F. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT *(Present as many projects as requested by the agency, or 10 projects, if not specified. Complete one Section F for each project.)*	**20. EXAMPLE PROJECT KEY NUMBER** 1

21. TITLE AND LOCATION (City and State)	**22. YEAR COMPLETED**	
	PROFESSIONAL SERVICES	CONSTRUCTION *(if applicable)*
Masontown Bridge Replacement Greene and Fayette Counties, PA	2011	2014 est

23. PROJECT OWNER'S INFORMATION

a. PROJECT OWNER	b. POINT OF CONTACT NAME	c. POINT OF CONTACT TELEPHONE NUMBER
PennDOT – District 12-0 825 N. Gallatin Avenue Ext. Uniontown, PA 15401	Name: Roy Painter Email: ropainter@pa.gov	(724) 439-7357

General:

The existing 1,450-foot long 11-span bridge will be replaced with a 1,700 - foot long, seven-span, steel multi-girder bridge (currently under construction), which includes a 1,023-foot 3-span continuous section over the Monongahela River and Norfolk Southern Railroad. Construction of the new bridge requires two overall construction phases utilizing half-width construction. Phase I entails construction of the two westbound bridge lanes and Phase II entails construction of the two eastbound lanes. The multi-girder superstructure will accommodate two 12-foot wide eastbound and westbound lanes, which having 8-foot outside shoulders and a 4-foot inside shoulders. To avoid encroachment onto the Hatfield Power Plant property access road, Abutment 1 will be constructed as a full height abutment. Nine-foot diameter caisson shafts, without a cap will support the two river piers to avoid constructing costly oversized spread footings (and larger yet cofferdams) due to the weak bedrock. Advantages of using the large-diameter caissons, which continue up to form the pier columns, permit the deeper competent bedrock to take the load, minimize excavation to diameter of the four caissons, and provide support for the forms required to construct a continuous wall pier around the columns, as required for navigable river rivers. Subsequently, all foundations consisted of caissons, which have axial resistance provided by side shear in bedrock. In addition to the bridge structure, a 327-foot long by forty-foot high (maximum) earth-supporting wall structure adjacent to Abutment 2 is proposed.

Geotechnical:

Geotechnical engineering was required during the Design and Construction Phases. During the design phase, inspection and drilling coordination consisted of drilling structure borings on land and from a barge, as well as for roadway cut/fill construction along the approaches, and for pavement subgrade. Following the subsurface investigation: laboratory testing was ordered to determine the rock strength for over 100 feet of rock strata for caisson rock socket design; soil strength and classification testing for long-term and temporary cut slope evaluation along the approaches; density and CBR testing for subgrade evaluation; and water and soil testing was provided to determine the potential for corrosivity. Based on the subsurface investigation and laboratory testing results: analyses were performed to provide the unit rock socket resistance to determine minimum caisson length; stability of cut slopes for roadway widening and for temporary conditions behind the retaining wall; and for subgrade strength recommendations. Special provisions were created for the temporary shoring required for the bifurcated roadways due to phased construction, and for Drilled Caissons, which included Osterberg Cell (O-cell) testing to evaluate the resistance capacity of a sacrificial 8.5-foot diameter river Technique Shaft rock socket, cross hole sonic logging, and a mini-SID for caisson inspection. Construction details were developed for overexcavation and removal of the coal seams below the retaining wall. All of this information was compiled by AWK in a Structure Foundation Report for reference by the Department and Contractor.

During the Construction phase:

A Value Engineer conceptual design floated by the Contractor, which contained an increased number of spans, was evaluated for critical flaws;

The technique shaft results and tip location was evaluated;

Results of the O-cell was evaluated;

The caisson tip elevation was reevaluated and revised (as necessary) at every substructure and construction phase based on the additional drilling during construction;

Results of stability analysis provided by the Contractor for an alternative soil-supported MSE wall type was evaluated.

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25. FIRM'S FROM SECTION C INVOLVED IN THIS PROJECT

	(1) FIRM NAME	(2) FIRM LOCATION *(City and State)*	(3) ROLE
a.	AWK Consulting Engineers, Inc.	Pittsburgh, PA	Sub-Consultant
b.			
c.			