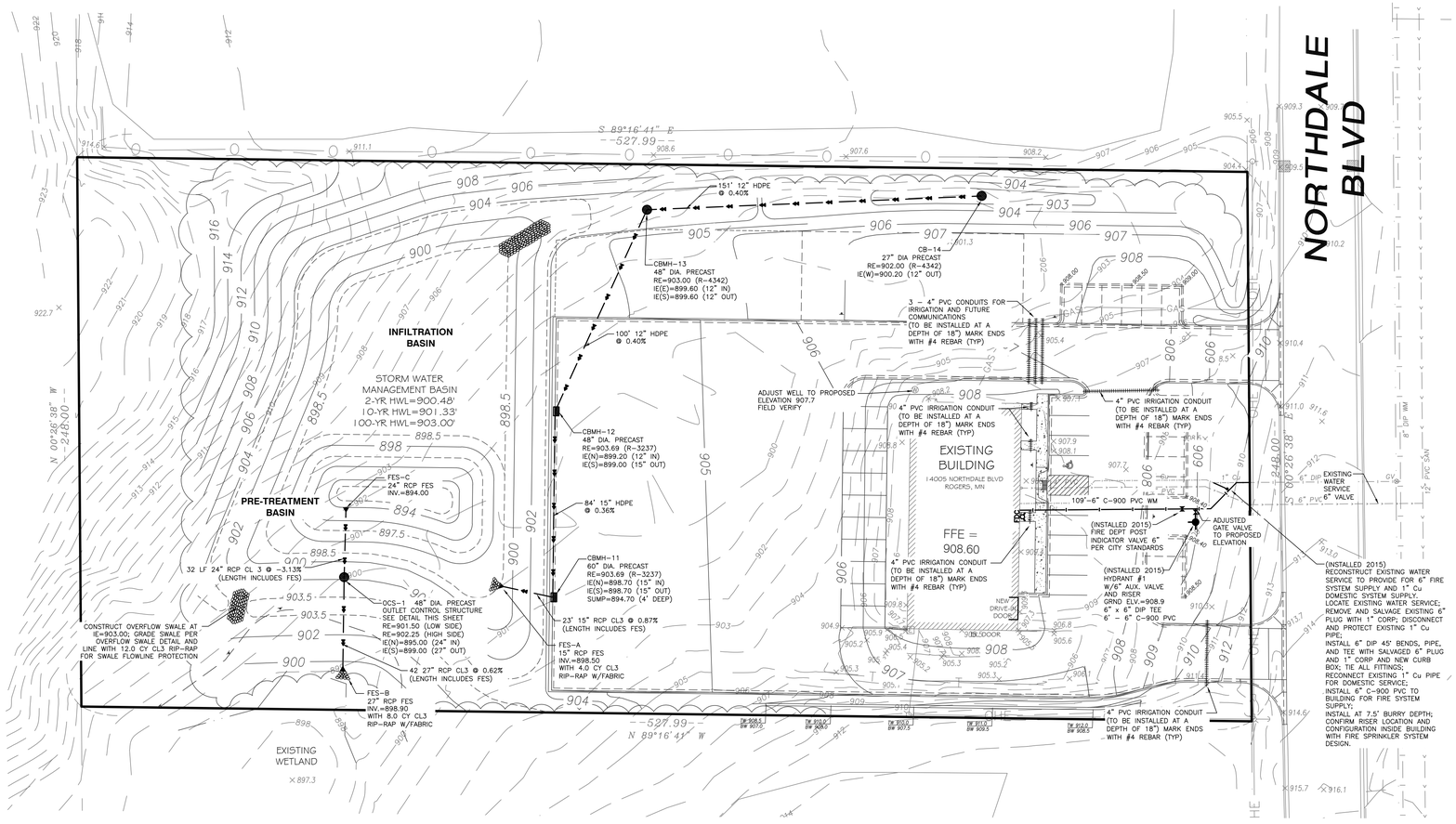
SURVEY DATA

SURVEY INFORMATION PROVIDED BY:
MEYER ROHLIN LAND SERVICES
708 1st AVENUE NE
BUFFALO, MN 55313

DATED: JUNE 20, 2014

BENCHMARK:
MNDOT GEODETIC MONUMENT "STER MNDT" AT NORTHWEST QUADRANT OF CR144 AND HEATHER RIDGE DRIVE. ELEV.=912.505
DATUM: NAVD88

STORM WATER MANAGEMENT POND OUTLET CONTROL STRUCTURE OCS-1



GENERAL UTILITY NOTES

1. Specifications applicable for this project: Current standard specifications for the City of Rogers, MN and all Minnesota Department of Health and MPCA requirements except where modified by these contract documents.
2. OSHA requirements shall be followed for all work on this project.
3. The Contractor shall notify "Gopher State One Call" 48 hours prior to any excavation (651-454-0002 or 1-800-252-1166 out state.)
4. The Contractor shall verify all locations and elevations of underground utilities with utility companies prior to any construction (storm sewer, sanitary sewer, water, natural gas, telephone, electric, etc.), and immediately notify the Engineer of any conflicts.
5. The Contractor shall protect all existing utilities and facilities to allow proper functioning during and after construction. Any required supporting structures shall be supplied by the Contractor as work incidental to the contract.
6. The contractor shall immediately notify the Engineer of any conflicts between existing utilities, and the proposed construction. The Engineer will coordinate with the Utility Company in question to determine the need for relocation of the existing utility.
7. Existing conditions such as sand in manholes or valve boxes shall be identified by the Contractor and these shall be reported to the Engineer prior to excavation by the Contractor. Once construction has begun, all damage to underground utilities will be assumed to have been caused by the Contractor, any repairs necessary shall be performed by the Contractor at the Contractor's expense.
8. Final Plat or Certificate Of Survey shall govern for easements.
9. The Contractor shall coordinate with the local jurisdiction to obtain permits and meter for water source. All associated costs shall be incidental to the Contract, including disposal of test water into City's sanitary sewer system. The Contractor shall not operate gate valves or hydrants on the City's water supply system.
10. The Contractor shall notify the City Engineer and the Project Engineer 48 hours prior to starting work or as required by the local jurisdiction or be subject to being shut down.
11. The Contractor shall keep access roads clear of soil or other debris, and perform daily street cleaning as required by the NPDES permit. Positive drainage, controlled with erosion control and erosion prevention measures as required by the NPDES permit shall be performed. Inlet protection shall be installed within 48 hours after inlet construction. Unless specified on the plans or as a bid item on the Bid Form, any temporary culverts, ditches, filter fabric, etc. necessary to accomplish this shall be performed as incidental to the Contract.
12. The Contractor shall preserve and protect the markers and monuments set for the subdivision of the land.
13. The Contractor shall schedule the soils engineer to facilitate certification of all controlled fills in a timely fashion. Density tests shall meet the following:
    A. Density tests shall be taken on all trenches at locations as determined by the Engineer or his representative.
    B. Within the upper 3' of streets, private drives and parking lots, Contractor shall utilize approved soils that are within 1% optimum moisture content as defined by the Standard Proctor Test-ASTM: D-698 with 100% Standard Proctor Density and not exceeding compaction by more than 1%. Below the upper 3', compaction shall meet 95%. Grading tolerances shall be 0.1'.
14. The Owner shall pay for all testing of soils compaction. Any areas which fail to meet the above standards shall be corrected and re-tested by the Owner's testing agent at the Contractor's expense.
15. Contractor shall provide temporary traffic control in compliance with MN/DOT "Temporary Traffic Control Zone Layouts Field Manual" dated 2011 for construction adjacent to travel ways.
17. Contractor shall be responsible for verification of the depth of existing stubs listed on this plan prior to the ordering of any fittings, structures, castings, etc. Engineer and the Owner shall not be responsible for any discrepancies found as depths are estimated.

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CLIENT:

14005 Northdale Blvd
Rogers, MN

Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT

14005 Northdale Boulevard Rogers, MN

UTILITY PLAN

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.

Date: 03/17/25 Reg. No. 24348

PREPARED BY: CIVIL ENGINEERING & SITE DESIGN

118 East Broadway St.
PO Box 66
Monticello, MN 55362
Phone: 763-314-0929
www.civilesd.com

REVISIONS
05/18/15 REVISE POND & GRADING
10/20/15 UPDATED STORM WATER DESIGN
01/22/25 UPDATED CITY SUBMITTAL
03/17/25 CITY COMMENTS

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

VERTICAL SCALE
1 inch = ____ feet

HORIZONTAL SCALE
1 inch = 30 feet
(FULL SIZE SHEET 24 x 36)

FILE NO. 00495

C3

Utility Plan

SWPP NARRATIVE

This project will consist of clearing and grub, grading, water service utilities, storm sewer utilities, parking lot consturction, and storm water management facilities.

First, perimeter silt fence and rock construction entrance shall be installed. Then site clearing and grubbing operations shall commence. The contractor shall dispose debris off–site within 24 hours. Then the site can be graded and utilities installed. Once final grade is established and certified, the site shall be stabilized with seed and mulch or erosion control blaket. Once vegetation is established, temporary erosion control measures shall be removed.

POLLUTION PREVENTION NOTES

Solid waste: collected sediment, asphalt and concrete millings, floating debris, paper, plastic, fabric, construction debris and other wastes must be disposed of properly off–site and must comply with MPCA requirements.

Hazardous materials: oils, gasoline, paint, and any hazardous substance must be properly stored, including secondary containment, to prevent spills, leaks or other discharge. Restricted access to storage areas must be provided to prevent vandalism. Storage and disposal must be in compliance with MPCA regulations.

External washing of trucks or other construction vehicles is not allowed on site. No engine degreasing is allowed on site. No concrete washouts are allowed on site.

RESPONSIBLE PARTY

Contact information for the responsible party for erosion control is:

Creative Lawn and Landscape, Inc.
Jordan Roberdeau and Kirk Brum
763–389–2227 office

EROSION CONTROL NOTES

1. All devices necessary to control erosion and sediment (I.E. perimeter silt fence, rock construction entrances, swales, ponds, berms, ETC.) shall be installed prior to any other construction operations.
2. After completion of final grading, exposed soils must be permanently stabilized within 72 hours. Stabilization shall consist of disc–anchored seed & mulch or sod.
3. The site must be kept in a well drained condition at all times. The contractor shall be responsible for temporary ditches, or other means necessary to ensure proper drainage. The building pad must be provided with a positive outflow. This work shall be incidental to the grading contract.
4. Entering/exiting of the site shall occur only at rock construction entrance to reduce tracking of dirt onto paved streets. Sediment tracked onto streets during working hours must be reclaimed via street scraping and sweeping at the end of each working day.

RUNOFF ROUTING OFFSITE

Downstream water bodies receiving storm water runoff from the project site:
Overland natural waterways flowing southwest
Natural wetland areas to the west
Crow River Main Stem
Mississippi River

DESIGN CALCULATIONS

Design calculations, including soil types are on file with: Civil Engineering Site Design

SWPPP Designer: Scott Dahlke (Expires 2025)

EROSION CONTROL INSTALLATION SCHEDULE

1. Silt fence shall be installed or restored prior to any construction. Silt fence shall be located as shown to intercept runoff. The area located beyond the perimeter silt fence shall not be disturbed during construction.
2. Rock Construction Entrance shall be installed prior to grading operations.
3. All storm sewer inlets shall have inlet protection inserts installed. Inserts shall be "Road rain–Top Slab" or "Road Drain–Curb & Gutter" inlet protection devices as manufactured by WIMCO (or approved equal) and installed per manufacture's recommendations.
4. All erosion control installations shall remain in place and be maintained in good condition by the contractor until the site has been re–vegetated, at which time it shall be removed by the contractor. For proposed paved surface areas, the contractor may remove necessary silt fencing to construct roadway, while maintaining adequate erosion control in adjacent areas.
5. Sufficient topsoil shall be stockpiled to allow for the replacement of 4" topsoil for disturbed areas to be re–vegetated.
6. The contractor shall schedule site grading, utility installation and roadway construction so that the general site can be mulched and re–seeded soon after disturbance. Areas that will not be subject to construction traffic shall be seed and mulched or sodded within 72 hours of final grading.

EROSION CONTROL MAINTENANCE SCHEDULE

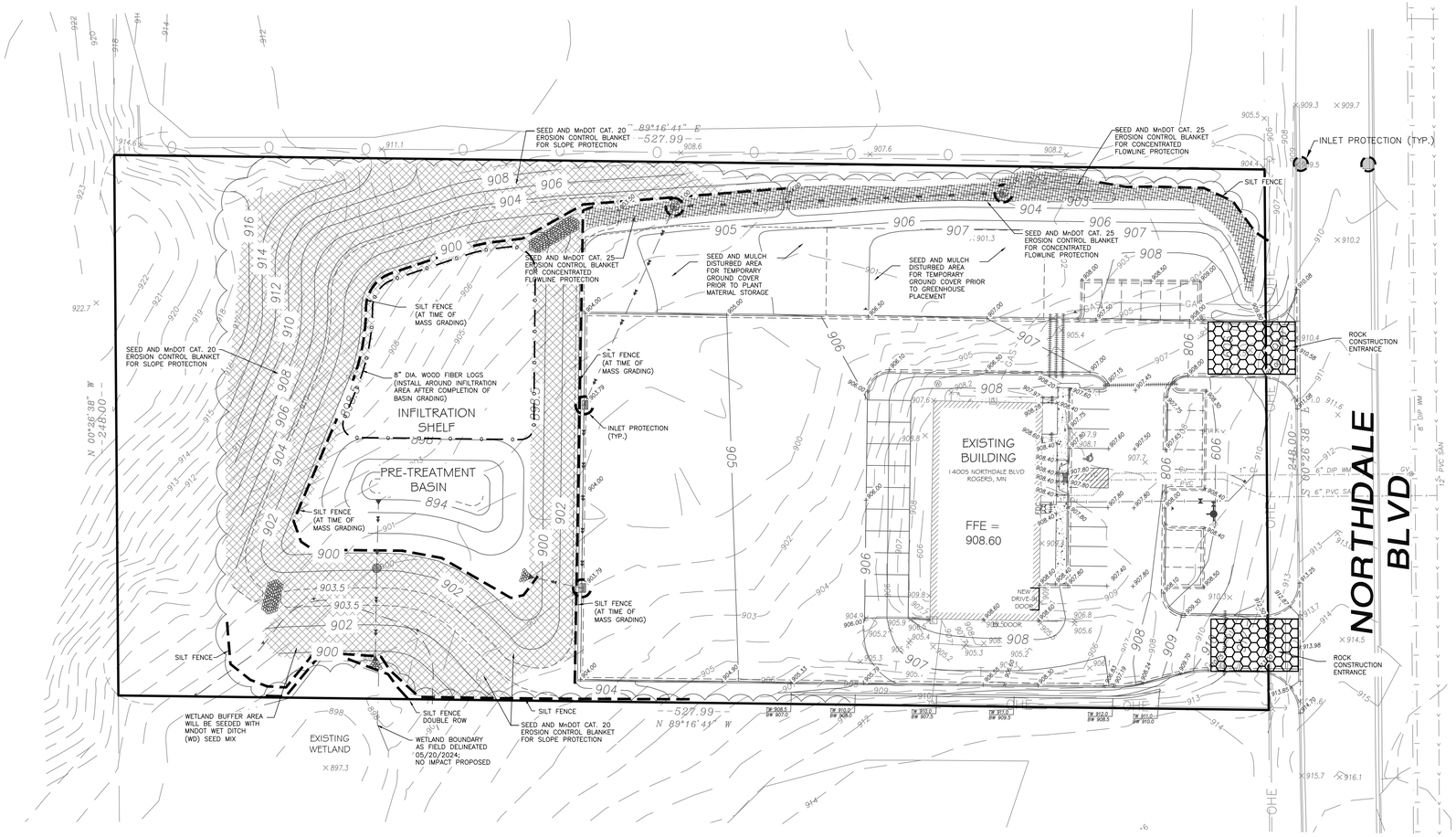
1. Erosion control measures shall be inspected by the contractor's representative and maintained by the contractor every Friday and within 24 hours after any rainfall event larger than 1/2" until the project is completed. Maintenance requirements are as follows: silt fence – 1/3 height of fence or damaged, remove sediment and/or repair fence within 24 hours; rock entrance – refresh as necessary to conform to detail; inlet protection inserts – remove sediment after each rain event, clean or replace filter when clogged; surface water – drain and stabilize, within 7 days of discovery; and street sweeping – remove all sediment tracked onto paved surfaces within 24 hours or as directed by City Engineer.
2. Replacement – Fabric shall be replaced promptly when it decomposes or becomes ineffective before the barrier is no longer necessary.
3. Any sediment remaining in place after silt fence is no longer required shall be dressed to conform with the existing grade, prepared, and seeded with appropriate seed mix, as directed by the engineer.
4. Removal of the silt fence– Silt fences shall be removed when they have served their useful purpose, but not before the upward sloping area has been permanently stabilized.

VEGETATION GROUND COVER RESTORATION

1. Stabilization of all exposed soil areas must be initiated immediately but in no case completed later than seven (7) days after the construction activity in that portion of the site has temporarily or permanently ceased. Seeding and mulching shall conform to the latest NPDES requirements for installation schedule with regards to grading.
2. Permanent turf ground cover shall include all disturbed areas be covered with a minimum 6" topsoil and sodded or seeded as allowed by City. If not otherwise specified, turf seed to be MnDOT mix Southern Boulevard (SB) applied at 160 lbs/ac. MnDOT Type 3 mulch shall be applied at 2 tons/ac and disc anchored in areas not covered by sod or erosion blanket. Seeding and mulching shall conform to the latest NPDES requirements for installation schedule with regards to grading.
3. Temporary ground cover to be MnDOT seed mix Two–year Cover Crop (TCC) shall be applied at 25 lbs/ac, or equivalent as approved by City. MnDOT Type 1 mulch shall be applied at 2 tons/ac and disc anchored in areas not covered by sod or erosion blanket.
4. Fertilizer for turf shall be MnDOT Type 3 22–5–10 and applied at 350 lb/ac. Disc fertilizer into top 3" of soil. Specification reference is MnDOT 2574.
5. Dormant seed mix shall be used after November 1 or when temperatures do not exceed 40° F, using same rates specified above. No seed shall be placed on snow or ice greater than 2" in depth.
6. Any seeded areas that do not become established with vegetation shall be re–seeded at Contractor's expense.
7. Erosion blanket shall be installed in seed areas with ground surface slopes of 4H:1V or steeper.
8. Restoration with sod requires contractor to provide irrigation water maintenance for 60 days after sod placement or as specified by owner.

INFILTRATION BASIN NOTES

1. Initration area shall be staked off during construction to restrict heavy equipment traffic from compacting native soils.
2. Install appropriate temporary erosion control devices to prevent sediment from entering the practice during construction.
3. Grading of the infiltration basin shall be accomplished using low impact earth–moving equipment to prevent compaction of the underlying soils. Small tracked dozers and skid–steers with runner tracks are recommended.
4. In the event that sediment is introduced into the BMP during or immediately following excavation, this material will need to be removed from the basin prior to initiating the next step in the construction process.
5. Install sediment control around basin after completion of basin grading.
6. Seeding and installation of erosion control shall be completed within 48 hours of final grading of basin.



PROJECT LOCATION

PART OF THE E½ of the NW¼, SECTION 14 TOWNSHIP 120, RANGE 23, HENNEPIN COUNTY, MINNESOTA.

LEGAL DESCRIPTION

LOT 2, BLOCK 2, REMUS INDUSTRIAL PARK SECOND ADDITION, HENNEPIN COUNTY.

LOCATION OF SWPPP REQUIREMENTS IN PLANS

DESCRIPTION	LOCATION
STANDARD BMP DETAILS	DETAILS ON SHEET C6
STORMWATER CALCULATIONS	DRAINAGE REPORT
SITE MAP	DRAINAGE REPORT
SITE GRADING	GRADING PLAN SHEET C2
SUMP MANHOLE	STORM SEWER SHEET C3
SOILS DATA	DRAINAGE REPORT

SITE DATA

PERCENT BUILDING COVERAGE: (% of gross lot 1 area)	3.8 %
FLOOR AREA RATIO (5,000 / 130,914)	0.038
EXISTING IMPERVIOUS AREA: (building, sidewalk, & pavement)	16,859 SF
EXISTING IMPERVIOUS AREA: (% of gross lot area)	12.9 %
PROPOSED IMPERVIOUS AREA: (building, sidewalk, & pavement including future greenhouse and future parking areas)	51,613 SF
PERCENT IMPERVIOUS AREA: (% of gross lot area)	39.4 %
PROPOSED PERVIOUS AREA: (landscape, turf area, & pond including plant storage areas)	79,301 SF
PERCENT PERVIOUS AREA: (% of gross lot area)	60.6 %
AREA OF DISTURBANCE:	2.4 AC

EROSION CONTROL QUANTITIES

ITEM:	QUANTITY	UNIT
ROCK ENTRANCE	2	EA
SILT FENCE	1,080	LF
WOOD FIBER LOG	330	LF
EROSION BLANKET CAT. 20	2,580	SY
EROSION BLANKET CAT. 25	330	SY
INLET PROTECTION	3	EA

CROW RIVER, IMPAIRED WATER WITHIN 1 MILE RADIUS OF PROJECT

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C0 PROJECT LOCATION PLAN
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C5 EXISTING CONDITIONS AND REMOVALS PLAN
C6 DETAILS
C7 LANDSCAPE PLAN

GRAPHIC SCALE IN FEET
0 30 60 90

SURVEY DATA

SURVEY INFORMATION PROVIDED BY:
MEYER ROHLIN LAND SERVICES
708 1st AVENUE NE
BUFFALO, MN 55313

DATED: JUNE 20, 2014

BENCHMARK:
MNDOT GEODETIC MONUMENT "STER MNDT" AT NORTHWEST QUADRANT OF CR144 AND HEATHER RIDGE DRIVE. ELEV.=912.505
DATUM: NAVD88

LEGEND:

- EXISTING BITUMINOUS EDGE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER SERVICE
- EXISTING WATER SERVICE
- PROPOSED CURB AND GUTTER
- PROPOSED WATER SERVICE
- PROPOSED STORM SEWER
- PROPOSED SILT FENCE
- PROPOSED FIBER LOGS
- PROPOSED INLET PROTECTION
- PROPOSED EROSION BLANKET CAT. 20
- PROPOSED EROSION BLANKET CAT. 25

CLIENT:

14005 Northdale Blvd
Rogers, MN
Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT

14005 Northdale Boulevard
Rogers, MN

STORM WATER POLLUTION PREVENTION PLAN

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.

Scott Dahlke Reg. No. 24348
Date: 03/17/25

PREPARED BY: CIVIL ENGINEERING & SITE DESIGN, INC.
118 East Broadway St.
PO Box 685
Monticello, MN 55362
Phone: 763-314-0929
www.civilesd.com

REVISIONS
05/16/15 REVISE POND & GRADING
10/20/15 UPDATED STORM WATER DESIGN
01/22/25 UPDATED CITY SUBMITTAL
03/17/25 CITY COMMENTS

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DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

FILE NO. 00495

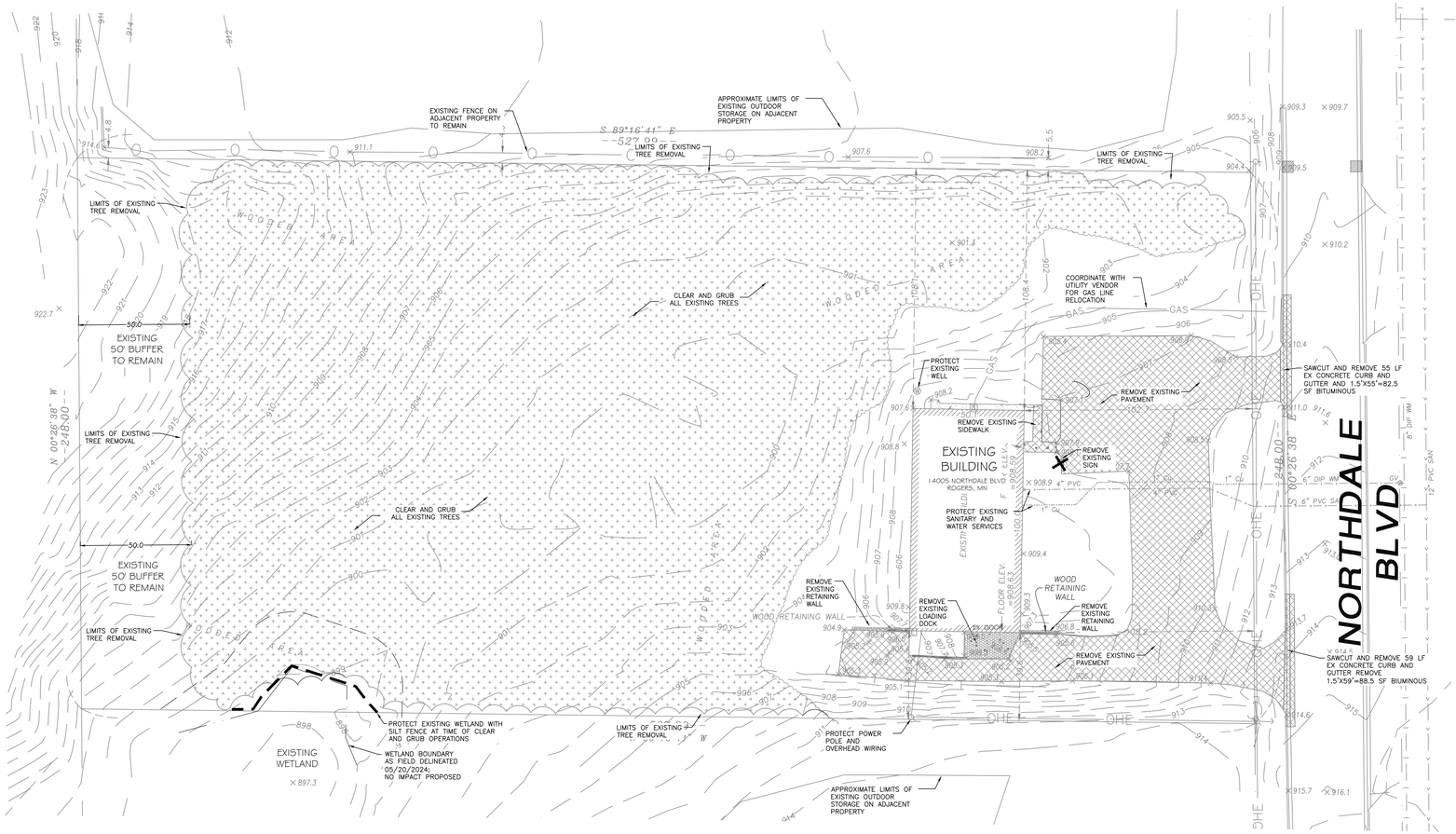
C4
Storm Water Pollution Prevention Plan

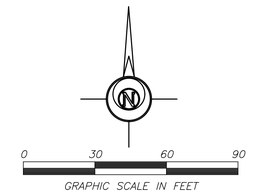
PROJECT LOCATION

PART OF THE E½ of the NW¼,
SECTION 14 TOWNSHIP 120, RANGE 23,
HENNEPIN COUNTY, MINNESOTA.

LEGAL DESCRIPTION

LOT 2, BLOCK 2,
REMUS INDUSTRIAL PARK SECOND ADDITION,
HENNEPIN COUNTY.





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DATED: JUNE 20, 2014

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DATUM: NAVD88

LEGEND:

- EXISTING BITUMINOUS EDGE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER SERVICE
- EXISTING WATER SERVICE

DEMOLITION NOTES

1. Install perimeter sediment controls as soon as possible during clear and grub operations. See Storm Water Pollution Prevention Plan.
2. Provide air quality control measures at the request of the Engineer or City Representatives. Take necessary measures to keep dust levels to a minimum. Provide sweeping of adjacent paving as needed, or as required by the City Engineer.
3. Locate and protect all utility lines prior to and during demolition. Utility locations shown are based on best available information and are not guaranteed. Contact private utility service for disconnection and removal.
4. Remove or relocate all existing site features that interfere with the proposed construction.
5. Protect existing site features that are to remain during construction. Replace anything damaged with new construction.
6. Pavement shall be saw cut at limits of removal unless noted otherwise. Do not impede existing traffic circulation to adjacent businesses or streets.
7. Sufficient topsoil shall be stockpiled to allow for the replacement of 6" of topsoil in disturbed areas to be re-vegitated.
8. All construction and post-construction parking shall be on-site. At no time shall parking, loading, or unloading be allowed on public streets.
9. Storage of materials or equipment shall not be allowed within public Right-of-Way and shall be maintained on site within project boundaries.

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CLIENT:

CREATIVE LAWN & LANDSCAPES, Inc.
CREATIVE IDEAS FOR YOUR OUTDOOR LIFESTYLE

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SITE IMPROVEMENT PROJECT

14005 Northdale Boulevard Rogers, MN

EXISTING CONDITIONS AND REMOVALS PLAN

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Date: 03/17/25 Reg. No. 24348

PREPARED BY: *CIVIL ENGINEERING SITE DESIGN*

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HORIZONTAL SCALE
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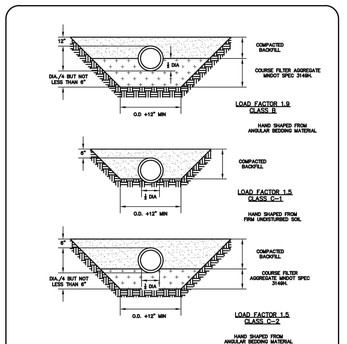
(FOR 24X36 SHEET 24 x 36)

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

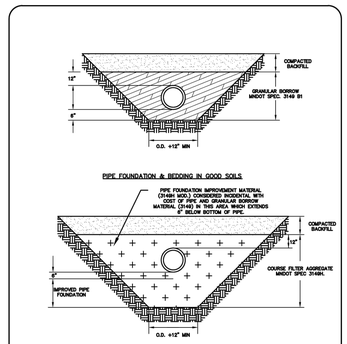
FILE NO. 00495

C5

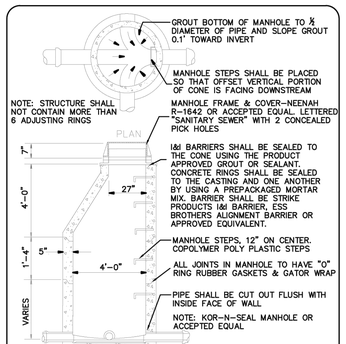
Existing Conditions and Removals Plan



CITY OF ROGERS	PIPE BEDDING METHODS FOR RCP OR DIP	Standard Details Date: SEPTEMBER, 2020 Revised:	SAN-11



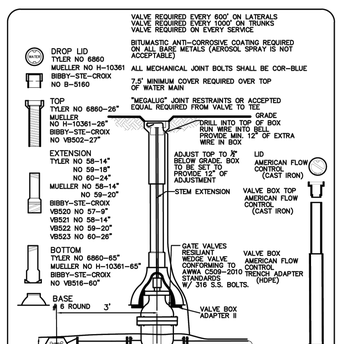
CITY OF ROGERS	PIPE BEDDING METHODS FOR PVC	Standard Details Date: SEPTEMBER, 2020 Revised:	SAN-12



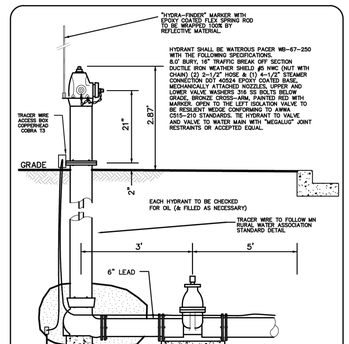
NOTE: STRUCTURE SHALL NOT CONTAIN MORE THAN 6 ADJUSTING RINGS

NOTE: ALL CONNECTIONS TO EXISTING MANHOLE WILL BE CORE CUT WITH GASKET PER SAN-7, NO JACK-HAMMER ALLOWED

CITY OF ROGERS	STANDARD SANITARY MANHOLE	Standard Details Date: SEPTEMBER, 2020 Revised:	SAN-4



CITY OF ROGERS	GATE VALVE AND BOX INSTALLATION	Standard Details Date: SEPTEMBER, 2020 Revised:	WAT-01



CITY OF ROGERS	GATE VALVE AND HYDRANT INSTALLATION	Standard Details Date: SEPTEMBER, 2020 Revised:	WAT-03

TRACER WIRE

TRACER WIRE SHALL BE COPPERHEAD #12 AWG CCS COMPLYING WITH ASTM-D-1248, 30 VOLT RATING, COLOR CODED FOR SEWER SERVICES AND FORCEMAIN AND BLUE FOR WATER MAIN
- #1230HS HIGH STRENGTH FOR OPEN CUT.
- #1245HSHS EXTRA HIGH STRENGTH FOR HORIZONTAL DIRECTIONAL DRILLING AND JACK/BORING
- SPLICING 2 WIRES, SPLICEWRAP KING & BLUE
- SPLICING 3 OR MORE, DRYCONN DIRECT BURY LUG YELLOW

ALL NEW WATER MAIN INSTALLATIONS SHALL BE LOCATED USING TYPICAL LOW FREQUENCY (512 HZ) LINE TRACING EQUIPMENT, WITNESSED BY THE CONTRACTOR, ENGINEER AND FACILITY OWNER AS APPLICABLE, PRIOR TO ACCEPTANCE OF OWNERSHIP.

POLYVINYL CHLORIDE PIPE (PVC) – C900

PVC WATER DISTRIBUTION PIPE AND JOINTS SHALL CONFORM TO: AWWA C-900 (DR) ASTM D3139

NOTE: TRACER WIRE ACCESSES SHALL NOT EXCEED 500'-FT

DUCTILE IRON PIPE

DIP WATER DISTRIBUTION PIPE SHALL BE PRESSURE CLASS 350 AWWA C150/151.

PLASTIC FILM WRAP FOR DIP

WATER DISTRIBUTION PIPE, RISER PIPE, AND HYDRANT BARRELS SHALL BE WRAPPED IN PLASTIC FILM. THE WRAP SHALL BE TUBE - TYPE, HAVING 8-MIL THICKNESS. A 2 INCH WIDE POLYETHYLENE ADHESIVE TAPE SHALL BE USED TO SECURE THE TUBE OF FILM TO THE PIPE.

DUCTILE IRON FITTINGS

WATER MAIN FITTINGS SHALL CONFORM TO ANSI A21.53, A21.11 & A21.4. FITTINGS SHALL BE COATED WITH 8 – 9 MM MINIMUM THICKNESS FUSION BONDED EPOXY CONFORMING TO ANSI/AWWA C550 AND C116/A21.16.

THRUST RESTRAINT

ALL WATER MAIN, VALVES, SERVICES, FITTINGS, STUBS, EXTENSIONS, BLIND FLANGES, AND PLUGS USED FOR RETAINING WATER PRESSURE MUST BE TIED WITH "MEGALUG" JOINT RESTRAINTS OR ACCEPTED EQUAL BASED ON A 150 PSI TEST PRESSURE AND 3.5' COVER. THE FOLLOWING TABLE SHALL BE USED AS A GUIDE FOR THE EXTENT OF A FITTING TO BE RESTRAINED. JOINT RESTRAINTS TO BE EPOXY COATED AS REQUIRED ON WATER MAIN FITTINGS.

PIPE DIAMETER	DEAD END OR 90°BEND	TEE BRANCH	45°BEND	22-1/2°BEND
4" (SERVICE)	22 LF		5 LF	3 LF
6"	33 LF		7 LF	4 LF
8"	38 LF		10 LF	5 LF
12"	50 LF		14 LF	7 LF
16"	50 LF		18 LF	9 LF

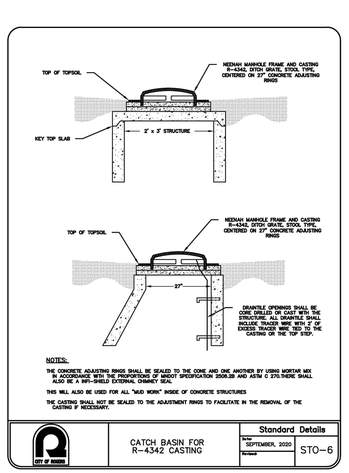
ALL TEES WITH A VALVE IMMEDIATELY AFTER A TEE BRANCH SHOULD BE TREATED AS A 90 DEGREE BEND.

WHERE RESTRAINED JOINTS ARE REQUIRED AND THE PIPE IS IN A CASING NEAR THE FITTING TO BE RESTRAINED, THE LENGTH OF PIPE IN THE CASING SHALL NOT BE INCLUDED IN THE LENGTH OF PIPE NECESSARY TO DEVELOP SUFFICIENT SOIL FRICTION TO OVERCOME THRUST.

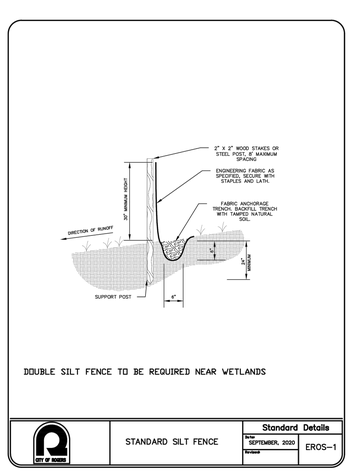
ALL BARE METAL SHALL HAVE TWO COATS OF RUSTOLEUM OR ACCEPTED EQUAL (AEROSOL SPRAY IS NOT ACCEPTABLE). ALL MECHANICAL JOINT BOLTS SHALL BE COR-BLUE.

ALL JOINT TIE RODS AND NUTS SHALL BE 316 STAINLESS STEEL.

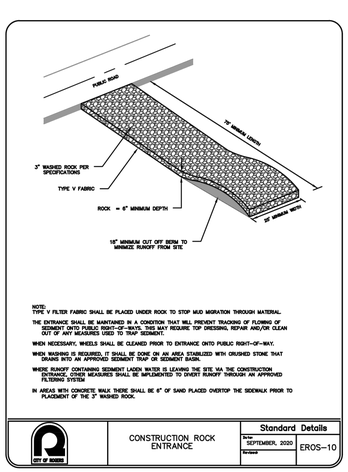
CITY OF ROGERS	WATER MAIN DETAILS AND TIE SCHEDULE TABLE	Standard Details Date: SEPTEMBER, 2020 Revised:	WAT-10



CITY OF ROGERS	COMMERCIAL WATER SERVICE TESTING DETAIL	Standard Details Date: SEPTEMBER, 2020 Revised: OCTOBER, 2021	WAT-12

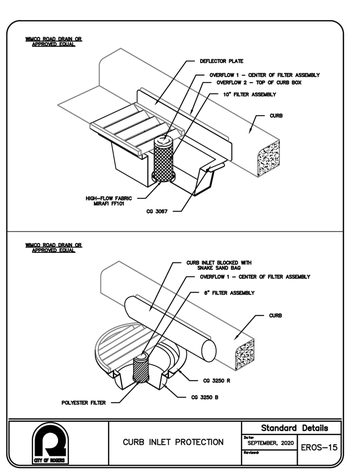


CITY OF ROGERS	STORM SEWER MANHOLE	Standard Details Date: SEPTEMBER, 2020 Revised:	STO-1



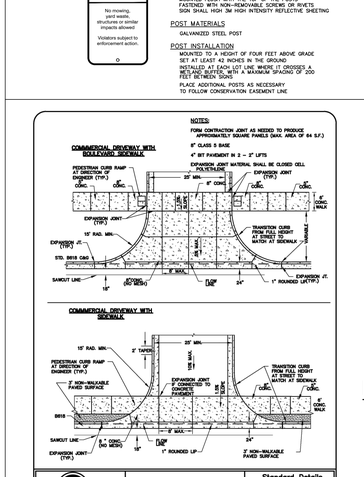
NOTES:
FRAME AND GRATE FOR BULKHEAD STYLE CURB SHALL BE A NEENAH R-3067-V OR NEENAH R-3067-HB
FRAME AND GRATE FOR SURMOUNTABLE STYLE CURB OR DRIVEWAYS SHALL BE A NEENAH R-3501-TR OR R-3501-TL, LOW POINTS SHALL BE R-3501-TB
FRAME AND GRATE FOR OFF ROAD LOCATION (DITCH GRATE, STOOL TYPE) R-4342
DOG HOUSES AND RINGS SHALL BE GROUTED ON BOTH THE OUTSIDE AND INSIDE OF THE STRUCTURE

CITY OF ROGERS	STORM SEWER JUNCTION MANHOLE	Standard Details Date: JUNE, 2021 Revised:	STO-2



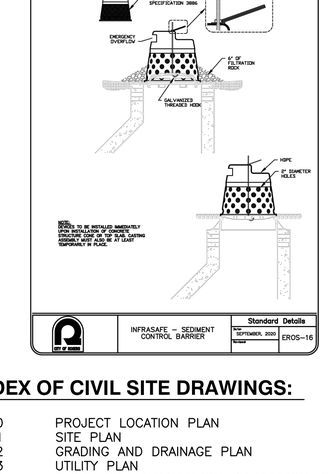
NOTES:
THE CONCRETE ADJUSTMENT RINGS SHALL BE SEALED TO THE CONE, CASTING AND ONE ANOTHER BY USING A PREPACKAGED MORTAR MIX IN ACCORDANCE WITH PROPORTIONS OF MNDOT SPECIFICATION 2506.2E AND ASTM C 270. THIS WILL ALSO BE USED FOR ALL "MUD WORK" INSIDE OF CONCRETE STRUCTURES

CITY OF ROGERS	CB ADJUSTMENT AND CB PLACEMENT IN CONCRETE CURB AND GUTTER	Standard Details Date: SEPTEMBER, 2020 Revised:	STO-5



NOTES:
ALL RIP RAP AS SPECIFIED IN MNDOT STANDARD SPECS. 2575.3(A) AND 3601.
RIP RAP GRADATE SHALL BE IN ACCORDANCE WITH MNDOT STANDARD PLATE 3535.
PROVIDE A SLOPE TO FASTEN TRASH GUARD TO PIPE/HEADWALL.
TRASH GUARD TO BE HOT DIP GALVANIZED AFTER FABRICATION.
NOTE OUTLETS AT THE DISCRETION OF THE ENGINEER.
IF THE FLARE CALL FOR A HDPE FLARED END SECTION THE CONTRACTOR SUPPLY A STAINLESS STEEL ENCLOSED RISE, WINDOW AND ANTI-VORTEX PLATE AT THE PLASTIC ENDS THAT COME WITH THE PIPE.

CITY OF ROGERS	RIPRAP AT OUTLETS	Standard Details Date: SEPTEMBER, 2020 Revised:	STO-10



CITY OF ROGERS	STANDARD MANHOLE WITH SUMP	Standard Details Date: SEPTEMBER, 2020 Revised:	STO-3

NOTES:
THE CONCRETE ADJUSTING RINGS SHALL BE SEALED TO THE CONE AND ONE ANOTHER BY USING MORTAR MIX IN ACCORDANCE WITH THE PROPORTIONS OF MNDOT SPECIFICATION 2506.2E AND ASTM C 270.THERE SHALL ALSO BE A INTI-SHIELD EXTERNAL CHIMNEY SEAL
THIS WILL ALSO BE USED FOR ALL "MUD WORK" INSIDE OF CONCRETE STRUCTURES
THE CASTING SHALL NOT BE SEALED TO THE ADJUSTMENT RINGS TO FACILITATE IN THE REMOVAL OF THE CASTING IF NECESSARY.

CITY OF ROGERS	CATCH BASIN FOR R-4342 CASTING	Standard Details Date: SEPTEMBER, 2020 Revised:	STO-6

DOUBLE SILT FENCE TO BE REQUIRED NEAR WETLANDS

CITY OF ROGERS	STANDARD SILT FENCE	Standard Details Date: SEPTEMBER, 2020 Revised:	EROS-1

NOTE:
TYPE V FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH MATERIAL.
THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OF FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.
WHERE RUNOFF CONTAINING SEDIMENT LADEN WATER IS LEAVING THE SITE VIA THE CONSTRUCTION ENTRANCE, SEDIMENT REMOVAL MEASURES SHALL BE IMPLEMENTED TO DIVERT RUNOFF THROUGH AN APPROVED FILTERING SYSTEM.
IN AREAS WITH CONCRETE WALK THERE SHALL BE 6" OF SAND PLACED OVERTOP THE SIDEWALK PRIOR TO PLACEMENT OF THE 3" WASHED ROCK.

CITY OF ROGERS	CONSTRUCTION ROCK ENTRANCE	Standard Details Date: SEPTEMBER, 2020 Revised:	EROS-10

CITY OF ROGERS	CURB INLET PROTECTION	Standard Details Date: SEPTEMBER, 2020 Revised:	EROS-15

Wetland Buffer

No mowing, yard waste, structures or similar impacts allowed

Violators subject to enforcement action.

SPECIFICATIONS:

MONUMENT
CONSISTS OF A POST AND A WETLAND BUFFER SIGN

WETLAND BUFFER SIGNS
MOUNTED FLUSH WITH THE TOP OF THE POSTS
FASTENED WITH NON-REMOVABLE SCREWS OR RIVETS
SIGN SHALL HIGH 3M HIGH INTENSITY REFLECTIVE SHEETING

POST MATERIALS
GALVANIZED STEEL POST

POST INSTALLATION
MOUNTED TO A HEIGHT OF FOUR FEET ABOVE GRADE
SET AT LEAST 42 INCHES IN THE GROUND
INSTALLED AT EACH LOT LINE WHERE IT CROSSES A WETLAND BUFFER, WITH A MAXIMUM SPACING OF 200 FEET BETWEEN SIGNS
PLACE ADDITIONAL POSTS AS NECESSARY TO FOLLOW CONSERVATION EASEMENT LINE

CITY OF ROGERS	INDUSTRIAL / COMMERCIAL DRIVEWAY APRON	Standard Details Date: SEPTEMBER, 2020 Revised: OCTOBER, 2022	CON-12

CITY OF ROGERS	INFRASAFE – SEDIMENT CONTROL BARRIER	Standard Details Date: SEPTEMBER, 2020 Revised:	EROS-16

INDEX OF CIVIL SITE DRAWINGS:

C0	PROJECT LOCATION PLAN
C1	SITE PLAN
C2	GRADING AND DRAINAGE PLAN
C3	UTILITY PLAN
C4	STORM WATER POLLUTION PREVENTION PLAN
C5	EXISTING CONDITIONS AND REMOVALS PLAN
C6	DETAILS
C7	LANDSCAPE PLAN

CLIENT:

CREATIVE LAWN & LANDSCAPES, Inc.
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14005 Northdale Blvd
Rogers, MN

Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT

14005 Northdale Boulevard
Rogers, MN

DETAILS

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.

Date: 03/17/25 *Reg. No.* 24348

PREPARED BY: **CIVIL ENGINEERING SITE DESIGN**

East Broadway St.
PO Box 65
Monticello, MN 55362
Phone: 763-314-0929
www.civilesd.com

REVISIONS
05/18/15 REVISE POND & GRADING
10/20/15 UPDATED STORM WATER DESIGN
01/22/25 UPDATED CITY SUBMITTAL
03/17/25 CITY COMMENTS

VERTICAL SCALE 1" inch = ____ feet

HORIZONTAL SCALE 1" inch = ____ feet (FULL SIZE SHEET 24 x 36)

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

FILE NO. 00495

C6

Details

PROJECT LOCATION

PART OF THE E½ of the NW¼,
SECTION 14 TOWNSHIP 120, RANGE 23,
HENNEPIN COUNTY, MINNESOTA.

LEGAL DESCRIPTION

LOT 2, BLOCK 2,
REMUS INDUSTRIAL PARK SECOND ADDITION,
HENNEPIN COUNTY.

PLANT LIST:			
QTY	KEY	COMMON NAME	SIZE/ROOT
TREES			
3	MFFS	Maple, Fall Fiesta Sugar	2.5 Inch
2	LIS	Lilac, Ivory Silk	2.5 Inch
SHRUBS, EVERGREEN CONIFER			
2	YT	Yew, Taunton	20 Gallon
SHRUBS, DECIDUOUS			
9	HB	Hydrangea, Bonbshell	20 Gallon
32	SDG	Spirea, Dakota Goldcharm	20 Gallon
9	SG	Spirea, Goldflame	20 Gallon
FLOWER, PERENNIAL			
6	HSD	Hemerocallis, Stella D'oro	Each
6	HCBGP	Heuchera, Coral Bells Georgia Peach	Each

LEGEND:

- EXISTING BITUMINOUS EDGE
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER SERVICE
- EXISTING WATER SERVICE
- PROPOSED CURB AND GUTTER
- PROPOSED EROSION BLANKET CAT. 20
- PROPOSED EROSION BLANKET CAT. 25

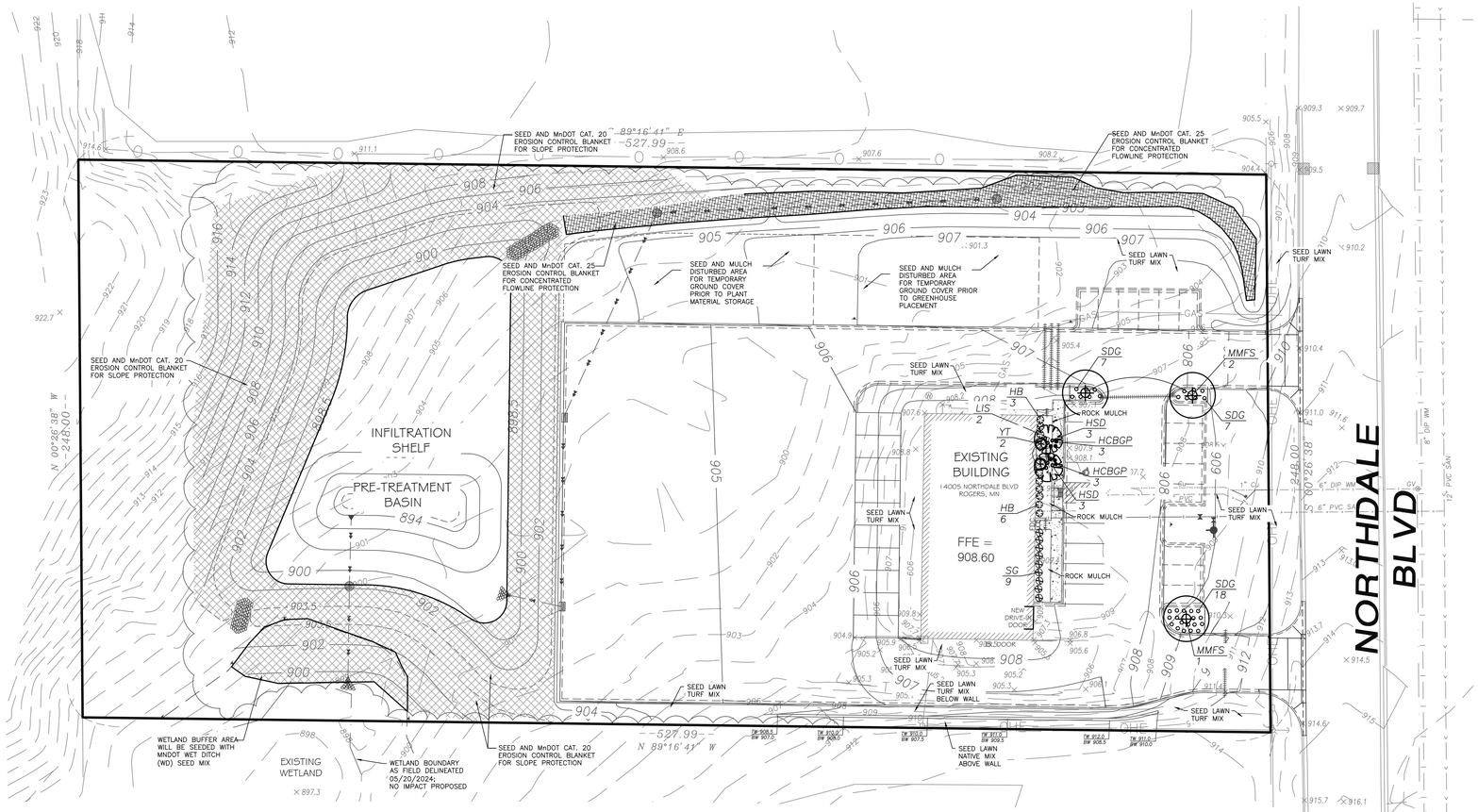
0 30 60 90
GRAPHIC SCALE IN FEET

SURVEY DATA

SURVEY INFORMATION PROVIDED BY:
MEYER ROHLIN LAND SERVICES
708 1st AVENUE NE
BUFFALO, MN 55313

DATED: JUNE 20, 2014

BENCHMARK:
MNDOT GEODETIC MONUMENT "STER MNDT" AT
NORTHWEST QUADRANT OF CR144 AND
HEATHER RIDGE DRIVE. ELEV.=912.505
DATUM: NAVD88



GENERAL NOTES:

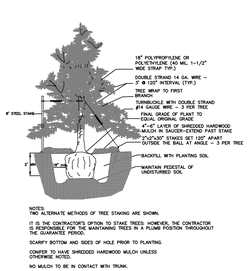
1. Contractor shall provide one year guarantee of all plant materials. The guarantee begins on the date of the General Contractor written acceptance of the date determined as substantially complete by owner. Replacement materials shall also have a one year guarantee upon planting.
2. Landscape contractor shall inspect the site and become familiar with existing conditions relating to the nature and scope of work. If any discrepancies are found, the General Contractor shall be notified prior to construction. The base information including contours, trails, utilities, curbs, and building locations were provided by others. All discrepancies must be resolved prior to construction.
3. Landscape contractor shall verify plan layout and bring to the attention of the General Contractor discrepancies which may compromise the design or intent of the layout.
4. Landscape contractor shall assure compliance with codes and regulations governing the work and materials supplied.
5. Landscape contractor shall protect all existing roads, curbs/gutters, trails, trees, lawns, and site elements during construction. Damage to the same shall be repaired at no cost to the Owner.
6. Landscape contractor shall verify the location of all utilities above and below grade prior to any soil disruption or installation. Provide necessary protection for same before construction begins.
7. Landscape contractor shall coordinate each phase of installation with General Contractor.
8. Landscape contractor shall be responsible for ongoing maintenance of all installed materials until time of substantial completion. Repair and/or replace all damaged materials due to construction or acts of vandalism at no cost to the Owner.
9. Landscape contractor shall verify that all plant placement will not negatively affect the plant's survival or warranty. Undesirable site conditions shall be brought to the attention of the General Contractor prior to construction.

PLANTING NOTES:

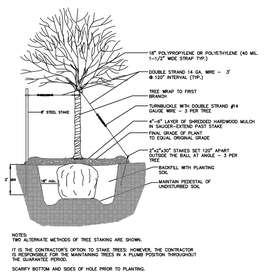
1. All plants to be Minnesota grown and hardy. Plants to be installed as per standard AAN planting practices. Nursery stock shall comply with the current edition of the American Standard for Nursery Stock, ANSI Z60.1.
2. No planting will occur until final grading has been completed.
3. All tree and shrub beds shall be staked and approved prior to installation.
4. No substitutions will be accepted unless approval is granted by the General Contractor prior to submission of the bid.
5. Location adjustments may be needed in the field. General Contrator or Owner must approve.
6. Plants to be installed as per planting details.
7. Plants shall be fertilized upon installation with dried bone meal. Other approved fertilizers mixed in with the planting soil as per the manufacturer's instructions may be applied. Summer and fall installations shall have an application of granular 10–0–5, 12oz. per 2.5"cal. tree and 6oz. per shrub. An additional application of 10–10–10 the following spring in the tree saucer.
8. Areas receiving ground covers, perennials, or garden space shall receive a minimum of 18 inches of planting soil consisting of 4 parts topsoil, 4 parts screened compost, and 1 part sand.
9. All deciduous trees shall be wrapped in the fall prior to Dec.1 and removed after April 15. Tree wrap shall be asphalt impregnated crepe, wrapped from base of trunk flare to first branches.
10. Edging shall be professional grade poly material. Edging horizontal layout to be uniform with smooth transitions. Edging vertical placement to be below typical mower deck cutting height.
11. Wood mulch, (Shredded Dark Brown Hardwood) shall be placed a minimum of 4 inches deep. Mulch strip shall have weed barrier fabric under rock and edged with commercial edging.
12. Weed barrier shall be 4oz. woven needle punch, black. Overlapping seams.
13. Mulch tree rings shall be 6 feet in diameter and be a minimum of 4 inch deep double shredded dark brown hardwood. Mulch shall not come in contact with tree trunks.
14. All deciduous plantings shall occur between spring thaw and June 15, or between fall's first frost and the first snow or Nov. 15, which every comes first. Coniferous plantings must be prior to Oct. 1.
15. Landscape contractor shall be responsible for determining appropriate planting conditions. Warranties shall be enforced regardless of weather and planting conditioned.
16. No excess materials or debris will be on site. All hard surfaces will be swept and washed clean.

TURF NOTES:

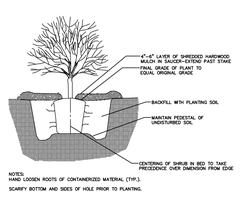
1. Owner to select seed mix for all turf areas.
2. Seed shall be installed as per the distributor's requirements for proper coverage and germination.
3. Permanent turf ground cover shall include all disturbed areas be covered with a minimum 6" topsoil and sodded or seeded as allowed by City. If not otherwise specified, turf seed to be MnDOT mix Southern Boulevard (SB) applied at 160 lbs/ac. MnDOT Type 3 mulch shall be applied at 2 tons/ac and disc anchored in areas not covered by sod or erosion blanket.



CONIFEROUS TREE PLANTING DETAIL



DECIDUOUS TREE PLANTING DETAIL



SHRUB PLANTING DETAIL

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jordan@creativelnl.com

SITE IMPROVEMENT PROJECT
14005 Northdale Boulevard
Rogers, MN

LANDSCAPE PLAN

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.
Signature: Sara Dulas
Date: 03/17/25 Reg. No. 24348

PREPARED BY:

CIVIL ENGINEERING
SITE DESIGN
118 East Broadway St.
PO Box 566
Monticello, MN 55362
Phone: 763-314-0929
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REVISIONS
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03/17/25 CITY COMMENTS

VERTICAL SCALE
1 inch = ____ feet

HORIZONTAL SCALE
1 inch = ____ feet
(FULL SIZE SHEET 24 x 36)

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

FILE NO. 00495

C7

Landscape Plan

Creative Lawn and Landscapes Site Improvement Project

14005 Northdale Blvd.

Rogers, MN

DRAINAGE ANALYSIS

Prepared for:

Creative Lawn and Landscapes
Attn: Mr. Jordan Roberdeau
14005 Northdale Blvd.
Rogers, MN 55374
Phone: (763)389-2227
jordan@creativelnl.com

Prepared by:

Civil Engineering Site Design
Attn: Scott Dahlke
PO Box 566
118 East Broadway Street
Monticello, MN 55362
Phone: (763) 314-0929
sdahlke@civilesd.com

Revised October 20, 2015
Revised January 22, 2025
Revised March 17, 2025

CESD Project # 00495

TABLE OF CONTENTS

Narrative
- Proposed Project
- Site Location
- Requirements
- Existing Site Conditions
- Proposed Site Conditions
- Soils Data
- Rate and Volume Calculations
- Water Quality Calculations
- Summary
- Certification

Appendix A - Existing Conditions Analysis
- DA 1 – Existing Conditions Drainage Area Plan
- 2 yr Rainfall Event HydroCAD Calculation
- 10 yr Rainfall Event HydroCAD Calculation
- 100 yr Rainfall Event HydroCAD Calculation

Appendix B - Proposed Conditions Analysis
- DA 2 – Proposed Conditions Drainage Area Plan
- 2 yr Rainfall Event HydroCAD Calculation
- 10 yr Rainfall Event HydroCAD Calculation
- 100 yr Rainfall Event HydroCAD Calculation

Appendix C – Soils Data
- Existing Soils data from Haugo Geotechnical Services

Appendix D – Water Quantity – Basin Volume Calculations
- Infiltration Worksheet

NARRATIVE

PROPOSED PROJECT:

The project proposes re-development of a vacant industrial property for business operations and outdoor storage of a landscape supply and landscape construction business. The site is proposed to be improved with site grading, parking lot construction, bituminous surfacing, and storm water management. Future improvements are proposed for the site including additional parking areas and future greenhouse. Future improvements are incorporated in the drainage analysis and calculations of this report. The project will provide site improvements as required by the City of Rogers.

The project proposes to collect surface water runoff and convey to a storm water management basin with a controlled outlet to an existing wetland area. Adjustments of surface elevations are proposed in an effort to provide reasonable grades and slopes in the outdoor storage area.

SITE LOCATION:

The site is located on the west side of Northdale Boulevard, south of Hennepin County Road 144 (141st Avenue) in Rogers, MN. The site address is 14005 Northdale Boulevard, Rogers, MN 55374.

The project is in the E ½ of the NW ¼ of Section 14, Township 120, Range 23, Hennepin County, MN. Access to the site can be achieved from Northdale Boulevard.

REQUIREMENTS:

Stormwater management design for the project is subject to review by the City of Rogers and the Elm Creek Watershed Management Commission (ECWMC).

Elm Creek Watershed Management Commission (ECWMC) requirements for storm water management are defined in ECWMC Management Plan Rule D. The significant requirements are runoff rates and water quality treatment in accordance with the National Pollutant Discharge Elimination System (NPDES) and ECWMC Management Plan Rule D.

The attached storm water runoff and ponding calculations are based on the Soil Conservation Service Synthetic Unit Hydrograph Method incorporated into the software program HydroCad 10.00. Calculations use NOAA Atlas 14 rainfall depths and NRCS MSE 3 rainfall distribution.

EXISTING SITE CONDITIONS:

The existing site has an existing building and paved parking areas on the easterly portion of the property adjacent to Northdale Blvd. The larger portion of the property westerly of the existing building is undeveloped. Existing industrial properties abut the site to the south, east, and north. Existing residential development abuts the site to the west.

Significant areas of off-site drainage flow through the site. Properties adjacent to the north, adjacent to the south, and the westerly half of existing Northdale Blvd in the immediate area, all route storm water runoff to this property that then flows to the existing wetland area adjacent to the southwest of this property. A small portion of the existing wetland extends onto this property from the larger wetland complex to the southwest.

The existing topography elevation change of the property is moderate. The topography predominantly slopes in sheet fashion to the middle of the site with higher elevations on the easterly portion of the site and higher elevations on the west boundary of the site. Lower elevations are found in the middle of the site and lowest are found in the southwest area of the site at the existing wetland area. A majority of existing surface slopes range from 2.0% to 10.0%.

The existing site has no improved ponding or detention/retention or storm sewer. The existing site does have a small natural depression in the middle of the site approximately 6,933 sf in size and approximately 0.5 ft in depth. A majority of storm water runoff from the adjacent property to the north and storm water runoff from Northdale Blvd is routed through the natural depression. Based on visual evidence on site, the natural depression appears to provide a limited function of water quality benefit by providing a small volume of sediment control.

Existing Conditions Drainage Area Map DA1 and associated HydroCAD calculation model printouts can be found in attached Appendix A.

PROPOSED SITE CONDITIONS:

The proposed project site drainage routing incorporates site grading and surface drainage to a storm water management basin to be located on the southwesterly portion of the site, just north of the existing wetland. The storm water management basin will be constructed with a controlled outlet structure that will provide rate control and water quality functions and will outlet to the existing wetland in the southwest area of the site.

The site is proposed to be improved with site grading, parking lot construction, bituminous surfacing, and storm water management. Future improvements are proposed for the site including additional parking areas and a future greenhouse. Future improvements are incorporated in the drainage analysis and calculations of this report.

The existing drainage flows from off-site properties are to be perpetuated through the site. Storm water runoff from the adjacent property to the north is to be collected into storm sewer piping that will route runoff to the proposed storm water management basin which will outlet to the existing wetland in the southwest area of the site.

Proposed Conditions Drainage Area Map DA2 and associated HydroCAD calculation model printouts can be found in attached Appendix B.

SOILS DATA:

Soils for this analysis are understood to be hydrologic Group B soils. Group B soils have a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission. Infiltration rate used in calculations is 0.45 in/hr and is consistent with recommended rates identified in the Minnesota Stormwater Manual. Soils data for the project site has been obtained by field investigation completed by Haugo Geotechnical Services, and information can be found in attached Appendix C.

RATE AND VOLUME CALCULATIONS:

Calculations have been generated using HydroCAD 10.0 for runoff rate and runoff volume analysis. Refer to attachments of Appendix A and Appendix B for drainage area plans and hydrographs for the 2-year (2.86") storm event, 10-year (4.26") storm event, and 100-year (7.32") storm event.

The total site combined runoff rates and volumes are calculated in the HydroCAD model. Results indicate the proposed condition runoff rates and volumes are less than existing condition runoff rates and volumes.

The following table summarizes the calculation model results for comparison of storm water runoff rate comparison and storm water runoff volume comparison of existing conditions to proposed conditions.

RUNOFF RATE CALCULATION SUMMARY

Item	Sub-catchment Area	2-yr (2.86") Runoff Rate (cfs)	10-yr (4.26") Runoff Rate (cfs)	100-yr (7.32") Runoff Rate (cfs)
Existing Condition	**R1 Total Runoff**	**17.12**	**32.12**	**66.15**
Proposed Condition	**R1 Total Runoff**	**8.03**	**16.93**	**33.07**

WATER QUALITY CALCULATIONS:

According to the ECWMC Management Plan Rule D, stormwater runoff volume must be infiltrated/abstracted onsite. Per Rule D.3.e.i, full infiltration of 1.1 inches of runoff from all impervious surfaces will satisfy (e) "There shall be *no net increase in total phosphorus (TP) or total suspended solids (TSS)* from pre-development land cover to post-development land cover."

Pretreatment of the storm water before entering onto the infiltration basin shelf is provided by a sump manhole and pretreatment basin. The impervious surface and basin volume calculations can be found in attached Appendix D. Calculation results indicate the proposed storm water management pond satisfies water quality treatment requirements.

The following table summarizes the calculations:

Item	Applicable New Impervious Surface Area (sf)	1.1" Runoff Volume Required (cf)	48 hr Discharge Capacity (cf)	Basin Storage Provided (cf)
Basin 1P	46,500	4,263	11,340	6,305

SUMMARY:

The project improvements and drainage analysis propose to satisfy the City of Rogers and Elm Creek Watershed requirements for storm water management.

CERTIFICATION:

I hereby certify that this 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.

Scott Dahlke

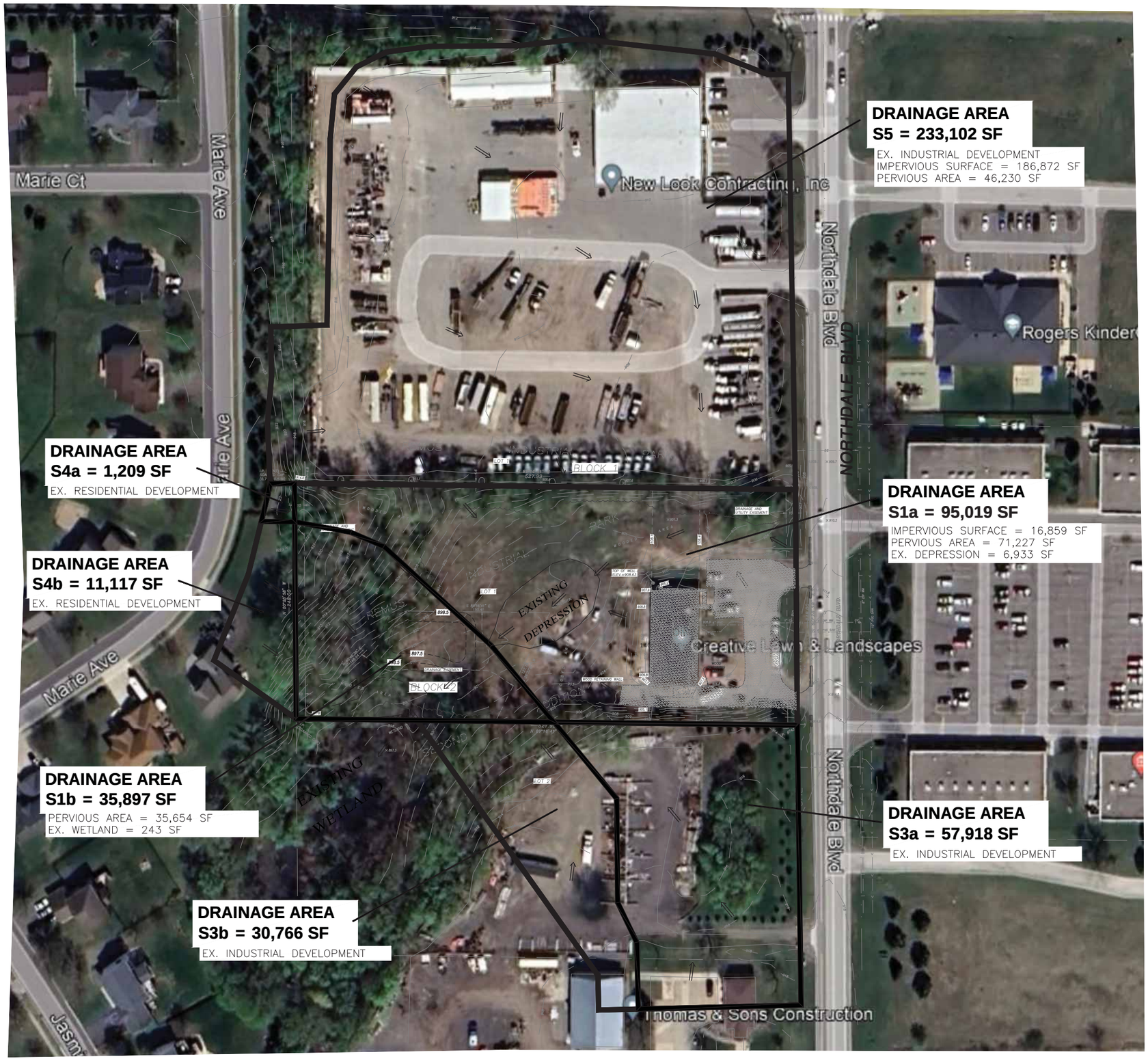
03/17/2025

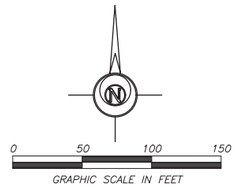
Scott Dahlke, P.E.
Reg. No. 24348

Date

APPENDIX A

Existing Conditions Analysis





LEGEND:

DRAINAGE AREA BOUNDARY

EXISTING HARD SURFACE

EXISTING WETLAND

CLIENT:

CREATIVE LAWN & LANDSCAPES

30083 149th St NW
Princeton, MN

Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT

14005 Northdale Boulevard
Rogers, MN

EXISTING CONDITION DRAINAGE AREAS PLAN

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.

Date: _____ Reg. No. _____

PREPARED BY:

CIVIL ENGINEERING
SITE DESIGN
118 East Broadway St.
PO Box 566
Monticello, Mn. 55362
Phone: (763) 271-4029
www.civilead.com

REVISIONS
10/20/15 INCORPORATE EX. DEPRESSION
01/08/25 UPDATED CITY SUBMITTAL

VERTICAL SCALE
1 inch = _____ feet

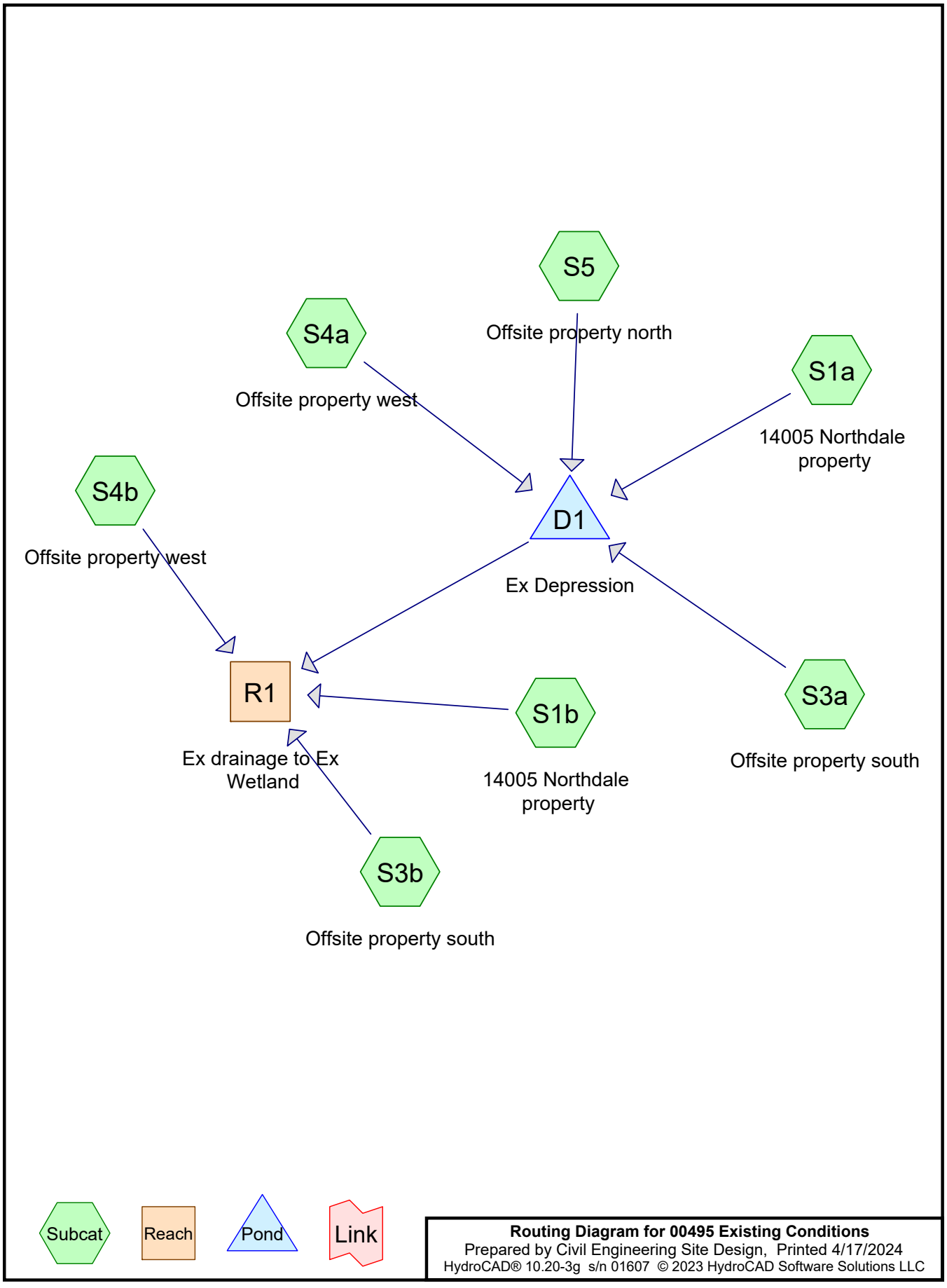
HORIZONTAL SCALE
1 inch = 50 feet
(FULL SIZE SHEET 24 x 36)

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

FILE NO. 00495

DA1

Existing Condition
Drainage Areas Plan



Routing Diagram for 00495 Existing Conditions
Prepared by Civil Engineering Site Design, Printed 4/17/2024
HydroCAD® 10.20-3g s/n 01607 © 2023 HydroCAD Software Solutions LLC

Summary for Subcatchment S1a: 14005 Northdale property

Runoff = 0.90 cfs @ 12.30 hrs, Volume= 3,512 cf, Depth= 0.44"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

	Area (sf)	CN	Description
	16,859	98	Paved parking, HSG B
	71,227	58	Woods/grass comb., Good, HSG B
*	6,933	55	Ex Depression, Good, HSG B
	95,019	65	Weighted Average
	78,160		82.26% Pervious Area
	16,859		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0250	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
6.4	240	0.0080	0.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	340	Total			

Summary for Subcatchment S1b: 14005 Northdale property

Runoff = 0.11 cfs @ 12.35 hrs, Volume= 689 cf, Depth= 0.23"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

	Area (sf)	CN	Description
	35,654	58	Woods/grass comb., Good, HSG B
*	243	98	Ex Wetland, 0% imp, HSG B
	35,897	58	Weighted Average
	35,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0900	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.80"
1.4	140	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.0	240	Total			

Summary for Subcatchment S3a: Offsite property south

Runoff = 3.37 cfs @ 12.18 hrs, Volume= 8,177 cf, Depth= 1.69"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
57,918	88	Urban industrial, 72% imp, HSG B
16,217		28.00% Pervious Area
41,701		72.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0300	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
1.2	160	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	30	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.3	290	Total			

Summary for Subcatchment S3b: Offsite property south

Runoff = 1.80 cfs @ 12.18 hrs, Volume= 4,344 cf, Depth= 1.69"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
30,766	88	Urban industrial, 72% imp, HSG B
8,614		28.00% Pervious Area
22,152		72.00% Impervious Area

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

Summary for Subcatchment S4a: Offsite property west

Runoff = 0.01 cfs @ 12.22 hrs, Volume= 32 cf, Depth= 0.31"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
1,209	61	>75% Grass cover, Good, HSG B
1,209		100.00% Pervious Area

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

Summary for Subcatchment S4b: Offsite property west

Runoff = 0.07 cfs @ 12.22 hrs, Volume= 290 cf, Depth= 0.31"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
11,117	61	>75% Grass cover, Good, HSG B
11,117		100.00% Pervious Area

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

Summary for Subcatchment S5: Offsite property north

Runoff = 13.68 cfs @ 12.18 hrs, Volume= 32,912 cf, Depth= 1.69"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
233,102	88	Urban industrial, 72% imp, HSG B
65,269		28.00% Pervious Area
167,833		72.00% Impervious Area

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

Summary for Reach R1: Ex drainage to Ex Wetland

Inflow Area = 465,028 sf, 53.45% Impervious, Inflow Depth = 1.15" for 2-Year event
Inflow = 17.12 cfs @ 12.23 hrs, Volume= 44,444 cf
Outflow = 17.12 cfs @ 12.23 hrs, Volume= 44,444 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond D1: Ex Depression

Inflow Area = 387,248 sf, 58.46% Impervious, Inflow Depth = 1.38" for 2-Year event
Inflow = 17.58 cfs @ 12.18 hrs, Volume= 44,633 cf
Outflow = 15.55 cfs @ 12.23 hrs, Volume= 44,633 cf, Atten= 12%, Lag= 3.2 min
Discarded = 0.12 cfs @ 12.23 hrs, Volume= 5,512 cf
Primary = 15.43 cfs @ 12.23 hrs, Volume= 39,121 cf
Routed to Reach R1 : Ex drainage to Ex Wetland

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 900.45' @ 12.23 hrs Surf.Area= 11,492 sf Storage= 5,840 cf

Plug-Flow detention time= 47.0 min calculated for 44,602 cf (100% of inflow)
Center-of-Mass det. time= 47.5 min (855.0 - 807.5)

Volume	Invert	Avail.Storage	Storage Description
#1	899.50'	15,637 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
899.50	0	0	0
900.00	6,933	1,733	1,733
901.00	17,159	12,046	13,779
901.10	20,000	1,858	15,637

Device	Routing	Invert	Outlet Devices
#1	Primary	900.00'	**20.0' long 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
#2	Discarded	899.50'	**0.450 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.12 cfs @ 12.23 hrs HW=900.44' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=15.18 cfs @ 12.23 hrs HW=900.44' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 15.18 cfs @ 1.72 fps)

Summary for Subcatchment S1a: 14005 Northdale property

Runoff = 2.99 cfs @ 12.27 hrs, Volume= 9,364 cf, Depth= 1.18"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

	Area (sf)	CN	Description
	16,859	98	Paved parking, HSG B
	71,227	58	Woods/grass comb., Good, HSG B
*	6,933	55	Ex Depression, Good, HSG B
	95,019	65	Weighted Average
	78,160		82.26% Pervious Area
	16,859		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0250	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
6.4	240	0.0080	0.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	340	Total			

Summary for Subcatchment S1b: 14005 Northdale property

Runoff = 0.71 cfs @ 12.26 hrs, Volume= 2,352 cf, Depth= 0.79"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

	Area (sf)	CN	Description
	35,654	58	Woods/grass comb., Good, HSG B
*	243	98	Ex Wetland, 0% imp, HSG B
	35,897	58	Weighted Average
	35,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0900	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.80"
1.4	140	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.0	240	Total			

Summary for Subcatchment S3a: Offsite property south

Runoff = 5.78 cfs @ 12.18 hrs, Volume= 14,340 cf, Depth= 2.97"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
57,918	88	Urban industrial, 72% imp, HSG B
16,217		28.00% Pervious Area
41,701		72.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0300	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
1.2	160	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	30	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.3	290	Total			

Summary for Subcatchment S3b: Offsite property south

Runoff = 3.11 cfs @ 12.17 hrs, Volume= 7,618 cf, Depth= 2.97"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
30,766	88	Urban industrial, 72% imp, HSG B
8,614		28.00% Pervious Area
22,152		72.00% Impervious Area

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

Summary for Subcatchment S4a: Offsite property west

Runoff = 0.04 cfs @ 12.20 hrs, Volume= 96 cf, Depth= 0.95"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
1,209	61	>75% Grass cover, Good, HSG B
1,209		100.00% Pervious Area

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

Summary for Subcatchment S4b: Offsite property west

Runoff = 0.33 cfs @ 12.20 hrs, Volume= 878 cf, Depth= 0.95"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
11,117	61	>75% Grass cover, Good, HSG B
11,117		100.00% Pervious Area

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

Summary for Subcatchment S5: Offsite property north

Runoff = 23.57 cfs @ 12.17 hrs, Volume= 57,715 cf, Depth= 2.97"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
233,102	88	Urban industrial, 72% imp, HSG B
65,269		28.00% Pervious Area
167,833		72.00% Impervious Area

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

Summary for Reach R1: Ex drainage to Ex Wetland

Inflow Area = 465,028 sf, 53.45% Impervious, Inflow Depth = 2.23" for 10-Year event
Inflow = 32.12 cfs @ 12.22 hrs, Volume= 86,298 cf
Outflow = 32.12 cfs @ 12.22 hrs, Volume= 86,298 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond D1: Ex Depression

Inflow Area = 387,248 sf, 58.46% Impervious, Inflow Depth = 2.53" for 10-Year event
Inflow = 31.60 cfs @ 12.18 hrs, Volume= 81,515 cf
Outflow = 28.40 cfs @ 12.23 hrs, Volume= 81,515 cf, Atten= 10%, Lag= 2.9 min
Discarded = 0.14 cfs @ 12.23 hrs, Volume= 6,065 cf
Primary = 28.25 cfs @ 12.23 hrs, Volume= 75,450 cf
Routed to Reach R1 : Ex drainage to Ex Wetland

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 900.65' @ 12.23 hrs Surf.Area= 13,577 sf Storage= 8,396 cf

Plug-Flow detention time= 30.3 min calculated for 81,515 cf (100% of inflow)
Center-of-Mass det. time= 30.2 min (827.1 - 796.9)

Volume	Invert	Avail.Storage	Storage Description
#1	899.50'	15,637 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
899.50	0	0	0
900.00	6,933	1,733	1,733
901.00	17,159	12,046	13,779
901.10	20,000	1,858	15,637

Device	Routing	Invert	Outlet Devices
#1	Primary	900.00'	**20.0' long 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
#2	Discarded	899.50'	**0.450 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.14 cfs @ 12.23 hrs HW=900.64' (Free Discharge)
2=Exfiltration (Exfiltration Controls 0.14 cfs)

Primary OutFlow Max=27.79 cfs @ 12.23 hrs HW=900.64' (Free Discharge)
1=Broad-Crested Rectangular Weir (Weir Controls 27.79 cfs @ 2.16 fps)

Summary for Subcatchment S1a: 14005 Northdale property

Runoff = 9.07 cfs @ 12.25 hrs, Volume= 26,542 cf, Depth= 3.35"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

	Area (sf)	CN	Description
	16,859	98	Paved parking, HSG B
	71,227	58	Woods/grass comb., Good, HSG B
*	6,933	55	Ex Depression, Good, HSG B
	95,019	65	Weighted Average
	78,160		82.26% Pervious Area
	16,859		17.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	100	0.0250	0.17		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
6.4	240	0.0080	0.63		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.0	340	Total			

Summary for Subcatchment S1b: 14005 Northdale property

Runoff = 2.81 cfs @ 12.23 hrs, Volume= 7,865 cf, Depth= 2.63"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

	Area (sf)	CN	Description
	35,654	58	Woods/grass comb., Good, HSG B
*	243	98	Ex Wetland, 0% imp, HSG B
	35,897	58	Weighted Average
	35,897		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0900	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.80"
1.4	140	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
14.0	240	Total			

Summary for Subcatchment S3a: Offsite property south

Runoff = 11.07 cfs @ 12.18 hrs, Volume= 28,499 cf, Depth= 5.90"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
57,918	88	Urban industrial, 72% imp, HSG B
16,217		28.00% Pervious Area
41,701		72.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0300	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
1.2	160	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	30	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.3	290	Total			

Summary for Subcatchment S3b: Offsite property south

Runoff = 5.96 cfs @ 12.17 hrs, Volume= 15,139 cf, Depth= 5.90"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
30,766	88	Urban industrial, 72% imp, HSG B
8,614		28.00% Pervious Area
22,152		72.00% Impervious Area

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

Summary for Subcatchment S4a: Offsite property west

Runoff = 0.12 cfs @ 12.18 hrs, Volume= 296 cf, Depth= 2.94"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
1,209	61	>75% Grass cover, Good, HSG B
1,209		100.00% Pervious Area

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

Summary for Subcatchment S4b: Offsite property west

Runoff = 1.13 cfs @ 12.18 hrs, Volume= 2,719 cf, Depth= 2.94"
Routed to Reach R1 : Ex drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
11,117	61	>75% Grass cover, Good, HSG B
11,117		100.00% Pervious Area

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

Summary for Subcatchment S5: Offsite property north

Runoff = 45.14 cfs @ 12.17 hrs, Volume= 114,700 cf, Depth= 5.90"
Routed to Pond D1 : Ex Depression

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
233,102	88	Urban industrial, 72% imp, HSG B
65,269		28.00% Pervious Area
167,833		72.00% Impervious Area

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

Summary for Reach R1: Ex drainage to Ex Wetland

Inflow Area = 465,028 sf, 53.45% Impervious, Inflow Depth = 4.87" for 100-Year event
Inflow = 66.15 cfs @ 12.22 hrs, Volume= 188,782 cf
Outflow = 66.15 cfs @ 12.22 hrs, Volume= 188,782 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond D1: Ex Depression

Inflow Area = 387,248 sf, 58.46% Impervious, Inflow Depth = 5.27" for 100-Year event
Inflow = 63.71 cfs @ 12.18 hrs, Volume= 170,037 cf
Outflow = 57.11 cfs @ 12.23 hrs, Volume= 170,037 cf, Atten= 10%, Lag= 3.0 min
Discarded = 0.19 cfs @ 12.23 hrs, Volume= 6,978 cf
Primary = 56.92 cfs @ 12.23 hrs, Volume= 163,059 cf
Routed to Reach R1 : Ex drainage to Ex Wetland

Routing by Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Peak Elev= 901.04' @ 12.23 hrs Surf.Area= 18,317 sf Storage= 14,502 cf

Plug-Flow detention time= 18.0 min calculated for 169,919 cf (100% of inflow)
Center-of-Mass det. time= 18.4 min (802.5 - 784.1)

Volume	Invert	Avail.Storage	Storage Description
#1	899.50'	15,637 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
899.50	0	0	0
900.00	6,933	1,733	1,733
901.00	17,159	12,046	13,779
901.10	20,000	1,858	15,637

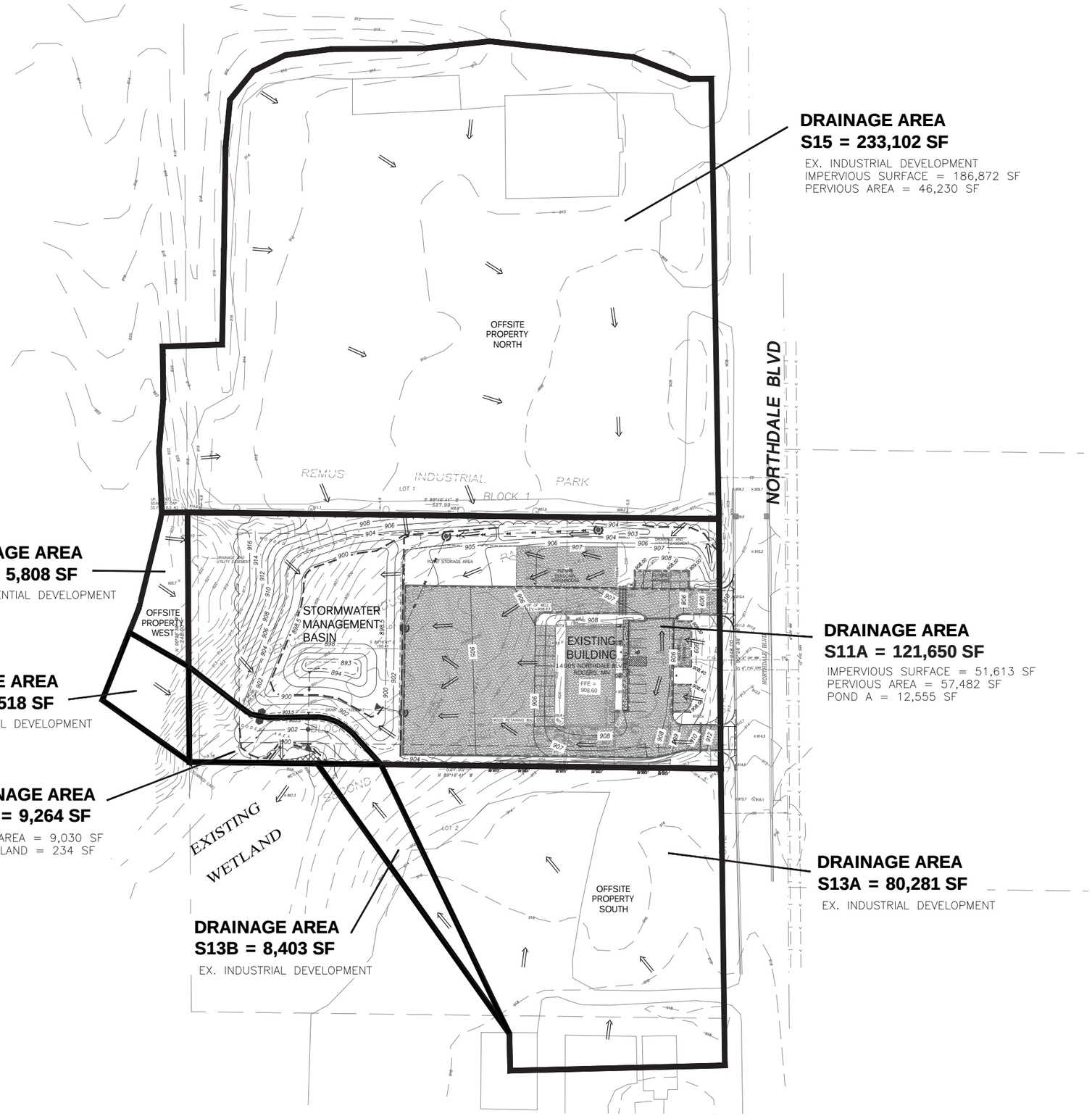
Device	Routing	Invert	Outlet Devices
#1	Primary	900.00'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64
#2	Discarded	899.50'	**0.450 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.19 cfs @ 12.23 hrs HW=901.03' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.19 cfs)

Primary OutFlow Max=56.05 cfs @ 12.23 hrs HW=901.03' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 56.05 cfs @ 2.72 fps)

APPENDIX B

Proposed Conditions Analysis



DRAINAGE AREA
S15 = 233,102 SF

EX. INDUSTRIAL DEVELOPMENT
IMPERVIOUS SURFACE = 186,872 SF
PERVIOUS AREA = 46,230 SF

DRAINAGE AREA
S14A = 5,808 SF

EX. RESIDENTIAL DEVELOPMENT

DRAINAGE AREA
S14B = 6,518 SF

EX. RESIDENTIAL DEVELOPMENT

DRAINAGE AREA
S11B = 9,264 SF

GREEN AREA = 9,030 SF
EX. WETLAND = 234 SF

DRAINAGE AREA
S13B = 8,403 SF

EX. INDUSTRIAL DEVELOPMENT

DRAINAGE AREA
S11A = 121,650 SF

IMPERVIOUS SURFACE = 51,613 SF
PERVIOUS AREA = 57,482 SF
POND A = 12,555 SF

DRAINAGE AREA
S13A = 80,281 SF

EX. INDUSTRIAL DEVELOPMENT

0 50 100 150
GRAPHIC SCALE IN FEET

LEGEND:

- DRAINAGE AREA BOUNDARY
- PROPOSED HARD SURFACE
- EXISTING WETLAND

CLIENT:

CREATIVE LAWN & LANDSCAPES

30083 149th St NW
Princeton, MN

Jordan Roberdeau
763-389-2227
jordan@creativelnl.com

SITE IMPROVEMENT PROJECT
14005 Northdale Boulevard
Rogers, MN

PROPOSED CONDITION DRAINAGE AREAS PLAN

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.

Date: _____ Reg. No. _____

PREPARED BY:
CIVIL ENGINEERING
SITE DESIGN
118 East Broadway St.
PO Box 566
Monticello, Mn. 55362
Phone: 763.441.4605
www.civillead.com

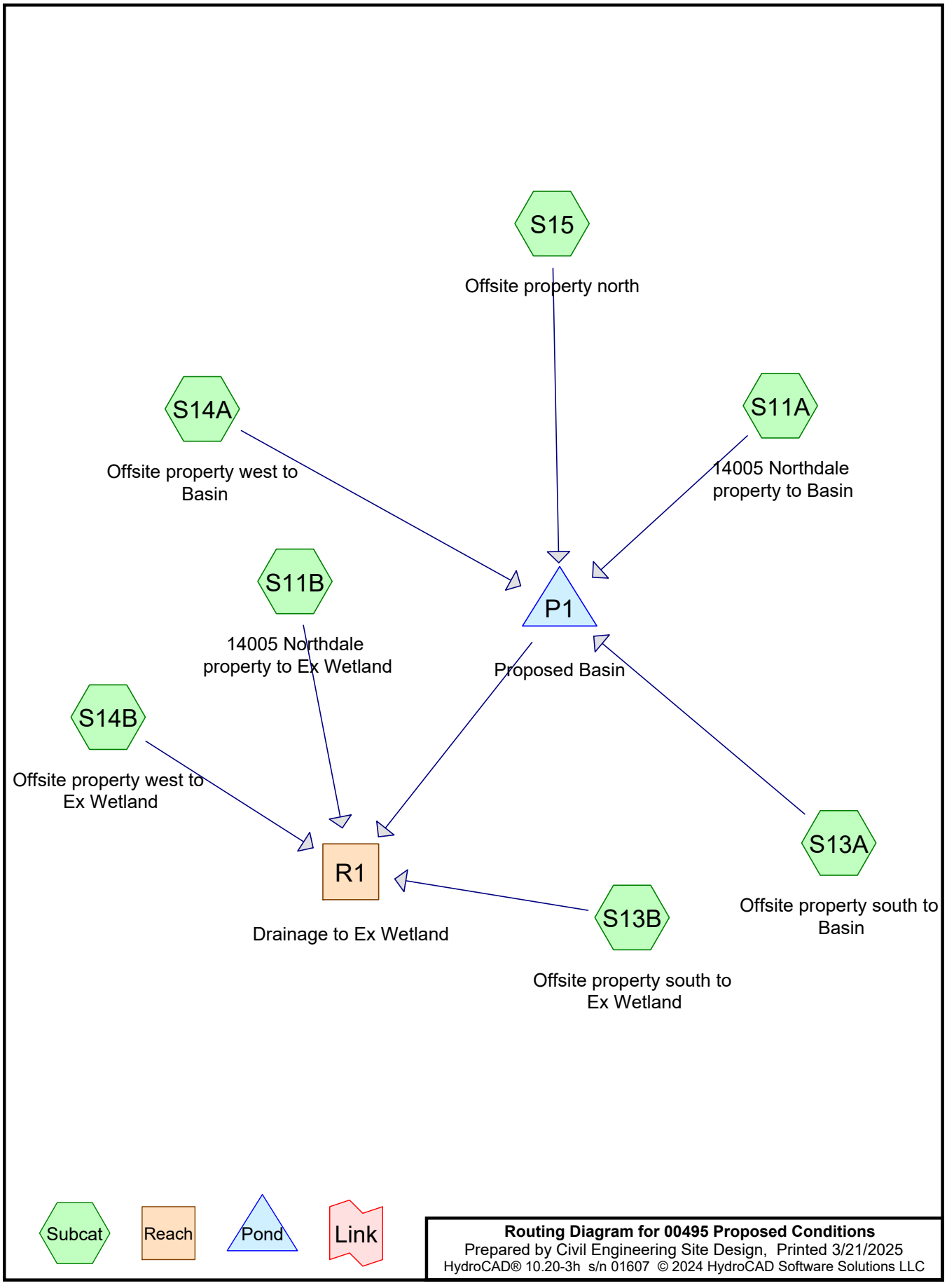
REVISIONS
10/20/15 UPDATE DRAINAGE DESIGN
01/12/25 UPDATED CITY SUBMITTAL
03/17/25 WATERSHED COMMENTS

VERTICAL SCALE 1 inch = ____ feet
HORIZONTAL SCALE 1 inch = 50 feet (FULL SIZE SHEET 24 x 36)

DATE	DRAWN BY	DESIGNED BY	CHECKED BY
07/09/14	SD	SD	SD

FILE NO. 00495

DA2
Proposed Condition Drainage Areas Plan


S15
Offsite property north
S14A
Offsite property west to Basin
S11A
14005 Northdale property to Basin
S11B
14005 Northdale property to Ex Wetland
P1
Proposed Basin
S14B
Offsite property west to Ex Wetland
R1
Drainage to Ex Wetland
S13A
Offsite property south to Basin
S13B
Offsite property south to Ex Wetland
Subcat
Reach
Pond
Link
Routing Diagram for 00495 Proposed Conditions
Prepared by Civil Engineering Site Design, Printed 3/21/2025
HydroCAD® 10.20-3h s/n 01607 © 2024 HydroCAD Software Solutions LLC

Summary for Subcatchment S11A: 14005 Northdale property to Basin

Runoff = 4.14 cfs @ 12.22 hrs, Volume= 11,021 cf, Depth= 1.09"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

	Area (sf)	CN	Description
	51,613	98	Paved parking, HSG B
	63,737	61	>75% Grass cover, Good, HSG B
*	6,300	98	Pond A, 0% imp, HSG B
	121,650	79	Weighted Average
	70,037		57.57% Pervious Area
	51,613		42.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0300	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
9.4	250	0.0040	0.44		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	280	Total			

Summary for Subcatchment S11B: 14005 Northdale property to Ex Wetland

Runoff = 0.04 cfs @ 12.31 hrs, Volume= 198 cf, Depth= 0.26"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

	Area (sf)	CN	Description
	9,030	58	Woods/grass comb., Good, HSG B
*	234	98	Ex Wetland, HSG B
	9,264	59	Weighted Average
	9,030		97.47% Pervious Area
	234		2.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0900	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.80"
0.3	50	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	150	Total			

Summary for Subcatchment S13A: Offsite property south to Basin

Runoff = 4.66 cfs @ 12.18 hrs, Volume= 11,335 cf, Depth= 1.69"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
80,281	88	Urban industrial, 72% imp, HSG B
22,479		28.00% Pervious Area
57,802		72.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0300	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
1.2	160	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	30	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.3	290	Total			

Summary for Subcatchment S13B: Offsite property south to Ex Wetland

Runoff = 0.49 cfs @ 12.18 hrs, Volume= 1,186 cf, Depth= 1.69"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
8,403	88	Urban industrial, 72% imp, HSG B
2,353		28.00% Pervious Area
6,050		72.00% Impervious Area

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

Summary for Subcatchment S14A: Offsite property west to Basin

Runoff = 0.04 cfs @ 12.22 hrs, Volume= 152 cf, Depth= 0.31"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
5,808	61	>75% Grass cover, Good, HSG B
5,808		100.00% Pervious Area

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

Summary for Subcatchment S14B: Offsite property west to Ex Wetland

Runoff = 0.04 cfs @ 12.22 hrs, Volume= 170 cf, Depth= 0.31"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
6,518	61	>75% Grass cover, Good, HSG B
6,518		100.00% Pervious Area

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

Summary for Subcatchment S15: Offsite property north

Runoff = 13.68 cfs @ 12.18 hrs, Volume= 32,912 cf, Depth= 1.69"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-Year Rainfall=2.86"

Area (sf)	CN	Description
233,102	88	Urban industrial, 72% imp, HSG B
65,269		28.00% Pervious Area
167,833		72.00% Impervious Area

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

Summary for Reach R1: Drainage to Ex Wetland

Inflow Area = 465,026 sf, 60.97% Impervious, Inflow Depth > 1.46" for 2-Year event
Inflow = 8.03 cfs @ 12.42 hrs, Volume= 56,677 cf
Outflow = 8.03 cfs @ 12.42 hrs, Volume= 56,677 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond P1: Proposed Basin

Inflow Area = 440,841 sf, 62.89% Impervious, Inflow Depth = 1.51" for 2-Year event
Inflow = 22.29 cfs @ 12.18 hrs, Volume= 55,420 cf
Outflow = 7.81 cfs @ 12.43 hrs, Volume= 55,122 cf, Atten= 65%, Lag= 14.8 min
Primary = 7.81 cfs @ 12.43 hrs, Volume= 55,122 cf
Routed to Reach R1 : Drainage to Ex Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 899.00' Surf.Area= 13,080 sf Storage= 17,977 cf
Peak Elev= 900.48' @ 12.43 hrs Surf.Area= 16,459 sf Storage= 39,799 cf (21,822 cf above start)

Plug-Flow detention time= 262.6 min calculated for 37,120 cf (67% of inflow)
Center-of-Mass det. time= 106.2 min (913.4 - 807.2)

Volume	Invert	Avail.Storage	Storage Description
#1	893.00'	99,989 cf	**Pond A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
893.00	410	0	0
897.50	2,830	7,290	7,290
898.49	5,840	4,292	11,582
898.50	12,140	90	11,672
899.00	13,080	6,305	17,977
903.50	23,370	82,013	99,989

Device	Routing	Invert	Outlet Devices
#1	Primary	899.00'	**27.0" Round Culvert** L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 899.00' / 898.90' S= 0.0024 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.98 sf
#2	Device 1	895.00'	**24.0" Round Intake Culvert** L= 32.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 894.00' / 895.00' S= -0.0313 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Device 1	901.50'	**48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	903.00'	**6.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=7.79 cfs @ 12.43 hrs HW=900.48' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 7.79 cfs @ 4.00 fps)
  - **2=Intake Culvert** (Passes 7.79 cfs of 18.38 cfs potential flow)
  - **3=Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment S11A: 14005 Northdale property to Basin

Runoff = 8.41 cfs @ 12.21 hrs, Volume= 22,065 cf, Depth= 2.18"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

	Area (sf)	CN	Description
	51,613	98	Paved parking, HSG B
	63,737	61	>75% Grass cover, Good, HSG B
*	6,300	98	Pond A, 0% imp, HSG B
	121,650	79	Weighted Average
	70,037		57.57% Pervious Area
	51,613		42.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0300	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
9.4	250	0.0040	0.44		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	280	Total			

Summary for Subcatchment S11B: 14005 Northdale property to Ex Wetland

Runoff = 0.21 cfs @ 12.24 hrs, Volume= 648 cf, Depth= 0.84"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

	Area (sf)	CN	Description
	9,030	58	Woods/grass comb., Good, HSG B
*	234	98	Ex Wetland, HSG B
	9,264	59	Weighted Average
	9,030		97.47% Pervious Area
	234		2.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0900	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.80"
0.3	50	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	150	Total			

Summary for Subcatchment S13A: Offsite property south to Basin

Runoff = 8.01 cfs @ 12.18 hrs, Volume= 19,877 cf, Depth= 2.97"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
80,281	88	Urban industrial, 72% imp, HSG B
22,479		28.00% Pervious Area
57,802		72.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0300	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
1.2	160	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	30	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.3	290	Total			

Summary for Subcatchment S13B: Offsite property south to Ex Wetland

Runoff = 0.85 cfs @ 12.17 hrs, Volume= 2,081 cf, Depth= 2.97"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
8,403	88	Urban industrial, 72% imp, HSG B
2,353		28.00% Pervious Area
6,050		72.00% Impervious Area

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

Summary for Subcatchment S14A: Offsite property west to Basin

Runoff = 0.17 cfs @ 12.20 hrs, Volume= 459 cf, Depth= 0.95"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
5,808	61	>75% Grass cover, Good, HSG B
5,808		100.00% Pervious Area

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

Summary for Subcatchment S14B: Offsite property west to Ex Wetland

Runoff = 0.19 cfs @ 12.20 hrs, Volume= 515 cf, Depth= 0.95"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
6,518	61	>75% Grass cover, Good, HSG B
6,518		100.00% Pervious Area

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

Summary for Subcatchment S15: Offsite property north

Runoff = 23.57 cfs @ 12.17 hrs, Volume= 57,715 cf, Depth= 2.97"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-Year Rainfall=4.26"

Area (sf)	CN	Description
233,102	88	Urban industrial, 72% imp, HSG B
65,269		28.00% Pervious Area
167,833		72.00% Impervious Area

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

Summary for Reach R1: Drainage to Ex Wetland

Inflow Area = 465,026 sf, 60.97% Impervious, Inflow Depth = 2.66" for 10-Year event
Inflow = 16.93 cfs @ 12.37 hrs, Volume= 103,058 cf
Outflow = 16.93 cfs @ 12.37 hrs, Volume= 103,058 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond P1: Proposed Basin

Inflow Area = 440,841 sf, 62.89% Impervious, Inflow Depth = 2.73" for 10-Year event
Inflow = 39.71 cfs @ 12.18 hrs, Volume= 100,116 cf
Outflow = 16.35 cfs @ 12.38 hrs, Volume= 99,815 cf, Atten= 59%, Lag= 12.1 min
Primary = 16.35 cfs @ 12.38 hrs, Volume= 99,815 cf
Routed to Reach R1 : Drainage to Ex Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 899.00' Surf.Area= 13,080 sf Storage= 17,977 cf
Peak Elev= 901.33' @ 12.38 hrs Surf.Area= 18,397 sf Storage= 54,575 cf (36,598 cf above start)

Plug-Flow detention time= 170.7 min calculated for 81,781 cf (82% of inflow)
Center-of-Mass det. time= 79.9 min (875.7 - 795.8)

Volume	Invert	Avail.Storage	Storage Description
#1	893.00'	99,989 cf	**Pond A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
893.00	410	0	0
897.50	2,830	7,290	7,290
898.49	5,840	4,292	11,582
898.50	12,140	90	11,672
899.00	13,080	6,305	17,977
903.50	23,370	82,013	99,989

Device	Routing	Invert	Outlet Devices
#1	Primary	899.00'	**27.0" Round Culvert** L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 899.00' / 898.90' S= 0.0024 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.98 sf
#2	Device 1	895.00'	**24.0" Round Intake Culvert** L= 32.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 894.00' / 895.00' S= -0.0313 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Device 1	901.50'	**48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	903.00'	**6.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=16.32 cfs @ 12.38 hrs HW=901.32' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 16.32 cfs @ 4.94 fps)
  - **2=Intake Culvert** (Passes 16.32 cfs of 23.05 cfs potential flow)
  - **3=Grate** (Controls 0.00 cfs)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment S11A: 14005 Northdale property to Basin

Runoff = 18.57 cfs @ 12.21 hrs, Volume= 49,452 cf, Depth= 4.88"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

	Area (sf)	CN	Description
	51,613	98	Paved parking, HSG B
	63,737	61	>75% Grass cover, Good, HSG B
*	6,300	98	Pond A, 0% imp, HSG B
	121,650	79	Weighted Average
	70,037		57.57% Pervious Area
	51,613		42.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	30	0.0300	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
9.4	250	0.0040	0.44		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.8	280	Total			

Summary for Subcatchment S11B: 14005 Northdale property to Ex Wetland

Runoff = 0.79 cfs @ 12.22 hrs, Volume= 2,108 cf, Depth= 2.73"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

	Area (sf)	CN	Description
	9,030	58	Woods/grass comb., Good, HSG B
*	234	98	Ex Wetland, HSG B
	9,264	59	Weighted Average
	9,030		97.47% Pervious Area
	234		2.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0900	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.80"
0.3	50	0.1800	2.97		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
12.9	150	Total			

Summary for Subcatchment S13A: Offsite property south to Basin

Runoff = 15.34 cfs @ 12.18 hrs, Volume= 39,503 cf, Depth= 5.90"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
80,281	88	Urban industrial, 72% imp, HSG B
22,479		28.00% Pervious Area
57,802		72.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.9	100	0.0300	0.19		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.80"
1.2	160	0.0200	2.28		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	30	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.3	290	Total			

Summary for Subcatchment S13B: Offsite property south to Ex Wetland

Runoff = 1.63 cfs @ 12.17 hrs, Volume= 4,135 cf, Depth= 5.90"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
8,403	88	Urban industrial, 72% imp, HSG B
2,353		28.00% Pervious Area
6,050		72.00% Impervious Area

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

Summary for Subcatchment S14A: Offsite property west to Basin

Runoff = 0.59 cfs @ 12.18 hrs, Volume= 1,421 cf, Depth= 2.94"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
5,808	61	>75% Grass cover, Good, HSG B
5,808		100.00% Pervious Area

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

Summary for Subcatchment S14B: Offsite property west to Ex Wetland

Runoff = 0.66 cfs @ 12.18 hrs, Volume= 1,594 cf, Depth= 2.94"
Routed to Reach R1 : Drainage to Ex Wetland

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
6,518	61	>75% Grass cover, Good, HSG B
6,518		100.00% Pervious Area

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

Summary for Subcatchment S15: Offsite property north

Runoff = 45.14 cfs @ 12.17 hrs, Volume= 114,700 cf, Depth= 5.90"
Routed to Pond P1 : Proposed Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-Year Rainfall=7.32"

Area (sf)	CN	Description
233,102	88	Urban industrial, 72% imp, HSG B
65,269		28.00% Pervious Area
167,833		72.00% Impervious Area

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

Summary for Reach R1: Drainage to Ex Wetland

Inflow Area = 465,026 sf, 60.97% Impervious, Inflow Depth = 5.49" for 100-Year event
Inflow = 33.07 cfs @ 12.36 hrs, Volume= 212,607 cf
Outflow = 33.07 cfs @ 12.36 hrs, Volume= 212,607 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs

Summary for Pond P1: Proposed Basin

Inflow Area = 440,841 sf, 62.89% Impervious, Inflow Depth = 5.58" for 100-Year event
Inflow = 78.77 cfs @ 12.18 hrs, Volume= 205,076 cf
Outflow = 31.67 cfs @ 12.38 hrs, Volume= 204,770 cf, Atten= 60%, Lag= 12.2 min
Primary = 31.67 cfs @ 12.38 hrs, Volume= 204,770 cf
Routed to Reach R1 : Drainage to Ex Wetland

Routing by Dyn-Stor-Ind method, Time Span= 0.00-72.00 hrs, dt= 0.05 hrs
Starting Elev= 899.00' Surf.Area= 13,080 sf Storage= 17,977 cf
Peak Elev= 903.00' @ 12.38 hrs Surf.Area= 22,233 sf Storage= 88,653 cf (70,676 cf above start)

Plug-Flow detention time= 117.0 min calculated for 186,794 cf (91% of inflow)
Center-of-Mass det. time= 61.7 min (843.8 - 782.1)

Volume	Invert	Avail.Storage	Storage Description
#1	893.00'	99,989 cf	**Pond A (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
893.00	410	0	0
897.50	2,830	7,290	7,290
898.49	5,840	4,292	11,582
898.50	12,140	90	11,672
899.00	13,080	6,305	17,977
903.50	23,370	82,013	99,989

Device	Routing	Invert	Outlet Devices
#1	Primary	899.00'	**27.0" Round Culvert** L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 899.00' / 898.90' S= 0.0024 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.98 sf
#2	Device 1	895.00'	**24.0" Round Intake Culvert** L= 32.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 894.00' / 895.00' S= -0.0313 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Device 1	901.50'	**48.0" Horiz. Grate** C= 0.600 Limited to weir flow at low heads
#4	Primary	903.00'	**6.0' long + 4.0 '/' SideZ x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=31.62 cfs @ 12.38 hrs HW=903.00' TW=0.00' (Dynamic Tailwater)
- **1=Culvert** (Barrel Controls 31.62 cfs @ 7.95 fps)
  - **2=Intake Culvert** (Passes < 30.24 cfs potential flow)
  - **3=Grate** (Passes < 74.04 cfs potential flow)
- **4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

APPENDIX C

SOILS DATA

July 10, 2014 Project Number: 14-448

Mr. Scott Dahlke
Civil Engineering Site Design
118 East Broadway Street
Monticello, MN 55362

Re: Geotechnical Exploration Summary, Parking Lot Expansion
14005 Northdale Blvd, Rogers, MN

Dear Mr. Dahlke:

We have completed the geotechnical exploration for the proposed parking lot expansion west of the existing building at 14005 Northdale Blvd in Rogers MN. Our services were performed as authorized by you in conversations with Mr. Joe Westphal, Haugo GeoTechnical Services (HGTS). The purpose of this geotechnical exploration was to characterize subsurface soil and groundwater conditions and provide recommendations for pavement design and construction. The following paragraphs present specific details regarding our procedures, results and recommendations.

INTRODUCTION

Project Description

Civil Engineering Site Design (CESD) is preparing plans to add a parking lot and plant storage area west of the existing building at 14005 Northdale Blvd in Rogers, MN. We understand that the proposed parking lot and plant storage area will be graded flat and level and will be gravel surfaced (MN/DOT Class 5 or similar) but may be bituminous paved in the future. Improvement plans also appear to include adding/constructing a "Green House" and a storm water retention pond.

Currently, the proposed lot expansion is a low lying heavily wooded area, with the existing surface elevations ranging from about 899 to 908 feet MSL. Two areas within the wooded are identified as Wetlands on the provided plans.

Documents Provided

We were initially provided a copy of the "Plot Plan for Sketch Layout" prepared by Civil Engineering Site Design, dated May 19, 2014. The Plan includes a layout of the proposed improvements superimposed over an aerial photograph of the site. The plan also included existing contour lines of the property. We were also provided with a "Grading and Drainage Plan" prepared by CESD, and dated July 9th, 2014.

Locations and Elevations

The soil boring locations were selected by HGTS based on the proposed improvements and site access. The ground surface elevation at the eastern boring location (B-1) was obtained by HGTS using GPS measuring equipment. The GPS measurement was based on the MN County Coordinate System (Hennepin County) in US Survey Feet using the GEOID09 (Conus) model. Elevations at soil boring locations B-2 and B-3 were measured by HGTS using conventional transit equipment because tree cover blocked the satellite signal for the GPS equipment.

The approximate location of the soil borings are shown on Figure 1, "Soil Boring Location Sketch", attached.

RESULTS

Soil Conditions

Three hand auger borings were completed for this project. Soil boring B-1 encountered about 1 foot topsoil fill at the surface underlain by about 4 feet of silty sand or sandy lean clay fill that extended to a depth of about 5 feet below the ground surface. Below the fill the boring encountered about 2 feet of dark brown poorly graded sand with silt that may be fill. The soil was therefore identified as "Possible Fill". The boring terminated in possible fill at a depth of about 7 feet.

Soil borings B-2 and B-3 encountered about 7 feet and 5 feet, respectively of topsoil and buried topsoil underlain by native silty sand or clayey sand soils that extended to the termination depth of the borings.

Since the soil borings were completed with hand equipment, standard penetration resistance values (N-values) were not obtained.

Groundwater Conditions

Groundwater was not encountered in the soil boring. It appears to be below the depths explored.

It should be noted that the borings were completed in clayey soils. In clayey soils it may take several hours or days for groundwater to reach its hydrostatic level in an open borehole. Therefore the groundwater levels observed in the borings may be lower than the hydrostatic groundwater levels.

DISCUSSION & RECOMMENDATIONS

Discussion

The project will include adding plant storage areas, landscaping storage bins and a parking lot for equipment staging and loading west of the existing building as well as a retention pond. Based on correspondence with Mr. Scott Dahlke we understand finished grades across the lot and storage area will range from about elevation 906 near the existing building to about elevation 903 ½ at the west end of the storage area. With existing ground surface elevations ranging from about 904 ½ near the building to about 899 near the proposed west end of the storage area we anticipate that about 4 ½ feet, or more, of fill will be required to reach design grades.

Most of the parking lot expansion area is wooded but lowlands and wetlands were identified within some of the area. The topsoil was about 5 to 7 feet thick through the existing lowland and wetland areas.

We anticipate that about 4 feet, or more, of fill will be required to reach design grades in the vicinity of soil borings B-2 and B-3. We recommend removing the vegetation, root zone, tree stumps, and organic surface soils prior to placing additional fill. Due to the depth of fill to be placed, it is our opinion that most of the topsoil can remain provided there is a minimum of 3 feet of non-organic mineral soil between the base of the aggregate base and the underlying topsoil. However, the exposed topsoil should be evaluated at the time of construction; removal of soils deemed to be highly organic will be required. Stripping of the organic soils at the surface is recommended for paved and non-paved areas of the storage lot to reduce potential settlements.

We understand there is a potential to add 17 parking stalls to the east parking lot. If/when the future parking stalls are added, we assume the east parking lot may be reconstructed. Soil borings were not requested on the east side of the building but recommendations for lot expansions are included in the Pavement Recommendations section.

Groundwater was not encountered in our borings. We do not anticipate groundwater will be encountered during construction and do not anticipate that dewatering will be required. It appears the surrounding areas drain to the lowland/wetland areas of the site and heavy rains during construction could present a flash flooding situation.

Grading Recommendations

We recommend removing all topsoil and soft or loose soils or other unsuitable materials from within 3 feet of the pavement subgrade elevation. In area where that require over 3 feet of fill to attain proposed subgrade, only the organic soils and root zone near the surface and any stumps or roots need to be removed. We estimate stripping 1 to 1 ½ feet of the topsoil material prior to fill placement.

Fill placed to attain pavement subgrade elevation can consist of any mineral soil provided it is free of organic material or other deleterious materials. Granular fill classified as SP or SP-SM should be placed within 65 percent to 105 percent of its optimum moisture content as determined by the standard Proctor. Remaining fill soils (on-site clays) should be placed

within 3 percentage points above and 1 percentage point below its optimum moisture content as determined by the standard Proctor.

We recommend that fill placed to attain site grades be compacted to a minimum of 95 percent of its standard Proctor density (ASTM D 698), except the upper 3 feet of pavement areas, where the compaction level should be increased to a minimum of 100 percent. All fill should be placed in thin lifts and be compacted with a large self-propelled vibratory compactor operating in vibratory mode.

Pavement Recommendations

Based on the information provided, we anticipate light duty pavements may be required to accommodate customer and employee parking on the east side of the building and heavy duty pavements will be required to accommodate truck deliveries and equipment on the west side of the building and associated access drive lanes. We assume heavy duty pavements will be subjected to Equivalent Single Axel Loads (ESAL's) ranging from about 50,000 to 100,000 over a 20 year design life. Light duty pavements are anticipated to be subjected to less than 50,000 ESAL's over a 20 year design life.

Prior to placing the aggregate base (Class 5) we recommend proof rolling the pavement subgrade to identify soft, weak, loose or unstable areas that may require additional subcuts.

The type of soil that will be imported and used as fill or backfill to reach design grades is not known at this time. Pavement thickness depends, in part, on the subgrade soil type(s) and the associated R-Value, both of which can vary greatly.

For preliminary design purposes and assuming the subgrade soil will consist of sandy lean clay corresponding to the ASTM classification CL, it is our opinion that and R-Value of 10 can be used for pavement design.

Assuming an R-Value of 10, we recommend a light duty pavement section consisting of a minimum of 3½ inches of bituminous, and 8 inches of aggregate base. For heavy duty pavements we recommend a minimum of 4 inches of bituminous and 12 inches of aggregate base.

We recommend aggregate base meeting MN/DOT specification 3138 for Class 5 aggregate base. We recommend the aggregate base be compacted to 100 percent of its maximum standard Proctor.

We recommend that the bituminous wear and base courses meet the requirement of MN/DOT specification 2360. We recommend the bituminous pavements be compacted to at least 92% of the maximum theoretical density.

We recommend specifying concrete that has a minimum 28 day compressive strength of 3,900 psi. We recommend specifying 5 to 8 percent entrained air for exposed concrete to provide resistance to freeze-thaw deterioration. We recommend slump, air content and compressive strength test of Portland cement concrete.

GENERAL

The soils encountered in the borings were visually and manually classified in general accordance with ASTM Test Method D 2488. A chart explaining the classification system is attached. Haugo GeoTechnical Services does not practice in the field of surveying; therefore the locations and elevations referenced on the boring logs should be considered approximate.

The strata changes were inferred from the changes in the samples and auger cuttings. The depths shown as changes between strata are only approximate. The changes are likely transitions, variations can occur beyond the location of the boring.

We made water level measurements in the borings at the times and under the conditions stated on the boring logs. The data was interpreted in the text of this report. The period of observation was relatively short and fluctuations in the groundwater level may occur due to rainfall, flooding, irrigation, spring thaw, drainage, and other seasonal and annual factors not evident at the time the observations were made. Design drawings and specifications and construction planning should recognize the possibility of fluctuations.

Haugo GeoTechnical Services does not practice in the field of surveying therefore the locations and elevations referenced or described above should be considered approximate.

Haugo GeoTechnical Services has used the degree of skill and care ordinarily exercised under similar circumstance by members of the profession currently practicing in this locality. No warranty expressed or implied is made.

Thank you for the opportunity to assist you on this project. If you have any questions or need additional information please contact Paul Gionfriddo at 763-954-1101 or Joe Westphal at 612-269-4027.

Sincerely,

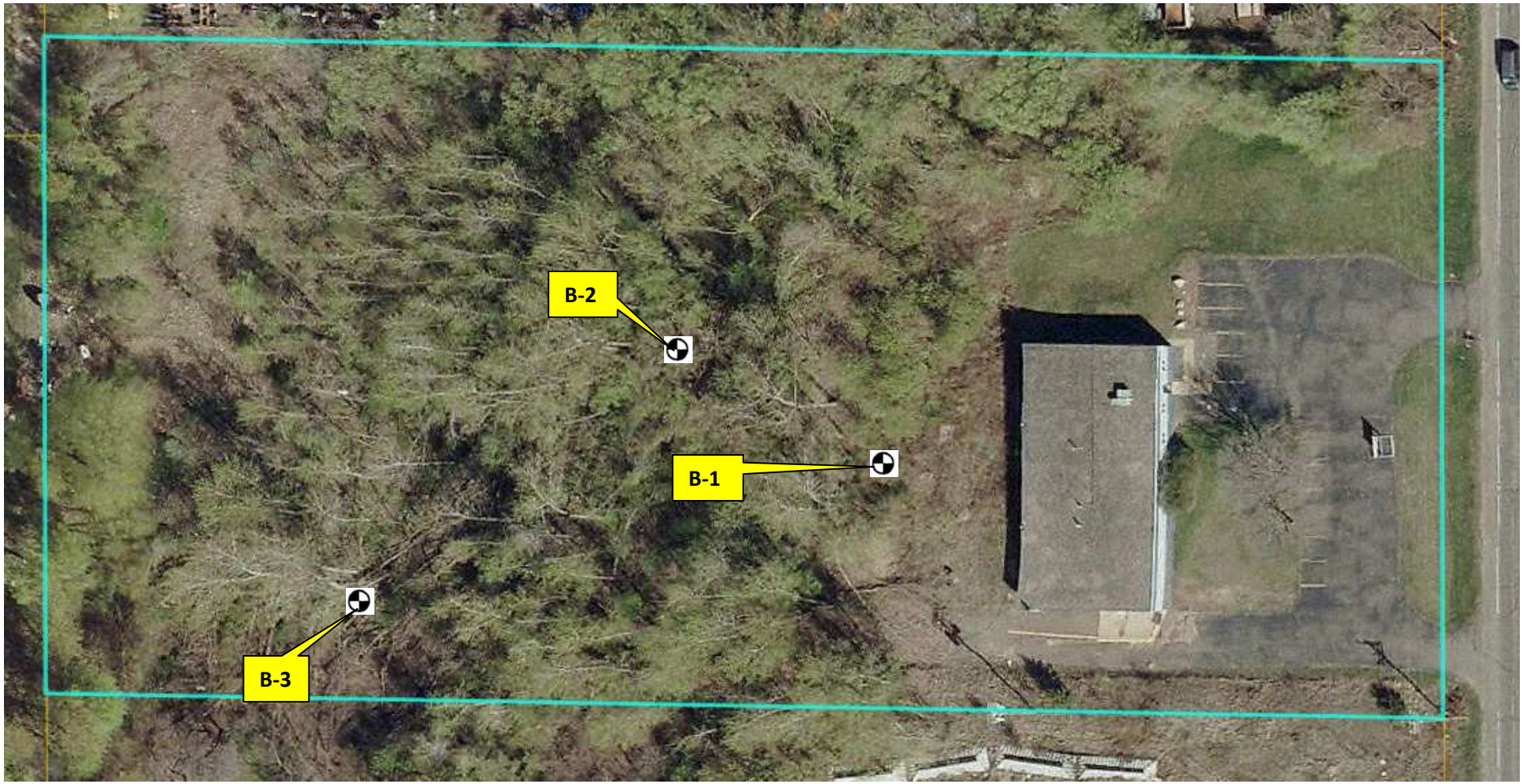
Haugo GeoTechnical Services, LLC

Paul S. Gionfriddo P.E.
Consulting Engineer

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.

Joe Westphal, P.E.
Project Engineer
License Number 49833
Expires June 2016

Attachments: Figure 1 - Soil Boring Location Sketch
Soil Boring Logs B-1 thru B-3
Terminology of Soil Characteristics



= Approximate Boring Location

Haugo GeoTechnical Services.
13570 Grove Drive #278
Maple Grove, MN

Soil Boring Location Sketch
Proposed Parking Lot Expansion
14005 Northdale Blvd
Rogers, Minnesota

N
W E
S

Figure #: 1
Drawn By: MJS
Date: 7/2/14
Scale: None
HGTS Project #: 14-448

Haugo GeoTechnical Services, LLC
13570 Grove Drive, #278
Maple Grove, Minnesota 55311

BORING NUMBER B-1

CLIENT Civil Engineering Site Design
PROJECT NAME 14005 Northdale Blvd
PROJECT NUMBER 14-448
PROJECT LOCATION Rogers, Minnesota
DATE STARTED 7/1/14 **COMPLETED** 7/1/14
GROUND ELEVATION 904.4 ft MSL **HOLE SIZE** 3 inches
DRILLING CONTRACTOR HGTS
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Probe
AT TIME OF DRILLING --- Not Encountered
LOGGED BY CP **CHECKED BY** JLW
AT END OF DRILLING --- Not Encountered
NOTES 41' W of Existing Building
AFTER DRILLING --- Not Encountered

DEPTH (ft)	SAMPLE TYPE NUMBER	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0	AU		Silty Sand, with roots and fibers, black, moist. (Topsoil/FILL)	
	AU			
	AU		0.9	903.5
	AU		Silty Sand, dark brown, moist. (FILL)	
	AU			
2.5	AU			
	AU			
	AU			
	AU		4.0	900.4
	AU		Sandy Lean Clay, trace Gravel, brown, wet. (FILL)	
5.0	AU		5.0	899.4
	AU		Poorly Graded Sand with Silt, dark brown, moist. (Possible FILL)	
	AU			
	AU			
	AU		7.0	897.4

Bottom of borehole at 7.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/9/14 15:25 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\14-448 NORTHDALE BLVD HAP.GPJ

BORING NUMBER B-2

HAUGO GEOTECHNICAL SERVICES
Haugo GeoTechnical Services, LLC
13570 Grove Drive, #278
Maple Grove, Minnesota 55311

CLIENT Civil Engineering Site Design
PROJECT NAME 14005 Northdale Blvd
PROJECT NUMBER 14-448
PROJECT LOCATION Rogers, Minnesota
DATE STARTED 7/1/14 **COMPLETED** 7/1/14
GROUND ELEVATION 899.3 ft MSL **HOLE SIZE** 3 inches
DRILLING CONTRACTOR HGTS
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Probe
AT TIME OF DRILLING --- Not Encountered
LOGGED BY CP **CHECKED BY** JLW
AT END OF DRILLING --- Not Encountered
NOTES 103' W of Existing Building
AFTER DRILLING --- Not Encountered

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0	AU			Silty Sand, dark brown to black, moist. (Topsoil)	
	AU				
	AU				
	AU				
2.0					897.3
2.5	AU	CL-ML		(CL-ML) Silty Lean Clay, black, moist. (Buried Topsoil)	
	AU				
	AU				
	AU				
	AU				
5.0	AU				
	AU				
	AU				
	AU				
7.0					892.3
7.5	AU	SC-SM		(SC-SM) Clayey Sand with Silt, dark brown, moist. (Alluvium)	
	AU				
	AU				
	AU				
	AU				
10.0	AU				
10.0					889.3

Bottom of borehole at 10.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/9/14 15:25 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\14-448 NORTHDALE BLVD HAP.GPJ

Haugo GeoTechnical Services, LLC
13570 Grove Drive, #278
Maple Grove, Minnesota 55311

BORING NUMBER B-3

CLIENT Civil Engineering Site Design
PROJECT NAME 14005 Northdale Blvd
PROJECT NUMBER 14-448
PROJECT LOCATION Rogers, Minnesota
DATE STARTED 7/1/14 **COMPLETED** 7/1/14
GROUND ELEVATION 900.1 ft MSL **HOLE SIZE** 3 inches
DRILLING CONTRACTOR HGTS
GROUND WATER LEVELS:
DRILLING METHOD Hand Auger Probe
AT TIME OF DRILLING --- Not Encountered
LOGGED BY CP **CHECKED BY** JLW
AT END OF DRILLING --- Not Encountered
NOTES 200' W of Existing Building
AFTER DRILLING --- Not Encountered

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0	AU			Silty Sand, with roots and fibers, black, moist. (Topsoil)	
	AU				
				1.0	899.1
	AU			Silty Lean Clay, black, moist. (Buried Topsoil)	
	AU				
2.5	AU				
	AU				
	AU				
	AU				
	AU				
5.0	AU				
				5.0	895.1
	AU			(SM) Silty Sand, grey, moist. (Alluvium)	
	AU	SM			
	AU				
	AU				
				7.0	893.1
				Bottom of borehole at 7.0 feet.	

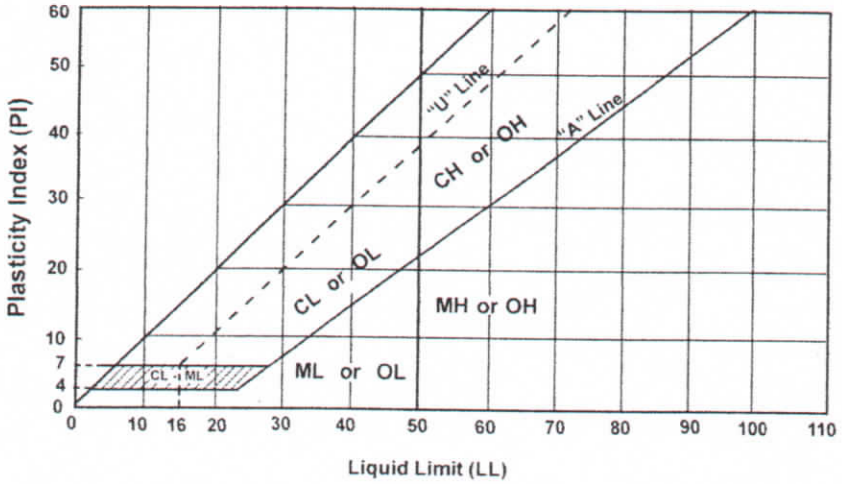
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/9/14 15:25 - C:\USERS\PUBLIC\DOCUMENTS\BENTLEY\GINT\PROJECTS\14-448 NORTHDALE BLVD HAP.GPJ

Descriptive Terminology of Soil

Standard D 2487 - 00
Classification of Soils for Engineering Purposes
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [a]				Soils 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 5% or less fines [e]	$C_u \geq 4$ and $1 \leq C_c \leq 3$ [c]	GW	Well-graded gravel [d]
			$C_u < 4$ and/or $1 > C_c > 3$ [c]	GP	Poorly graded gravel [d]
		Gravels with Fines More than 12% fines [e]	Fines classify as ML or MH	GM	Silty gravel [d,f,g]
			Fines classify as CL or CH	GC	Clayey gravel [d,f,g]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands 5% or less fines [i]	$C_u \geq 6$ and $1 \leq C_c \leq 3$ [c]	SW	Well-graded sand [h]
			$C_u < 6$ and/or $1 > C_c > 3$ [c]	SP	Poorly graded sand [h]
		Sands with Fines More than 12% [i]	Fines classify as ML or MH	SM	Silty sand [f,g,h]
			Fines classify as CL or CH	SC	Clayey sand [f,g,h]
Fine-grained Soils 50% or more passed the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line [j]	CL	Lean clay [k,l,m]
			PI < 4 or plots below "A" line [j]	ML	Silt [k,l,m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [k,l,m,n] / Organic silt [k,l,m,o]
	Silts and clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay [k,l,m]
			PI plots below "A" line	MH	Elastic silt [k,l,m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [k,l,m,p] / Organic silt [k,l,m,q]
Highly Organic Soils		Primarily organic matter, dark in color and organic odor		PT	Peat

a. Based on the material passing the 3-in (75mm) sieve
b. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders or both" to group name.
c. $C_u = D_{60} / D_{10}$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
d. If soil contains ≥15% sand, add "with sand" to group name.
e. 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
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. If soil contains ≥ 15% gravel, add "with gravel" to group name.
i. 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
j. If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 10 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.
m. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
n. PI ≥ 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.



Laboratory Tests

DD	Dry density, pcf	OC	Organic content, %
WD	Wet density, pcf	S	Percent of saturation, %
MC	Natural moisture content, %	SG	Specific gravity
LL	Liquid limit, %	C	Cohesion, psf
PL	Plastic limit, %	∅	Angle of internal friction
PI	Plasticity index, %	qu	Unconfined compressive strength, psf
P200	% passing 200 sieve	qp	Pocket penetrometer strength, tsf

Particle Size Identification

Boulders	over 12"
Cobbles	3" to 12"
Gravel	
Coarse	3/4" to 3"
Fine	No. 4 to 3/4"
Sand	
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Silt	< No. 200, PI < 4 or below "A" line
Clay	< No. 200, PI ≥ 4 and on or above "A" line

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

Very soft	0 to 1 BPF
Soft	2 to 3 BPF
Rather soft	4 to 5 BPF
Medium	6 to 8 BPF
Rather stiff	9 to 12 BPF
Stiff	13 to 16 BPF
Very stiff	17 to 30 BPF
Hard	over 30 BPF

Drilling Notes

Standard penetration test borings were advanced by 3 1/4" or 6 1/4" ID hollow-stem augers unless noted otherwise. Jetting water was used to clean out auger prior to sampling only where indicated on logs. Standard penetration test borings are designated by the prefix "ST" (Split Tube). All samples were taken with the standard 2" OD split-tube sampler, except where noted.

Power auger borings were advanced by 4" or 6" diameter continuous-flight, solid-stem augers. Soil classifications and strata depths were inferred from disturbed samples augered to the surface and are, therefore, somewhat approximate. Power auger borings are designated by the prefix "B."

Hand auger borings were advanced manually with a 1 1/2" or 3 1/4" diameter auger and were limited to the depth from which the auger could be manually withdrawn. Hand auger borings are indicated by the prefix "H."

BPF: Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments and added to get BPF. Where they differed significantly, they are reported in the following form: 2/12 for the second and third 6" increments, respectively.

WH: WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WR: WR indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

TW indicates thin-walled (undisturbed) tube sample.

Note: All tests were run in general accordance with applicable ASTM standards.

APPENDIX D

Basin Water Quality Volume Calculations

CREATIVE LAWN – CITY OF ROGERS
SITE IMPROVEMENT PROJECT
INFILTRATION WORKSHEET

Requirements:

Infiltration of runoff generated from a 1.1" rainfall over the applicable new impervious surface within 48 hours.

Step 1: Determine areas of impervious surfaces area and effective infiltration area.

Net increase of new impervious surface = 46,500 sf

Effective Infiltration Area = 6,300 sf
Effective Infiltration Area equals infiltration shelf footprint area of 898.5 contour.

Step 2: Calculate water quality volume from increase of impervious surface generated by 1.0" runoff.

46,500 sf Net Increased Impervious Surface Area	x	1.0 Coefficient	x	1.1 inch Rainfall	x	1ft/12inch	=	**4,263 cf** Volume Required to be Treated

Step 3: Calculate volume capacity of being infiltrated on site in 48 hours. Use infiltration rate for Type B soils = 0.45 in/hr.

6,300 sf Effective Infiltration Area	x	0.45 in/hr Infiltration Rate	x	48 hrs	x	1ft/12inch	=	**11,340 cf** Volume Capacity in 48 Hours

Step 4: Compare volume capacity to volume required to be treated.

11,340 cf Volume Capacity in 48 Hours	**>**	**6,305 cf** Volume of Basin Storage	**>**	**4,263 cf** Volume Required to be Treated

Basin storage = 6,305 cf basin volume below outlet invert to top of soil infiltration shelf (see custom stage data)

STAFF REPORT

ROGERS PLANNING COMMISSION

Meeting Date: April 7, 2025

Agenda Item: 7.1

Subject: Past Planning Commission Items Review
Prepared By: Brett Angell, Community Development Director

Recommended Council Action

Overview / Background / Analysis
The Planning Commission last met on February 3rd, 2025 and had two public hearings on the agenda. The paragraphs below summarize the items discussed at the meeting.

Garage Variance - 11520 Park Drive
The Planning Commission reviewed a variance request to allow a rural residential property to add an addition to its existing accessory building that would exceed the size limitations as defined in the code. The Planning Commission recommended approval of the variance request and made a request to the city to consider the authorization to begin a study on whether the accessory building size limitations should be amended. The City Council reviewed this item at the February 25th meeting and voted to approve the variance request. The council authorized staff and the planning commission to review and recommend changes to the accessory building code, if deemed necessary. The property owner is currently undergoing building permit review for the addition.

Rogers Tech Center - Site Plan and Variance
The Commission also reviewed a site plan and variance request related to an approximately 15,000-square-foot small bay industrial development at Church Ave and County Rd 81. The variance was with regard to setbacks from CR81. The Commission unanimously recommended approval of the site plan and variance request. This item was reviewed and subsequently approved by the City Council at the February 25th meeting. Staff anticipate the developer will be closing on the land within the next month and construction should start soon.

Additional Council Items
The information below pertains to items that have come to the council that will also have related items brought before the Planning Commission in the future.

Sign Code and Billboards
The Council is currently discussing the draft sign code. Following the conclusion of these discussions, the draft code will go through its approval process of coming back to the Planning Commission formally for a public hearing and review. The City Council continues to evaluate billboards and their long-term agreements to be in place within the

city.

Little Ceasars
The City of Rogers has entered into an agreement to sell a 1-acre parcel of city-owned property at Northdale Blvd and CR144 to Little Caesars. The proposed development would join KinderCare, Ripple Effect Brewing, and Ray Js American Grill in the development area. Staff anticipate receiving site plan applications in the very near future.

The Block (former Muni) Update
The liquor license for The Block Rogers (former Muni) has been issued. Construction is well underway at this location. The business is currently planning to open to the public on May 19th.

Staff Recommendation
No action required.

Financial Impact: Not applicable. **Source Fund**: Not applicable.

Budgeted? N/A

Supporting Documentation
None