



Building a Better World  
for All of Us™

March 13, 2013

RE: Rockville, Minnesota  
2013 Street Improvements  
SEH No. ROCKV GEN D14

Honorable Mayor and City Council  
c/o Rena Weber, Administrator / Clerk  
City of Rockville  
229 East Broadways Street  
PO Box 93  
Rockville, MN 56369-0093

Dear Mayor and Members of the City Council:

This letter report serves as a summary of the project cost estimates and feasibility for street improvements to the following streets:

- Burg Street from Lena Lane to Stearns County Road 6 (2,400')
- Alvin Court from Burg Street to end of cul-de-sac (380')
- Marlene Court from Burg Street to end of cul-de-sac (390')
- 80<sup>th</sup> Avenue from Stearns County Road 6 to south (1000')
- Holly Road from 80<sup>th</sup> Avenue to end of cul-de-sac (340')

### **Existing Conditions**

Burg Street is generally in poor condition as noted in the 2007 road condition survey performed by the City Engineer and Public Works Department and the Report of Geotechnical Exploration, Burg Street Improvements, dated January 23, 2013 prepared by Independent Testing Technologies (ITT). Visible bituminous distresses have been observed on Burg Street. These distresses include alligator cracking, transverse and longitudinal cracking, edge cracking, potholes, rutting, and complete pavement failure. Existing subgrade materials consist of clayey soils filled over native soils. Existing soils are considered weak with poor drainage causing frost heaves and other pavement movement.

Alvin Court and Marlene Court are generally in poor condition as noted in the 2007 road condition survey performed by the City Engineer and Public Works Department. The Report of Geotechnical Exploration, Burg Street Improvements, dated January 23, 2013 prepared by Independent Testing Technologies (ITT) also notes the pavement condition. Visible bituminous distresses have been observed on Alvin Court and Marlene Court, although to a lesser extent than on Burg Street. These distresses include transverse and longitudinal cracking, edge cracking, potholes, block cracking, and minor rutting. Existing subgrade materials consist of clayey soils filled over native soils. Existing soils are considered weak with poor drainage causing frost heaves and other pavement movement.

80<sup>th</sup> Avenue is a gravel roadway. Observations from Public Works staff indicate the roadway is structurally sound and requires minimal maintenance throughout the year.

Holly Road is in poor condition as noted in the 2007 road condition survey performed by the City Engineer and Public Works Department. It has severe pavement distresses including alligator cracking, transverse and longitudinal cracking, edge cracking, potholes, rutting, and complete pavement failure. Subsoils are saturated throughout the entire year as the roadway is very close in elevation to the water level on Pleasant Lake.

### **Proposed Improvements**

The proposed scope of the Burg Street portion of the project is to reconstruct the roadway by subcutting and removing the upper 23.5 inches of material and replacing it with geotextile fabric covered with 12 inches of granular borrow, 8 inches of Class 5 gravel, and 3.5 inches of bituminous surfacing. No significant geometric changes (vertical and horizontal alignments, widening, in slope changes) or drainage improvements are proposed or desired by the City for the roadway. Pavement replacement is necessary due to the deteriorated condition of the road segment.

On Marlene Court and Alvin Court, the project scope will reclaim in place the existing bituminous pavement, recompact, and add 3.5 inches of bituminous pavement. Lesser traffic loads than those on Burg Street will allow for more minor improvements than those on Burg Street. No significant geometric changes (vertical and horizontal alignments, widening, in slope changes) or drainage improvements are proposed for the roadways. Pavement replacement is necessary due to the deteriorated condition of the road segment.

Holly Road is proposed to have the same scope as Alvin Court and Marlene Court, but improvements are not likely to have the same life as those on Marlene Court and Alvin Court. Subcutting of the roadway in excess of the 23 inches on Burg Street would likely be required to provide adequate subgrade support. Large subcuts on this stretch of roadway due to the high water table would be difficult to construct and still may not provide the required strength.

80<sup>th</sup> Avenue has reportedly handled traffic well during all seasons. No major structural improvements are planned or desired by the City. The gravel roadway will be regraded with 3.5 inches of bituminous pavement placed on the recompact surface.

A more detailed report on improvements associated with 80<sup>th</sup> Avenue and Holly Road was completed in 2010. This report identified more significant improvements to the street section than those included in this report. By making the reduced scope of improvements proposed, a 20 year life cycle for these roadways may not be achieved.

### **Funding**

Costs for each segment are included in the table below. Costs include soil investigation, permits, engineering, and contingency. Per the City's assessment policy, this type project would be partially financed through special assessments to benefiting properties abutting or with direct access from the road.

The City must ultimately decide the method of financing the project. Preliminary assessment calculations show approximately \$173,242 in assessments. Costs not covered by assessment revenues would be funded by the City. This report assumes City reserves would be used to pay for the

remaining \$311,414. Improvements to Holly Road and 80<sup>th</sup> Avenue would be assessed at a 100 percent rate and would need to be requested by adjacent property owners.

Assessment for residents on Burg Street, Marlene Court, and Alvin Court would be \$4,382.10. This figure is based on 300LF assessments at 27% of the City's Schedule of costs for this type of improvement.

Assessments on 80<sup>th</sup> Avenue would be \$3,685.50 if all platted lots were assessed. Some of these appear to be unbuildable due to wetlands; however, for the purposes of this report they are assumed to be included in the assessments. Should these parcels be removed from the calculations, the per parcel rate could increase dramatically.

The average cost for the four built homes on Holly Road would be \$8,675.

Segment	Cost	Assessments	Net City Cost
Burg Street	\$332,581.25	\$83,259.90	\$311,414.10
Alvin and Marlene Court	\$62,092.75		
80th Avenue	\$55,282.50	\$55,282.50	\$0.00
Holly Road	\$34,700.00	\$34,700.00	\$0.00

### Summary

In addition to being needed, the project is both cost effective and feasible from an engineering perspective. Ultimate project size will need to be determined by the City Council after receiving the required petitions from parcels adjacent to 80<sup>th</sup> Avenue and Holly Road.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.



David W. Blommel, PE  
City Engineer

dwb/djg

Enclosures: Estimates and Figures

c: Rick Hansen, City of Rockville

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**BURG STREET  
 OPINION OF PROBABLE COST**

ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT	APPROXIMATE QUANTITY	UNIT PRICE	COST
<b>GENERAL</b>					
1	MOBILIZATION	LUMP SUM	1.00	\$10,000.00	\$10,000.00
2	TRAFFIC CONTROL	LUMP SUM	1.00	\$4,500.00	\$4,500.00
3	TEMPORARY MAILBOX SYSTEM	LUMP SUM	1.00	\$600.00	\$600.00
4	SAWCUT BIT PAVEMENT AND CONCRETE	LIN FT	310.00	\$3.50	\$1,085.00
5	SALVAGE AND REINSTALL MAILBOXES	LUMP SUM	1.00	\$1,000.00	\$1,000.00
6	SALVAGE AND REINSTALL BLUE 911 ADDRESS SIGNS	LUMP SUM	1.00	\$350.00	\$350.00
7	REMOVE CONCRETE	SQ FT	450.00	\$1.00	\$450.00
8	RECLAIM BITUMINOUS PAVEMENT	SQ YD	5,800.00	\$1.75	\$10,150.00
<b>STREETS</b>					
9	COMMON EXCAVATION (PQ)	CY	4,350.00	\$8.00	\$34,800.00
10	GEOTEXTILE FABRIC TYPE V	SQ YD	7,250.00	\$2.00	\$14,500.00
11	SELECT GRANULAR BORROW (CV)	CY	2,500.00	\$9.00	\$22,500.00
12	SELECT GRANULAR BORROW (LV)	CY	150.00	\$7.00	\$1,050.00
13	SUBGRADE EXCAVATION	CY	150.00	\$9.00	\$1,350.00
14	CLASS 5 AGGREGATE BASE (PQ) (CV)	CY	1,500.00	\$20.00	\$30,000.00
15	WEARING COURSE - BOTTOM LIFT	TON	790.00	\$65.00	\$51,350.00
16	WEARING COURSE - TOP LIFT	TON	625.00	\$68.00	\$42,500.00
17	BITUMINOUS TACK COAT	GAL	325.00	\$3.25	\$1,056.25
18	BITUMINOUS DRIVEWAY PAVEMENT INCL. AGGREGATE BASE	SQ YD	200.00	\$27.00	\$5,400.00
19	CONCRETE DRIVEWAY PAVEMENT INCL. AGGREGATE BASE	SQ FT	450.00	\$8.00	\$3,600.00
<b>EROSION CONTROL &amp; TURF RESTORATION</b>					
20	TOPSOIL BORROW (LV)	CY	100.00	\$15.00	\$1,500.00
21	SEEDING MNDOT TYPE 260 INCL. FERTILIZER & HYDRO MULCH	SQ YD	3,000.00	\$0.90	\$2,700.00
22	SEEDING MNDOT TYPE 280 INCL. FERTILIZER & HYDRO MULCH	SQ YD	3,500.00	\$0.90	\$3,150.00
23	2014 SEEDING AND REPAIR	LUMP SUM	1.00	\$1,500.00	\$1,500.00
24	TEMPORARY SEEDING	AC	2.00	\$1,000.00	\$2,000.00
25	6" WOOD FIBER BIOROLL	LIN FT	450.00	\$4.00	\$1,800.00
26	SILT FENCE - MACHINE SLICED	LIN FT	1,000.00	\$3.00	\$3,000.00
27	ROCK CONSTRUCTION ENTRANCE	EACH	2.00	\$250.00	\$500.00
<b>STORM SEWER</b>					
28	4" PERFORATED DRAIN TILE W/SOCK	LIN FT	240.00	\$6.00	\$1,440.00
29	4" PRECAST CONCRETE HEADWALL APRON	EACH	10.00	\$325.00	\$3,250.00
<b>SUBTOTAL</b>					<b>\$257,081.25</b>
SOIL BORINGS					\$500.00
CONTINGENCY					\$25,000.00
ENGINEERING, LEGAL, FISCAL, ADMINISTRATIVE					\$50,000.00
<b>TOTAL BURG STREET</b>					<b>\$332,581.25</b>

**CUL-DE-SACS  
 OPINION OF PROBABLE COST**

ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT	APPROXIMATE QUANTITY	UNIT PRICE	COST
<b>GENERAL</b>					
1	RECLAIM BITUMINOUS PAVEMENT	SQ YD	3,133.00	\$1.75	\$5,482.75
<b>STREETS</b>					
2	WEARING COURSE - BOTTOM LIFT	TON	390.00	\$65.00	\$25,350.00
3	WEARING COURSE - TOP LIFT	TON	300.00	\$68.00	\$20,400.00
4	BITUMINOUS TACK COAT	GAL	160.00	\$3.25	\$520.00
5	BITUMINOUS DRIVEWAY PAVEMENT INCL. AGG BASE	SQ YD	50.00	\$27.00	\$1,350.00
6	CONCRETE DRIVEWAY PAVEMENT INCL. AGG BASE	SQ FT	50.00	\$8.00	\$400.00
<b>EROSION CONTROL &amp; TURF RESTORATION</b>					
7	TOPSOIL BORROW (LV)	CY	20.00	\$15.00	\$300.00
8	SEEDING MNDOT TYPE 260 INCL. FERTILIZER & HYDROMULCH	SQ YD	400.00	\$0.90	\$360.00
9	SEEDING MNDOT TYPE 280 INCL. FERTILIZER & HYDROMULCH	SQ YD	200.00	\$0.90	\$180.00
				<b>SUBTOTAL</b>	<b>\$54,342.75</b>
				SOIL BORINGS	\$250.00
				CONTINGENCY	\$5,000.00
				ENGINEERING, LEGAL, FISCAL, ADMINISTRATIVE	\$2,500.00
				<b>TOTAL CUL-DE-SACS</b>	<b>\$62,092.75</b>

**80TH AVENUE  
 OPINION OF PROBABLE COST**

ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT	APPROXIMATE QUANTITY	UNIT PRICE	COST
<b>GENERAL</b>					
1	GRADE AND COMPACT GRAVEL ROADWAY	LUMP SUM	1.00	\$2,500.00	\$2,500.00
<b>STREETS</b>					
2	WEARING COURSE - BOTTOM LIFT	TON	325.00	\$65.00	\$21,125.00
3	WEARING COURSE - TOP LIFT	TON	255.00	\$68.00	\$17,340.00
4	BITUMINOUS TACK COAT	GAL	150.00	\$3.25	\$487.50
5	BITUMINOUS DRIVEWAY PAVEMENT INCL. AGGREGATE BASE	SQ YD	70.00	\$27.00	\$1,890.00
6	CONCRETE DRIVEWAY PAVEMENT INCL. AGGREGATE BASE	SQ FT	450.00	\$8.00	\$3,600.00
<b>EROSION CONTROL &amp; TURF RESTORATION</b>					
7	TOPSOIL BORROW (LV)	CY	20.00	\$15.00	\$300.00
8	SEEDING MNDOT TYPE 260 INCL. FERTILIZER & HYDRO MULCH	SQ YD	400.00	\$0.90	\$360.00
9	SEEDING MNDOT TYPE 280 INCL. FERTILIZER & HYDRO MULCH	SQ YD	200.00	\$0.90	\$180.00
<b>SUBTOTAL</b>					<b>\$47,782.50</b>
CONTINGENCY					\$5,000.00
ENGINEERING, LEGAL, FISCAL, ADMINISTRATIVE					\$2,500.00
<b>TOTAL 80TH AVENUE</b>					<b>\$55,282.50</b>

**HOLLY ROAD  
 OPINION OF PROBABLE COST**

ITEM NO.	ITEM DESCRIPTION	UNIT OF MEASUREMENT	APPROXIMATE QUANTITY	UNIT PRICE	COST
<b>GENERAL</b>					
1	RECLAIM BITUMINOUS	SQ YD	1,100.00	\$2.00	\$2,200.00
<b>STREETS</b>					
2	WEARING COURSE - BOTTOM LIFT	TON	135.00	\$65.00	\$8,775.00
3	WEARING COURSE - TOP LIFT	TON	105.00	\$68.00	\$7,140.00
4	BITUMINOUS TACK COAT	GAL	60.00	\$3.25	\$195.00
5	BITUMINOUS DRIVEWAY PAVEMENT INCL. AGGREGATE BASE	SQ YD	110.00	\$27.00	\$2,970.00
6	CONCRETE DRIVEWAY PAVEMENT INCL. AGGREGATE BASE	SQ FT	680.00	\$8.00	\$5,440.00
<b>EROSION CONTROL &amp; TURF RESTORATION</b>					
7	TOPSOIL BORROW (LV)	CY	20.00	\$15.00	\$300.00
8	SEEDING MNDOT TYPE 280 INCL. FERTILIZER & HYDRO MULCH	SQ YD	200.00	\$0.90	\$180.00
<b>SUBTOTAL</b>					<b>\$27,200.00</b>
CONTINGENCY					\$5,000.00
ENGINEERING, LEGAL, FISCAL, ADMINISTRATIVE					\$2,500.00
<b>TOTAL HOLLY ROAD</b>					<b>\$34,700.00</b>



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FILE NO.  
ROCKV 121741  
DATE:  
03-13-13

2013 STREET IMPROVEMENTS  
BURG STREET  
ROCKVILLE, MINNESOTA

FIGURE  
NO. 1

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FILE NO.  
ROCKV 121741

DATE:  
03-13-13

2013 STREET IMPROVEMENTS  
HOLLY ROAD AND 80TH AVE  
ROCKVILLE, MINNESOTA

FIGURE  
NO. 2



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# Independent Testing Technologies, Inc.

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January 23, 2013

Ms. Rena Weber  
City of Rockville  
PO Box 93  
Rockville, MN 56302

RE: 13-010            Report of Geotechnical Exploration  
                          Burg Street Improvements  
                          Rockville, Minnesota

Dear Ms. Weber:

As requested and authorized by you, Independent Testing Technologies, Inc. recently conducted soil borings on the above referenced project in Rockville, Minnesota. The purpose of our subsurface investigation was to assist your engineer, Mr. Dave Blommel with SEH, with pavement rehabilitation project design. An electronic copy of this report was sent directly to him.

### **Exploration:**

On January 16, 2013, eight (8) split-spoon borings were conducted on this project with a truck mounted drill rig. The split-spoon borings were planned to be advanced to depths of 5 feet using a 3 1/4-inch hollow stem auger. Samples were obtained every 2 1/2 feet using a 2-inch O.D. split spoon sampler in accordance with ASTM D1586. Standard penetration values (N-values) were obtained at each sample interval by driving a sampler into the soil using a 140-pound hammer falling 30 inches. After an initial set of 6 inches, the number of blows required to drive the sampler 12 inches is known as the standard penetration resistance or N-value. SPT samples were not taken in frozen soils. Groundwater levels were noted during drilling. The holes were backfilled with the auger cuttings. Some settlement of the boreholes is likely.

The site is an existing large lot residential neighborhood. The borings were conducted in the

bituminous surfaced roadways and encountered 2.0 to 3.5 inches of bituminous pavement over 4.0 to 8.0 inches of aggregate base material. Boring B-3 was conducted in an area where the bituminous pavement was gone and only gravel was left. Boring B-3 encountered 8 inches of aggregate at the surface.

Below the pavement, borings B-1 through B-6 generally encountered clayey sand (SC) fill, silty sand (SM) fill and silty clayey sand (SC-SM) fill to depths of 3.5 to more than 5.0. Below the fill, the borings encountered native silty sand (SM) and clayey sand (SC) glacial till soils.

Boring B-7 encountered native silty clayey sand (SC-SM) below the pavement to termination at 5.0 feet. Boring B-8 encountered native, silty sand (SM) to refusal at 3.5 feet. Refusal was due to a cobble or boulder in the native soils.

The standard penetration blow counts in the sand fill soils ranged from 11 to 12 which are moderate to high, indicating that they are in a medium to dense condition. The standard penetration blow counts in the native sand soils ranged from 10 to 17 which are moderate to high, indicating that they are in a medium to dense condition. Groundwater was not encountered in any of the borings at the time of our investigation.

### **Recommendations**

Based on the results of our borings, it is our opinion that the silty and clayey sands (SC, SC-SM, SM) fill soils on this site are considered fair material for roadway subgrade material. These soils can sometimes be difficult to compact if the moisture content is too high. The on-site soils are also somewhat poorly drained, which can exacerbate pavement deterioration.

We recommend that any unsuitable, uncompacted, or unstable soils be removed from beneath the proposed pavement section. Generally in these soil types, we recommend the existing subgrade soils be subcut a minimum of 12 inches and be replaced with select granular borrow. We recommend that any excavation below pavement section be oversized one foot for every foot of fill placed to reach planned grade (1:1 oversizing).

The on-site soils consisting of clayey sands (SC) and silty clayey sands (SM) are considered fair to poor material for use as structural fill. These soils are susceptible to moisture variations and may be difficult to work with if they become wet. They will require drying or mixing to reach optimum moisture for compaction if they become wet prior to compaction. They also appear to be wet as they exist.

The expected subgrade soils on the project appear to consist of fine grained silty and clayey sand soils (SC, SC-SM, SM) and are classified as A-4 soils in accordance with the American Association of State Highway Transportation Officials (AASHTO) classification system. A-4 soils are rated fair to poor material for use as roadway subgrade material. Without benefit of

a laboratory R-value determination and based on Mn/DOT guidelines, an R-value of 20 can be assumed for the onsite soils.

In using the assumed R-value, it is essential that the subgrade be constructed of uniform soils at a moisture content and density in accordance with Mn/DOT specification 2105 and capable of passing a test roll in accordance with Mn/DOT specification 2111. The in-place soils may need preparation (drying and compacting) to pass a proof roll. If the subgrade is not compacted, uniform and capable of passing a test roll, then we recommend the subgrade be scarified and recompact or subcut and geotextile fabric placed along with select granular material meeting Mn/DOT specification 3149. The top of subgrade should be compacted to a minimum of 100% of standard proctor maximum density. The subgrade should be sloped towards the edges to provide drainage.

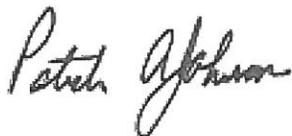
Our work was performed for geotechnical purposes only and not to document the presence or extent of any contamination on the site. We can note that our crew did not detect any obvious contamination by sight or smell during drilling operations. However, human senses are limited in terms of contamination detection and, therefore, the lack of detection through human sensing does not preclude the possibility of the presence of contamination of the site.

This report represents the result of our subsurface investigation and is based on information gathered at specific locations. Subsurface conditions can change a great deal over short horizontal distances. Also, the actual interface between strata will likely be a gradual transition rather than an abrupt change as represented on the boring logs.

Geotechnical engineering is based extensively on opinion. Therefore, the data contained in this report should be used as a guide, and we recommend that construction monitoring be performed by a qualified geotechnical engineer or technician. Any changes in the subsurface conditions from those found during this geotechnical exploration should be brought to the attention of a soils engineer.

Ms. Weber, it has been our pleasure to be of service to you on this project. Please feel free to contact me if you have any questions or need additional services.

Sincerely,



Patrick A. Johnson, P.E.  
MN Registration #22037

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FILE NO.  
ROCKV 121741

DATE:  
09-18-12

2013 STREET IMPROVEMENTS  
BURG STREET  
ROCKVILLE, MINNESOTA

FIGURE  
NO. 1

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-1  
START TIME: 1:07 END TIME: 1:19**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
7.5"		3.5" Bituminous, 4.0" Aggregate Base				
	SC-SM	SILTY CLAYEY SAND, fine to medium grained, w/ a trace of GRAVEL, brown, mottled.				
		(FILL)	1	*		* Soil frozen.
			2	12		
5.0		Boring complete to 5.0 feet. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.				

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-2  
START TIME: 1:49 END TIME: 2:06**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
10.0"		2.0" Bituminous, 8.0" Aggregate Base				
3.5	SC-SM	SILTY CLAYEY SAND, fine to medium grained, w/ a trace of GRAVEL, brown, mottled. (FILL)	1	*		* Soil frozen.
5.0	SM	SILTY SAND, fine grained, w/ a trace of GRAVEL, greyish-brown.	2	17		
Boring complete to 5.0 feet. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.						

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-3  
START TIME: 2:08 END TIME: 2:22**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
8.0"		8.0" Aggregate Base				
3.5	SC-SM	SILTY CLAYEY SAND, fine grained, w/ a trace of GRAVEL, brown, mottled.  (FILL)	1	*		* Soil frozen.
5.0	SM	SILTY SAND, fine grained, w/ a trace of GRAVEL, brown. brown.	2	8		
Boring complete to 5.0 feet. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.						

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-4  
START TIME: 2:41 END TIME: 2:58**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
8.5"		2.5" Bituminous, 6.0" Aggregate Base				
	SC	CLAYEY SAND, fine grained, brown, mottled.				
		(FILL)	1	*		* Soil frozen.
5.0			2	11		
Boring complete to 5.0 feet. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.						

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-5  
START TIME: 3:05 END TIME: 3:20**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
8.5"		2.5" Bituminous, 6.0" Aggregate Base				
4.0	SM	SILTY SAND, fine grained, w/ a trace of GRAVEL, brown, mottled.  (FILL)	1	*		* Soil frozen.
5.0	SC	CLAYEY SAND, fine grained, brown, mottled.	2	15		
Boring complete to 5.0 feet. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.						

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-6  
START TIME: 3:23 END TIME: 3:48**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
8.5"		2.5" Bituminous, 6.0" Aggregate Base				
	SC-SM	SILTY CLAYEY SAND, fine grained, w/ a little GRAVEL, brown, mottled.  (FILL)	1 2	* 12		* Soil frozen.
5.0		Boring complete to 5.0 feet. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.				

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-7  
START TIME: 1:31 END TIME: 1:47**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
10.0"		3.0" Bituminous, 7.0" Aggregate Base				
	SC-SM	SILTY CLAYEY SAND, fine to medium grained, w/ a trace of GRAVEL, brown.	1	*		* Soil frozen.
5.0			2	10		
		Boring complete to 5.0 feet. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.				

**INDEPENDENT TESTING TECHNOLOGIES, INC. LOG OF SOIL BORING**

**PROJECT: 13-010 CITY OF ROCKVILLE  
BURG STREET IMPROVEMENTS  
ROCKVILLE, MINNESOTA**

**DATE: 1/16/13 BORING #: B-8  
START TIME: 2:28 END TIME: 2:38**

**METHOD: 3 1/4" I.D. Hollow Stem Auger  
CREW: RB / RK  
ELEVATION: N/A**

**LOCATION: See Boring Location Plan**

Depth (Feet)	ASTM Symbol	Soil Description	Sample #	N Value	Water Table	Notes
9.5"		2.5" Bituminous, 7.0" Aggregate Base				
3.5	SM	SILTY SAND, fine grained, w/ a trace of GRAVEL, brown.	1	*		* Soil frozen.
		Refusal encountered at 3.5 feet due to rock. Boring terminated. Water was not encountered during drilling. Water was not present to cave-in depth of 3.0 feet after completion of bore hole.				