REQUEST AUTHORIZATION FOR MAYOR AND FINANCE OFFICER TO SIGN PROFESSIONAL SERVICES AGREEMENT OR AMENDMENT
Date: August 31, 2018

Project Name & Number: Rushmore Plaza Civic Center Arena Expansion / Pro No. 2452

Project Description: Boundary, Topographic Survey and Geo-technical Investigation

Consultant:
Original Contract Amount: $27,480.00
Original Contract Date: 6/13/18
Original Completion Date:

Addendum No: 1
Amendment Description: Geo-technical Investigation for RPCC Arena Expansion

Current Contract Amount: $27,480.00
Change Requested: $19,770.00
New Contract Amount: $47,250.00

Funding Source This Request:

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<th>Amount</th>
<th>Dept</th>
<th>Line Item</th>
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<td>101</td>
<td>Vision Funds</td>
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<td>$19,770.00</td>
<td>Total</td>
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Agreement Review & Approvals

Project Manager: 8-31-18
Compliance Specialist: 8-31-18
City Attorney: 8-30-18
Division Manager: 8-30-18
Department Director: 8-31-18

ROUTING INSTRUCTIONS
Route two originals of the Agreement for review and signatures.
Finance Office - Retain one original
Project Manager - Retain second original for delivery to Consultant
cc: Public Works
Engineering
Project Manager

FINANCE OFFICE USE ONLY
(Note to Finance: Please write date of Agreement in appropriate space in the Agreement document)

Authorization Date: 8/31/18
Initiate: Y
Approved: N

1099A Authorization for Mayor & Finance Officer to Sign
Rev. 03/2009
AMENDMENT NO. 1 TO AGREEMENT

Project: Rushmore Plaza Civic Center Arena Expansion
         Project #2452

Background Data:
Original Contract Date: 6/13/18
Owner: City of Rapid City
Consultant: FMG, Inc.

Nature of Amendment:
Geo-technical Exploration for RPCC Arena Expansion

Current Contract Amount: $27,480.00 (topographical survey)

Change Requested: $19,770.00 (geo-technical exploration)

New Contract Amount: $47,250.00

Owner and Contractor hereby agree to modify the above referenced Agreement as set forth in this Amendment. All provisions of the Agreement not modified by this or previous Amendments remain in effect. The effective date of this Amendment is:


CITY OF RAPID CITY

By: ________________________________
    Mayor
Date: ______________________________

ENGINEER

By: ________________________________
Date: ______________________________

ATTEST:

By: ________________________________
    Finance Officer
Date: ______________________________
August 30, 2018

Mr. Rod Johnson, PE
City of Rapid City
300 6th Street
Rapid City, SD 57701

Re: Amendment 1 to Boundary and Topographic Survey Contract
Rushmore Plaza Civic Center Arena Expansion Project No. 2452

Dear Mr. Johnson:

FMG is pleased to submit this amendment to our existing Boundary and Topographic Survey Contract for the Rushmore Plaza Civic Center Arena Expansion Project. The scope of work for this amendment includes geotechnical services.

Based on discussions with the design team and a geotechnical scope of work provided by Martin/Martin, we understand the proposed arena expansion will be located on the west to northwest side of the existing Barnett Arena. The structure is anticipated to be 4 stories, all above grade. Maximum column dead loads are anticipated to be approximately 800 kips with a maximum column live load of approximately 1,200 kips. Project structural engineers, Martin/Martin, have provided a geotechnical scope of work including the suggested borehole locations.

A geotechnical evaluation of the project site is required to determine the geotechnical conditions and provide geotechnical design parameters and recommendations for construction. This proposal outlines our project approach and costs to provide these services.

Task 1 – Project Management and Coordination

FMG will assign a Project Manager who will act as the primary client contact, coordinate and direct the primary project tasks, interface with the internal project engineers and geologists, attend meetings and interface with other primary project consultants, maintain the project information, and oversee the project schedule and budget.

The Project Engineers and Geologists will be responsible for the primary field and laboratory work execution, analysis and coordination, and final report production.

For this project the primary project team is anticipated to be as follows:

Project Manager: Alex Fisher, PE
Project Engineer: Jason Hinds, PE

Specific resume’s and related project experience for these individuals can be provided upon request.
Task 2 - Geotechnical Exploration

To evaluate the existing soil conditions and determine the appropriate geotechnical design parameters, the following field exploration is planned per the provided geotechnical scope of work and associated borehole location map:

- Eleven (11) borings will be performed within the proposed building footprint. The borings will be drilled to depths on the order of 50 to 60 feet or to auger refusal.
- Field testing will be performed, and samples will be extracted for further laboratory analysis.

Assumptions:
- FMG, Inc Geologist will log the borholes.
- Auger drilling methods will be utilized.
- Sampling will consist of SPT and Shelby Tube (thin wall tube).
- Fill materials, soft or otherwise unsuitable bearing soils at depth may require additional borehole depth.
- Boreholes will terminate where hard bedrock or heavy alluvium prevents advancement of the borehole via conventional auger drilling techniques.
- Borehole locations will be as close as possible to indicated on the provided borehole location map.
- Existing utilities, terrain, and related site access may dictate actual boring locations.
- Right of entry and physical site access is provided for conventional two-wheeled drive vehicles.

Task 3 - Laboratory Testing

Select soil samples will be tested in our laboratory to determine their general classification, physical properties, and engineering characteristics. The following tests are planned to provide the required geotechnical parameters. The testing will be completed in accordance with applicable ASTM testing procedures.

Assumptions:
- Natural Moisture Content and Density.
- Standard Sieve Analysis.
- Atterberg Limits.
- One dimensional consolidation/swell Testing.
- Direct Shear Strength Testing.
- Unconfined Compressive Strength Testing.
- Other specific laboratory tests may be performed as necessary for the soil types encountered.

Task 4 - Report Preparation

Upon completion of the field and laboratory testing and our analysis, a report will be prepared that transmits the boring logs and field data and laboratory results, provides a limited geologic analysis of
the area, and provides our recommendations for foundation and pavement section design. In general, our recommendations will include the recommended foundation type and design parameters, subgrade preparation techniques and appropriate pavement section. The report will also include the general and site-specific construction recommendations that we consider applicable, including groundwater and excavation conditions.

Task 4 also includes the following additional items, per the Martin/Martin scope of work:

- Contour map of the bedrock surface.
- Review of the earthwork and foundation specification sections during the design phase for geotechnical considerations.
- Consultation and coordination with the design team to provide clarifications as necessary during the design phase.

Supplemental Geotechnical Information

As project concepts have advanced, supplemental geotechnical information is now required by the project design team for project features not fully developed at the time of our initial geotechnical scoping. Specifically, the following information is requested at this time:

1. Additional parameters for passive pressure at the pile caps,
2. Tensile or uplift skin friction for the piles,
3. Analysis of potential pile modifications to achieve 100-ton allowable pile capacities,
4. Additional geotechnical boreholes and analysis to support the design of excavations and shoring along North Street and 8th Street.

Outlined below, Tasks 5 to 7 describe our project approach and costs to provide these services.

Task 5 – Additional Geotechnical Parameters and Pile Analysis

The existing geotechnical field and laboratory data gathered will be sufficient to support the analysis and development of the requested parameters. FMG will use this data to develop the passive pressures and skin friction values for the piles. For the pile analysis, FMG will utilize the GRL WEAP software to determine the feasibility of 100-ton piles and the potential modification options required to achieve the 100-ton allowable capacity. The additional parameters and findings of the analysis will be presented in a supplemental geotechnical report.

Task 6 – Additional Geotechnical Exploration and Analysis for Excavations and Shoring

To develop supplemental recommendations for the excavation and shoring at the northwest corner of the arena, we proposed to drill 4 boreholes in accessible areas along North Street and 8th Street. The additional boreholes will provide information about the geometry of the subsurface conditions in the area to be excavated, and behind the potential cut slopes. From this information, detailed geotechnical parameters can be developed and various shoring options can be analyzed. FMG will perform laboratory testing on soil samples collected from the boreholes, develop geologic sections of the subject area, and provide our recommendations for excavation and shoring in the supplemental geotechnical report.
Task 7 – Additional Geotechnical Consultation and Project Support

Task 7 is for additional geotechnical consultation and project support as designs advance. This may include assistance with interpretation of geotechnical information and it relates to structural and civil design, plan and specification review for compliance with geotechnical recommendations, and other meetings or geotechnical consultation as necessary.

Fees

We propose to complete the scope of work described herein as outlined below. We will not exceed the cost estimate without justification, and prior approval.

Tasks 1 through 4 – Geotechnical Evaluation ................................................................. $12,500.00
Task 5 – Add. Geotech Parameters and Pile Analysis (lump sum, includes tax) ............... $2,800.00
Task 6 – Add. Geotech Expl. and Analysis for Ex. And Shoring (lump sum, includes tax) . $2,850.00
Task 7 – Add. Geotech Consultation and Project Support (time and materials, $135/hr)
Assume 12 hrs for max limiting fee................................................................. $1,620.00
Total:.............................................................................................................$19,770.00

If you have any questions, or desire any additional information, please call us at your earliest convenience. Thank you for the opportunity to be of continued service.

Respectfully submitted,

FMG Engineering

[Signature]

Alex Fisher, P.E., G.E.

c: J:\Marketing\Proposals\Geotech