

NORTHERN TECHNOLOGIES, INC.

6588 141st Avenue NW, Ramsey, MN 55303 763-433-9175 763-323-4739 Fax

January 17, 2011

Mr. Tim Himmer, PE
City Engineer
City of Ramsey
7550 Sunwood Drive NW
Ramsey, Minnesota 55303

Subject: Year 2011 and 2012 Geotechnical & Materials Testing Services

Dear Mr. Himmer,

We present this proposal for Year 2011 and 2012 geotechnical and material testing services for City of Ramsey (City) construction projects, as per your request. We understand the City provides internal inspection of city projects including but not limited to road construction, utilities, subdivision construction, concrete curb & gutter, asphalt pavement, etc. Based on our experience working for the City in previous years, material testing services for most projects will require intermittent services of NTI with actual project needs based on project specifications, or as directed by you and/or your project representatives. Per your recent request, we present to you the following information on our company, personnel, capabilities, experience and fees for performing the geotechnical and testing services.

Company Information

Northern Technologies, Inc. (NTI) provides comprehensive geotechnical, and materials testing services. We look forward to continuing our nearly decade long relationship with the City of Ramsey to help assure quality infrastructure improvements for the residents of our community.

Northern Technologies, Inc. was established in Fargo in 1996 by Marc D. Shannon, PE. In 2001 NTI opened its Twin Cities office in Ramsey. NTI employs over 30 full time technical personal, including 7 professional engineers and 2 E.I.T.'s. During the construction season an additional 10 - 15 full time and part-time engineering technicians and student interns are added to our staff.

Geotechnical and material testing services are provided to a variety of federal and state agencies, counties, cities, property owners, developers, contractors, engineers and architects.

NTI senior staff members all have significant experience providing construction related services on a wide range of projects in the Twin Cities area. The City benefits from this experience on every project through our standardized peer review and quality control processes. At the same time, NTI is a small firm giving the client direct access to our officers and senior staff whenever the need arises.

We are focused on delivering outstanding service to our clients with quick turn-around and dependability. We intentionally keep our overhead low so our fees are as reasonable as possible.

Northern Technologies, Inc. has provided the City geotechnical exploration programs, laboratory testing, construction materials testing, quality control and special inspections on a wide range of projects since 2002. NTI looks forward to continuing this relationship this year and in the future.

Staffing

Tony Francis, PE, Project Engineer, will manage the majority of the projects for the City of Ramsey. As project manager he is responsible for scheduling the technician's appointments, reviewing and approving their daily reports, providing weekly summaries to the client, and personally performing the inspections when difficult conditions warrant. Tony also manages the materials laboratory in NTI's Ramsey, Minnesota office – supervising staff, spot checking procedures, and verifying equipment is properly calibrated. Tony has been with NTI for 8 years and has the experience and training needed for this role.

Scope of Work/Capabilities

Geotechnical Investigations and Engineering - NTI's Ramsey office has two drill rigs; a CME 55 mounted on a truck and a CME 550 that is mounted on a rubber tired all-terrain vehicle (ATV), allowing us to perform the vast majority of geotechnical explorations. Our drillers are experienced in all forms of drilling and sampling. Following the field work, our engineers examine, test and classify the samples obtained by the drillers, and then prepare the boring logs. They then write the report addressing bearing capacity for deep or shallow foundations, settlement analysis, slope stability analysis, locations of unsuitable soils, sub-cut depths and type of backfill, pavement designs, and recommendations for dealing with any groundwater encountered.

NTI's staff is experienced in the design of shallow and deep foundations, retaining walls, and slope stability analysis. Whether it is caisson and driven pile foundations for heavily loaded buildings and bridges, or shallow spread footing or mat foundations for lighter foundation loads, our engineers have the experience to recommend and design the most cost effective solution to address your needs. Utilizing the PCSTABL program produced by Purdue University for our slope stability analysis, we can analyze active slides or provide factors of safety for existing or proposed slopes affecting your projects. Post construction, we have the equipment and experience to monitor movement of the slope over time.

NTI's engineers are experienced in performing surface and groundwater hydrological studies. As licensed well drillers we understand the regulations, permit requirements and procedures for installing, maintaining and abandoning temporary and permanent groundwater monitoring wells. We have the equipment needed to obtain water samples and monitor water levels. Our senior engineers have performed dozens of studies to determine groundwater levels, seasonal variations, and apparent directions of flow, to predict the future behavior of the aquifers.

Construction Materials Testing and Special Inspections - All testing will be conducted as required by project specifications and construction documents, and at the request of your on-site job representatives.

NTI's engineering technicians are equipped with cell phones to facilitate communications with the office, clients and contractors. They are fully experienced at observing, monitoring and testing all types of excavation, embankment, trench backfill and foundation installations.

The technicians are equipped with nuclear density gauges to verify the compaction of engineered fill soils. They are also trained in the use of and have access to sand cones for density testing when required by project specifications.

NTI maintains plastic concrete testing equipment to perform slump, air content, temperature and the casting of concrete and mortar cylinders for construction projects. We also perform quality control testing during the installation of these pavements by observing subgrade test rolls, verifying subgrade excavation depths and limits, testing aggregate base and bituminous pavements for quality and density.

Depending on the construction they are observing that day our technicians will leave the shop equipped with hand augers, coring machines, double ring infiltrometers, plastic concrete test equipment, hand penetrometers, static cone penetrometers, dynamic cone penetrometers, Schmidt rebound hammers, DipStick Floor Profiler, etc.

NTI's technicians are trained in proper sampling per ASTM specifications to assure that the samples are indicative of the materials utilized and that they arrive back at the lab in a condition suitable for providing accurate test results.

Laboratory Testing – NTI's laboratory is equipped to handle the testing required for typical municipal and building projects. We have an automated cure room that maintains proper temperature and humidity for curing concrete cylinders. We perform a variety of tests on soil to determine moisture density relationships (proctors), mechanical analysis of soil and aggregates for use as fill, or concrete or bituminous mixes and index or strength tests on soil for geotechnical design purposes.

NTI also has the equipment to perform compression tests of concrete cylinders, mortar, concrete block and brick products as well as coring equipment to obtain concrete and bituminous cores. NTI has performed mix designs for light and heavy duty pavements constructed of concrete, asphalt or aggregate surfaces. We also test bituminous mixtures for quality and density, including stability, oil content, air voids and density. Some of the tests we routinely perform in the lab include:

Soils & Aggregates

Proctors
Atterberg Limits
Mechanical Analysis
Sieves / Hydrometer
Organic Content
Moisture Content
Specific Gravity

Concrete, Masonry, & Grout

Concrete Cylinder Compression Testing
CMU Compression and Properties
Prism Compressive Strength
Grout Cube Testing
Concrete Mix Design
Mortar Mixture Properties
Cement/Aggregate Ratio

Bituminous

Bituminous Extraction
Gradation
Marshall Densities
Bituminous Mix Designs
Rice's Specific Gravity
Stability and Flow

General services anticipated for your municipal projects include:

- Preparation of Geotechnical investigations and reports with recommendations for pavement design, compaction, soil correction and dealing with ground water.
- Observation of excavations to verify suitability of soils prior to placement of embankments, approval of soils as fill.
- Field testing of embankments placed within roadways, utility trench backfill and street materials. Such testing will include the determination of in-place compaction and moisture contents.
- Testing services associated with placement of foundations, floor slabs, concrete curbing, concrete pavements and bituminous pavements.
- Post construction work services such as determination of material in-place thickness, in-place density, related strength and air-void content.
- Preparation and review of reports.

All testing will be conducted as required by project specifications, or as directed by you or your on-site superintendent.

Fee Structure

The attached fee schedule outlines unit rates for respective personnel and/or unit tests for year 2011 and 2012 construction services. These fees are identical to the contracted rates from 2009 and 2010.

Invoices for services performed will be forwarded to you monthly, broken out for each project, with costs based on the unit rates outlined in the Fee Schedule. Work outside the scope of the attached fee schedule will be provided based on NTI's standard unit rates or negotiation prior to the start of work. . The attached General Conditions are an integral part of this proposal.

We appreciate the opportunity of submitting this proposal and look forward to working with and being a part of your engineering supervision team. If you have any questions, feel free to contact us at (763) 433-9175.

NORTHERN TECHNOLOGIES, INC.

CITY OF RAMSEY



Anthony Francis, PE
Project Engineer

Authorized Signature:



Steve Johnston, PE
Regional Manager/Principal Engineer

Printed Name:

Date

GENERAL CONDITIONS

SECTION 1: PROJECT INFORMATION

- 1.1 Client will make available to NTI all known information regarding existing and proposed requirements which affects the work, including but not limited to: specifications, contracts, recommendations, plans and change orders.
- 1.2 Client will immediately transmit to NTI any new information that becomes available to it or its subcontractors, so that recommended actions can be reviewed.
- 1.3 Client will provide a representative to answer questions about the project when required by NTI upon 24-hour notice.
- 1.4 NTI will not be liable for any incorrect advice, judgment, or decision based on any inaccurate information furnished by Client, and Client will indemnify NTI against liability arising out of or contributed to by such information.

SECTION 2: SAMPLES

- 2.1 NTI will retain representative samples for 30 days after submission of NTI report. Upon request by Client, samples can be shipped, charges collect, to destination selected by Client; or NTI can store them for an agreed upon storage charge.

SECTION 3: FEE PAYMENT

- 3.1 NTI will submit invoices to client monthly, and a final invoice upon completion of services. Invoices will show charges based on current NTI Fee Schedule or other agreed upon basis. A detailed separation of charges and backup data will be at Client's request.
- 3.2 The Client will pay the balance stated on the invoices unless Client notifies NTI in writing of the particular item that is alleged to be incorrect within fifteen (15) days from the invoice date.
- 3.3 Payment is due upon receipt of invoice and is past due thirty (30) days from invoice date. On past due accounts, Client will pay a late charge of 1.5(%) per month, or the maximum allowed by law. In the event of litigation, resulting from Client's refusal to make payment, without just cause, then all warranties and representations, expressed or implied, by NTI shall be void.
- 3.4 In the event Client fails to pay NTI within sixty (60) days following invoice date, NTI may consider the default a total breach of this agreement and all duties of NTI under this agreement will be terminated.

SECTION 4: OWNERSHIP OF DOCUMENTS

- 4.1 All documents prepared by NTI as instruments of service will remain the property of NTI.
- 4.2 Client agrees that all reports and other work furnished to the Client or his agents, which are not paid for, will be returned upon demand and will not be used by the Client for any purpose.
- 4.3 NTI will retain all pertinent records concerning services performed for a period of two (2) years after the report is sent; during that time the records will be made available to the Client during NTI's normal business hours.

SECTION 5: DISPUTES

- 5.1 If NTI institutes suit against the Client to enforce any part of this agreement, then all litigation expenses or collection expenses, including attorney's fees, will be paid to the prevailing party.

- 5.2 If the Client institutes a suit against NTI, which is dismissed, or a verdict rendered for NTI, client agrees to pay NTI for all cost of defense, including attorney's fees, expert witness fees and court costs.

SECTION 6: STANDARD OF CARE

- 6.1 NTI will perform consistent with the level of care and skill ordinarily exercised by members of the geotechnical and materials testing profession currently practicing under similar conditions. No other warranty, expressed or implied, is made.
- 6.2 NTI will be responsible for it's data, interpretation and recommendations, but will not be responsible for interpretation by others.

SECTION 7: LIMITATION OF LIABILITY

- 7.1 NTI's liability to the Client and all contractors and subcontractors on the project, for damages due to professional negligence, negligence or breach of any other obligation to Client or others, will be limited to an amount not to exceed \$20,000 or the NTI fee, whichever is less.
- 7.2 Client will notify any contractor or subcontractor who performs work in connection with any work done by NTI of the limitation of liability for design defects, errors, omissions, or professional negligence, and to require as a condition precedent to their performing their work, a like indemnity and limitations of liability on their part as against NTI. In the event the Client fails to obtain a like limitation and indemnity, Client agrees to indemnify NTI for any liability to any third party.

SECTION 8: INSURANCE

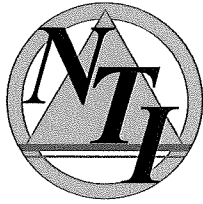
- 8.1 NTI will carry worker's compensation insurance and public liability, property damage, and errors and omissions insurance policies, which NTI considers adequate. NTI will not be responsible for liability beyond the limits and conditions of the insurance. NTI will not be responsible for any loss or liability arising from negligence by Client or by other consultants employed by Client.

SECTION 9: TERMINATION

- 9.1 This agreement may be terminated by either party upon seven (7) days written notice if there is substantial failure by the other party to perform. Termination will not be effective if substantial failure is remedied before expiration of the seven days. Upon termination, NTI will be paid for services rendered plus reasonable termination expenses.
- 9.2 If the contract is terminated prior to completion of all reports contemplated by the agreement, or suspended for more than three (3) months, NTI may complete analysis and records as are necessary to complete it's files and may complete a report on the services performed. Termination or suspension expenses will include direct costs of completing analysis, records and report.

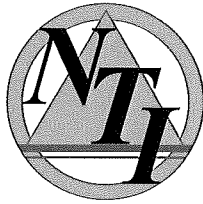
SECTION 10: ASSIGNS

- 10.1 Neither party may assign duties or interest in the agreement without the written consent of the other part



**CITY OF RAMSEY
2011 – 2012 FEE SCHEDULE**

<u>DESCRIPTION</u>	<u>UNIT</u>	<u>UNIT RATE</u>
<u>Personnel Time</u>		
Senior Engineer	per hour	\$ 98.00
Engineer	per hour	78.00
Engineering Assistant	per hour	58.00
Engineering Technician	per hour	48.00
<u>Construction Testing Services*</u>		
No charge will be incurred for sample pick up for laboratory testing of soils, concrete, and asphalt.		
Concrete Inspection (temperature, slump, air content) Includes casting and compressive strength evaluation of three (3) concrete cylinders, reporting of results	per test	\$ 120.00
Concrete Inspection (temperature, slump, air content) Includes casting and compressive strength evaluation of four (4) concrete cylinders, reporting of results	per test	138.00
Density Tests (includes testing and reporting of results)	per test	40.00
Standard Proctor, method "A" (ASTM: D698)	per test	120.00
Standard Proctor, method "B, C, D" (ASTM: D698)	per test	125.00
Modified Proctor, method "A" (ASTM: D1557)	per test	130.00
Modified Proctor, method "B, C, D" (ASTM: D1557)	per test	140.00
Mechanical Analysis, (ASTM: C136 & D1140) Through No. 200 sieve bank run material only no preparation required	per test	100.00
Specific Gravity (ASTM D854) Deleterious Materials only, ASTM: C117, C123 and C40 or C142	per test	92.00
a. Fine aggregate	per test	80.00
b. Course aggregate	per test	80.00
Deleterious Materials only, MnDOT Procedure		
a. Fine Aggregate	per test	149.00
b. Coarse Aggregate	per test	241.00



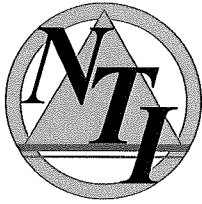
**CITY OF RAMSEY
2011 – 2012 FEE SCHEDULE**

<u>DESCRIPTION</u>	<u>UNIT</u>	<u>UNIT RATE</u>
Soundness of aggregate, sodium sulphate or magnesium sulphate (does not include crushing)		
a. Fine or coarse aggregate (not including gradation) ASTM C88, AASHTO T104 or MnDOT Procedure, 5 cycles	per test	557.00
b. Cost per cycle per pan when over 5 cycles	per test	62.00
c. Ledgerrock soundness ASTM C88 or AASHTO T1045 cycles on 50 pieces, 100 grams each	per test	557.00
Laboratory Tests of Bituminous Mixtures		
Tests of laboratory compacted Marshall samples of field plant mixture.		
a. Marshall density by displacement method	per test	\$ 205.00
b. Marshall density, Stability @ 140F and flow @ 140F	per test	280.00
Field Density by displacement method on submitted samples, includes preparation.	per test	32.00
Bituminous Extraction and Mechanical Analysis of aggregate-ASTM D2172, C136 and C117	per test	205.00
a. Extraction only, ASTM D2172	per test	145.00
b. Moisture content, ASTM D95 (on recycled mixes)	per test	97.00
c. Rice's Max. Theoretical Specific Gravity (each additional sample)	First sample Additional	115.00 50.00

* All above listed tests include technician time required to perform test during non weekend and non-holiday periods, mobilization to site, preparation of reports, and review. Above rates will be increased by a factor of 1.3 for services provided on Saturday and 1.50 for services provided on Sunday or on legal Holiday.

Geotechnical Exploration and Consulting Services

Drill and Support Vehicle Mobilization	per trip	\$ 150.00
Standard Penetration Boring ^{Note 1}		
3 ¼ inch Hollow Stem Auger		
(ground surface to depth of 10 feet)	per foot	18.00
(from 10 feet to 50 feet)	per foot	15.00
Rotary mud drilling with 2-15/16" diameter tri-cone bit	set up charge	100.00
(ground surface to depth of 50 feet)	per foot	20.00



**CITY OF RAMSEY
2011 – 2012 FEE SCHEDULE**

<u>DESCRIPTION</u>	<u>UNIT</u>	<u>UNIT RATE</u>
(from 50 to 80 feet)	per foot	25.00
(from 80 to 100 feet)	per foot	28.00
(depth in excess of 100 feet)	special quotation	
Laboratory Evaluation and Testing of Retained Soil Samples		
Moisture content	per test	10.00
Unit weight	per test	16.00
Unconfined compressive strength	per test	75.00
Atterberg limits	per test	75.00
Mechanical analysis of soil (#4 to #200 sieve openings)	per test	75.00
Standard Geotechnical Report ^{Note 2}		
(less than 5 soil borings associated with report)	per report	600.00
(5 to 10 soil borings associated with report)	per report	800.00
(11 to 20 soil boring associated with report)	per report	1,000.00
(21 or more soil borings associated with report)	special quotation	

Note 1 If necessary, NTI will abandon the soil boring(s) using either a mixture of high solids bentonite or neat cement as the infill materials is the advanced boring conforms to the state's definition of "environmental borings". We note that an additional surcharge of \$4.50 per foot in excess of our noted fees will be assessed against the project for abandonment of all "environmental borings".

Note 2 – Standard Geotechnical Report includes recommendations as itemized within the bullet items defined below. Projects requiring additional recommendations will incur additional cost in excess of the standard fees noted within this Fee Schedule. All such additional fees will be determined on a project by project basis.

- Construction feasibility for public utilities and pavement section along proposed road alignment.
- Logs of the soil boring with descriptions of nomenclature used for defining the site soils.
- Estimated subgrade support strength parameters for design of the bituminous roadway and recommendations for earthwork associated with installation of water main and sanitary sewer.
- Anticipation of, and management of, ground water for design of structures and pavements.

Fees for Geotechnical services will be invoiced after submission of the report. Payment is due within 30 days of receipt of the invoice.