FEASIBILITY REPORT

BROOKVIEW ESTATES
STREET RECONSTRUCTIONS

CITY IMPROVEMENT PROJECT NO. 19-02

October 18, 2018

Prepared By:

City of Ramsey
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October 18, 2018

Honorable Mayor and City Council
City of Ramsey
7550 Sunwood Drive NW
Ramsey, MN 55303

Re: Feasibility Report - City of Ramsey Improvement Project #19-02
Brookview Estates Street Reconstructions

Dear Mayor and City Council Members:

Transmitted herewith is a Feasibility Report for the proposed Brookview Estates Street Reconstructions project including; 173rd Avenue from Germanium Street to its termini cul-de-sac, and Germanium Street from 170th Lane to its termini cul-de-sac. The report examines the feasibility of reconstructing the bituminous street section and completing other appurtenant improvements.

This Feasibility Report examines the scope of the proposed improvements, explores estimated costs and available funding sources, defines a preliminary project schedule, and determines the necessity, feasibility and general cost-effectiveness of the proposed improvements, including any alternate designs, as well as whether the improvements would best be completed separately or in conjunction with another project.

I would be happy to discuss this report with you at your convenience. Please feel free to contact me at 763-433-9825 or bwestby@cityoframsey.com with any questions.

Sincerely,
City of Ramsey

Bruce Westby, PE
City Engineer

Enclosure

C: Kurt Ulrich, City Administrator
Leonard Linton, Civil Engineer IV

CERTIFICATION

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

Bruce Westby, PE

Date: October 18, 2018 License No. 40116

I hereby certify that this plan, specification or report was reviewed for Quality Control and Quality Assurance purposes and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Leonard Linton, PE

Date: October 18, 2018 License No. 21112

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1. EXECUTIVE SUMMARY

City Improvement Project No. 19-02 proposes to reconstruct streets within the Brookview Estates neighborhood including 173rd Avenue and Germanium Street. The streets total approximately 2,662 linear feet (0.50 miles) in length. A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A.***

The streets were constructed in 1979 as rural sections with bituminous pavement to a width of 24 feet, and are generally centered within a 66-foot wide right-of-way.

The storm sewer system generally consists of ditches along both sides of the road within the right-of-way and drainage and utility easements. Storm runoff collects in the ditch along Germanium Street and is carried north to the Trott Brook through an outlet pipe located in the north cul-de-sac. Storm runoff collects in the ditch along 173rd Avenue and goes across land into the Rum River to the east.

The existing bituminous pavement section ranges from 2.0 to 6.0 inches thick, with a median thickness of 3.6-inches, and the aggregate base ranges from 0.8 to 5.0 inches thick, with a median thickness of 2.7-inches. This was determined from Ground Penetrating Radar (GPR) analysis performed by Braun Intertec in 2017, as well as from field observations and record plan documents. Copies of Braun Intertec's GPR results are attached in ***Appendix C***. The pavement section was built on primarily poorly graded sands with silts subgrade material which is generally considered usable for pavement support with the proper preparation.

City staff evaluates and rates the condition of pavement sections on all City streets on an annual basis using the Pavement Surface Evaluation and Rating (PASER) system. In the summer of 2018, the pavement section of the above referenced street segments were rated with a PASER rating of 3 which indicates these streets require complete reconstruction. City staff patch the streets at least once per year, particularly before winter so the streets can be plowed without further damaging the pavement in the process. Pictures of the streets are located in ***Appendix A***.

Proposed improvement include reconstructing the existing bituminous pavement section using the Full Depth Reclamation (FDR) process. This process involves reclaiming the entire existing bituminous pavement section, along with the existing aggregate base material. A portion of this reclaimed (ground and mixed) material would then be spread and compacted on top of the reshaped and compacted subgrade. Then, 3.5 inches of bituminous pavement would be placed, generally meeting the City of Ramsey's standard pavement design for residential streets.

Existing ditches will likely require re-grading and other drainage construction is likely, however, driveway culverts are generally not anticipated to be affected by this project. Additional storm sewer is anticipated to be added to improve storm runoff water quality prior to flowing into Trott Brook. Drainage easements may be needed in one or more locations.

The engineer's opinion of probable costs for completing the proposed improvements outlined in this report is $502,555.46. Estimated costs include 5-percent contingency costs plus 23-percent

indirect costs for administrative, engineering, finance and legal costs. A summary of the engineer's opinion of probably costs is included in ***Appendix B***.

A total of 21 assessable parcels have been identified. Staff recommends applying 25-percent of the eligible project costs equally across the 21 assessable properties using the "per lot" assessment method. Eligible project cost include everything except subgrade corrections and guardrail modification costs. This results in a proposed preliminary assessment rate of $4,418.30 per assessable parcel.

Staff recommends ordering a special benefit consultation report for this project to verify the proposed assessment amount will not exceed the benefit to the properties. If the report concludes the benefit to the properties is less than the proposed preliminary assessment rate, Staff will then propose to lower the assessment rate accordingly during the Assessment Hearing, which is scheduled for October 8, 2019. If the report verifies the assessment rate as proposed is justified, Staff will propose to adopt the final assessment roll using the rate as preliminarily proposed.

Seven (7) soil borings were completed by Northern Technologies (NTI) to assist with the preparation of this report. Pavement design recommendations were offered by NTI, and Staff considered and incorporated NTI's recommendations to varying degrees while preparing this report. Ground Penetrating Radar (GPR) was conducted on street segments within the project. The GPR identifies existing bituminous pavement and aggregate base thicknesses, and is used to help Staff determine the appropriate treatment. Copies of Braun Intertec's GPR results and NTI's Geotechnical Exploration Report are attached in ***Appendix C***.

This improvement project, which is listed in the City's current 10-year Capital Improvement Plan, is proposed to be funded using a combination of special assessments to benefiting properties, street reconstruction bond proceeds, and storm sewer funds.

Staff has not yet discussed the proposed improvements with local property owners. However, Staff has scheduled a neighborhood information meeting for November 8, 2018 for the purpose of explaining the proposed improvements and assessments in more detail, and to gather public input on the project, including any information which should be explored in more detail during development of plans and specifications. Staff will incorporate comments and present this information to Council during the Public Hearing on November 13, 2018.

This project would best be constructed as a stand-alone project and is necessary, feasible, and cost-effective from an engineering standpoint, and can be constructed as proposed herein.

2. INTRODUCTION

2.1 Authorization

The preparation of this report was authorized by the Ramsey City Council on August 28, 2018. This project has been designated as City Improvement Project No. 19-02.

2.2 Program Overview

In support of the City's long-term Street Maintenance Program, the existing bituminous pavement section will be reconstructed, and existing ditches will be re-graded to enhance drainage. Other appurtenant work will be completed as outlined in this report.

The City's pavement evaluation process involves a visual evaluation of each street's pavement surface based on the type, extent and severity of each pavement distress observed. Numerous types of pavement distresses may exist within a pavement section including, but not limited to, alligator cracking, block cracking, longitudinal cracking, transverse cracking, rutting, raveling, shoving, potholes and patches. This field data is then used to rate the pavement condition.

The City uses the Pavement Surface Evaluation and Rating (PASER) system to rate pavement condition. A PASER rating is a numerical index between 1 and 10 indicating the condition of a pavement based on the various pavement distresses recorded during visual observations. A PASER rating of 10 represents brand new pavement, while a PASER rating of 1 represents a pavement section that has fallen into complete disrepair requiring full reconstruction.

In the summer of 2018, City Staff evaluated and rated the condition of the pavement along the Brookview Estates street segments. A PASER rating of 3 was assigned to 173rd Avenue and Germanium Street.

2.3 Scope

City of Ramsey Improvement project 19-02 proposes to reconstruct the existing bituminous pavement, re-shape the ditches to enhance drainage, and to complete other appurtenant work on 173rd Avenue from Germanium Street to its termini cul-de-sac, and Germanium Street from 170th Lane to its termini cul-de-sac which totals approximately 2,662 linear feet (0.50 miles) in length.

The existing bituminous pavement section is proposed to be reconstructed using the FDR process. This involves reclaiming the entire bituminous pavement section along with a portion of the existing aggregate base, hauling and disposing of excess reclaim material off-site, spreading and compacting the reclaimed material on top of the reshaped and compacted subgrade, then placing 3.5-inches of new bituminous pavement on top. The resulting pavement design will generally meet current City design standards for residential pavement sections.

A map showing the location and scope of the proposed improvements is included as ***Figure 1*** in ***Appendix A***.

3. EXISTING CONDITIONS

3.1 Existing Pavement, Soil, and Traffic Conditions

All streets proposed to be improved were constructed in 1979 with 1.5-inches of bituminous pavement, 3.0-inches of aggregate base, and ditches. The streets are generally centered within a 66-foot wide right-of-way.

Pavement maintenance treatments applied to the street segments included overlay in 1993, and crack seal and seal coat improvements in 2001. Spot patching has been performed on an as-needed basis, and has been a yearly treatment recently. In 2018, Staff assigned a PASER rating of 3 on both street segments.

In September of 2018, City Staff recorded a traffic volume of 72 average annual daily traffic (AADT) on 173rd Avenue east of Germanium Street, and 278 AADT on Germanium Street north of 170th Lane. The speed limit is 30 mph for these street segments.

Northern Technologies, LLC (NTI) was employed to complete a Geotechnical Exploration and Engineering Review for this project, which included seven (7) soil borings spaced evenly along 173rd Avenue and Germanium Street. The locations of the borings are shown in the Soil Boring Location Map in Appendix C of NTI's report, attached in ***Appendix C***.

The soil borings provide information on existing bituminous pavement and aggregate base course thicknesses, subgrade soil conditions, existing ground water elevations, and potential issues, which may be encountered during construction. The borings general terminated at a nominal depth of 10 feet below the existing ground surface, boring number 4 terminated at 20.5 feet as it was following a layer of clay. There was groundwater observed in 4 of 7 borings, with elevations varying from approximately 872.5 to 877, 6.5 to 9.0 feet below the existing surface. Based on the work proposed groundwater is not anticipated to be a significant issue for work completed with this proposed project. There is the small potential for groundwater impacts if storm sewer is required, and is placed at a depth greater than 6-feet below the existing ground.

The soil borings generally indicate the existing bituminous pavement thickness ranges between 2 ¼ to 5 inches, and aggregate base thickness is 5 to 6 inches. The subgrade generally consists of poorly graded sand with silt, silty sand, and poorly graded sand. Below this 4 of the 7 borings had layers of lean clay with sand, clayey sand, and / or lean to fat clay. The depths of the layers varied among the borings, and the pockets with clay seemed to be spread out along the project.

Braun Intertec was employed to complete a ground penetrating radar (GPR) analysis for the project area, which included driving the GPR equipped vehicle throughout all street segments within the project area. A summary table and charts of the GPR Analysis are attached in ***Appendix C***. The GPR data determined a median bituminous pavement thickness of 3.6-inches, and a median aggregate base thickness of 2.7-inches. The median street pavement and base section thickness was 6.2-inches, with a minimum section of 3.7-inches located on Germanium Street, 310 feet north of 173rd Avenue. GPR data was not able to be obtained for 173rd Avenue.

3.2 Watermain

Watermain does not exist on site.

3.3 Sanitary Sewer

Sanitary sewer does not exist on site.

3.4 Storm Sewer / Drainage

The storm sewer system consists of ditches along both sides of the road within the right-of-way and drainage and utility easements, which direct stormwater runoff to the ditch along Germanium Street and north to the Trott Brook through an outlet pipe located in the north cul-de-sac. Stormwater runoff is also directed to the ditch along 173rd Avenue and goes across land into the Rum River to the east.

3.5 Streets

3.5.1 Existing Typical Sections

The pavement width of 173rd Avenue and Germanium Street is 24-feet. The cul-de-sacs on 173rd Avenue and Germanium Street are 95-feet in diameter. The streets are centered within a 66-foot wide City-owned right-of-way, with a 160-foot wide right-of-way around the cul-de-sac on 173rd Avenue, and a 140-foot wide right-of-way around the cul-de-sac on Germanium Street.

3.5.2 Maintenance History

Brookview Estates was originally constructed in 1979. 173rd Avenue and Germanium Street received an overlay in 1993, and crack seal and seal coat improvements in 2001.

3.6 Land Use

The parcels within the construction area are zoned rural developing.

4. PROPOSED IMPROVEMENTS

4.1 Street and Stormwater Improvements

4.1.1 Street Improvements

The streets in Brookview Estates are proposed to be reconstructed by matching existing widths and elevations with bituminous pavement and ditch sections to carry storm water runoff to Ford Brook and the Rum River.

The proposed surface improvements are shown on ***Figure 1*** in ***Appendix A***.

Street Design:
173rd Avenue and Germanium Street are currently rural residential streets with ditch sections, 24-feet wide to the edge of pavement. The cul-de-sacs on 173rd Avenue and Germanium Street are 95-feet in diameter. Existing and proposed traffic counts are consistent with typical residential streets.

All street segments are proposed to be reconstructed at their current width. A typical section for the proposed pavement reconstruction improvements is shown in ***Figure 2*** in ***Appendix A***.

City Staff is proposing a pavement section design of 1.5-inches bituminous wear course, 2-inches bituminous base course, and 4-inches of aggregate base composed of full-depth reclamation material. This pavement section would be constructed over the existing subgrade after it is reshaped and compacted.

4.1.2 Storm Sewer Improvements

The existing ditch sections are in good condition. Re-shaping the ditches may be required due to construction, but ditches will be restored to existing grades. The existing driveway culverts are not anticipated to be replaced. No stormwater treatment improvements are required for this projects since the street is proposed to be reconstructed at its current width, however, Staff is proposing to add a treatment structure to improve storm runoff water going into Trott Brook.

4.1.3 Geotechnical Considerations

Northern Technologies LLC (NTI) completed a Geotechnical Exploration and Engineering Review including seven (7) soil borings, generally evenly spaced along 173rd Avenue and Germanium Street. The locations of the borings are shown in the Boring Location Map in Appendix C of NTI's report, attached in ***Appendix C***. NTI recommends prior to installing the aggregate base, the existing subgrade should be scarified and re-compacted to a depth of at least 12 inches. A proof roll test should then be performed to determine soft or unstable subgrade areas. If rutting or localized unstable subgrade areas are observed, those areas

should be subcut, moisture-conditioned, and re-compacted or removed to a stable depth. Based upon the encountered subgrade conditions, estimated R-value of 30 for the existing subgrade soils, the assumed AADT volumes of 600, and the City of Ramsey's typical pavement section for the respective project area NTI recommends a pavement section of 4-inches of aggregate base class 5, and 4-inches of bituminous pavement. City Staff is in close agreement and proposes completing a full-depth reclamation of the existing pavement by placing 4-inches of aggregate base class 5 or reclaim material, and 3.5-inches of new bituminous pavement. The clay layers are generally deep enough to not have a significant impact on the roadway, however Staff will be aware of the potential for pockets of subgrade which will require additional conditioning or possible replacement.

The proposed improvements should have a service life of approximately 60-years, assuming maintenance such as overlays, crack sealing and seal coating is routinely performed.

4.1.4 Other Considerations

Driveways:
Existing driveway aprons may need to be reconstructed to varying degrees. The limits of construction will vary with each driveway apron based on the elevation of the street abutting the driveway and the driveway pavement type. During design, Staff will evaluate the construction limits for each driveway and will incorporate this into the plans, but as with all street reconstruction projects, the exact limits of construction will be determined in the field during construction. Right-of-entry forms will be obtained from private property owners where work is required outside City right-of-ways and easements.

Irrigation Systems:
Developed properties along the project corridor may have private irrigation systems. Staff will notify property owners of pending construction as far in advance as practical to allow them time to move their irrigation systems out of harm's way before work begins.

Parking Restrictions:
Parking is currently provided along both sides of the streets and is not currently restricted except for overnight parking per City code. During this project, parking will be restricted during allowable working hours.

Pavement Corings:
Existing pavement thicknesses have been found to be inconsistent throughout the City. It is now standard practice to have City Staff on-site during pavement installation to insure the proper quantities are being placed. As further conformation, Staff is proposing to collect GPR data or to have pavement corings taken at the conclusion of all reconstruction projects. This is already a requirement on all State Aid projects, and will leave more data on the pavement section for future street maintenance projects.

4.2 Stormwater Treatment

No stormwater retention and/or treatment improvements will be required as a result of this project, however, Staff is proposing stormwater treatment for storm runoff into Trott Brook.

4.3 Water Main Improvements

No watermain improvements are proposed with this project.

4.4 Sanitary Sewer Improvements

No sanitary sewer improvements are proposed with this project.

4.5 Construction Method

The existing bituminous pavement section will be reconstructed using the FDR process outlined within this report.

4.6 Private Utilities

Staff has not yet met with the telephone, gas, power and cable utilities regarding this project. During preparation of plans and specifications, Staff will meet with the private utility companies to discuss the proposed improvements as noted in the project schedule within this report. The alignment and footprint of the streets will be considered to minimize impacts to private utilities. No impacts to power poles or street lights are anticipated with this project.

Should any utility company indicate they wish to upgrade, replace and/or otherwise modify their services during this project, any such upgrades, replacements and/or modifications will be at the sole discretion and cost of the utility company.

4.7 Permits

Permits that are anticipated to be required as part of the proposed improvements include:

- MPCA General Stormwater Permit (NPDES)…..Grading and Storm Water

A stormwater permit from the Lower Rum River Watershed Management Organization will not be required with this project as street reconstruction projects are exempt.

4.8 Right-of-Ways / Easements

The existing outfall to Trott Brook is currently located on 17331 Germanium Street outside of City-owned drainage and utility easements. Staff will work with the property owner to create additional drainage and utility easement over the existing pipe, move the outfall which would also

require additional easement, or find another solution. This will be dependent upon project design and discussion with the property owner.

A low area exist outside of City-owned drainage and utility easement on 17310 Germanium Street, possible options of filling in the low area, adding addition storm sewer, or acquiring drainage and utility easements will be discussed with the property owner and are also dependent upon project design.

City Staff will obtain required right of entries on a case by case basis.

5. FINANCING

5.1 Opinion of Cost

A detailed opinion of probable costs for the proposed improvements can be found in ***Appendix B*** of this report. The opinion of probable costs incorporates anticipated 2019 construction costs for the proposed improvements with 5-percent contingency costs, plus 23-percent indirect costs for administrative, engineering, financing and legal costs.

City Staff prepared the Feasibility Report in-house as part of Staff's normal duties.

NTI prepared the Geotechnical Exploration and Engineering Review, included in ***Appendix C***, at a cost of $3,250.00.

5.2 Funding

5.2.1 Assessments

A portion of the project costs is proposed to be recovered through special assessments levied against the 21 identified benefiting properties; 9 along 173rd Avenue, and 12 along Germanium Street. Assessments are proposed to be collected for eligible improvements benefiting residential properties with direct access to the improved segments of Brookview Estates as described below. A preliminary assessment summary is included below in ***Table 1***.

Residential Assessments:
Special assessments are proposed to be levied against residential properties having direct access to improved streets. To be consistent with previous applications of the Special Assessments Policy, each residential property is proposed to be assessed using the "per lot" method.

Each residential property is preliminarily proposed to be assessed at the rate of $4,418.30 per lot. Since State Statute and the City Charter do not allow for assessments to exceed the benefit to the property, Staff requests Council authorization to order a benefit appraisal consultation for this project in accordance with the City's Special Assessment Policy.

The Preliminary Assessment Map and Roll are included in ***Appendix B***.

TABLE 1
Proposed Preliminary Assessments – 173rd Avenue & Germanium Street

STREET SEGMENT	ASSESSMENT PER LOT	No. OF LOTS	TOTAL ASSESSMENTS
173rd Avenue Residential Assessment	$4,418.30	9	$39,764.70
Germanium Street Residential Assessment	$4,418.30	12	$53,019.60
TOTAL PROJECT ASSESSMENTS			**$92,784.30**

5.2.2 City Contribution

The City contribution to the project would include all funding in excess of the amount collected through special assessments to benefiting properties. No funds have been budgeted for this project. The City's share of eligible project costs related to surface (street) improvements is proposed to come from the previously encumbered 5-year Street Reconstruction and Overlay Program bonds. Stormwater Utility Funds are proposed to pay for all storm sewer improvements.

Table 2 illustrates the proposed project funding based on the design proposed within this report. This funding program assumes construction will occur in 2019.

TABLE 2
Proposed Project Funding

	ASSESSMENTS	CITY FUNDS	TOTAL
Surface	$ 80,112.90	$ 371,754.41	$ 451,867.31
Storm Sewer	$ 12,671.40	$ 38,016.75	$ 50,688.15
TOTAL	$ 92,784.30	$ 409,771.16	$ 502,555.46

Total Project Cost		**$ 502,555.46**
Less Special Assessments	-	$ 92,784.30
Subtotal	=	**$ 409,771.16**
Less City Bonding Funds	-	$ 371,754.41
Subtotal	=	**$ 38,016.75**
Less Stormwater Utility Funds	-	$ 38,016.75
TOTAL Remaining Cost	=	**$ 0**

6. PROJECT SCHEDULE

The proposed project schedule is as follows:

Council Orders Feasibility Report ..... August 28, 2018

Council Accepts Feasibility Report / Orders Public Hearing ..... October 23, 2018

Staff Conducts Neighborhood Information Meeting ..... November 8, 2018

Staff Publishes Notices of Public Hearing ..... October 26 & November 2, 2018

Council Conducts Public Hearing / Authorizes Plans and Specifications ..... November 13, 2018

Staff Conducts Private Utility Coordination Meeting ..... November, 2018

Council Approves Plans and Specifications / Authorizes Ad for Bids ..... January 22, 2019

Staff Receives Bids ..... February 20, 2019

Council Awards Contract ..... February 26, 2019

Contractor Begins Construction ..... May, 2019

Contractor Completes Construction ..... August 16, 2019

Council Orders Assessment Hearing ..... September 10, 2019

Council Conducts Assessment Hearing ..... October 8, 2019

7. CONCLUSIONS AND RECOMMENDATIONS

City of Ramsey Improvement Project No. 19-02 proposes to reconstruct the bituminous pavement section, and complete miscellaneous appurtenant work on the following street segments within the Brookview Estates residential subdivision:

1. 173rd Avenue (approx. 850 linear feet) – Germanium Street to east cul-de-sac.
2. Germanium Street (approx. 1810 feet) – 170th Lane to north cul-de-sac.

It is the recommendation of City Staff that City Project No. 19-02 is feasible, necessary, and cost-effective from an engineering standpoint, and this project would best be constructed as a stand-alone project as proposed herein.

The following Staff recommendations related to the proposed project are presented for Council consideration and concurrence:

1. Reconstruct the existing bituminous pavement using full-depth reclamation process, meeting the City's standard residential pavement section of 4-inches aggregate base class 5 (or reclaim), 2-inches new bituminous base course, and 1 ½- inches new bituminous wear course.

2. Staff recommends excluding private irrigation system work form this project. Instead, Staff will notify property owners of pending construction as far in advance as possible, and instruct them to relocate their irrigation system(s) away from the construction area during construction, then allow replacement in or near the original location after construction is complete.

3. Staff recommends holding a neighborhood information meeting on November 8, 2018 to inform property owners of the proposed improvements and to gather their input prior to competing plans and specifications and requesting Council approval to advertise for bids as outlined in the project schedule.

4. Order an assessment appraisal consultation to ensure special assessments do not exceed the benefit received as a result of the improvements.

The City Council is asked to act on the following items related to the proposed project:

1. Accept the preliminary residential special assessment rate of $4,418.30 per lot.

2. Authorize an assessment appraisal consultation to ensure all special assessments are commensurate with benefit received from the proposed improvements.

3. Adopt Resolution #18-220 accepting this Feasibility Report and ordering the Public Hearing for November 13, 2018.

APPENDIX A

Figure 1 – Project Scope
Figure 2 – Typical Section
Project Site Pictures

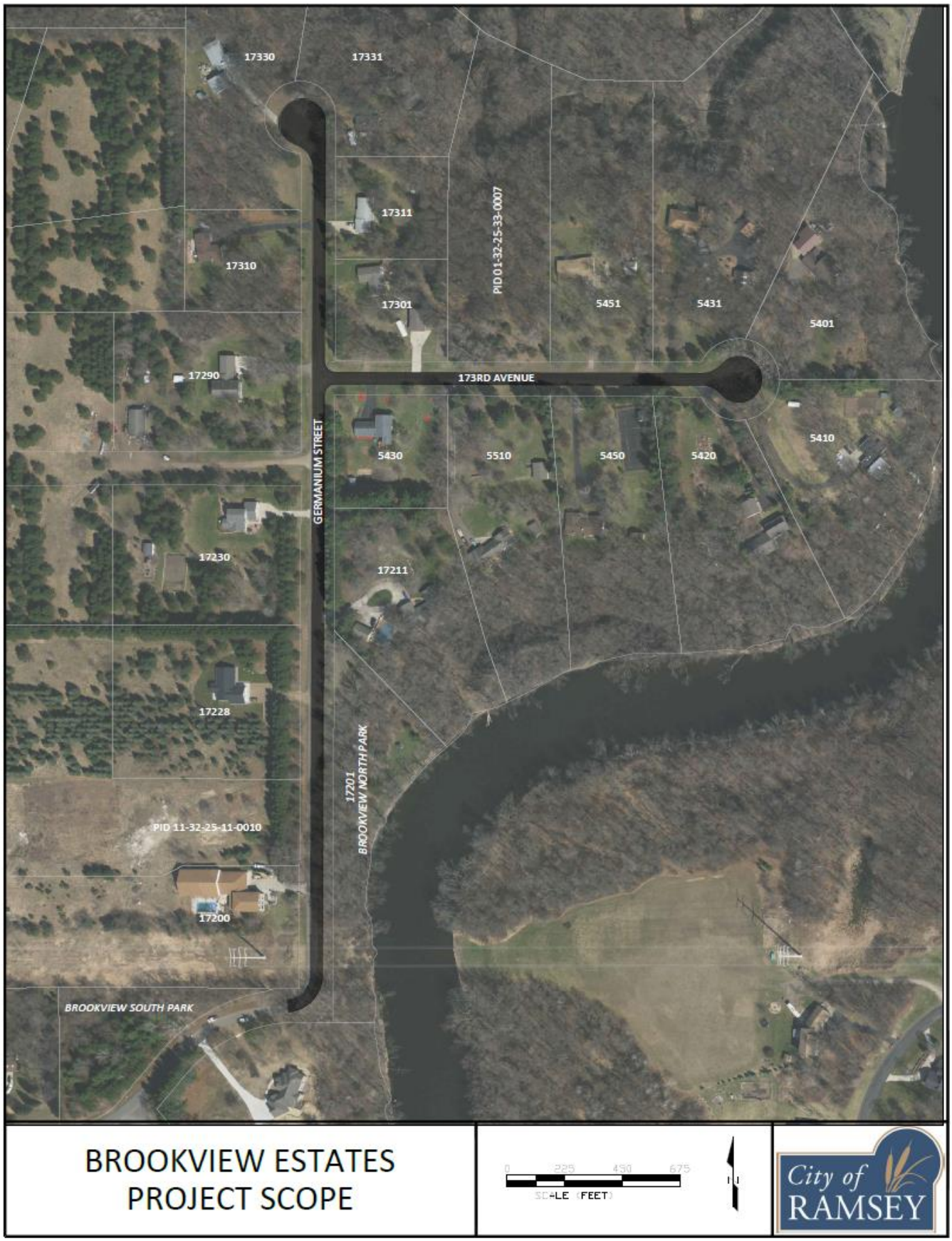
17330
17331
17311
17310
17301
PID 01-32-25-33-0007
5451
5431
5401
17290
173RD AVENUE
GERMANIUM STREET
5430
5510
5450
5420
5410
17230
17211
17228
17201
BROOKVIEW NORTH PARK
PID 11-32-25-11-0010
17200
BROOKVIEW SOUTH PARK
BROOKVIEW ESTATES
PROJECT SCOPE
0
225
450
675
SCALE (FEET)
City of
RAMSEY

FIGURE 1

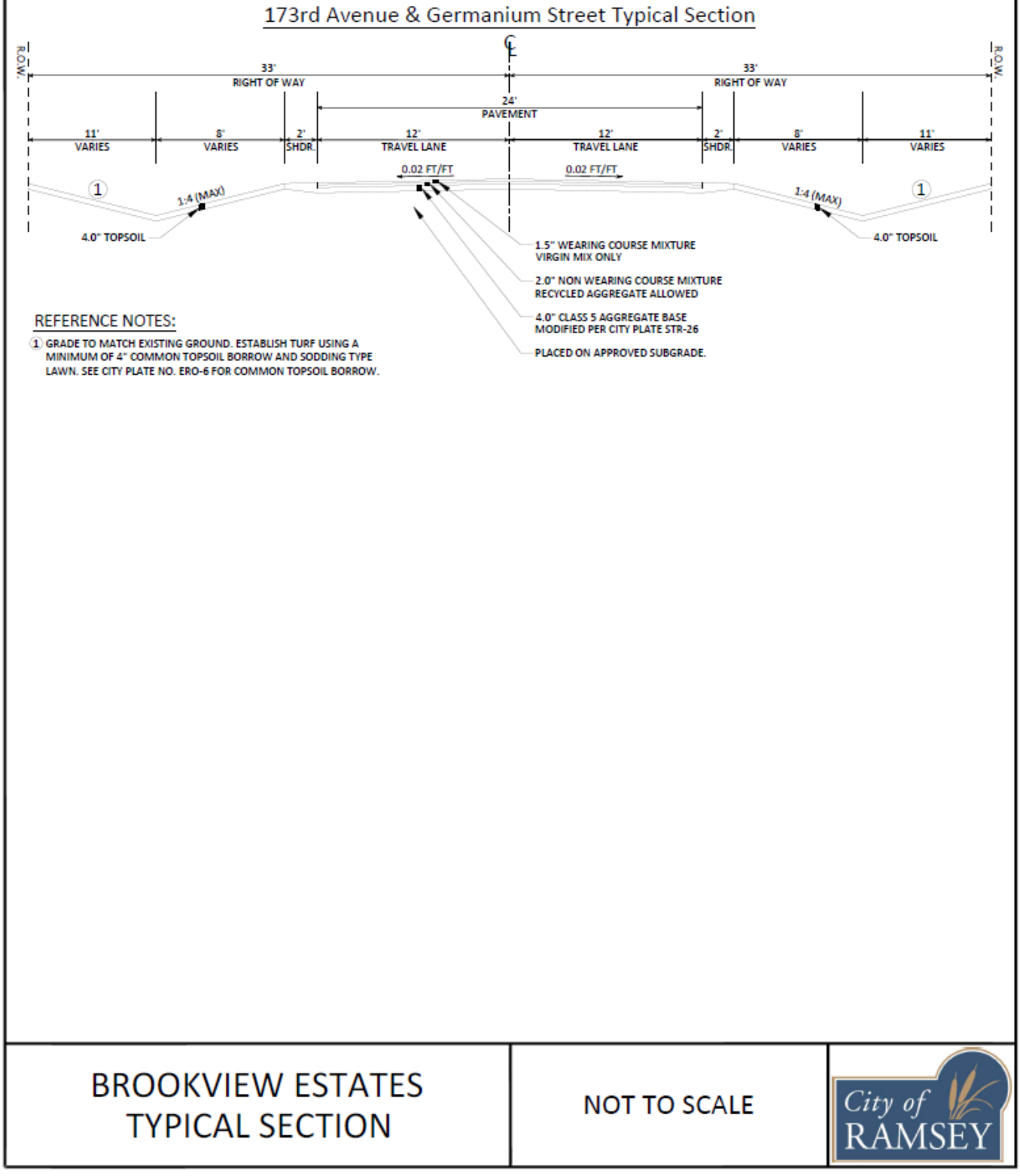
173rd Avenue & Germanium Street Typical Section
R.O.W.
33'
RIGHT OF WAY
24'
PAVEMENT
33'
RIGHT OF WAY
R.O.W.
11'
VARIES
8'
VARIES
2'
SHDR.
12'
TRAVEL LANE
12'
TRAVEL LANE
2'
SHDR.
8'
VARIES
11'
VARIES
0.02 FT/FT
0.02 FT/FT
1
1:4 (MAX)
1:4 (MAX)
1
4.0" TOPSOIL
4.0" TOPSOIL
1.5" WEARING COURSE MIXTURE
VIRGIN MIX ONLY
2.0" NON WEARING COURSE MIXTURE
RECYCLED AGGREGATE ALLOWED
4.0" CLASS 5 AGGREGATE BASE
MODIFIED PER CITY PLATE STR-26
PLACED ON APPROVED SUBGRADE.
REFERENCE NOTES:
1 GRADE TO MATCH EXISTING GROUND. ESTABLISH TURF USING A MINIMUM OF 4" COMMON TOPSOIL BORROW AND SODDING TYPE LAWN. SEE CITY PLATE NO. ERO-6 FOR COMMON TOPSOIL BORROW.
BROOKVIEW ESTATES
TYPICAL SECTION
NOT TO SCALE
City of
RAMSEY

FIGURE 2

PROJECT SITE PICTURES

Picture 1: Germanium Street from 170th Lane

Picture 2: Germanium Street from 173rd Avenue

Picture 3: 173rd Avenue from Germanium Street

Picture 4: 173rd Avenue cul-de-sac, looking west

Picture 5: Germanium Street cul-de-sac, looking south

APPENDIX B

Opinion of Probable Costs (Preliminary Engineer's Estimate)
Preliminary Assessment Map
Preliminary Assessment Roll

19-02 BROOKVIEW ESTATES STREET RECONSTRUCTIONS					
Preliminary Engineer's Estimate					
Street Construction					
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Unit Cost**	**Cost Extension**
1	Mobilization	LS	1	$ 12,000.00	$ 12,000.00
2	Remove Concrete Pavement – Driveways	SF	878	$ 2.50	$ 2,195.00
3	Remove Bituminous Pavement – Driveways	SY	180	$ 7.00	$ 1,260.00
4	Remove Bituminous Pavement	SY	8,145	$ 3.50	$ 28,507.50
5	Sawing Concrete Pavement – Full Depth	LF	98	$ 4.00	$ 392.00
6	Sawing Bituminous Pavement – Full Depth	LF	257	$ 2.50	$ 642.50
7	Salvage and Install Mail Box Support	EA	18	$ 200.00	$ 3,600.00
8	Temporary Mail Box Cluster	EA	2	$ 400.00	$ 800.00
9	Common Excavation (EV)	CY	250	$ 21.00	$ 5,250.00
10	Subgrade Excavation, Remove Unsuitable Material (EV)	CY	500	$ 10.00	$ 5,000.00
11	Select Granular Borrow (CV)	CY	600	$ 15.00	$ 9,000.00
12	Common Topsoil Borrow (CV)	CY	292	$ 31.00	$ 9,052.00
13	Subgrade Preparation	RDST	27	$ 200.00	$ 5,400.00
14	Aggregate Base Class 5	CY	1,345	$ 15.00	$ 20,175.00
15	Mill Bituminous Pavement (2' x 1.5")	SY	21	$ 20.00	$ 420.00
16	Bituminous Material for Tack Coat	GAL	571	$ 2.40	$ 1,370.40
17	Type SP 9.5 Wearing Course Mixture	TON	672	$ 71.00	$ 47,712.00
18	Type SP 12.5 Non Wearing Course Mixture	TON	896	$ 64.00	$ 57,344.00
19	Type SP 9.5 Wearing Course Mixture – Driveways	TON	20	$ 71.00	$ 1,420.00
20	Concrete Curb & Gutter Design B618	LF	646	$ 12.00	$ 7,752.00
21	Drainage Improvements	LS	1	$ 65,000.00	$ 65,000.00
22	6" Concrete Driveway Pavement	SF	878	$ 7.25	$ 6,365.50
23	Landscape Restoration	LS	1	$ 2,500.00	$ 2,500.00
24	Guardrail Modifications	LS	1	$ 15,000.00	$ 15,000.00
25	Traffic Control	LS	1	$ 2,500.00	$ 2,500.00
26	Silt Fence, Type MS	LF	1,860	$ 2.50	$ 4,650.00
27	Storm Drain Inlet Protection	EA	4	$ 175.00	$ 700.00
28	Sodding Type Lawn	SY	4,410	$ 7.00	$ 30,870.00
				Total Street Construction Cost	*$ 349,877.90*
				5% Contingency Cost	*$ 17,493.90*
				23% Indirect Cost	*$ 84,495.51*
				Total Street Project Cost	*$ 451,867.31*

Storm Sewer Construction					
Item No.	**Description**	**Unit**	**Estimated Quantity**	**Unit Cost**	**Cost Extension**
1	Geotextile Fabric Type V	SY	21	$ 3.50	$ 73.50
2	15” RC Pipe Apron	EA	4	$ 600.00	$ 2,400.00
3	Trash Guard for 15” RC Pipe Apron	EA	4	$ 275.00	$ 1,100.00
4	15” RC Pipe Sewer, Design 3006 Class III	LF	628	$ 33.00	$ 20,724.00
5	Construct Drainage Structure Design 48-4020	EA	3	$ 2,500.00	$ 7,500.00
6	Construct Drainage Structure Design Special 48-4020	EA	1	$ 3,500.00	$ 3,500.00
7	F&I Casting Assembly – Storm	EA	4	$ 800.00	$ 3,200.00
8	Random Rip Rap Class III	CY	5	$ 150.00	$ 750.00
				Total Storm Sewer Construction Cost	*$ 39,247.50*
				5% Contingency Cost	*$ 1,962.38*
				23% Indirect Cost	*$ 9,478.27*
				Total Storm Sewer Project Cost	*$ 50,688.15*
				Total Estimated Project Cost	**$ 502,555.46**

BROOKVIEW ESTATES ASSESSABLE PROPERTIES

0 125 250 375

SCALE (FEET)

N

City of RAMSEY

PRELIMINARY ASSESSMENT ROLL – 19-02 BROOKVIEW ESTATES STREET RECONSTRUCTIONS							
PID	**NAME / OWNER**	**ADDRESS**	**CITY**	**STATE**	**ZIP**	**ASSESSABLE UNITS**	**PROPOSED ASSESSMENT**
013225330002	MC SHANE DANIEL M	17310 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
013225330003	LADEEN JULIE A & MARK A	17330 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
013225330004	JONES DAVID J & DEBORAH A	17331 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
013225330005	LUND DONALD N & MARGERY A	17311 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
013225330006	NORCUTT TRUSTEE KATHLEEN & NORCUTT TRUSTEE RICHARD	17301 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
013225330007	NACHTWEY MICHAEL F & MARY J		RAMSEY	MN	55303	1	$ 4,418.30
013225330008	ROHL MORRIS G & SHARON L	5451 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
013225330009	STEFFEN JAMES W & LISA F	5431 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
013225330010	VOSS WALTER W & SALLY	5401 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
113225110007	CHUBB JEREMY	17200 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
113225110009	OSHAUGHNESSY CORRIN	17228 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
113225110010	OSHAUGHNESSY CORRIN		RAMSEY	MN	55303	1	$ 4,418.30
123225220003	PLACHECKI HALI	5410 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220004	ONGIE CHERYL	5420 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220005	WEBER JAMES J & DIANE M	5450 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220006	KREYER GARY R & JUDITH G	5510 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220007	PETERSON SEAN	5530 173RD AVE NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220008	BOEHLAND LYNN C & JOY L	17211 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220009	RAMSEY CITY OF	17201 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220010	ABERLE RICHARD N & CLAUDIA M	17290 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
123225220011	KANIA HENRY & JANINA	17230 GERMANIUM ST NW	RAMSEY	MN	55303	1	$ 4,418.30
TOTALS						**21**	**$ 92,784.30**

APPENDIX C

Street Segment Summary
Ground Penetrating Radar (GPR) Results
Geotechnical Exploration and Engineering Review

STREET SEGMENT SUMMARY

Street	Segment Description	Length	Width	Curb	2018 Rating	Year Built	Maint. 1	Maint. 2
173rd Avenue	Germanium Street / CDS	853	24	n/a	3	1979	OL 1993	SC 1 2001
Germanium Street	170th Lane / CDS	1,809	24	n/a	3	1979	OL 1993	SC 1 2001

Brookview Estates GPR Summary										
Project Segment		**Pavement**			**Aggregate**			**Section**		
Street	**Segment Description**	**Min**	**Max**	**Med**	**Min**	**Max**	**Med**	**Med**	**Min**	**Location**
173rd Avenue	Germanium Street / CDS	*								
Germanium Street	170th Lane / CDS	2.0	6.0	3.6	0.8	5.0	2.7	6.2	3.7	310' north of 173rd Avenue.
Project Summary		*2.0*	*6.0*	*3.6*	*0.8*	*5.0*	*2.7*	*6.2*	*3.7*	*Germanium Street 310 feet north of 173rd Avenue.*

* GPR Data was not able to be conducted along street segments.