**DGS-30-456**
(Rev. 10/18)

# Construction Management at Risk Procurement Review Submittal Form

**General Project Information**

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| Agency Name: | George Mason University (247) |
| Is the agency a covered institution per §2.2-4379? | Yes |
| Project Name: | Arlington Building Demolition and Box Culvert Construction |
| Project Number: | 247-18423-000 |

**Other Project Information**

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| Advising A/E Name: | Gordon | License Number: | 407003707 |
| COV Sections: §2.2-4380.B.2, §2.2-4381.C.2 | | | |
| Attach written determination for use of CM at Risk. | | | |
| COV Sections: §2.2-4380.C.2, §2.2-4380.B.1; §2.2-4381.D.2, §2.2-4381.C.1 | | | |
| Is the procurement process proposed a two-step process? | | | Yes |
| COV Sections: §2.2-4380.C.2, §2.2-4380.B.7; §2.2-4381.D.2, §2.2-4381.C.7 | | | |

**Agency Reasons for Use of CM at Risk**

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| Construction Cost (COV Sections: §2.2-4381.B.1, §2.2-4380.C.3, §2.2-4381.D.3) | |
| Building Use (COV Sections: §2.2-4381.B.1, §2.2-4380.C.3, §2.2-4381.D.3) | |
| Project Timeline (COV Sections: §2.2-4381.B.1, §2.2-4380.C.3, §2.2-4381.D.3) | |
| Need for Project Phasing (COV Sections: §2.2-4380.C.5, §2.2-4381.D.5) | Yes |
| Project Complexity (COV Sections: §2.2-4381.B.1, §2.2-4380.C.4, §2.2-4381.D.4) | Yes |
| Value Eng. and/or Constructability Analysis Concurrent with Design (COV Sections: §2.2-4381.A) | Yes |
| Need for Quality Control/Vendor Prequalification (COV Sections: §2.2-4380.C.5, §2.2-4381.D.5) | Yes |
| Need for Cost/Design Control (COV Sections: §2.2-4380.C.5, §2.2-4381.D.5) | Yes |

**Supporting Information for Procurement Method Selection**

Project Use (i.e. lab, classroom, office, etc.): (COV Sections: §2.2-4380.C.3; §2.2-4381.D.3)

The project is to demolish the existing Original Building and construct a new box culvert for stormwater. The project will prepare the site for the construction of a future building, The Institute for Digital InnovAtion, which will host Mason's new school of computing and will support the education of tech talent in the service of the Commonwealth's committment to provide for workforce development for high technology employers such as Amazon. The box culvert that is to be constructed will not be campus infrastructure but will be a component of a stormwater infrastructure system which serves a large segment of Arlington County. The box culvert construction will fulfill an agreement with Arlington County to replace an aging segement of stormwater infrastructure which currenlty passes under the Originial Building. The box culvert will 9' x 7' and will be buried approxomatly 20' below existing finished grade.

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| Construction Cost: | $6,225,000 | (COV Sections: §2.2-4380.C.3; §2.2-4381.D.3) | | | |
| Project schedule: (COV Sections: §2.2- | Design Start Date | 8/28/2019 | Design Compl. Date | 11/1/2019 | |
| | Const. Start Date | 2/14/2020 | Const. Compl. Date | 8/1/2021 | |

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| 4380.C.3; §2.2-4381.D.3) | Attach bar chart schedule to illustrate fast tracking or other schedule complexities. (COV Sections: §2.2-4380.C.3, §2.2-4380.C.4; §2.2-4381.D.3, §2.2-4381.D.4) |

Additional description to highlight key attributes that affect the project complexity, need for value engineering/constructability analysis, quality control/vendor prequalification, and cost/design control as indicated by "Yes" answers above:

**Project Complexity**

The construction of the box culvert is complicated by several factors. The site is a very dense and heavily restricted urban site. The box culvert will be constructed in extremely close proximity to three buildings, the headquarters of the FDIC, Van Metre Hall, and the Original Building under which the existing box culvert passes. The Original Building is approximately 15 feet from the property line with the FDIC to the west. The FDIC buildings are approximately 40 feet from the same property line above grade but the underground garage is in very close proximity to the property line below grade. Van Metre Hall is immediately adjacent to the Original Building on the east. On the south the Original Building is set back approximately 35 feet from the curb. Below grade running between FDIC and the Original Building and between the Original Building and the street, Fairfax Avenue, is believed to be utilities. The subway also runs below Fairfax Avenue. Excavation for the box culvert which will be approximately twenty feet deep must be carefully executed to not disrupt utilities, to not undermine the structural foundations of any of the existing buildings, and to not encroach on the zone of influence of the subway tunnel structure. Shoring of the excavation will also be critical to ensure that the excavation does not undermine the structural foundation of the existing buildings or the subway tunnel structure. Careful execution of the excavation is essential given the significant legal, financial, and safety risks associated with excavating for a 9' x 7' box culvert at a depth of 20 feet on such a tightly confined site. In addition, given the tightly confined site, there is no acceptable location for construction staging and the storage of materials. For example, it is highly likely that it will be necessary that all excavated material will be trucked off site immediately upon removal from the excavation. It may be possible to demolish the Original Building prior to the construction of the box culvert to reduce the site constraints, however doing so may pose an even greater risk to safety. Continuity of service of the stormwater infrastructure must be maintained at all times. Any disruption in service could result in upstream flooding of a significant portion of Arlington County. As the existing stormwater infrastructure passes directly under the Original Building, demolishing the Original Building prior to the construction of the replacement box culvert could potentially cause the collapse of the existing stormwater infrastructure and potentially cause flooding in a large area of Arlington County. Informed constructability evaluations of the various options are absolutely essential during the design phase to determine the most cost-effective sequencing of demolition and construction activities that is also most effective in minimizing the legal, financial and safety risks associated with the work. Connecting to the existing stormwater infrastructure at either end of the new segment also poses a significant risk. As noted previously any disruption in service could result in upstream flooding of a significant portion of Arlington County and tie ins at either end must be achieved without disrupting service.

**Need for Project Phasing/ Value Eng. and/or Constructability Analysis Concurrent with Design/ Need for Cost/Design Control**

As noted above determining the optimum sequencing of demolition and construction activities is a significant

issue given the project complexity. Careful and informed evaluation of the implications for cost, constructability, risk and safety must be provided during the design of the project to both options for sequencing whether demolition of the building followed by construction of the culvert or construction of the culvert followed by demolition of the building. The selection of the optimum sequence will have significant impact upon the resulting design and the project cost. Receiving informed input with regard to the risks, safety, costs and constructability of the options will ensure the appropriate design approach is taken and reduce the financial and schedule risks that would result from out of sequence design changes and multiple construction bid solicitations. There are also multiple possible routes for the path of the box culvert. Input regarding the constructability and cost of the routing options is also critical during the design process to again ensure the appropriate design approach is taken and reduce the financial and schedule risks that would result from out of sequence design changes and multiple construction bid solicitations.

**Need for Quality Control/Vendor Prequalification**

The considerable complexity associated with the site restrictions noted above and the resulting financial, legal and safety risks as well as the challenges in working in such close proximity to a high security federal government site such as the FDIC will require the most qualified contractors. In addition to the complexity of the box culvert construction the demolition portion of the project will also be occurring in a highly confined site and great care will be required to ensure that the safety of the occupants in surrounding buildings as well as the pedestrians along Fairfax Avenue is maintained. The demolition project is also complicated by the presence of hazardous materials including asbestos, lead, and an oil tank.

(COV Sections: §2.2-4380.C.4; §2.2-4381.D.4)

Submitted by: Frank Strike Date: 9/4/19

Signature: 

Title: Vice President

(Agency Head or Authorized Representative)

**For DGS Use Only**

Based upon the information provided by the Agency, the use of Construction Management at Risk IS recommended for this project.

Recommended by:  9/9/19

W. Michael Coppa, RA
Director, Division of Engineering and Buildings