Agenda
Minnetonka City Council
Regular Meeting
Monday, October 26, 2020
6:30 p.m.
WebEx

1. Call to Order
2. Pledge of Allegiance
3. Roll Call: Schaeppi-Coakley-Kirk-Schack-Carter-Calvert-Wiersum
4. Approval of Agenda
5. Approval of Minutes:
   A. September 15, 2020 strategic planning session
6. Special Matters:
   A. Extra Mile Day Proclamation

      Recommendation: Read the proclamation
7. Reports from City Manager & Council Members
8. Citizens Wishing to Discuss Matters Not on the Agenda
9. Bids and Purchases: None
10. Consent Agenda - Items Requiring a Majority Vote:
    A. 2021 general liability insurance and workers' compensation renewals

       Recommendation: Authorize renewal of polices as outlined (4 votes)
    B. Southwest Corridor Investment Framework Cooperative Agreement

       Recommendation: Approve the amendment to the agreement (4 votes)

Due to the COVID-19 health pandemic, the city council's regular meeting place is not available. Pursuant to Minn. Stat. § 13D.021, city council members will participate in the meeting remotely via WebEx. Members of the public who desire to monitor the meeting remotely or to give input or testimony during the meeting can find instructions at https://www.minnetonkamn.gov/government/city-council-mayor/city-council-meetings.

C. Resolution approving the final plat of CARLSON CENTER 18th ADDITION at 801 Carlson Parkway

Recommendation: Adopt the resolution approving the final plat (4 votes)

D. Updated Coronavirus Relief Fund reporting plan

Recommendation: Approve the plan (4 votes)

E. Resolution regarding grant application to Hennepin County for the New Park at Ridgedale

Recommendation: Adopt the resolution (4 votes)

11. Consent Agenda - Items Requiring Five Votes: None

12. Introduction of Ordinances: None

13. Public Hearings:

A. On-sale intoxicating liquor license for Cedar Hills Ribs, Inc., 11032 Cedar Lake Road

Recommendation: Open the public hearing and continue to Nov. 23, 2020 (4 votes)

B. On-sale wine and on-sale 3.2 percent malt beverage liquor licenses for YMCA at The Marsh, LLC., located at 15000 Minnetonka Boulevard

Recommendation: Continue the public hearing from Sept. 21, 2020, and grant the licenses (5 votes)

14. Other Business:

A. Resolution for the Groveland-Bay Improvements Project

Recommendation: Adopt the resolution (4 votes)

B. Resolution authorizing the certification of delinquent utility charges to Hennepin County, and approve writing-off stale uncollectible accounts

Recommendation: Adopt the resolution and approve writing-off (4 votes)

C. Reinstating the utility bill late fees and the termination of water services

Recommendation: Approve the resolution (4 votes)

15. Appointments and Reappointments: None

16. Adjournment

Minutes
City of Minnetonka
City Council Strategic Planning Session
Tuesday, Sept. 15, 2020

Council Present: Deb Calvert, Susan Carter, Kissy Coakley, Brian Kirk, Rebecca Schack, Bradley Schaeppi and Mayor Brad Wiersum

Staff: Geralyn Barone, Corrine Heine, Mike Funk, Julie Wischnack, Scott Boerboom, John Vance, Will Manchester, Darin Nelson, Kelly O'Dea, McKaia Ryberg, Hanna Zinn, Matt Higgins and Jeff Dulac

Wiersum called the meeting to order at 3:30 p.m.

1. Roll call

Councilmembers Deb Calvert, Kissy Coakley, Brian Kirk, Rebecca Schack, Bradley Schaeppi and Mayor Brad Wiersum were present. Councilmember Susan Carter joined the meeting after roll call.

Session facilitator Patrick Ibarra opened the meeting by summarizing the strategic planning process, providing brief information on the discussion topics for the session and outlining materials included in the packet.

2. Finalize vision, mission and guiding principles, and discuss draft strategic priorities

Ibarra led a discussion on finalizing the vision, mission and guiding principles. Councilmembers Calvert and Coakley had prepared a draft of the guiding principles and shared their thoughts on the development of the draft. Councilmembers Kirk and Schaeppi had prepared a draft mission statement for the council to review and discuss.

City Manager Geralyn Barone introduced a conversation on moving the strategic planning process forward. Assistant City Manager Mike Funk presented a framework for the new strategic plan providing context to the council on the next steps in the process. Ibarra facilitated a discussion on the updated strategic priorities and key strategies based on previous council discussions and provided by staff.

Council provided feedback on each of the discussion items above and participated in sharing comments and edits to the guiding principles, vision, mission and updated strategic priorities and key strategies.

Ibarra concluded the session by thanking the council for the opportunity and for their flexibility by completing the sessions in a virtual environment. Council shared their gratitude with the facilitator.

3. Adjournment

The meeting concluded at 6:33 p.m.

Respectfully submitted,

Minutes
City of Minnetonka
City Council Strategic Planning Session
Tuesday, Sept. 15, 2020

McKaia Ryberg
Assistant to the City Manager

City of Minnetonka
Proclamation

Extra Mile Day
November 1, 2020

WHEREAS Minnetonka, Minnesota is a community which acknowledges that a special vibrancy exists within the entire community when its individual citizens collectively “go the extra mile” in personal effort, volunteerism, and service; and

WHEREAS Minnetonka is a community which encourages its citizens to maximize their personal contribution to the community by giving of themselves wholeheartedly and with total effort, commitment, and conviction to their individual ambitions, family, friends, and community; and

WHEREAS Minnetonka is a community which chooses to shine a light on and celebrate individuals and organizations within its community who “go the extra mile” in order to make a difference and lift up fellow members of their community; and

WHEREAS Minnetonka acknowledges the mission of Extra Mile America to create 500 Extra Mile cities in America and is proud to support “Extra Mile Day” on November 1, 2020.

NOW THEREFORE, I, Mayor of Minnetonka, Minnesota, do hereby proclaim November 1, 2020, to be Extra Mile Day. I urge each individual in the community to take time on this day to not only “go the extra mile” in his or her own life, but to also acknowledge all those who are inspirational in their efforts and commitment to make their organizations, families, community, country, or world a better place.

Brad Wiersum, Mayor

Oct. 26, 2020

City Council Agenda Item #10A
Meeting of Oct. 26, 2020

Brief Description: 2021 general liability insurance and workers' compensation renewals

Recommended Action: Authorize renewal of policies as outlined

Background

The city council is being asked to review the proposed insurance package for the city's 2021 policy term, and formally authorize the coverage options for the package policies and workers' compensation policy as outlined by staff.

LMCIT Program

The city has been with the League of Minnesota Cities Insurance Trust (LMCIT) since the early 1980s. The program continues to offer the broadest coverage for municipal operations at very reasonable rates. LMCIT also offers a program for return of excess premiums based on successful experience ratings, and the city continues to receive dividends for the general liability program. Staff recommends that the city remain in the LMCIT program.

Package Policies

The coverage provided by the package policies are:

General Liability, which provides coverage when the city is liable for incidents such as sewer backups, injuries incurred on city property, employee actions, errors and omissions for elected officials, Open Meeting Law, and Inland Marine (coverage for vehicles not licensed for road use, such as the Zamboni).

Property, which provides coverage for physical losses to city-owned facilities. Coverage is purchased for replacement of structures and contents due to damage by fire or acts of nature.

Automobile, which provides liability and physical damage coverage for all city vehicles.

Premiums and Recommended Coverage

Premiums

The city's general liability premium increased from $361,248 to $385,095. The primary factor for the increase was a rise in the city's liability rating. This rating is based on the actual cost of the city's liability claims during a three year period.

Staff recommends continuing with the city's increase of coverage for data breach and crime limits from $250,000 to $500,000 for each. Additional premium costs of $1,800 for data breach and $3,801 for crime limit are included in the overall general liability premium increase listed above.

Staff recommends the city stay with the $25,000 per claim and $150,000 annual deductibles.

Open Meeting Law

Staff recommends that the city continue with the Open Meeting Law coverage at 100% coverage.

Waiver of Statutory Limits
LMCIT writes its coverage to mirror the liability caps for governmental agencies. Staff continues to recommend that the city not waive those statutory limits.

These premiums are paid from the Insurance Fund, and a sufficient balance is maintained in that fund for these expenses.

Workers' Compensation

The premium quotation for renewal of the city's worker's compensation for the upcoming insurance year through LMCIT, minus credits for a $10,000 per occurrence deductible, is $655,925. The 2020 premium was $579,102. This $76,823 increase is due to the annual changes in class code rates and the city's mod factor increasing slightly from 0.72 to 0.73. The increase was lower than it would have been by approximately $63,000 due to realized savings from participating in the LMCIT non-smoking certification program for police and fire employees for the upcoming plan year. The mod factor relates to the frequency and severity of an employer's claims over a three-year period, and it is used to calculate the premium. A mod factor of 1.00 is considered average for an employer's particular industry.

This workers' compensation premium fits within the preliminary 2021 budget allocation.

Recommendation

Staff recommends that the city council renew the city's insurance policies through LMCIT for package policies with the following options:

- $25,000/$150,000 deductible for the package policies
- Continuing with an increased coverage for data breach and crime limits
- 100% Open Meeting law coverage
- No waiver of statutory limits

Staff recommends that the council also authorize renewal of the LMCIT workers' compensation policy with a $10,000 deductible.

Submitted through:
Geralyn Barone, City Manager
Mike Funk, Assistant City Manager
Darin Nelson, Finance Director

Originated by:
Moranda Dammann, Administration Manager

City Council Meeting Agenda Item #10B
Meeting of Oct. 26, 2020

Brief Description Southwest Corridor Investment Framework Cooperative Agreement

Recommendation Approve the amendment to the agreement

Background

On June 23, 2014, the city council accepted the Southwest Corridor Investment Framework related to the Southwest LRT. The Corridor Investment Framework identified a number of infrastructure projects needed at each station area to promote future transit-oriented development and improve connectivity. At the time, funding sources were not yet identified, and projects had not been prioritized for implementation. The full Investment Framework document can be found at this link.

In February 2015, the city council approved a similar Cooperative Agreement with the Hennepin County Housing and Redevelopment Authority (HRA). The cooperative agreement enabled the Hennepin County HRA to fund and/or participate in projects within the city. When the agreement was approved, the funding sources for projects through Southwest Community Works were not yet identified.

On Jan. 23, 2017, the city council entered into a cooperative agreement with Hennepin County to have access to the Southwest Community Works funding. The cooperative agreement expires on Dec. 31, 2020. Staff is recommending that the city council approve an amendment to the cooperative agreement, extending the expiration date to Dec. 31, 2025. The agreement satisfies the statutory requirement for the use of Southwest Community Works funding.

Recommendation

Staff recommends the city council approve the extension of the Cooperative Agreement with Hennepin County for future projects related to the goals of the Corridor Investment Framework and authorize the mayor and city manager to execute the agreement, including subsequent non-material changes as approved by the city manager and community development director in a form acceptable to the city attorney.

Submitted through:
Geralyn Barone, City Manager
Corrine Heine, City Attorney
Julie Wischnack, AICP, Community Development Director

Originated by:
Alisha Gray, Economic Development and Housing Manager

Attachments:
- Cooperative Agreement between Hennepin County and City of Minnetonka
- Amendment to Cooperative Agreement between Hennepin County and City of Minnetonka

Hennepin County Contract No. A166831

COOPERATIVE AGREEMENT BETWEEN HENNEPIN COUNTY AND CITY OF MINNETONKA

This Agreement is between the County of Hennepin, State of Minnesota ("COUNTY"), 300 South Sixth Street, A2300, Minneapolis, MN 55487, and the City of Minnetonka ("CITY"), 14600 Minnetonka Blvd., Minnetonka, MN 55345.

WHEREAS, COUNTY and CITY have each provided municipal approval for the Green Line Extension Project ("Green Line Extension") pursuant to state law; and

WHEREAS, COUNTY and CITY have each approved the Southwest Corridor Investment Framework ("Framework") dated December 2013 through respective resolutions Hennepin County Resolution 14-0490, and acceptance by the CITY on June 23, 2014; and

WHEREAS, the COUNTY and CITY agree that there are financial and strategic benefits of working together to further the goals of the Green Line Extension and the Framework ("Goals") and wish to document that understanding in a cooperative agreement; and

WHEREAS, COUNTY and CITY plan to develop one or more projects ("Project or Projects") to further the Goals; and

WHEREAS, a cooperative agreement and future Projects fit within the criteria of a multijurisdictional reinvestment program authorized under Minnesota Statutes §383B.79; and

WHEREAS, COUNTY and CITY have the authority to participate in a cooperative agreement and Project pursuant to Minnesota Statutes §§383B.79 and 471.59 and other applicable law.

THEREFORE, the parties agree as follows:

1. Furtherance of Goals. Pursuant to Minnesota Statutes, Section 383B.79, COUNTY and CITY enter into this cooperative agreement, and agree to work with each other to further the goals of the Green Line Extension and the Framework by attempting to develop one or more Projects subject to the following requirements:

   a. That the CITY retains its jurisdiction over all issues of local concern relating to zoning, land usage, building code requirements and compliance with all applicable city codes and ordinances.

   b. That the full faith and credit of the CITY will not be pledged as a source of payment or repayment of said Project financial obligations owed by Hennepin County.

This agreement shall commence on January 1, 2017 and expire on December 31, 2020.

2. Merger and Modification.

a. The entire Agreement between the parties is contained in this Agreement and supersedes all oral agreements between the parties relating to the subject matter. All items that are referenced or that are attached are incorporated and made a part of this Agreement. If there is any conflict between the terms of this Agreement and referenced or attached items, the terms of this Agreement shall prevail.

b. Any alterations, variations, modifications, or waivers of provisions of this Agreement shall only be valid when they have been reduced to writing as an amendment to this Agreement and signed by the parties.

3. Notices. Any notice or demand which must be given or made by a party under this Agreement or any statute or ordinance shall be in writing, and shall be sent registered or certified mail. Notices to the COUNTY shall be sent to the County Administrator at the address stated in the opening paragraph of the Agreement. Notice to the CITY shall be sent to the address stated in the opening paragraph of the Agreement.

4. Audits. The books, records, documents, and accounting procedures and practices of the each party relevant to this agreement are subject to examination by the any party and either Legislative Auditor or the State Auditor for a period of six years after the effective date of this Agreement.

5. Termination. This Agreement terminates when the Projects, and the funding therefor, have been completed.

COUNTY BOARD AUTHORIZATION

CONTRACTOR, having signed this amendment, and the COUNTY having duly approved this amendment on the 24 day of Jan, 2017, and pursuant to such approval, the proper County officials having signed this amendment, the parties hereto agree to be bound by the provision herein set forth.

Reviewed by the County Attorney's Office

Date: 5/9/17

COUNTY OF HENNEPIN
STATE OF MINNESOTA

By: _____
Chair of Its County Board

ATTEST: _____
Deputy/Clerk of County Board
Date: 5.31.17

And: _____
County Administrator
Date: 5/23/17

By: _____
Assistant County Administrator – Public Works
Date: 5/23/17

Recommended for Approval:

_____
Department Director, Community Works
Date: 4/24/17

CITY OF MINNETONKA
By: _____
Its: City Manager
Date: 3-16-17

City Department Review:

_____
Its: Community Development Director
Date: _____

Approved as to form:

_____
City Attorney
Date: 3-17-17

Contract No. A166831

AMENDMENT TO
COOPERATIVE AGREEMENT
BETWEEN HENNEPIN COUNTY AND CITY OF MINNETONKA

THIS AMENDMENT made and entered into by and between the County of Hennepin, State of Minnesota ("COUNTY"), 300 South Sixth Street, Minneapolis, MN 55487, and the City of Minnetonka ("CITY"), 14600 Minnetonka Blvd., Minnetonka, MN 55435.

W I T N E S S E T H:

WHEREAS, the parties wish to amend Contract No. A166831 in order to extend the term.

NOW, THEREFORE, in consideration of the foregoing, the parties agree to amend the Agreement as follows:

1. The last sentence of Section 1 is deleted and replaced with the following:

   "This agreement shall commence on January 1, 2017 and expire on December 31, 2025."

This Amendment shall be effective as of January 1, 2021. Except as herein amended, the terms, conditions and provisions of said Contract No. A166831 shall remain in full force and effect.

REMAINDER OF PAGE INTENTIONALLY BLANK

CITY, having signed this Amendment, and the Hennepin County Board of Commissioners having duly approved this Amendment on _____, 2020, and pursuant to such approval the proper County officials having signed this Amendment, the parties hereto agree to be bound by the provisions herein set forth.

COUNTY OF HENNEPIN
STATE OF MINNESOTA

Reviewed by the County Attorney's Office

_____

Date: _____

By: _____
Chair of Its County Board

ATTEST: _____
Deputy/Clerk of County Board
Date: _____

By: _____
County Administrator
Date: _____

Recommended for Approval:

_____
Chief Housing and Economic Development Officer
Date: _____

CITY OF MINNETONKA

By_____
Its: City Manager

Date: _____

City Department Review:

_____
Its: Community Development Director
Date: _____

Approved as to form:

_____
City Attorney

Date: _____

City Council Agenda Item #10C
Meeting of Oct. 26, 2020

Brief Description	Resolution approving the final plat of CARLSON CENTER 18th ADDITION at 801 Carlson Parkway
Recommendation	Adopt the resolution approving the final plat

Proposal

On June 8, 2020, the city council approved the preliminary plat of the property at 801 Carlson Parkway. The plat would allow for future separate lands uses– multi-family residential and hotel – to be located on separate lots. United Properties Development LLC is now requesting approval of the final plat.

Staff Comment

Approval of the final plat is reasonable as:

1. The submitted final plat is substantially consistent with the previously approved preliminary plat.

2. The applicant has submitted the required legal documents. Staff will review these items and provide feedback to the applicant as needed.

Staff Recommendation

Staff recommends the council adopt the resolution approving the final plat of CARLSON CENTER 18th ADDITION.

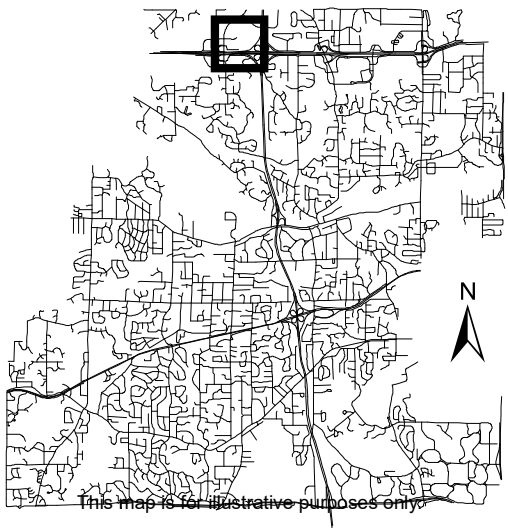
Submitted through:
Geralyn Barone, City Manager
Julie Wischnack, AICP, Community Development Director
Loren Gordon, AICP, City Planner

Originated by:
Susan Thomas, AICP, Assistant City Planner

CITY OF MINNETONKA

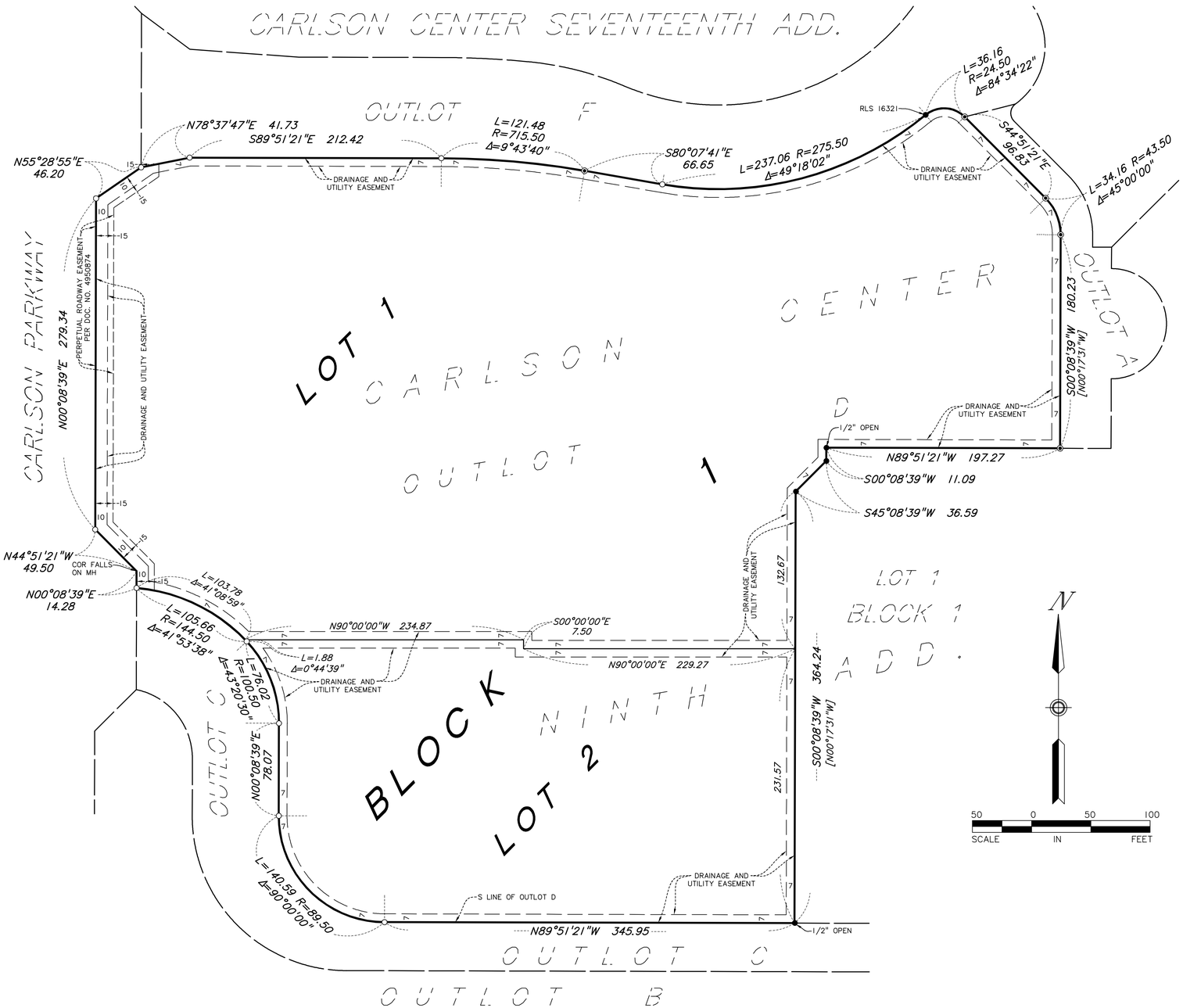
Location Map

Project: The Pointe
Address: 801 Carlson Pkwy



CARLSON CENTER EIGHTEENTH ADDITION

C.R. DOC. NO._____



- ○ Denotes iron monument set marked with P.L.S. No. 44890
- ● Denotes found iron monument marked with R.L.S. 13637, unless otherwise noted
- ◉ Denotes brass marker stamped with LS–44890 set

FOR THE PURPOSES OF THIS PLAT THE SOUTH LINE OF OUTLOT D, CARLSON CENTER NINTH ADDITION IS ASSUMED TO BEAR N89°51'21"W

KNOW ALL PERSONS BY THESE PRESENTS: That The Pointe of Minnetonka LLC, owner of the following described property:

Outlot D, CARLSON CENTER NINTH ADDITION, Hennepin County, Minnesota.

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

In witness whereof said The Pointe of Minnetonka LLC, has caused these presents to be signed by its proper officers this _____ day of _____, 20___.

Signed: The Pointe of Minnetonka LLC

_____, its Vice President
Richard F. McKelvey

Signed: The Pointe of Minnetonka LLC

_____, its Chief Manager
William P. Katter

STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 20___, by Richard F. McKelvey and William P. Katter, the officers of The Pointe of Minnetonka LLC, on behalf of said company and partnership.

_____
Notary Public, _____ County, _____
My Commission Expires _____

I, Leonard F. Carlson, do hereby certify that this plat was prepared by me or under my direct supervision; that I am a duly Licensed Land Surveyor in the State of Minnesota; that this plat is a correct representation of the boundary survey; that all mathematical data and labels are correctly designated on this plat; that all monuments depicted on this plat have been or will be correctly set within one year; that all water boundaries and wet lands as defined in Minnesota Statutes, Section 505.01, Subd. 3, as of the date of this certificate are shown and labeled on this plat; and all public ways are shown and labeled on this plat.

Dated this _____ day of _____, 20___.

_____
Leonard F. Carlson, Licensed Land Surveyor
Minnesota License No. 44890

STATE OF MINNESOTA
COUNTY OF HENNEPIN

This instrument was acknowledged before me this _____ day of _____, 20___, by Leonard F. Carlson.

_____
Notary Public, _____ County, Minnesota
My Commission Expires _____

MINNETONKA, MINNESOTA

This plat of CARLSON CENTER EIGHTEENTH ADDITION was approved and accepted by the City Council of Minnetonka, Minnesota, at a regular meeting thereof held this _____ day of _____ 20__, and said plat is in compliance with the provisions of Minnesota Statutes, Section 505.03, Subd. 2.

CITY COUNCIL OF MINNETONKA, MINNESOTA

By: _____, Mayor

By: _____, Clerk

RESIDENT AND REAL ESTATE SERVICES, Hennepin County, Minnesota

I hereby certify that taxes payable in 20___ and prior years have been paid for land described on this plat.

Dated this _____ day of _____, 20___.

Mark V. Chapin, County Auditor By: _____ Deputy

SURVEY DIVISION, Hennepin County, Minnesota

Pursuant to Minnesota Statutes, Sec. 383B.565 (1969), this plat has been approved this _____ day of _____, 20___.

Chris F. Mavis, County Surveyor By: _____

COUNTY RECORDER, Hennepin County, Minnesota

I hereby certify that the within plat of CARLSON CENTER EIGHTEENTH ADDITION was recorded in this office this _____ day of _____, 20___ at _____ o'clock __.M.

Martin McCormick, County Recorder By: _____ Deputy

PRELIMINARY
Date: 09/11/2020

SUNDE LAND SURVEYING

Resolution No. 2020-048

Resolution approving a preliminary plat of the property at 801 Carlson Parkway

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Be it resolved by the City Council of the City of Minnetonka, Minnesota, as follows:

Section 1. Background.

1.01 United Properties Development LLC requested approval of a preliminary plat of the property at 801 Carlson Parkway. The plat would allow for separate lands uses – multi-family residential and hotel – to be located on separate lots.

1.02 The property is legally described as:

OUTLOT D, CARLSON CENTER NINTH ADDITION

1.03 On May 21, 2020, the planning commission held a hearing on the proposed plat. The applicant was provided the opportunity to present information to the commission. The commission considered all of the comments received and the staff report, which are incorporated by reference into this resolution. The commission recommended that the city council grant preliminary plat approval.

Section 2. General Standards.

2.01 City Code §400.030 outlines general design requirements for residential subdivisions. These standards are incorporated by reference into this resolution.

Section 3. Findings.

3.01 The proposed preliminary plat meets the design requirements as outlined in City Code §400.030.

Section 4. Council Action.

4.01 The above-described preliminary plat is hereby approved, subject to the following conditions:

1. Final plat approval is required. A final plat will not be placed on a city council agenda until a complete final plat application is received.

    a) The following must be submitted for a final plat application to be considered complete:

        1) A final plat drawing that clearly illustrates the following:

            1. A minimum 10-foot wide drainage and utility easements adjacent to the public right-of-way and minimum 7-foot wide drainage and utility easements along all other lot lines.

            2. Utility easements over existing or proposed public utilities, as determined by the city engineer.

        2) Documents for the city attorney's review and approval. These documents must be prepared by an attorney knowledgeable in the area of real estate.

            1. Title evidence that is current within thirty days before the release of the final plat.

            2. Private utility easements over proposed watermain, sanitary sewer, and stormsewer lines and facilities.

            3. A common access easement between individual lots.

2. Prior to final plat approval:

    a) This resolution must be recorded with Hennepin County.

    b) The documents outlined in section 4.01(1)(a)(2) above must be approved by the city attorney.

3. Prior to the release of the final plat for recording, submit the following:

    a) Two sets of mylars for city signatures.

    b) An electronic CAD file of the plat in microstation or DXF.

4. This approval will be void on June 8, 2021, if: (1) a final plat has not been approved; and (2) the city council has not received and approved a written application for a time extension.

Adopted by the City Council of the City of Minnetonka, Minnesota, on June 8, 2020.

DocuSigned by:
21AA42DB33F7415...
Brad Wiersum, Mayor

Attest:

DocuSigned by:
C8FF609054C54E1...
Becky Koosman, City Clerk

Action on this resolution:

Motion for adoption: Kirk
Seconded by: Coakley
Voted in favor of: Carter, Calvert, Schaeppi, Coakley, Kirk, Schack, Wiersum
Voted against:
Abstained:
Absent:
Resolution adopted.

I hereby certify that the foregoing is a true and correct copy of a resolution adopted by the City Council of the City of Minnetonka, Minnesota, at a duly authorized meeting held on June 8, 2020.

Becky Koosman, City Clerk

Resolution No. 2020-

Resolution approving the final plat of CARLSON CENTER 18th ADDITION at 801 Carlson Parkway

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Be it resolved by the City Council of the City of Minnetonka, Minnesota, as follows:

Section 1. Background.

1.01 The subject property is located at 801 Carlson Parkway. It is legally described as:

OUTLOT D, CARLSON CENTER NINTH ADDITION

1.02 On June 8, 2020, the city council adopted Resolution 2020-048, approving a preliminary plat dividing the subject property into two lots. The plat would allow for separate lands uses – multi-family residential and hotel – to be located on separate lots.

1.03 United Properties Development LLC has now requested approval of the final plat of CARLSON CENTER 18th ADDITION.

Section 2. Findings

2.01 The final plat meets the requirements and standards outlined in the Subdivision Ordinance, City Code §400.

2.02 The final plat is consistent with the previously approved preliminary plat.

Section 3. Council Action.

3.01 The city council approves the final plat of CARLSON CENTER 18th ADDITION. Approval is subject to the following conditions:

1. All conditions of Resolution No. 2020-048 related to the release of the final plat must be completed. In addition, submit the following:

    a) Revised final plat drawing. The drawing must clearly illustrate:

        1) A minimum 10-foot wide drainage and utility easement adjacent to the public right-of-way and minimum 7-foot

wide drainage and utility easements along all other lot lines.

2) Existing public right-of-way as per Doc 4950874. The new platted 10-foot drainage and utility easement adjacent to the road must be dedicated adjacent to this right-of-way.

3) All existing public easements.

4) An easement legend.

b) Documents for the city attorney's review and approval. These documents must be prepared by an attorney knowledgeable in the area of real estate.

1) Title evidence that is current within thirty days before the release of the final plat.

2) Amendments to the master declaration executed by all pertinent parties.

c) Two sets of mylars for city signatures.

d) An electronic CAD file of the plat in microstation or DXF.

2. This approval will be void on Oct. 26, 2021, if: (1) a final plat has not been recorded; and (2) the city council has not received and approved a written application for a time extension.

Adopted by the City Council of the City of Minnetonka, Minnesota, on Oct. 26, 2020.

_____
Brad Wiersum, Mayor

Attest:

_____
Becky Koosman, City Clerk

Action on this resolution:

Motion for adoption:
Seconded by:
Voted in favor of:
Voted against:
Abstained:

Absent:
Resolution adopted.

I hereby certify that the foregoing is a true and correct copy of a resolution adopted by the City Council of the City of Minnetonka, Minnesota, at a duly authorized meeting held on Oct. 26, 2020.

_____
Becky Koosman, City Clerk

City Council Agenda Item #10D
Meeting of Oct. 26, 2020

Brief Description: Updated Coronavirus Relief Fund reporting plan

Recommended Action: Approve the plan

Background

The city was allotted $4,046,751 of federal Coronavirus Relief Aid (CRF) dollars back in July of this year. To date, the city has allocated this allotment to various COVID-19 mitigation objectives such as HVAC upgrades, personal protective equipment, technology investments related to teleworking and virtual public meetings, residential rental assistance, business continuity grants, and personnel expenditures.

These mitigation objectives have been developed under the guidance of the U.S. Treasury, which is responsible for administering the CRF. Given the newness of the grant and its limited restrictions, the U.S. Treasury has been issuing regular amendments to its guidance. The most recent guidance issued on Sept. 21, 2020, clarified ambiguity related to public safety expenditures.

The revised guidance stipulates governments **will not** have to demonstrate or substantiate that a public safety employee's duties are substantially dedicated to mitigating the emergency. The Treasury's FAQ also adds that the entire payroll cost of an employee whose time is substantially dedicated to mitigating or responding to the COVID-19 public health emergency is eligible, provided that such payroll costs are incurred by Dec. 30, 2020, or in the city's case Nov. 15, 2020.

In essence, the guidance allows the city to report its costs related to public safety personnel as allowable CRF expenditures. There are benefits to reporting CRF dollars as public safety personnel expenditures. First, the city's CRF dollars would be fully spent and accounted for within one category, which simplifies the accounting, state reporting and ensures federal audit compliance requirements are met. For instance, the city's business subsidy grants have qualifications and reporting guidelines imposed by the city, but those guidelines may not be identical to federal sub-recipient monitoring guidelines that would be applicable if the city reported the use of CRF for this program.

Second, Minnesota Management and Budget (MMB) is the state pass-through agency for the city's CRF dollars. In addition to the federal guidelines, MMB has imposed a Nov. 15, 2020 deadline to spend our CRF allotment with two exceptions. Those exceptions include allowing personnel expenditures incurred before Nov. 15 but paid at a later date, and delayed expenditures directly related to supply chain issues. The city's HVAC replacement and upgrade project is scheduled for completion by Nov. 15. Still, given the tight turnaround on this project, any delay in contracting may prove problematic in reporting allowable expenditures.

This same argument applies to unemployment invoices for the second and third quarters of 2020. The state unemployment division is experiencing problems issuing invoices due to the volume of claims and fraud concerns prevalent early on in the pandemic. We have been

assured that accurate invoices will be available in the next couple weeks, but with only three weeks remaining before the Nov. 15 deadline, there is no guarantee that will occur.

By reporting the city's CRF dollars as already incurred public safety expenditures, it ensures the city will be able to retain the full CRF allotment and will not be restricted by imposed deadlines.

This update is strictly a reporting modification due to federal clarification of eligible public safety personnel costs. This reporting modification does not affect the plans and programs approved and implemented to date. The only difference would be that the CRF dollars would be fully recognized and reported as revenue within the General fund. Subsequent transfers will then be made to the appropriate funds supporting COVID-19 related expenditures and programs. In essence, funds outside the General fund will still be reimbursed for its COVID-19 related expenditures via transfers from the General fund, rather than direct CRF funding to these individual funds.

Recommendation

Approve the updated CRF reporting plan.

Submitted through:
Geralyn Barone, City Manager
Corrine Heine, City Attorney

Originated by:
Darin Nelson, Finance Director

City Council Agenda Item #10E
Meeting of Oct. 26, 2020

Brief Description: Resolution regarding grant application to Hennepin County for the New Park at Ridgedale

Recommended Action: Adopt the resolution

Background

Since 2009, Hennepin County has allocated funding to local government units (LGU), which include municipalities and school districts, to work with non-profit community partners to improve youth sports, athletic fields, and recreational amenities. Funding is available from the .15% sales tax surcharge instituted when Target Field was constructed, and made available through the Hennepin County Youth Sports Grant (HCYSG) program.

Grants can be requested in three categories that include Equipment Grants (up to $10,000), Facility Grants ($10,000 to $300,000) and Playground Grants (up to $125,000). Hennepin County has commissioned the Minnesota Amateur Sports Commission (MASC) to administer the grant program. More information on the program can be found at https://www.mnsports.org/hennepin-county-youth-sports-grant/

The deadline to apply for 2020 requests for facility grants is November 2, 2020. Facility grant applications must include a resolution in support of the project from an LGU. The City of Minnetonka is the owner of the project and serves as the LGU for this grant request. The request is to help fund the construction of a signature new community park in the Ridgedale area of Minnetonka. More information regarding the new park at Ridgedale can be found at the project webpage: https://www.minnetonkamn.gov/services/construction-projects/park-and-trail-projects/new-park-at-ridgedale-center The estimated project budget is $5,855,000, of which $300,000 is being requested from the HCYSG program.

Recommendation

Staff recommends adoption of the resolution regarding the grant request to Hennepin County for the New Park at Ridgedale project.

Submitted through:
Geralyn Barone, City Manager
Corrine Heine, City Attorney
Darin Nelson, Director of Finance

Originated by:
Kelly O'Dea, Recreation Services Director

RESOLUTION NO. 2020-

Resolution regarding grant application to Hennepin County for the New Park at Ridgedale,

Be it resolved by the City Council of the City of Minnetonka, Minnesota as follows:

Section 1. Background

1.01 Hennepin County, via its Youth Sports Grant Program, provides for capital funds to assist local government units of Hennepin County for the development of sport or recreation facilities.

1.02 The City of Minnetonka (hereinafter LGU) desires to develop a new signature community park in the Ridgedale area (hereinafter PROJECT) for the purpose of providing outdoor recreational experiences for all ages. The project has been in the LGU's Capital Improvement Program since 2018.

Section 2. Council Action

2.01 The estimate of the total cost of developing the PROJECT is $5,855,000. LGU is requesting $300,000 from the Hennepin County Legacy Grant program and will assume responsibility for a matching funds requirement.

2.02 LGU agrees to own, assume one hundred (100) percent of operation costs for PROJECT, and will operate PROJECT for its intended purpose for the functional life of the facility, which is anticipated to be in perpetuity.

2.03 LGU agrees to enter into necessary and required agreements with Hennepin County for the specific purpose of constructing a sport or recreational facility and long-term program direction.

2.04 The city manager is authorized and directed to execute said application on behalf of the LGU. The director of the LGU's Recreation Services Department is authorized and directed to serve as official liaison with Hennepin County or its authorized representative, with respect to the grant application and grant.

Adopted by the City Council of the City of Minnetonka, Minnesota, on October 26, 2020.

_____

Brad Wiersum, Mayor

ATTEST:

_____

Becky Koosman, City Clerk

ACTION ON THIS RESOLUTION:

Motion for adoption:

Seconded by:

Voted in favor of:

Voted against:

Abstained:

Absent:

Resolution adopted.

I hereby certify that the foregoing is a true and correct copy of a resolution adopted by the City Council of the City of Minnetonka, Minnesota, at a duly authorized meeting held on October 26, 2020.

_____

Becky Koosman, City Clerk

City Council Agenda Item #13A
Meeting of Oct. 26, 2020

Brief Description	On-sale intoxicating liquor license for Cedar Hills Ribs, Inc., 11032 Cedar Lake Road
Recommendation	Open the public hearing and continue to Nov. 23, 2020

Background

Cedar Hills Ribs, Inc, owns Lone Spur Grill and Bar at 11032 Cedar Lake Road. Cedar Hills Ribs, Inc., ownership is between Mark Ravich, Cheryl Ravich, David Segal, Andrea Fernston, and Caron Klein. There has been a change in the ownership structure, which requires a new liquor license to be issued for Lone Spur. In September, the ownership group sold all their shares to the current General Manager, Mohammed Ali Mishkee, making him the sole owner of Cedar Hills Ribs, Inc. The current ownership group is operating under a signed management agreement with Mr. Mishkee until a new license has been approved.

Business Ownership

Mr. Mishkee has been the general manager of Lone Spur Grill and Bar since 1994. The restaurant currently employs 30 plus employees. Mr. Mishkee will continue in his role as general manager for the restaurant. There are no plans to change the day-to-day operations of the restaurant. The restaurant is currently open Monday through Friday from 2:00 p.m. to 10:00 p.m. and Saturday and Sunday from 11:00 a.m. to 10:00 p.m.

Business Operations

The change in ownership necessitates the need for a new liquor license. While all other operational aspects of the existing restaurant will remain the same, staff will be retrained in current food safety and alcohol awareness training guidelines.

Application Information

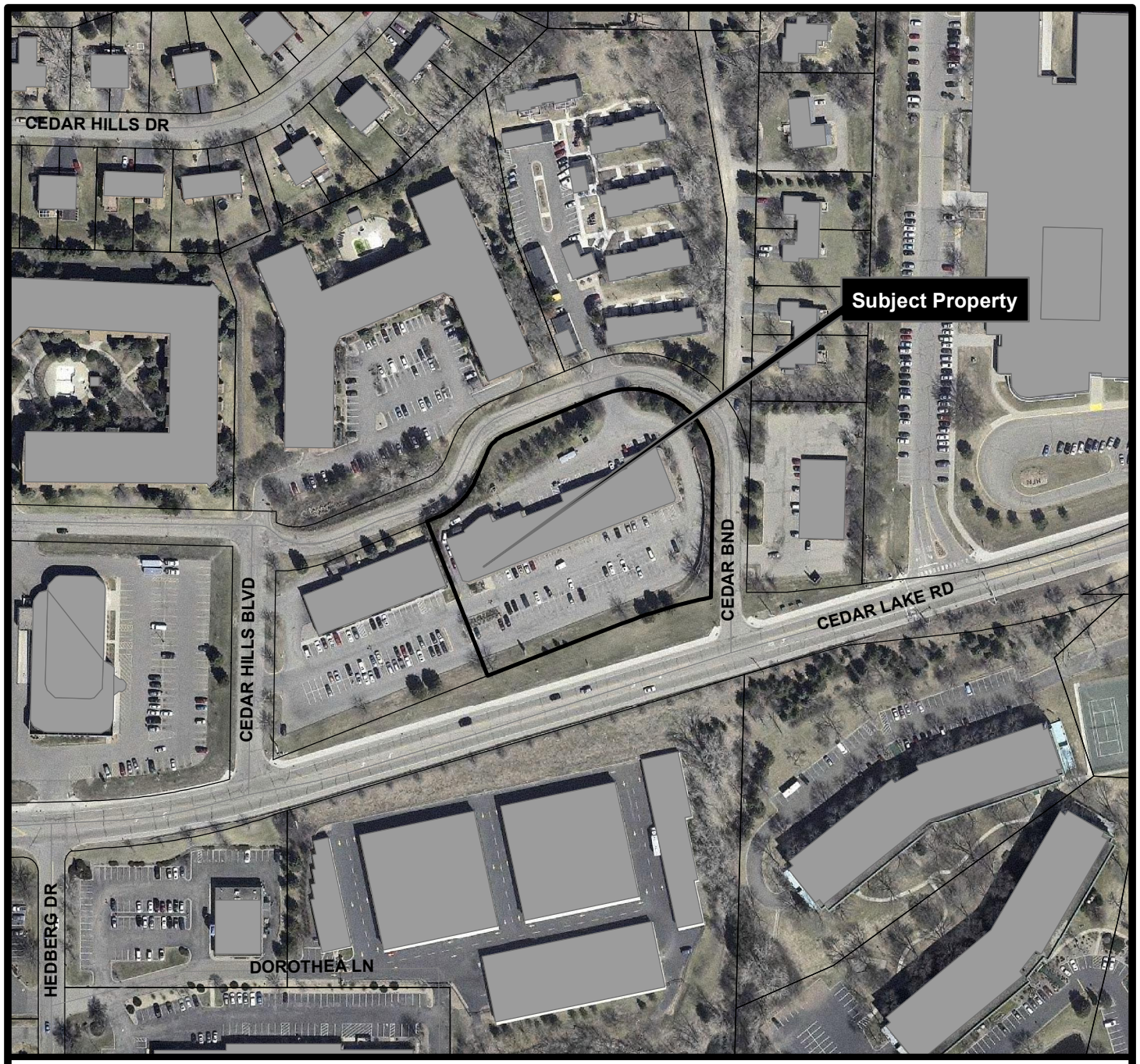
Application information and fees have been submitted. The police department's investigative report on this application is pending and will be forwarded to the council prior to the Nov. 23, 2020, continued public hearing.

Recommendation

Staff recommends the city council open the public hearing and continue the hearing to Nov. 23, 2020.

Submitted through:
Geralyn Barone, City Manager
Julie Wischnack, AICP, Community Development Director

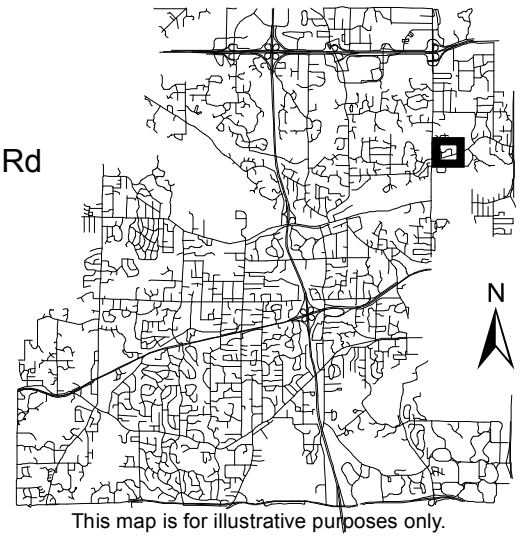
Originated by:
Fiona Golden, Community Development Coordinator



LOCATION MAP

Lone Spur Grill and Bar - 11032 Cedar Lake Rd

CITY OF MINNETONKA



This map is for illustrative purposes only.

Lone Spur Grill and Bar

11032 Cedar Lake Road • Minnetonka, Minnesota • 55305
(952) 540-0181 • Fax (952) 546-5211

October 5, 2020

City of Minnetonka
Members of the City Council

I would like to take this opportunity to introduce myself, Mohammed Ali Mishkee as the new owner of Lone Spur Grill & Bar. I have been the general manager since 1994.

Lone Spur has been in business since 1988 and has been an integral part of the City of Minnetonka. We would very much like to continue that tradition.

The last seven months has been very difficult for Lone Spur and all restaurants and bars. I have faith that conditions will improve and we will be able to save the jobs of 30 plus employees. I truly believe the staff and myself can weather the storm and we shall continue to serve great food with great service at a reasonable price. We hope to continue to be an asset to the city of Minnetonka.

We intend to follow all CDC and Minnesota Health department's guidelines to make sure we provide a safe environment for the patrons and employees. Employees will be retrained in all aspects of safe alcohol and food service.

We hope the city of Minnetonka will grant us the liquor license so we could continue staying in business

Thanking You,

Mohammed Ali Mishkee

City Council Agenda Item #13B
Meeting of Oct. 26, 2020

Brief Description	On-sale wine and on-sale 3.2 percent malt beverage liquor licenses for YMCA at The Marsh, LLC., located at 15000 Minnetonka Boulevard
Recommendation	Continue the public hearing from Sept. 21, 2020, and grant the licenses

Background

The city has received applications from YMCA at The Marsh, LLC. for an on-sale wine and an on-sale 3.2 percent malt beverage liquor license for use at the restaurant located at The Marsh, 15000 Minnetonka Blvd. YMCA at The Marsh, LLC., is applying for new liquor licenses to operate at the current location due to the previous owner of The Marsh, Ruth Stricker, passing away in April 2020. Ms. Stricker's estate donated the facility to the YMCA of the Greater Twin Cities dba YMCA of the North. The Marsh is currently operating under a management agreement with the YMCA of The Marsh, LLC., until the new liquor license can be reviewed. The change in ownership necessitates the need for a new liquor license. All other operational aspects of the existing restaurant will remain the same.

The Marsh facility first opened in 1985 as a 30,000 sq. ft. wellness center owned and operated by Ms. Stricker. In 1993, the center more than doubled its size to incorporate a training center, therapy pools, a spa, six-overnight guest rooms, and a full-service restaurant. The property donation of The Marsh to the YMCA of the Greater Twin Cities was finalized in August 2020.

The Marsh recently re-opened on Aug. 17, 2020, after being closed due to the COVID-19 pandemic. During phase 1 of the restaurant re-opening, the hours of operation are Monday – Friday 8:00 a.m. – 6:00 p.m. and Saturday 8:00 a.m. – 2:00 p.m. The restaurant is closed on Sundays. The Marsh currently has ten staff members working each shift.

Business Ownership

YMCA at The Marsh, LLC. is a wholly-owned subsidiary of Young Men's Christian Association of the Greater Twin Cities dba YMCA of the North, a Minnesota nonprofit corporation. No individual has any ownership interest or control over YMCA at The Marsh, LLC. The sole corporate officers of YMCA of the North are Glen Gunderson, President and CEO, and Karen Larson, Treasurer. They have general oversight and management responsibilities over the YMCA of the North's more than 25 locations and other operations. Michael Kielkucki will continue to serve as the Restaurant Services Director. Michael will oversee the service of alcohol and the Marsh's compliance with its liquor licensing obligations. He has been a proctor to teach Alcohol Server Awareness training classes for past businesses. Michael currently lives in Minnetonka, thus meeting the city's liquor ordinance's metro-area residency requirements.

Applicant Information

Application information and license fees have been submitted. The police department's investigative report is complete and will be forwarded to the council prior to the continued public hearing. Staff has no concerns with the applicants.

Neighborhood Feedback

The city has not received any comments from residents regarding the proposed liquor license.

Recommendation

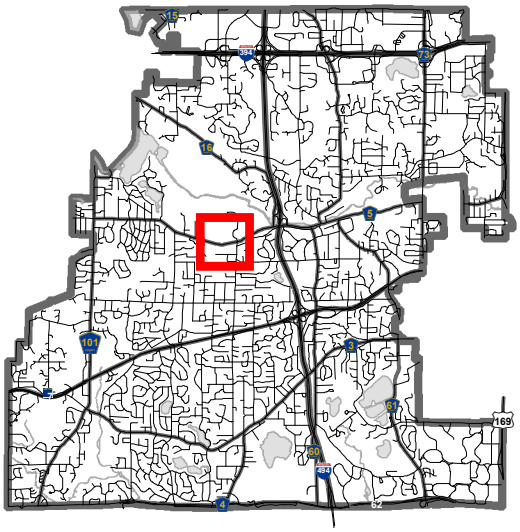
Staff recommends that the city council continue the public hearing from Sept. 21, 2020, and grant the licenses.

Submitted through:
Geralyn Barone, City Manager
Julie Wischnack, AICP, Community Development Director

Originated by:
Fiona Golden, Community Development Coordinator

Location Map

Project: YMCA at The Marsh, LLC
Address: 15000 Minnetonka Blvd



CITY OF MINNETONKA

The Marsh Opens August 17th

Dear Marsh Members,

We are happy to announce that Ruth's decision to gift The Marsh to the YMCA of the North is now complete. It was Ruth's desire that her commitment to expand wellbeing programs and services for **all** in our community would continue to grow and reach even more people locally, nationally and globally. The Y's complementary mission of serving all and its commitment to total health and wellbeing including resiliency of the human spirit allows Ruth's vision to live on.

Learning to live a resilient life that is not just physically "healthy" but also mentally, socially and emotionally well is the guiding principle of both the Marsh and the Y. Both organizations believe wellbeing practices should be integrated into care - not just health care, but community care and it should be accessible to all. We look forward to all of us collaborating together to continue Ruth's incredible legacy today and into the future.

We are also excited to announce that The Marsh is ready to welcome you on Monday, August 17. Our staff has been busy getting ready for you to come back and get reenergized with your workout and wellness activities. Please see hours below and on the website:

Building Hours
Monday - Friday 6:00 a.m. - 7:00 p.m. and Saturday 7:00 a.m. - 3:00 p.m.

The Restaurant
Monday - Friday 7:00 a.m. - 6:00 p.m. and Saturday 7:00 a.m. - 2:00 p.m.

The Spa
Monday - Friday 9:00 a.m. - 7:00 p.m. and Saturday: 9:00 a.m. - 5:00 p.m.

The Marsh is closed on Sunday.

AT A GLANCE…

Opening Monday:
- The Spa
- East and West Studios
- Training Center
- Pilates Studio
- Lap and Therapy Pools
- Japanese Therapy Pool
- Locker Rooms and Showers (please note: no towel service or personal amenities, yet)
- The Restaurant, already in operation for takeout and front patio seating, expands outdoor service to the decks and also introduces new menus

Opening on a Date to be Determined:
- Whirlpools, saunas and steam rooms
- The Great Room in the Spa
- Meditation Tower and Mental Gym
- Overnight guest rooms and event/meeting rooms

Please Prepare To Bring Your Own…
Towels, water bottles (water refill stations are open), yoga mat and grooming essentials

The Marsh Restaurant

fresh, whole ingredients; simple, delicious preparations

Breakfast

#1 one egg 6
egg any style with toast, choice of fresh fruit or grilled tomato & sautéed spinach

#2 two eggs 8
eggs any style with toast, choice of fresh fruit or sautéed spinach

#3 two eggs 10
eggs any style with toast, breakfast potatoes or hash browns, choice of fresh fruit or sautéed spinach

breakfast sandwich 8
one egg, bacon and cheddar cheese on whole wheat English muffin,
served with a side of hash browns or breakfast potatoes

breakfast wrap 7
scrambbled eggs, onions, peppers, bacon, black beans and shredded cheese in a tortilla wrap

steel-cut oatmeal cup 5/bowl 6.5
served with raisins, walnuts and skim milk

multigrain pancakes 9
stack of three pancakes, served with maple syrup and fresh fruit

Sides

one egg 2
applewood smoked bacon 5
hash browns 4
fresh fruit cup 4 ... bowl 5
sautéed spinach 4
english muffin 2
toast, per piece 1.5

Frank Streibel's the Marsh™
A Center for Balance and Fitness

Menu

Soups & Starters

marsh chicken veggie soup cup 6... bowl 7 GF

soup du jour cup 6... bowl 7

chili cup 6... bowl 7

hummus plate 12 GF *sub gf crackers*
assorted dipping vegetables, naan bread, lemon basil hummus, drizzle of olive oil

crab stuffed avocado* 10 GF
halved avocados stuffed with house-made crab salad

roasted brussel sprouts & butternut squash
pomegranate seeds, lemon, pecans 10

wild rice meatballs 12
beef and pork, Minnesota wild rice, onion sour cream, lingonberry sauce

smoked salmon plate* 12 GF *no bread*
caper cream cheese, red onion, baguette slices

Salads *add to any salad: chicken...6, salmon...8, avocado...1*

marsh salad 11 GF *no croutons* / DF *no cheese*
field greens, tomatoes, carrot, cucumber, croutons, shaved parmesan, house-made marsh dressing

caesar salad 12 GF *no croutons*
romaine letuce, tomatoes, shaved parmesan, croutons, caesar dressing

fall harvest salad 13 GF / DF *no cheese*
mixed greens, dried cranberries, green apples, candied walnuts, blue cheese crumbles, maple cider vinaigrette

cobb salad* 15 GF / DF *no cheese*
ham, turkey, bacon, tomatoes, hard boiled egg, carrots, cucumber, blue cheese, house made ranch dressing

Flatbreads *make GF with cauliflower crust... 2*

margherita 12
fresh mozzarella, roma tomatoes, basil, olive oil

pepperoni 13
fresh tomato sauce, shredded mozzarella, pepperoni

Dave's special 14
prosciutto, poached pear, arugula, goat cheese, olive oil

sausage & mushroom 13
fennel sausage, mushrooms, mozzarella, fresh tomato sauce

Sandwiches & Entrees

Sandwiches served with pickle spear and choice of side: petite green salad, fresh fruit, kettle chips or raw veggies

marsh autumn bowl 13 DF
chicken, butternut squash, roasted red potatoes, caramelized onions, shaved brussel sprouts, maple bourbon reduction

green coconut curry bowl 15 GF / DF
curry cooked chicken, roasted butternut squash, bell peppers, zucchini, spinach, basil, brown rice, lemongrass coconut curry sauce

bison burger* 16 GF *sub gf bun* / DF *no cheese*
grass fed bison patty, caramelized onions & mushrooms, smoked gouda, brioche bun

tilamook cheddar burger* 14
fresh burger patty, Tilamook cheddar cheese, lettuce, tomato, onion, brioche bun

black bean burger 12 DF
served with pico de gallo, avocado, on a multigrain bun

proscuitto & brie sandwich 15
fresh sliced prosciutto, brie, dijon mustard aioli, fig preserves, green leaf lettuce, french baguette roll

zoodles 14 GF
zucchini noodles, pesto, grape tomatoes, edamame, shaved parmesan

butternut squash ravioli 15
sage brown butter cream sauce, balsamic reduction, pistachio, shaved parmesan

salmon* 24
roasted butternut squash, farro, sautéed spinach, cider brown butter

Brad's farmhouse pot roast * 22 GF
root vegetable mash, roasted carrots, braising reduction, horseradish crema

Sides

roasted red potatoes 8 | sautéed spinach 7 | mushroom medley 8 | brussel sprouts 8 (add bacon 10)

Terry Steichen's the Marsh™ A Center for Balance and Fitness

GF gluten free DF dairy free

*90-minute seating for all tables. * Consuming raw or undercooked meats, poultry, seafood, shellfish or eggs may increase your risk of foodborne illness.*

8/20

WINE & BEER

WHITES BY THE GLASS

Gemma di Luna Pinot Grigio *(Italy)* 9

Honig Sauvignon Blanc *(California)* 12

Milbrandt Rosé *(Washington)* 10

The Crusher Chardonnay, unoaked *(California)* 8

Wente Chardonnay *(California)* 12

REDS BY THE GLASS

Chakras Malbec *(Argentina)* 9

Bread & Butter Pinot Noir *(California)* 12

Milbrandt Cabernet *(Washington)* 11

Freakshow Cabernet *(California)* 12

SPARKLING

Bivio Prosecco split *(Italy)* 9

BEER & CIDER

Bud Light 5

Stella Artois 6

Surly Saga 6

Excelsior Big Island Blonde 5

Excelsior Bitteschlappe 5

Landshark 5

O'Douls Amber 5

Loon Juice Cider 6

the Marsh™

15000 Minnetonka Boulevard, Minnetonka, MN 55345
952-930-8560 • TheMarsh.com

City Council Agenda Item #14A
Meeting of Oct. 26, 2020

Brief Description: Resolution for the Groveland-Bay Improvements Project

Recommended Action: Adopt the resolution

Introduction

In September 1994, the city council adopted a street reconstruction policy that set forth standards the city would follow in constructing and reconstructing city streets. The policy also established the framework for a pavement management system that maximizes the usefulness of local streets. A certain number of streets are designated each year to be rehabilitated based on this policy.

The Groveland-Bay Improvements Project proposes street and utility improvements to correct deficiencies of the aged street and underlying utilities. The proposed improvements also include the extension of new sidewalk. The project includes:

- Abel Lane
- Bay Circle
- Bay Lane
- Bay Street
- Beechwood Avenue
- Charmy Downs
- Copperwood Lane
- Grays Bay Boulevard
- Groveland Place
- Groveland School Road
- Leroy Street
- Lowell Street
- McKenzie Point Road
- Therese Street

Background

The Groveland-Bay Improvements Project was selected based on street condition and known deficiencies of the underlying utilities. The street conditions have deteriorated as a result of both age, limited storm sewer facilities and patching related to utility failures.

Proposed Improvements

<u>Street and Pedestrian Improvements</u>
Full roadway reconstruction with new concrete curb and gutter is proposed for all streets, with the exception of Groveland Place and Grays Bay Boulevard, which currently have concrete curb and gutter. Existing street widths throughout the neighborhood generally range from 18 to 26 feet. Due to narrow street corridors and impacts to natural features, staff is proposing a best-fit match that generally maintains streets at their existing width.

The extension of sidewalk along Groveland School Road is proposed from Groveland Elementary School to the northernmost driveway entrance of St. Luke Presbyterian Church, approximately 400 feet. Although this small sidewalk extension is not included on the Trail Improvement Plan, this section of Groveland School Road has additional traffic, due to it's proximity to the school and church, and the added sidewalk would provide a safer pedestrian connection for both students and residents. Additionally, this sidewalk can be added without significant impacts.

Parking/Traffic Calming

Staff is aware of traffic congestion along Groveland School Road due to parking issues during pick-up and drop-off at the elementary school. Comments from the neighborhood meeting suggest a desire to have a full no-parking restriction along this stretch of Groveland School Road. Currently, parking is restricted from 8:15 to 9:00 a.m. and 3:00 to 4:00 p.m. during school pick-up and drop-off times. Staff will be discussing the proposal of a full no-parking restriction with the police department and school district as the project moves through final design. If a recommendation for a parking restriction change is proposed following these discussions, a resolution would be brought to council for consideration.

Although vehicle speeds were not identified as an issue in this neighborhood, the project is proposing to maintain narrow roadway widths to encourage safe vehicle speeds. Additionally, roadway striping is proposed adjacent to the elementary school on Groveland Road to help encourage lower vehicle speeds.

Utility Improvements

Watermain is proposed to be replaced throughout the project by open cut trenching, including water services to the right-of-way line. Watermain on Beechwood Avenue and McKenzie Point Road are proposed to be replaced by lining or other trenchless method due to constructability impacts with adjacent private utilities, natural features and high groundwater levels, and is cost-effective in these areas.

Sanitary sewer is in fairly good condition and only isolated areas have been identified for repair. Manhole castings will be replaced throughout the project to eliminate inflow and infiltration.

The project also proposes burial of overhead utility lines along Groveland School Road, adjacent to Groveland Elementary School and St. Luke Presbyterian Church. Staff will work with Xcel Energy to determine costs and burial limits based on available budget. In an effort to coordinate and complete this work as efficiently as possible, isolated areas of tree removal may occur and crews may begin work in late winter/early spring ahead of the project.

Storm Sewer Improvements

Storm sewer improvements include additional surface drains where needed in the roadway and new storm sewer pipe to improve conveyance of storm water. Sediment collection structures will be considered to improve water quality near outlet structures and overall drainage patterns are proposed to remain the same as current conditions. Areas of isolated private drainage concerns brought up from property owners will also be reviewed during final design to determine where improvements may be made.

There are two landlocked basins within the project area, one near Groveland Place and the other south of Bay Street. Outlets for both basins are proposed in combination with new storm sewer connections included in the project.

Water quality improvements are planned throughout the project area. As an example, St. Luke Presbyterian Church has expressed interest to expand their existing raingarden as part of the project. Staff has had several discussions with the church members through email, a neighborhood meeting and an onsite meeting. The project is proposing to send additional stormwater from Groveland School Road and a portion of the entrance drive to the existing raingarden. The raingarden will be evaluated for the additional drainage and expansion and

improvements made as necessary. More discussion will take place between staff and church members to finalize details about raingarden improvements, ownership and maintenance of this partnership.

McKenzie Point Road has a long history of roadway flooding during and after rain events and following the spring snow melt. Staff evaluated several options to resolve the flooding issues and determined the best option is a storm sewer system that includes a pumping station.

Easement Acquisition
Currently, permanent easement acquisition is not anticipated to be necessary with this project; however, there may be temporary easements helpful to minimize private property and landscaping impacts. Individual property owners will be contacted directly as necessary.

Public Input

An informational meeting was held at the Community Center for residents on Sept. 30, 2020 and 19 residents out of 173 invited properties attended the meeting. At the meeting, staff presented concept layouts that showed proposed street and utility improvements. Staff discussed how reconstruction projects of this type, which require open-cut excavations, are very intensive and disruptive to access in and out of the neighborhood due to the extent of the excavations required. Also, the project will require tree removal, landscape impacts and temporary disruptions to utility services. Residents were generally supportive of the project and the sidewalk extension along Groveland School Road.

At the meeting, staff further presented information on the different ways to stay informed during construction. Staff has been using various strategies to provide updates for other city projects including: signage, text alerts, email updates, citizen alerts and newsletters.

Numerous questions and comments involved the parking restrictions on Groveland School Road and the safety of the pedestrians in the area. For the residents in attendance, the consensus was that the neighborhood would like to see full no-parking restrictions be added to a section of Groveland School Road near Groveland Elementary School. Staff has also received similar comments regarding no-parking on Groveland School Road via email and during one-on-one meetings with property owners. Other comments and questions at the neighborhood meeting were typical to these types of projects including scheduling/phasing, access, drainage improvements, curb and gutter, driveways and landscaping/trees.

As part of the informational meeting invitation this year, in response to COVID-19, staff further highlighted the offer to discuss the project on an individual basis by phone, email or in person. Staff has had several discussions over phone/email and has met for one-on-one site meetings with 10 properties throughout the project area.

A copy of the informational meeting comment cards and list of resident questions and staff answers are included in the appendix of the attached feasibility report.

Estimated Project Costs and Funding

The total estimated construction cost, including engineering, administration and contingency, is $8,440,000. The budgeted amount for the project is shown below and is included in the 2021 – 2025 Capital Improvements Program (CIP). Fund balances currently can support the estimated project costs.

	Budget Amount	Proposed Funding	Expense
Construction Costs			$6,640,000
Contingencies			$670,000
Engineering, Administration, and Indirect Costs			$830,000
Overhead Power Burial			$300,000
Street Improvement Fund	$4,400,000	$3,690,000	
Utility Fund	$3,060,000	$3,060,000	
Storm Sewer Fund	$1,400,000	$1,390,000	
Electric Franchise Fund	$300,000	$300,000	
Total Budget	$9,160,000	$8,440,000	$8,440,000

Schedule

If the recommended actions are approved by council, staff would anticipate developing the final plans and specifications through the beginning of February. The plans would then be brought to council for final approval with the intention of having council award a contract in April. Construction will likely begin in early May. The project is planned to be completed in multiple phases to provide residents with better access through the project and will be communicated to council and residents once plans are completed.

Recommendation

Adopt the attached resolution receiving the feasibility report, ordering the improvements, authorizing preparation of plans and specifications and authorizing easement acquisition for the Groveland-Bay Improvements Project No. 21401.

Submitted through:
Geralyn Barone, City Manager
Darin Nelson, Finance Director
Will Manchester, PE, Director of Public Works
Phil Olson, PE, City Engineer

Originated by:
Mitch Hatcher, PE, Engineering Project Manager

Resolution No. 2020-xxx

Resolution receiving feasibility report, ordering the improvements and authorizing preparation of plans and specifications, and authorizing easement acquisition for the Groveland – Bay Improvements Project, Project No. 21401

Be It Resolved by the City Council of the City of Minnetonka, Minnesota as follows:

Section 1. Background.

1.01. A feasibility report was prepared by and/or under the direction of the engineering department of the City of Minnetonka with reference to the proposed Groveland – Bay Improvements Project, Project No. 21401.

1.02. This report was received by the City Council on Oct. 26, 2020, with the project to be known as:

Groveland - Bay Improvements Project, Project No. 21401.

Section 2. Council Action.

2.01. The feasibility report is hereby accepted and the preparation of plans and specifications are hereby authorized.

2.02. The proposed improvements are hereby ordered as proposed.

2.03. The city engineer is hereby designated as the engineer for this improvement. The engineer may retain any professional help they deem necessary.

2.04. The city attorney and the city engineer are hereby authorized to acquire necessary easements by negotiation or condemnation.

Adopted by the City Council of the City of Minnetonka, Minnesota, on Oct. 26, 2020.

_____

Brad Wiersum, Mayor

Attest:

_____

Becky Koosman, City Clerk

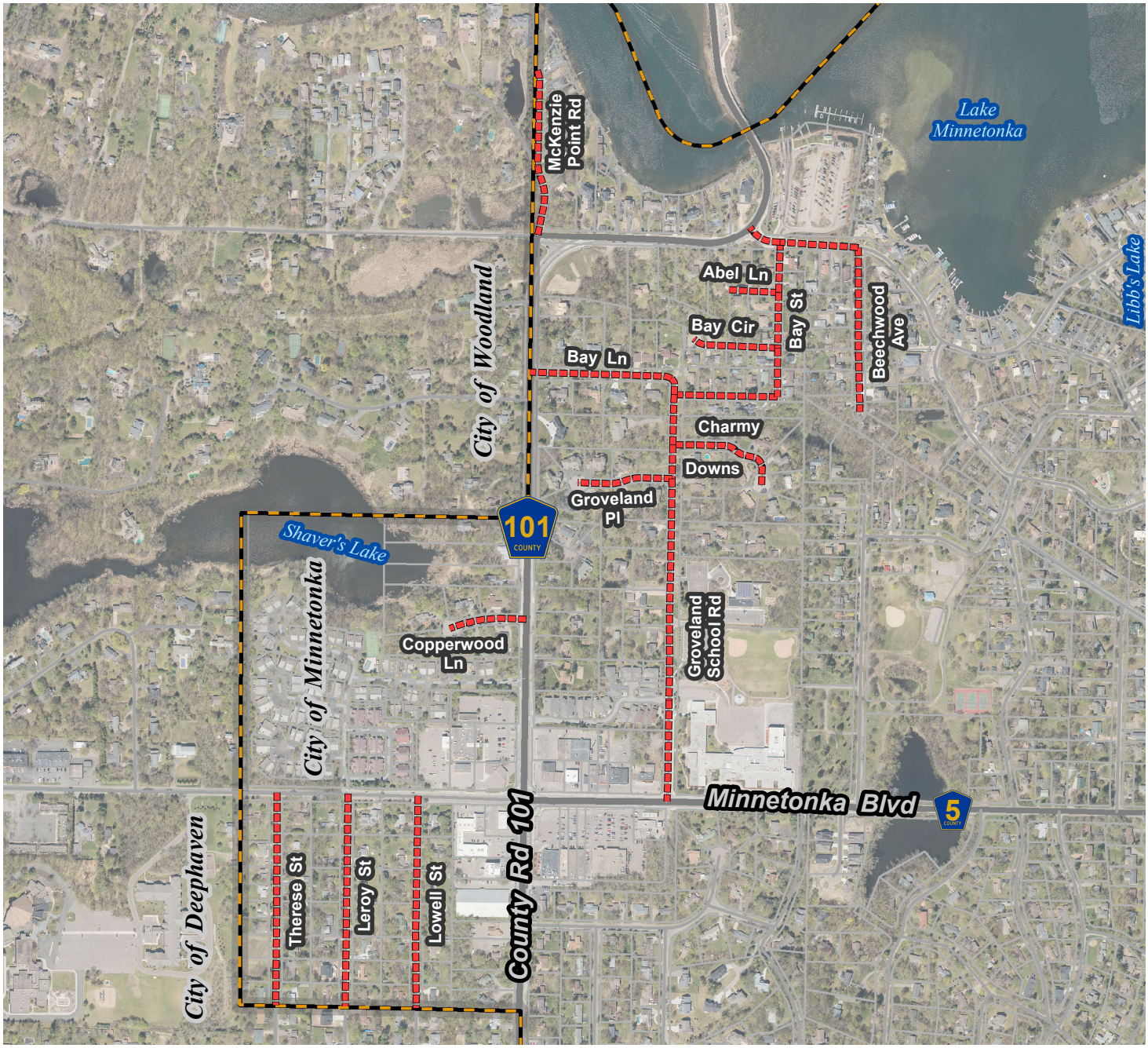
Action on This Resolution:

Motion for adoption:
Seconded by:
Voted in favor of:
Voted against:
Abstained:
Absent:
Resolution adopted.

I hereby certify that the foregoing is a true and correct copy of a resolution adopted by the City Council of the City of Minnetonka, Minnesota, at a duly authorized meeting held on Oct. 26, 2020.

_____

Becky Koosman, City Clerk

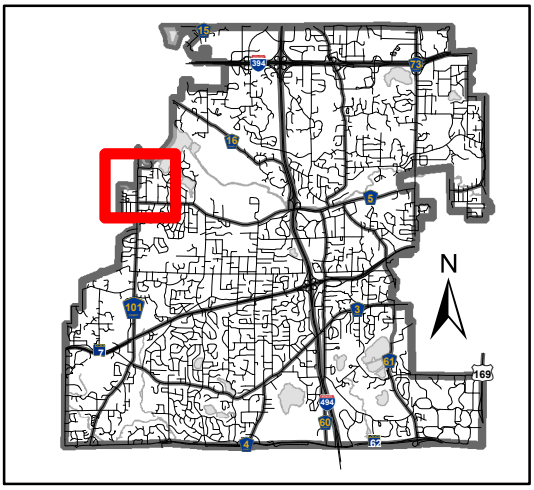


Groveland-Bay Improvements Project

Street Reconstruction

Municipal Boundary Line

CITY OF MINNETONKA



This map is for illustrative purposes only.

2021 Street Rehabilitation Funding Summary

Funding Sources		Proposed Funding		Balance
	2020 CIP	Ridgemount Avenue	Groveland-Bay	
Street Improvement Fund -Local Street Rehab	$ 5,900,000	$ 1,130,000	$ 3,690,000	$ 1,080,000
Utility Fund	$ 4,500,000	$ 1,440,000	$ 3,060,000	$ -
Storm Sewer Fund	$ 1,550,000	$ 60,000	$ 1,390,000	$ 100,000
Electric Franchise Fund	$ 300,000	$ -	$ 300,000	$ -
Total Project Cost	$ 12,250,000	$ 2,630,000	$ 8,440,000	$ 1,180,000

Feasibility Report

Groveland-Bay Improvements Project

City of Minnetonka, Minnesota

City Project No. 21401

MINNE 155917 | October 26, 2020

SEH

Building a Better World for All of Us®

Engineers | Architects | Planners | Scientists

Building a Better World for All of Us®

October 26, 2020

RE: Groveland-Bay Improvements Project - Feasibility Report
City of Minnetonka, Minnesota
City Project No. 21401
SEH No. MINNE 155917 4.00

Honorable Mayor and City Council
City of Minnetonka
14600 Minnetonka Boulevard
Minnetonka, MN 55345

Mayor and Council Members:

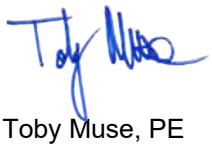
Short Elliott Hendrickson Inc. (SEH®) is pleased to submit this feasibility report for the Groveland-Bay Improvements Project. This project is proposed as part of the City's annual pavement management program.

Roadways, pedestrian facilities, public utilities, and associated impacts of proposed improvements have been analyzed and reviewed. This report reviews existing conditions, identifies necessary improvements and includes estimates of total project cost and financing methods to evaluate the feasibility of these proposed improvements.

We would like to thank City staff, project area residents, and permitting partners for their input during the development of this report. This cooperation and the information received assisted us in better understanding the areas of concern within the project area.

We are pleased to have had the opportunity to provide this report and are available for any assistance you may require.

Sincerely,



Toby Muse, PE
Principal, Senior Project Manager
(Lic. MN)
x:\ko\m\minne\155917\4-prelim-dsgn-rpts\43-prelim-dsgn\feasibility report groveland-bay improvements project.docx

Feasibility Report

Groveland-Bay Improvements Project
City of Minnetonka, Minnesota

City Project No. 21401
SEH No. MINNE 155917

October 26, 2020

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.

Toby Muse, PE

Date: 10/23/2020 License No.: 43364

Reviewed By: Kevin Manzke Date: 10/23/2020

Short Elliott Hendrickson Inc.
10901 Red Circle Drive, Suite 300
Minnetonka, MN 55343-9302
952.912.2600

Executive Summary

Background Information

The City of Minnetonka (City) approved the commencement of the feasibility report for the Groveland-Bay Improvements Project on May 29, 2020.

This report reviews existing conditions, identifies and discusses necessary improvements and includes estimates of total project cost to evaluate the feasibility of this project. This report will also be used as the basis for the final design component of the project.

Proposed Improvements

Proposed improvements in the Groveland-Bay neighborhood include:

- Bituminous roadway reconstruction
- Concrete curb and gutter replacement/addition
- Concrete sidewalk replacement/addition
- Water main and service replacement/rehabilitation
- Sanitary sewer rehabilitation including manhole lining, spot repairs and pipe lining
- Storm sewer replacement/addition
- Private utility relocation/coordination

Proposed improvements are illustrated in the graphics found in Appendix I. The project is proposed to be constructed between April and November 2021.

Estimated Costs and Proposed Funding

The overall project costs for this reconstruction project is $8,440,000. The City of Minnetonka will fund the project as shown in the 2021 Capital Improvement Program.

Summary of Estimated Project Costs	
Roadway Improvements	$3,690,000
Utility Improvements	$3,060,000
Storm Sewer Improvements	$1,390,000
Electrical	$300,000
Total Estimated Project Cost	**$8,440,000**

Contents

List of Tables

List of Appendices

Feasibility Report

Groveland-Bay Improvements Project

Prepared for City of Minnetonka, Minnesota

Introduction and Background

This feasibility report examines the existing conditions of the roadways and utilities, including water main, storm sewer, and sanitary sewer, throughout the Groveland-Bay neighborhood. The project location map is illustrated in Appendix A. This report also provides conclusions and recommendations for proposed roadway, pedestrian and utility improvements. A detailed cost summary is included. This report will be used as the basis for the final design phase of the project.

The project scope involves the following:

- Bituminous roadway reconstruction
- Concrete curb and gutter replacement/addition
- Concrete sidewalk replacement/addition
- Water main and service replacement/rehabilitation
- Sanitary sewer rehabilitation including manhole lining, spot repairs and pipe lining
- Storm sewer replacement/addition
- Private utility relocation/coordination

A topographic survey of the project area was completed in June 2020 to assist in the evaluation of existing infrastructure conditions. All public utilities within the project limits, including water main, sanitary sewer and storm sewer, were evaluated in order to recommend appropriate rehabilitation techniques. Each utility was mapped, then evaluated based on age, condition, and functionality.

Multiple preliminary design meetings were held with City staff to discuss project needs and goals. Input from the meetings and the public were incorporated into the report recommendations.

Existing Conditions

Roadway/Sidewalk

The Groveland-Bay neighborhood is located on the westerly side of the City of Minnetonka, south of Lake Minnetonka's Grays Bay. Roadways in the neighborhood were constructed between 1973 and 2003. The total length of roadways in this neighborhood is 2.05 miles. The existing roadway widths vary from 17 feet to 26 feet wide as shown in Table 1 below. Average Daily Traffic (ADT) counts range from 150-400 vehicles per day. Photo 1 shows the typical pavement condition found in the neighborhood. Approximately 10% of the project roadway length contains bituminous or concrete curb and gutter. An existing sidewalk is located within the eastern

boulevard of Groveland School Road, between Minnetonka Boulevard (CSAH 5) and the parking lot located between Groveland Elementary School and St. Luke Presbyterian Church. There is also existing sidewalk located on both the north and south sides of Grays Bay Boulevard, between County Road 101 and Bay Street. These areas can be found in their respective graphics in Appendix I.

Groveland Place has bituminous pavement and concrete curb and gutter that is in satisfactory condition, as the roadway was reconstructed in 2003 as part of a previous City project that installed new public utilities. Grays Bay Boulevard also has bituminous pavement, concrete curb and gutter, and concrete sidewalk in satisfactory condition, as the roadway was reconstructed in 2002 as part of the previous City project that reconstructed Grays Bay Marina.

Table 1 – Existing Roadway Widths

Street	Approximate Length (Feet)	Existing Roadway Width (Feet)	Cul-De-Sac / Dead End
Abel Lane	210	20-23	X
Bay Circle	345	20-21	X
Bay Lane	1140	20-21	
Bay Street	715	24-26	
Beechwood Avenue	750	17-18	X
Charmy Downs	550	24-26	X
Copperwood Lane	380	25-26	X
Grays Bay Boulevard	480	26-VARIES	
Groveland Place	495	23	X
Groveland School Road	1950	20-25.5	
Leroy Street	985	19-25	
Lowell Street	985	22-23	
McKenzie Point Road	825	19-22	X
Therese Street	985	23-24	

Photo 1 Existing Typical Pavement Condition – Groveland School Road Facing North

The intersection of Bay Street and Bay Circle is currently a large area of bituminous pavement shared between the roadway and adjacent driveways. Photo 2 shows the existing intersection layout. The driveways adjacent to this intersection are currently wider than City of Minnetonka standards for maximum driveway widths.

Photo 2 Bay Street / Bay Circle Intersection

Numerous trees, areas of landscaping, small block and large boulder retaining walls, and private utility poles are located along the project corridors and within the right-of-way. Photo 3 shows one example of landscaping adjacent to the roadway.

Photo 3 Landscaping within ROW

There are currently northbound and southbound day-time parking restrictions along Groveland School Road adjacent to Groveland Elementary School.

Geotechnical Review

A preliminary report of geotechnical exploration and review was completed by American Engineering Testing, Inc. in June 2015. This report is attached as Appendix C.

Eight standard penetration soil borings were taken within the project area. Seven of those borings (B-31 to B-37) indicate that the roadway was constructed of 5 to 13.5 inches of bituminous over 10.5 to 19 inches of aggregate base.

Soil boring B-38, located on McKenzie Point Road, indicates 10.5 inches of bituminous pavement over 37 inches of aggregate base. The boring indicates peat and organic clay (swamp deposit) are located between 6.5 and 11.5 feet deep. Ground water was found at four feet deep.

Driveways

Many driveways within the project area were installed using brick pavers or colored concrete. Photos 4 and 5 show examples of each type of driveway. The remaining driveways within the project area were installed using bituminous and concrete pavement. Nine properties have multiple driveways from the roadway onto the property. These driveways were evaluated for adherence to City of Minnetonka code for number of driveways per street frontage.

Photos 4 and 5 Brick Paver and Colored Concrete Driveways

Mailboxes

Mailboxes are located adjacent to the roadway throughout the project area. Mailbox supports include metal, wood, plastic, and brick pavers.

Utilities

Storm Sewer

Therese Street has an existing storm sewer system that runs parallel with the roadway in the western boulevard, while the remaining storm sewer systems within the project area consist of one to four catch basins that collect storm water and convey it either off the project site, into Lake Minnetonka, or to one of three land-locked basins located within the project limits. The storm sewer systems mainly consist of reinforced concrete pipe (RCP), corrugated metal pipe (CMP), and polyvinyl chloride (PVC) pipe, and vary in size from a 12-inch to 24-inch diameter pipe.

Existing manhole and catch basin field inspections conducted by City staff reveal that the core structures are in satisfactory condition with minimal deterioration or leaking observed. Several structures appeared to have deteriorated castings and/or adjusting rings.

An existing rain garden is located along Groveland School Road at St. Luke Presbyterian Church. Representatives of St. Luke have requested more roadway drainage be directed toward the rain garden. They have also requested another rain garden be installed, or an expansion of the existing garden be reviewed.

In areas where there is no existing storm sewer, surface water drains into boulevards and side yards of properties. McKenzie Point Road has been identified as one area that has consistent flooding issues, as the roadway is lower than the adjacent properties and has no natural outlet. Other areas of flooding concern were brought up by residents of the neighborhood along Groveland School Road.

Land-Locked Basins

There are three land-locked basins located within the project area. The basin located in the northwest corner of the intersection of Groveland School Road and Groveland Place is identified as Basin 1. The basin located southeast of the intersection of Bay Lane and Bay Street is

identified as Basin 2. The basin located northwest of the Bay Circle cul-de-sac is identified as Basin 3. Hydraulic modeling results of the existing conditions of Basins 1 and 2 can be found in the Proposed Improvements section of this report and in Appendix H.

Sanitary Sewer

The trunk sanitary sewer pipes within the project area were installed between 1974 and 2003, and consist of polyvinyl chloride (PVC) pipe, reinforced plastic pipe (truss pipe), and one stretch of ductile iron pipe (DIP) located on McKenzie Point Road. The City of Minnetonka hired Pipe Services to televise the trunk sanitary sewer pipes via closed circuit television. Pipe Services provided the City the televising videos and associated reports of each stretch of pipe and identified potential issues with the pipe including deposits, sags, cracks, tree roots and water infiltration, both in the pipes and manholes. The videos confirmed that all trunk sanitary sewer pipe within the project area is 8-inches in diameter.

An existing sanitary sewer lift station and associated forcemain piping system is located on McKenzie Point Road approximately 225 feet north of the intersection with Breezy Point Road. The lift station pumps sewage to the existing sanitary sewer system located on Breezy Point Road. According to City records, the forcemain pipe is 4-inch DIP.

Metropolitan Council - Environmental Services (MCES) owns and maintains trunk sanitary sewer pipes and manholes along Grays Bay Boulevard and Groveland School Road. The existing sanitary sewer trunk pipe network for the neighborhood is shown on the map in Appendix E.

Water Main

Similar to the existing sanitary sewer systems, the water main trunk and service pipes were installed between 1974 and 2003. The trunk water main pipe consists of ductile iron pipe (DIP), cast iron pipe (CIP), polyvinyl chloride (PVC), and possibly other unknown materials. The trunk water main pipe varies in size between 6-inch and 8-inch diameter, with the exception of Abel Lane. According to City records, the water system on Abel Lane is a 1-1/2-inch copper service pipe that serves three properties. This pipe does not meet City water service or fire flow standards.

Private Utilities

Private utility poles exist within the right-of-way along Abel Lane, Bay Circle, Bay Lane, Bay Street, Beechwood Ave, Groveland School Road, and McKenzie Point Road.

Gas, abandoned gas, electric, fiber optics, communications and cable utilities are present throughout the neighborhood. These utilities are a combination of overheard and underground facilities located in backyards and within the right of way.

Street Lighting

Various styles of streetlights and poles owned by Xcel Energy are located throughout the project area. Locations can be found in the graphics in Appendix I.

Archeological Survey

Culturally significant areas have been identified near or in the Groveland-Bay neighborhood based on coordination with the Minnesota Indian Affairs Council (MIAC) and the Office of the

State Archeologist (OSA). A Phase 1 Archeological survey will be conducted in the fall of 2020. Results of this investigation are pending.

Wetland Delineations

Wetland delineations were completed at all three land-locked basins. The wetland delineation report was sent to City of Minnetonka staff in early September 2020. Results are still under review.

Proposed Improvements

Roadway/Sidewalk

Proposed improvements throughout the neighborhood include full reconstruction of the roadway, including installation of new concrete curb and gutter. The concrete curb and gutter will facilitate stormwater drainage, create a confined edge for roadway pavement, and provide a safety barrier between the roadway and pedestrian facilities. Proposed street widths can be found in Table 2. These widths were determined based on minimizing impacts to the surrounding properties and trying to maintain a consistent width on roadways adjacent to each other. Proposed roadway typical sections can be viewed in Appendix B.

Table 2 – Existing vs. Proposed Roadway Widths

Street	Existing Width (Feet)	Proposed Width (Face Curb/Face Curb)	Proposed Drive Lane Width (Feet)	Cul-De-Sac / Dead End
Abel Lane	20-23	22	10	X
Bay Circle	20-21	22	10	X
Bay Lane	20-21	22	10	
Bay Street	24-26	22	10	
Beechwood Avenue	17-18	18	8	X
Charmy Downs	24-26	24	11	X
Copperwood Lane	25-26	24	11	X
Grays Bay Boulevard	26-varies	Match Existing		
Groveland Place	23	Match Existing		X
Groveland School Road	20-25.5	24	11	
Leroy Street	19-25	24	11	
Lowell Street	22-23	24	11	
McKenzie Point Road	19-22	20	10	X
Therese Street	23-24	24	11	

The Existing Width column describes the measurement from edge of pavement to edge of pavement. This measurement divided by two is the existing driving lane width. The Proposed Width column lists the proposed width of the roadway from face of curb to face of curb. A B612 curb and gutter section includes a one-foot wide gutter and an 8-inch width between face of curb and back of curb. Proposing this curb and gutter on both sides of the roadway changes the pavement driving lane width and total section width. For example, a proposed street width of 24 feet wide will have 22 feet of bituminous pavement ((2) 11-foot wide drive lanes), and a total section width to the back of curbs of 25.33 feet.

It is proposed on Grays Bay Boulevard and Groveland Place to save the existing curb and gutter thereby matching existing roadway widths. The existing curb and gutter segments will receive spot repairs as needed. Due to the age and condition of the street section at Groveland Place, a mill and overlay is proposed, while Grays Bay Boulevard will only receive the mill and overlay on the northern half of the roadway. This is due to the proposed open-cut water main improvements occurring within the southern lanes.

The vertical profile of the roadway is proposed to be lowered throughout the project area to maintain existing drainage patterns. Horizontal alignments were evaluated based on multiple factors including existing roadway location, location within the right-of-way, mitigating impacts to boulevards and natural features, and minimizing the need for temporary grading easements. Bay Lane, east of Groveland School Road, is proposed to move approximately five feet south from the existing roadway centerline due to the existing roadway not being centered within City right-of-way. If the Bay Lane were to remain in place, temporary easements from six property owners along the north side of the street would be required due to extensive grading impacts. Remaining roadway centerline alignments are proposed to remain in their similar location.

A new six-foot-wide concrete sidewalk is proposed along Groveland School Road between Groveland Elementary School and St. Luke Presbyterian Church. Based on input from City staff, the sidewalk is proposed in the eastern boulevard of the roadway beginning where the existing sidewalk diverges from the roadway toward the parking lot and ending at the northern driveway to St. Luke church. A three-foot-wide turf boulevard is proposed between the sidewalk and the roadway. The proposed sidewalk can be found in the graphics in Appendix I.

Parking along Groveland School Road, adjacent to Groveland Elementary School, will be evaluated during final design and will include coordination with the Minnetonka Police Department and the Minnetonka School District.

Geotechnical Review

Based on the Geotechnical Review, the proposed roadway typical section is 5 inches of bituminous pavement, over 6 inches of 100% crushed aggregate base Class 5, over 12 inches of compaction subcut. The proposed roadway section is a 7-ton design.

Driveways

All driveways will be brought into compliance with City of Minnetonka code requirements. New driveways will be installed using materials similar to existing pavement material.

Mailboxes

Mailboxes will be salvaged and reinstalled in the same / similar location. Temporary mailbox banks will be placed within the project area during construction.

Utilities

Storm Sewer

Stormwater drainage was analyzed using 1D/2D XPSWMM models that represent the existing conditions and a potential future condition. A summary of the modeling techniques and results can be found in Appendix H.

Two new storm sewer systems are proposed within the project area in order to drain roadway low points to existing storm sewer systems. The first proposed system is located within the northerly 300 feet of Lowell Street, and will drain north, tying into the existing storm sewer system on Minnetonka Boulevard (CSAH 5). The second proposed system begins on Groveland School Road, between Charmy Downs and Bay Lane, and runs north to Bay Lane, then east on Bay Lane to the existing storm sewer system located at the intersection of Bay Lane and Bay Street. Both proposed storm sewer systems are feasible to construct. New castings are proposed on all existing storm sewer structures within the project area, except on roadways receiving mill and overlays, and at the intersection of Leroy Street and Minnetonka Boulevard, due to the castings having been recently installed.

The catch basins along Therese Street, Leroy Street, and Lowell Street are proposed to be removed and replaced, along with the pipes between each set of catch basins, in order to bring the catch basins into the proposed curb lines. The catch basins in the Bay Circle cul-de-sac and on Bay Lane are also proposed to be removed and replaced due to the curb line being adjusted.

A curb cut is proposed at the roadway low point along Groveland School Road adjacent to the Groveland Elementary School parking lot. A trench drain will be installed concurrent with the proposed sidewalk, allowing the storm water to drain under the sidewalk into a proposed drainage swale, and eventually into the existing flared end section located near the southwest corner of the parking lot.

City staff met with St. Luke Presbyterial Church staff to discuss opportunities to route roadway drainage into the existing rain garden located adjacent to Groveland School Road. Multiple options were discussed including installing catch basins and storm sewer piping, installing a curb cut in the northern curb line of the church driveway entrance, and installing a curb cut in the eastern curb line of Groveland School Road. These options will be evaluated during final design.

Land-Locked Basins

Alternate stormwater drainage systems were investigated in order to provide relief to two land-locked areas within the project area. Basin 1 is located in the northwest corner of the Groveland School Road and Groveland Place intersection, and Basin 2 is located southeast of the intersection of Bay Lane and Bay Street. A more comprehensive technical hydraulic analysis can be found in Appendix H.

The areas were analyzed using the existing and proposed 1D/2D XPSWMM model developed for the overall project. To analyze the flood risk posed by these land-locked basins, both the 100-yr and back-to-back (B2B) 100-yr events were examined. The existing condition model results indicate that a 100-yr event does not overflow either basin. In the B2B 100-yr event, only Basin 1 overflows into the roadway and flows along Groveland School Road and Bay Lane into Basin 2. During a B2B 100-yr event, the high water level (HWL) of Basin 1 does not come within two (2) vertical feet of any adjacent property, while the HWL of Basin 2 does come within two (2) vertical feet of one adjacent structure, which is an uninhabited structure (garage).

In addition to modeling the existing conditions of Basin 1 and 2, proposed scenarios were executed. These scenarios added outlet structures to Basins 1 and 2 at a generic elevation to catch rising flood waters (Basin 1 outlet elevation = 952', Basin 2 outlet elevation = 940.5'), prior to flooding the roadway or an adjacent structure. The outlet from Basin 1 was modelled as tying into the proposed storm sewer heading north on Groveland School Road, then east on Bay Lane, ultimately tying into the existing catch basin located at 17309 Bay Lane and outlet into Basin 2.

This storm sewer system will be optimized to capture and divert as much flow from Basin 1 as feasible during final design. The outlet from Basin 2 was modelled as draining to the north into the existing catch basins located on Gray's Bay Boulevard, ultimately reaching Lake Minnetonka.

An outlet pipe from Basin 1 is recommended in order to mitigate potential street flooding. Due to the proposed conditions of the project routing more water to Basin 2, it is recommended that an outlet pipe be installed to mitigate potential flooding of adjacent structures.

McKenzie Point Road Drainage Issues

Multiple options to address the existing drainage issues along McKenzie Point Road were reviewed for feasibility, constructability, and cost. These options included:

- Surface drainage through side yards
- Surface drainage to a catch basin and gravity storm sewer system
- Surface drainage through an overland swale and gravity storm sewer system
- Surface drainage to a wet well and pump station that would hydraulically divert the storm water away from McKenzie Point Road through a forcemain piping system.

Due to relatively flat landscape and minimal elevation differences between the roadway, Lake Minnetonka, and an existing wetland in the northwest quadrant of McKenzie Point Road and Breezy Point Road, it is recommended to install a wet well and pump station in order to hydraulically divert the storm water away from the area. The destination of the storm water will be determined during final design. Potential options include Lake Minnetonka, the existing wetland, and the existing storm sewer system located along County Road 101 approximately 500 feet east of McKenzie Point Road.

Due to ground water found at four feet deep, and the proximity to Lake Minnetonka, the Geotechnical Report recommends well points be installed to draw down the ground water in order to complete any utility work proposed within the McKenzie Point Road right of way.

Sanitary Sewer

Sanitary sewer pipes identified during CCTV investigation as having cracks, inflow and infiltration, and/or roots, are proposed to be rehabilitated with a cured in place pipe liner. CCTV footage along McKenzie Point Road showed one run of pipe is 50% full, likely due to inflow and infiltration and high ground water. It is proposed to pump this pipe dry, pre-grout existing pipe joints to stop inflow and infiltration, and then line the pipe with a cured in place pipe liner.

Sanitary sewer manholes that are structurally deficient or have roots entering the structure as seen on the CCTV footage are proposed to be lined. All existing castings and adjusting rings will be removed and replaced.

A sanitary sewer forcemain pipe located on McKenzie Point Road between the sanitary sewer lift station and Breezy Point Road is proposed to be removed and replaced. City records indicate during the recent County Road 101 reconstruction project, 44 linear feet of new DIP pipe was installed north out of the existing sanitary manhole located in the middle of the intersection of McKenzie Point Road and Breezy Point Road. The proposed forcemain will connect to that recently installed pipe. Temporary conveyance of wastewater will be necessary during the installation of the new forcemain pipe.

A new sanitary sewer manhole is proposed on McKenzie Point Road approximately 80 feet north of the McKenzie Point Road / Stone Arch Road intersection. There is currently an existing 8-inch trunk pipe running north and south and an existing 6-inch service pipe that connects from the east. A new service pipe will be installed from the proposed manhole to the right-of-way line and will connect to the existing service pipe.

No improvements are proposed to MCES-owned sanitary sewer manholes or pipes within the project area.

Water Main

New 6-inch and 8-inch diameter, ductile iron (DIP) water main trunk pipe is proposed throughout the project area, as are new 1-1/2-inch copper water service pipes for each property. The proposed water main trunk pipe size will match existing. Curb stops are proposed to be removed and replaced in the same or similar location; however, multiple curb stops are located on private property. If the City cannot gain a temporary right-of-entry permit from these properties, a new curb stop will be placed at the property line. All hydrants are proposed to be removed and replaced except at the intersection of Bay Lane / County Road 101 as this hydrant was installed during the County Road 101 project in 2015. Additional hydrants are proposed on Abel Lane, Bay Street, and Beechwood Avenue.

Potential impacts to trees, landscaping, retaining walls, private utility poles and pedestals, and private property, were determined based on the assumption that the water main trunk pipe, water services, and curb stops would be removed and replaced via open-cut installation in the same or similar locations as existing. To reduce the number of potential impacts, alternative trenchless rehabilitation options were evaluated, including cured in place pipe lining, pipe bursting, and horizontal directional drilling.

Based on this analysis and input provided by City staff, all trunk water main pipe in the project area is proposed to be open cut with exceptions of Beechwood Avenue and McKenzie Point Road.

Beechwood Avenue trunk water main pipe is proposed to be rehabilitated via cured in place pipe lining or pipe bursting due to the narrow corridor and in order to avoid multiple impacts to trees, landscaping, retaining walls, private utilities and private utility poles and pedestals. It is also proposed that the water service pipes be replaced via trenchless methods. This includes digging two pits, one at the trunk pipe and one at the curb stop and pulling the proposed water service pipe into place while simultaneously removing the existing pipe.

Due to the presence of high ground water and in order to avoid multiple impacts to trees, private property, private utilities, and private utility poles and pedestals, cured in place pipe lining is proposed along McKenzie Point Road. Water services and curb stops are not proposed to be rehabilitated. Pipe bursting was considered as a trenchless rehabilitation option along the roadway, however it was ruled out due to the need for multiple pit excavations at each service location, multiple dewatering systems and the fact that City records indicate the trunk pipe was installed on piling of unknown type and connection mechanism.

Trunk water main pipe is proposed to move from the west side to the east side of the existing sanitary sewer system along Therese Street and Leroy Street. Doing so will reduce the number of impacts to trees and landscaping in the western boulevards of these streets. The existing trunk water main pipe is proposed to be abandoned in place and filled with flowable fill.

The trunk water main pipe along Charmy Downs is proposed to stay in its current location, except when adjacent to the existing sanitary sewer manhole located in front of 17320/17330. In this location the water main will be installed around the north side of the structure. Doing so will avoid impacting the landscaping and trees at 17331.

Abel Lane is proposed to receive a 6-inch DIP trunk pipe the entire length of the roadway, replacing the existing 1.5-inch copper pipe. New service pipes near the western end of the roadway will stub off as close to 90 degrees as possible.

Private Utilities

Private utility companies will be contacted during preliminary design to discuss the proposed project improvements. Discussions will include utility upgrades, relocating existing utilities horizontally and/or vertically due to impacts from utility and roadway improvements, and the need to hold utility poles during construction.

Abandoned gas main pipe will be removed if it is impacted by construction. Special removal and disposal requirements will be followed if pipe contains asbestos.

Portions of the private utility networks may receive upgrades prior to or concurrent with construction, however, this work is not part of the City's project. CenterPoint Energy plans to upgrade their facilities. Preliminary locations of these upgrades can be found in Appendix J.

The project also proposes burial of overhead utility lines along Groveland School Road adjacent to Groveland Elementary School and St. Luke Presbyterian Church. Staff will work with Xcel Energy to determine costs and burial limits based on available budget. In an effort to coordinate and complete this work as efficiently as possible, isolated areas of tree removal may occur. Crews may begin work in early spring ahead of the project.

Street Lighting

No additional street lighting improvements are proposed as part of this project.

Archeological Survey

The City is actively engaged with the Minnesota Indian Affairs Council (MIAC) and the Office of the State Archeologist (OSA) to determine possible impact to any culturally significant areas located in the Groveland-Bay neighborhood. An on-site meeting was conducted with MIAC staff in October 2020 to determine specific survey requirements and extents. The Phase 1 archeological survey will occur in fall 2020. Results from the survey, along with any additional requirements from MIAC and OSA, will be adhered to during final design and construction.

On-site monitoring of project construction will be required during excavations. The exact extent and scope are still to be determined.

Public Informational Meeting

A public informational meeting was held at the Minnetonka Community Center on September 30, 2020. 19 residents out of 173 invited properties attended the meeting. At the meeting, City staff presented concept layouts that showed proposed street, pedestrian and utility improvements. Staff discussed reconstruction projects of this type which require open-cut excavations that are very intensive and disruptive to access in and out of the neighborhood due to the extent of the

excavations required. Residents were generally supportive of the project and the sidewalk extension along Groveland School Road.

At the meeting, City staff further presented information on the different ways to stay informed during construction. Staff has been using various strategies to provide updates for other city projects including signage, text alerts, email updates, citizen alerts and newsletters.

In addition to holding the meeting at the Community Center, staff mailed letters to all property owners and offered to meet in many different ways to discuss project impacts, in response to the current COVID-19 pandemic.

Numerous questions and comments involved the parking restrictions on Groveland School Road and the safety of the pedestrians in the area. For the residents in attendance the consensus was that the neighborhood would like to see full no parking restrictions be added to the section of Groveland School Road near Groveland Elementary School. Staff has also received similar comments regarding no parking restrictions along Groveland School Road via email and during one-on-one meetings with property owners. Other comments and questions at the neighborhood meeting were typical to these types of projects including scheduling/phasing, access, drainage improvements, curb and gutter, driveways, and landscaping/trees.

A listing of resident questions and staff answers are included in Appendix G.

Estimated Costs

Estimated construction costs presented in this report include a 12.5 percent construction cost contingency factor, and 25 percent contingency for overhead costs including engineering, administrative, legal, and fiscal costs. Final costs will be determined by using low-bid construction costs of the proposed work.

Proposed construction costs for the Groveland-Bay Improvements Project (including bituminous roadway, concrete curb and gutter, concrete sidewalk, storm sewer, sanitary sewer, water main, and restoration) are itemized in Appendix F and are summarized below. These cost estimates are based upon public construction cost information. Since the consultant has no control over the cost of labor, materials, competitive bidding process, weather conditions and other factors affecting the cost of construction, all cost estimates are opinions for general information of the client and no warranty or guarantee as to the accuracy of construction cost estimates is made. It is recommended that costs for project financing should be based upon actual, competitive bid prices with reasonable contingencies.

Table 3 – Preliminary Cost Estimate Summary

Summary of Estimated Project Costs	
Roadway Improvements	$3,690,000
Utility Improvements	$3,060,000
Storm Sewer Improvements	$1,390,000
Electrical	$300,000
Total Estimated Project Cost	**$8,440,000**

Right-of-Way

The proposed improvements will be constructed within the existing street right-of-way throughout the project area.

Temporary easements and/or temporary right of entry permits will be needed to grade into the adjacent boulevard, to reconstruct water service pipes and curb stops, and to flatten steep driveways. If necessary, any identified easement needs during final design will be further coordinated with City Staff, City Attorney, and identified property owners.

Permit needs will also be verified during final design. A preliminary list of anticipated permits needed for construction include:

- Minnesota Pollution Control Agency (NPDES Permit)
- Minnesota Department of Health (Public Water Main)
- City LGU Process for Stormwater Management and Erosion/Sediment Control
- Hennepin County (Right of Way)
- Wetland Conservation Act Compliance

Project Schedule

The following schedule is proposed for completion of the project:

Presentation of Feasibility Study, Order Final Plans and Specifications ..... October 2020

Final Design ..... October 2020-January 2021

Advertise for Bids ..... January 2021

Open Bids ..... February 2021

Award Construction Contract ..... March 2021

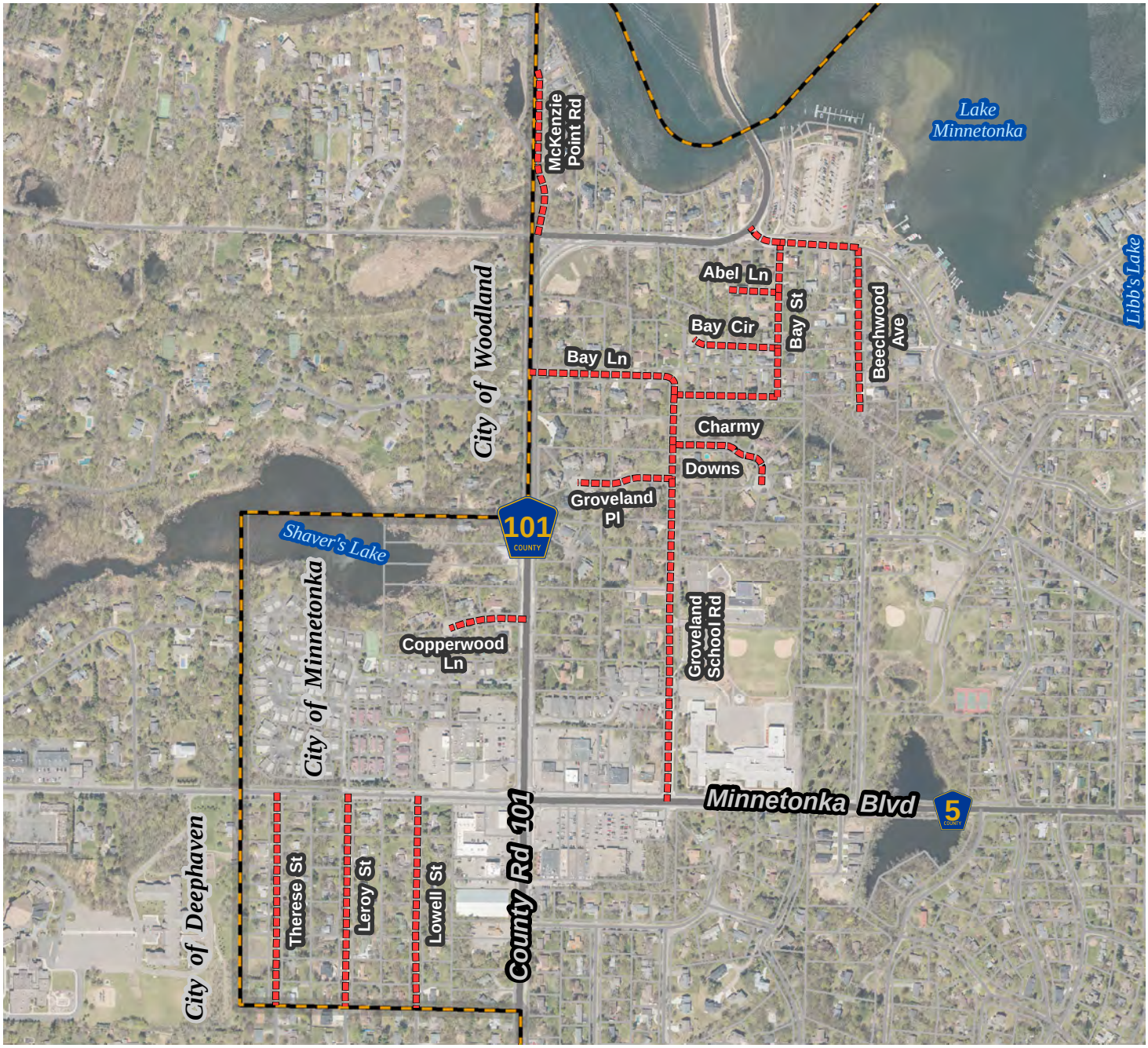
Construction of Project ..... April-November 2021

Conclusion / Recommendation

The project is feasible, necessary, and cost-effective from an engineering standpoint as described in this report and can best be accomplished by letting competitive bids for the work. It is recommended the work be completed under a single contract in order to complete the work in an efficient and orderly manner. The City will need to determine the economic feasibility of the proposed improvements.

Appendix A

Location Map – Groveland-Bay Neighborhood

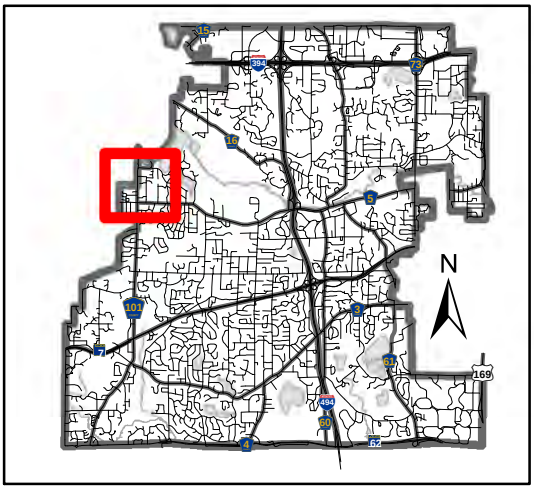


Groveland-Bay Improvements Project

Street Reconstruction

Municipal Boundary Line

CITY OF MINNETONKA

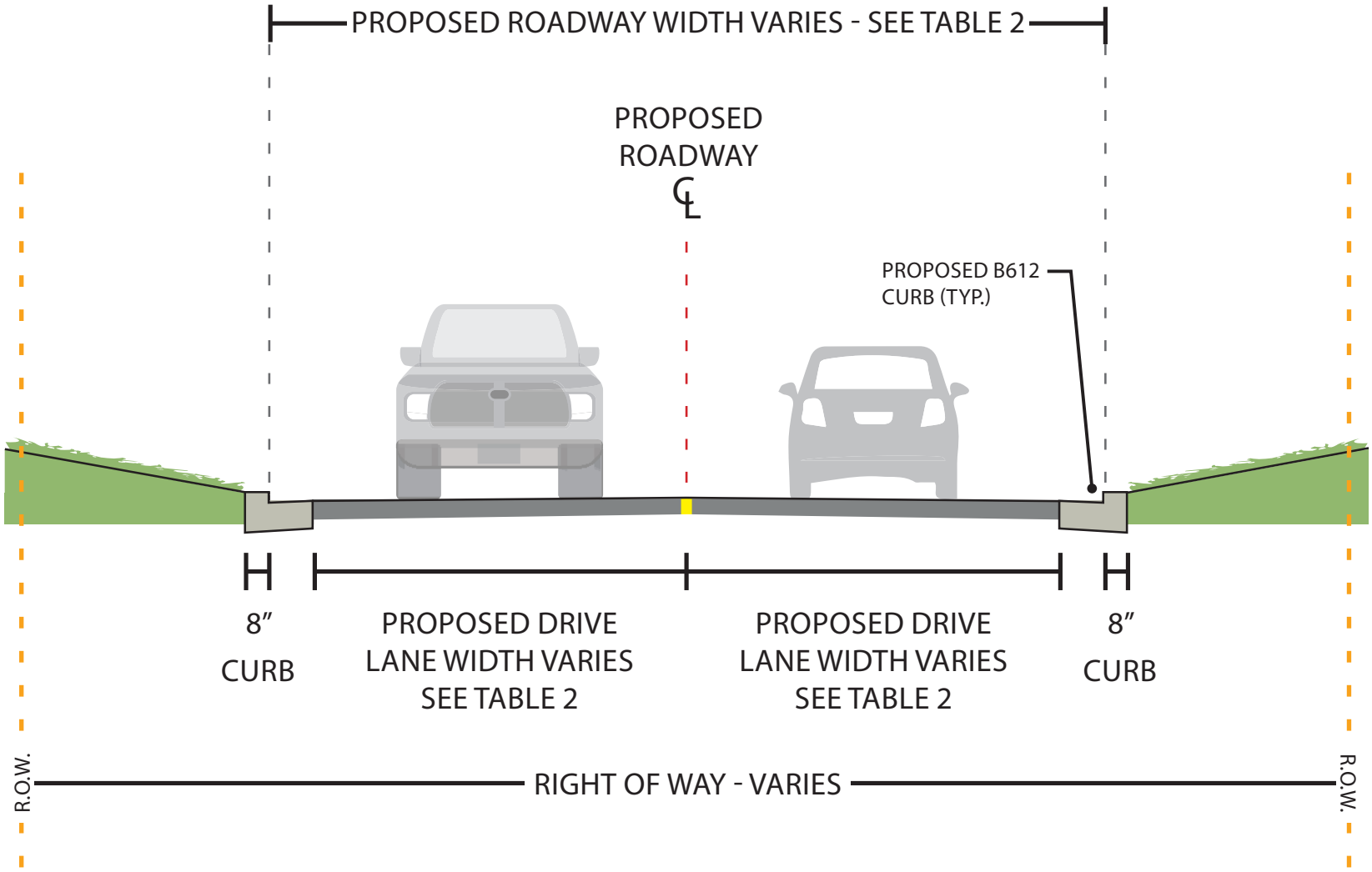


This map is for illustrative purposes only.

Appendix B

Proposed Typical Roadway Section

PROPOSED TYPICAL ROADWAY SECTION



Appendix C

Geotechnical Report

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

PRELIMINARY REPORT OF GEOTECHNICAL EXPLORATION AND REVIEW

2017 Improvements to Minnetonka Streets

Groveland School Road – Therese Street Area, Crosby Road, and Oakland Road
Minnetonka, Minnesota

Report No. 20-12197

Date:

June 16, 2015

Prepared for:

City of Minnetonka
14600 Minnetonka Boulevard
Minnetonka, Minnesota 55345

www.amengtest.com

AMERICAN ENGINEERING TESTING, INC.

CONSULTANTS
- ENVIRONMENTAL
- GEOTECHNICAL
- MATERIALS
- FORENSICS

June 16, 2015

City of Minnetonka
14600 Minnetonka Boulevard
Minnetonka, Minnesota 55430

Attn: Mr. Jeremy A. Koenen, P.E.

RE: Preliminary Geotechnical Exploration and Review
2017 Improvements to Minnetonka Streets
Groveland School Road – Therese Street Area, Crosby Road, and Oakland Road
Minnetonka, Minnesota
Report No. 20-12197

Dear Mr. Koenen:

American Engineering Testing, Inc. (AET) is pleased to present the results of our subsurface exploration program and geotechnical engineering analysis and review for the above referenced project in Minnetonka, Minnesota. These services were performed according to our proposal to you dated July 3, 2014 and project amendment dated December 2, 2014.

We are submitting two (2) copies of the report to you, along with an PDF copy. Please contact me if you have any questions about the report. I can also be contacted for arranging observation and testing services during the construction phase.

Sincerely,

American Engineering Testing, Inc.

Thomas P. Venema, P.E., LEED® AP
Principal Engineer/Vice President
651-659-1379 direct
tvenema@amengtest.com

TPV:jlee | X:\ DEPT 22 \ PROJECTS \ DEPT 20 \ 20-12147 2017 Improv to Mtka St GEO RPT 06.16.15 jlee.doc

SIGNATURE PAGE

Prepared for:

City of Minnetonka
14600 Minnetonka Boulevard
Minnetonka, Minnesota 55345

Attn: Mr. Jeremy A. Koenen, P.E.

Prepared by:

American Engineering Testing, Inc.
550 Cleveland Avenue North
St. Paul, Minnesota 55114
(651) 659-9001
www.amengtest.com

Authored by:

Thomas P. Venema, P.E., LEED®AP
Principal Engineer/Vice President

Reviewed by:

Derek S. Van Heuveln, P.E.
Senior 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 Licensed Professional Engineer under Minnesota Statute Section 326.02 to 326.15

Name: Thomas P. Venema

Date: 6-16-15 **License #:** 13922

TABLE OF CONTENTS

TABLE OF CONTENTS

1.0 INTRODUCTION

This preliminary report presents the results of the subsurface exploration program and geotechnical review we conducted in Minnetonka, Minnesota. To assist planning and design, you have authorized American Engineering, Inc. (AET) to conduct a subsurface exploration program at the site, conduct soil laboratory testing, and perform a geotechnical engineering review for the project. This report presents the results of the above services, and provides our engineering recommendations based on this data.

2.0 SCOPE OF SERVICES

AET's services were performed according to our proposal to you dated July 3, 2014 and in a project amendment dated December 2, 2014. The authorized scope of services for this portion of the project consists of the following:

- Drill 12 Standard Penetration Test (SPT) borings to depths of 16 to 18 feet with semi-continuous sampling.
- Conduct laboratory moisture content soil testing.
- Conduct laboratory resistivity testing and pH testing on soils to evaluate corrosion potential.
- Perform a geotechnical engineering analysis and prepare this report.

The subsurface exploration scope for this report was mutually agreed upon with the City of Minnetonka (the City). The number of borings selected will provide an overview of the

pavement and soil conditions; the actual conditions cannot be determined until construction. Additional borings and pavement cores will be performed to supply supplemental information for the final report.

These services are intended for geotechnical purposes. The scope is not intended to explore for the presence or extent of environmental contamination.

3.0 PROJECT INFORMATION

Selected streets are planned for reconstruction (rehabilitation) during the 2017 construction season. The following streets have been selected for the City's 2017 Rehabilitation Project.

Groveland School Road – Therese Street Areas

- Groveland School Road
- Groveland Place
- Charmy Downs
- Bay Lane
- Bay Street
- Bay Circle
- Abel Lane
- Beechwood Avenue
- McKenzie Point Road
- Therese Street
- Leroy Street
- Lowell Street
- Copperwood Lane
- Grays Bay Boulevard

Crosby Road

Oakland Road

The rehabilitation will consist of new storm sewers, full watermain replacement, and miscellaneous utility work for sanitary sewers. The sanitary sewers will be televised to determine where repairs are needed. The streets will be repaved with a new bituminous surface, along with new concrete curb and gutter. If feasible, it is planned to reclaim the existing bituminous surface for use as pavement aggregate base. The residential streets will be designed as 7 ton roads, with Crosby Road and Oakland Road designed as 10 ton roads. The surface drainage of the roads appears to be catch basins or drainage outlets that route the water to adjacent wetlands, low-lying areas and Lake Minnetonka.

3.1 General Comments

The above stated information represents our understanding of the proposed road construction. This information is an integral part of our engineering review. It is important that you contact us if there are changes from that described so that we can evaluate whether modifications to our recommendations are appropriate.

4.0 SUBSURFACE EXPLORATION AND TESTING

4.1 Field Exploration Program

The subsurface exploration program conducted for this portion of the project consisted of 12 SPT borings. The surface boring logs and details of the methods used appear in Appendix A. The logs contain information concerning soil layering, soil classification, geologic description, and moisture condition. Relative density or consistency is also noted for the natural soils, which is based on the Standard Penetration Resistance (N-value).

The general boring locations were selected by AET. The approximate boring locations are shown on Figure 1 in Appendix A. We have noted street locations and addresses on the boring logs. The borings were located on the streets to avoid existing utilities such as storm sewer, sanitary sewer, watermain, and gas and electrical services. Ground surface elevations and boring locations are to be obtained by the project surveyor at a later date.

4.2 Laboratory Testing

The laboratory test program included water content tests, laboratory soil resistivity testing, and pH tests. The moisture content test results appear in Appendix A on the individual boring logs adjacent to the samples upon which they were performed. The soil resistivity and pH tests were performed to evaluate soils for potential corrosion. These test results are presented in section ***6.3 "Watermain Corrosion Potential"*** of this report.

5.0 SITE CONDITIONS

5.1 Topography and Surface Conditions

The streets were constructed from the 1970's to the 1990's. The topography is rolling and the streets and corresponding residential structure elevations appear to have followed the original topography, with some cutting and filling to obtain the present grades. There are mature trees and partially wooded areas within the developments. Surface drainage from heavy rain precipitation events is routed to adjacent low lying areas, wetlands, Shaver's Lake, and Gray's Bay of Lake Minnetonka.

5.2 Surface of Existing Pavement

The existing bituminous pavement surface width varies throughout the project. The streets vary in width from about 20 feet to close to the proposed new width of 26 feet. We understand that if the site constraints and existing easements do not permit widening to 26 feet, then the new street section would match more closely to the existing street width.

The existing pavement has bituminous curb, with some areas having minimal or no curb. The pavement surfaces are in poor to moderate condition with numerous patches and some potholes. The potholes also occur near utility trenches and at surface utility features such as catch basins and manhole covers. There is also random pavement cracking, transverse and longitudinal cracking, and unevenness of the pavements. Some of the manhole covers are depressed from the pavement surface on the order of a few inches.

5.3 Pavement and Aggregate Base

The bituminous pavement encountered at the boring locations ranged from 5 to 13½ inches thick. The thickness variations appeared to be due to some areas having multiple overlays. Table A which is in Appendix A, presents our pavement thickness measurements based upon auger drilling, and thickness measurements of the aggregate base, type of base, and subgrade type. We have also noted the ground water level. We encountered aggregate base material types consisting of mixtures of sand and gravel, and mixtures of silty sand and clayey sand with gravel.

The pavement, aggregate base, and subgrade soils were variable at the boring locations. The aggregate base varied in thickness from 10½ to 39 inches for the City residential streets. The aggregate base thickness varied from 17 to 41 inches on Oakland Road. The aggregate base on Crosby Road was 17 inches at one boring location and not present at the other boring location.

5.4 Subgrade Soils

At some of the streets, the subgrade soils consisted predominately of granular soils that were classified as sand with silt, gravelly sands, and clayey and silty sands. The subgrade soils in other areas were mostly cohesive and were classified as sandy lean clay, lean clay, and sandy silts. Buried organic soils were present below the granular fill at a depth of 6½ to 11½ feet at Boring B-38, which was drilled on McKenzie Point Road.

The soils were termed as fill to depths of 4 feet to as deep as 16 feet, which was the termination depth of the borings. The variable fill depth could be due to the closeness of the utility services and is the backfill in the trenches.

5.4.1 Critical Subgrade Zone

The limiting soils concerning pavement support in the upper 3 feet of subgrade below the pavement at our boring locations generally consisted of lean clay, sandy lean clay, and sandy silt (AASHTO Classification A-6); clayey sand and gravelly clayey sand (A-2-6); silty sand (A-2-4); and sand, sand with silt, sand with gravel, and gravelly sand (A-1-b). The classification of A-6 is indicative of frost susceptible soils, which can heave when frozen, and also lose strength upon thawing in the spring. This type of subgrade is susceptible to pavement damage from heavy trucks during periods when the subgrade is weaker such as during the spring thaw period, or when in a saturated condition. Enforcement of load restrictions in the spring for these types of subgrades is important; however, garbage trucks regularly travel over streets even in the load restriction period.

5.5 Ground Water

We checked for the presence of ground water in the borings. We encountered ground water in five of the 12 of the borings to the depths drilled. We encountered ground water at a depth of 4 feet at Boring B-38 drilled on McKenzie Point Road, adjacent to a wetland and Gray's Bay of Lake Minnetonka. Water levels generally were lower for borings drilled at higher elevations. The borings that encountered generally cohesive soils would require a longer period of time, on the order of days to weeks, for the ground water level to come to equilibrium in the boreholes. The ground water levels observed during our field exploration would be more representative for the borings that encountered granular subgrade soils. Long-term ground water level measurements were not part of our scope of services on this project.

Ground water levels fluctuate due to varying seasonal and annual rainfall and snowmelt amounts, as well as other factors. The water level for the street improvements will also be influenced by the water level of the adjacent low areas, wetlands, and Lake Minnetonka and Shaver's Lake. The borings were drilled in the fall, which is generally a time when the water levels, both long-term and perched, are trending to their lowest level in the seasonal cycle. The ground water levels could increase in the spring and summer during wet periods of the year.

5.6 Engineering Review of Soil Properties

Typically, the granular materials encountered have moderate to high strength, unless they become disturbed. In general, the less silty granular materials possess good to moderate drainage characteristics, while the silty sands have fair drainage characteristics. The clayey sand and sandy clay soils have poor drainage characteristics. The granular soils have a low to moderate

susceptibility to frost heaving and freeze thaw weakening. The cohesive soils can have quite variable strength and stability properties, depending on the moisture content. These soils are considered to be moderately to highly susceptible to frost heaving and freeze thaw weakening.

The subgrade soils in the borings were granular and also silty and clayey in nature. The moisture contents are estimated to be near or above optimum based on the Standard Proctor test (ASTM D698) for proper compaction of utility trench backfill. Higher moisture contents of 19% to 37% were found in the layers of the lean clay and silt, which would be significantly above optimum. Lower moisture contents, in the range of 7% to around 22%, were generally found for the sand and clayey sand soils.

The soft to very soft buried organic soils below the fill in Boring B-38 on McKenzie Point Road are considered highly compressible, have low strength, and are considered slow draining. These soils will continue to experience on-going consolidation settlement from the weight of the fill above. This settlement could be on the order of a few inches over the next 10 years; additional borings and consolidation testing of the buried organic soils would be required to provide more definitive settlement analysis. The roadway embankments have been in-place an estimated 30 years or more; much of the anticipated settlement has already occurred. The on-going settlement could affect the performance of buried utilities, with regard to rupturing and possibly with regard to slope. This continuing settlement could also affect road grades.

6.0 RECOMMENDATIONS

6.1 Approach

This report will give recommendations related to pavement construction and utility backfilling for the 2017 Street Improvements. The streets proposed for the improvements will be designed as 7 ton roads. The pavement recommendations for Crosby Road and Oakland Road will be based upon a 10 ton road design and traffic count information from MnDOT. The design life of the pavement for fatigue and rutting is to be at least 20 years.

The existing pavement will be removed along with the existing watermain for the new construction. Our borings encountered significant differences in the pavement thickness throughout the project designated streets. Some areas appears to have multiple overlays. Some of the borings encountered sand and gravel aggregate base, and some borings encountered no aggregate base. Therefore, it may be difficult to establish a consistent reclaiming depth to grind the existing bituminous and mix with the underlying sand and gravel. The bituminous pavement and aggregate base can be removed and transported off-site for recycling. The pavement thicknesses and aggregate base thickness (if present) will not be fully discovered until complete excavation is performed.

The following sections present our recommendations with regard to pavement design and utility construction. For an overview of the pavement, aggregate base, and soil conditions, please refer to the enclosed boring logs and Table A in Appendix A.

6.1.1 City Preferred Road Design – Bituminous Pavement

6.1.1.1 Design – 7 ton Road

The typical 7 ton road section used by the City of Minnetonka is as follows, including the corresponding Gravel Equivalency (G.E.) value for each material:

- 5 inches of bituminous (2 lifts) - 2 inches wear course over 3 inches non-wear course. (G.E.=11.25)
- Bituminous tack coat between bituminous lifts.
- 6 inches of MnDOT 3138 Class 5 (100% crushed) or reclaimed aggregate base (G.E.=6)
- 12 inches of compaction subcut in cut sections.

Total: G.E.=17.25

In our opinion, this design section is adequate for the 2017 Residential Street Improvements. This road section has a calculated G.E. of 17.25. This meets the minimum G.E. requirement of 15 for a Soil Factor (S.F.) of 100 and a minimum G.E. requirement of 12 for an S.F. of 75, based on the MnDOT State Aid Design Procedure. This is for a traffic count of 400 to 1,000 ADT (Average Daily Traffic). The S.F. of 100 is based on a subgrade soil classified as AASHTO A-6 and the S.F. of 75 is based on a subgrade soil classified as AASHTO A-2-6 and A-2-4. This road design is close to meeting the G.E. (17.5) requirement of a 9 ton road, with less than 150 Heavy Commercial Average Daily Traffic (HCADT). Although the traffic will mainly consist of cars, there will be garbage trucks, which will travel over the roads year-round with axle loads of at least 9 tons.

6.1.1.2 Crosby Road and Oakland Road – Design – 10 ton Road

Crosby Road and Oakland Road have relatively high ADT, and can also be subjected to a fairly high HCADT. MnDOT studies have shown that Oakland Road has an ADT of 1,000 vehicles and that Crosby Road has an ADT of 1,900. There were not traffic counts for HCADT; therefore, an assumed percentage of 9% for metro area (urban) traffic can be used. This results in 90 HCADT for Oakland Road and 171 HCADT for Crosby Road. For these traffic counts, the total required G.E. would vary from 28 to 30, based upon a S.F. of 100. This S.F. is based upon the subgrade soil classified as AASHTO A-6 and an R-value of 12. The road section will be placed over the existing lean clay and sandy lean clay (fill) subgrade.

Based upon the above traffic information, subgrade soils and using MnPave Design and MnDOT Bituminous Pavement design charts, (based upon 18 kip ESAL's), we recommend the following design section:

- 6 inches of bituminous (3 lifts) - 4 inches wear course placed in 2 lifts over 2 inches of non-wear. (G.E.=13.50)
- Bituminous tack coat between bituminous lifts.
- 8 inches of MnDOT 3138 Class 5 (100% crushed) or reclaimed aggregate base (G.E.=8)
- 16 inches of Modified Select Granular Borrow sand subbase, placed in 2 lifts (G.E.=8)
- Geofabric separator, MnDOT 3377 (placed over the subgrade below the sand subbase) - optional
- 12 inches of compaction subcut in cut sections.

Total: G.E.=29.5

This design section is 30 inches thick and meets the MnDOT "30 inch frost free" section, which is beneficial for fatigue and rutting performance criteria.

Based on the predominately cohesive nature of the subgrade soils, the placement of the 16 inch thick layer of drained Modified Select Granular as the subbase would provide improved long-term pavement performance. The Modified Select Granular subbase will help control road unevenness from frost heave, improve subsurface drainage, and help extend the pavement life. The use of a Modified Select Granular subbase should also be considered for the 7 ton road design. For a 7 ton road, the thickness of the subbase can be reduced to 12 inches. The Modified Select Granular subbase is futher discussed in *Section 6.1.3*.

6.1.2 Compaction Subcut

The existing subgrade consists of variable soil types in the different street areas including sand and gravel, clayey sand, silty sand, and sandy clay in the upper 3 feet. The different soil types exhibit different strength and frost heave characteristics. One method of subgrade preparation would be to surface compact the subgrade and test for stability by proofrolling. Any soft or yielding areas should be subcut and replaced with similar materials.

A method of providing more uniform pavement support in areas where the subgrade consists of variable soil types would be to subcut 1 foot of the subgrade, compact the bottom of the subcut with three passes of a vibratory roller, and then blend the excavated materials and replace and compact in 6 inch lifts. This process, commonly referred to as a compaction subcut, will provide a more uniform material for support and frost heave characteristics. For the existing subgrade or

for a blended material compacted as recommended in the following sections, the pavements should be designed based on a subgrade R-value of 12 to 15, with an equivalent S.F. of 100. This is based on a predominant soil type of AASHTO A-6. An estimated R-value of 25 can be used for the subgrade areas consisting of predominately sand with gravel.

6.1.3 Long-term Pavement Performance Option in Cohesive Subgrade Areas – Modified Select Granular Subbase Placement

In our opinion, the existing soils within the upper portion of the subgrade classified as A-6 and to some extent A-2-6 are highly frost susceptible and may not provide adequate strength and subsurface drainage for long-term pavement performance. Utilizing Modified Select Granular Borrow to form the subbase, such as MnDOT 3149.2B2 modified to have less than 5% (by weight) passing the No. 200 sieve and no more than 40% (by weight) passing the No. 40 sieve, will provide better support than the current subgrade during the spring thaw period. Please refer to the standard sheets entitled "*Definitions Relating to Pavement Construction"* and "*Bituminous Pavement Subgrade Preparation and Design."* The upper 1 foot (16 inches for Oakland Road and Crosby Road) of the subgrade should be constructed with this material forming a Modified Select Granular subbase. Using this option, the pavement can be designed based on a subgrade R-value of 25.

Because the underlying subgrade soils are silty and clayey, and will not allow infiltrating water to percolate quickly, the Modified Select Granular subbase layer should be provided with a proper means of subsurface drainage. At the bottom of the Modified Select Granular subbase, we recommend the installation of finger drains tied into catch basins. The subsurface drains should be properly engineered and installed per MnDOT Specification 2502 Subcut Drains, (MnDOT Standard Specifications for Construction, 2014 Edition, pages 239 to 247).

6.1.4 Filling and Compaction

We recommend that subgrade fill be similar to the existing subgrade soils. If a sand subbase is used, it should meet Modified Select Granular Borrow specifications as described in Section 6.1.3. New fill and reworked soils should be compacted per MnDOT Specification 2105.3F1 (Specified Density Method). This requires that soils within the upper 3 feet of the subgrade be compacted to a minimum of 100% of the Standard Proctor maximum dry density (ASTM D698). Soils within this upper zone should also be placed and compacted at water contents between 65% and 102% of the optimum moisture content (based on the Standard Proctor). A reduced minimum compaction level of 95% of the Standard Proctor density can be used below the upper 3 foot zone. Moisture contents in this zone should be between 65% and 115% of the optimum moisture content. The Class 5 should be tested for compaction using a MnDOT Dynamic Cone Penetrometer and meet the requirements of MnDOT Specification 2211.3.C3.

We recommend that the road construction have a subgrade of granular fill at least 3 feet thick over areas that have buried organic soils. The pavement section would be constructed over the subgrade and is not included in the recommended minimum subgrade thickness of 3 feet.

6.1.5 Test Roll

We recommend a test roll (per MnDOT Specification 2111) be performed at the top of subgrade prior to the placement of aggregate base material. We also recommend a test roll be performed at the top of the aggregate base material prior to pavement construction. If a sand subbase is used or where the subgrade consists of sand and gravel with little to no fines, it may not be feasible to perform a test roll on top of the subbase. These types of sands do not contain a lot of binder material and rut easily. When confined by an aggregate base, the sand is stable when adequately compacted.

6.1.6 Subgrade Tapers

Uniformity of the soil below the roadway is an important factor in order to minimize frost heave and freeze thaw weakening related pavement distress. It is also important that any subgrade correction performed be tapered to minimize differential frost conditions between differing subgrade types. We recommend 4:1 (H:V) longitudinal tapers between the new streets and any connection to existing streets.

6.1.7 Pavement Material Design Recommendations

In our opinion, the previously recommended pavement designs would be adequate for subgrades prepared as given above. The crushed rock aggregate base should meet Class 5 specifications with the appropriate MnDOT Specification 2360 for Bituminous Material. We recommend using SPWEA240B for the wearing course and SPNWB230B for the non-wear course for the City Residential Streets. We recommend using a traffic level "3" in the mix design for Oakland Road and Crosby Road resulting in a mix design SPWEA340B for the wear course and SPNWB330B for the non-wear course. Better performance for rutting and fatigue can be obtained using an "F" oil, with a PG64-34. In our opinion, the use of the Modified Select Granular subbase would provide a longer pavement life than aggregate base placement directly over the existing clayey subgrade materials.

6.2 Additional Road Subgrade Considerations – Utility Trenches over Organic Soils

Boring B-38 drilled on McKenzie Point Road encountered buried organic soils below the granular subgrade fill. The organic soils consisted of sapric peat and organic clay at depths of 6½ to 11½ feet. The depth and thickness of the organic soils will likely vary along the street

away from the boring location. Some continuing settlement of the buried organic soils should be anticipated, possibly on the order of a few inches. Additional analysis would need to be performed to provide a more definitive estimate. The City has related that the sanitary sewer and watermain for this street are not supported on piles.

The watermain is likely supported in the fill soils over the buried organic soils or possibly bedded in the organic soils. The watermain replacement should include an adequate bedding layer with the design able to accommodate some additional settlement. If the organic soils do not extend significantly deeper than the bottom of the proposed watermain, they should be removed below the pipe. This could, however, contribute to some differential settlement of the street since the adjacent street section over the organic soils could experience continuing settlement.

Directional drilling can be considered for watermain replacement in areas where organic soils are present. Additional borings should be performed to obtain supplemental soil and ground water information.

6.3 Construction Dewatering – Utility Installation

Boring B-38 was drilled on McKenzie Point Road. This street is adjacent to a wetland and Gray's Bay of Lake Minnetonka. The elevation of the street appears to be within 4 to 5 feet of the adjacent wetland and lake level. We encountered ground water at a depth of 4 feet in Boring B-38. The subgrade soils consisted mostly of sand and gravel fill, overlying sapric peat and organic clay underlain by naturally-deposited granular soils.

In our opinion, open cut utility excavations would require construction dewatering when extended below the ground water level. Due to the proximity of the lake and wetland, and granular nature of the subgrade soils, in our opinion, dewatering by sump pits and pumps would not likely be able to keep up with the inflow of ground water for utility excavations below about 4 feet on McKenzie Point Road. Construction dewatering by means of well points would likely be required. In street areas where the excavation extends into more cohesive soils, where perched ground water is encountered, dewatering by sump pits and pumps could likely keep up with the ground water inflow.

There is a risk of settlement of adjacent utilities, houses, or structures, if the construction dewatering lowers the ground water level below the structures. Lowering the ground water would increase the effective stress on the soil (removing buoyancy properties) which would increase the stress to the soils and subsequently cause the settlement. The construction dewatering would need to be planned to limit the drawdown so as to not affect adjacent structures. It is the responsibility of the dewatering contractor to evaluate the potential for adverse effects on adjacent structures. It is beyond the scope of this report to evaluate the effects of construction dewatering operations.

In areas with high water levels, consideration can be given to a directionally drilling the watermain. However, connection to services would still require localized dewatering, which would still likely require using well points.

6.3.1 Utility Subgrade Preparation

New storm sewer is proposed to be constructed with some miscellaneous utility work for the sanitary sewer. The watermain will be replaced in all the streets. Excavation for underground utility construction will extend into the sand and clayey/silty soils. Peat and organic clay may be present at invert elevation on McKenzie Point Road. When unconfined, these soils are very sensitive to disturbance by construction traffic.

Where clayey/silty soils (AASHTO Classification A-6 and A-2-6) or organic soils are present at the pipe invert, the soil at the bottom of the trench should be over-excavated to allow placement of a minimum of 4 inches of granular bedding below the pipe. If the soils are found to be soft and susceptible to disturbance in the field, we recommend placing a geotextile separator fabric between the subgrade and the pipe bedding to reduce mixing of the subgrade and the bedding. We also recommend that the contractors remove any cobbles/boulders in the utility line trenches prior to utility line installation. This will reduce the potential for the development of point loads on the pipe that would not be accounted for in the pipe design.

6.3.2 Pipe Bedding

For pipe bedding material, we recommend a sand or sand and gravel mix with less than 10% (by weight) passing the No. 200 sieve, such as MnDOT 3149.2F. Based on the soil types encountered in our borings, we anticipate that imported fill will be required for a uniform pipe bedding material. Please refer to the enclosed standard sheet titled *"Bedding/Foundation Support of Buried Pipe"* for additional information.

Pipe bedding should be carefully placed and hand-compacted under the haunches of the pipe, around the pipe, and to a minimum of 6 inches above the crown. As backfill is placed in the trenches, special caution must be given to the densification of the soil around and over the pipe. The contractor may have to use special manual techniques to properly compact the backfill under the haunches of the pipe, in order to prevent voids and prevent lateral movement of the pipe. For the metallic watermain placements, the bedding must be in direct contact with the pipe (all around the pipe) before the trench is backfilled. This will also help prevent having dissimilar materials contacting the metallic pipes and setting up potential corrosion cells.

6.3.3 Trench Backfill – General Placement

The compaction of the utility trenches will be an important consideration for stability of the road subgrade. Soils compacted wet of optimum, and not achieving the specified density, will not exhibit the strength characteristics of an adequately compacted subgrade.

Review of our borings indicates that the trench backfill will consist of sand with gravel, silty sand, clayey sand, lean clay, and sandy lean clay, both fill and naturally-occurring. Our moisture content tests indicate that the soils appear to be near to above optimum moisture for compaction. The backfill should be compacted to the specifications given in Section 6.1.4. The fill should be placed in lifts thin enough to attain the specific compaction level throughout the entire lift thickness. This normally requires that fill be placed in loose lifts less than 8 inches in thickness.

The clayey and silty soils found at our borings are sensitive to changes in moisture content and could be difficult to compact at their natural moisture content and/or if they become wet and/or dry of optimum water content after they are excavated. Failure to compact the trench backfill to

the recommended densities could result in excessive settlement of pavements constructed over this material. If it is not feasible to dry the soils, then the backfill should be compacted in thin lifts, with a lower density anticipated. This is the "Quality Compaction Method," MnDOT Specification 2105.3F2. However, the top 3 feet of trench backfill should be dried to meet the recommended compaction and moisture content specifications, as this is the "critical" subgrade zone. Please refer to the enclosed standard sheet titled *"Utility Excavation Backfilling"* for additional information.

6.4 Watermain Corrosion Potential

We have reviewed the City of Minnetonka "Legend of Watermain Repairs." Watermain repairs have been noted for Therese Street, Groveland School Road, Grays Bay Boulevard, and Oakland Road.

The soils encountered in soil borings were predominately sand with gravel, clayey and silty sand, with some lean clay, silt and sandy lean clay. Organic soils were encountered on McKenzie Point Road. We combined samples of similar soils from individual selected borings for soil resistivity testing and pH testing. The resistivity and pH values are as follows:

Table B – Resistivity Values

Soil Boring No.	Depth of Sample Tested (ft.)	Natural Moisture (ohm-cm)	Water Added (ohm-cm)	pH	Soil Type
B-9	4½ – 13½	1,000	940	7.6	Sandy lean clay
B-36	4½ – 11	6,800	4,700	8.6	Clayey sand

The pH values are greater than 7, which is considered neutral. The values are on the base (alkaline) side of neutral and do not appear to be corrosive (from acidic soils).

The above resistivity values, when compared to American Water Work Association (AWWA) charts and other sources, indicate that the sandy lean clay is considered moderately corrosive. The clayey sand soil in boring B-36 is considered mildly corrosive. Organic soils are generally considered to be severely corrosive. Corrosion can occur to buried metallic pipes that are not coated or protected from soils that are considered corrosive, or where fluctuating ground water levels occur, or where dissimilar backfill has been placed.

The City has related that the age of the watermain pipes within these streets may be over 30 years old and the pipes were not coated or protected. In our opinion, the resistivity tests and history of watermain breaks indicates that future breaks can be expected. The City has indicated that they are proposing full watermain replacement during the street reconstruction. The coated pipes should be backfilled with sand completely around the pipes so that dissimilar soils are not in contact with the pipes.

7.0 CONSTRUCTION CONSIDERATIONS

7.1 Potential Difficulties

The strength and stability of the soils for road subgrades encountered at this site can be impacted by runoff water or perched ground water conditions. Where water is present, strength, and stability can be greatly reduced, especially with the more fine grained soils. The contractor should choose appropriate compaction methods for utility backfill and for street subgrades.

7.2 Excavation Backsloping

If excavation faces are not retained, the excavations should maintain maximum allowable slopes in accordance with *OSHA Regulations (Standards 29 CFR), Part 1926, Subpart P, "Excavations"* (can be found on www.osha.gov). Safe shoring methods, such as trench boxes can also be used. Even with the required OSHA sloping, water seepage or surface runoff can potentially induce sideslope erosion or running which could require slope maintenance.

7.3 Observation and Testing

The recommendations in this report are based on subsurface conditions found at our boring locations. The existing pavement thickness and soil conditions in the streets can be expected to vary away from the soil boring locations. We recommend on-site observation by a geotechnical engineer/technician during construction to evaluate these potential changes and to perform observation and density testing of utility backfill, and road subgrade density testing. Where granular fill material is imported, laboratory sieve analyses should be performed to document that the fill meets the recommended gradation criteria.

7.3.1 Ground Water

Ground water, both perched and long-term, would likely be encountered during excavation and construction of the new watermain. The new watermain should not be placed over disturbed, wet soils, and appropriate bedding of sufficient strengths should be used. Temporary pumping of water will need to be performed as discussed in section ***6.2 "Construction Dewatering – Utility Installation***." Depending on the time of the year and precipitation patterns, the ground water could be higher than shown in our borings.

The design of any dewatering is the responsibility of the contractor and should be designed such that the drawdown does not influence neighboring building, streets, and utilities.

7.3.2 Bituminous Removal

As discussed in the *Approach Secti*on, there are variable thicknesses of bituminous pavement and variable thickness of aggregate base. The appropriate construction methods for removal, and specified salvaging, will need to be performed.

8.0 LIMITATIONS

Within the limitations of scope, budget, and schedule, our services have been conducted according to generally accepted geotechnical engineering practices at this time and location. Other than this, no warranty, either expressed or implied, is intended.

Important information regarding risk management and proper use of this report is given in Appendix B entitled *"Geotechnical Report Limitations and Guidelines for Use."*

DEFINITIONS RELATING TO PAVEMENT CONSTRUCTION

TOP OF SUBGRADE
Grade which contacts the bottom of the aggregate base layer.

SAND SUBBASE
Uniform thickness sand layer placed as the top of subgrade which is intended to improve the frost and drainage characteristics of the pavement system by better draining excess water in the base/subbase, by reducing and "bridging" frost heaving and by reducing spring thaw weakening effects.

CRITICAL SUBGRADE ZONE
The subgrade portion beneath and within three vertical feet of the top of subgrade. A sand subbase, if placed, would be considered the upper portion of the critical subgrade zone.

GRANULAR BORROW
Soils meeting Mn/DOT Specification 3149.2B1. This refers to granular soils which, of the portion passing the 1" sieve, contain less than 20% by weight passing the #200 sieve.

SELECT GRANULAR BORROW
Soils meeting Mn/DOT Specification 3149.2B2. This refers to granular soils which, of the portion passing the 1" sieve, contain less than 12% by weight passing the #200 sieve.

MODIFIED SELECT GRANULAR BORROW
Clean, medium grained sands which, of the portion passing the 1" sieve, contain less than 5% by weight passing the #200 sieve and less than 40% by weight passing the #40 sieve.

GEOTEXTILE STABILIZATION FABRIC
Geotextile meeting Type V requirements defined in Mn/DOT Specification 3733. When using fabric, installation should also meet the requirements outlined in Mn/DOT Specification 3733.

COMPACTION SUBCUT
Construction of a uniform thickness subcut below a designated grade to provide uniformity and compaction within the subcut zone. Replacement fill can be the materials subcut, although the reused soils should be blended to a uniform soil condition and recompacted per the Specified Density Method (Mn/DOT Specification 2105.3F1).

TEST ROLL
A means of evaluating the near-surface stability of subgrade soils (usually non-granular). Suitability is determined by the depth of rutting or deflection caused by passage of heavy rubber-tired construction equipment, such as a loaded dump truck, over the test area. Yielding of less than 1" is normally considered acceptable, although engineering judgment may be applied depending on equipment used, soil conditions present, and/or pavement performance expectations.

UNSTABLE SOILS
Subgrade soils which do not pass a test roll. Unstable soils typically have water content exceeding the "standard optimum water content" defined in ASTM: D698 (Standard Proctor test).

ORGANIC SOILS
Soils which have sufficient organic content such that engineering properties/stability are affected. These soils are usually black to dark brown in color.

BITUMINOUS PAVEMENT SUBGRADE PREPARATION AND DESIGN

GENERAL

Bituminous pavements are considered layered "flexible" systems. Dynamic wheel loads transmit high local stresses through the bituminous/base onto the subgrade. Because of this, the upper portion of the subgrade requires high strength/stability to reduce deflection and fatigue of the bituminous/base system. The wheel load intensity dissipates through the subgrade such that the high level of soil stability is usually not needed below about 2 feet to 4 feet (depending on the anticipated traffic and underlying soil conditions). This is the primary reason for specifying a higher level of compaction within the upper subgrade zone versus the lower portion. Moderate compaction is usually desired below the upper critical zone, primarily to avoid settlements/sags of the roadway. However, if the soils present below the upper 3 feet subgrade zone are unstable, attempts to properly compact the upper 3 feet zone to the 100% level may be difficult or not possible. Therefore, control of moisture just below the 3 feet level may be needed to provide a non-yielding base upon which to compact the upper subgrade soils.

Long-term pavement performance is dependent on the soil subgrade drainage and frost characteristics. Poor to moderate draining soils tend to be susceptible to frost heave and subsequent weakening upon thaw. This condition can result in irregular frost movements and "pop-outs," as well as an accelerated softening of the subgrade. Frost problems become more pronounced when the subgrade is layered with soils of varying permeability. In this situation, the free-draining soils provide a pathway and reservoir for water infiltration which exaggerates the movements. The placement of a well-drained sand subbase layer as the top of subgrade can minimize trapped water, smooth frost movements and significantly reduce subgrade softening. In wet, layered and/or poor drainage situations, the long-term performance gain should be significant. If a sand subbase is placed, we recommend it be a "Select Granular Borrow" which meets Mn/DOT Specification 3149.2B2.

PREPARATION

Subgrade preparation should include stripping surficial vegetation and organic soils; where the exposed soils are within the upper "critical" subgrade zone (generally 2 feet deep for "auto only" areas and 3 feet deep for "heavy duty" areas), they should be evaluated for stability. Excavation equipment may make such areas obvious due to deflection and rutting patterns. Final evaluation of soils within the critical subgrade zone should be done by test rolling with heavy rubber-tired construction equipment, such as a loaded dump truck. Soils which rut or deflect 1" or more under the test roll should be corrected by either subcutting or replacement; or by scarification, drying, and recompaction. Reworked soils and new fill should be compacted per the "Specified Density Method" outlined in Mn/DOT Specification 2105.3F1 (a minimum of 100% of Standard Proctor density in the upper 3 feet subgrade zone, and a minimum of 95% below this).

Subgrade preparation scheduling can be an important consideration. Fall and Spring seasons usually have unfavorable weather for soil drying. Stabilizing non-sand subgrades during these seasons may be difficult, and attempts often result in compromising the pavement quality. Where construction scheduling requires subgrade preparation during these times, the use of a sand subbase becomes even more beneficial for constructability reasons.

SUBGRADE DRAINAGE

If a sand subbase layer is used, it should be provided with a means of subsurface drainage to prevent water build-up. This can be in the form of draintile lines which dispose into storm sewer systems, or outlets into ditches. Where sand subbase layers include sufficient sloping and water can migrate to lower areas, draintile lines can be limited to finger drains at the catch basins. Even if a sand layer is not placed, strategically placed draintile lines can aid in improving pavement performance. This would be most important in areas where adjacent non-paved areas slope towards the pavement. Perimeter edge drains can aid in intercepting water which may infiltrate below the pavement.

BEDDING/FOUNDATION SUPPORT OF BURIED PIPE

GENERAL

This page addresses soil bedding and foundation support of rigid pipe, such as reinforced concrete, and flexible pipe, such as steel and plastic. This does not address selection of pipe based on loads and allowable deflections, but rather addresses the geotechnical/soil aspects of uniform pipe support. Bedding/foundation support needs relate to local conditions directly beneath and to the sides of the pipe zone, which may be influenced by soft in-situ ground conditions or by soil disturbance due to soil sensitivity or ground water. Bedding relates to granular materials placed directly beneath the bottom of the pipe (usually 4" to 6" thick), which is intended to provide increased support uniformity. We refer to foundation soils as thicker layers of sands and/or gravels (beneath the bedding zone) intended to provide increased foundation strength support, usually needed due to soft, unstable and/or waterbearing conditions.

GRANULAR BEDDING

With circular pipes, high local loads (approaching point loads) develop if pipes are placed on hard surfaces. Load distribution is improved by placing granular bedding materials beneath the pipe, which are either shaped to match the pipe bottom or are placed without compaction to allow "settling in." The bedding should be placed in such a manner that the pipe will be at the proper elevation and slope when the pipe is laid on the bedding. Common bedding material is defined in Mn/DOT Specification 3149.2F, Granular Bedding. Published documents recommend rigid pipes having a diameter of 12" to 54" be placed on a bedding thickness of 4", which increases to 6" of bedding for pipe diameters ranging from 54" to 72". Beyond a 72" diameter, the bedding thickness can be equal to the pipe outside diameter divided by 12. Typically, the need for bedding under small diameter pipes (less than 12") depends on the pipe designer's specific needs, although in obvious point loads situations (bedrock, cobbles, significant coarse gravel content), bedding is recommended. Note that bedding should also account for larger diameter bells at joints.

FOUNDATION FILL

Positive uniform strength is usually compromised in soft or unstable trench bottom conditions. In this case, deeper subcuts and foundation fill placement is needed beneath the pipe. In moderate instability conditions, improvement can likely be accomplished with a thicker bedding layer. However, in more significant instability situations, particularly where ground water is present, coarser materials may be needed to provide a stronger foundation. Thicker gravel layers can also be a favorable media from which to dewater. The following materials would be appropriate for stability improvement, with the coarser materials being appropriate for higher instability/ground water cases.

- Fine Filter Aggregate – Mn/DOT Specification 3149.2J
- Coarse Filter Aggregate –Mn/DOT Specification 3149.2H

When using a coarser material which includes significant void space, we highly recommend enveloping the entire gravel layer within a geotextile fabric. The gravel material includes open void space, and the fabric acts as a separator which minimizes the intrusion of fines into the open void space. If an additional granular bedding sand is used above foundation gravel, the fabric would also prevent downward infiltration of bedding sand into the rock void space.

Although it is preferred to not highly compact thin granular bedding zones directly beneath the pipe center, it is desirable to compact the foundation materials to prevent more significant pipe settlement. We recommend foundation fill be compacted to a minimum of 95% of the Standard Proctor density (ASTM:D698). It is not possible to test coarse rock fill, although this material should still be well compacted/ tamped.

Often, pipes entering structures such as catch basins, lift stations, etc., enter the structure at a higher elevation than the structure bottom, and are therefore placed on the structure backfill. Fill beneath these pipes should be considered foundation fill. Depending on the flexibility of the connection design, it may be necessary to increase the minimum compaction level to reduce differential settlements, particularly with thicker fills.

SIDE FILL SUPPORT

If the pipe designer requires support from the side fill, granular bedding should also be placed along the sides of the pipe. In poor soil conditions, the sand fill may need to be placed laterally up to two pipe diameters on both sides of the pipe. With rigid pipe, compacted sand placement up to the spring line (within the haunch area) is usually sufficient. With flexible pipe, side fill should be placed and compacted at least to the top of the pipe. For positive support, it is very important to properly compact the sands within the haunch area.

UTILITY EXCAVATION BACKFILLING

GENERAL

Clayey and silty soils are often difficult to compact, as they may be naturally wet or dry, or may become wet due to ground water or runoff water during construction. Soils will need to be placed within a certain range of water (moisture) content to attain desired compaction levels. Moisture conditioning to within this range can be time consuming and labor intensive, and will require favorable weather.

The degree of compaction and the soil type used for backfill within open cut utility excavations depends on the eventual function of the overlying land surface. Details are as follows:

ROADWAYS

Where trenches are located below roadways, we recommend using inorganic fill and compacting these soils per MnDOT Specification 2105.3F1 (Specified Density Method). This specification requires achieving 100% of the Standard Proctor density in the upper 3-foot subgrade zone, and 95% below this. Note that this specification also includes moisture content range requirements which are important for proper subgrade stability.

Where available soils are wet or of poor quality, it may be possible to use the "Quality Compaction Method" (MnDOT Specification 2105.3F2) for soils below the upper 3-foot subgrade zone if you can tolerate some subsidence. However, a high level of stability is still important within the upper subgrade zone and recommend that the "Specified Density Method" be used in this upper subgrade area. We caution that if backfill soils in the lower trench area are significantly unstable, it may be difficult or even impossible to properly compact soils within the upper 3-foot subgrade zone. In this case, road subgrade stability can be improved by placing a geotextile reinforcement fabric directly over the unstable soils followed by properly drained granular fill placement.

STRUCTURAL AREAS

If fill is placed beneath or within the significant zone of influence of a structure (typically a 1:1 lateral oversize zone), the soil type and minimum compaction level will need to be evaluated on an individual basis. Because trenches result in variable fill depths over a short lateral distance, higher than normal compaction levels and/or more favorable (sandy) soil fill types may be needed. If this situation exists, it is important that special geotechnical engineering review be performed.

NON-STRUCTURAL AREAS

In grass/ditch areas, backfill soils should be placed in reasonable lift thicknesses and compacted to a minimum of 90% of the Standard Proctor density (ASTM: D698) and/or per the Mn/DOT "Quality Compaction Method." If lower compaction levels are accepted, more noticeable subsidence at the surface can occur. Steep or high slopes require special consideration, and if this situation exists, it is important that special geotechnical engineering review be performed.

SPECIAL CASES

Structural retention systems are often used to reduce impacts on adjacent streets/improvements. If localized excavations/pits or annular spaces are created which need to be backfilled, it may not be possible to place and compact soils by the conventional means of backfilling. Retraction of structural systems can also leave soils loosened. Significant settlement can occur in areas where backfill cannot be compacted. If these situations are located in non-structural or non-paved areas, it may be reasonable to accept the settlements and associated follow-up maintenance in order avoid the high cost of trying to compact the soil or placing flowable lean concrete fill. However, there may be areas where fill settlement needs to be avoided, especially as the settlement will be differential from the surrounding surface, or differential from a buried structure in the case of higher piping entering the structure. Where settlement needs to be avoided, the specification should require that the contractor submit a backfill compaction plan along with the retention plan. Improper sequencing of retention system removal and backfilling of the pits could result in excessive settlement and/or lateral movement of nearby improvements.

Appendix A

Geotechnical Field Exploration and Testing
Boring Log Notes
Unified Soil Classification System
AASHTO Soil Classification System
Figure 1 – Boring Locations
Subsurface Boring Logs
Table A: Pavement and Aggregate Base Thickness, Subgrade Information

Appendix A
Geotechnical Field Exploration and Testing
Report No. 20-12197

A.1 FIELD EXPLORATION

The subsurface conditions at the site were explored by drilling and sampling 12 Standard Penetration Test (SPT) borings locations. The locations of the borings and cores appear on Figure 1 preceding the Subsurface Boring Logs in this appendix.

A.2 SAMPLING METHODS

A.2.1 Split-Spoon Samples (SS) - Calibrated to N_{60} Values

Standard penetration (split-spoon) samples were collected in general accordance with ASTM: D1586 with one primary modification. The ASTM test method consists of driving a 2-inch O.D. split-barrel sampler into the in-situ soil with a 140-pound hammer dropped from a height of 30 inches. The sampler is driven a total of 18 inches into the soil. After an initial set of 6 inches, the number of hammer blows to drive the sampler the final 12 inches is known as the standard penetration resistance or N-value. Our method uses a modified hammer weight, which is determined by measuring the system energy using a Pile Driving Analyzer (PDA) and an instrumented rod.

In the past, standard penetration N-value tests were performed using a rope and cathead for the lift and drop system. The energy transferred to the split-spoon sampler was typically limited to about 60% of its potential energy due to the friction inherent in this system. This converted energy then provides what is known as an N_{60} blow count.

The most recent drill rigs incorporate an automatic hammer lift and drop system, which has higher energy efficiency and subsequently results in lower N-values than the traditional N_{60} values. By using the PDA energy measurement equipment, we are able to determine actual energy generated by the drop hammer. With the various hammer systems available, we have found highly variable energies ranging from 55% to over 100%. Therefore, the intent of AET's hammer calibrations is to vary the hammer weight such that hammer energies lie within about 60% to 65% of the theoretical energy of a 140-pound weight falling 30 inches. The current ASTM procedure acknowledges the wide variation in N-values, stating that N-values of 100% or more have been observed. Although we have not yet determined the statistical measurement uncertainty of our calibrated method to date, we can state that the accuracy deviation of the N-values using this method is significantly better than the standard ASTM Method.

A.2.2 Disturbed Samples (DS)/Spin-up Samples (SU)

Sample types described as "DS" or "SU" on the boring logs are disturbed samples, which are taken from the flights of the auger. Because the auger disturbs the samples, possible soil layering and contact depths should be considered approximate.

A.2.3 Sampling Limitations

Unless actually observed in a sample, contacts between soil layers are estimated based on the spacing of samples and the action of drilling tools. Cobbles, boulders, and other large objects generally cannot be recovered from test borings, and they may be present in the ground even if they are not noted on the boring logs.

Determining the thickness of "topsoil" layers is usually limited, due to variations in topsoil definition, sample recovery, and other factors. Visual-manual description often relies on color for determination, and transitioning changes can account for significant variation in thickness judgment. Accordingly, the topsoil thickness presented on the logs should not be the sole basis for calculating topsoil stripping depths and volumes. If more accurate information is needed relating to thickness and topsoil quality definition, alternate methods of sample retrieval and testing should be employed.

A.3 CLASSIFICATION METHODS

Soil descriptions shown on the boring logs are based on the Unified Soil Classification (USC) system. The USC system is described in ASTM: D2487 and D2488. Where laboratory classification tests (sieve analysis or Atterberg Limits) have been performed, accurate classifications per ASTM: D2487 are possible. Otherwise, soil descriptions shown on the boring logs are visual-manual judgments. Charts are attached which provide information on the USC system, the descriptive terminology, and the symbols used on the boring logs.

Visual-manual judgment of the AASHTO Soil Group is also noted as a part of the soil description. A chart presenting details of the AASHTO Soil Classification System is also attached.

The boring logs include descriptions of apparent geology. The geologic depositional origin of each soil layer is interpreted primarily by observation of the soil samples, which can be limited. Observations of the surrounding topography, vegetation, and development can sometimes aid this judgment.

A.4 WATER LEVEL MEASUREMENTS

The ground water level measurements are shown at the bottom of the boring logs. The following information appears under "Water Level Measurements" on the logs:

- Date and Time of measurement
- Sampled Depth: lowest depth of soil sampling at the time of measurement
- Casing Depth: depth to bottom of casing or hollow-stem auger at time of measurement
- Cave-in Depth: depth at which measuring tape stops in the borehole
- Water Level: depth in the borehole where free water is encountered
- Drilling Fluid Level: same as Water Level, except that the liquid in the borehole is drilling fluid

The true location of the water table at the boring locations may be different than the water levels measured in the boreholes. This is possible because there are several factors that can affect the water level measurements in the borehole. Some of these factors include: permeability of each soil layer in profile, presence of perched water, amount of time between water level readings, presence of drilling fluid, weather conditions, and use of borehole casing.

A.5 LABORATORY TEST METHODS

A.5.1 Water Content Tests

Conducted per AET Procedure 01-LAB-010, which is performed in general accordance with ASTM: D2216 and AASHTO: T265.

A.5.2 Laboratory Soil Resistivity using the Wenner Four-Electrode Method

Conducted per AET Procedure 01-LAB-090, which is performed using Soil Box apparatus in the laboratory in general accordance with ASTM: G57

A.6 TEST STANDARD LIMITATIONS

Field and laboratory testing is done in general conformance with the described procedures. Compliance with any other standards referenced within the specified standard is neither inferred nor implied.

A.7 SAMPLE STORAGE

Unless notified to do otherwise, we routinely retain representative samples of the soils recovered from the borings for a period of 30 days.

BORING LOG NOTES

DRILLING AND SAMPLING SYMBOLS

Symbol	Definition
B,H,N:	Size of flush-joint casing
CA:	Crew Assistant (initials)
CAS:	Pipe casing, number indicates nominal diameter in inches
CC:	Crew Chief (initials)
COT:	Clean-out tube
DC:	Drive casing; number indicates diameter in inches
DM:	Drilling mud or bentonite slurry
DR:	Driller (initials)
DS:	Disturbed sample from auger flights
FA:	Flight auger; number indicates outside diameter in inches
HA:	Hand auger; number indicates outside diameter
HSA:	Hollow stem auger; number indicates inside diameter in inches
LG:	Field logger (initials)
MC:	Column used to describe moisture condition of samples and for the ground water level symbols
N (BPF):	Standard penetration resistance (N-value) in foot (see notes)
NQ:	NQ wireline core barrel
PQ:	PQ wireline core barrel
RD:	Rotary drilling with fluid and roller or drag bit
REC:	In split-spoon (see notes) and thin-walled tube sampling, the recovered length (in inches) of sample. In rock coring, the length of core recovered (expressed as percent of the total core run). Zero indicates no sample recovered.
REV:	Revert drilling fluid
SS:	Standard split-spoon sampler (steel; 1-3/8" is inside diameter; 2" outside diameter); unless indicated otherwise
SU	Spin-up sample from hollow stem auger
TW:	Thin-walled tube; number indicates inside diameter in inches
WASH:	Sample of material obtained by screening returning rotary drilling fluid or by which has collected inside the borehole after "falling" through drilling fluid
WH:	Sampler advanced by static weight of drill rod and 140-pound hammer
WR:	Sampler advanced by static weight of drill rod
94mm:	94 millimeter wireline core barrel
▽:	Water level directly measured in boring
∉:	Estimated water level based solely on sample appearance

TEST SYMBOLS

Symbol	Definition
CONS:	One-dimensional consolidation test
DEN:	Dry density, pcf
DST:	Direct shear test
E:	Pressuremeter Modulus, tsf
HYD:	Hydrometer analysis
LL:	Liquid Limit, %
LP:	Pressuremeter Limit Pressure, tsf
OC:	Organic Content, %
PERM:	Coefficient of permeability (K) test; F - Field; L - Laboratory
PL:	Plastic Limit, %
q_p:	Pocket Penetrometer strength, tsf (approximate)
q_c:	Static cone bearing pressure, tsf
q_u:	Unconfined compressive strength, psf
R:	Electrical Resistivity, ohm-cms
RQD:	Rock Quality Designation of Rock Core, in percent (aggregate length of core pieces 4" or more in length as a percent of total core run)
SA:	blows per Sieve analysis
TRX:	Triaxial compression test
VSR:	Vane shear strength, remoulded (field), psf
VSU:	Vane shear strength, undisturbed (field), psf
WC:	Water content, as percent of dry weight
%-200:	Percent of material finer than #200 sieve

STANDARD PENETRATION TEST NOTES

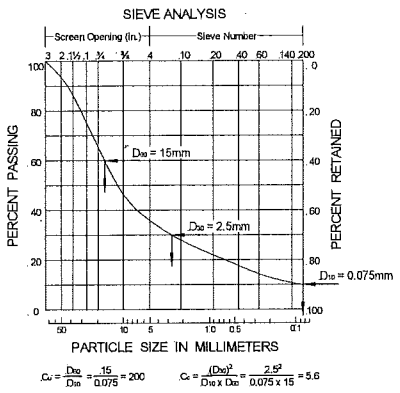
The standard penetration test consists of driving the sampler with a 140 pound hammer and counting the number of blows applied in each of three 6" increments of penetration. If the sampler is driven less than 18" (usually in highly resistant material), permitted in ASTM:D1586, the blows for each complete 6" increment and for each partial increment is on the boring log. For partial increments, the number of blows is shown to the nearest 0.1' below the slash.

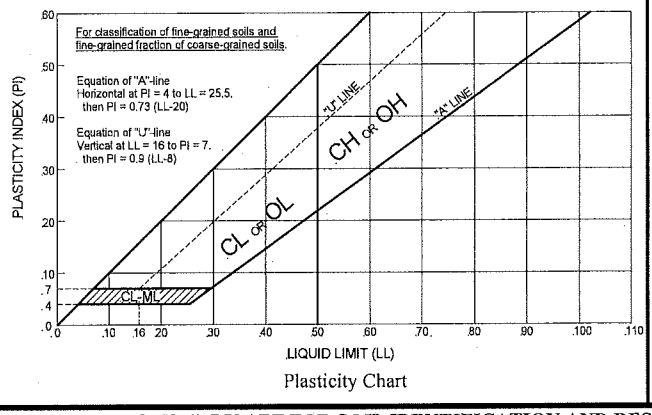
The length of sample recovered, as shown on the "REC" column, may be greater than the distance indicated in the N column. The disparity is because the N-value is recorded below the initial 6" set (unless partial penetration defined in ASTM:D1586 is encountered) whereas the length of sample recovered is for the entire sampler drive (which may even extend more than 18").

UNIFIED SOIL CLASSIFICATION SYSTEM
ASTM Designations: D 2487, D2488

AMERICAN ENGINEERING TESTING, INC.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification: Group Symbol	Soil Classification: Group Name[B]
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels More than 50% coarse fraction retained on No. 4 sieve	Clean Gravels Less than 5% fines[C]	Cu≥4 and 1≤Cc≤3[E]	GW	Well graded gravel[F]
			Cu<4 and/or 1>Cc>3[E]	GP	Poorly graded gravel[F]
		Gravels with Fines more than 12% fines[C]	Fines classify as ML or MH	GM	Silty gravel[F,G,H]
			Fines classify as CL or CH	GC	Clayey gravel[F,G,H]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands Less than 5% fines[D]	Cu≥6 and 1≤Cc≤3[E]	SW	Well-graded sand[I]
			Cu<6 and 1>Cc>3[E]	SP	Poorly-graded sand[I]
		Sands with Fines more than 12% fines[D]	Fines classify as ML or MH	SM	Silty sand[G,H,I]
			Fines classify as CL or CH	SC	Clayey sand[G,H,I]
Fine-Grained Soils 50% or more passes the No. 200 sieve (see Plasticity Chart below)	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 soil			Primarily organic matter, dark in color, and organic in odor	PT	Peat[R]





Plasticity Chart

Notes

[A]Based on the material passing the 3-in (75-mm) sieve.

[B]If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C]Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay

[D]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

[E]$Cu = D_{60} / D_{10}$, $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}}$

[F]If soil contains ≥15% sand, add "with sand" to group name.

[G]If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H]If fines are organic, add "with organic fines" to group name.

[I]If soil contains ≥15% gravel, add "with gravel" to group name.

[J]If Atterberg limits plot is hatched area, soils is a CL-ML silty clay.

[K]If soil contains 15 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.

[R]Fiber Content description shown below.

ADDITIONAL TERMINOLOGY NOTES USED BY AET FOR SOIL IDENTIFICATION AND DESCRIPTION

Grain Size

Term	Particle Size
Boulders	Over 12"
Cobbles	3" to 12"
Gravel	#4 sieve to 3"
Sand	#200 to #4 sieve
Fines (silt & clay)	Pass #200 sieve

Gravel Percentages

Term	Percent
A Little Gravel	3% - 14%
With Gravel	15% - 29%
Gravelly	30% - 50%

Consistency of Plastic Soils

Term	N-Value, BPF
Very Soft	less than 2
Soft	2 - 4
Firm	5 - 8
Stiff	9 - 15
Very Stiff	16 - 30
Hard	Greater than 30

Relative Density of Non-Plastic Soils

Term	N-Value, BPF
Very Loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	Greater than 50

Moisture/Frost Condition (MC Column)

D (Dry): Absense of moisture, dusty, dry to touch.

M (Moist): Damp, although free water not visible. Soil may still have a high water content (over "optimum").

W (Wet/ Waterbearing): Free water visible intended to describe non-plastic soils. Waterbearing usually relates to sands and sand with silt.

F (Frozen): Soil frozen

Layering Notes

Laminations: Layers less than ½" thick of differing material or color.

Lenses: Pockets or layers greater than ½" thick of differing material or color.

Fiber Content of Peat

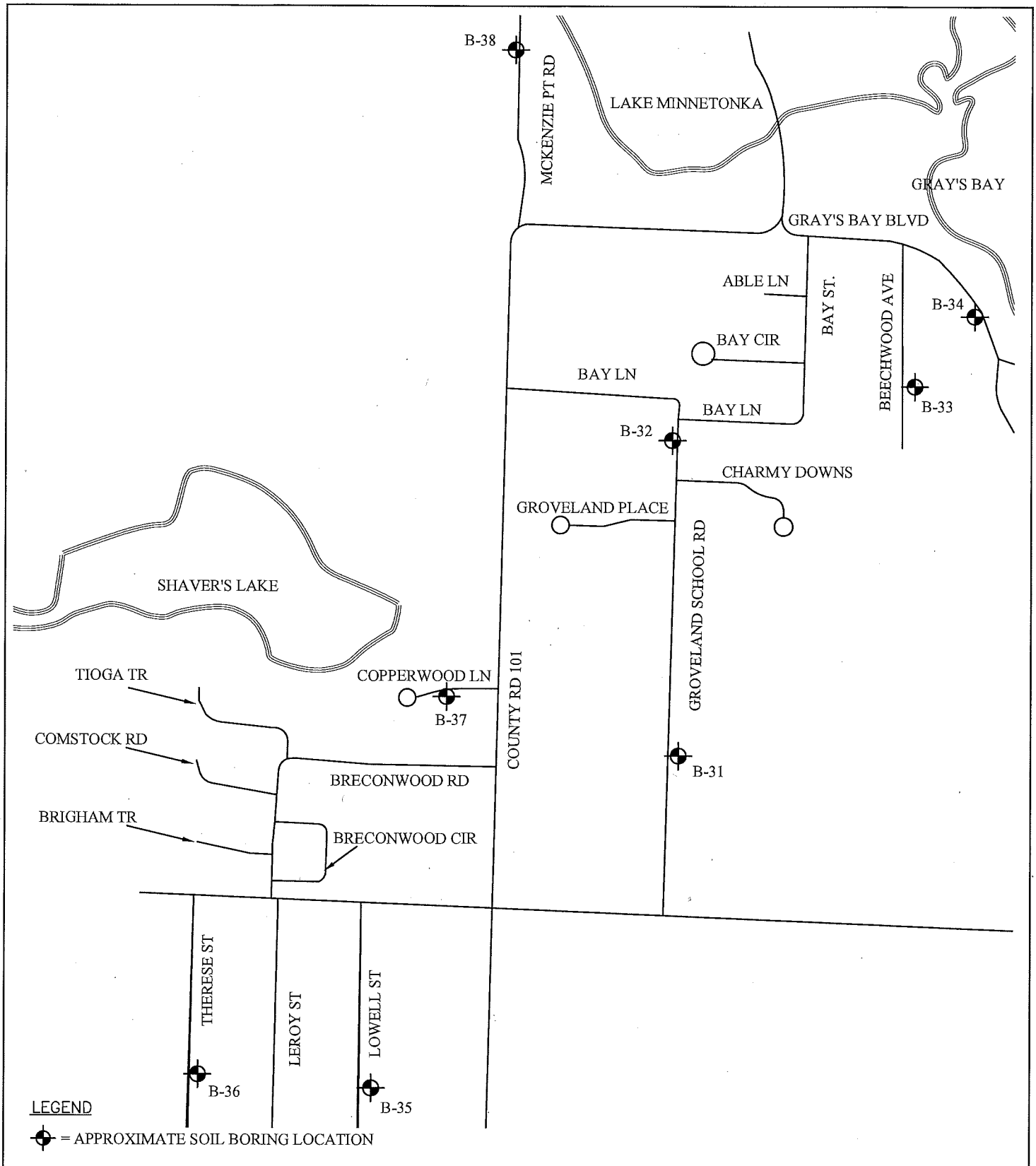
Term	Fiber Content (Visual Estimate)
Fibric Peat:	Greater than 67%
Hemic Peat:	33 – 67%
Sapric Peat:	Less than 33%

Organic/Roots Description (if no lab tests)

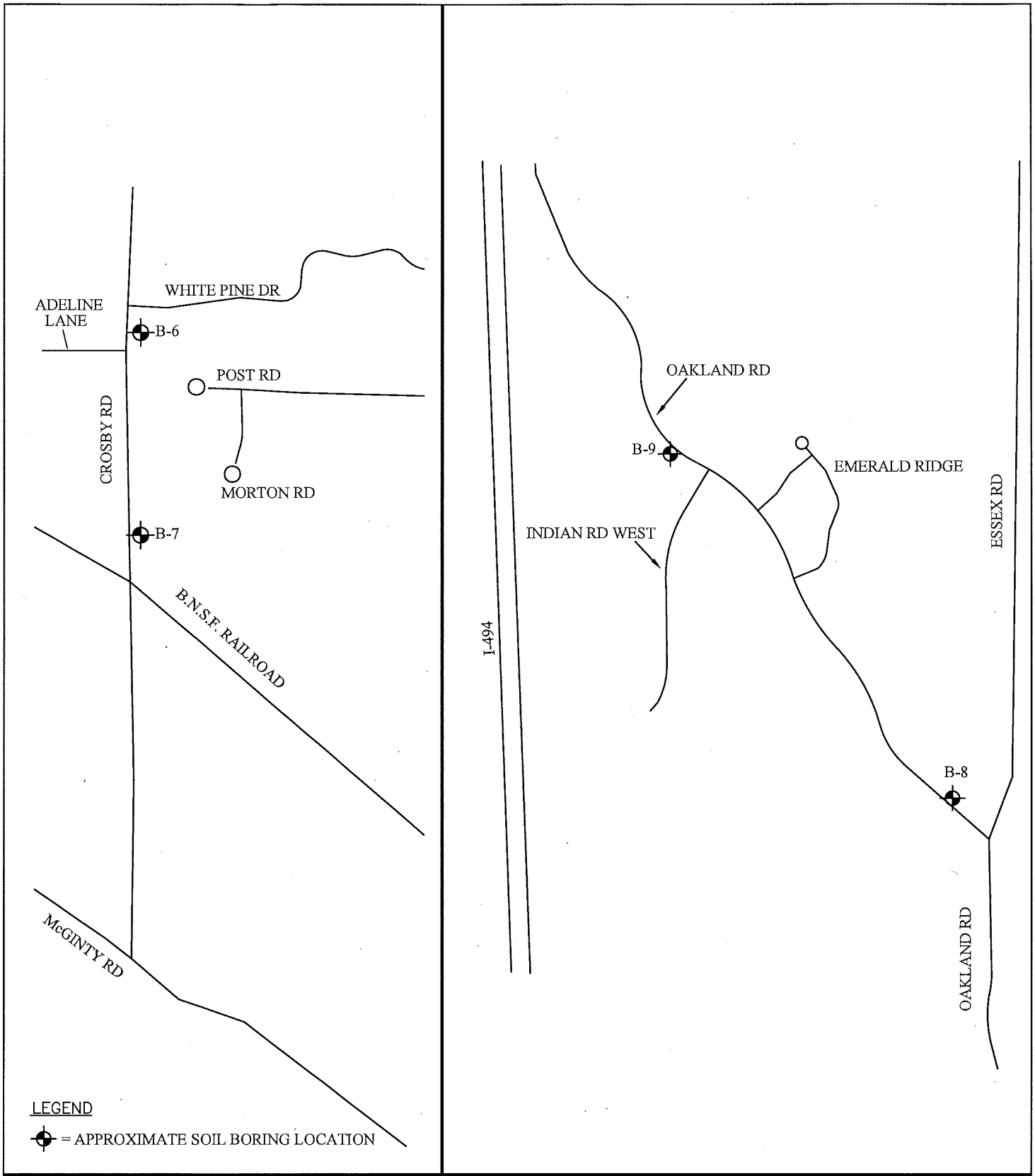
Soils are described as *organic*, if soil is not peat and is judged to have sufficient organic fines content to influence the soil properties. *Slightly organic* used for borderline cases.

With roots: Judged to have sufficient quantity of roots to influence the soil properties.

Trace roots: Small roots present, but not judged to be in sufficient quantity to significantly affect soil properties.



AMERICAN ENGINEERING TESTING, INC.	NOT TO SCALE	**PROJECT** 2017 Street Rehabilitation, Minnetonka, Minnesota	**AET NO.** 20-12197
		SUBJECT Boring Locations	**DATE** March 2015
		DRAWN BY VJL / **CHECKED BY** Tom Venema	**FIGURE 1**



AMERICAN ENGINEERING TESTING, INC.	NOT TO SCALE	**PROJECT** Street Rehabilitation, Minnetonka, Minnesota	**AET NO.** 20-12197
		SUBJECT Boring Locations	**DATE** March 2015
		DRAWN BY VJL / **CHECKED BY** Tom Venema	**FIGURE 1A**

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **6 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	7" Bituminous pavement	FILL			SU						
1	FILL, mostly sand with silt and gravel, a little silty sand and silt, brown and dark brown (A-1-b)		30	M	SS	14					
2	SANDY LEAN CLAY, a little gravel, trace roots, dark gray, a little brown, gray and black, very stiff, laminations of silt and clayey sand (CL) (A-6) (possible fill)	TILL OR FILL	17	M	SS	14	14				
3		COARSE ALLUVIUM OR FILL									
4	SAND, a little gravel, fine to medium grained, brown, a little dark brown, moist, medium dense, lenses and laminations of sandy lean clay (SP) (A-1-b) (possible fill)	TILL									
5			5	M	SS	12	21				
6	LEAN CLAY WITH SAND, a little gravel, gray, dark gray and light grayish brown mottled, firm, laminations of silt and clayey sand (CL) (A-6)	FINE ALLUVIUM									
7											
8	LEAN CLAY WITH SAND, a little gravel, trace roots, dark grayish brown, a little dark gray and gray, soft, lenses and laminations of clayey sand and sand (CL) (A-6)		2	M	SS	12	26				
9		TILL									
10	LEAN CLAY WITH SAND, a little gravel, gray and brownish gray mottled, a little brown, soft, laminations of silt and sand (CL) (A-6)		2	M	SS	14	21				
11											
12	LEAN CLAY, dark brownish gray and gray mottled, a little dark brown, firm, laminations of sandy silt (CL/CH) (A-6)	FINE ALLUVIUM									
13			6	M	SS	14	28				
14											
15			5	M	SS	14	32				
16	**END OF BORING**										

Boring Location: Crosby Road, between White Pine Drive and Adeline Lane

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/9/14**	**10:31**	**16.0**	**14.5**	**15.9**		**None**
BORING COMPLETED: **9/9/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **7 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	10" Bituminous pavement	FILL			SU		9				
1	FILL, mixture of clayey sand and sandy lean clay with gravel, a little sand and silt, dark brown, a little brown and grayish brown (A-2-6, A-6)		14	M	SS	12	9				
2											
3	FILL, mostly sandy lean clay with gravel, pieces of bituminous, a little clayey sand and silty sand, dark grayish brown and dark gray, a little brown and gray (A-6)		37	M	SS	12	10				
4											
5	FILL, mostly clayey sand with gravel, a little silty sand, sand and lean clay, brown, a little gray, dark grayish brown and dark brown (A-2-6, A-6)		10	M	SS	12	14				
6											
7	FILL, mostly lean clay with sand, a little gravel, clayey sand, sand with silt, brown, a little brown and dark brown (A-6)	FINE ALLUVIUM OR FILL	7	M	SS	2	10				
8	CLAYEY SAND, a little gravel, brown mottled, a little grayish brown, firm, lenses and laminations of silty sand (SC) (A-2-6) (possible fill)										
9		COARSE ALLUVIUM OR FILL									
10	SILTY SAND, a little gravel, fine to medium grained, grayish brown, a little brown, moist, loose, laminations of sand (S,) (A-2-4)		5	M	SS	2					
11											
12	CLAYEY SAND, a little gravel, dark brownish gray, a little dark grayish brown and dark gray, soft, lenses of slightly organic lean clay (SC) (A-2-6)	MIXED ALLUVIUM	3	M ▼	SS	6	22				
13											
14	LEAN CLAY WITH SAND, a little gravel, gray, a little light gray, firm, laminations of lean clay and sand (CL) (A-6)	TILL									
15			7	M/W	SS	12	24				
16											
17	LEAN CLAY, gray, a little light gray and dark gray, stiff (CL/CH) (A-6)	FINE ALLUVIUM									
18			9	M/W	SS	12	28				
	END OF BORING										
	Boring Location: Crosby Road, located North of Portico Drive										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-17' 3.25" HSA	**9/9/14**	**11:35**	**16.0**	**14.5**	**14.6**		**13.5**
	9/9/14	**11:45**	**18.5**	**17.0**	**18.5**		**18.0**
BORING COMPLETED: **9/9/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 3/17/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **8 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	7" Bituminous pavement	FILL			SU						
1	FILL, mostly silty sand with gravel, pieces of bituminous, concrete and wood, a little sand and silt, dark brown and brown (A-2-4)		62	M	SS	12					
2											
3			14	M	SS	6					
4											
5	FILL, mostly lean clay, a little silt and sandy silt, grayish brown, a little light tan and brown (A-6)		6	M	SS	6	29				
6											
7	FILL, mostly lean clay with sand, a little gravel, a little sandy silt and silt, brown and dark brown, a little light tan and black (A-6)		16	M	SS	12	20				
8											
9											
10			23	M	SS	2	21				
11											
12	FILL, mostly lean clay with sand, a little gravel, silt and sandy silt, brownish gray and gray and brown, a little light tan and dark brown (A-6)		17	M	SS	12	20				
13											
14											
15			20	M	SS	12	21				
16	**END OF BORING**										
	Boring Location: 2312 Oakland Road										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/10/14**	**12:57**	**16.0**	**14.5**	**16.0**		**None**
BORING COMPLETED: **9/10/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 3/17/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **9 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	6.75" Bituminous pavement	FILL			SU						
1	FILL, mostly silty sand with gravel, pieces of bituminous and concrete, a little clayey sand, dark brown (A-2-4)		20	M	SS	12					
2											
3	FILL, mostly lean clay with sand, a little gravel and sandy silt, grayish brown and brown, a little light tan (A-6)		9	M	SS	6	21				
4											
5			22	M	SS	12	17				
6											
7	FILL, mostly lean clay with sand, silt and sandy silt, brown and grayish brown, a little light tan (A-6)		23	M	SS	12	19				
8											
9											
10	FILL, mostly lean clay with sand, gravel silt and sandy silt, brown, a little dark brown and light tan (A-6)		25	M	SS	12	19				
11											
12	FILL, mostly lean clay with sand, a little gravel and silt, dark brown and light tan (A-6)		23	M	SS	12	17				
13											
14											
15	FILL, mostly lean clay with sand, a little gravel and silt, dark brown and light brown (A-6)		27	M	SS	12	19				
16	**END OF BORING**										
	Boring Location: 1929 & 1937 Oakland Road										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/10/14**	**1:47**	**16.0**	**14.5**	**16.0**		**None**
BORING COMPLETED: **9/10/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 3/17/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **31 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
1	13.5" Bituminous pavement	FILL			SU						
2	FILL, mostly sand with silt, a little gravel and silty sand, brown, a little dark brown (A-1-b)		29	M	SS	12					
3	FILL, mostly sand with silt, a little gravel and clayey sand, brown, a little dark grayish brown (A-1-b)		21	M	SS	12					
4											
5	FILL, mostly lean clay with sand, a little gravel, clayey sand and sand, gray, a little black and light gray (A-6)		8	M	SS	14	19				
6											
7	FILL, mostly sandy silt, a little gravel, silty sand, clayey sand and sand, gray, a little dark gray and light gray (A-4)		6	M	SS	12	22				
8											
9											
10	FILL, mixture of clayey sand and sand with silt, a little gravel, silty sand and silt, trace roots, gray, a little dark gray and light gray (A-2-6, A-2-4)		4	M	SS	6	13				
11				▼							
12	FILL, mostly clayey sand, a little gravel, sand with silt and silty sand, dark gray, a little brownish gray, gray and brown (A-2-6)		1	W	SS	4	28				
13											
14	FILL, mostly sand with silt, a little gravel, grayish brown (A-3)										
15			3	W	SS	12					
16	LEAN CLAY, gray, soft, laminations of silt (CL) (A-6)	FINE ALLUVIUM					37				
17	LEAN CLAY, gray, a little dark gray, firm, laminations of fat clay (CL) (A-6)										
18			6	W	SS	12	35				
	END OF BORING										
	Boring Location: 3218 Groveland School Road										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-17' 3.25" HSA	**9/17/14**	**11:20**	**13.5**	**12.0**	**12.5**		**11.7**
	9/17/14	**11:27**	**18.5**	**17.0**	**16.8**		**13.6**
BORING COMPLETED: **9/17/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 2/6/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **32 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	6.75" Bituminous pavement	FILL			SU						
1	FILL, mostly clayey sand with gravel, dark brown (A-2-6)		18	M	SS	6	10				
2											
3	FILL, mostly sandy lean clay, a little gravel, clayey sand and silty sand, dark brown, a little brown (A-6)		5	M	SS	6	17				
4											
5	FILL, mostly sand with silt, a little gravel, silty sand and clayey sand, brown, a little light brown and dark brown (A-1-b)		5	M	SS	2					
6											
7	FILL, mostly clayey sand, a little gravel, pieces of bituminous, trace roots, dark brown, a little brown (A-2-6)		5	M	SS	6	13				
8											
9											
10	FILL, mostly clayey sand, a little gravel and sand with silt, dark brown, a little brown (A-2-6)		8	M	SS	1	8				
11											
12	SAND WITH SILT AND GRAVEL, fine to medium grained, brown, moist, dense, laminations of silt (SP-SM) (A-1-b) (possible fill)	COARSE ALLUVIUM OR FILL	36	M	SS	2					
13											
14											
15	SAND, a little gravel, fine to medium grained, brown, moist, medium dense (SP) (A-1-b) (possible fill)		22	M	SS	12					
16	**END OF BORING**										
	Boring Location: 3011 Groveland School Road										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/18/14**	**11:12**	**16.0**	**14.5**	**15.8**		**None**
BORING COMPLETED: **9/18/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **33 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	6" Bituminous pavement	FILL			SU						
1	FILL, mostly sand with gravel, pieces of bituminous, brown (A-1-b)		18	M	SS	6					
2											
3	FILL, mostly gravely sand, a little clayey sand, brown, a little dark brown (A-1-b)		14	M	SS	6					
4											
5			8	M	SS	6					
6											
7	FILL, mixture of silty sand and clayey sand, a little gravel, pieces of bituminous, dark brown, a little gray and brown (A-2-4, A-2-6)		8	M	SS	6					
8											
9	SAND WITH GRAVEL, a little clayey sand, fine to medium grained, brown, a little dark brown, moist, loose (SP) (A-1-b)	COARSE ALLUVIUM OR FILL									
10			4	M	SS	6					
11											
12	SAND WITH GRAVEL, trace roots, fine to medium grained, light brown, moist, medium dense (SP) (A-1-b)		12	M	SS	12					
13											
14											
15			16	M	SS	12					
16	**END OF BORING**										
	Boring Location: 2933 Beechwood Avenue										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/18/14**	**9:55**	**16.0**	**14.5**	**15.9**		**None**
BORING COMPLETED: **9/18/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 2/6/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **34 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	10.5" Bituminous pavement	FILL			SU						
1	FILL, mostly sand with gravel, a little silty sand and clayey sand, brown, a little dark brown (A-1-b)		42	M	SS	12					
2											
3	FILL, mostly sand, a little gravel, brown (A-1-b)		16	M	SS	6					
4											
5	FILL, mostly sand with gravel, a little clayey sand, brown, a little dark brown (A-1-b)		10	M	SS	12					
6											
7	FILL, mostly sand with silt and gravel, pieces of bituminous, a little clayey sand and silt, dark grayish brown and black, a little light brown (A-1-b)		28	M	SS	4					
8											
9											
10	FILL, mostly sand with silt and gravel, pieces of bituminous, a little clayey sand and silt, dark grayish brown and black, a little light brown (A-1-b)		4	M ▼	SS	6					
11											
12	SAND WITH GRAVEL, medium to fine grained, brown, waterbearing, very loose (SP) (A-1-b)	COARSE ALLUVIUM	1	W	SS	2					
13											
14											
15	SAND WITH GRAVEL, medium to fine grained, brown, waterbearing, very loose (SP) (A-1-b)		10	W	SS	12					
16	**END OF BORING**										
	Boring Location: 17036 Gray's Bay Boulevard										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/18/14**	**9:15**	**13.5**	**12.0**	**12.0**		**11.1**
	9/18/14	**9:18**	**16.0**	**14.5**	**13.5**		**10.8**
BORING COMPLETED: **9/18/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **35 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	7" Bituminous pavement	FILL			SU						
1	FILL, mostly sand with silt and gravel, brown, a little dark brown (A-1-b)		35	M	SS	6					
2											
3	FILL, mostly gravelly clayey sand, a little sand with silt, brown, a little dark brown and light brown (A-2-6)		13	M	SS	12	7				
4											
5			8	M	SS	1	7				
6											
7	FILL, mostly sandy silt and gravel, pieces of bituminous, a little clayey sand, brown, a little dark brown (A-2-4)		19	M	SS	1	8				
8											
9											
10	SAND WITH GRAVEL, fine to medium grained, light brown, moist, medium dense (SP) (A-1-b) (possible fill)	COARSE ALLUVIUM OR FILL	21	M	SS	12					
11											
12	SAND, a little gravel, fine to medium grained, light brown, a little dark brown and brown, moist, medium dense (SP) (A-1-b) (possible fill)		21	M	SS	12					
13											
14											
15	SAND WITH GRAVEL, fine to medium grained, brown, moist, medium dense (SP) (A-1-b) (possible fill)		21	M	SS	12					
16	**END OF BORING**										
	Boring Location: 3508 Lowell Street										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/12/14**	**10:00**	**16.0**	**14.5**	**15.7**		**None**
BORING COMPLETED: **9/18/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 2/6/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **36 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	6.75" Bituminous pavement	FILL			SU						
1	FILL, mostly gravelly sand with silt, a little clayey sand and silt, brown, a little light brown (A-1-b)		18	M	SS	12					
2											
3	FILL, mostly clayey sand with gravel, a little lean clay, sand and sandy lean clay, dark brown, a little black and brown (A-2-6)		9	M	SS	6	10				
4											
5	FILL, mixture of sandy lean clay and clayey sand with gravel, a little sand with silt, trace roots, dark brown, a little brown (A-2-6)		6	M	SS	6	9				
6											
7											
8			8	M	SS	8	11				
9											
10	FILL, mostly clayey sand and gravel, a little sand with silt and silt, trace roots, a little dark brown and light brown (A-2-6)		4	M	SS	6	9				
11											
12	SAND WITH SILT, a little gravel, fine to medium grained, brown, waterbearing, very loose, lenses and laminations of silty sand (SP-SM) (A-2-4) (possible fill)	COARSE ALLUVIUM OR FILL		▼							
13			2	W	SS	12					
14											
15	SAND WITH SILT, a little gravel, fine to medium grained, grayish brown, waterbearing, very loose, lenses and laminations of silty sand (SP-SM) (A-2-4) (possible fill)		4	W	SS	12					
16	**END OF BORING**										
	Boring Location: 3509 Therese Street										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/12/14**	**10:53**	**13.5**	**12.0**	**12.8**		**12.2**
	9/12/14	**10:57**	**16.0**	**14.5**	**14.0**		**12.8**
BORING COMPLETED: **9/12/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 2/6/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **37 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	5" Bituminous pavement	FILL			SU						
1	FILL, mostly sand with silt and gravel, a little clayey sand and silty sand, brown, a little light brown (A-1-b)		26	M	SS	12					
2											
3	FILL, mostly sand with gravel, a little clayey sand, brown, a little black (A-1-b)		15	M	SS	12					
4											
5	FILL, mostly gravelly sand with silt, a little clayey sand, brown, a little dark brown and light brown (A-1-b)		9	M	SS	6					
6											
7	FILL, mostly sand with silt and gravel, a little clayey sand and silty sand, brown, a little dark brown (A-1-b)		7	M	SS	6					
8											
9											
10	FILL, mostly sand with silt and gravel, a little clayey sand, light brown and brown (A-1-b)		6	M	SS	6					
11											
12	SAND, a little gravel, fine grained, light brown, a little grayish brown, moist, medium dense, laminations of silty sand and lean clay (SP) (A-3)	COARSE ALLUVIUM	14	M	SS	12					
13											
14											
15	SAND, fine to medium grained, light brown, moist, medium dense (SP) (A-3)		16	M	SS	12					
16	**END OF BORING**										
	Boring Location: 17611 Copperwood Lane										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/12/14**	**12:13**	**16.0**	**14.5**	**15.8**		**None**
BORING COMPLETED: **9/12/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 3/17/15

AMERICAN ENGINEERING TESTING, INC.

SUBSURFACE BORING LOG

AET No: **20-12197.17** Log of Boring No. **38 (p. 1 of 1)**

Project: **2017 Streets; Minnetonka, MN**

DEPTH IN FEET	Surface Elevation _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	PL	%-#200
	10.5" Bituminous pavement	FILL			SU						
1	FILL, mostly sand with silt, a little gravel, clayey sand and lean clay, dark grayish brown, a little brown (A-1-b)		15	M	SS	12					
2											
3			28	M	SS	1					
4				▼							
5	FILL, mostly silty sand, a little gravel, clayey sand and sand, trace roots, dark brownish gray (A-2-4)		3	W	SS	4					
6											
7	SAPRIC PEAT, grayish brown, a little black (PT) (A-8)	SWAMP DEPOSIT									
8			2	W	SS	4	254				
9											
10	ORGANIC CLAY, brownish gray, a little dark brown and dark gray, very soft, laminations of sapric peat and sand (OH) (A-8)		2	W	SS	2	64				
11											
12	CLAYEY SAND, a little gravel, trace roots, gray, a little brownish gray, soft, laminations of sand and silty sand (SC) (A-2-6)	COARSE ALLUVIUM									
13			3	W	SS	3	28				
14											
15	GRAVELLY SAND WITH SILT, medium to fine grained, gray, waterbearing, medium dense, laminations of clayey sand and silty sand (SP-SM) (A-1-b) (possible fill)		13	W	SS	12					
16	**END OF BORING**										
	Boring Location: 2813 McKenzie Point Road										

DEPTH: DRILLING METHOD	WATER LEVEL MEASUREMENTS						
	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-14½' 3.25" HSA	**9/18/14**	**12:20**	**6.0**	**4.5**	**4.4**		**3.8**
	9/18/14	**12:39**	**16.0**	**14.5**	**12.8**		**5.2**
BORING COMPLETED: **9/18/14**							
DR: **DTS** LG: **TM** Rig: **1C**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AET_CORP 20-12197.17.GPJ AET+CPT+WELL.GDT 2/6/15

Table A - 2017 Streets
Pavement and Aggregate Base Thickness, Subgrade Information
City of Minnetonka - AET Project No. 20-12197

Street Location	Soil Boring No.	Bituminous Thickness (in)	Aggregate Base Thickness (in)	Aggregate Base Type	Subgrade Type*	Water Level Depth (ft)	Comments
Crosby Rd., Near Adeline Ln.	6	7	17	Sand with Silt, Gravel	Sandy Lean Clay (A-6)	N.E.	
Crosby Rd., North of Portico Dr.	7	10	-	-	Clayey Sand, Sandy Lean Clay (A-2-6) (A-6)	13.5	Bituminous pieces from 1-2 feet
2312 Oakland Rd.	8	7	41	Silty Sand, Gravel, Bit Pieces, Concrete	Lean Clay and Sandy Silt (A-6)	N.E.	Wood pieces in the base, classified (A-2-4)
Between 1929 & 1939 Oakland Rd.	9	6.75	17	Silty Sand, Gravel, Bit Pieces, Concrete	Lean Clay and Sandy Silt (A-6)	N.E.	
3213 Groveland School Rd.	31	13.5	10.5	Sand with Silt, a little Gravel	Sand with Silt, a little Gravel (A-1-b)	11.5	Possible base to 4 feet; Lean Clay (A-6) at 4 feet
3011 Groveland School Rd.	32	6.75	17	Clayey Sand with Gravel	Sandy Lean Clay (A-6)	N.E.	Bituminous pieces in fill from 6.5-11.5 feet
2933 Beechwood Ave.	33	6	18	Sand with Gravel, Bit Pieces	Gravelly Sand (A-1-b)	N.E.	Bituminous pieces in fill from 6.5-9 feet
17036 Grays Bay Blvd.	34	10.5	13.5	Sand with Gravel, Silty Sand	Sand, a little Gravel (A-1-b)	11	Bituminous pieces in fill from 6.5-11.5 feet
3508 Lowell Street	35	7	17	Sand with Silt, Gravel	Gravelly Clayey Sand (A-2-6)	N.E.	Bituminous pieces in fill from 6.5-9 feet
3509 Therese Street	36	6.75	17	Gravelly Sand with Silt	Clayey Sand with Gravel, Lean Clay (A-2-6)	12	
17611 Copperwood Ln.	37	5	19	Sand with Silt, Gravel	Sand with Gravel, Clayey Sand (A-1-b)	N.E.	
2813 Mckenzie Pt. Rd.	38	10.5	37	Sand with Silt, Clayey Sand	Silty Sand, a little Gravel (A-2-4)	4	Peat and Organic Clay 6.5-11.5 feet

Note:
AASHTO Soil Classification designation appears in parenthesis *

Appendix B

Geotechnical Report Limitations and Guidelines for Use

Appendix B
Geotechnical Report Limitations and Guidelines for Use
Report No. 20-12197

B.1 REFERENCE

This appendix provides information to help you manage your risks relating to subsurface problems which are caused by construction delays, cost overruns, claims, and disputes. This information was developed and provided by ASFE[1], of which, we are a member firm.

B.2 RISK MANAGEMENT INFORMATION

B.2.1 Geotechnical Services are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared solely for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. And no one, not even you, should apply the report for any purpose or project except the one originally contemplated.

B.2.2 Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

B.2.3 A Geotechnical Engineering Report is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typically factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, always inform your geotechnical engineer of project changes, even minor ones, and request an assessment of their impact. Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.

B.2.4 Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. Do not rely on a geotechnical engineering report whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. Always contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

1 ASFE, 8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733: www.asfe.org

B.2.5 Most Geotechnical Findings Are Professional Opinions
Site exploration identified subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ, sometimes significantly, from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

B.2.6 A Report's Recommendations Are Not Final
Do not overrely on the construction recommendations included in your report. Those recommendations are not final, because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.

B.2.7 A Geotechnical Engineering Report Is Subject to Misinterpretation
Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

B.2.8 Do Not Redraw the Engineer's Logs
Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should never be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, but recognizes that separating logs from the report can elevate risk.

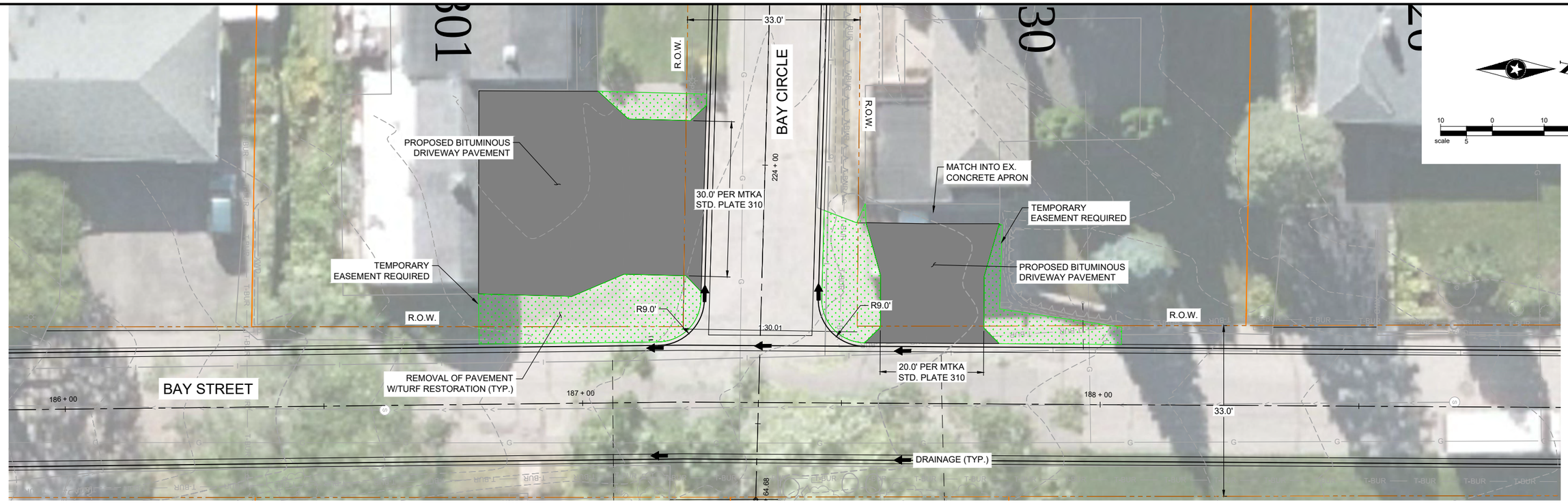
B.2.9 Give Contractors a Complete Report and Guidance
Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, but preface it with a clearly written letter of transmittal. In the letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. Be sure contractors have sufficient time to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

B.2.10 Read Responsibility Provisions Closely
Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their report. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. Read these provisions closely. Ask questions. Your geotechnical engineer should respond fully and frankly.

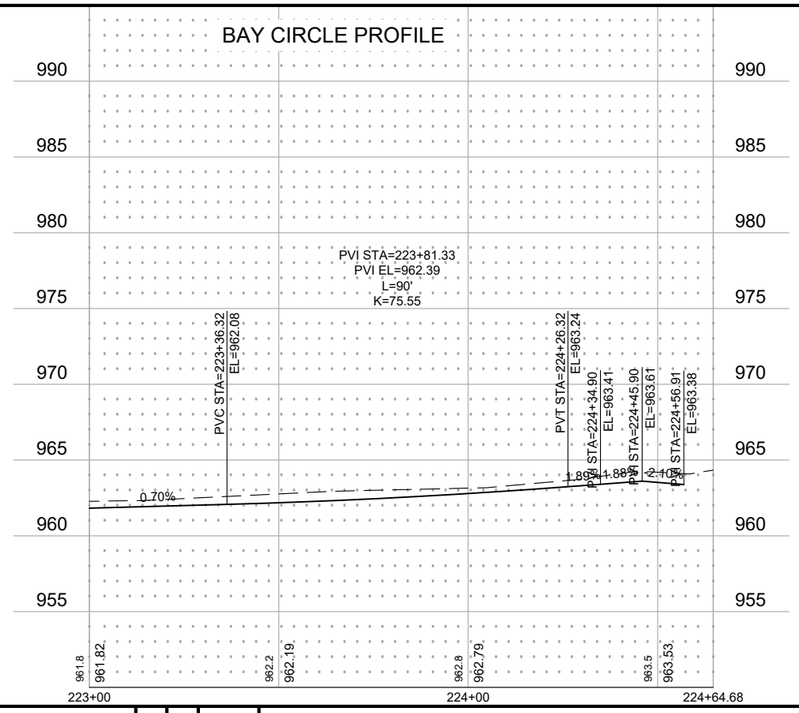
B.2.11 Geoenvironmental Concerns Are Not Covered
The equipment, techniques, and personnel used to perform a geoenvironmental study differ significantly from those used to perform a geotechnical study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. Unanticipated environmental problems have led to numerous project failures. If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. Do not rely on an environmental report prepared for someone else.

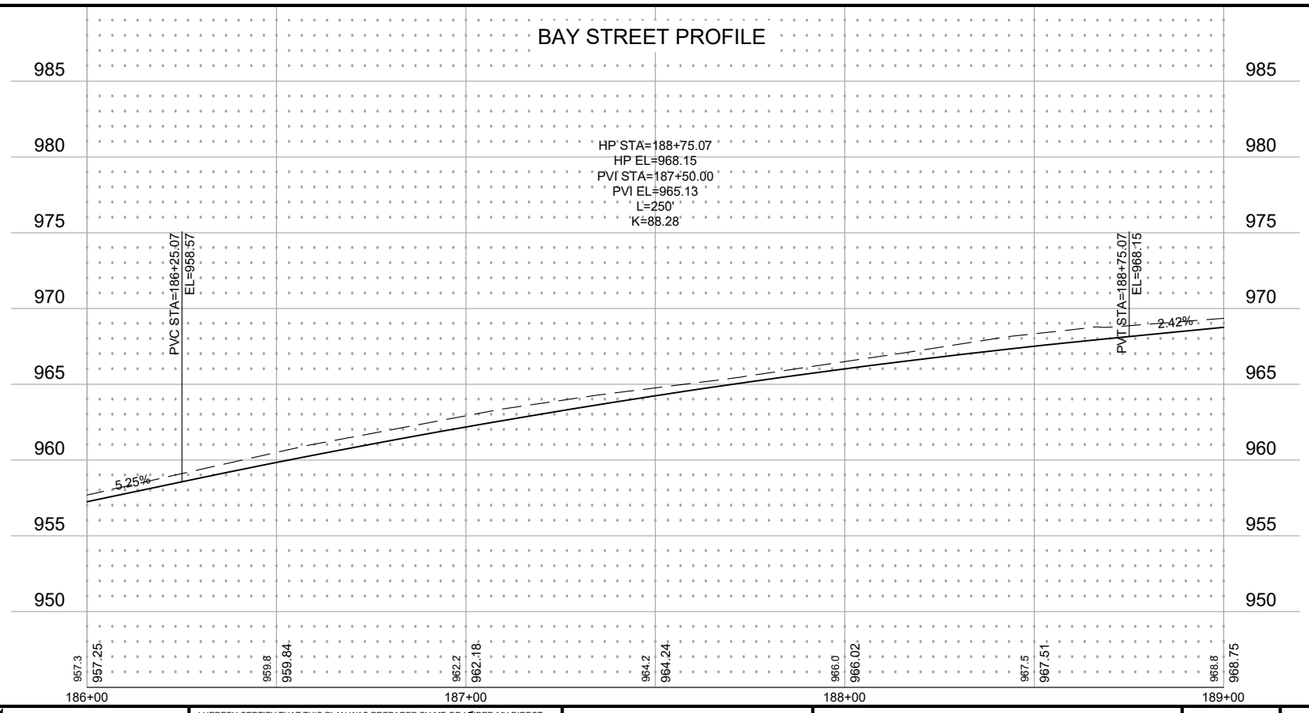
Appendix D

Bay Street / Bay Circle Intersection Improvements



BAY STREET





DRAWN BY:	KM
DESIGNER:	KM
CHECKED BY:	TM
DESIGN TEAM	

NO.	BY	DATE	REVISIONS

SEH
PHONE: 952.912.2600
10901 RED CIRCLE DRIVE,
SUITE 300
MINNETONKA, MN 55343
www.sehinc.com

I HEREBY CERTIFY THAT THIS PLAN 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: XX/XX/XX

TOBY MUSE, PE
Lic. No. 43364

MINNETONKA, MINNESOTA

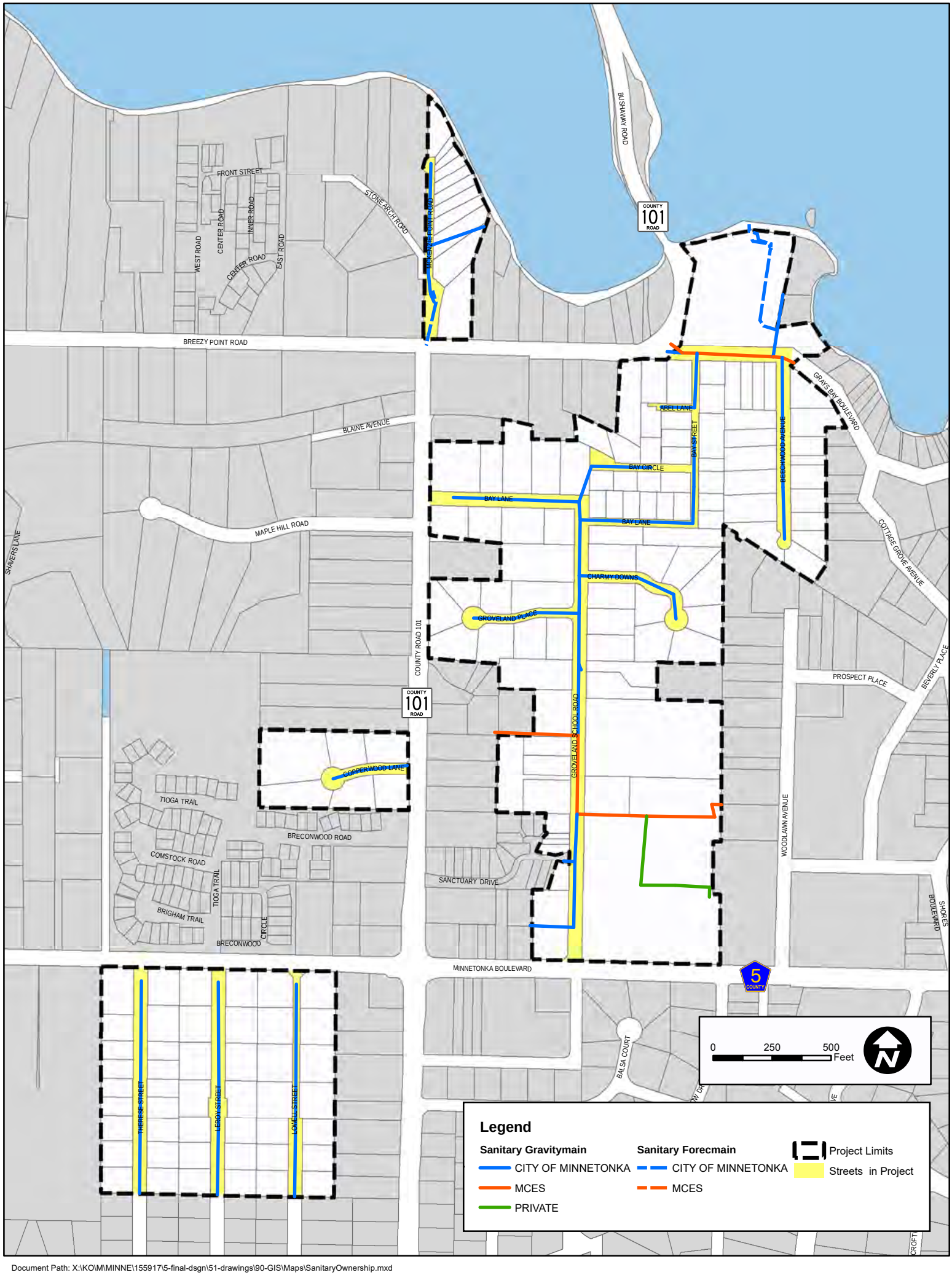
BAY CIRCLE AND BAY STREET INTERSECTION MODIFICATIONS GROVELAND BAY NEIGHBORHOOD STREET RECONSTRUCTION

FILE NO. 155917

1/XXX

Appendix E

Sanitary Sewer Ownership



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Appendix F

Preliminary Cost Estimate

CITY OF MINNETONKA
GROVELAND-BAY IMPROVEMENTS PROJECT
ENGINEER'S OPINION OF PROBABLE COST
Date: September 21, 2020
Revised: 10/15/2020, 10/19/20, 10/20/2020, 10/21/20
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LINE NO.	ITEM DESCRIPTION	CONTRACT AMOUNT				ROADWAY		WATERMAIN		SANITARY SEWER		STORM SEWER	
		UNIT	ESTIMATED PROJECT TOTALS	UNIT COST	ESTIMATED TOTAL COST	ESTIMATED QUANTITY	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED COST
1	MOBILIZATION	LS	1.00	$ 174,290.00	$ 174,290.00	1.00	$174,290.00						
2	CLEARING	ACRE	0.10	$ 20,000.00	$ 2,000.00	0.10	$2,000.00						
3	GRUBBING	ACRE	0.10	$ 20,000.00	$ 2,000.00	0.10	$2,000.00						
4	CLEARING	TREE	95	$ 300.00	$ 28,500.00	95	$28,500.00						
5	GRUBBING	TREE	99	$ 250.00	$ 24,750.00	99	$24,750.00						
6	REMOVE MANHOLE OR CATCH BASIN	EA	8	$ 1,000.00	$ 8,000.00	8	$8,000.00						
7	REMOVE CASTING ASSEMBLY	EA	58	$ 200.00	$ 11,600.00	58	$11,600.00						
8	REMOVE GATE VALVE & BOX	EA	23	$ 1,500.00	$ 34,500.00			23	$34,500.00				
9	REMOVE HYDRANT AND GATE VALVE ASSEMBLY	EA	21	$ 2,000.00	$ 42,000.00			21	$42,000.00				
10	SALVAGE AND REINSTALL CASTING ASSEMBLY	EA	6	$ 600.00	$ 3,600.00	6	$3,600.00						
11	SALVAGE AND REINSTALL MAIL BOX AND SUPPORT	EA	123	$ 150.00	$ 18,450.00	123	$18,450.00						
12	SALVAGE AND REINSTALL MAIL BOX AND SUPPORT SPECIAL	EA	1	$ 1,000.00	$ 1,000.00	1	$1,000.00						
13	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LF	729	$ 4.00	$ 2,916.00	729	$2,916.00						
14	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LF	2608	$ 2.50	$ 6,520.00	2608	$6,520.00						
15	REMOVE WATERMAIN	LF	8436	$ 15.00	$ 126,540.00			8436	$126,540.00				
16	REMOVE WATER SERVICE PIPE	LF	4155	$ 10.00	$ 41,550.00			4155	$41,550.00				
17	REMOVE STORM SEWER PIPE	LF	129	$ 15.00	$ 1,935.00							129	$1,935.00
18	REMOVE CURB & GUTTER	LF	2364	$ 5.00	$ 11,820.00	2364	$11,820.00						
19	SALVAGE AND REINSTALL FENCE	LF	480	$ 50.00	$ 24,000.00	480	$24,000.00						
20	SALVAGE AND REINSTALL RETAINING WALL	LF	105	$ 55.00	$ 5,775.00	105	$5,775.00						
21	REMOVE CONCRETE DRIVEWAY PAVEMENT	SY	998	$ 10.00	$ 9,980.00	998	$9,980.00						
22	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SY	2647	$ 7.00	$ 18,529.00	2647	$18,529.00						
23	REMOVE BITUMINOUS ROADWAY PAVEMENT	SY	29460	$ 9.00	$ 265,140.00	29460	$265,140.00						
24	REMOVE CONCRETE WALK	SF	275	$ 2.00	$ 550.00	275	$550.00						
25	SALVAGE BRICK/STONE PAVERS	SF	775	$ 5.00	$ 3,875.00	775	$3,875.00						
26	REMOVE SIGNAGE	LS	1.00	$ 1,500.00	$ 1,500.00	1.00	$1,500.00						
27	IRRIGATION SYSTEM REPAIR	EA	127	$ 500.00	$ 63,500.00	127	$63,500.00						
28	ABANDON WATER MAIN	LF	1780	$ 10.00	$ 17,800.00			1780	$17,800.00				
29	REMOVE ABANDONED GAS MAIN	LF	2145	$ 10.00	$ 21,450.00			2145	$21,450.00				
30	COMMON EXCAVATION (EV) (P)	CY	10665	$ 20.00	$ 213,300.00	10665	$213,300.00						
31	SUBGRADE EXCAVATION (EV)	CY	1148	$ 30.00	$ 34,440.00	1148	$34,440.00						
32	POTHOLE PRIVATE UTILITY	EA	42	$ 500.00	$ 21,000.00			42	$21,000.00				
33	3" MINUS STABILIZING AGGREGATE (CV)	CY	229	$ 50.00	$ 11,450.00	229	$11,450.00						
34	TEST ROLLING	RD STA	101	$ 20.00	$ 2,012.00	101	$2,012.00						
35	SUBGRADE PREPARATION	RD STA	101	$ 200.00	$ 20,120.00	101	$20,120.00						
36	COMMON LABORER	HR	50	$ 90.00	$ 4,500.00	50	$4,500.00						
37	3.0 CU YD SHOVEL	HR	50	$ 220.00	$ 11,000.00	50	$11,000.00						
38	STREET SWEEPER (WITH PICKUP BROOM)	HR	30	$ 140.00	$ 4,200.00	30	$4,200.00						
39	WATER (DUST CONTROL)	MGAL	509	$ 30.00	$ 15,270.00	509	$15,270.00						
40	AGGREGATE BASE, CLASS 5 (CV)	CY	6836	$ 35.00	$ 239,260.00	6836	$239,260.00						
41	MILL BITUMINOUS SURFACE (2.0")	SY	3227	$ 4.00	$ 12,908.00	3227	$12,908.00						
42	BITUMINOUS MATERIAL FOR TACK COAT	GAL	1585	$ 5.00	$ 7,925.00	1585	$7,925.00						
43	TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340B)	TON	3563	$ 72.00	$ 256,536.00	3563	$256,536.00						
44	TYPE SP 12.5 NON WEARING COURSE MIXTURE (SPNWB330B)	TON	4718	$ 68.00	$ 320,824.00	4718	$320,824.00						
45	TYPE SP 9.5 WEARING COURSE MIXTURE (SPWEA340B) DRIVEWAYS	TON	511	$ 150.00	$ 76,650.00	511	$76,650.00						
46	SAW & SEAL TRANSVERSE CRACK CONTROL JOINT	LF	9070	$ 3.00	$ 27,210.00	9070	$27,210.00						
47	UTILITY TRENCH REPLACEMENT BACKFILL SELECT GRANULAR BORROW (CV)	CY	2847	$ 25.00	$ 71,175.00			2847	$71,175.00				
48	PIPE BEDDING (CV)	CY	1584	$ 25.00	$ 39,600.00			1198	$29,950.00			386	$9,650.00
49	12" RC PIPE SEWER DES 3006 CL V	LF	64	$ 125.00	$ 8,000.00							64	$8,000.00
50	15" RC PIPE SEWER DES 3006 CL V	LF	1239	$ 100.00	$ 123,900.00							1239	$123,900.00
51	36" PIPE JACKING	LF	890	$ 650.00	$ 578,500.00							890	$578,500.00
52	TEMPORARY CONVEYANCE OF WASTEWATER	LS	1.00	$ 25,000.00	$ 25,000.00					1.00	$25,000.00		
53	MCKENZIE POINT ROAD DRAINAGE SYSTEM (WET WELL, PUMP, FORCEMAIN PIPE)	LS	1.00	$ 150,000.00	$ 150,000.00							1.00	$150,000.00
54	CONNECT TO EXISTING STORM SEWER	EA	6	$ 1,200.00	$ 7,200.00							6	$7,200.00
55	CONNECT TO EXISTING SANITARY SEWER	EA	3	$ 1,500.00	$ 4,500.00					3	$4,500.00		
56	6" TRENCH DRAIN	LF	18	$ 350.00	$ 6,300.00							18	$6,300.00

CITY OF MINNETONKA
GROVELAND-BAY IMPROVEMENTS PROJECT
ENGINEER'S OPINION OF PROBABLE COST
Date: September 21, 2020
Revised: 10/15/2020, 10/19/20, 10/20/2020, 10/21/20
X:\KO\M\MINNE\155917\5-final-dsgn\54-quant\[Groveland Bay Engineers Estimate.xlsx]OPC

LINE NO.	ITEM DESCRIPTION	CONTRACT AMOUNT				ROADWAY		WATERMAIN		SANITARY SEWER		STORM SEWER	
		UNIT	ESTIMATED PROJECT TOTALS	UNIT COST	ESTIMATED TOTAL COST	ESTIMATED QUANTITY	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED COST	ESTIMATED QUANTITY	ESTIMATED COST
57	SANITARY SEWER SPOT REPAIR	LF	150	$ 215.00	$ 32,250.00					150	$32,250.00		
58	LINING SEWER PIPE 8"	LF	660	$ 30.00	$ 19,800.00					660	$19,800.00		
59	LINING SEWER PIPE 8" (MCKENZIE POINT ROAD)	LF	239	$ 75.00	$ 17,925.00					239	$17,925.00		
60	LINE SANITARY MANHOLE	LF	128	$ 500.00	$ 63,950.00					128	$63,950.00		
61	TEMPORARY WATER SERVICE	LS	1.00	$ 50,000.00	$ 50,000.00			1.00	$50,000.00				
62	1.5" CORPORATION STOP	EA	134	$ 350.00	$ 46,900.00			134	$46,900.00				
63	1.5" CURB STOP & BOX	EA	134	$ 500.00	$ 67,000.00			134	$67,000.00				
64	6" GATE VALVE AND BOX	EA	20	$ 3,500.00	$ 70,000.00			20	$70,000.00				
65	8" GATE VALVE AND BOX	EA	10	$ 4,000.00	$ 40,000.00			10	$40,000.00				
66	CONNECT TO EXISTING WATER MAIN	EA	25	$ 1,500.00	$ 37,500.00			25	$37,500.00				
67	INSTALL HYDRANT & VALVE	EA	22	$ 8,000.00	$ 176,000.00			22	$176,000.00				
68	ADJUST VALVE BOX	EA	5	$ 300.00	$ 1,500.00			5	$1,500.00				
69	WATERMAIN LINING PIT	EA	3	$ 15,000.00	$ 45,000.00			3	$45,000.00				
70	WATERMAIN LINING - REINSTATE WATER SERVICE	EA	11	$ 2,500.00	$ 27,500.00			11	$27,500.00				
71	1.5" TYPE K COPPER PIPE	LF	3086	$ 30.00	$ 92,580.00			3086	$92,580.00				
72	1.5" TYPE K COPPER PIPE (TRENCHLESS INSTALLATION)	LF	450	$ 65.00	$ 29,250.00			450	$29,250.00				
73	6" WATERMAIN DUCTILE IRON PIPE CL 52	LF	5795	$ 50.00	$ 289,750.00			5795	$289,750.00				
74	8" WATERMAIN DUCTILE IRON PIPE CL 52	LF	3042	$ 70.00	$ 212,940.00			3042	$212,940.00				
75	6" HDPE SDR11 WATERMAIN (DIPS) PIPEBURSTING	LF	735	$ 375.00	$ 275,625.00			735	$275,625.00				
76	WATERMAIN (CIPP) - LINING	LF	778	$ 250.00	$ 194,500.00			778	$194,500.00				
77	4" DIP FORCEMAIN PIPE	LF	199	$ 55.00	$ 10,945.00					199	$10,945.00		
78	4" POLYSTYRENE INSULATION	SY	111	$ 30.00	$ 3,330.00			111	$3,330.00				
79	WATERMAIN FITTINGS	LB	3360	$ 9.50	$ 31,920.00			3360	$31,920.00				
80	CONST DRAINAGE STRUCTURE DESIGN B	EA	8	$ 2,500.00	$ 20,000.00					1	$2,500.00	7	$17,500.00
81	CONST DRAINAGE STRUCTURE TYPE H	EA	11	$ 2,000.00	$ 22,000.00							11	$22,000.00
82	CASTING ASSEMBLY (R-1733)	EA	51	$ 900.00	$ 45,900.00	51	$45,900.00						
83	CASTING ASSEMBLY (R-3250-1)	EA	17	$ 900.00	$ 15,300.00	17	$15,300.00						
84	STORM SEWER JACKING PITS	LS	1.00	$ 100,000.00	$ 100,000.00							1.00	$100,000.00
85	RANDOM RIP RAP CLASS III	CY	15	$ 125.00	$ 1,875.00							15	$1,875.00
86	4" CONCRETE WALK	SF	2240	$ 6.00	$ 13,440.00	2240	$13,440.00						
87	6" CONCRETE WALK	SF	260	$ 10.00	$ 2,600.00	260	$2,600.00						
88	CONCRETE CURB & GUTTER DESIGN B612	LF	20431	$ 15.00	$ 306,465.00	20431	$306,465.00						
89	6" CONCRETE DRIVEWAY PAVEMENT	SY	1100	$ 70.00	$ 77,000.00	1100	$77,000.00						
90	7" VALLEY GUTTER	LF	712	$ 38.00	$ 27,056.00	712	$27,056.00						
91	TRUNCATED DOMES	SF	36	$ 75.00	$ 2,700.00	36	$2,700.00						
92	TEMPORARY MAIL BOX BANK	LS	1.00	$ 1,000.00	$ 1,000.00	1.00	$1,000.00						
93	INSTALL BRICK/STONE PAVERS	SF	775	$ 15.00	$ 11,625.00	775	$11,625.00						
94	SIGNAGE	LS	1.00	$ 20,330.00	$ 20,330.00	1.00	$20,330.00						
95	TRAFFIC CONTROL	LS	1.00	$ 29,050.00	$ 29,050.00	1.00	$29,050.00						
96	STABILIZED CONSTRUCTION EXIT	LS	1.00	$ 20,000.00	$ 20,000.00	1.00	$20,000.00						
97	INLET PROTECTION	EA	42	$ 125.00	$ 5,250.00	42	$5,250.00						
98	SILT FENCE, TYPE MS	LF	1102	$ 2.50	$ 2,755.00	1102	$2,755.00						
99	SEDIMENT CONTROL LOG TYPE COMPOST	LF	22020	$ 2.00	$ 44,040.00	22020	$44,040.00						
100	ORGANIC TOPSOIL BORROW (LV)	CY	2124	$ 40.00	$ 84,960.00	2124	$84,960.00						
101	FERTILIZER TYPE 3	LB	8390	$ 0.90	$ 7,551.00	8390	$7,551.00						
102	SEEDING	SY	492	$ 10.50	$ 5,166.00	492	$5,166.00						
103	SODDING TYPE LAWN	SY	12266	$ 5.00	$ 61,330.00	12266	$61,330.00						
104	HYDRAULIC REINFORCED FIBER MATRIX	LB	400	$ 1.50	$ 600.00	400	$600.00						
105	SEED MIXTURE 25-151	LB	30	$ 3.60	$ 108.00	30	$108.00						
106	WATER (SEEDING)	MGAL	30	$ 50.00	$ 1,500.00	30	$1,500.00						
107	4" DOUBLE SOLID LINE PAINT YELLOW - EPOXY (GROUND IN)	LF	410	$ 2.10	$ 861.00	410	$861.00						
	TOTAL ESTIMATED CONSTRUCTION COST (OPC) (ROUNDED TO NEAREST $1,000)				**$6,034,000.00**		**$2,733,000.00**		**$2,097,000.00**		**$177,000.00**		**$1,027,000.00**
	10% CONSTRUCTION CONTINGENCY				$603,400.00		$273,300.00		$209,700.00		$17,700.00		$102,700.00
	12.5% INDIRECT COST				$829,675.00		$375,787.50		$288,337.50		$24,337.50		$141,212.50
	10% ADDITIONAL CONSTRUCTION CONTINGENCY				$663,740.00		$300,630.00		$230,670.00		$19,470.00		$112,970.00
	ELECTRICAL				$300,000.00								
	TOTAL ESTIMATED CONSTRUCTION COST				**$8,440,000.00**		**$3,690,000.00**		**$2,820,000.00**		**$240,000.00**		**$1,390,000.00**

Appendix G

Public Informational Meeting Feedback / Comments

Building a Better World for All of Us®

MEMORANDUM

TO: Mitch Hatcher, PE, Engineering Project Manager

FROM: Toby Muse, PE, Principal Engineer (MN)

DATE: October 1, 2020

RE: Summary of Groveland Bay Neighborhood Meeting
Groveland Bay Neighborhood Street Reconstruction
SEH No. 155917 14.00

A neighborhood meeting was held on September 30, 2020 at the Minnetonka Community Center for the above referenced project. A presentation was given to review the capital improvement program, project development process, existing neighborhood conditions, scope of the proposed improvements, anticipated construction impacts and project schedule. Following the presentation, questions were taken from the residents and addressed by city staff. The following is intended as a summary of those questions/comments and *responses*:

1. Why is sidewalk being proposed all the way to the north St. Luke's church driveway entrance on Groveland School Road? *The City is proposing sidewalk as far north as feasible due to the proximity of the church and the school and the number of pedestrians, including children, currently walking in the road. This facility will provide pedestrians a safer route to/from the church/school.*

2. Is the City going to coordinate this work with the City of Deephaven? *Yes, staff will be in contact with both Deephaven and Woodland.*

3. Is the City going to address parking along Groveland School Road near the school with this project? Even with the parking restrictions, cars are still parked on the east side of the school at all hours of the day. Most people do not use the parking lots to the north. This creates unsafe conditions during school pick-up/drop-off and in the winter it nearly causes the road to become a one-way corridor. *Staff will reach out to the school to understand their operations and discuss this with the Police Department from an enforcement perspective.*

4. I have a disabled family member that lives on McKenzie Point Road that will need to get to physical therapy appointments on a weekly basis during construction. Will we be able to come/go to these appointments? *Yes, please fill out a comment card with your address and we will take note of it. On-site City staff and/or the contractor will be made aware of your situation and will coordinate with you directly.*

5. Will McKenzie Point Road drainage be improved as part of this project? *Staff is evaluating several options to try and address the drainage issues. There are challenges associated with how flat the road was originally constructed as well as the proximity of the road to Lake Minnetonka and lake water levels.*

6. How much impact to boulevards can be anticipated in areas adjacent to the new curb and gutter? *It will vary depending on the surrounding topography, but generally 5'-6' can be expected.*

7. Should we remove landscaping next to the road prior to construction? *Yes, if you want to keep/preserve particular landscaping elements, we encourage you to salvage those items as the City's contractor will remove them.*

8. Will storm sewer be included on Beechwood Avenue? I have driveway drainage issues. *No, there is adequate slope on the road to drain towards the land-locked basin to the south or towards Grays Bay Boulevard to the north. The addition of new concrete curb and gutter will capture road runoff and improve how water is directed, which generally means away from driveways.*

9. What will happen to mailboxes? *The City's contractor will salvage existing mailboxes and leave them on your property. The contractor will provide a temporary mailbox bank containing several properties at several locations throughout the neighborhood. The City will notify you where those locations are once they are determined.*

10. Is the City coordinating with private utility companies? *Yes, the City notifies the private utility companies of the project and will coordinate with them to upgrade their facilities (if needed) ahead of project construction.*

11. There are currently no parking restrictions on the west side of McKenzie Point Road. Will that change during/after construction? *No parking will be in effect during construction to allow the contractor enough room to reconstruct the road. Following construction, all parking restrictions currently in place within the neighborhood will remain.*

12. Will all of the watermain pipes be replaced or just parts of it? *All of the trunk watermain and service pipes up to the curb stop will be replaced.*

13. Does the curb and gutter help limit snow plow damage to boulevards? *Yes, the curb helps our Public Works snow plow drivers find the edge of the roadway more readily.*

14. Does the City allow a 'cut-out' in the curb to facilitate access for a trailer that we park in the back of our lot? *The City has specific ordinances for driveways and curb cuts. Please leave your name/address on the comment card with your request and we will evaluate whether it is feasible or not.*

15. Will the driveway configurations at the intersection of Bay Lane and Bay Circle be modified? *Yes, we have reviewed this intersection and are proposing to tighten up the pavement footprint and create some additional boulevard space.*

16. Is there an option to contract with the City's contractor to replace/rehabilitate my sanitary sewer service pipe? *Possibly, but it varies depending on the Contractor. We will provide you with the contractor's name during construction and you can reach out to them to see if they are interested in conducting private work too.*

17. Who is the City's on-site manager that will oversee the Contractor during construction? *AJ Soland, who is here tonight will represent the City.*

18. What is the City's stormwater runoff philosophy relative to volume, capture and treatment? *The City tries to reduce the footprint of impervious area for our projects, wherever possible. This typically reduces the time and amount of water entering our storm sewer systems.* Will the City consider inclusion of rain gardens to improve stormwater capture more naturally that will also improve water quality? *Yes, we are looking at expanding the St. Luke's raingarden and we are interested in hearing from neighbors who might be interested in having a raingarden adjacent to or on their property.*

19. What if my irrigation system is impacted during construction? *The City encourages you to first, turn off the zone that is adjacent to the road prior to construction. Next, if the pipes are damaged during construction, we would ask that you hire your irrigation company to come out and fix it. Finally, you can provide the City a copy of the invoice the company gives you to make the repair and we will reimburse you for the cost to repair it.*

20. Will we be notified in advance as to when construction will start? *Yes, we typically don't know a detailed construction schedule until after we take bids and award a contract to the successful bidder. Once the contractor provides the City their schedule, we will update the neighborhood.*

21. Does the City own some of the boulevard beyond the street (towards the house)? *Yes, the City owns right of way beyond the edge of the street. The width varies throughout the neighborhood.*

22. How many days will the water/sewer service be out of service during construction? *Your water/sewer service will not be interrupted for days at a time. It will generally be less than 12 hours, and is typically 2-4 hours of interruption. You will be notified in advance. The City's contractor will install an above ground temporary water system to supply your home with water during construction. You will be asked to refrain from running water and/or flushing your toilets on occasion when the work is occurring directly in front of your home.*

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Donna Schimunek

Address: 17331 Charmu Downs, Wayzata 55391

Phone: [redacted]

Email: [redacted]

Comments:

1.) Our neighborhood has struggled for decades with the difficult and dangerous situation of parking allowed on Groveland School Road in front of the elementary school. The narrow road makes oncoming cars passing each other difficult in fall & spring and mostly impossible during the winter months with snowbanks. And parents often park all the way to the corner of Groveland School Rd & MTKS Blvd blocking the view of oncoming cars when turning from ~~West~~ bound MTKS Blvd to Northbound Groveland S. Road. And parents with children getting in & out of cars on this narrow road isn't safe. Our tax money helped build a new parking lot for parents to park in, so it should be used by them! Another alternative would be to make an indented parking lane in front of school. →

2) The drainage issues on Groveland S.R. need to be fixed also. Snowmelt and heavy rains form ponds near the parking lot of Groveland Elementary and between Groveland Place & Bayshore. In the winter & spring thaws we can't walk down the street!

Thank you for your long overdue consideration and remedy for these matters.

Donna Schimunek

Great Meeting - great information, glad we came
Very happy about this project

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Julia Young
Address: 17401 Groveland Pl
Phone: [redacted]
Email: [redacted]

Comments:

Groveland School Road - along the school area - both sides

* "No Parking" Restrictions - suggest more stringent No parking, specifically during the winter months. After snow plows go through, the street is not wide enough for two-way traffic if cars are parked. This creates a significant safety issue for kids walking out from between cars, as well as parents & children opening car doors, exiting cars, etc.

* Parking during construction → if we need to park on side streets, will we be able to park where there are "no parking signs"? If our cul de sac is closed, the closest spot may be a little far.

* I like adding the sidewalk (extending) - safer for kids walking to school & other pedestrians

Start Spring
Finish Fall 2024 Different Phases

3-4' where curbs go in

10-15' where water work

? Culdesac Mailboxes
? Sprinkler Systems - work reimbursed by city

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: John Kretsch
Address: 2805 McKenzie Point Road
Phone: [redacted]
Email: [redacted]

Comments:

(1) I have a physically handicapped brother who needs to make doctor's visits and physical therapy visits regularly and we need the road to be passable for him in a car from our home to County Highway 101.

(2) When the nearby fire hyrant is flushed of rust, The water flows eastward into my driveway at 2805 McKenzie Point. What will be the need roadway elevation to prevent water flooding my driveway?

(3) A sidewalk is needed along Groveland School Road to meet Bay Street to Hwy. 101.

(4) Where will the water runoff go? To a nearby pond or lake?

(over)

(5) When will McKenzie Point be closed off?

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: BECKY + NORM GEHRKE

Address: 17310 CHARMY DOWNS WAYZATA, MN. 55391

Phone: [redacted]

Email: [redacted]

Comments:

(1) No Parking allowed at any time from Minnetonka Blvd to 1ST School Parking lot entrance unless Groveland School Rd. is widened to one more ~~traffic~~ car lane width in that space.

(2) No curbs on Charmy downs - snow plows will just break them up with all the turns and ~~curves~~ curves

(3) How much time does City need to make changes in plan

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Jane Nibbe

Address: 17340 Charmy Downs Whyzata MN 55391

Phone: [redacted]

Email: [redacted]

Comments:

SAFETY FIRST*

#1 *Groveland School Road must be signed "No Parking" on East side of road to provide safe two way passage of cars, buses, people, trucks and pets. The road should also be widened for winter snowfall.

*Sidewalk on East side should be extended to church upper parking

*Engineers should have goal of making Groveland School Road safer for the walkers and pedestrians getting outdoors to exercise

*Nibbe property. *Care for trees near the road and boulders. *There is irrigation in the yard by street that will be marked.

*Mailbox will be removed, stored on our property and put back up. *Expecting curb will be put in same area as the Asphalt berm currently used to direct water down street.

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: KRISTIE HAVLIK (DAVE)

Address: 17610 COPPERWOOD LANE

Phone: [redacted]

Email: [redacted]

Comments:

CAN THE PHONE AND COMCAST UTILITY BOXES BE MOVED 14 FEET EAST TO THE PROPERTY LINE BETWEEN OUR HOME @ 17610 AND THE NEIGHBORING PROPERTY @ 17600? IN THE 40 YEARS WE HAVE LIVED HERE, THERE HAVE BEEN MANY OWNERS AND RENTERS @ 17600, RESULTING IN MANY UTILITY WORK ORDERS AT THAT HOME. BECAUSE OF THE LOCATION OF THE BOXES, QUITE OFTEN CABLES ARE TRENCHED FAR UP INTO OUR PROPERTY, TEMPORARY CABLES ARE LAID ON OUR PROPERTY UP TO AS MUCH AS 30 FEET FROM THE ROAD. THIS IS VERY ANNOYING AND WOULD BE REMEDIED BY MOVING THE BOXES TO THE PROPERTY LINE. THANK YOU.

aprilhavlik@gmail.com

KRISTIE & DAVE HAVLIK

10/5/20

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Myrtle Turnquist
Address: 17320 Charmy Downs
Phone: [redacted]
Email: [redacted]

Comments:

- Parking on Groveland School Road: There should be no parking on this road → ever. The road is not wide enough for 2-way traffic + parking → especially in front of the elementary school. Many, many times I have seen safety issues with school children getting out of cars into traffic on Groveland School Road. Finally, the parking lot North of school is NEVER full.
- Safety + would be a sidewalk the entire length of Groveland School Road but please take care of the drainage + raingardens
- Drainage at Groveland School just south of St. Luke south driveway. Please work with watershed district to put in nice raingardens! water has eaten away the current road there.

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Dave + Nan Bell

Address: 3101 Groveland Sch. Rd

Phone: [redacted]

Email: [redacted]

Comments:

AJ - please come out to talk about removal of aging oak tree / possibly November

We'd like to have/assess the whole front of the property - several large evergreens. We'd like to save, boulders?

ticket the Cars parking on groveland school - in front of the school?

CITY OF MINNETONKA

SITE VISIT

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Dr. Dennis Yockers

Address: 3648 Hazelwood Pl Minnetonka, MN 55345

Phone: [redacted]

Email: [redacted]

* Member of St. Luke Presbyterian Church

Comments:

I'm a Professor Emeritus of Natural Resources Mgt. - College of Natural Resources, UW-Stevens Point. I'm a member of the St Luke Presbyterian Church on Groveland School Road. We have an existing raingarden at the SW corner of the property on Groveland School Road. This raingarden was partially funded from a Minnehaha Watershed District. The raingarden was functioning until a new parking lot was put in and cut off flow to the raingarden. We recommend putting in a curb cut on the East side of the raingarden along Groveland School Road. The raingarden already exists and would help reducing water runoff into the storm sewer — I don't think the sidewalk going north to the upper parking lot entrance

* You may also have the opportunity to include other rain gardens throughout the project where appropriate.

The City of Minnetonka has been concerned about water resource management and stormwater runoff — want to keep the water on properties infiltrating in rather than running off

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Judy Gregg

Address: Representing St Luke

Phone: [redacted]

Email: [redacted]

Comments:

Start Spring 2021
Complete Fall 2021

① If (hopefully) we are able to hold in person services by next spring, will people be able to access the parking lots? @St Luke

② How about a porous sidewalk along Groveland School Rd

③ Agree w/comments that there should be no parking by the school - too narrow

④ We would like a site visit w/ you!

⑤ Are you sending notices of meetings to St Luke? We were not made aware of this meeting - just found out from a neighbor

⑥ We want you to use our rain garden!

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: David V. Bell

Address: 3101 Groveland School Rd.

Phone: [redacted]

Email: [redacted]

Comments:

22-24' wide - good
Concrete curb + gutter - good
Sidewalk to St. Lake - OK
Const. 7am - 10pm M-F - live with it
8am - 6pm Sat - live with it
We move shrubs - OK
Construction starts Spring 2021 ?
" Complete Fall 2021 ?

Good presentation!

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Jerry Young
Address: 17401 Groveland Place
Phone: [redacted]
Email: [redacted]

Comments:

Great project, we are very supportive.

I realize this is not part of the project, but we need to revisit the Groveland School parking restrictions on Groveland School Road. It is a problem in winter, and with the new parking lot there is no reason to allow street parking for the school. It is unsafe for the students and the residents.

It is important to fix the storm drainage on GSR between the ~~school~~ school and the church.

Thank you.

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Robert Antonovich

Address: 17420 Bay Lane 55391

Phone: [redacted]

Email: [redacted]

Comments:

(1) I have accessability concerns - My wife has frequent medical appts. If we have no access for a period of time I will (with advanec notice) find a place to park my car where we can get out.

(2) Our property is on the north side where all utilities are. Our mailbox is solid brick and concrete. We will get more digging than the soeth side. We also have a well set-back fence + Trees. Can we assume some care + concern for fencing + Trees. With notice, I would prefer to remove any items in the way, rather than having them back-hoed.

(3) Groveland School Road should be No Parking during school hours - The east side is posted but ignored.

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Lowell Anderson

Address: 3441 Lowell Street

Phone: [redacted]

Email: [redacted]

Comments:

Which side of the street is the water main? I know the replaced gas line is on the east side. If it is the east side how does it relate to the recently replaced gas main by the utility? I know the sewer is in the center of the street. As you might guess I am on the East side of the street w/ several mature maple trees that are very important to us. I'd like to meet @ our site w/ city personnel to discuss specifics related to those trees. Looks like main is on the west side - Good. Looking forward to curb and gutter improvements

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Blake Saxon

Address: 2937 Bay Street

Phone: [redacted]

Email: [redacted]

Comments:

1. Option to replace home main drain at extra cost during this project using Contractor?

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Craig Graffunder

Address: 17309 Bay Circle

Phone: [redacted]

Email: [redacted]

Comments:

- My Wife runs A Licensed Daycare out of our House - Usual Hours Are 07ar - 1630 Worried About Access For Parents to Drop off Kids

- Will My Large Maple Tree about 4 feet From the Street be Removed or Kept?

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Grant Dattilo

Address: 2807 McKenzie Pt RD

Phone: [redacted]

Email: [redacted]

Comments:

CITY OF MINNETONKA

Groveland-Bay Improvement Project
Informational Meeting
Sept. 30, 2020
5:00 p.m., Minnetonka Community Center

Name: Jennifer Hume-Jorgenson

Address: 2932 Beechwood Ave.

Phone: [redacted]

Email [redacted]

Comments:

- Are any excavations going to left open for an extended period of time?
- no parking @ all on groveland school would be ideal. Its basically a single land even not in the winter
- Groveland School Rd is dangerous w/ cars allowed to park by the school

Appendix H

Storm Water Modeling Results

Building a Better World for All of Us®

MEMORANDUM

TO:

FROM: Mark Christenson EIT.
DATE: October 20, 2020

RE: Groveland Neighborhood Street Reconstruction Drainage Memo
SEH No. 155917 14.00

BACKGROUND AND PURPOSE

The purpose of this study is to evaluate the existing and potential future stormwater management systems for the reconstructed roads in the Groveland Bay Neighborhood Street Reconstruction Project. Major items within the scope of work include evaluating the impacts of the proposed conditions on the existing storm sewer infrastructure, identifying areas where additional storm sewer should be added, and investigating the feasibility of providing outlets to two landlocked basins and the flood risk the two basins currently pose.

1D/2D MODEL DEVELOPMENT

Data Collection and Review

Data from several sources was obtained to complete this study: GIS data of the storm sewer system was provided by the City of Minnetonka, LiDAR data was obtained for use in delineating drainage areas, soils data was collected from USDA to determine soil classes and associated curve numbers, Twin Cities Metro Region Land cover data was obtained from the University of Minnesota, Atlas 14 rainfall data was collected from NOAA's Precipitation Frequency Data Server for the Minnetonka station, and as-built record data for the existing storm sewer network provided by the City of Minnetonka. In addition, SEH conducted a topographic field survey to collect elevation data on the existing road surfaces including any storm water feature information located within the survey area as well as detailed topography of the two landlocked basins to be analyzed.

Once the above data had been collected and analyzed there were a few gaps in the storm water data outside of the immediate study area that had to be filled in. Inverts were estimated based on LiDAR elevation data and known invert elevations upstream or downstream of a given structure. It was assumed that all of the pipes had positive drainage (meaning the downstream invert was always lower than the upstream invert).

Hydrologic Parameters

Using LiDAR data of the study area, the watershed for each pipe network impacted by the proposed project was delineated then subdivided to distribute flows throughout the system based on inlet locations and drainage patterns. The delineated watersheds are shown in **Figure 1** . The total project drainage area is approximately 363 acres, and 58 subwatersheds were delineated in the existing condition which ranged in size from less than 0.5 acres to more than 29 acres. UMN land cover and NRCS soil data were used to assign pervious area curve numbers and impervious percentages to each subwatershed. The TR-55 method was used to estimate the time of concentration using a minimum time of 7 minutes.

Model Development

A comprehensive hydrologic/hydraulic model was created using XPSWMM version 2018.2.1. A 1D/2D model was created to represent the existing conditions with 1D computations for the pipe network and 2D computations for surface flows in the project corridor. This type of model allows surface flows to be routed more accurately and generates graphical results which are easier to understand than traditional tabular results. Pipes within the model that are not directly affected by the Groveland Bay Neighborhood Street Reconstruction were included in the model by more approximate methods as 1D pipe and surface flow. The pipes included in the XPSWMM model are shown on **Figure 2**.

Survey data was used for the storm sewer system where available, otherwise GIS and as-built data provided by the City were used. In several instances storm sewer information had to be estimated based on known parameters upstream or downstream of the point in question with the assumption that the pipe networks have positive drainage.

SUMMARY OF ROADS TO BE RECONSTRUCTED

A summary of the existing and proposed impervious areas for each street is found in ***Table 1***.

Table 1: Summary of Existing and Proposed Impervious Areas by Street

STREET	EXISTING STREET WIDTH (FEET)	PROPOSED WIDTH	Approximate Existing Impervious Area	Proposed Impervious Area	Change in Impervious Area
		(F/F)	SF	SF	SF
ABEL LANE	20-23	22	4,687	4,968.80	281.8
BAY CIRCLE	20-21	22	11,128	12,350	1,221.50
BAY LANE	20-21	22	23,634	27,838	4,204
BAY STREET	24-26	22	17,940	16,555	-1,385
BEECHWOOD AVENUE	17-18	18	15,092	18,277	3,185
CHARMY DOWNS	24-26	24	20,816	17,292	-3,524
COPPERWOOD LANE	25-26	24	13,1645	13,563	399
GRAYS BAY BOULEVARD	26-VARIES	MATCH EXISTING	n/a	n/a	0
GROVELAND PLACE	23	MATCH EXISTING	n/a	n/a	0
GROVELAND SCHOOL ROAD	20-25.5	24	47,216	47,824	608
LEROY STREET	19-25	24	23,040	24,812	1,772
LOWELL STREET	22-23	24	22,572	23,728	1,156
MCKENZIE POINT ROAD	19-22	20	16,154	17,859.90	1,705.90
THERESE STREET	23-24	24	24,182	24,880.20	698.7

Abel Lane

Abel Lane will reconstruct approximately 218 linear feet of bituminous pavement and will add approximately 410 linear feet of B612 curb and gutter section. There is a flow split on Abel Lane approximately 140 ft west of Bay Street, where east of the split flows to Bay Street and west flows off the road and eventually to a low area south of Gray's Bay Boulevard. There currently is no storm sewer located on Abel Lane and none are proposed. Energy dissipation is proposed for the flow directed to the west and the flow going east will be picked up by the existing catch basins on Gray's Bay Boulevard that ultimately discharge to Outfall 5846.

Bay Circle

Bay Circle will reconstruct 324 linear feet of road and a cul-de-sac that is approximately 96 ft across. Bay Circle will also add approximately 880 linear feet of B612 curb and gutter. All of Bay Circle drains west to an existing catch basin that ultimately discharges to Outfall 5759.

Bay Lane

Bay Lane will reconstruct 1,138 linear feet of bituminous pavement and add 2,279 linear feet of B612 curb and gutter. The majority of Bay Lane drains to an existing catch basin at the east end Bay Lane where it meets the south end of Bay Street. This catch basin discharges to Outfall 17309B which is the Outfall that discharges to landlocked Basin 2. Approximately 225 ft of Bay Lane drains west toward Highway 101 where it is intercepted by catch basins and discharged to Outfall 34165.

Bay Street

Bay Street will reconstruct 710 linear feet of bituminous pavement and add 1,443 linear feet of B612 curb and gutter. Approximately 280 linear feet of Bay street drains north toward Gray's Bay Boulevard where it is captured by catch basins on Gray's Bay Boulevard and eventually drains to Outfall 5846. The remaining 430 linear feet drain south toward Bay Lane where runoff is intercepted by an existing catch basin at the intersection of Bay Street and Bay Lane. This catch basin discharges to Outfall 17309B which is the Outfall that discharges to landlocked Basin 2.

Beechwood Avenue

Beechwood Avenue will reconstruct 742 linear feet of bituminous pavement as well as a cul-de-sac and add 1,657 linear feet of B612 curb and gutter. The cul-de-sac and approximately 60 linear feet of Beechwood Avenue drain to the south where a curb cut and energy dissipation will be installed to allow runoff to drain to land locked Basin 2. The remainder of Beechwood Avenue drains north toward Gray's Bay Boulevard where it is captured by catch basins on Gray's Bay Boulevard and eventually drains to Outfall 5846.

Charmy Downs

Charmy Downs will reconstruct 464 linear feet of bituminous pavement plus a cul-de-sac and add 1,157 linear feet of B612 curb and Gutter. All of Charmy Downs drains toward Groveland School Road and in the current condition drained to landlocked Basin 1. Catch basins are proposed on Groveland school road which will take the runoff from Charmy Downs to Outfall 17309B which discharges to landlocked Basin 2.

Copperwood Lane

Copperwood Lane will reconstruct 285 linear feet of bituminous pavement as well as a cul-de-sac and add 862 linear feet of B612 curb and gutter. All of Copperwood Lane drains east toward Highway 101 where runoff will be collected by catch basins at the intersection of Copperwood Lane and Highway 101. These catch basins ultimately drain to Outfall 5771 which discharges to Shafer Lake.

Gray's Bay Boulevard

Gray's Bay Boulevard will be a mill and overlay project, resulting in no change to the amount of impervious area. Drainage patterns will remain the same where most of the runoff is captured by catch basins that drain to Outfall 5846.

Groveland Place

Groveland Place will be a mill and overlay project, resulting in no change to the amount of impervious area. Drainage patterns will remain the same where runoff drains to the east toward Groveland School Road and is captured by catch basins at the eastern end of Groveland Place that outlet to Outfall 5858 which discharges to landlocked Basin 1.

Groveland School Road

Groveland School Road (GSR) will reconstruct 1,864 linear feet of bituminous pavement and add 3,740 linear feet of B612 curb and gutter. Runoff from GSR is split into 3 overall drainage patterns. The northern approximately 760 linear feet currently drains to a low point in the road and can overtop into Landlocked Basin 2. Catch basins are proposed at this low point that will connect to proposed storm sewer north up GSR and then east along Bay Lane (See figure 4) where it will drain to Outfall 17309B which discharges to landlocked Basin 2. The southern approximately 280 linear feet enters catch basins on Minnetonka Boulevard and drains to Outfall 6131 which discharges to Frederick Lake. The remaining 824 linear feet drains to a low point on GSR near Groveland Elementary School where it enters a flared end section that drains to outfall 6798.

Leroy Street

Leroy Street will reconstruct 1,024 linear feet of bituminous pavement and add 1,977 linear feet of B612 curb and gutter. Approximately 600 linear feet of Leroy Street drains to existing catch basins near the south end of the reconstructed portion that then drains west to Outfall 6216. The remaining 424 linear feet drains north toward Minnetonka Boulevard where it enters catch basins and ultimately discharges to Outfall 5771.

Lowell Street

Lowell Street will reconstruct 1,026 linear feet of bituminous pavement and add 1,883 linear feet of B612 curb and gutter. Approximately 560 linear feet of Lowell Street drains to existing catch basins near the south end of the reconstructed portion that then drains west to Outfall 6216. The remaining 446 linear feet drains north toward Minnetonka Boulevard where it will enter proposed catch basins at a local low spot (see figure 5) and ultimately discharges to Outfall 5771.

McKenzie Point Road

McKenzie Point Road will reconstruct 788 linear feet of bituminous pavement and add 1,530 linear feet of B612 curb and gutter. Approximately 120 linear feet drains to a catch basin 120 feet north of Breezy point road to Outfall 30443. The rest drains overland to Lake Minnetonka or sits in surface storage until it is able to evaporate or infiltrate. The drainage issue on McKenzie Point Road is addressed later in this memo.

Therese Street

Therese Street will reconstruct 1,029 linear feet of bituminous pavement and add 1,973 B612 curb and gutter. A small portion of reconstructed Therese Street drains to an existing catch basin that leads to Outfall 6216. The remaining reconstructed portion drains north ultimately to Outfall 6212 which discharges to Shafer Lake.

PROJECT WATER QUALITY REQUIREMENTS

The proposed project is located within two watershed management districts; Minnehaha Creek Watershed District (MCWD) and Riley Purgatory Bluff Creek Watershed District. (RPBCWD). The City of Minnetonka is the permitting authority for both of these watershed districts, therefore any stormwater permits other than the NPDES permit that need to be obtained will go through the City of Minnetonka. Section 6.2.1 General Guidelines of

Appendix A of the City of Minnetonka Stormwater Management Manual states that "The City of Minnetonka requires the control of peak runoff flow rates and volume for…Linear Projects constructing/reconstructing more than 1 acre of new or additional imperviousness." The proposed project estimates approximately 5.76 acres of new/reconstructed impervious area over the entire project extent. The areas being reconstructed however fall within different drainage areas and discharge to different outfalls and receiving water bodies (**Figure 3**). Compliance with the rate control requirement was assessed by analyzing each outfall receiving new/reconstructed impervious area. The volume control/water quality component could be assessed for the project overall where volume control is required for the entire 5.76 acres of new impervious or it could be looked at for each receiving water body. ***Table 2*** breaks down the amount of new/reconstructed impervious going to each water body and the associated volume control requirement. Table 3 summarizes the amount of new/reconstructed impervious to each outfall and assesses which outfalls could be considered exempt from the rate control requirement.

The volume control standard is that "1-inch of runoff be retained through the implementation of infiltration practices. However, if site conditions preclude infiltration, volume control can be achieved through alternative reduction methods." Infiltration feasibility will need to be assessed when BMP locations are chosen. The water quality standard calls for at least 60% removal efficiency for total phosphorus and 90% removal efficiency for total suspended solids. If a stormwater wet pond is used to treat for water quality, the NURP criteria is considered an adequate sizing standard.

Table 2: Summary of New/Reconstructed Impervious Area by Waterbody

Receiving Water Body	Watershed District	Area of New/Reconstructed Impervious [acres]	Volume Control Requirement [cf]
Existing Stormwater BMP	MCWD	0.03	108.9
Frederick Lake	RPBCWD	0.66	2395.8
Gray's Bay-Lake Minnetonka	MCWD	0.61	2214.3
Lake Minnetonka	MCWD	0.34	1234.2
Landlocked Basin 1	MCWD	0	0
Landlocked Basin 2	MCWD	1.64	5953.2
Low Area 1	MCWD	0.32	1161.6
Shafer Lake	MCWD	1.97	7151.1
Wetland 1	MCWD	0.07	254.1
Wetland 2	MCWD	0.12	435.6
Sum of Impervious Area	**N/A**	**5.76**	**20908.8**

Table 3: Summary of Reconstructed Area by Outfall

Outfall	Receiving Water Body	Watershed District	Area of Reconstructed [acres]	Exempt from Rate Control
5759	Low Area 1	MCWD	0.28	Yes
5771	Shafer Lake	MCWD	0.64	Yes
5846	Gray's Bay-Lake Minnetonka	MCWD	0.61	Yes
5858	Landlocked Basin 1	MCWD	0	Yes
6131	Frederick Lake	RPBCWD	0.16	Yes
6212	Shafer Lake	MCWD	1.33	No
6216	Existing Stormwater BMP	MCWD	0.03	Yes
6798	Frederick Lake	MCWD	0.5	Yes
17309B	Landlocked Basin 2	MCWD	1.6	No
30443	Wetland 1	MCWD	0.07	Yes
34165	Wetland 2	MCWD	0.12	Yes

ANALYSIS OF RECONSTRUCTED STREET STORM SEWER SYSTEMS

A summary of the existing and proposed impervious areas for each street is found in ***Table 4***. The streets to be reconstructed don't each have their own discharge point, but instead are routed to a number of outfalls that may receive drainage from part of one or multiple reconstructed roads. ***Table 5*** summarizes each outfall (Discharge point) and the peak discharge rates for the 2, 10, and 100 year events in both the existing and proposed condition.

Table 4: Summary of Existing and Proposed Impervious Areas by Street

STREET	EXISTING STREET WIDTH (FEET)	PROPOSED WIDTH	Approximate Existing Impervious Area	Proposed Impervious Area	Change in Impervious Area
		(F/F)	SF	SF	SF
ABEL LANE	20-23	22	4,687	4,968.80	281.8
BAY CIRCLE	20-21	22	11,128	12,350	1,221.50
BAY LANE	20-21	22	23,634	27,838	4,204
BAY STREET	24-26	22	17,940	16,555	-1,385
BEECHWOOD AVENUE	17-18	18	15,092	18,277	3,185

CHARMY DOWNS	24-26	24	20,816	17,292	-3,524
COPPERWOOD LANE	25-26	24	13,165	13,563	399
GRAYS BAY BOULEVARD	26-VARIES	MATCH EXISTING	n/a	n/a	0
GROVELAND PLACE	23	MATCH EXISTING	n/a	n/a	0
GROVELAND SCHOOL ROAD	20-25.5	24	47,216	47,824	608
LEROY STREET	19-25	24	23,040	24,812	1,772
LOWELL STREET	22-23	24	22,572	23,728	1,156
MCKENZIE POINT ROAD	19-22	20	16,154	17,860	1,706
THERESE STREET	23-24	24	24,182	24,880	699

Table 5: Summary of Outfall Peak Discharge Rates

Outfall ID		Rainfall Event Discharge Rates [cfs]		
		2-year	10-year	100-year
5759	Ex	1.4	2.9	4.5
	Prop	1.4	2.9	4.5
5771	Ex	22	36	57.7
	Prop	21.9	36	57.8
5846	Ex	1.8	3.5	5.5
	Prop	2.2	3.9	5.5
5858	Ex	1.2	2.4	5.3
	Prop	1.2	2.4	5.3
6131	Ex	12.6	19.6	35.2
	Prop	12.6	19.6	35.2
6212	Ex	11.8	15.7	22.2
	Prop	11.8	15.7	22.2
6216	Ex	4.6	9.1	13.1
	Prop	4.6	9	13
6798	Ex	4.2	4.5	4.9
	Prop	4.2	4.6	5.7
17309B	Ex	3.1	6.2	14.1
	Prop	7.3	14.9	24.6
30443	Ex	0.2	0.4	0.9
	Prop	0.2	0.4	0.9
34165	Ex	4.3	8.3	17.5
	Prop	4.3	8.3	17.5

Table 5 shows that Outfall 17309B is the only discharge point that experiences an appreciable increase in the peak discharge rate. The area of reconstructed impervious routed to this outfall is greater than an acre, therefore

stormwater treatment and rate control will need to be address for Outfall 17309B and Landlocked Basin 2. The area is fully developed as residential, but there is potential to put in rain gardens in front yards to provide treatment. Soil survey data indicates mostly HSG type A soils in the area that are conducive to infiltration.

LANDLOCKED BASIN ANALYSIS

Part of the hydraulic analysis that was performed was to assess the feasibility of adding outlets to landlocked Basins 1 and 2 (see attached inundation maps). Basin 1 is located just northwest of the intersection of Groveland Place and Groveland School Road. Basin 2 is located just south east of the intersection of Bay Lane and Bay Street. Currently storm water enters these two basins via overland flow or relatively small storm sewer networks. Once water enters these basins, however, there is no way for it to leave other than evapotranspiration, infiltration, or in the event of an extreme event the natural overland spill out points (Figure 7).

In addition to the existing conditions, two proposed scenarios were analyzed, one where outlets are installed for each basin (Proposed Scenario 1), allowing water to flow out via storm sewer network. The other scenario incorporated all of the proposed conditions changes but did not install outlets for the basins (Proposed Scenario 2).

In Proposed Scenario 1, Basin 1 would have an outlet installed at elevation 952' and it would join up with new storm sewer installed north along Groveland School Road and then East along Bay Lane, where it would eventually join up with an existing catch basin that drains to Outfall 17309B which discharges to landlocked Basin 2. Basin 2 would have an outlet installed at elevation 940.5' and install storm sewer pipes running north under Beechwood Avenue and then join up with one of or both catch basins on Gray's Bay Boulevard. The reason why this new storm sewer may need to split its flow at Gray's Bay Boulevard is a question of capacity and hydraulic efficiency. Both existing pipes that could be tied into are 15" pipes. The pipe size needed to drain Basin 2 will likely need to be larger as the outlets are intended only for extreme rainfall events, but installing a larger pipe upstream of a single 15" pipe is not advisable. Splitting the flow and connecting to both pipes would potentially allow a larger pipe to be installed to drain Basin 2.

For all three scenarios, two storm events were analyzed with regards to these land locked basins. The 100-year rainfall event and back-to-back (B2B) 100-yr rainfall events. The reason the B2B 100-yr event was run is because these are landlocked basins and it is important to understand what the worst case scenario could be with regards to flooding and potential impact to neighboring properties. Additionally, Rule 6.2.2.1 of the Minnetonka Stormwater Management Manual states "In landlocked basins, the low-floor elevation is set at 2 feet above the high water elevations based on two back-to-back 100-year storm events."

Table 6: Summary of Basin 1 HWLs

Event	Basin 1 Scenario		
	Existing Conditions	Proposed Conditions with outlet	Proposed Conditions No Outlet
100 yr	953.3	952.5	953.4
Back-to-back 100 yr	954.6	954.5	954.6

Basin 1 results are summarized above in ***Table 6***. The results for Basin 1 show that for the 100 yr event, the outlet does have an impact and helps lower the high water level quite significantly. The results are a bit misleading however because due to Groveland School Road now having curb and gutter installed, a significant drainage area that used to drain to Basin 1 is now being captured by new catch basins and being routed instead to Basin 2. The B2B 100-yr event results show that an outlet installed on Basin 1 does not have a significant

effect, as runoff from Basin 1 is reaching the natural overland spillout elevation of approximately 954. These results would indicate that there is not much benefit to adding an outlet to Basin 1.

Table 7: Summary of Basin 2 HWLs

Event	Basin 2 Scenario		
	Existing Conditions	Proposed Conditions with outlet	Proposed Conditions No Outlet
100 yr	937.4	940.4	939.9
Back-to-back 100 yr	944.3	944.1	947.5

Basin 2 results are summarized above in ***Table 7***. The Basin 2 outlet elevation is proposed at an elevation of 940.5' with a 36" pipe that would tie into 2 separate existing catch basins that discharge to Gray's Bay. Two tie-ins are necessary as the downstream pipes at each of these outfalls only have a pipe diameter of 15". The results show that for a 100-yr event the outlet will not see any flow and therefore has no effect at this elevation. It should be noted that the outlet elevation should be set above the 100-yr high water level (HWL) as the ultimate discharge point of Basin 2 is Gray's Bay of Lake Minnetonka. Initial conversations with Minnehaha Creek Watershed District (MCWD) revealed that Gray's Bay has high water quality, and discharging water for events below a 100-yr event would likely require stormwater treatment.

The B2B 100-yr results indicate that without the outlet, the HWL increases from 944.3 to 947.5. This HWL affects one uninhabitable garage at 17030 Prospect Place and also reaches the low floor elevation at 17309 Bay Lane. The HWL also reaches the natural overflow elevation of Basin 2 and would flow toward Cottage Grove Avenue. It is recommended that some sort of outlet be pursued for Basin 2, as the proposed project will change the hydrology and put more water into this basin, which could cause increased flood risk. An added outlet for Basin 1 would be beneficial only if an outlet is added to Basin 2 and should only be added if both basins would receive outlets.

MCKENZIE POINT ROAD DRAINAGE ISSUES

McKenzie Point Road has a proposed roadway low point approximately 200 feet south of the cul de sac. Due to the minimal elevation difference between the roadway gutter low point and the Lake Minnetonka high water level (0.82 feet), subsurface gravity drainage does not appear feasible to construct. Any option to mitigate the drainage issues on McKenzie Point Road faces a number of challenges which are described below.

- Any overland drainage will be limited by very low grades
- The stone arch located at the intersection of McKenzie Point Road and Stone Arch Road must be avoided due to its cultural/historical significance
- There are two Century Link cables (min. diameter 6") running down the western side of McKenzie point road that will need to be worked around.
- Infiltration is likely not feasible due to high groundwater levels
- Any additional drainage routed to the wetland to the south will need to be closely scrutinized due to the wetland being landlocked.

Several options were investigated and discussed below.

Overland Swale between houses to the Lake Minnetonka

This option is probably most cost effective and would rely on gravity drainage overland through a sideyard surface swale along the property lines of 2811 and 2813 McKenzie Point Road. This option would be limited in its effect due to the lack of grade in this area and the limited space to provide much capacity to the swale. The cost of easements may increase the overall cost of this option

Collect McKenzie Point Road drainage and pump directly to wetland

This option would collect drainage from McKenzie Point Road (MPR) to either a wet well or via a swale along the west side of MPR. The overland swale option would require a significant amount of excavation and may render this option infeasible due to the two buried Century Link cables.

Alternatively, runoff could be collected in a wet well and pumped via forcemain south down MPR where it would discharge to the wetland to the south. This option would face engineering challenges in avoiding the utilities that are currently under MPR as well as the above mentioned Stone Arch. This would also require demonstrating a no-rise scenario in the wetland. Because the wetland is landlocked achieving a no-rise scenario is likely not possible

Collect McKenzie Point Road drainage and pump to bmp then routed to wetland

This option is similar to above but would first direct the drainage to a filtration bmp before draining to the wetland. Infiltration is likely not feasible due to high groundwater levels in this area. Gravity draining a filtration basin would also have grade issues considering how flat the land is in this area. This would also be putting additional water into a land locked basin and would require demonstrating a no-rise in the wetland, as discussed above.

Collect McKenzie Point Road drainage and pump directly to Lake Minnetonka

There are two identified paths for this option. One path would mimic the overland swale and pump through side yards to an outlet set above the ordinary high water level (OHWL) of Lake Minnetonka (929.88 NAVD88). As mentioned above, this path would require the procurement of easements to construct through residents' side yards, but would be a more straightforward design that would require significantly fewer construction materials.

The second path would pump water south down MPR then gravity drain east along Gray's Bay Boulevard to two existing catch basins that eventually outlet to Lake Minnetonka. This option would likely be the most expensive considering the long path proposed. Some token water quality treatment, such as sump catch basins and SAFL baffles should be included with and runoff being routed directly to Lake Minnetonka.

McKenzie Point Road Recommendation

Gravity drainage of MPR is likely to be infeasible and it is recommended that water be collected in a wet well and pumped out via forcemain. Final recommendations as to where water should be pumped will be completed in final design.

ST LUKE PRESBYTERIAN CHURCH RAIN GARDEN

The St. Luke Presbyterian church has an existing rain garden located along Groveland School Road. The church has expressed interest in either adding a second rain garden or increasing the size of the current raingarden. The rain garden was analyzed at a desktop level and found to be oversized for the current area draining to it. Based on the current drainage area expanding the size of the rain garden would likely not have a significant effect. The drainage area to the rain garden however can be expanded and then expansion of the rain garden could have a benefit.

MC
Attachments: Figures 1-7, Land Locked Basins Inundation maps
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Path: C:\Projects\Groveland Bay Street Reconstruction\GIS\memo figures\Figure_01.mxd

SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

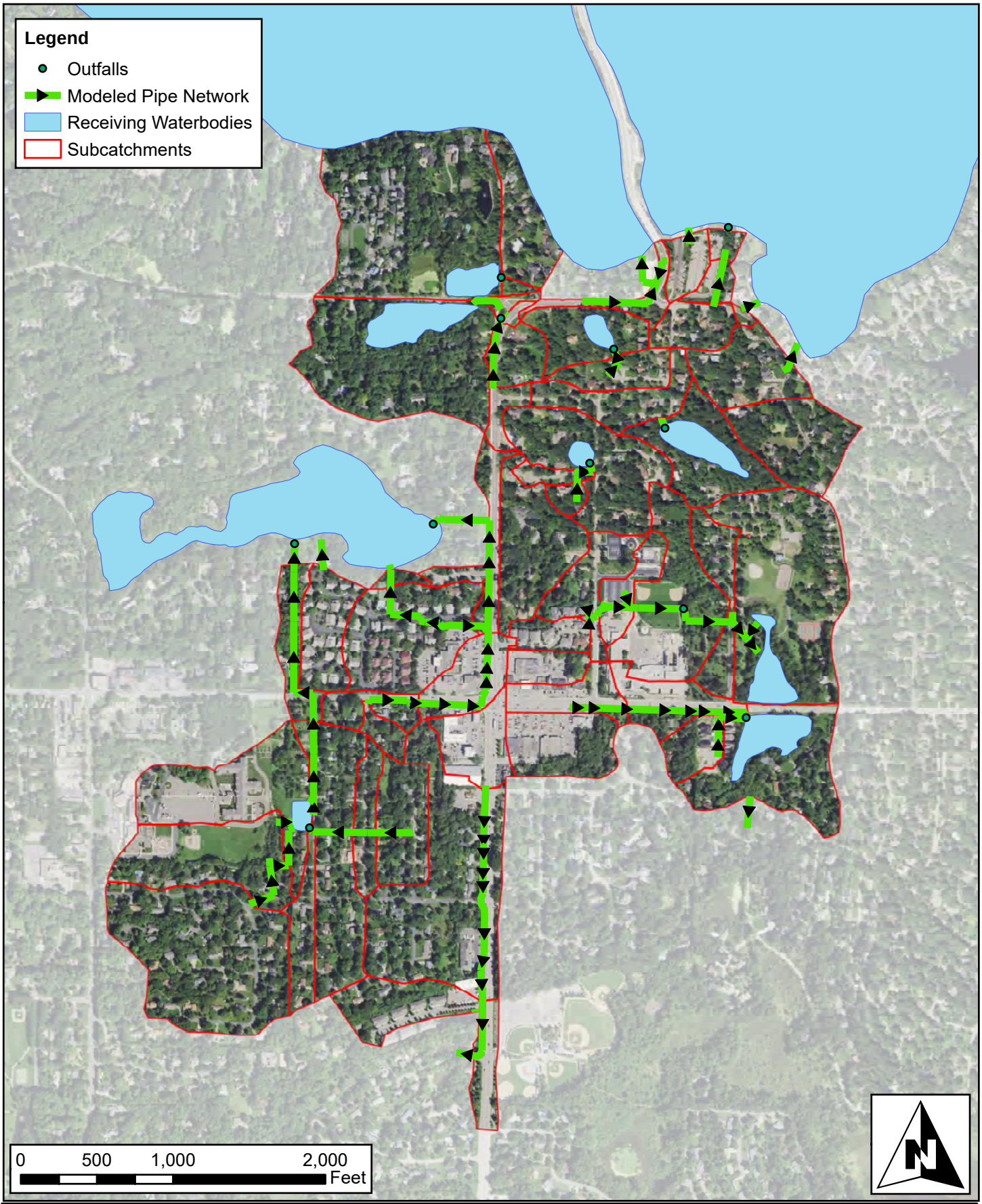
Project: MINNE-155917
Print Date: 9/29/2020

Map by: mchristenson
Projection: Hennepin County
Source: MnGeo, SEH,
City of Minnetonka

Project Drainage Area

Groveland Bay Street Reconstruction
Hennepin County, MN

Figure
1



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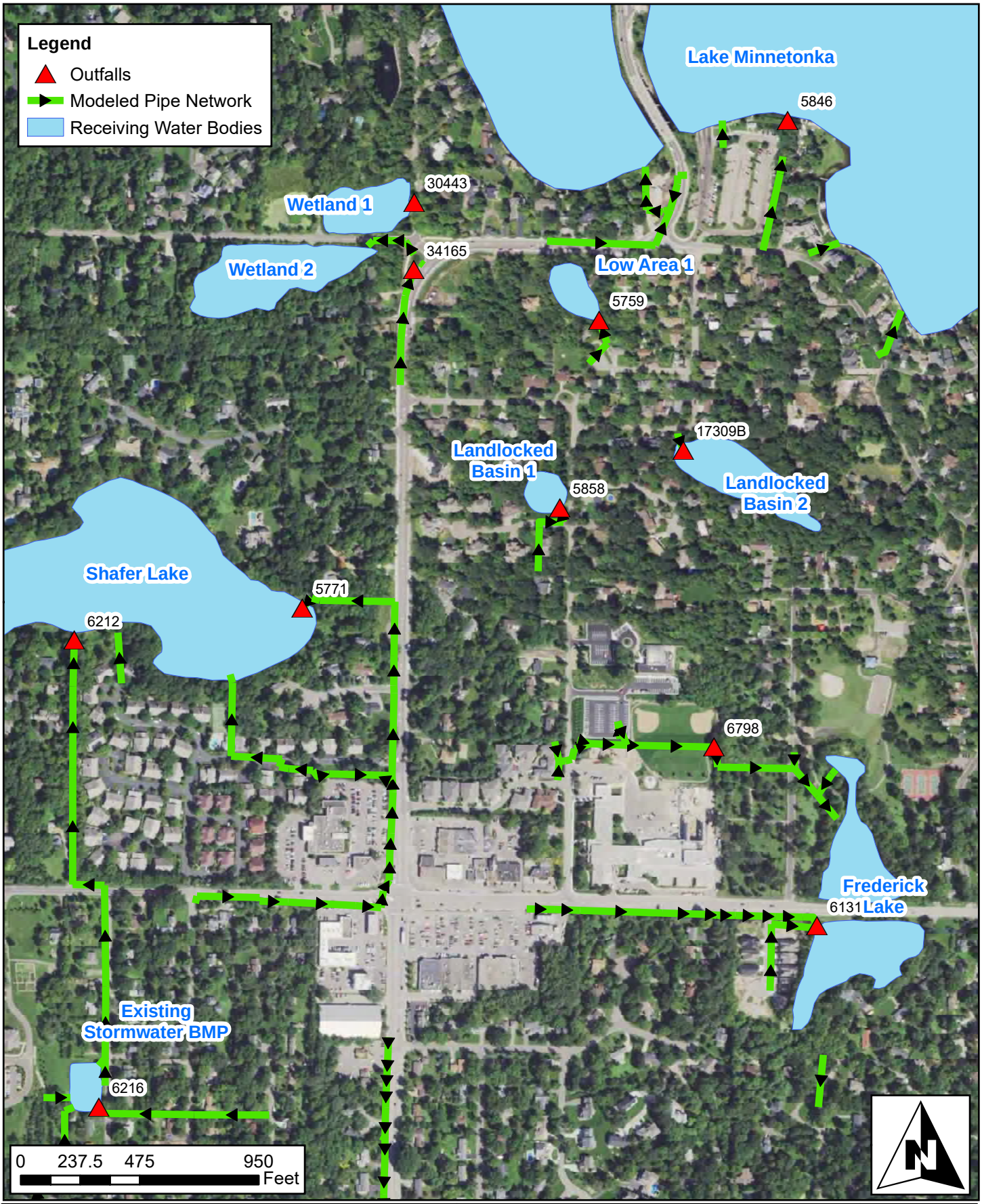
Project: MINNE-155917
Print Date: 9/29/2020

Map by: mchristenson
Projection: Hennepin County
Source: MnGeo, SEH,
City of Minnetonka

Modeled Storm Sewer Network

Groveland Bay Street Reconstruction
Hennepin County, MN

Figure 2



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SEH
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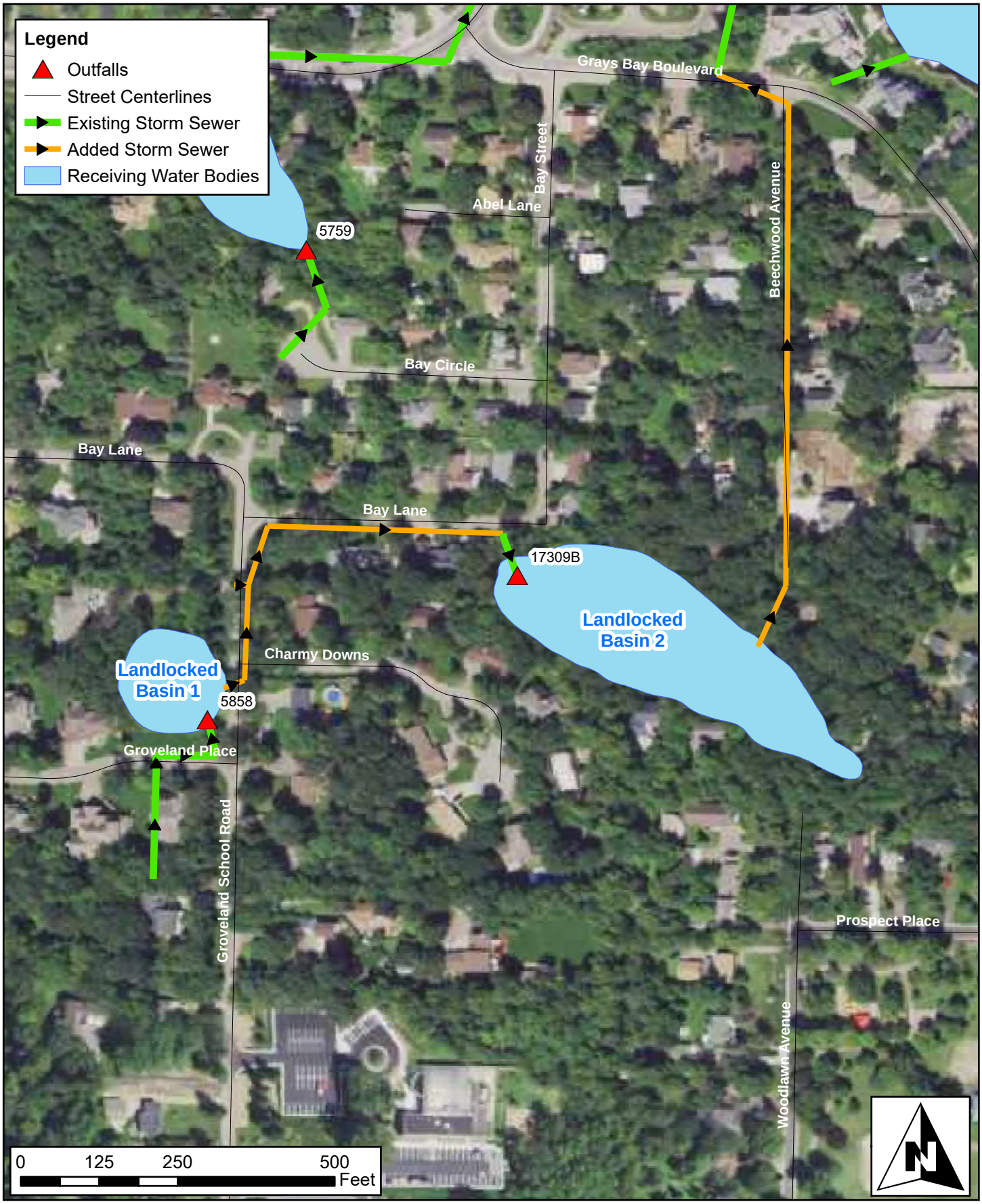
Project: MINNE-155917
Print Date: 9/18/2020

Map by: mchristenson
Projection: Hennepin County
Source: MnGeo, SEH,
City of Minnetonka

Project Discharge Points

Groveland Bay Street Reconstruction
Hennepin County, MN

Figure 3



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SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

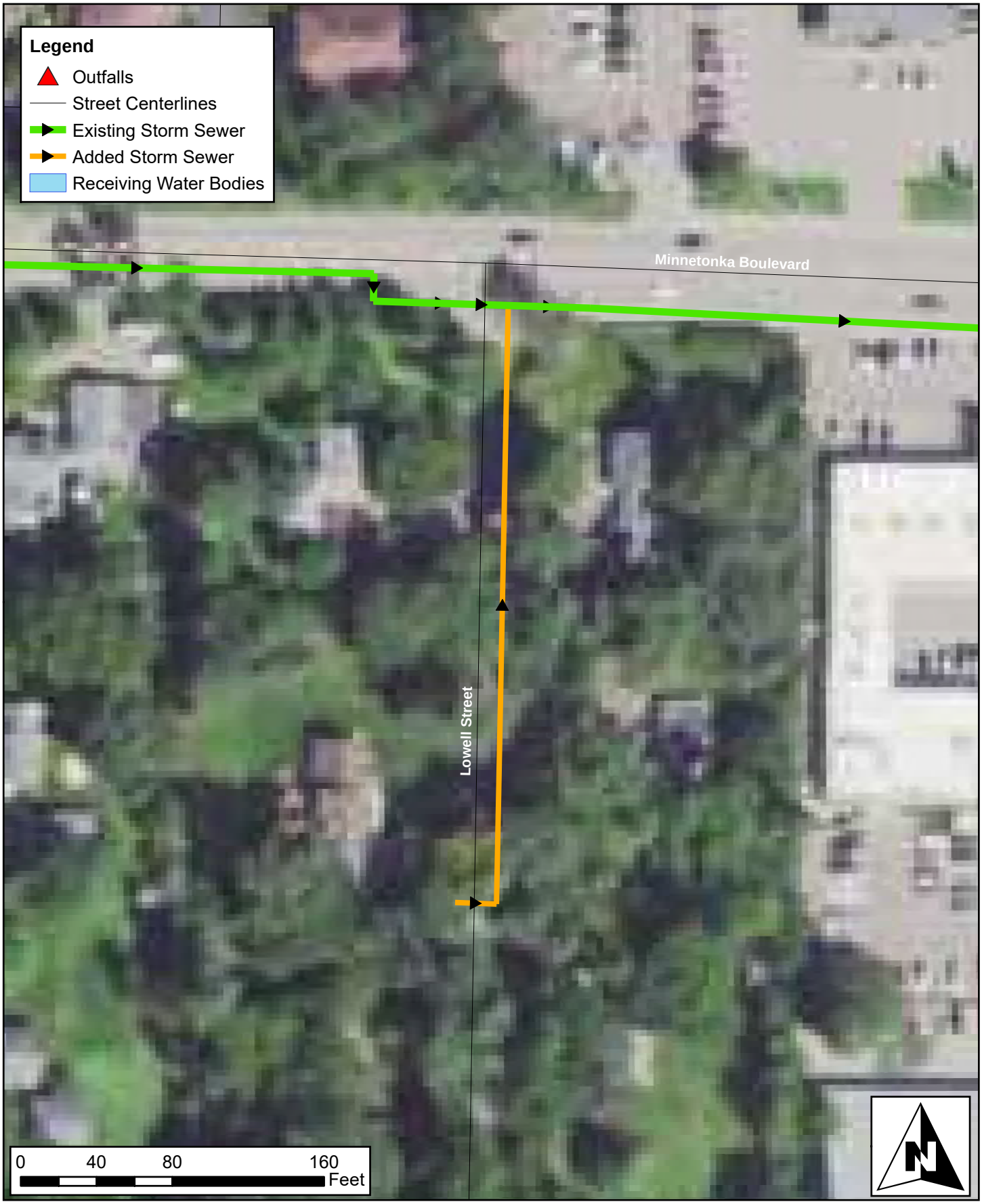
Project: MINNE-155917
Print Date: 10/2/2020

Map by: mchristenson
Projection: Hennepin County
Source: MnGeo, SEH,
City of Minnetonka

Added Storm Sewer 1

Groveland Bay Street Reconstruction
Hennepin County, MN

Figure 4



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SEH
3535 VADNAIS CENTER DR.
ST. PAUL, MN 55110
PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

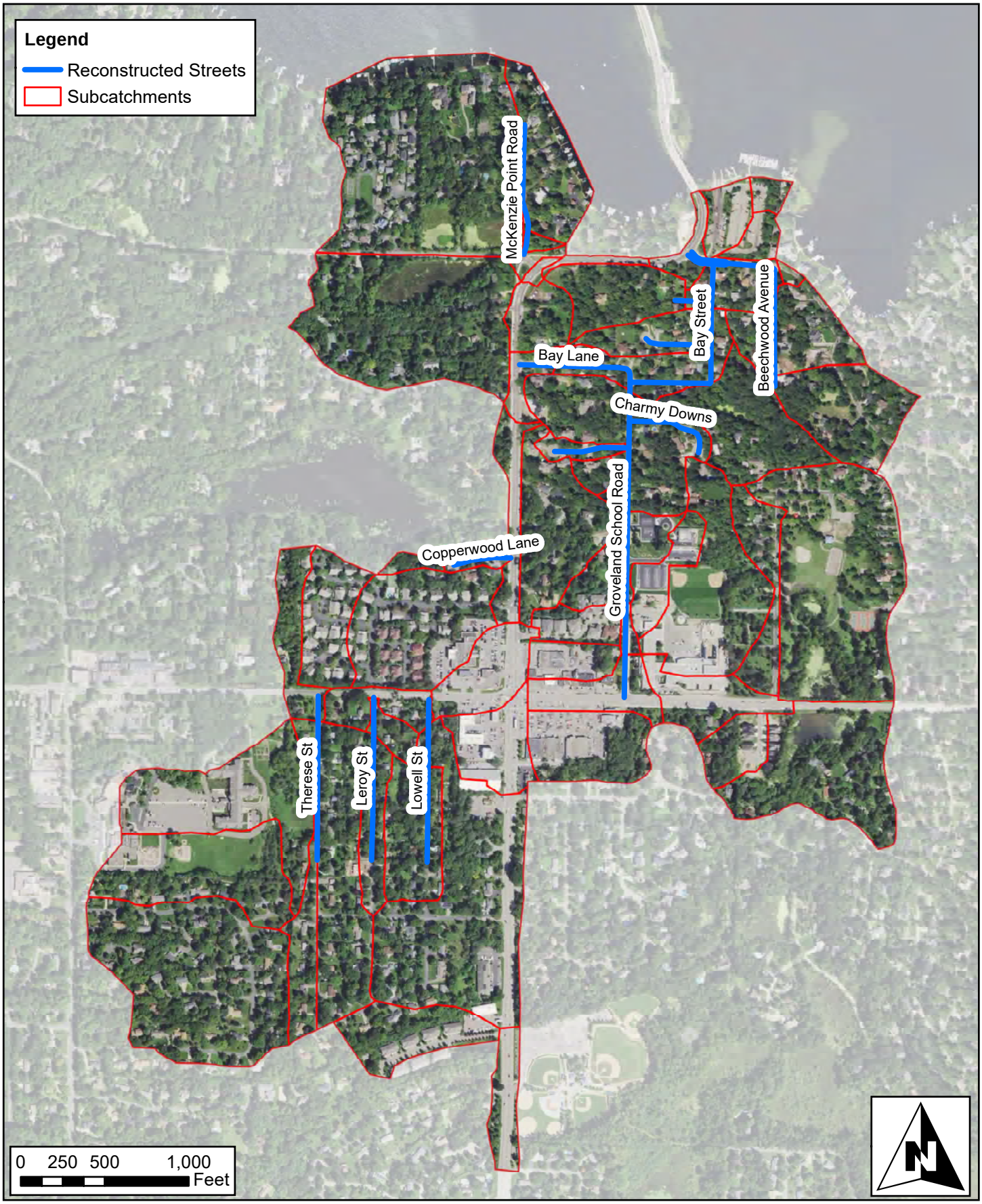
Project: MINNE-155917
Print Date: 10/2/2020

Map by: mchristenson
Projection: Hennepin County
Source: MnGeo, SEH,
City of Minnetonka

Added Storm Sewer 2

Groveland Bay Street Reconstruction
Hennepin County, MN

Figure 5



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PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

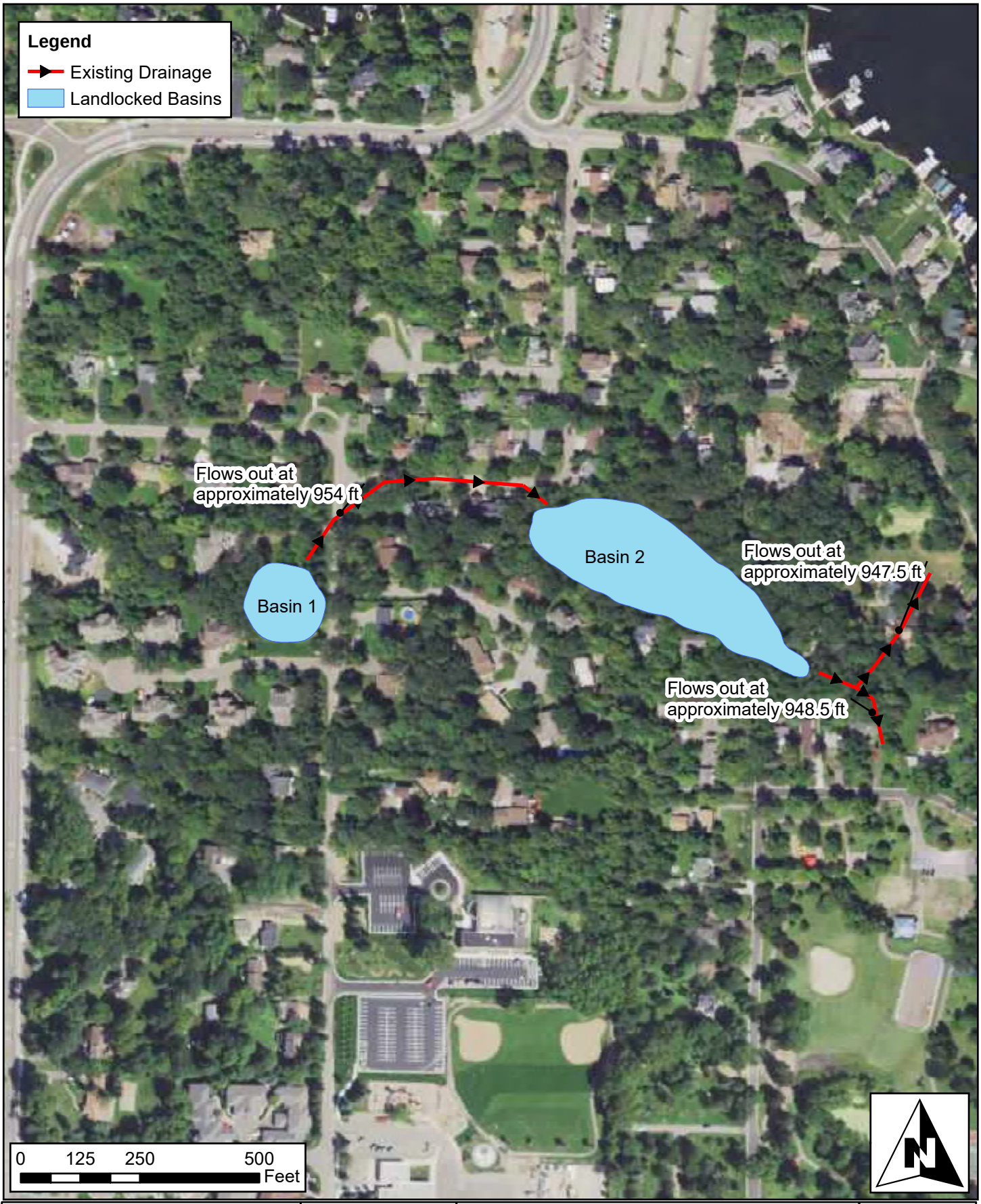
Project: MINNE-155917
Print Date: 9/28/2020

Map by: mchristenson
Projection: Hennepin County
Source: MnGeo, SEH,
City of Minnetonka

Reconstructed Streets

Groveland Bay Street Reconstruction
Hennepin County, MN

Figure 6



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PHONE: (651) 490-2000
FAX: (888) 908-8166
TF: (800) 325-2055
www.sehinc.com

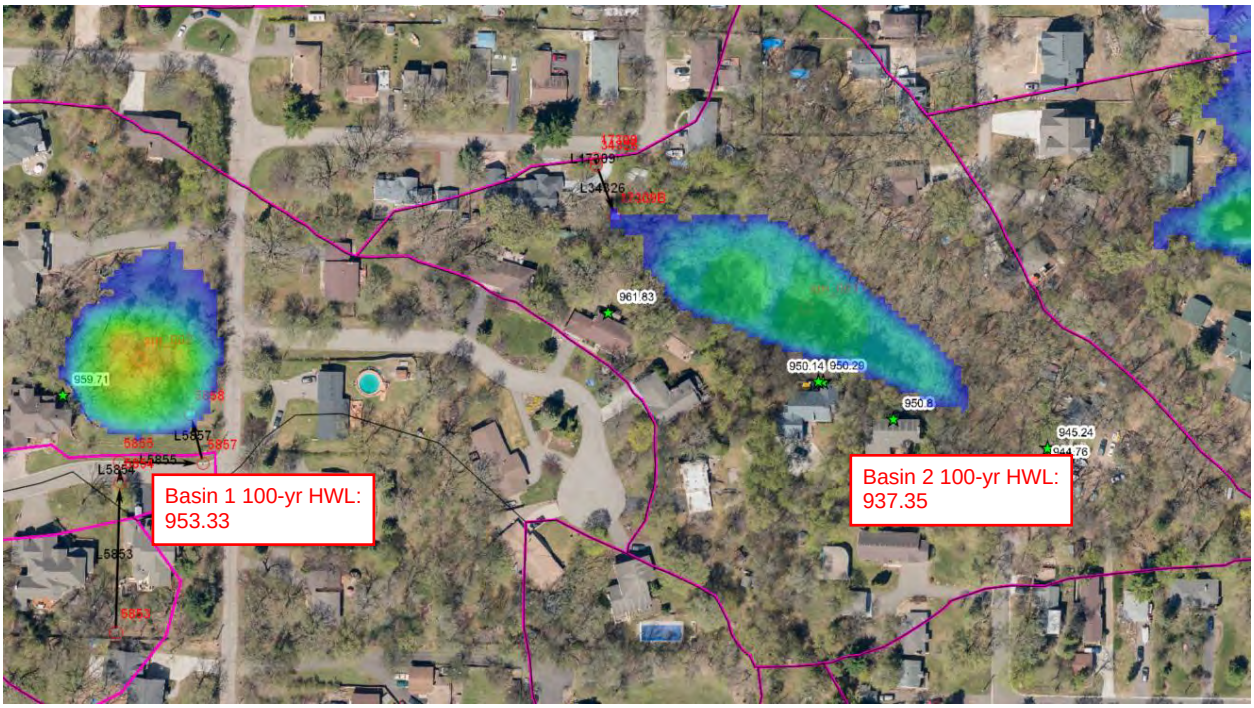
Project: MINNE-155917
Print Date: 10/20/2020

Map by: mchristenson
Projection: Hennepin County
Source: MnGeo, SEH,
City of Minnetonka

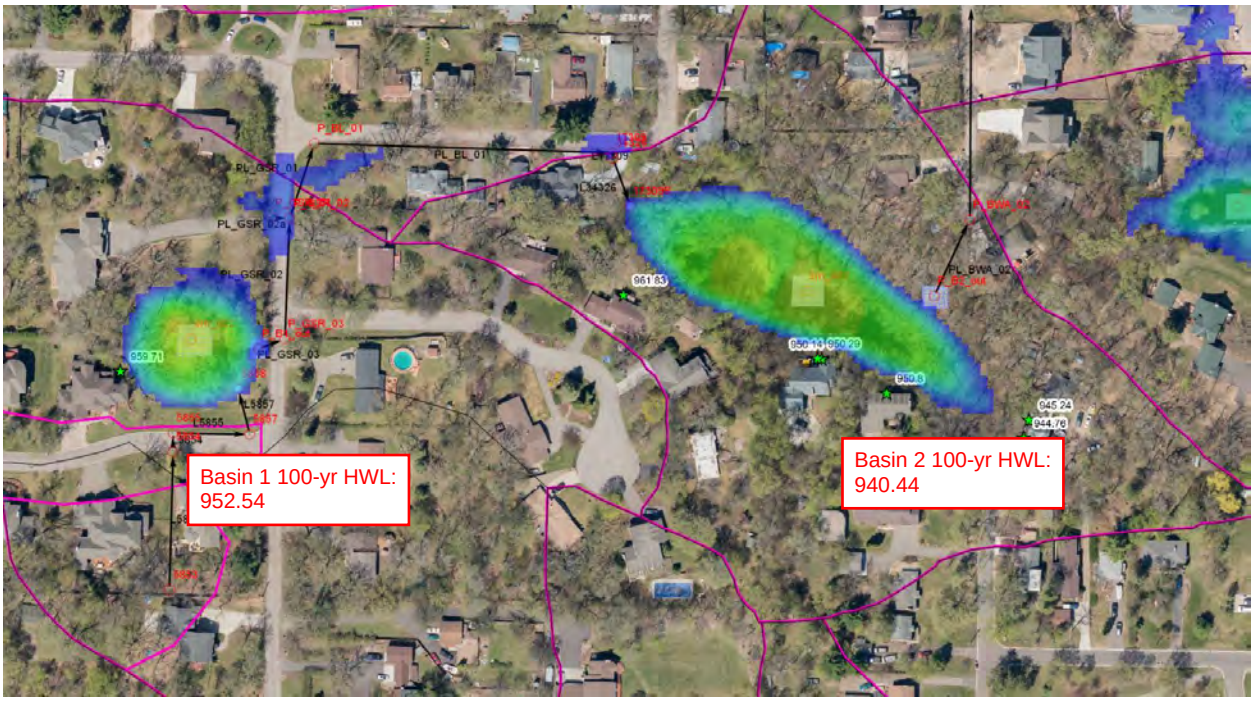
Landlocked Basins Drainage Patterns

Groveland Bay Street Reconstruction
City of Minnetonka

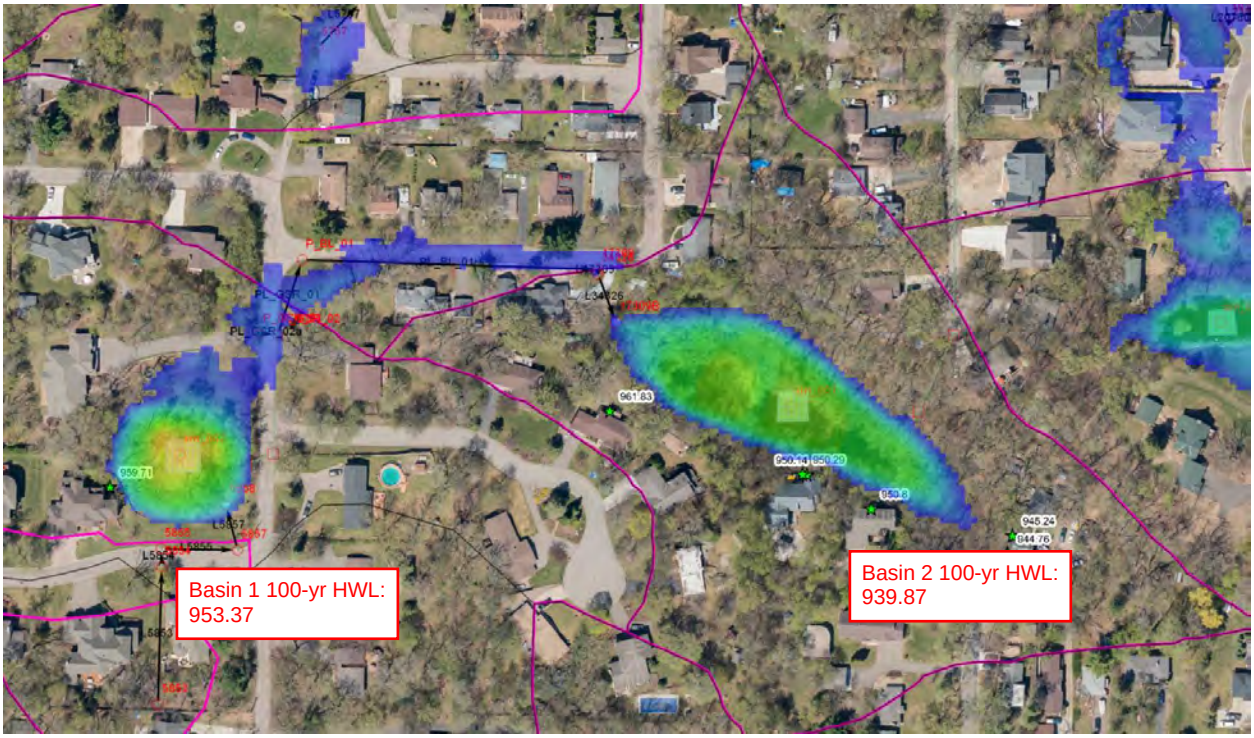
Figure 7



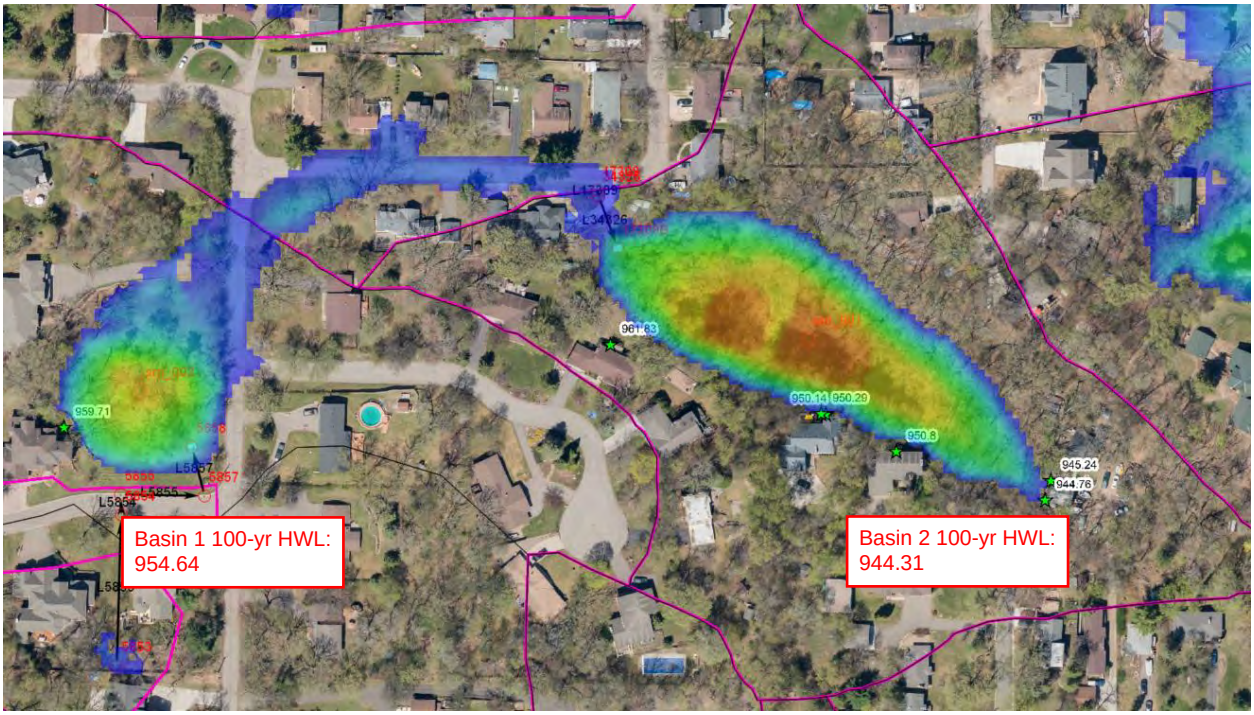
Existing Conditions 100-year Inundation Map



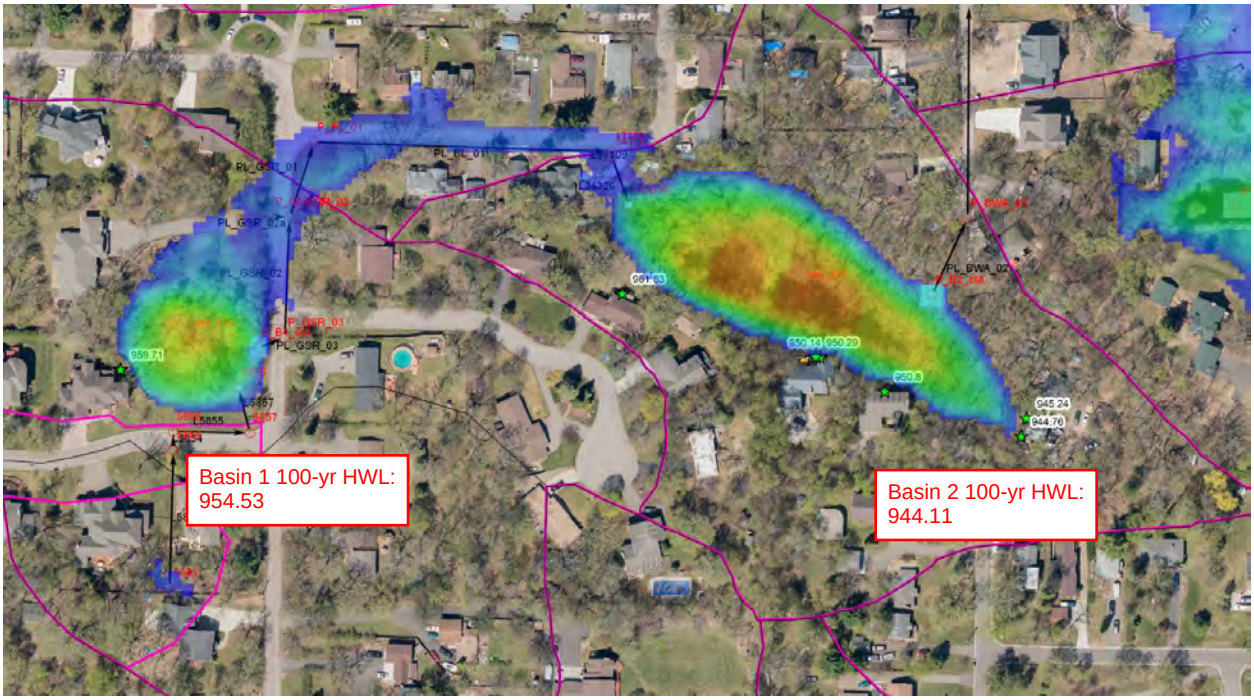
Proposed Conditions (with outlets) 100-year Inundation Map



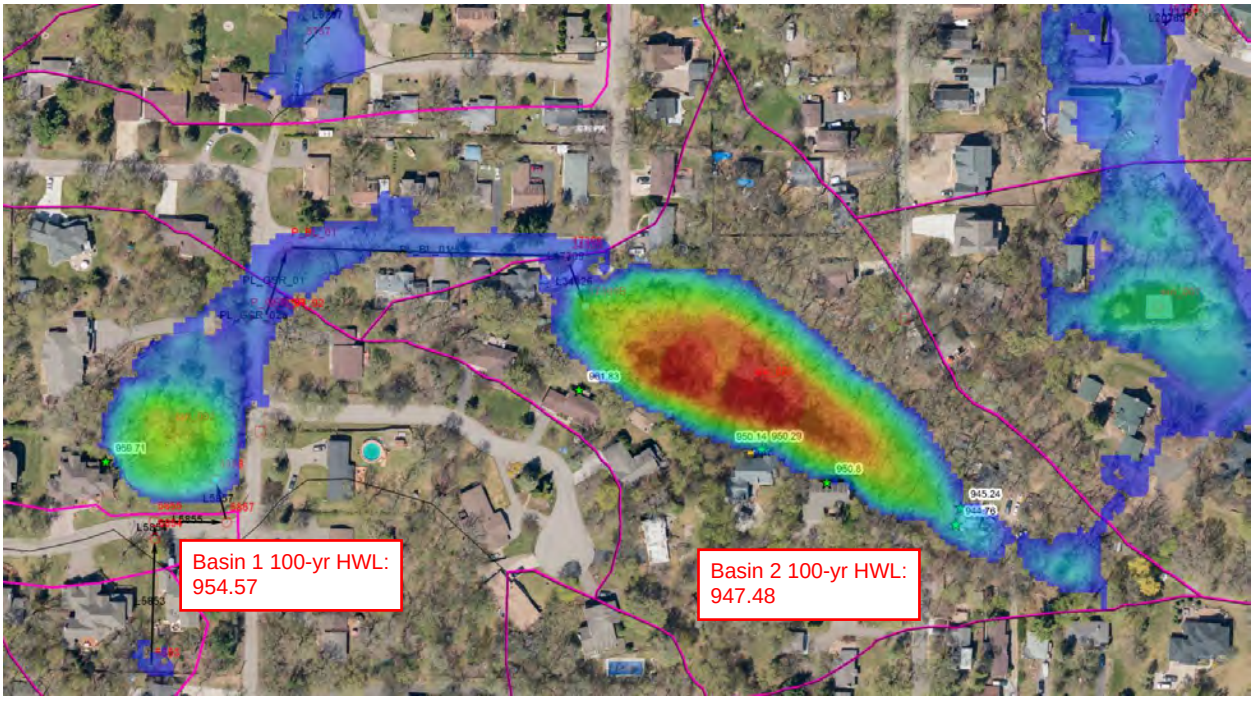
Proposed Conditions (without outlets) 100-year Inundation Map



Existing Conditions Back-to-back 100-year Inundation Map



Proposed Conditions (with outlets) Back-to-back 100-year Inundation Map



Proposed Conditions (without outlets) Back-to-back 100-year Inundation Map

Appendix I

Proposed Conditions

MINNETONKA 2021
GROVELAND BAY NEIGHBORHOOD
STREET RECONSTRUCTION
PUBLIC INFORMATION MEETING
SEPTEMBER 30, 2020

CITY OF MINNETONKA

SEH

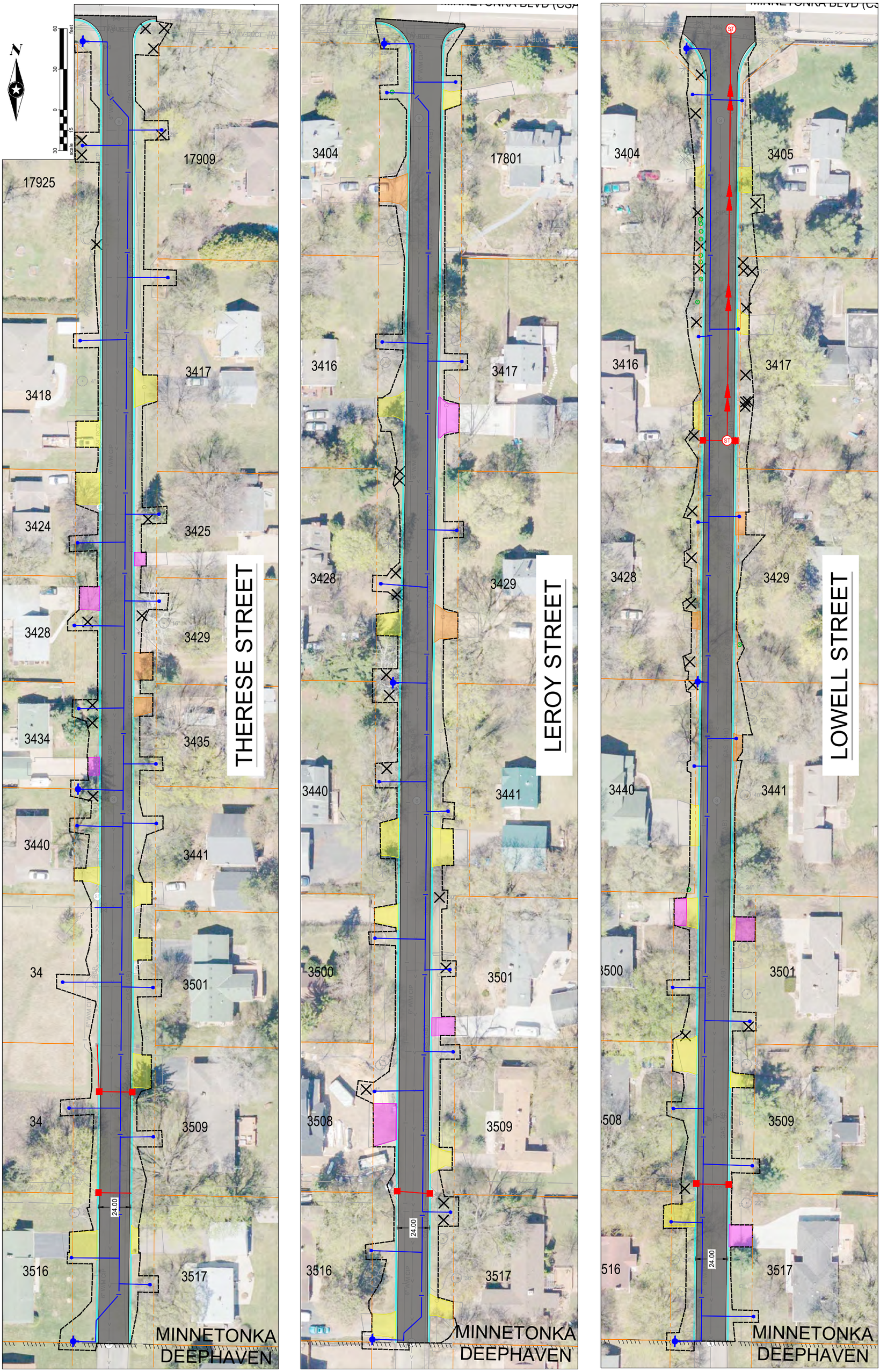
LEGEND

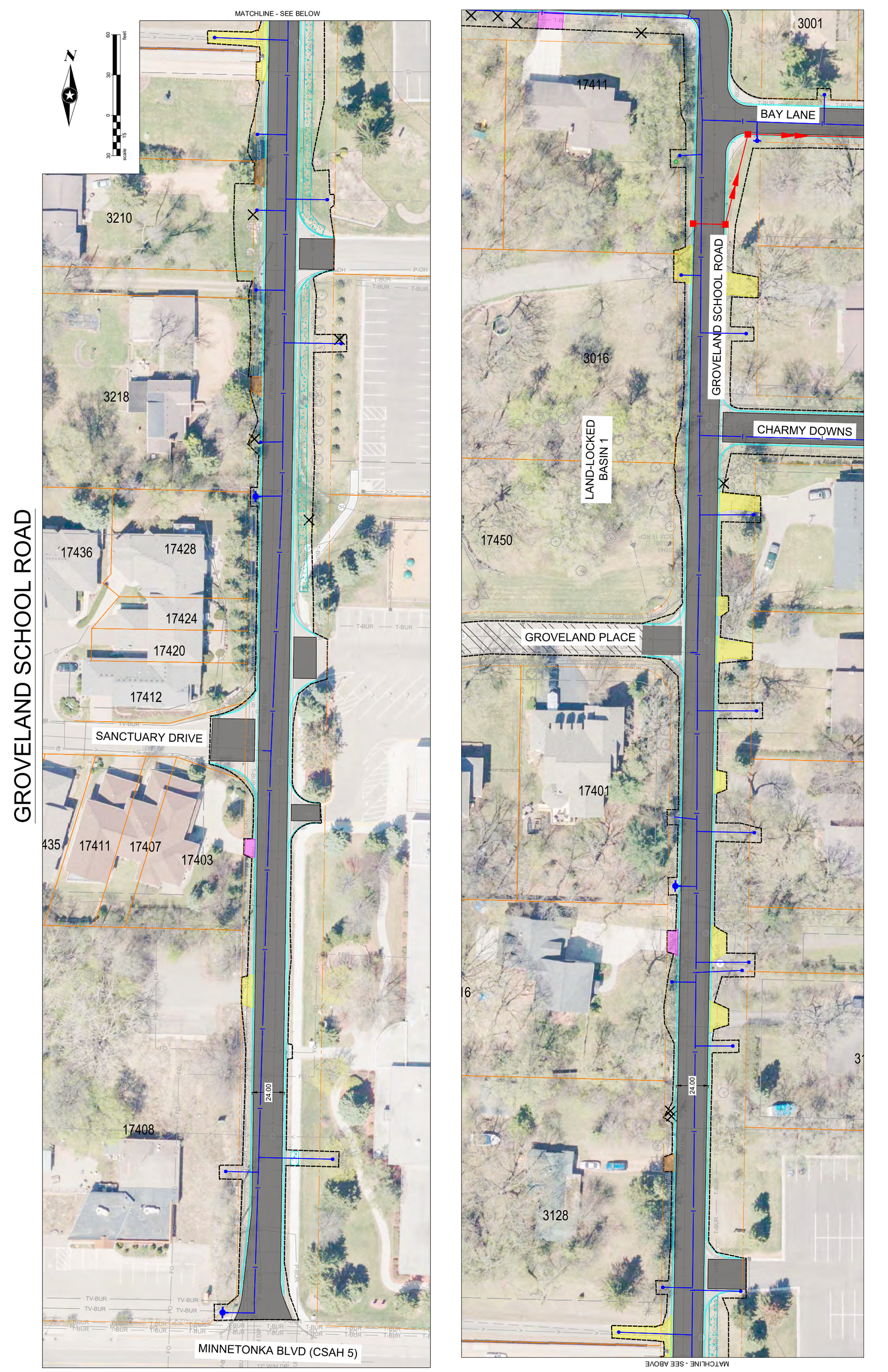
EXISTING

- CURB AND GUTTER
- BUSH
- DECIDUOUS AND CONIFEROUS TREE
- EDGE OF WOODED AREA
- G / GAS (AB) — GAS MAINLINE (ACTIVE AND ABANDONED)
- T-OH / FO / P-OH — PRIVATE UTILITIES
- STORM SEWER, MANHOLE AND CATCH BASIN
- SANITARY SEWER AND MANHOLE
- WATERMAIN, HYDRANT AND GATE VALVE
- PRIVATE PROPERTY WATER SERVICE AND CURB STOP
- CITY LIMITS

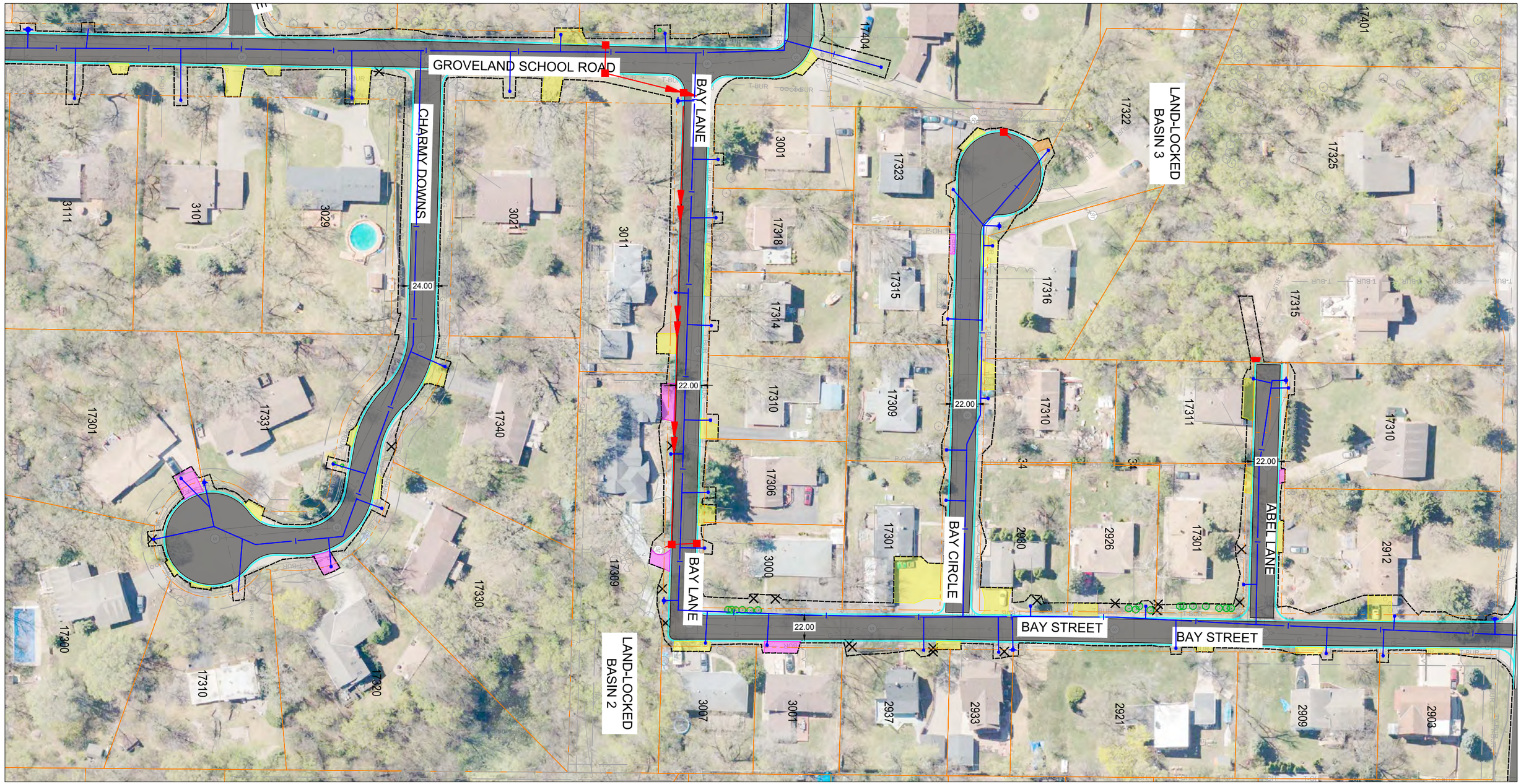
PROPOSED

- CONSTRUCTION LIMITS
- RIGHT-OF-WAY
- PROPERTY LINE
- CURB AND GUTTER
- BITUMINOUS PAVEMENT
- MILL & OVERLAY PAVEMENT
- BITUMINOUS DRIVEWAY
- CONCRETE DRIVEWAY
- GRAVEL DRIVEWAY
- CONCRETE SIDEWALK
- STORM SEWER, MANHOLE AND CATCHBASIN
- SANITARY SEWER AND MANHOLE VIA OPEN CUT
- WATER MAIN AND HYDRANT (OPEN-CUT REPLACEMENT)
- WATER MAIN (TRENCHLESS REHABILITATION)
- WATER SERVICE AND CURB STOP BOX
- REMOVE TREE
- REMOVE SHRUB/BUSH

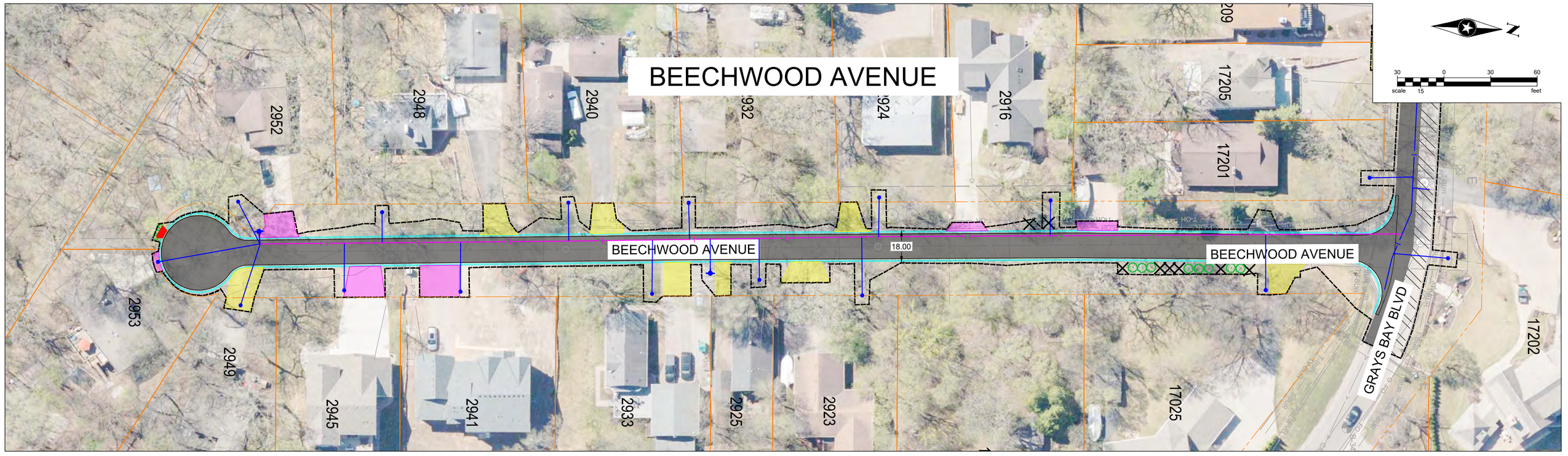

N
feet
60
30
0
15
30
scale
THERESE STREET
LEROY STREET
LOWELL STREET
17925
17909
17801
3404
3405
3416
3417
3418
3424
3425
3428
3429
3434
3435
3440
3441
3500
3501
3508
3509
3516
3517
24.00
MINNETONKA
DEEPHAVEN


MATCHLINE - SEE BELOW
N
feet
60
30
0
15
30
scale
GROVELAND SCHOOL ROAD
3210
3218
17436
17428
17424
17420
17412
SANCTUARY DRIVE
435
17411
17407
17403
17408
24.00
MINNETONKA BLVD (CSAH 5)
3001
17411
BAY LANE
GROVELAND SCHOOL ROAD
3016
CHARMY DOWNS
LAND-LOCKED BASIN 1
17450
GROVELAND PLACE
17401
16
3128
24.00
MATCHLINE - SEE ABOVE

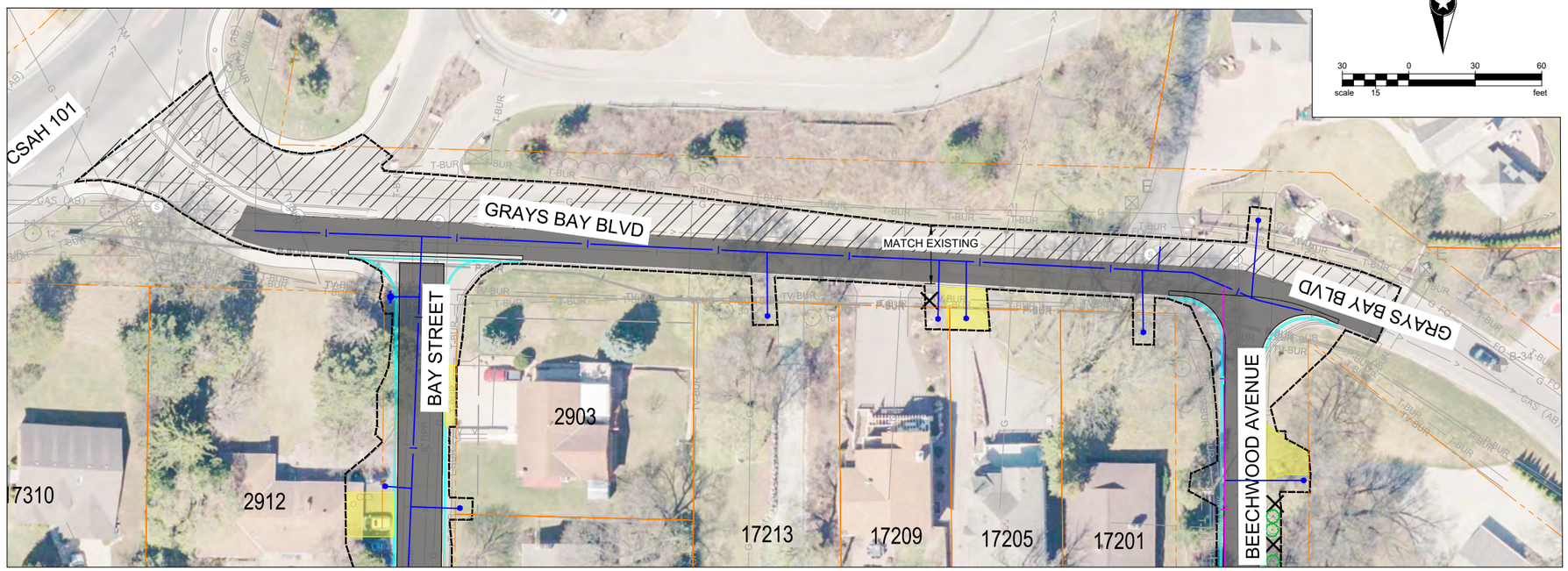
CHARMY DOWNS, BAY LANE, BAY STREET, BAY CIRCLE, ABEL LANE

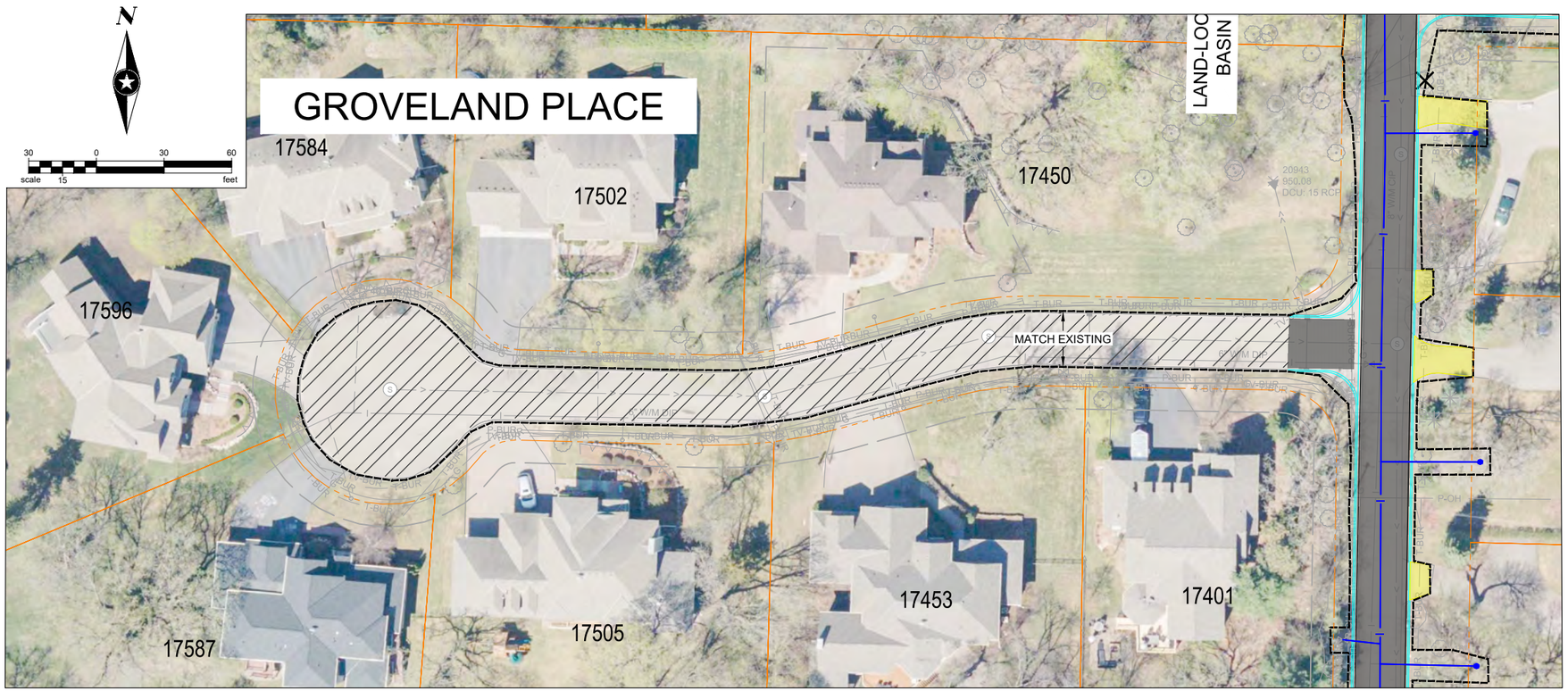


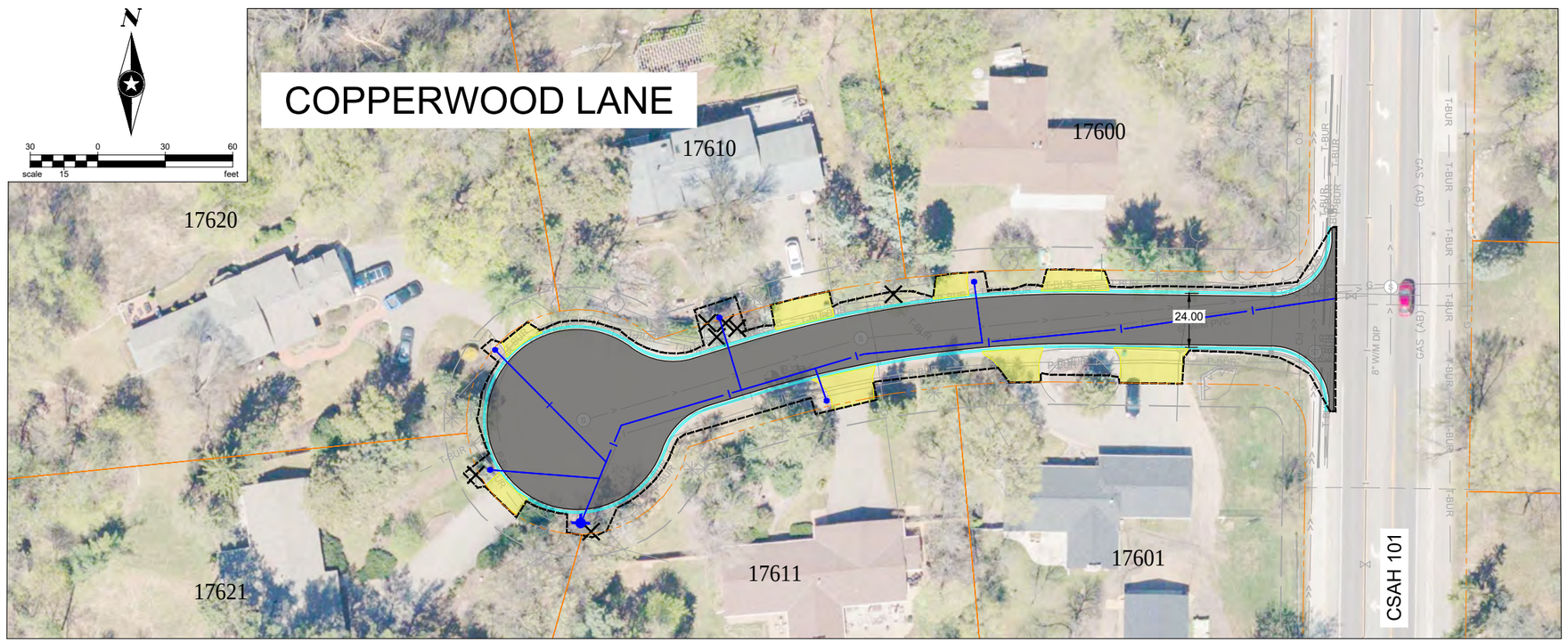
BEECHWOOD AVENUE



GRAYS BAY BOULEVARD




N
30 0 30 60
scale 15 feet
GROVELAND PLACE
17584
17502
17450
LAND-LOC
BASIN
17596
MATCH EXISTING
17587
17505
17453
17401


N
30 0 30 60
scale 15 feet
COPPERWOOD LANE
17610
17600
17620
24.00
17621
17611
17601
CSAH 101

CSAH 101

BAY LANE

22.00

2933

17500

17420

17412

17404

17323

17315

17309

17301

17515

17509

17421

17411

3001

17318

17314

17310

17306

3000

3001

3007

3011

17309

LAND-LOCKED
BASIN 2

SCHOOL ROAD

3021

N

40 0 40 80
scale 20 feet

MCKENZIE POINT ROAD

BREEZY POINT RD

STONE ARCH RD

WOODLAND
MINNETONKA

MCKENZIE POINT RD

20.00

CSAH 101

2900

2827

2823

2819

2815

2813

2811

2809

2807

2805

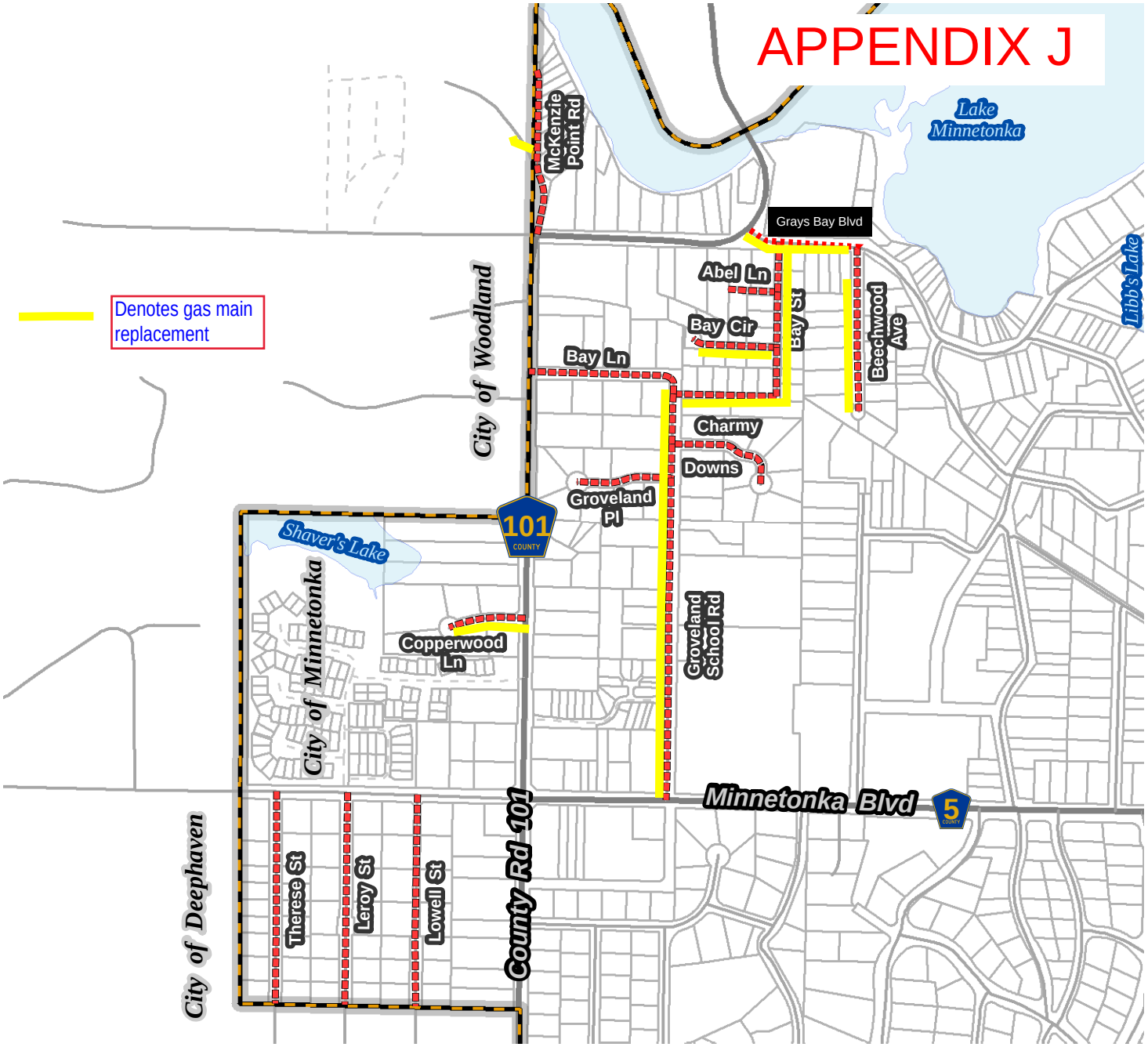
N

30 0 30 60
scale 15 feet

Appendix J

Private Utility Upgrades

APPENDIX J



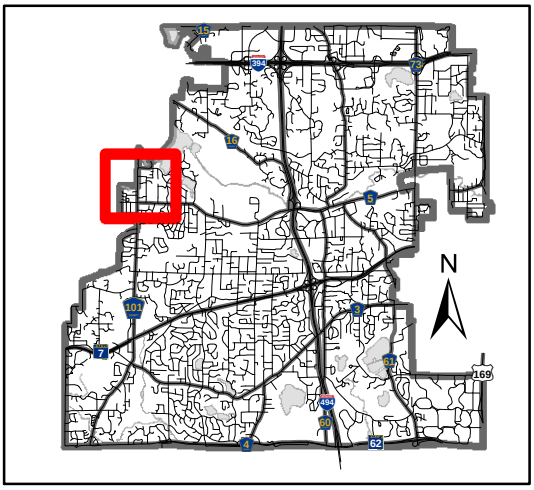
Groveland-Bay Improvements Project

Street Reconstruction

Municipal Boundary Line

CITY OF MINNETONKA

CENTERPOINT ENERGY PROPOSED UTILITY UPGRADES



This map is for illustrative purposes only.

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We're confident in our ability to balance these requirements.

Join Our Social Communities

City Council Agenda Item #14B
Meeting of Oct. 26, 2020

Brief Description: Resolution authorizing the certification of delinquent utility charges to Hennepin County, and approve writing-off stale uncollectible accounts

Recommended Action: Adopt the resolution and approve writing-off

Background

The city council is requested to adopt the attached resolution, which will certify this year's delinquent utility bills for collection with the 2021 property taxes. Consistent with previous city council actions, staff proposes that the certification of delinquent accounts include an interest rate – this year again, recommended to be 10 percent on the total unpaid balance. The interest is calculated from December 1, 2020, to December 31, 2021. A $25 administrative fee is added to delinquent accounts to cover the additional costs associated with the certification process including charges imposed onto the city by Hennepin County for administering the delinquent charges through their tax assessment system.

For comparison, the following table presents the certifications over the last ten years at the time of council action.

Year	Number of Accounts	Amount Certified	Average Certification
2011	513	$293,312.57	$571.76
2012	454	$264,001.65	$581.50
2013	460	$260,366.31	$566.01
2014	474	$267,103.63	$563.51
2015	496	$291,055.75	$586.81
2016	520	$330,915.17	$636.38
2017	475	$293,798.86	$618.53
2018	524	$363,909.77	$694.48
2019	491	$347,531.78	$707.80
2020	***673***	***$366,195.41***	***$544.12***

A detailed list of properties and delinquent amounts as of October 26, 2020, is available upon request. All accounts to be certified have been notified in writing of the pending certification and have had at least one month in which to pay the arrears. Any account which pays the certified amount plus city administration costs before November 16, 2020, will be removed from the list prior to filing with Hennepin County. Therefore, the actual numbers of accounts certified to the county are always less than the amounts indicated here. Accounts to be certified must also have been delinquent for three months or longer.

The number of delinquent accounts is up 182 or 37 percent compared to the prior year, but the amount certified is only up 5.4 percent. This surge in the number of accounts is directly related to new utility billing procedures implemented over the past year.

The final account balances are now transferred to the new accountholder after the former accountholder is issued a final bill. Prior practices did not transfer the unpaid balance to the new accountholder even though the utility charges remain with the current property owner. In the past, new property owners were not notified of a delinquent utility bill until the annual certification process began which could be up to a year after the real estate transaction. This timely transfer aids in resolving unpaid utility balances between the former and new home owner much closer to the original real estate transaction date.

Second, the prior certification process only reviewed unpaid charges with balances of $250 and greater. All delinquent accounts under this threshold were held back from the certification process. This year, the certification threshold has been reduced to $50 and greater. Lowering the certification threshold increases the collectability of delinquent accounts and is more in line with our peer cities.

Lastly, the council will be requested to annually write off stale uncollectible utility accounts. This year’s write off includes 853 accounts totaling $50,973.15 dating from Nov. 2, 1995 through June 30, 2019. This write-off amount is expected to significantly decrease over the next two years due to the new procedures implemented this year. The combination of transferring outstanding balances over to new accountholders and reducing the certification threshold will reduce future write-offs. Not to mention, future write-offs will only be for the immediate past year.

Appeals

In the formal notification of delinquency, customers were apprised of their right to request a hearing before the city council to ask that the delinquent amount on their account not be assessed to their property taxes. At the time of drafting this letter, no property owners have notified the city of their intention to present their case to the city council. Nonetheless, all such customers are still afforded the opportunity to do so this evening.

Recommendation

Adopt the resolution authorizing the certification of delinquent utility charges to the Hennepin County Auditor, and approve writing-off stale uncollectible accounts.

Submitted through:
Geralyn Barone, City Manager

Originated by:
Darin Nelson, Finance Director

Resolution No. 2020-

Resolution authorizing the certification of Delinquent Utility Charges to the Hennepin County Auditor

---

Be it resolved by the City Council of the City of Minnetonka, Minnesota, as follows:

Section 1. Background

1.01. The City Council of the City of Minnetonka duly adopted Ordinance No. 1200.030 providing for certification of delinquent utility charges to the County Auditor for collection pursuant to the provision of Minnesota Statutes 444.075.

Section 2. Findings

2.01 The Finance Department has prepared a list of delinquent utility charges together with the legal description of the premises served, the official copy of which is on file with the City Clerk.

2.02. All parties have been notified by mail of the certification.

2.03. The proposed list of delinquent utility charges, the official copy of which is hereby accepted by the Council, is a true and correct list of delinquent charges as of October 26, 2020.

Section 3. Authorization

3.01. The City Clerk shall transmit a certified duplicate copy of this resolution and the list of updated delinquent accounts to the County Auditor to be extended on the property tax list of the County, and such delinquent accounts shall be collected and paid over the same manner as other municipal taxes with interest from the date of this resolution at the rate of 10 percent (10%) per annum and including a $25.00 administrative penalty pursuant to the provisions of Minnesota Statutes 444.075.

Adopted by the City Council of the City of Minnetonka, Minnesota on October 26, 2020.

_____

Brad Wiersum, Mayor

Attest:

_____

Becky Koosman, City Clerk

Action on this resolution:

Motion for adoption:
Seconded by:
Voted in favor of:
Voted against:
Abstained:
Absent:
Resolution adopted.

I hereby certify that the foregoing is a true and correct copy of a resolution adopted by the City Council of the City of Minnetonka, Minnesota, at a meeting held on October 26, 2020.

_____

Becky Koosman, City Clerk

City Council Agenda Item #14C
Meeting of Oct. 26, 2020

Brief Description: Reinstating the utility bill late fees and the termination of water services

Recommended Action: Approve the resolution

Background

Resolution No. 2020-041 enacted on May 18, 2020 suspended late fees or related penalties associated with city-issued utility bills along with city termination of water service due to unpaid bills. The resolution remains in effect until it is rescinded by further council action.

The suspension was put in place to eliminate any additional burden residents or businesses may have experienced due to unemployment or an economic downturn related to the COVID-19 pandemic. Late fees were first suspended with the February bills that were due in mid-March. The March bills that were due in April experienced a 19 percent increase in delinquent accounts compared to the same timeframe a year prior. Since that time, late fee comparisons to the year prior have been running only slightly higher. In fact, the bills due in Aug. and Sept. have had fewer delinquent accounts than the prior year.

Staff is recommending reinstating the late fees for the November billing which is due in mid-December. Reinstating the late fees for the November billing would equalize the late fee suspension between all three billing cycles. Each cycle will have received a late fee suspension for three separate cycles.

The city's late fees are only imposed on the current billing cycle. So if a customer has a previously unpaid bill, those past due payments will not receive a late penalty. Only the current charges are subject to a one-time late fee.

Staff also recommends reinstating water shut-offs based on nonpayment. Water shut-offs are rarely, if ever used to secure delinquent payments due to the city's ability to collect delinquent charges through the certification process. However, since water shut-offs were also included in the temporary suspension resolution, it is appropriate to rescind the temporary suspension at this time too.

Lastly, Resolution No. 2020-041 contained one additional action item in regards to temporary compensation and leave policies enacted to reduce the community spread of COVID-19 At the beginning of the pandemic, the city paid some employees who were available to work but were not able to report to work, either because city hall was closed or because work schedules had to be modified to reduce exposure among employees. Although work schedules have now normalized, the city has been deliberate in creating a mobile city model that allows for certain positions to be remotely accessed yet maintaining the city's strong commitment to provide a high level of customer service. Approximately 55 percent of the employee workforce continues to work remotely either part- or full-time.

With the exception of leaves paid pursuant to the federal Families First Coronavirus Response Act, the city is following its typical leave and compensation policies at the present time. However, the coming winter presents the potential for a resurgence in COVID cases and the issuance of state executive orders that may create the need to re-implement changes to scheduling and/or reducing staff presence in their work spaces. Therefore, there is an operational need for continued flexibility, and staff recommends that the council finding of public purpose for such expenditures remain in place until rescinded by future council action.

Recommendation

Approve the resolution reinstating city utility late fees and terminating the temporary suspension for termination of water services due to unpaid bills.

Submitted through:
Geralyn Barone, City Manager
Mike Funk, Assistant City Manager
Corrine Heine, City Attorney

Originated by:
Darin Nelson, Finance Director

Resolution No. 2020-041

Resolution regarding utility penalties and temporary compensation and leave policies

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Be it resolved by the City Council of the City of Minnetonka, Minnesota as follows:

Section 1. Background.

1.01. On March 16, 2020, Mayor Brad Wiersum declared a local state of emergency which the Minnetonka City Council consented to by adopting Resolution No. 2020-029. The Minnetonka City Council also enacted Ordinance No. 2020-03 as an exercise of its emergency regulatory power under Section 900 of the City Code, which regulated city utility penalties and found that temporary compensation and leave policies for city personnel served a public purpose. The conditions that gave rise to these emergency actions have not yet abated, and further council action is required to help mitigate the effects of the local emergency upon the community.

Section 2. Council Action

2.01. City Utility Late Fees. Any late fees or related penalties associated with city-issued utility bills are hereby suspended until the city council takes further action to rescind this resolution.

2.02. City Utility Termination of Service. The city manager is directed to suspend the termination of water service due to unpaid bills while this resolution remains in effect.

2.03. Temporary Compensation and Leave Policies. It is necessary to adopt temporary compensation and leave policies in response to the current and ongoing circumstances of the declared emergency. Such temporary policies, including continuing to pay employees rendered unable to work through no fault of their own, reduce the community spread of COVID-19, help to prevent the destabilization of the city workforce during the declared emergency, and contribute to the local and state economy in this time of crisis. Accordingly, any temporary policies which the city manager may enact in response to the declared emergency serve a public purpose and are in the public interest.

2.04. Effect. This resolution supersedes inconsistent provisions of any resolution or policy while it is in effect.

2.05. Duration. This resolution remains in effect until it is rescinded by further council action.

Adopted by the City Council of the City of Minnetonka, Minnesota, on May 18, 2020.

DocuSigned by:

21AA42DB33F7415...

Brad Wiersum, Mayor

Attest:

DocuSigned by:
Becky Koosman
C8FF609054C54E1...

Becky Koosman, City Clerk

Action on this resolution:

Motion for adoption:	Schack
Seconded by:	Calvert
Voted in favor of:	Kirk-Schack-Carter-Calvert-Schaeppi-Coakley-Wiersum
Voted against:	None
Abstained:	None
Absent:	None

Resolution adopted.

I hereby certify that the foregoing is a true and correct copy of a resolution adopted by the City Council of the City of Minnetonka, Minnesota, at a meeting held on May 18, 2020.

Becky Koosman, City Clerk

Resolution No. 2020-

Resolution reinstating the utility late fees and the termination of water services

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Be it resolved by the City Council of the City of Minnetonka, Minnesota as follows:

Section 1. Background.

1.01. Resolution No. 2020-041 enacted on May 18, 2020 suspended late fees or related penalties associated with city-issued utility bills along with the city termination of water service due to unpaid bills. This resolution is to remain in effect until it is rescinded by further council action.

Section 2. Council Action

2.01. City Utility Late Fees. Any late fees or related penalties associated with city-issued utility bills are hereby reinstated with the November 2020 billing cycle.

2.02. City Utility Termination of Service. The city manager's authority to terminate water service due to unpaid bills is reinstated.

2.03. Temporary Compensation and Leave Policies Remain in Effect. As a result of the continuing state of emergency, the potential exists for a need to reinstate temporary compensation and leave policies in response to the ongoing circumstances of the declared emergency. The council hereby reaffirms Section 2.03 of Resolution No. 2020-041.

2.04. Effect. This resolution supersedes inconsistent provisions of any resolution or policy while it is in effect.

2.05. Duration. This resolution remains in effect until it is rescinded by further council action.

Adopted by the City Council of the City of Minnetonka, Minnesota, on October 26, 2020.

_____

Brad Wiersum, Mayor

Attest:

_____

Becky Koosman, City Clerk

Action on this resolution:

Motion for adoption:
Seconded by:
Voted in favor of:
Voted against:

Abstained:
Absent:
Resolution adopted.

I hereby certify that the foregoing is a true and correct copy of a resolution adopted by the City Council of the City of Minnetonka, Minnesota, at a meeting held on October 26, 2020.

Becky Koosman, City Clerk