

Purchase Order Number 15735

**ADAMS COUNTY
PURCHASE ORDER**

Page - 1 of 1
 Order Date: 04/27/18
 Requested Date: 04/27/18
 Cost Center: 3055

This Number Must Appear on all
 Invoices, Packing Lists, and Packages

Vendor Address	Vendor and Shipping Information	Ship To Information
KUMAR & ASSOCIATES INC 2390 S LIPAN STREET DENVER CO 80223	Phone: 742-9700 FAX: 303 742-9666 e-mail: Delivery: FOB DESTINATION	ADAMS COUNTY TRANSPORTATION DEPARTMENT HIGHWAY WEST DIVISION 4955 EAST 74TH AVENUE, 1ST FLOOR COMMERCE CITY CO 80022
VENDOR NUMBER: 40395		

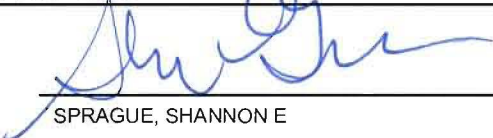
All pricing shall be as specified in Proposal No. 9-18-32 dated 4/19/2018 attached herein for Project No. 2018.424 - Geotechnical Engineering Services for Hayesmount Road Pavement Sections. All additional work shall be confirmed with all parties in writing and processed as a change order to this PO prior to work commencement.

Ln	R	Description / Supplier Item	QTY	UOM	Unit Price	Extended Price	Account Number	Req. No.
1	0	Hayesmount Road Pavement		EA	0.0000	11,950.00	3055.7820	12046

Original

Term Net 30 Days	Tax Rate *NA*	Sales Tax 0.00	Total Order 11,950.00
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ACCEPTANCE OF THIS ORDER IS SUBJECT TO THE TERMS AND CONDITIONS ABOVE AND ON THE REVERSE SIDE OF THIS DOCUMENT
 COLORADO TAX EXEMPT #98-03569

Invoice to: Adams County A/P 4430 S. Adams County Pkwy. Suite C4000A Brighton, CO 80601-8212 720-523-6050	Inquiries to: Adams County Purchasing Department 4430 S. Adams County Parkway, Suite C4000A Brighton, CO 80601-8212 720-523-6050	 SPRAGUE, SHANNON E ADAMS COUNTY AUTHORIZED SIGNATURE
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SERVICE PURCHASE ORDER TERMS AND CONDITIONS

1. RESPONSIBILITIES OF THE COUNTY: The County shall provide information as necessary or requested by the Contractor to enable the Contractor's performance under this Agreement.

2. TERM: The term of this Agreement shall be for no more than one year from the date of this purchase order unless otherwise noted on the first page of this document.

3. INDEPENDENT CONTRACTOR: In providing services under this Agreement, the Contractor acts as an independent contractor and not as an employee of the County. The Contractor shall be solely and entirely responsible for his/her acts, and the acts of his/her employees, agents, servants, and subcontractors during the term and performance of this Agreement. No employee, agent, servant, or subcontractor of the Contractor shall be deemed to be an employee, agent, or servant of the County because of the performance of any services or work under this Agreement. The Contractor, at its expense, shall procure and maintain workers' compensation insurance as required by law. **Pursuant to the Workers' Compensation Act § 8-40-202(2)(b)(IV), C.R.S., as amended, the Contractor understands that it and its employees and servants are not entitled to workers' compensation benefits from the County. The Contractor further understands that it is solely obligated for the payment of federal and state income tax on any moneys earned pursuant to this Agreement.**

4. NONDISCRIMINATION: The Contractor shall not discriminate against any employee or qualified applicant for employment because of age, race, color, religion, marital status, disability, sex, or national origin. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices provided by the local public agency setting forth the provisions of this nondiscrimination clause.

5. INDEMNIFICATION: The Contractor agrees to indemnify and hold harmless the County, its officers, agents, and employees for, from, and against any and all claims, suits, expenses, damages, or other liabilities, including reasonable attorney fees and court costs, arising out of damage or injury to persons, entities, or property, caused or sustained by any person(s) as a result of the Contractor's performance or failure to perform pursuant to the terms of this Agreement or as a result of any subcontractors' performance or failure to perform pursuant to the terms of this Agreement.

6. INSURANCE: The Contractor agrees to maintain insurance of the following types and amounts:

6.1. Commercial General Liability Insurance: to include products liability, completed operations, contractual, broad form property damage and personal injury.

6.1.1. Each Occurrence \$1,000,000

6.1.2. General Aggregate \$2,000,000

6.2. Comprehensive Automobile Liability Insurance: to include all motor vehicles owned, hired, leased, or borrowed.

6.2.1. Bodily Injury/Property Damage \$1,000,000 (each accident)

6.2.2. Personal Injury Protection Per Colorado Statutes

6.3. Workers' Compensation Insurance: Per Colorado Statutes

6.4. Adams County as "Additional Insured": The Contractor's commercial general liability, comprehensive automobile liability, and professional liability insurance policies and/or certificates of insurance shall be issued to include Adams County as an "additional insured," and shall include the following provisions:

6.4.1. Underwriters shall have no right of recovery or subrogation against the County, it being the intent of the parties that the insurance policies so effected shall protect both parties and be primary coverage for any and all losses resulting from the actions or negligence of the Contractor.

6.4.2. The insurance companies issuing the policy or policies shall have no recourse against the County for payment of any premiums due or for any assessments under any form of any policy.

6.4.3. Any and all deductibles contained in any insurance policy shall be assumed by and at the sole risk of the Contractor.

6.5. Licensed Insurers: All insurers of the Contractor must be licensed or approved to do business in the State of Colorado. Upon failure of the Contractor to furnish, deliver and/or maintain such insurance as provided herein, this Agreement, at the election of the County, may be immediately declared suspended, discontinued, or terminated. Failure of the Contractor in obtaining and/or maintaining any required insurance shall not relieve the Contractor from any liability under this Agreement, nor shall the insurance requirements be construed to conflict with the obligations of the Contractor concerning indemnification.

6.6. Endorsement: Each insurance policy herein required shall be endorsed to state that coverage shall not be suspended, voided, or canceled without thirty (30) days prior written notice by certified mail, return receipt requested, to the County.

6.7. Proof of Insurance: At any time during the term of this Agreement, the County may require the Contractor to provide proof of the insurance coverages or policies required under this Agreement.

7. TERMINATION:

7.1. For Cause: If, through any cause, the Contractor fails to fulfill its obligations under this Agreement in a timely and proper manner, or if the Contractor violates any of the covenants, conditions, or stipulations of this Agreement, the County shall thereupon have the right to immediately terminate this Agreement, upon giving written notice to the Contractor of such termination and specifying the effective date thereof.

7.2. For Convenience: The County may terminate this Agreement at any time by giving written notice as specified herein to the other party, which notice shall be given at least thirty (30) days prior to the effective date of the termination. If this Agreement is terminated by the County, the Contractor will be paid an amount that bears the same ratio to the total compensation as the services actually performed bear to the total services the Contractor was to perform under this Agreement, less payments previously made to the Contractor under this Agreement.

8. MUTUAL UNDERSTANDINGS:

8.1. Jurisdiction and Venue: The laws of the State of Colorado shall govern as to the interpretation, validity, and effect of this Agreement. The parties agree that jurisdiction and venue for any disputes arising under this Agreement shall be with the 17th Judicial District, Colorado.

8.2. Compliance with Laws: During the performance of this Agreement, the Contractor agrees to strictly adhere to all applicable federal, state, and local laws, rules and regulations, including all licensing and permit requirements. The parties hereto aver that they are familiar with § 18-8-301, et seq., C.R.S. (Bribery and Corrupt Influences), as amended, and § 18-8-401, et seq., C.R.S. (Abuse of Public Office), as amended, and that no violation of such provisions are present. Without limiting the generality of the foregoing, the Contractor expressly agrees to comply with the privacy and security requirements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA) when exposed to or provided with any data or records under this Agreement that are considered to be "Protected Health Information."

8.3. OSHA: Contractor shall comply with the requirements of the Occupational Safety and Health Act (OSHA) and shall review and comply with the County's safety regulations while on any County property. Failure to comply with any applicable federal, state or local law, rule, or regulation shall give the County the right to terminate this agreement for cause.

8.4. Record Retention: The Contractor shall maintain records and documentation of the services provided under this Agreement, including fiscal records, and shall retain the records for a period of three (3) years from the date this Agreement is terminated. Said records and documents shall be subject at all reasonable times to inspection, review, or audit by authorized federal, state, or County personnel.

8.5. Assignability: Neither this Agreement, nor any rights hereunder, in whole or in part, shall be assignable or otherwise transferable by the Contractor without the prior written consent of the County.

8.6. Waiver: Waiver of strict performance or the breach of any provision of this Agreement shall not be deemed a waiver, nor shall it prejudice the waiving party's right to require strict performance of the same provision, or any other provision in the future, unless such waiver has rendered future performance commercially impossible.

8.7. Force Majeure: Neither party shall be liable for any delay or failure to perform its obligations hereunder to the extent that such delay or failure is caused by a force or event beyond the control of such party including, without limitation, war, embargoes, strikes, governmental restrictions, riots, fires, floods, earthquakes, or other acts of God.

8.8. Notice: Any notices given under this Agreement are deemed to have been received and to be effective: (1) three (3) days after the same shall have been mailed by certified mail, return receipt requested; (2) immediately upon hand delivery; or (3) immediately upon receipt of confirmation that a facsimile was received.

8.9. Integration of Understanding: This Agreement contains the entire understanding of the parties hereto and neither it, nor the rights and obligations hereunder, may be changed, modified, or waived except by an instrument in writing that is signed by the parties hereto.

8.10. Severability: If any provision of this Agreement is determined to be unenforceable or invalid for any reason, the remainder of this Agreement shall remain in effect, unless otherwise terminated in accordance with the terms contained herein.

9. CHANGE ORDERS OR EXTENSIONS:

9.1. Change Orders: The County may, from time to time, require changes in the scope of the services of the Contractor to be performed herein including, but not limited to, additional instructions, additional work, and the omission of work previously ordered. Such changes, including any increases or decreases in the amount of the Contractor's compensation, must be mutually agreed upon in writing by the County and the Contractor. The Contractor shall be compensated for all authorized changes in services, pursuant to the applicable provision in the Invitation to Bid, or, if no provision exists, pursuant to the terms of the Change Order.

9.2. Extensions: The County may, upon mutual written agreement by the parties, extend the time of completion of services to be performed by the Contractor.

10. COMPLIANCE WITH C.R.S. § 8-17.5-101, ET. SEQ. AS AMENDED 5/13/08: Pursuant to Colorado Revised Statute (C.R.S.), § 8-17.5-101, et. seq., as amended 5/13/08, the Contractor shall meet the following requirements prior to signing this Agreement (public contract for service) and for the duration thereof:

10.1. The Contractor shall certify participation in the E-Verify Program (the electronic employment verification program that is authorized in 8 U.S.C. § 1324a and jointly administered by the United States Department of Homeland Security and the Social Security Administration, or its successor program) or the Department Program (the employment verification program established by the Colorado Department of Labor and Employment pursuant to C.R.S. § 8-17.5-102(5)) on the attached certification.

10.2. The Contractor shall not knowingly employ or contract with an illegal alien to perform work under this public contract for services.

10.3. The Contractor shall not enter into a contract with a subcontractor that fails to certify to the Contractor that the subcontractor shall not knowingly employ or contract with an illegal alien to perform work under this public contract for services.

10.4. At the time of signing this public contract for services, the Contractor has confirmed the employment eligibility of all employees who are newly hired for employment to perform work under this public contract for services through participation in either the E-Verify Program or the Department Program.

10.5. The Contractor shall not use either the E-Verify Program or the Department Program procedures to undertake pre-employment screening of job applicants while this public contract for services is being performed.

10.6. If Contractor obtains actual knowledge that a subcontractor performing work under this public contract for services knowingly employs or contracts with an illegal alien, the Contractor shall: notify the subcontractor and the County within three days that the Contractor has actual knowledge that the subcontractor is employing or contracting with an illegal alien; and terminate the subcontract with the subcontractor if within three days of receiving the notice required pursuant to the previous paragraph, the subcontractor does not stop employing or contracting with the illegal alien; except that the contractor shall not terminate the contract with the subcontractor if during such three days the subcontractor provides information to establish that the subcontractor has not knowingly employed or contracted with an illegal alien.

10.7. Contractor shall comply with any reasonable requests by the Department of Labor and Employment (the Department) made in the course of an investigation that the Department is undertaking pursuant to the authority established in C.R.S. § 8-17.5-102(5).

10.8. If Contractor violates this Section, of this Agreement, the County may terminate this Agreement for breach of contract. If the Agreement is so terminated, the Contractor shall be liable for actual and consequential damages to the County.

10.9. Contractor's Certification of Compliance must be on file with the Adams County Purchasing Office prior to the commencement of any work.

11. **Quality:** Seller warrants that the goods delivered hereunder will conform to the description stated in this Order and that the goods will be merchantable, of good workmanship and materials, and free from defects. These warranties shall survive inspection, testing and/or acceptance of the goods. At Buyer's option, and without prejudice to any other rights Buyer may have, Seller shall remedy any defective goods or reimburse Buyer for its costs for remedying or replacing defective goods.

12. **Appropriation Clause:** The payment of Buyer's obligation hereunder in fiscal years subsequent to the current year are contingent upon funds for this Order being appropriated and budgeted. If funds for this Order are not appropriated and budgeted in the year subsequent to the fiscal year of issuance of this Order, the Buyer may terminate this Order. Buyer's fiscal year is the calendar year. Termination under this provision shall not result in any penalty being imposed against Buyer.



Kumar & Associates, Inc.
Geotechnical and Materials Engineers
and Environmental Scientists



2390 South Lipan Street
Denver, CO 80223
phone: (303) 742-9700
fax: (303) 742-9666
email: kadenver@kumarusa.com
www.kumarusa.com

Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs and Summit County, Colorado

April 19, 2018

Ms. Jen Tierney Hammer
Adams County Colorado
4430 South Adams County Parkway
4th Floor, C4000A
Brighton, Colorado 80601

Subject: Proposal for Geotechnical Engineering Study and Pavement Thickness Design, Hayesmount Road Pavement Rehabilitation, 152nd Avenue to 168th Avenue, Adams County, Colorado

Proposal No. P-18-362

Dear Ms. Hammer:

Kumar & Associates, Inc. is pleased to submit this proposal to conduct a geotechnical engineering study and pavement thickness design for the proposed rehabilitation of a 2-mile segment of Hayesmount Road in Adams County, Colorado. The limits of rehabilitation occur from 152nd Avenue on the south to 168th Avenue on the north.

The field study and associated pavement design will follow the latest requirements of the Metropolitan Government Pavement Engineers Council (MGPEC) which is consistent with the 1993 AASHTO pavement design procedures.

Scope of Work: Based on the information provided and our previous experience on similar projects we have completed in the past, we propose the following:

1. Drill 30 exploratory borings on a maximum spacing of approximately 350-lf along the project roadway alignment. A minimum of 5 borings will be located in areas of significant pavement distressed/failure. The borings will be drilled to a minimum depth of 5 feet with every fourth boring drilled to a depth of 10 feet. The final depth of the borings will be determined in the field as drilling progresses and as the subsurface profile becomes evident. The borings will be made to obtain information on the existing pavement section type and thickness, the underlying subsurface profile, to obtain samples for laboratory testing, and to estimate the ground-water level and depth to bedrock, if encountered within the drilled depth.

We will coordinate with the Utility Notification Center of Colorado to locate buried utilities prior to drilling. We will obtain a permit from Adams County which will allow us to drill within the existing street right-of-way. We assume that this will be a no-fee permit. Finally, we will obtain a subcontractor which will provide traffic control services in accordance with applicable MUTCD requirements.

2. Conduct a laboratory testing program on selected samples obtained from the borings to determine:
 - Moisture content
 - Density of undisturbed fine-grained samples
 - Gradation characteristics of coarse-grained samples
 - Consolidation and/or swell potential of fine-grained soil samples
 - Atterberg limits
 - Water Soluble Sulfates
 - Hveem Stabilometer (R-value)
3. Analyze the data obtained from the field and laboratory portions of the study to provide engineering recommendations for:
 - Pavement thickness designs including alternative pavement section
 - Pavement rehabilitation alternatives including potential for mill and overlay
 - Overexcavation of expansive soils and bedrock, if applicable
 - Earthwork recommendations, including temporary slopes, suitability of on-site soils for use as engineered fill, subgrade preparation measures, and fill placement and compaction criteria
 - Subgrade preparation measures
 - Subgrade stabilization requirements, if needed
4. Prepare a report to summarize the site exploration data, laboratory test results, observations, and provide our conclusions and recommendations. The report will include engineering geology plan sheets and photographs of existing pavement condition/distress. The field work and report preparation will be supervised by a registered professional engineer.

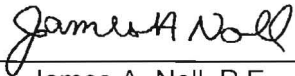
Fees: We propose our fee be based on our hourly and unit costs in accordance with the attached Fee Schedule/approved on-call rates. The estimated fee for the above described scope of work is \$11,950. We will not exceed this fee without prior written approval. A breakdown of the fee estimate is provided in the attached table.

Schedule: We propose to initiate the study within 2 days of being given notice to proceed. We anticipate preliminary design information will be available within approximately 2 to 3 weeks of notice to proceed, and the final report within approximately 4 weeks of notice to proceed. Specific times may vary somewhat if weather or other conditions beyond our control prevent access. In any event, we will notify you of our progress and any available information.

Adams County Colorado
April 19, 2018
Page 3

If you have any questions about the scope of work and/or associated fee, please call. Thank you for considering us for the study of this project.

Sincerely,
KUMAR & ASSOCIATES, INC.

By  _____
James A. Noll, P.E.

JAN/js
Enclosure
cc: book

GEOTECHNICAL ENGINEERING STUDY AND PAVEMENT THICKNESS DESIGN
 HAYESMOUNT ROAD REHABILITATION
 152ND AVENUE TO 168TH AVENUE, ADAMS COUNTY, COLORADO
 ITEMIZATION OF ESTIMATED COST

TASK	PRINCIPAL ENGINEER	STAFF ENGINEER	FIELD ENGR/ GEOLOGIST	DRAFTING	WORD PROCESSING	TASK HOURS	OTHER DIRECT COST (ODC)
FIELD EXPLORATION							
Utility Locate (Including call-in, field locate)		0.5	8			8.5	
Permt and Traffic Control			2				\$1,600
Drilling			16			16	\$1,800
TASK HOURS	0	0.5	26	0	0	26.5	
RATE	\$175	\$80	\$60	\$80	\$50		
LABOR COST	\$0	\$40	\$1,560	\$0	\$0		
		Labor Total =	\$1,600	ODC Total =	\$3,400	Est. Task Subtotal =	\$5,000
LABORATORY TESTING							
Setup		2				2	
Moisture Content and Density (30)							\$450
Atterberg Limits (30)							\$1,350
Percent Passing the No. 200 (26)							\$650
Gradation (4)							\$300
Swell-Consolidation (7)							\$420
R-Value (Hveem) (3)							\$1,050
Water Soluble Sulfates (4)							\$200
TASK HOURS	0	2	0	0	0	2	
RATE	\$175	\$80	\$60	\$80	\$50		
LABOR COST	\$0	\$160	\$0	\$0	\$0		
		Labor Total =	\$160	ODC Total =	\$4,420	Est. Task Subtotal =	\$4,580
ANALYSES AND REPORT							
Analysis and Report	2	14		10	2	28	
TASK HOURS	2	14	0	10	2	28	
RATE	\$175	\$80	\$60	\$80	\$50		
LABOR COST	\$350	\$1,120	\$0	\$800	\$100		
		Labor Total =	\$2,370	ODC Total =	\$0	Est. Task Subtotal =	\$2,370
TOTAL HOURS							
	2	16.5	26	10	2	56.5	
		Labor Total =	\$4,130	ODC Total =	\$7,820	Estimate Total =	\$11,950



ENGINEERING, ENVIRONMENTAL AND FIELD TECHNICAL SERVICES

Principal Engineer	\$160.00 - \$195.00/hr.
Senior Project Engineer/Geologist/Manager	\$100.00 - \$145.00/hr.
Project Engineer/Geologist/Scientist	\$90.00 - \$115.00/hr.
Staff Engineer/Geologist/Scientist	\$70.00 - \$90.00/hr.
Project Supervisor	\$90.00 - \$125.00/hr.
Construction Inspector I	\$65.00 - \$75.00/hr.
Construction Inspector II	\$75.00 - \$90.00/hr.
Environmental Specialist/Scientist	\$90.00 - \$110.00/hr.
Environmental Field Technician/Geologist	\$65.00 - \$75.00/hr.
Safety Professional	\$100.00 - \$120.00/hr.
Project Administrator	\$95.00 - \$110.00/hr.
Staff Administrator	\$50.00 - \$70.00/hr.
Exploration Field Engineer/Technician/Geologist	\$55.00 - \$75.00/hr.
Construction Materials Testing Technicians:	
▪ Field Observation	\$65.00 - \$75.00/hr.
▪ Concrete	\$45.00 - \$55.00/hr.
▪ Soils, Reinforcing Steel, Asphalt	\$47.00 - \$57.00/hr.
▪ Piers, Masonry	\$55.00 - \$65.00/hr.
▪ Fireproofing	\$65.00 - \$75.00/hr.
▪ Structural Steel	\$65.00 - \$85.00/hr.
▪ Post-Tensioning	\$50.00 - \$60.00/hr.
▪ Floor Flatness	\$75.00 - \$80.00/hr.
Word Processing	\$45.00 - \$55.00/hr.
Drafting	\$70.00 - \$80.00/hr.
Litigation/Expert Witness/Deposition	\$175.00 - \$350.00/hr.

OTHER DIRECT CHARGES

Auto or Pickup Mileage	\$0.75/mile
Out of Town Expenses, Travel, Rental Etc	Cost + 15%
Expedited Laboratory Services: 1.35 x Test Price (See No. 16 on Reverse Side)	

SUBSURFACE EXPLORATION, SAMPLING, MONITORING WELL INSTALLATION

Exploration Subcontractor Subconsultant's (4-Inch Solid Auger, Hollow Stem Auger, Rotary and Diamond Core Drilling, Exploratory Pit Excavation, ATV Drill Rig, Geophysical Exploration, Specialty Sampling, etc.)	Cost + 15%
Materials/Equipment Rental/Outsourced Laboratory Testing/Subconsultants	Cost + 15%
Falling Weight Deflectometer (Includes Operator)	\$200.00/hr.
Concrete/Asphalt Coring	\$75.00/hr.
Photoionization Detector	\$100.00/Day
LEL/CO/H ₂ S/O ₂ Meter	\$100.00/Day
Conductivity, Temperature, pH Tester	\$25.00/Day
Personal Protective Equipment	Rates Quoted on Project Basis

LABORATORY TESTING

Soils

Moisture Content (ASTM D2216)	\$10.00 ea.
Moisture Content & Density (ASTM D2216)	\$15.00 ea.
Gradation (ASTM D6913)	\$80.00 ea.
Hydrometer (ASTM D7928)	\$85.00 ea.
Double Hydrometer (ASTM D4221)	\$225.00 ea.
Percent Less than #200 Sieve (ASTM D1140)	\$30.00 ea.
Atterberg Limits (ASTM D4318) Method A	\$75.00 ea.
Atterberg Limits (ASTM D4318) Method B	\$45.00 ea.
Standard Proctor (ASTM D698)	\$90.00 ea.
Modified Proctor (ASTM D1557)	\$100.00 ea.
Soil/Cement Proctor (ASTM D558)	\$135.00 ea.
Proctor Checkpoint (ASTM D698 or ASTM D1557)	\$50.00 ea.
Relative Density (ASTM D4253 and ASTM D4254)	\$175.00 ea.
Specific Gravity (ASTM D854)	\$75.00 ea.
Standard Swell-Consolidation (ASTM D4546)	\$60.00 ea.
Air-Dried Swell-Consolidation (ASTM D4546)	\$75.00 ea.
Remolded Swell-Consolidation (ASTM D4546)	\$90.00 ea.
Unconfined Compressive Strength (ASTM D2166)	\$60.00 ea.
Slake Durability (ASTM D4644)	\$100.00 ea.
Pinhole Dispersion (ASTM D4647)	\$150.00 ea.
Water Soluble Sulfates (AASHTO T290, CP-L 2103)	\$50.00 ea.
pH (ASTM E70)	\$40.00 ea.
Chloride (AASHTO T291, CP-L 2104)	\$50.00 ea.
Electrical Resistivity (ASTM G57)	\$150.00 ea.
Organics (AASHTO T267)	\$60.00 ea.
R-Value (ASTM D2844)	\$350.00 ea.
California Bearing Ratio (ASTM D1883) 1-Pt	\$150.00 ea.
California Bearing Ratio (ASTM D1883) 3-Pt	\$400.00 ea.
Soil/Lime, Soil/Cement Mix Analysis (Standard 3-Point Mix Analysis; Cost May Vary Depending On Specification Requirements)	\$2,000.00 ea.
Freeze/Thaw (ASTM D560)	\$350.00 ea.
Wet/Dry (ASTM D559)	\$350.00 ea.
Compressive Strength of Soil-Cement (ASTM D1633)	\$60.00 ea.
Direct Shear/per point (ASTM D3080)	
Unconsolidated-Undrained (Quick Test)	\$150.00 ea.
Residual Strength, Additional Per Carriage Reversal	\$50.00 ea.
Drained Tests Quoted on Project-Specific Basis	
Soil Suction (ASTM D6836 Method D)	\$50.00 ea.

Miscellaneous

Sample Preparation	\$50.00/hr.
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Public Works Department
4430 South Adams County Parkway, 1st Floor, Suite W2000B
Brighton, CO 80601-8218
PHONE 720.523.6875 FAX 720.523.6996

PR#12046

MEMORANDUM

TO: Shannon E. S
THROUGH: Jeffery A. M ic Works *AM*
THROUGH: René Valdez, Infrastructure and Stormwater Manager, Public Works *RV*
FROM: Jennifer W. Shi, PE, Senior Transportation Engineer *JS*
DATE: April 23, 2018
SUBJECT: Recommendation to Award Kumar & Associates for the Project No. 2018.424 – Geotechnical Services for Hayesmount Road between 152nd Ave. and 168th Ave.

On April 13, 2018, we sent a Request for Proposal (RFP) for Geotechnical Engineering Services to the three prequalified firms for the pavement investigation and pavement design on Hayesmount Road between 152nd Avenue and 168th Avenue. Three prequalified firms are Ground Engineering Consultants Inc.; Kumar & Associates, Inc.; and Terracon Consultants, Inc. Three firms submitted their proposals on the requested due day which was April 18, 2018.

The County anticipates improving roadway pavement strength on Hayesmount Road. The County is seeking a consultant that can provide the needed geotechnical engineering services in a timely and cost effective manner to ensure the success of this project.

Below are the results for Project No. 2018.424 - Geotechnical Engineering Services for Hayesmount Road Pavement Sections:

1. Kumar & Associates, Inc.: \$11,950.00
2. Terracon Consultants, Inc.: \$36,500.00

Ground Engineering was considered non-responsive. They used a wrong location in their proposal.

We recommend that Kumar & Associates is awarded the contract to provide Geotechnical Engineering Services on Hayesmount Road between 152nd Avenue and 168th Avenue. This project will be paid from the 2018 Street Paving Program budget under cost center 3055.7820.

Should you have any questions, please contact me.

Attachments:

Kumar & Associates' Proposal
Terracon Consultants, Inc's Proposal
Ground Engineering's Proposal

BOARD OF COUNTY COMMISSIONERS

Eva J. Henry
DISTRICT 1

Charles "Chaz" Tedesco
DISTRICT 2

Erik Hansen
DISTRICT 3

Steve O'Dorisio
DISTRICT 4

Mary Hodge
DISTRICT 5



Kumar & Associates, Inc.
Geotechnical and Materials Engineers
and Environmental Scientists



2390 South Lipan Street
Denver, CO 80223
phone: (303) 742-9700
fax: (303) 742-9666
email: kadenvr@kumarusa.com
www.kumarusa.com

Office Locations: Denver (HQ), Parker, Colorado Springs, Fort Collins, Glenwood Springs and Summit County, Colorado

April 19, 2018

Ms. Jen Tierney Hammer
Adams County Colorado
4430 South Adams County Parkway
4th Floor, C4000A
Brighton, Colorado 80601

Subject: Proposal for Geotechnical Engineering Study and Pavement Thickness Design,
Hayesmount Road Pavement Rehabilitation, 152nd Avenue to 168th Avenue, Adams
County, Colorado

Proposal No. P-18-362

Dear Ms. Hammer:

Kumar & Associates, Inc. is pleased to submit this proposal to conduct a geotechnical engineering study and pavement thickness design for the proposed rehabilitation of a 2-mile segment of Hayesmount Road in Adams County, Colorado. The limits of rehabilitation occur from 152nd Avenue on the south to 168th Avenue on the north.

The field study and associated pavement design will follow the latest requirements of the Metropolitan Government Pavement Engineers Council (MGPEC) which is consistent with the 1993 AASHTO pavement design procedures.

Scope of Work: Based on the information provided and our previous experience on similar projects we have completed in the past, we propose the following:

1. Drill 30 exploratory borings on a maximum spacing of approximately 350-lf along the project roadway alignment. A minimum of 5 borings will be located in areas of significant pavement distressed/failure. The borings will be drilled to a minimum depth of 5 feet with every fourth boring drilled to a depth of 10 feet. The final depth of the borings will be determined in the field as drilling progresses and as the subsurface profile becomes evident. The borings will be made to obtain information on the existing pavement section type and thickness, the underlying subsurface profile, to obtain samples for laboratory testing, and to estimate the ground-water level and depth to bedrock, if encountered within the drilled depth.

We will coordinate with the Utility Notification Center of Colorado to locate buried utilities prior to drilling. We will obtain a permit from Adams County which will allow us to drill within the existing street right-of-way. We assume that this will be a no-fee permit. Finally, we will obtain a subcontractor which will provide traffic control services in accordance with applicable MUTCD requirements.

2. Conduct a laboratory testing program on selected samples obtained from the borings to determine:
 - Moisture content
 - Density of undisturbed fine-grained samples
 - Gradation characteristics of coarse-grained samples
 - Consolidation and/or swell potential of fine-grained soil samples
 - Atterberg limits
 - Water Soluble Sulfates
 - Hveem Stabilometer (R-value)
3. Analyze the data obtained from the field and laboratory portions of the study to provide engineering recommendations for:
 - Pavement thickness designs including alternative pavement section
 - Pavement rehabilitation alternatives including potential for mill and overlay
 - Overexcavation of expansive soils and bedrock, if applicable
 - Earthwork recommendations, including temporary slopes, suitability of on-site soils for use as engineered fill, subgrade preparation measures, and fill placement and compaction criteria
 - Subgrade preparation measures
 - Subgrade stabilization requirements, if needed
4. Prepare a report to summarize the site exploration data, laboratory test results, observations, and provide our conclusions and recommendations. The report will include engineering geology plan sheets and photographs of existing pavement condition/distress. The field work and report preparation will be supervised by a registered professional engineer.

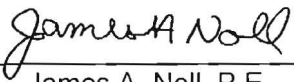
Fees: We propose our fee be based on our hourly and unit costs in accordance with the attached Fee Schedule/approved on-call rates. The estimated fee for the above described scope of work is \$11,950. We will not exceed this fee without prior written approval. A breakdown of the fee estimate is provided in the attached table.

Schedule: We propose to initiate the study within 2 days of being given notice to proceed. We anticipate preliminary design information will be available within approximately 2 to 3 weeks of notice to proceed, and the final report within approximately 4 weeks of notice to proceed. Specific times may vary somewhat if weather or other conditions beyond our control prevent access. In any event, we will notify you of our progress and any available information.

Adams County Colorado
April 19, 2018
Page 3

If you have any questions about the scope of work and/or associated fee, please call. Thank you for considering us for the study of this project.

Sincerely,
KUMAR & ASSOCIATES, INC.

By  _____
James A. Noll, P.E.

JAN/js
Enclosure
cc: book

GEOTECHNICAL ENGINEERING STUDY AND PAVEMENT THICKNESS DESIGN
 HAYESMOUNT ROAD REHABILITATION
 152ND AVENUE TO 168TH AVENUE, ADAMS COUNTY, COLORADO
 ITEMIZATION OF ESTIMATED COST

TASK						TASK HOURS	OTHER DIRECT COST (ODC)
	PRINCIPAL ENGINEER	STAFF ENGINEER	FIELD ENGR/ GEOLOGIST	DRAFTING	WORD PROCESSING		
FIELD EXPLORATION							
Utility Locate (Including call-in, field locate)		0.5	8			8.5	
Permt and Traffic Control			2				\$1,600
Drilling			16			16	\$1,800
TASK HOURS	0	0.5	26	0	0	26.5	
RATE	\$175	\$80	\$60	\$80	\$50		
LABOR COST	\$0	\$40	\$1,560	\$0	\$0		
		Labor Total =	\$1,600	ODC Total =	\$3,400	Est. Task Subtotal =	\$5,000
LABORATORY TESTING							
Setup		2				2	
Moisture Content and Density (30)							\$450
Atterberg Limits (30)							\$1,350
Percent Passing the No. 200 (26)							\$650
Gradation (4)							\$300
Swel-Consolidation (7)							\$420
R-Value (Hveem) (3)							\$1,050
Water Soluble Sulfates (4)							\$200
TASK HOURS	0	2	0	0	0	2	
RATE	\$175	\$80	\$60	\$80	\$50		
LABOR COST	\$0	\$160	\$0	\$0	\$0		
		Labor Total =	\$160	ODC Total =	\$4,420	Est. Task Subtotal =	\$4,580
ANALYSES AND REPORT							
Analysis and Report	2	14		10	2	28	
TASK HOURS	2	14	0	10	2	28	
RATE	\$175	\$80	\$60	\$80	\$50		
LABOR COST	\$350	\$1,120	\$0	\$800	\$100		
		Labor Total =	\$2,370	ODC Total =	\$0	Est. Task Subtotal =	\$2,370
TOTAL HOURS							
	2	16.5	26	10	2	56.5	
		Labor Total =	\$4,130	ODC Total =	\$7,820	Estimate Total =	\$11,950



ENGINEERING, ENVIRONMENTAL AND FIELD TECHNICAL SERVICES

Principal Engineer	\$160.00 - \$195.00/hr.
Senior Project Engineer/Geologist/Manager	\$100.00 - \$145.00/hr.
Project Engineer/Geologist/Scientist	\$90.00 - \$115.00/hr.
Staff Engineer/Geologist/Scientist	\$70.00 - \$90.00/hr.
Project Supervisor	\$90.00 - \$125.00/hr.
Construction Inspector I	\$65.00 - \$75.00/hr.
Construction Inspector II	\$75.00 - \$90.00/hr.
Environmental Specialist/Scientist	\$90.00 - \$110.00/hr.
Environmental Field Technician/Geologist	\$65.00 - \$75.00/hr.
Safety Professional	\$100.00 - \$120.00/hr.
Project Administrator	\$95.00 - \$110.00/hr.
Staff Administrator	\$50.00 - \$70.00/hr.
Exploration Field Engineer/Technician/Geologist	\$55.00 - \$75.00/hr.
Construction Materials Testing Technicians:	
▪ Field Observation	\$65.00 - \$75.00/hr.
▪ Concrete	\$45.00 - \$55.00/hr.
▪ Soils, Reinforcing Steel, Asphalt	\$47.00 - \$57.00/hr.
▪ Piers, Masonry	\$55.00 - \$65.00/hr.
▪ Fireproofing	\$65.00 - \$75.00/hr.
▪ Structural Steel	\$65.00 - \$85.00/hr.
▪ Post-Tensioning	\$50.00 - \$60.00/hr.
▪ Floor Flatness	\$75.00 - \$80.00/hr.
Word Processing	\$45.00 - \$55.00/hr.
Drafting	\$70.00 - \$80.00/hr.
Litigation/Expert Witness/Deposition	\$175.00 - \$350.00/hr.

OTHER DIRECT CHARGES

Auto or Pickup Mileage	\$0.75/mile
Out of Town Expenses, Travel, Rental Etc	Cost + 15%
Expedited Laboratory Services: 1.35 x Test Price (See No. 16 on Reverse Side)	

SUBSURFACE EXPLORATION, SAMPLING, MONITORING WELL INSTALLATION

Exploration Subcontractor Subconsultant's (4-Inch Solid Auger, Hollow Stem Auger, Rotary and Diamond Core Drilling, Exploratory Pit Excavation, ATV Drill Rig, Geophysical Exploration, Specialty Sampling, etc.)	Cost + 15%
Materials/Equipment Rental/Outsourced Laboratory Testing/Subconsultants	Cost + 15%
Falling Weight Deflectometer (Includes Operator)	\$200.00/hr.
Concrete/Asphalt Coring	\$75.00/hr.
Photoionization Detector	\$100.00/Day
LEL/CO/H ₂ S/O ₂ Meter	\$100.00/Day
Conductivity, Temperature, pH Tester	\$25.00/Day
Personal Protective Equipment	Rates Quoted on Project Basis

LABORATORY TESTING

Soils

Moisture Content (ASTM D2216)	\$10.00 ea.
Moisture Content & Density (ASTM D2216)	\$15.00 ea.
Gradation (ASTM D6913)	\$80.00 ea.
Hydrometer (ASTM D7928)	\$85.00 ea.
Double Hydrometer (ASTM D4221)	\$225.00 ea.
Percent Less than #200 Sieve (ASTM D1140)	\$30.00 ea.
Atterberg Limits (ASTM D4318) Method A	\$75.00 ea.
Atterberg Limits (ASTM D4318) Method B	\$45.00 ea.
Standard Proctor (ASTM D698)	\$90.00 ea.
Modified Proctor (ASTM D1557)	\$100.00 ea.
Soil/Cement Proctor (ASTM D558)	\$135.00 ea.
Proctor Checkpoint (ASTM D698 or ASTM D1557)	\$50.00 ea.
Relative Density (ASTM D4253 and ASTM D4254)	\$175.00 ea.
Specific Gravity (ASTM D854)	\$75.00 ea.
Standard Swell-Consolidation (ASTM D4546)	\$60.00 ea.
Air-Dried Swell-Consolidation (ASTM D4546)	\$75.00 ea.
Remolded Swell-Consolidation (ASTM D4546)	\$90.00 ea.
Unconfined Compressive Strength (ASTM D2166)	\$60.00 ea.
Slake Durability (ASTM D4644)	\$100.00 ea.
Pinhole Dispersion (ASTM D4647)	\$150.00 ea.
Water Soluble Sulfates (AASHTO T290, CP-L 2103)	\$50.00 ea.
pH (ASTM E70)	\$40.00 ea.
Chloride (AASHTO T291, CP-L 2104)	\$50.00 ea.
Electrical Resistivity (ASTM G57)	\$150.00 ea.
Organics (AASHTO T267)	\$60.00 ea.
R-Value (ASTM D2844)	\$350.00 ea.
California Bearing Ratio (ASTM D1883) 1-Pt	\$150.00 ea.
California Bearing Ratio (ASTM D1883) 3-Pt	\$400.00 ea.
Soil/Lime, Soil/Cement Mix Analysis (Standard 3-Point Mix Analysis; Cost May Vary Depending On Specification Requirements)	\$2,000.00 ea.
Freeze/Thaw (ASTM D560)	\$350.00 ea.
Wet/Dry (ASTM D559)	\$350.00 ea.
Compressive Strength of Soil-Cement (ASTM D1633)	\$60.00 ea.
Direct Shear/per point (ASTM D3080)	
Unconsolidated-Undrained (Quick Test)	\$150.00 ea.
Residual Strength, Additional Per Carriage Reversal	\$50.00 ea.
Drained Tests Quoted on Project-Specific Basis	
Soil Suction (ASTM D6836 Method D)	\$50.00 ea.

Miscellaneous

Sample Preparation	\$50.00/hr.
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April 19, 2018



Adams County Facility Operations Department
4430 S Adams County Pkwy Ste C4000A
Brighton, Colorado 80601

Attn: Ms. Jennifer Tierney Hammer
E: jtierney@adcogov.org

Re: Proposal for Geotechnical Engineering Services
Hayesmount Road Pavement Rehabilitation
2018.424 Geotechnical Engineering, Hayesmount 152nd to 168th
Hayesmount Road between East 152nd and East 168th Avenues
Adams County, Colorado
Terracon Proposal No. P25185115

Ms. Tierney Hammer:

We appreciate the opportunity to submit this proposal to Adams County Facility Operations Department (Adams County) to provide Geotechnical Engineering services for the above referenced project. The following exhibits summarize the details of our proposal.

Exhibit A	Project Understanding
Exhibit B	Scope of Services
Exhibit C	Compensation and Project Schedule. Lump sum fee of \$36,500 based on the attached scope. Assuming we receive full authorization to proceed by April 20, 2018, fieldwork will be complete by May 2, 2018 and our draft report will be submitted on May 25, 2018.
Exhibit D	Site Location

We look forward to working with you on this project.

Sincerely,

Terracon Consultants, Inc.

Scott W. Borecki, P.E.
Senior Staff Engineer

Mathew B. Fielding, P.E.
Regional Manager

EXHIBIT A - PROJECT UNDERSTANDING

Our scope of services is based on our understanding of the project as described by an Adams County email dated April 16, 2018. Aspects of the project, undefined or assumed, are highlighted as shown below. We request the design team verify this information prior to our initiation of field exploration activities.

Site Location and Anticipated Conditions

Item	Description
Location	The project is located at Hayesmount Road between East 152nd and East 168th Avenues in Adams County, Colorado. The approximate centroid of the proposed project is 39.9868° N, 104.6407° W. See Exhibit D – Site Location .
Existing Improvements	Based on available aerial imagery, the roadway consists of asphalt pavement with speed limits up to 55 miles per hour. The general land use adjacent to the roadway appears to be agricultural and residential.
Current Ground Cover	Ground cover on the roadway consists of asphalt pavement.
Existing Topography	Based on available aerial imagery, the site appears to be generally flat with an elevation difference of up to 35 feet over the approximate 2-mile length of the roadway.
Site Access	We expect the site and all exploration locations are accessible with our truck-mounted drilling equipment.

Planned Construction

Item	Description
Proposed Development	We understand the project consists of rehabilitating the pavement on an about 2-mile section of Hayesmount Road between East 152 nd Avenue and East 168 th Avenues.
Grading	We assume the grade will remain unchanged.
Traffic Loads	We assume traffic volumes with truck percentages and future growth rates for design will be provided by Adams County by 04/25/2018.

EXHIBIT B - SCOPE OF SERVICES

Our proposed scope of services consists of field exploration, laboratory testing, and engineering/project delivery. These services are described in the following sections.

Field Exploration

Visual Conditions Survey: We will perform limited visual conditions survey of the existing roadway pavement to identify the nature and extent of distresses on the pavement areas. This survey will be an abbreviated form of the distress survey described in the Federal Highway Administration “Distress Identification Manual for the Long-Term Pavement Performance Program,” publication No. FHWA-RD-03-031, in conjunction with applicable portions of ASTM D6433-11 “Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys.”

The surveys will be conducted in 100-foot long sections and will represent at least 10 percent of the roadway. For the 2-mile section of roadway, we anticipate about eleven 100-foot long sections will be surveyed. The results of the survey will be used to calculate a Pavement Condition Index (PCI) for each surveyed area and develop conceptual recommendations for remediation and/or rehabilitation.

Soil Borings: Our field exploration work includes the drilling and sampling of exploratory soil borings consistent with the schedule in the table below. The borings will be drilled at an interval of approximately 350 feet per the scope provided by Adams County. Every third boring will be drilled to 10 feet below grade or practical drill rig refusal.

Number of Borings ¹	Boring Depth (feet) ²	Planned Location ³
20	About 5	Hayesmount Road
10	About 10	Hayesmount Road

1. Five of the borings will be drilled at failure pavement locations identified or agreed upon with Adams County.
2. Or practical drill rig refusal.
3. Actual boring locations will be determined based on location of existing utilities within roadway and traffic control efficiency.

Terracon will hire a subcontractor to prepare typical traffic control plans for permitting and provide traffic control during the drilling exploration. Our budget was estimated by considering two flaggers and one traffic control supervisor for proper traffic control during fieldwork. We assume temporary lane closure permits will be required to perform the fieldwork. We assume there will be no cost for obtaining permits from Adams County and that permit approvals will be received within one business day of submission.

Based on our experience drilling on Adams County roadways, we assume the permits will be issued for working hours of 8 a.m. to 4 p.m. on Monday through Friday. By acceptance of this proposal without information to the contrary, we consider that you have provided access for our exploration equipment to conduct our work.

Boring Layout and Elevations: We will use handheld GPS equipment to locate borings with an estimated horizontal accuracy of +/-25 feet. Field measurements from existing site features may be utilized. We assume the elevations of the as-drilled boring locations will be surveyed by others.

Subsurface Exploration Procedures: We plan to advance the soil borings with a truck-mounted drill rig using solid stem continuous-flight power augers. The borings will be sampled using 2-½-inch outside diameter Modified California barrel sampling devices consistent with ASTM D3550 at depths of 2 feet and 4 feet (and 9 feet within the 10-foot borings). We will also obtain bulk samples of subsurface materials from auger cuttings. Pavement cores will be obtained from all borings. We will measure the thickness of the existing asphalt and apparent base material (if present). The field exploration will also include observations for groundwater while we advance the boreholes. We have made no provisions to collect water level data other than the observations made during the advancement of the borings.

Our exploration team will prepare field boring logs as part of the drilling operations, including visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs will be prepared from the field logs. The final boring logs represent the engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in the laboratory.

Property Disturbance: All borings will be backfilled immediately after their completion with auger cuttings or sand and patched with cold-patch asphalt. We have made no provisions to saw cut pavement and patch with hot-mix asphalt. If saw cutting and patching with hot-mix asphalt is required by Adams County, we can provide this service at an additional fee.

Excess auger cuttings will be dispersed in the general vicinity of the borehole. Because backfill material often settles below the surface over time, we recommend boreholes are checked periodically for signs of depressions and backfilled as necessary. At your request, we can provide this service or grout the holes for an additional fee.

Laboratory Testing

We will test representative soil/bedrock samples in our laboratory to determine pertinent engineering characteristics. Testing will be performed under the direction of a geotechnical engineer and may include the following (estimated quantities used for estimating purposes are indicated in parentheses; actual quantities may vary based on the soil conditions encountered):

Proposal for Geotechnical Engineering Services

Hayesmount Road Pavement Rehabilitation ■ Adams County, Colorado

April 19, 2018 ■ Terracon Proposal No. P25185115



- Visual classification
- Moisture content (45)
- Dry density (45)
- Grain-size analyses (20)
- Atterberg limits (20)
- Expansion/consolidation potential (30)
- Moisture-density relationship (5)
- Resistance R-Value (5)
- Water-soluble sulfate content (10)

We assume Resistance R-Value will be preferred for the estimating the resilient modulus of the subgrade per Colorado Department of Transportation (CDOT) resilient modulus correlations. If California Bearing Ratio (CBR) is preferred, additional fees will apply.

The laboratory testing program will include examination of soil/bedrock samples by an engineer. Based on the material's texture and plasticity, we describe and classify the soil samples in accordance with the Unified Soil Classification System.

Soil and rock samples obtained during our fieldwork will be disposed of after laboratory testing is complete unless a specific request is made to temporarily store the samples for a longer period of time.

Safety

We are committed to the conduct of our work safely. Our field exploration services on this project will be conducted under the guidance of a site-specific safety plan that takes into account the information that we know about this site as it relates to access, safety, and potential safety hazards.

Our field crews will make excavations to sample the soils. Such excavations could encounter subsurface utilities and/or environmental hazards. We will file appropriate notification to the local and/or state mandated excavation permit office(s), as required by state law, and we will not perform excavations without an understanding of the subsurface utilities present based upon markings made by the various responsible parties. However, such utility location services only delineate subsurface utilities in public easements, and the potential to encounter other, unknown underground hazards remains. Also, we are not aware of environmental concerns at this project site that would create health or safety hazards associated with our exploration program. Our scope considers that standard Type D Personal Protection Equipment (PPE) is appropriate.

Proposal for Geotechnical Engineering Services

Hayesmount Road Pavement Rehabilitation ■ Adams County, Colorado

April 19, 2018 ■ Terracon Proposal No. P25185115



In the event that suspected environmental impacts are observed or encountered during the field exploration, the Client will be notified. The potential of environmental impact to field program represents a change in condition for the project. The environmental services related to continuing the field exploration are not included in this scope or services. Terracon is available to provide these services as a supplement to this proposal.

Engineering and Project Delivery

Results of our field and laboratory programs will be evaluated by a professional engineer. The engineer develops a geotechnical site characterization, performs the engineering calculations necessary to evaluate pavement alternatives, and develops appropriate geotechnical engineering design criteria for earth-related phases of the project.

Following the completion of the field exploration, we will organize a conference call with Adams County to summarize the preliminary findings and discuss the pavement rehabilitation options to be considered in our analysis that could include full reconstruction, mill and overlay, mill and inlay, and in-place recycling. We will analyze and provide recommendations for two of the selected options in our report.

Your project will be delivered using our [GeoReport](#) system. Upon initiation, we provide you and your design team the necessary link and password to access the website (if not previously registered). Each project includes a calendar to track the schedule, an interactive site map, a listing of team members, access to the project documents as they are uploaded to the site, and a collaboration portal. A typical delivery process includes three basic stages:

- Stage 1: Project Planning
- Stage 2: Site Characterization
- Stage 3: Geotechnical Engineering

When utilized, a collaboration portal documents communication, eliminating the need for long email threads. This collaborative effort allows prompt evaluation and discussion of options related to the design and associated benefits and risks of each option. With the ability to inform all parties as the work progresses, decisions and consensus can be reached faster. In some cases, only minimal uploads and collaboration will be required, because options for design and construction are limited or unnecessary. This is typically the case for uncomplicated projects with no anomalies found at the site.

When services are complete, we upload a printable version of our completed final geotechnical engineering report, including the professional engineer's seal and signature, which documents our services. Previous submittals, collaboration, and final report are maintained in our system

Proposal for Geotechnical Engineering Services

Hayesmount Road Pavement Rehabilitation ■ Adams County, Colorado

April 19, 2018 ■ Terracon Proposal No. P25185115



indefinitely. This allows future reference and integration into subsequent aspects of our services, as the project goes through final design and construction.

The final geotechnical engineering report provides the following:

- Subsurface exploration procedures.
- Subsurface soil/bedrock conditions.
- Groundwater level observations.
- Boring location plan and computer-generated boring logs with soil stratification based on visual soil classification and laboratory testing.
- Engineering geology plan sheets.
- Laboratory test data.
- Earthwork recommendations including excavations, grading, fill placement and compaction, subgrade preparation, and dewatering (if needed).
- Conceptual recommendations for pavement rehabilitation, pavement thickness design, and recommended specifications for planned pavement areas if replacement is merited. Pavement design will be performed in accordance with the latest CDOT M-E Pavement Design Manual. Our scope considers two rehabilitation options will be analyzed. A life cycle analysis of the pavement is excluded from our scope and can be performed for an additional fee.
- Photographic summary of observed pavement distresses.

EXHIBIT C - COMPENSATION AND PROJECT SCHEDULE

Compensation

Based upon our understanding of the site, the project as summarized in **Exhibit A**, and our planned scope of services outlined in **Exhibit B**, our base fee is shown in the following table:

Task	Lump Sum Fee
Geotechnical Engineering Services	\$36,500

Unless instructed otherwise, we will submit our invoice(s) to the address shown at the beginning of this proposal. If conditions are encountered that require scope of services revisions and/or result in higher fees, we will contact you for approval, prior to initiating services. A supplemental proposal stating the modified scope of services as well as its effect on our fee will be prepared. We will not proceed without your authorization.

Additional follow-up consultation services are beyond the scope of this proposal and would be charged at a rate of \$125.00 per hour for a Project Engineer and \$165.00 per hour for a Senior Project Engineer. We will obtain your specific authorization prior to providing any additional services.

Project Schedule

The table below summarizes our proposed schedule. The dates listed are contingent on receiving full notice to proceed (NTP), permit approvals, and information from Adams County on the dates shown. Adjustments to the schedule will be required if the dates vary from that shown below. While some allowance for holiday schedules will be required if the NTP date changes, we estimate approximately 25 calendar days from full NTP to delivery of our draft report.

Proposal for Geotechnical Engineering Services

Hayesmount Road Pavement Rehabilitation ■ Adams County, Colorado

April 19, 2018 ■ Terracon Proposal No. P25185115



Item	Due Date and Time	Notes
Notice to Proceed	04/20/2018 12:00 p.m.	Assumes full authorization to proceed
ROW Permit Application Submission	04/24/2018	
ROW Permit Approval from Adams County to Terracon	04/25/2018 12:00 p.m.	
Traffic Data and Growth Rate from Adams County to Terracon	04/25/2018 12:00 p.m.	
Field Exploration Complete	05/02/2018	
Conference Call to Review Results of Exploration	05/04/2018	
Draft Report	05/25/2018	
Final Report	1 week after receipt of comments	Assumes single set of review comments will be provided

EXHIBIT D - SITE LOCATION

Hayesmount Road Pavement Rehabilitation ■ Adams County, Colorado
April 19, 2018 ■ Terracon Proposal No. P25185115

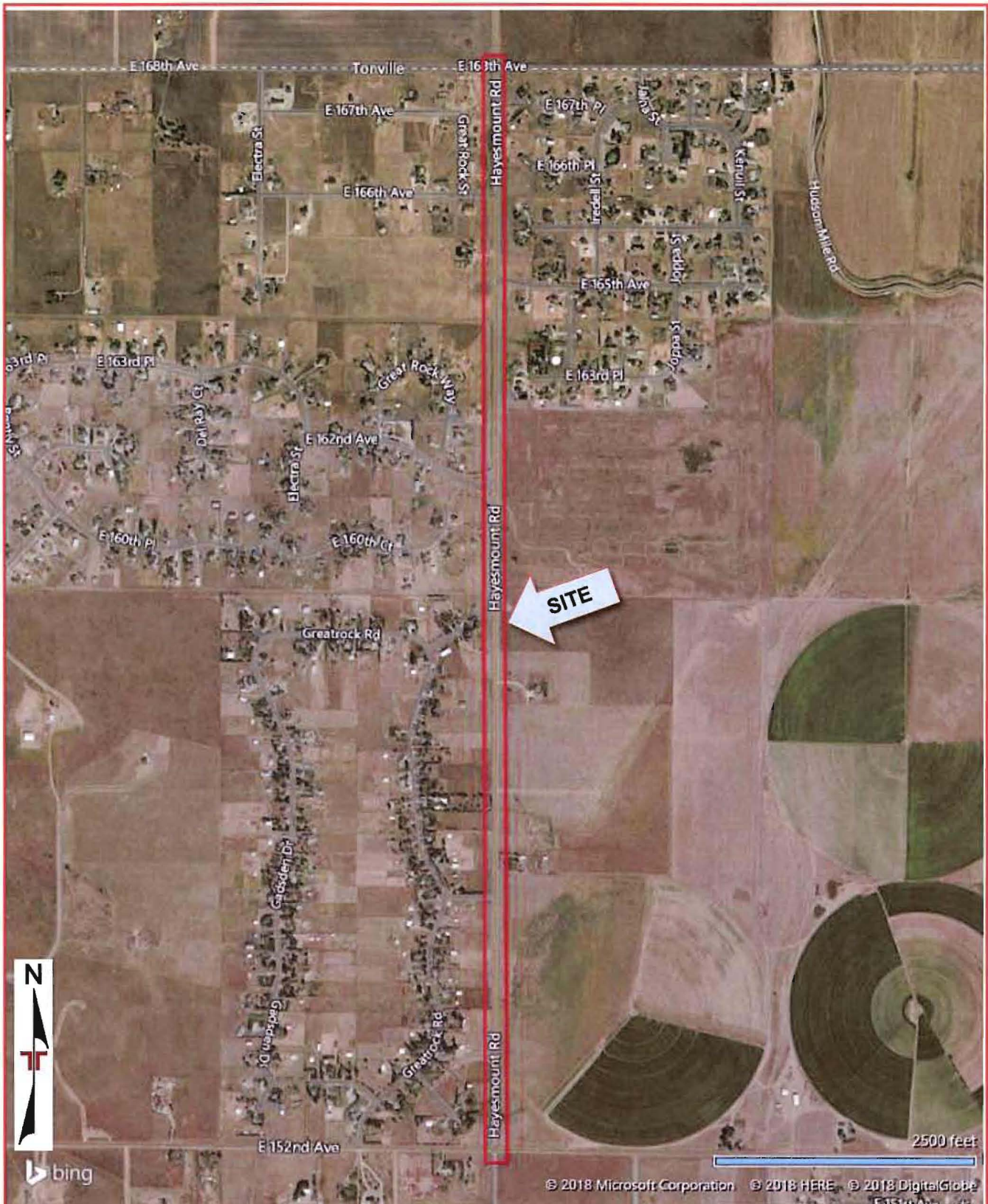


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

MAP PROVIDED BY MICROSOFT BING MAPS

GROUND

ENGINEERING

April 17, 2018

Subject: Proposal for Professional Services,
Geotechnical Evaluation, **Hayesmount Road
Improvements from 120th Avenue to 152nd
Avenue**, Adams County, Colorado.

Proposal Number 1802-0661

Mr. Gordon Stevens
Adams County Department of Public Works
4430 South Adams County Parkway
1st Floor, Suite W2000B
Brighton, Colorado 80601

Dear Mr. Stevens:

Ground Engineering Consultants, Inc. (GROUND) is pleased to submit a proposal to conduct a geotechnical evaluation in support of the design of the proposed improvements to Hayesmount Road in Adams County, Colorado. We understand that current plans call repaving of a 4-mile reach of Hayesmount Road between 120th Avenue and 152nd Avenue. We assume that grade changes will be relatively limited, on the order of 3 feet or less. We also understand that no new travel lanes, new utilities, or new structures (e.g. bridges, box culverts, or retaining walls), save for relatively minor drainage improvements are planned for construction.

Based on provided information and our experience with similar projects, we propose the following:

Scope of Service

- Notify UNCC of our proposed test hole locations so that public utilities may mark their lines near them.
- Retain a traffic control services contractor to perform traffic control services for our drilling.

**Hayesmount Road Improvements from 120th Avenue to 152nd Avenue
Adams County, Colorado**

- Drill a total of 43 test holes at locations to be determined by GROUND in the existing roadway alignment and will be spaced approximately 500 feet apart, as utilities and site access allows. The test holes will be drilled to evaluate the subsurface soil profile and to obtain samples for laboratory testing. We anticipate that test hole depths will be approximately 5 to 10 feet below existing grade. Final depths of the test holes may vary in the field as exploration progresses and as the subsurface soil profile becomes evident.

In GROUND's experience, a test hole spacing of 500 feet is appropriate for a rural road in this geologic setting. However, if a test hole spacing of 250 feet is required, GROUND can add the appropriate number of test holes to our scope. This option is discussed further in the *Additional Option Services* section of this proposal.

- Conduct a laboratory testing program to evaluate relevant engineering characteristics of the materials encountered in the test holes.
- Analyze the results of the field and laboratory studies to develop geotechnical conclusions and parameters regarding pavement section alternatives, remedial earthwork, excavation conditions, and drainage.
- Prepare a report summarizing the data obtained, and present our conclusions and geotechnical parameters. An electronic copy (PDF format) of the report will be provided. Hard/paper copies are available upon request.

Fees

We can complete the above scope of service for a lump sum fee of **\$11,500**. This fee includes the cost of the drilling contractor and traffic control services contractor.

This fee assumes normal work day (Monday to Friday) operations. Additional fees may apply for night, weekend, and/or holiday work.

Additional Optional Services: GROUND will not proceed with additional optional services without your prior approval and authorization. Additional Services anticipated for this project may include:

- ***Additional Test Holes:*** If a test hole spacing of 250 feet is required for this project (i.e., by MGPEC specifically), GROUND can drill an additional 42 test holes to achieve that test hole spacing. This service is **estimated to be \$7,500** in addition to the fees above.

**Hayesmount Road Improvements from 120th Avenue to 152nd Avenue
Adams County, Colorado**

If additional services are required beyond the scope of services outlined above, we propose that our fees for the additional services be in accordance with the hourly and unit costs presented in the *Fee Schedule* (page 5 of this proposal).

Exclusions

- We assume that the alignment will be accessible to a conventional, truck-mounted drilling rig.

Our scope does not include snow removal, construction of access routes or drilling pads or any other measures necessary to obtain physical or legal access to the test hole locations.
- Neither does our scope include fees associated with obtaining permits to complete our field services or to respond to municipal or other agency review of our report.
- We have assumed that the test hole locations and elevations will be surveyed by others on the project team, if necessary. GROUND can provide a cost estimate for surveying upon request.
- Some damage to pavements, landscaping, etc. is inherent to the requested geotechnical drilling. GROUND will backfill the test holes with auger returns, patch paved areas with 'cold patch' asphalt or grout, and generally leave the site reasonably clean. Additional site restoration including, but not limited to, more extensive site clean-up, restoring ruts in landscaped areas, replacing cracked curbs or flatwork, more elaborate pavement repairs, etc., are outside of our scope of services. GROUND can provide such services as 'additional services' as discussed above.
- All environmental services have been excluded from this scope of services.

Schedule

We propose to initiate the subsurface exploration program within 3 days of being given notice to proceed. We anticipate that preliminary information will be available within 2 to 3 weeks after notice to proceed, and the final report should be completed approximately 4 to 5 weeks after notice to proceed. GROUND will attempt to adhere to this schedule; however, this remains dependent upon favorable weather conditions, site access and buried utility locations. In any event, we will notify you of our progress and pertinent information, as it becomes available.

**Hayesmount Road Improvements from 120th Avenue to 152nd Avenue
Adams County, Colorado**

Authorization

Please review the *General Conditions* (page 6 of this proposal), which contain a limitation of GROUND's liability. Also, note that GROUND reserves the right to alter the work scope items if deemed necessary and withhold data and reports until we have received a signed proposal.

If you have any questions, concerns, or comments regarding this proposal, please contact this office. The proposal remains valid for 90 days from the above date. If this proposal meets your approval, return a signed copy to GROUND. We will execute it and return a copy to you. We appreciate this opportunity to work with you on this project.

Sincerely,

GROUND Engineering Consultants, Inc.

Ben Fellbaum, P.G.

Agreed to this _____ day of _____, 2018

Adams County Department of Public Works by: _____

Please print name

GROUND Engineering Consultants, Inc. by: _____

Please print name

GROUND ENGINEERING

FEE SCHEDULE - ENGINEERING SERVICES

2018

FIELD INVESTIGATION

All Engineering Services require a project-specific proposal

Truck Mounted Drill Rig w ith 2-Man Crew	
• Solid Stem Auger (hourly)	\$135 - \$170
• Hollow Stem Auger (hourly)	\$155 - \$200
• Wireline Coring	Quote
• ODEX, Rotary, Sonic Drilling	Quote
Track Mounted, All-Terrain, Limited Access Drill Rigs, & Drill Rig Support Equipment	Quote
• Water Truck, Support Truck, Hydro-Vac Truck (daily)	\$150 - \$350
Excavator / Backhoe	Quote
Standby Time	Hourly Rate

• Principal Engineer (hourly)	\$185.00
• Senior Project Manager, Engineer, Geologist (hourly)	\$150.00
• Project Engineer, Geologist (hourly)	\$110.00 - \$125.00
• Project Manager	\$95.00
• Field / Staff Engineer (hourly)	\$85.00
• CAD Technician (hourly)	\$75.00
• Special Consultation/Expert Testimony and Court Appearance	Quote
• Mobilization	Quote
• Per Diem / M & IE	GSA Rates

MISCELLANEOUS

• Equipment Rental	Cost + 20%
• Outside Laboratory Services	Quote
• Out-of-town living expenses, commercial travel costs, equipment rental, etc.	Quote
• File Dynamic Analysis, Ground Penetrating Radar, Cross Hole Sonic Logging, Sonic Echo, Falling Weight Deflectometer	Quote

• Environmental Drilling, Sampling, Analysis	Quote
• Personal Protective Equipment (PPE)	Quote
• Vibration Monitoring/Geotechnical Instrumentation Services, Thermal Conductivity and Resistivity	Quote
• Retaining Wall Design, Shoring Design, Seepage Analysis, Slope Stability Analysis	Quote

LABORATORY TESTING

Natural Density and Moisture Content	\$15.00
Atterberg Limit (ASTM D 4318)	\$65.00
Specific Gravity (ASTM D 854)	\$65.00
Relative Density (ASTM D 2049)	\$200.00
Gradation Analysis (ASTM D 422)	
a. All Standard Sieve to #200 Sieve	\$60.00
b. Percent Less Than #200 Sieve	\$35.00
c. Gradation with Hydrometer	\$135.00
Sw ell-Consolidation	\$65.00
Soil Suction	\$60.00
Proctor - Standard Compaction (ASTM D 698)	\$100.00
Proctor - Modified Compaction (ASTM D 1557)	\$110.00
Unconfined Compressive Strength	
a. Soil (ASTM D 2166)	\$45.00
b. Rock	Quote
Direct Shear (3-Point)	
a. Quick Test	\$450.00
b. Consolidated-Drained (ASTM D 3080)	\$650.00
c. Consolidated-Drained - CH Soil (ASTM D 3080)	Quote
Triaxial Shear	
a. Unconsolidated-Undrained (Quick Test)	\$600.00
b. Consolidated-Undrained (R-Test)	Quote
c. Consolidated-Drained (S-Test)	Quote

Permeability	
a. Falling or Constant Head, 2-4" Diameter	\$250.00
b. Triaxial Permeability	\$375.00
Time-Consolidation (ASTM D 2435)	\$400.00
California Bearing Ratio (ASTM D 1883), 1-Point	\$150.00
California Bearing Ratio (ASTM D 1883), 3-Point	\$350.00
"R" Value (ASTM 2844)	\$350.00
Resilient Modulus (per point)	\$750.00
Los Angeles Abrasion Test	\$150.00
Soil Stabilization Mixture Analysis	Quote
Sulfate Soundness (ASTM C 88)	\$200.00
Fractured Faces Test	\$60.00
Flat or Elongated Particles (D 4791)	\$60.00
Corrosivity Testing	
a. Water-Soluble Sulfates	\$50.00
b. pH Test	\$50.00
c. Reduction/Oxidation Potential (Redox)	\$40.00
d. Sulfide Content	\$50.00
e. Soil Resistivity (Direct Measurement Method)	\$40.00
f. Soil Resistivity (Soil Box Method)	\$95.00
Organic Content	\$65.00

**Hayesmount Road Improvements from 120th Avenue to 152nd Avenue
Adams County, Colorado**

GENERAL CONDITIONS

INTENT OF SERVICES: The services and any subsequent analysis and reporting performed by the Consultant under this agreement are intended to assist the Client in planning and/or designing the project. Any exploration, testing, and/or analysis associated with the services will be performed by Consultant solely to fulfill the purpose of this agreement. Any changes in project plans or schedule, referenced within Consultant's reporting, should be brought to the attention of the Consultant, in order that provided geotechnical information be re-evaluated and, as necessary, modified.

Any geotechnical conclusions and information in Consultant's reporting will rely upon subsurface exploration at a limited number of exploration points, as well as the means and methods described. The Client must accept that subsurface conditions are interpolated between and extrapolated beyond these locations and it is not possible to guarantee the subsurface conditions are as indicated. Actual conditions exposed during any subsequent construction may be expected to differ from those encountered during site exploration. Additional exploration and laboratory analysis can always be performed to further evaluate a particular site's subsurface condition, albeit at additional time and cost. The Consultant is available to discuss the benefits of additional geotechnical evaluation with the Client. Our scope of services reflected the Client's preferences, objectives, budget, and schedule as understood by GROUND at the time of proposal preparation. The resultant information provided may not be sufficient for use by other parties or other purposes. In the event the Client or any user of Consultant's reporting does not fully understand the risks associated with the earth conditions at the project site and the acceptance of responsibility to manage/mitigate these risks, Consultant encourages he contact a company principal for further assistance.

A contractor who relies upon Consultant's reporting for development of his scope of work or cost estimates may find the geotechnical information to be inadequate for his purposes or find the geotechnical conditions described to be at variance with his experience in the greater project area. The contractor is responsible for obtaining the additional geotechnical information that is necessary to develop his work scope and cost estimates with appropriate precision.

ALL DEVELOPMENT CONTAINS INHERENT RISKS. It is important that ALL aspects of Consultant's reporting, as well as the estimated performance (and limitations with any such estimations) of proposed project improvements are understood by the Client, Project Owner (if different), and properly conveyed to any future owner(s). Utilizing reported information/parameters for planning, design, and/or construction constitutes understanding and acceptance of the information/parameters provided, potential risks, estimates of improvement performance, as well as the limitations inherent within such estimations.

Evaluation/identification of hazardous/contaminated materials that may be present, is not included in Consultant's scope of services unless otherwise indicated. Client/Owner must inform Consultant to the presence of hazardous/contaminated materials, known to him, prior to performance of any subsurface exploration.

Consultant's proposed fees do not include post-report consultation, unless otherwise specified in proposal. In the event of difficult site access, postponement, or termination of our services for any reason after notice to proceed has been provided by Client, cost incurred will be charged in accordance with hourly and unit rates as indicated on the Engineering Fee Schedule. Additional staff consultation services requested following issuance of any report will be billed at rates as indicated above. These fees will be billed accordingly without further notice. Consultant will not proceed with any additional field-related services (drilling, utility locates, etc.) without Client's prior written authorization.

INVOICES: Consultant will submit progress invoices to Client monthly and a final bill upon completion of the services. Invoices will show charges for different personnel and expense classifications. Each invoice is due on presentation and is past-due thirty (30) days from invoice date. Rates quoted in this proposal reflect a 3% cash/check discount. Pricing will be adjusted to remove this discount in the event client prefers to pay by credit card. Client agrees to pay a finance charge of one and one-half percent (1.5%) per month, or the maximum rate allowed by law, on past-due accounts. Should Consultant bring suit to recover past due payment for services rendered to Client, Consultant shall be entitled to recover all costs of collection, including reasonable attorneys' fees.

SAMPLES: All samples of soil and rock will be discarded thirty (30) days after report submittal. Upon Client's request and written authorization, samples will be delivered in accordance with Client's instructions, or stored, for an agreed charge.

RIGHT-OF-ENTRY: Unless otherwise agreed, Client will furnish right-of-entry for Consultant and Consultant's Subconsultants/Subcontractors to make borings, surveys and/or conduct other surface or subsurface explorations. Consultant and its Subconsultants/Subcontractors will take reasonable precautions to reduce damage to property. However, cost of restoration or damage that may result from field operations is not included in the fee unless otherwise stated.

UTILITIES: Consultant's team will notify public utilities through the Utility Notification Center of Colorado (UNCC). Consultant will not be liable for damage to any private underground facility (any "item of personal property" which is buried or placed below ground for use in connection with the storage or conveyance of water or sewage, electronic, telephonic, or telegraphic communications or cable television, electric energy, or oil, gas, or other substances). "Item of personal property" includes, but is not limited to, pipes, tanks, irrigation, sewers, conduits, cables, valves, lines, wires, manholes, and attachments thereto. Owner must locate any of the private, on-site facilities. This requirement is in accordance with Section 2 of Title 9 Article 1.5-103 of the Colorado Revised Statutes and is formal written notice requesting the locates for any privately-owned facilities under Owner's control.

REPORTS: Reports, plans and other work prepared by Consultant remain the property of Consultant until all fees for Consultant's services have been paid. Client agrees that all reports and other work furnished to the Client and his agents not paid for will be returned upon demand, and will not be used for licensing, permits, design and/or construction. If any information provided in such reports is used for the design and/or construction of the project or anything else at the subject site, GROUND is indemnified by the user with regard to professional and general liability.

USE OF ELECTRONIC OR OTHER SUPPLIED DATA: Electronic documents, site plans, or other information provided to Consultant for the subject project may be used in compiling geotechnical, environmental, or construction-related reports for the subject project. It is the responsibility of the owner or supplier of such documents to ensure that our use does not violate any copyright or confidentiality that may be pertinent to the supplied information.

LIMITATION OF LIABILITY: Consultant agrees in connection with geotechnical engineering, engineering geology, and related services performed under this Agreement that such services are performed with the care and skill ordinarily exercised by members of the profession practicing under similar conditions at the same time and in the same or a similar locality. No warranty, expressed or implied, is made or intended by rendition of consulting services or by furnishing oral or written reports of the findings made. The economic or technical performance of any project cannot be guaranteed in any respect. Liability of Consultant or Subconsultant(s) for damages due to or arising from professional negligence, breach of contract, or any cause of action, shall be limited to the Consultant's fee for this project.

CORPORATE PROTECTION: It must be agreed to by all parties affiliated with this agreement that the services provided by the Consultant that are in any way connected to this project shall not connect Consultant's employees, owners, directors, or officers to any personal exposure for risks associated with any portion of this project. Therefore, and notwithstanding anything to the contrary that may be contained herein or in any other document related to this project, the Client, future owners, future users, and/or any other trade or professional, agrees that as the sole and exclusive remedy for any claim, demand, or suit shall be directed and/or asserted against the Consultant, a Colorado Corporation, and not against any of Consultant's employees, owners, officers, or directors.

STANDARD OF CARE: In providing its services, Consultant shall perform in a manner consistent with that degree of care and skill ordinarily exercised by members of Consultant's profession practicing under the same or similar circumstances.

DEFECTIVE EQUIPMENT: Consultant cannot be held liable for any costs affiliated with defective equipment (regardless of the cause of such defects) because such defects are beyond our control. By utilizing our services with respect to this project, the client specifically indemnifies Consultant and it's officers, principals, employees, and agents of any and all costs affiliated with any defect in the equipment and understand that their sole recourse with regard to defective equipment (including that which may have been caused inadvertently during installation) is that which is provided by the manufacturer.

