MEMORANDUM STATE OF ALASKA

Department of Transportation and Public Facilities

To: Joel G. St. Aubin, P.E.
Contracting Officer
Construction Engineer, Central Region

Date: August 25, 2020

Thru: Sharon Smith, P.E.
Chief of Contracts, Central Region

From: Jonathan Tymick, P.E.
Project Manager

Project No.: Z530140000
Project Name: Sterling Hwy MP 45-60:
Sunrise to Skilak Lake Rd

Subject: **Brand Specification Determination**

Introduction:
This is a request to allow the specification of proprietary items in the upcoming Sterling Hwy MP 45-60 Project. This request is for all phases of the Sterling Hwy MP 45-60 Project with an anticipated completion date of 2025.

The Geobrugg TECCO® Mesh System includes the following primary components:

- High-tensile steel wire mesh TECCO® G65/3
- Spike Plate P33/40N and P33/50N for high-tensile steel wire mesh TECCO®
- Connection Clip T3 for high-tensile steel wire mesh TECCO®

The estimated total cost of the components being requested for brand specification approval across all phases of the project is between $500,000 and $750,000. Total construction cost for all phases is estimated to be approximately $350,000,000.

Justification
There is a benefit for Maintenance to use the same product across multiple similar projects in the area based on familiarity with the product and compatibility of replacement parts.

ADOT&PF has successfully installed the TECCO System on several projects on the Alaska Highway System, and it will be used on the current Seward Highway Rockfall Mitigation project. It has proven to be an effective method for stabilizing steep granular soil slopes encountered in highway construction. For this project, the use of anchored wire mesh was chosen because it can be constructed from the top down as the slope is cut, and after installation vegetation will regrow through the mesh openings. Once vegetation becomes established, the system will become nearly invisible.

The TECCO System has several unique characteristics which make it the best choice for this project. The system components include spike plates, clips and a wire mesh which have been carefully designed to provide a unique combination of high strength, flexibility, and durability. Securing the mesh to the slope is accomplished by grouted anchors constructed with common materials which are independent of the TECCO System. The mesh is formed into a diamond shaped pattern with high tensile strength wire which can be stretched over sharp rock edges without sustaining damage. Several mesh opening sizes are available, allowing the product to be optimized to meet the site soil conditions. The diamond-shaped pattern allows the mesh to conform to irregular surfaces and distribute the soil load equally to adjacent anchors. To ensure the loads in the mesh can be fully transferred to the anchors, the TECCO system spike plates have been designed to distribute the anchor load to 16 mesh wires. The TECCO connection clips ensure full transfer of forces between mesh panels. All the system components are corrosion protected to ensure a long lifespan, minimizing maintenance provided the system has been correctly installed. The result is a system that is up to four times stronger than any other product with an equivalent opening size.

Overall strength equal to the TECCO System can be achieved with the use of cable-nets which are produced by several manufacturers. However, cable-nets are not ideally suited to the stabilization of soil slopes. The opening size of the nets is much larger, so it is necessary to place a layer of chain-link or double twisted wire mesh behind the net to retain the soil. Additionally, the cable nets are much less flexible then TECCO mesh making it difficult to conform the net to an irregular surface. The resulting voids can result in localized soil movement that can cause bulges and can lead to failures.

Determination

It is hereby determined that products identified herein are the only products to satisfy the state's needs, in accordance with 2 AAC 12.100 and department Policy and Procedure 10.02.050, and brand specifying them is approved for all phases of the Sterling Hwy MP 45-60 Project.

Submitted By: _____ 8/25/2020
Jonathan Tymick, P.E. Date
Project Manager

Recommended By: _____ 8/25/20.
Sharon L. Smith, P.E. Date
Chief of Contract, Central Region

Approved By: Joel G. St. Aubin Digitally signed by Joel G. St. Aubin Date: 2020.08.28 08:57:05 -08'00' _____
Joel G. St. Aubin, P.E. Date
Construction Engineer, Central Region