



VIVID Engineering Group, Inc.

1053 Elkton Drive, Colorado Springs, CO 80907

September 14, 2023

Tori Mack, PE
Matrix Design Group, Inc.
2435 Research Parkway, Suite 300
Colorado Springs, Colorado 80920
tori.mack@matrixdesigngroup.com

Subject: Proposal for Additional Services (Final Geotechnical Engineering & Construction Support Services)

Project: Creek Channel Restoration – Fountain Creek at Southmoor Drive, Fountain, Colorado

Proposal No: D23-2-671

Dear Ms. Mack:

Vivid Engineering Group, Inc. (VIVID) performed a geotechnical evaluation of the existing site conditions that was summarized in a previously provided report (VIVID Project No. D23-2-589, dated May 19, 2023) to support preliminary design efforts. The final design approach for the project includes constructing a reinforced soil slope (RSS) to effectively buttress/stabilize the existing near vertical cut bank on the southeast edge of fountain creek that is threatening the stability of Southmoor Drive and the underlying utilities. This cut bank is on the order of 50 feet high adjacent to Southmoor Drive.

SCOPE OF SERVICES

Additional Engineering Services

VIVID will now perform the additional structural engineering for the RSS slope design. The main elements will include:

- 1) Engineering of the RSS system utilizing ReSSA+ software. This will be performed based on the planned imported materials and will specify the type, length, vertical frequency of the geogrid reinforcement as well as additional supporting elements that may be needed such as riprap toe buttress, back-drain system, etc.
- 2) Coordination with the surface erosion control system manufacturer and its integration with the RSS system to ensure the systems are appropriate and compatible.
- 3) Provide support to Matrix for construction plans and specifications related to the RSS and surface erosion control system.

Construction Support Services

VIVID will perform construction inspection and testing services during construction of the cut bank fill (RSS system and installation of its surface erosion system). We understand part time inspection/testing may be needed for other project elements as well. While final plans are underway and construction schedule is only assumed at this time, we are **estimating 6 weeks of a full-time inspector/tester, laboratory testing, and construction engineering support**. The level of effort will be adjusted to accommodate full time versus part time needs.

FEE ARRANGEMENT

For the proposed geotechnical evaluation presented above, we propose the fixed fee shown below.

Geotechnical Engineering Services

RSS Engineering	\$ 8,400.00
Erosion Control System Manufacturer Coordination	1,600.00
Support Matrix with RSS Specific Plans, Details, and Specifications	<u>5,500.00</u>
Total Geotechnical Fee	\$ 15,500.00

Construction Support Services

Full-Time Inspector/Tester, Lab Testing, Const. Engineer (6 week duration)	\$ 28,690.00
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TOTAL FEE ESTIMATE (ENGINEERING & CONSTRUCTION)	<u>\$ 44,190.00</u>
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VIVID's services will be performed in accordance with a Standard Subcontract for Consultant Services with Matrix. A signed copy of the contract, returned to this office, will serve as our formal authorization to proceed with this project. Your signed authorization will document your concurrence with the presented scope of services, assumptions, exclusions, clarifications, schedule, fees, and limitations. Please email your authorization to wbarreire@vivideg.com

ADDITIONAL SERVICES

As part of our Geotechnical Engineer-of-Record services, please be aware that the recommendations will be contingent upon VIVID being retained to provide observation and testing services during construction. Proper geotechnical observation and testing during construction is imperative in allowing the Geotechnical Engineer the opportunity to compare the soil conditions encountered during our exploration with those exposed during construction, and to monitor the work for conformance with our recommendations.

LIMITATIONS

VIVID shall perform its services consistent with the professional skill and care ordinarily provided by engineering firms practicing in the same or similar locality under the same or similar circumstances. VIVID shall perform its services as expeditiously as is consistent with such professional skill and care and the orderly progress of the project. VIVID makes no guarantee or warranty regarding the services, communications, report, opinion, or instrument of service provided.

This proposal is valid for a period of 60 days from the date of this proposal. Should Matrix have any questions concerning the scope, fee, assumptions or other information provided within this proposal, please contact the undersigned at 719.896.4356.

Sincerely,

A handwritten signature in cursive script that reads "William J. Barreire".

William (Bill) J. Barreire, PE
Senior Geotechnical Engineer