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PART 2
REQUEST FOR PROPOSALS

TECHNICAL INFORMATION & REQUIREMENTS

1.0 DESIGN-BUILDER'S SCOPE OF WORK

1.1 Project Description

The Project consists of culvert replacements and rehabilitation at various locations throughout the Commonwealth. The locations of the culverts to be rehabilitated or replaced are in multiple Districts and carry multiple types and classifications of roadway.

The work for the Project shall consist of the following, including but not limited to: culvert rehabilitation, including invert repair or installing a pipe liner system; and replacement of corrugated metal pipe and concrete box culverts; pavement reconstruction; installation of guardrail and terminals; and pavement markers. Specific descriptions for the scope of work at each culvert location are included in RFP Information Package – CD-ROM.

Plans for the anticipated construction at each culvert have NOT been developed. The RFP Information Package – CD-ROM contains any available existing plans, or applicable standard drawings, available inspection reports, and a Culvert Specific Scope Sheet at each structure. The Offeror shall follow VDOT standard practices and details to accomplish the work in the Project. As described elsewhere in this document, all right of way requirements and any environmental impacts resulting from adjustments to the anticipated work at each structure are the responsibility of the Offeror. Offeror should note, however, that they are solely responsible for any schedule delays due to temporary construction easement acquisition, modifications and NEPA document re-evaluations associated with Offeror's design and no time extensions will be granted.

1.2 Anticipated Scope of Work

The anticipated scope of work for this Project to be undertaken by the successful Offeror under the Design-Build Contract is anticipated to include, among other things: (a) design; (b) construction; (c) quality assurance/quality control (QA/QC) for design and construction; (d) overall project management and (e) public relations. Culvert Specific Scope Sheets for each structure are included in the RFP Information Package CD-ROM and shall take precedence over Inspection Reports. Offerors should note that all work performed on this Project shall be completed using English (Imperial) Units.

1.3 Anticipated Design Services

Design services are anticipated to include, but are not limited to, surveying, roadways, culvert structures and repairs, retaining walls, traffic control devices, guardrails, signs, pavement markings and marker plans, drainage design, geotechnical investigation, materials analysis, foundation design, hydraulic and hydrologic analysis, pavement design, utility relocation design, and transportation management plan. VDOT has NOT performed any topographic surveys or preliminary geotechnical subsurface investigation for this Project at any culvert location in the Project. Offeror's will provide quality assurance and quality control for design in accordance with VDOT Minimum Quality Control and Quality Assurance Requirements for Design Build (August 2008).

1.4 Anticipated Right of Way and Utilities

Right of way acquisition are not a part of the scope of work for this project. However, temporary construction easements may be required at various locations. Refer to Section 2.9 for further details. Utility relocations, adjustments, and coordination shall include all work necessary to perform the relocations, adjustments, and coordination of utilities as required by the Project. All costs for utility relocations shall be included in the Offeror's Lump Sum Bid.

1.5 Anticipated Construction Services

Construction services are anticipated to include, but are not limited to, earthwork, roadway, structures (including all necessary foundation work, subgrade preparation, headwalls and wingwalls, culverts/pipes and excavation), retaining walls, traffic control devices, the demolition and removal of portions of the existing roadways, demolition of existing structures, drainage, utility relocations/adjustments and coordination (including continuity of service if necessary), transportation management plan, and erosion and sediment control. Offerors will also provide construction engineering inspection and management, quality assurance and quality control, including plant quality assurance inspection and testing, but excluding items listed under Section 2.11.2 below.

1.6 Anticipated Environmental Services

Environmental services shall include all work necessary to support acquisition of necessary water quality permits, and compliance with any and all environmental commitments, conditions, or restrictions prior to or during construction. VDOT will obtain necessary water quality permits for the Design-Builder's proposed work. Design-Builder shall provide all work necessary to support VDOT's acquisition of permits as further described in Section 2.4.2.

2.0 PROJECT TECHNICAL INFORMATION & REQUIREMENTS

2.1 Standards and Reference Documents

The design and construction work for the Project shall be performed in accordance with the applicable Federal, State and Local laws and VDOT Standards, Specifications and Reference

Documents to include, but not limited to the documents listed herein. The Offeror shall verify and use the latest version of the documents listed herein. The Successful Offeror shall meet or exceed the minimum roadway design standards and criteria.

If during the course of the design, the Successful Offeror determines specific Standard, Specification, or Reference Documents required are not listed herein, it is the responsibility of the Offeror to identify the pertinent Standard, Specification or Reference Document and submit to VDOT for review and approval prior to inclusion in the Contract Documents.

- VDOT's Minimum Quality Control and Quality Assurance Requirements for Design-Build and Public-Private Transportation Act Projects (August 2008)
- VDOT 2002 Drainage Manual (including current Errata Sheet)
- VDOT Hydraulic Design Advisories (all current)
- VDOT CADD Manual (Version 2004)
- VDOT Construction Manual (2005)
- VDOT Post Construction Manual (1997 Edition)
- VDOT Construction Inspection Manual (December 2001)
- VDOT Traffic Engineering Design Manual
- VDOT 2003 Minimum Standards of Entrances to State Highways
- VDOT Right-of-way and Utilities Division Manuals, Vol. I (July 1999) and II (November 2003)
- VDOT Current Land Use Permit Manual
- VDOT Policy Manual for Public Participation in Transportation Projects (updated September 2004)
- VDOT Instructional & Information Memorandums ("I&IM"), All Divisions
- VDOT Policy for Integrating Bicycle and Pedestrian Accommodations
- VDOT Road and Bridge Standards, Vol. 1 and Vol. 2 (2001)
- VDOT Road and Bridge Specifications (2002) , including all revisions
- VDOT Guardrail Installation Training Manual ("GRIT") February 2006
- VDOT Road Design Manual, Vol. I
- VDOT Guidelines for 1993 AASHTO Pavement Design, Revised – May 2003
- VDOT Survey Manual (2002 Edition)
- VDOT Manual of Instruction for Material Division
- VDOT Materials Division Memorandum Number MD299-07 for Materials Acceptance – October 4, 2007 (Included in the RFP Information Package)
- VDOT Manual of Structure and Bridge Division, Vol. III, V and VII
- VDOT 2005 Virginia Work Area Protection Manual
- VDOT Mobility Management Division Memoranda
- VDOT Water Quality Permit Manual, Revised - March 28, 2006 (Included in the RFP Information Package – CD-ROM)
- VDOT, Wetland Compensation Manual (1999) (Included in the RFP Information Package – CD-ROM)

- AASHTO LRFD Bridge Design Specifications, 4th Edition, 2008 Interim Specifications and VDOT Modifications
- AASHTO A Policy on Geometric Design of Highways and Streets (2004)
- AASHTO Guide Specifications for Horizontally Curved Highway Bridges (Current Edition)
- AASHTO Fracture Critical Non-Redundant Steel Bridge Members Current Spec. with all Interim Specifications
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, 1994 Edition
- AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaries, and Traffic Signals, 4th (2001) Edition (to be used for the design of dynamic message sign supports only).
- AASHTO Guide Design Specifications for Bridge Temporary Works, 1995
- AASHTO Construction Handbook for Bridge Temporary Works, 1995
- AASHTO Guide for the Development of Bicycle Facilities (1999)
- AASHTO Guide for the Planning, Design, and Operation of Pedestrian Facilities (2004)
- AASHTO Guide for Design of Pavement Structures (Rigid Pavement and Flexible Pavement) (1993 Edition)
- AASHTO Guide for Protective Screening of Overpass Structures (1990)
- AASHTO Guide for Roadway Lighting Design (2005)
- USDOT FHWA Standard Highway Signs
- National Electric Code (“NEC”)
- Manual of Uniform Traffic Control Devices (“MUTCD”) (2003 Edition)
- Virginia Supplement to MUTCD
- Traffic Engineering Division Memorandums (TDM)
- DCR Virginia Stormwater Management Handbook (First Edition – 1999)
- DCR Virginia Erosion and Sediment Control Handbook (Third Edition – 1992)
- American Water Works Associations Standards
- Americans with Disabilities Act Accessibility Guidelines for State and Local Government Facilities
- Transportation Research Board Highway Capacity Manual, Third Edition (1994)
- Duncan, J.M. (April 2000) Factor of Safety And Reliability In Geotechnical Engineering, Journal of Geotechnical and Geoenvironmental Engineering, ASCE, Discussions and Closure August 2001
- Special Provision for Density Control of Embankments and Backfill (Included in the RFP Information Package – CD-ROM), Revised – November 26, 2006
- Special Provision for Section 303 - Earthwork (Included in RFP Information Package – CD-ROM), dated September 19, 2008
- Special Provision for Low Permeability Concretes (Included in the RFP Information Package – CD-ROM), dated March 9, 2009
- Special Provision for Lime Modification of Soils (included in the RFP Information Package – CD-ROM), dated May 31, 2000

- Special Provision for Design-Build Tracking (DBT) Numbers (included in the RFP Information Package – CD-ROM), dated February 8, 2008
- Special Provision for Square Tube Steel Sign Post (Included in the RFP Information Package – CD-ROM), dated July 7, 2005
- Special Provision for Flowable Fill (Included in the RFP Information Package – CD-ROM), dated July 9, 2002
- Special Provision Copied Note for Steel Reinforcement (Included in the RFP Information Package – CD-ROM), dated December 4, 2007
- Special Provision for Pipe Culvert Replacement of Rehabilitation (included in the RFP Information Package – CD-ROM)
- Special Provision for Epoxy Injection Pressure Crack Sealing (Included in RFP Information Package – CD-ROM), dated March 22, 2005
- Special Provision for Load and Resistance Factor Design (LRFD) (Included in RFP Information Package – CD-ROM), dated December 29, 2008
- Special Provision Copied Note for Hydraulic Cement Concrete (Included in RFP Information Package – CD-ROM), dated August 17, 2004
- Special Provision Copied Note for ARRA Project Requirements (Included in RFP Information Package – CD-ROM), dated [July 17](#)~~March 26~~, 2009
- CD-2009-02 Field Changes Documentation: Documentation of Field Changes
- [Special Provision for Personnel Requirements for Work Zone Traffic Control, dated June 11, 2009](#)

In the event of a discrepancy between VDOT and other non-VDOT Standards and References listed herein, the VDOT specifications, design standards or manuals shall take precedence. Special Provisions included in this Contract Document or other Special Provisions selected for use in design and construction of this Project that has been approved by VDOT will govern over the VDOT specifications, design standards and manuals. Special Provision Copy Notes approved by VDOT and requirements specified within the text of this RFP will govern over both the Special Provisions and VDOT specifications, design standards and manuals.

The Offeror shall be responsible for preparing any design waiver(s) and/ or design exception(s) documentation to be submitted to the VDOT Project Manager for approval. Design Waivers will be required for any element that does meet AASHTO minimum design criteria, but not VDOT minimum standards. Design Exceptions will be required for any design element that does not meet AASHTO minimum design criteria. See IIM-LD-227.3, S&B 70.1 for more information regarding Design Exceptions and Design Waivers.

2.2 Structures

The culverts for this Project shall be designed for AASHTO HL-93 Loading. The culverts shall be designed using the Load and Resistance Factor Design Method.

When a culvert replacement is specified for a particular structure, the culvert shall be replaced in accordance with the Culvert Specific Scope Sheet for the culvert in question (see the RFP Information Package – CD-ROM). For all culvert replacements, the roadway geometry over the culvert shall remain the same unless otherwise specified in the Culvert Specific Scope Sheets included in the RFP Information Package CD-ROM. Any proposed corrugated metal pipe by the. With the exception of aluminum, any smooth or corrugated metal pipe used by the Offeror shall be coated Aluminum pipe shall be used without a coating. Other bare metal culvert pipe is not acceptable. In addition, no asphalt coating is allowed.

The exposed concrete elements of proposed structures shall utilize low permeability concrete in accordance with current VDOT Specifications.

All headwall/wingwall rehabilitation, including but not limited to delamination and spall repair and crack repair and/or injection shall be performed in accordance with VDOT standard specifications, details and standard practice. Non-standard repairs that may be required shall be included in the design and submitted to VDOT for review during plan preparation.

Unless a specific railing/parapet is required in the Culvert Specific Scope Sheet in the RFP Information Package – CD-ROM, the railing/parapet shall be selected from the approved list of FHWA crash-tested railing/parapets and/or as required in VDOT Manual of Structure and Bridge Division, Vol. V Part 2.

2.2.1 Shop Drawings

The Offeror shall review and approve working/shop drawings and submit four approved sets to VDOT for each structure. Reference should be made to Section 105.02 of VDOT Road & Bridge Specifications 2002. The working/shop drawings shall be approved by a registered, licensed, Professional Engineer.

2.2.2 FHWA Culvert Construction Unit Cost Report

For each culvert, the Successful Offeror shall submit Estimated Quantities along with the associated unit costs for all standard and non-standard items in the final plan submittal. The culvert unit cost data is required to complete VDOT's annual Bridge Construction Unit Cost Report which is provided to FHWA.

A Bridge Design Criteria Special Provision for each culvert is included as part of each specific scope of work identified as part of the RFP Information Package – CD-ROM.

2.2.3 The American Recovery and Reinvestment Act of 2009 (ARRA)

This project is funded by the ARRA. Projects funded by the ARRA require an additional level of data reporting therefore reporting on this project will meet the requirements of the ARRA.

The Design Builder shall be responsible for meeting all of the reporting requirements under the ARRA.

2.3 Approach Roadways

For open-cut culvert replacement projects, the roadway within the limits of excavation as well as 50' beyond the limits of excavation in each direction along the centerline of the roadway shall be removed and replaced in kind. Any proposed changes to the existing pavement section by the Offeror must be approved by VDOT. For the purpose of bidding only, the Offeror shall use the pavement section provided in the Culvert Specific Scope Sheet (included in the RFP Information Package – CD ROM).

2.4 Environmental

2.4.1 Environmental Documentation

VDOT has completed Programmatic Categorical Exclusions (PCE's) for all culverts included in this RFP in accordance with the requirements of the National Environmental Policy Act ("NEPA"). Preliminary Plans, Specifications and Estimates (PS&E) re-evaluations, and Environmental Certification forms have also been completed (included in the RFP Information Package – CD ROM).

The Offeror shall carry out environmental commitments, conditions, or restrictions during design and construction phases as appropriate, and as identified on the Environmental Certification, and PS&E Re-evaluation forms. The Offeror shall note that some commitments have been identified (i.e. Time of Year Restrictions (TOYR) on in-stream work); the Offeror shall organize and plan construction activities accordingly. For specific detailed information regarding commitments (e.g. TOYR), the Offeror is referred to the RFP Information Package. All environmental commitment compliance shall be supported by appropriate documentation and shall be provided by the Offeror to the VDOT Project Manager. VDOT shall complete the final update of the PS&E re-evaluation and Environmental Certification forms prior to the VDOT Project Manager releasing the project for construction.

Any changes proposed by the Offeror in either the footprint and/or scope of the Project as expressed in the PCE must be coordinated by the Offeror with VDOT and approved prior to implementation by the Offeror. Changes in the footprint or scope may necessitate additional environmental studies and coordination by VDOT with the FHWA. The Offeror shall carry out any additional environmental commitments that result from recoordination at its sole expense and no additional cost to the Project; additionally the Offeror will be responsible for any schedule delays and associated costs.

2.4.2 Water Quality Permits

VDOT shall be responsible for the tasks involved with determining the need for water quality permits and performing the associated tasks to secure water quality permits, permit modifications and/or permit extensions. This will be done in accordance with the VDOT's Water Quality Permit Manual.

The Offeror shall provide sufficient design details and/or construction sketches/plans, and quantities information to VDOT to determine the applicability of water quality permits for the project.

If VDOT determines the water quality permits are not required based on the information the Offeror provided to VDOT, the Offeror shall be notified in writing by the VDOT Project Manager that the work is released for execution. Any deviations that the Offeror makes to the project footprint and/or scope may render VDOT's permit determination invalid and will require additional coordination with VDOT.

If water quality permits are required, the Offeror shall support VDOT's permit acquisition efforts by providing (but not limited to) design details, project descriptions, permit sketches and quantities information which shall include information such as limits of jurisdiction, square feet of impact below OHW (or MLW) both permanent and temporary, cubic yards of impact below OHW (or MLW) both permanent and temporary and broken out by excavation, permanent fill and temporary fill quantity calculations, plan views, section views, construction notes, construction phasing details, temporary construction measures, erosion and sediment controls, hydraulic commentary, and access requirements.

In addition the Offeror shall support/attend VDOT's presentation at the Interagency Coordination Meetings (IACM), address agency comments/concerns, evaluate and/or incorporate design changes for avoidance and minimization, attend regulatory agency field reviews, etc. VDOT shall provide the delineations of jurisdictional limits to the Offeror for inclusion in the Offeror's permit sketches. The Offerors bids shall not include costs for VDOT's tasks associated with water quality permit acquisition. However, all costs associated with the Offeror's support of VDOT's permit determination and/or permit acquisition shall be included in the Offeror's bid.

If VDOT determines that wetlands and/or stream mitigation is required to secure the permit authorization, the Offeror shall be provided an opportunity by the VDOT Project Manager to provide VDOT a mitigation cost proposal prior to submission of the permit application. If VDOT accepts the Offeror proposal, the Offeror shall provide documentation of the compensatory mitigation to VDOT for inclusion in the permit application. The Offeror will be reimbursed for the cost of the mitigation proposal by VDOT after the regulatory agencies accept the mitigation proposal and issue the water quality permits. However, if the Offeror does not provide a mitigation proposal prior to submission of the permit application and/or VDOT or the regulatory agencies do not accept the Offeror's proposal for compensatory mitigation, VDOT will provide the required compensatory mitigation with no cost reimbursement to the Offeror.

The Offeror shall note that avoidance, minimization, and mitigation measures associated with permit acquisition will require close coordination between the Offeror and VDOT. However, if permit issuance is delayed or permits are denied, the Offeror will be responsible for any schedule delays and/or associated costs.

The Offeror shall be responsible for coordination with VDOT to ensure that project schedules accommodate any Special Provisions, Time of Year Restrictions (TOYR), and the duration of permit acquisition from the regulatory agencies. The Offeror shall be responsible for adhering to permit conditions and Special Provisions, as identified in the permit authorizations including but not limited to TOYR, avoidance and minimization recommendations, restoration of temporary impact areas, and countersinking culverts.

The Offeror shall not proceed with work covered by the water quality permits until the VDOT Project Manager releases the work in writing. The VDOT Project Manager may release a portion or all of such work not in jurisdictional areas, but may order a suspension of the same work after its release. The Offeror shall not be allowed to begin work that pre-determines the work required in the jurisdictional areas until the permits are secured.

After receiving the VDOT Project Manger release of the work, the Offeror shall notify in writing the VDOT Project Manager 14 days prior to beginning work in the jurisdictional areas covered by the water quality permits so the required agency notifications can be made by VDOT.

The Offeror shall allow environmental compliance inspections by VDOT, and/or regulatory agencies as required by permits and/or to facilitate any interim compliance reviews/assessments.

At the conclusion of the project, the Offeror shall notify in writing the VDOT Project Manager of the completion of the work in the jurisdictional areas covered by the water quality permits so the required agency notifications can be made by VDOT.

Any changes proposed by the Offeror in either the footprint and/or scope of the Project as provided in design details and/or construction sketches/plans and quantities information provided by the Offeror and used by VDOT to determine the applicability of water quality permits and/or information provided to VDOT to secure the necessary water quality permits will require additional coordination with VDOT and may necessitate the acquisition of additional or modified water quality permits to meet the change in footprint and/or scope. The Offeror shall carry out any additional environmental commitments that result from change in footprint and/or scope at its sole expense and no additional cost to the Project; additionally the Offeror will be responsible for any schedule delays and associated costs.

2.4.3 Environmental Monitoring

VDOT will monitor the Project during construction to ensure compliance with all applicable environmental laws, regulations, Executive Orders, commitments, etc. If at any time, the Offeror is not in compliance with all applicable environmental laws, regulations, Executive Orders,

commitments, etc., the VDOT Project Manager has the authority to suspend work until such time as the deficiencies have been corrected to meet the minimum standards. The Offeror shall not be granted any cost or time compensation for any work suspensions associated with non-compliance. Any monetary fines associated with violations shall be the responsibility of the Offeror.

2.4.4 Hazardous Materials

All solid waste, hazardous waste, and hazardous materials shall be managed in accordance with all applicable federal, state, and local environmental regulations. The Offeror shall notify the VDOT Project Manager immediately of all instances involving the spill, discharge, dumping or any other releases of hazardous materials into the environment and shall provide all required notifications and response actions.

The Offeror shall be responsible for the development of a Spill Prevention, Control, and Countermeasure Plan as required by regulation and for submission of any required plan to the VDOT Project Manager prior to start of construction. The Offeror is to conduct a review(s) of all the staging areas for the presence of hazardous materials prior to use, and shall document the findings, and submit to the VDOT Project Manager.

2.5 Survey

VDOT has NOT completed any field survey for the Project. The Offeror shall be responsible for obtaining all surveys needed for the Project in accordance with VDOT Survey Manual, conforming to VDOT Standards, including, but not limited to the following:

- Horizontal Control
- Vertical Control
- Notification of property owners*
- Field data
- Property data, including additional easements and/or property acquisitions
- Utilities
- Levels
- Digital Terrain Model

*Offerors should be aware that Virginia Code 33.1-94 now requires that notice “be sent to the owner by certified mail, at the address recorded in the tax records, return receipt requested, or delivered by guaranteed overnight courier or otherwise delivered to the owner in person with proof of delivery not less than 15 days prior to the first date of the proposed entry. Notice of intent to enter shall be deemed made on the earlier of the date of mailing, if mailed, or on the date delivered.”

2.6 Geotechnical Work

In the case of added pipe and/or culvert beyond the existing culvert location, additional geotechnical investigation shall be performed to satisfy VDOT standards and specifications. Offerors shall comply with Virginia Code 33.1-94 as noted above.

2.6.1 Geotechnical Requirements

The Offeror shall analyze methods to minimize settlement of the pavement and utility backfill within the limits of construction of the culverts. All geotechnical work shall be completed to satisfy baseline and post-construction contract performance requirements.

Note that the lesser amount of total or differential settlement satisfying this section shall have precedence.

Design and construct pavements, subgrades, earthwork and utility backfill to meet the following post-construction settlement tolerances:

- Total vertical settlement shall be less than one inch over the initial 20-years.
- Settlement that does not result in damage to adjacent or underlying structures, including utilities.
- For pavement sections of tie-ins to the Project, grade tolerances shall be measured with a 10-foot straightedge. The variation of the surface from the testing edge of the straightedge between any two contacts with the surface shall not be more +/- 1/4-inch at project tie-ins.
- The embankment in the area of the proposed culvert replacement shall be designed with a factor of safety of 1.5 against stability failure.

Humps and depressions exceeding the specified tolerance will be subject to correction by the Offeror. Offeror shall notify the Quality Assurance Manager (“QAM”) and VDOT for any non-conformance items.

2.6.2 Foundation

The Design-Builder’s qualified geotechnical engineer shall perform an inspection of all subgrades prior to placement of the bedding materials to confirm the type and condition of the foundation materials are suitable for support of the proposed drainage structures. An inspection report of the findings of the exploration and approval of foundation materials for support of the drainage structures shall be provided to the Design-Builder’s quality assurance manager (QAM) prior to placement of the pipes or culverts.

Where unsuitable foundation materials are encountered at the established grade, such material shall be removed and replaced to provide adequate support of the proposed pipes or culverts as directed by the design-builder’s geotechnical engineer. The cost to remove and replace this unsuitable material with bedding as described below shall be the responsibility of the Design-Builder and included in the Design-Builder’s Lump Sum Price Proposal. Backfill for areas where unsuitable

material has been removed shall be placed and compacted in accordance with the requirements of Section 303.04(g).

2.6.3 Bedding

Bedding must be removed new bedding must be installed at each replacement location. Bedding material for culvert foundations, including foundations in soft yielding or otherwise unsuitable material, shall be aggregate No. 25 or 26 conforming to the requirements of Section 205 except where standing or running water is present in the pipe foundation excavation, then pipe bedding material shall be aggregate No. 57 for the depth specified on the plans or as directed by the Design-Builder's geotechnical engineer, capped with 4 inches of aggregate No. 25 or 26.

Pipe bedding shall be lightly and uniformly compacted and shall be carefully shaped so that the lower section of the pipe exterior is in contact with the bedding material for at least ten percent of the overall height of the pipe. Bedding material shall be shaped to accommodate the bell when bell and spigot pipe is used. The depth of bedding material shall be at least 4 inches.

2.7 Hydraulics

2.7.1 General

In-stream construction and/or diversions will be required to repair or replace culverts. Any necessary hydraulic work required under this Contract shall be performed in accordance with the criteria contained in the referenced documents, which are incorporated by reference to this Project scope.

2.7.2 Hydrologic and Hydraulic (H&H) Analysis

The Design-Builder will be required to perform a limited hydraulic analysis to prove that their proposed culvert rehabilitation/replacement will maintain the hydraulic capacity as of the existing culvert. The result of this analysis will be provided to VDOT for review and approval prior to the commencement of construction. The limited hydraulic analysis will follow the guidelines of the VDOT Drainage Manual's chapter's 6, 8, and 12 with the following exceptions: (1) this project is not intended to increase the hydraulic capacity of any of the culverts, (2) the designed rehabilitation/replacements will not be required to meet current flood frequency or allowable headwater requirements, however the 100 year flood will be used in design calculations. The approval of the Design-Builders analysis represents a hold point in the Design-Builder's CPM Schedule.

If the Design-Builder alters the alignment of the culverts natural stream design, bank hardening, and revetments may be necessary as part of the hydraulic design of the various stream crossings in the Project to minimize downstream impacts in accordance with State and Federal requirements applicable to this project. Natural stream design, bank hardening and revetments shall

be designed in accordance with acceptable FHWA Publications. Acceptable FHWA publications include, but are not limited to HDS-6, HEC-11, HEC-14, HEC-15, and HEC-20.

2.7.3 Countersinking

When replacing an existing culvert crossing, it will necessary countersink at least one culvert below the stream bed to comply with the environmental permit requirements. When a pipe is countersunk, the area below the stream bed should not be considered available for flow. For consideration of hydraulic equivalency, when the same material is used, the proposed countersunk culvert should be increased one standard size from the existing culvert being replaced.

2.7.4 Outfall Protection

Outlet protection is required at all culverts and shall comply with HDA 06-03.01 and any other applicable standards.

2.7.5 Drainage

The drainage design work may include the design of culverts, open channels, storm sewers, bridge drainage assemblies and structures, adequate outfall analysis (in accordance with DCR Minimum Standard 19), stormwater management facilities, and erosion and sediment control in compliance with the standards and reference documents listed previously in Section 2.1 and the VDOT Erosion and Sediment Control & Stormwater Management Program.

2.7.6 Stormwater Management Plan and Erosion and Sediment Control

Prepare and implement an Erosion and Sediment Control (“ESC”) Plan and a Stormwater Management Plan in compliance with the Virginia Erosion and Sediment Control Law, the Virginia Erosion and Sediment Control Regulations, the Virginia Stormwater Management Program, the Virginia Stormwater Management Regulations. The Offeror must certify that the Erosion and Sediment Control (ESC) and Stormwater Management Plans have been designed and reviewed in accordance with Virginia Department of Conservation and Recreation (“DCR”) regulations and VDOT policies and procedures, including applicable I&IM. A qualified person, other than the designer, who is a certified DCR Plan Reviewer, must independently review and certify the ESC Plans. The Offeror shall complete and submit the ESC and SWM Plan Certification form (LD-445C) to the VDOT Project Manager certifying the ESC and SWM plan for the Project is in accordance with VDOT’s Approved ESC and SWM Standards and Specifications. The Offeror will be responsible for compliance with construction-related permit conditions and shall assume all obligations and cost incurred by complying with the terms and conditions of the permit. Any fines associated with permit or regulatory violations shall be the responsibility of the Offeror.

If the land-disturbing activity at any single structure location is 1 acre or greater (2500 square feet or greater in a Chesapeake Bay Preservation Area), a Virginia Stormwater Management Program (VSMP) Construction Permit is required. The Offeror, as necessary, shall make determination of

need, coordinate, and submit required information to the VDOT Project Manager. VDOT will review the submitted information and the VDOT Project Manager will obtain permit registration coverage as required. The Offeror shall not proceed with work covered by the permit until the VDOT Project Manager releases the work in writing. The Offeror shall be responsible for compliance with pre-construction and construction related permit conditions. The Offeror shall be responsible for compliance with construction-related permit conditions and shall assume all obligations and cost incurred by complying with the terms and conditions of the permit. Any fines associated with permit or regulatory violations shall be the responsibility of the Offeror. The Offeror shall also have on-site during land disturbing operations an individual or individuals holding a DCR Inspector Certification, a DCR Responsible Land Disturber (RLD) Certification and a VDOT Erosion and Sediment Control Contractor Certification (ESCCC) to ensure compliance with all requirements.

2.8 Traffic Control Devices

The Project shall include all signs necessary for the Project. All existing traffic control devices within the Project limits shall be modified or replaced to meet current VDOT standards.

2.8.1 Signs

The Project shall include all required modifications to existing signs and all required new signs. Any signs on adjacent roadways that require relocation/replacement due to construction activities shall be the responsibility of the Offeror. An existing sign inventory shall be completed prior to site demolition in accordance with the VDOT Traffic Engineering Design Manual. This existing information shall be submitted at the same time as the first plan submittal for proposed signing.

2.8.2 Guardrail

The Offeror shall make reasonable effort to ensure that the clear zone within the project limit is free from hazards and fixed objects. In the event that removal or relocation of hazard and fixed objects from the clear zone is not feasible, the Offeror shall design and install appropriate barrier system for protect in accordance with NCHRP 350. The same requirement applies to existing conditions affected by this project where guardrail upgrade will be required.

For culvert replacement projects, existing substandard guardrail must be upgraded and/or replaced to meet current standards in accordance with IIM-LD-220.2. Information for guardrail to be upgraded and/or replaced is included in each Culvert Specific Scope Sheet included in the RFP Information Package CD-ROM. This information includes the type, and quantity of guardrail and the type, and quantity of end treatments. The quantities provided are based on the type of culvert replacement identified in the RFP Information Package. Any deviation from this scope of any Culvert Specific Scope Sheet, will be subject to VDOT's approval and any additional costs or time related to guardrail from this change in scope shall be the responsibility of the Design-Builder.

2.9 Right of Way

The Offeror's proposed design shall not exceed current right of way limits. The Department will make information about the existing Right of Way limits for each location available on or before April 30, 2009.

If the Offeror's proposed design requires additional temporary construction easements beyond the current right of way limits it will be the responsibility of the Offeror to coordinate directly with the affected property owners to acquire such temporary construction easements in accordance with the requirements noted below. Offeror shall be solely responsible for assuming all cost and risks associated with exceeding such right of way limits, including any public hearings that may be required, and no modifications to the Contract Price or Contract Time(s) will be granted or considered.

The Offeror, shall act on behalf of the Commonwealth of Virginia ("Commonwealth"), and provide all ROW acquisition services for the Project. Right of Way acquisition services shall include appraisal, appraisal review, negotiation, title examinations, and closings.

All appraisers and acquisition firms shall be selected from VDOT's pre-approved list. VDOT must issue a Notice to Commence Right of Way acquisition to the Offeror prior to any offers being made to acquire the property. VDOT must also issue a Notice to Commence Construction to the Offeror once the property has been acquired prior to commencing construction on the property. There will be NO additional fee right of way acquisition as part of the project. The Offeror will be responsible for the actual costs of acquiring any Temporary Construction Easements associated with the project. These easements will be acquired in the name of the Commonwealth of Virginia. VDOT reserves the right to determine the necessity and size of any Temporary Construction Easements that may require eminent domain.

The Offeror shall carry out the responsibilities related to acquisition of Temporary Construction Easements as follows:

- Acquire property in accordance with all applicable Federal and State laws and regulations, including but not limited to the Uniform Relocation and Real Property Acquisition Policies Act of 1970, as amended (the "Uniform Act") and Titles 25.1 and 33.1 of the 1950 Code of Virginia, as amended. The acquisition of property shall follow the guidelines as established by VDOT and other State and Federal guidelines that are required and the VDOT Right of Way and Utilities Division Manuals, Vol. I and II.
- Submit procedures for handling right of way acquisitions to VDOT for approval prior to commencing right of way activities. These procedures are to show the Offeror's methods, including the appropriate steps and workflow required for title examinations, appraisals, and review of appraisals, and negotiations.

- Offeror shall obtain access to and use VDOT's Right of Way and Utilities Management System ("RUMS") to manage and track the acquisition process. RUMS will be used for project status reporting; therefore, entries in RUMS shall be made in a timely manner to accurately reflect current project status. Offeror shall use the VDOT standard forms and documents, as found in RUMS. Any changes to the forms and documents must be approved by VDOT. Training in the use of RUMS and technical assistance will be provided by VDOT.

- Provide a current title examination (no older than sixty days) for each parcel at the time of initial offer to landowner. Each title examination report shall be prepared by a VDOT-approved title company in accordance with VDOT's Right of Way Manual and shall include Title Insurance **is** required at closing for fee or permanent easement acquisitions. Should the Offeror select a law firm to certify title examinations, the certifying attorney shall show evidence of Professional Liability Insurance. VDOT reserves the right to determine if the Professional Liability Insurance coverage is sufficient. If any title examination report has an effective date that is older than sixty days, an update is required prior to making an initial offer to the landowner.

- Prepare appraisals in accordance with VDOT's Appraisal Guidelines. The type of appraisal required for each property shall be submitted to VDOT for approval prior to the commencement of the appraisal process.

- Provide appraisal reviews complying with technical review guidelines of VDOT's Appraisal Guidelines and make a recommendation of just compensation. The reviewer shall be approved by VDOT and shall be on VDOT's approved fee appraiser list. VDOT shall have final approval of all appraisals. VDOT must approve any settlements above the most recent approved appraisal.

- Make direct payments of benefits to property owners for negotiated settlements, and payments to be deposited with the court. Payment documentation is to be prepared and submitted with the Acquisition Report (RW-24).

- Prepare, obtain execution of, and record documents conveying title to such properties to the Commonwealth and deliver all executed easement agreements to VDOT. For all property purchased in conjunction with the Project, title shall be conveyed to "Commonwealth of Virginia, Grantee" by a VDOT-approved easement agreement.

- Because these acquisitions are being made as an agent on behalf of the Commonwealth, VDOT shall make the ultimate determination in each case as to whether settlement is appropriate or whether the filing of a condemnation action is necessary, taking into consideration the recommendations of the Offeror. The Offeror shall not request the filing of a certificate until the landowner has been given a minimum of 30 days to consider the offer or the landowner terminates negotiations. When VDOT authorizes the filing of a certificate, the Offeror shall prepare a Notice of Filing of Certificate. All required documents necessary to file a certificate shall be forwarded to the VDOT Project Manager who will forward the package to the District Right of Way and Utilities Manager for review and approval. Upon approval, the District Right of Way and Utilities Manager will return the package to the VDOT Project Manager who will then forward to the Offeror. The Offeror shall be responsible for filing the certificate.

- The following will be paid, if and when necessary, under a Work Order in accordance with Article 9 of the General Conditions of Contract: The Offeror shall provide the necessary staff and resources to work with VDOT throughout the entire condemnation process until the property is acquired by entry of a final non-appealable order, or by an Agreement After Certificate executed and approved by VDOT and the appropriate court. The Offeror shall provide updated appraisals (*i.e.*, appraisal reports effective as of the date of taking) and expert testimony supporting condemnation proceedings upon request by VDOT.

- The Offeror shall be responsible for all contacts with landowners for rights of way or construction items.

- The Offeror shall use reasonable care in determining whether there is reason to believe that property to be acquired for rights of way may contain concealed or hidden wastes or other materials or hazards requiring remedial action or treatment. When there is reason to believe that such materials may be present, the Offeror shall take steps consistent with customary VDOT practices to investigate. VDOT shall be notified of the presence of such materials before an offer is made to acquire the property.

During the acquisition process and for a period of three years after final payment is made to the Offeror for any phase of the work, or until the Commonwealth has indefeasible title to the property, all Project documents and records not previously delivered to VDOT, including but not limited to design and engineering costs, construction costs, costs of acquisition of rights of way, and all documents and records necessary to determine compliance with the laws relating to the acquisition of rights of way and the costs of relocation of utilities, shall be maintained and made available to VDOT for inspection or audit. Throughout the design, acquisition and construction phases of the Project, copies of all documents/correspondence shall be submitted to the Project Manager, Central Office and respective District Offices.

2.10 Utilities

The Offeror shall be responsible for coordination of the Project construction with all utilities that may be affected. The Offeror shall be responsible for coordinating the work of the Offeror, its subcontractors and the various utilities. The resolution of any conflicts between utilities and the construction of the Project shall be the responsibility of the Offeror. No additional compensation or time will be granted for any delays, inconveniences, or damage sustained by the Offeror or its subcontractors due to interference from utilities or the operation of relocating utilities.

The Offeror shall be responsible for utility designations, utility locates (test holes), conflict evaluations, cost responsibility determinations, utility relocation designs, utility relocations and adjustments, utility reimbursement, replacement land rights acquisition and utility coordination required for the Project. Offeror is responsible for all necessary utility relocations and adjustments to occur in accordance with the accepted Baseline Schedule. All efforts and cost necessary for utility designations, utility locates (test holes), conflict evaluations, cost responsibility determination, utility

relocation designs, utility relocations and adjustments, utility reimbursements, replacement land rights acquisition and utility coordination shall be included in the Offeror's Price Proposal; provided, however, that the compensation paid to landowners for replacement land rights will be paid by VDOT and shall **NOT** be included in the Offeror's Price Proposal.

The Offeror shall make all reasonable efforts to design the Project to avoid conflicts with utilities, and minimize impacts where conflicts cannot be avoided.

The Offeror shall initiate early coordination with all utilities located within the Project limits. The Offeror shall identify and acquire any replacement utility easements or required right of way needs of all utilities necessary for relocation due to conflicts with the Project.

The Offeror shall provide all utilities with roadway design plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the Project impacts. The utility will use the Offerors design plan for preparing relocation plans and estimates. If a party other than the utility prepares relocation plans, there shall be a concurrence box on the plans where the utility signs and accepts the relocation plans as shown.

The Offeror shall coordinate and conduct a preliminary review meeting with all affected utilities to assess and explain the impact of the Project. The VDOT Project Manager and District Utilities Engineer (or designee) shall be included in this meeting.

The Offeror shall verify the prior rights of each utility's facilities if claimed by a Utility owner. If there is a dispute over prior rights with a utility, the Offeror shall be responsible for resolving the dispute. The Offeror should prepare and submit to VDOT a Preliminary Utility Status Report within 60 days of the Date of Commencement that includes a listing of all utilities located within the Project limits and a conflict evaluation and cost responsibility determination for each Utility. This report shall include copies of easements, plans, or other supporting documentation that substantiates any compensable rights of the utilities. The Offeror should obtain the following from each utility that is located within the Project limits: relocation plans including letter of "no cost" where the utility does not have a compensable right; utility agreements including cost estimate and relocation plans where the utility has a compensable right; utility easement forms to be executed by the landowner, if necessary; letters of "no conflict" where the utility's facilities will not be impacted by the Project.

The Offeror shall review all relocation plans to ensure that relocations comply with VDOT Right of way and Utilities Division Manual, Volumes II, Utility Relocation Policies and Procedures and VDOT's Land Use Permit Manual. The Offeror shall also ensure that there are no conflicts with the proposed roadway improvements, and ensure that there are no conflicts between each of the utility's relocation plans. The Offeror shall prepare and submit to VDOT all relocation plans. The Offeror is expected to assemble the information included in the relocation plans in a final and complete form and in such a manner that VDOT may approve the submittals with minimal review. The Offeror is expected to meet with VDOT's District Utilities Office within 45 days of the Date of Commencement to gain a full understanding of what is required with each submittal. The Offeror

shall receive written approvals from VDOT prior to authorizing utilities to commence relocation construction. The utilities shall not begin their relocation work until authorized by the Offeror. Each relocation plan submitted must be accompanied by a certification from the Offeror stating that the proposed relocation will not conflict with the proposed roadway improvement and will not conflict with another utility's relocation plan.

At the time that the Offeror notifies VDOT that the Offeror deems the Project to have reached Final Completion, the Offeror shall certify to VDOT that all utilities have been identified and conflicts have been resolved and that those utilities with compensable rights or other claims related to relocation or coordination with the Project have been relocated and their claims and compensable rights satisfied or will be satisfied by the Offeror.

The Offeror shall accurately show the final location of all utilities on the As-Built Plans for the Project. Known utility owners and their respective contact numbers are included in the Culvert Specific Scope Sheets attached in the RFP Information Package – CD-ROM.

2.11 Quality Assurance / Quality Control (QA/QC)

Design-Builder shall submit its QA/QC Plan for both design and construction to VDOT for review and approval at the meeting held after the Date of Commencement as set forth in Part 4 General Conditions under Section 2.1.2.

2.11.1 Design Quality Management Plan

The Offeror shall be responsible for design quality. The Design Manager, assigned by the Offeror, shall be responsible for overall management of the QA/QC program for design. This individual shall report directly to the Offeror's Project Manager and shall be responsible for all design QA/QC activities. The Design Manager shall maintain close communication with Offeror's Project Manager and shall ensure the Project is completed in accordance with the requirements of the Contract Documents. He/she shall perform all design oversight reviews. VDOT will participate in these reviews. Under this procedure, the Design Manager shall provide VDOT with draft design plans for review and approval to confirm that the design work complies with the requirements of the Contract Documents, especially Section 2.4 of the General Conditions and the Standard and Reference Documents listed in Section 2.1 herein prior to initiation of construction activities on the Project.

Plan submissions shall be transmitted to VDOT's Project Manager who will distribute plans to appropriate VDOT and FHWA staff for review and approval. VDOT and FHWA shall have the right to review and comment on all draft plans and Specifications for compliance with the requirements of the Contract Documents and Standard and Reference Documents. The Offeror shall be responsible to satisfy all such requirements and hereby acknowledges that VDOT and FHWA will have the right to disapprove any design that it is not in compliance with the requirements of the Contract Documents and Standard and Reference Documents [unless design was previously approved in writing by VDOT and FHWA].

The written approval of the modifications should be attached with the draft plans submitted for review. The Offeror shall revise and modify all draft plans so as to fully reflect all comments and shall deliver to VDOT's Project Manager the revised submittal. The VDOT Project Manager will distribute plans to appropriate VDOT and FHWA staff for review and comments.

Final plans shall be submitted to VDOT and FHWA for review and approval by the Chief Engineer prior to the construction of that element or Work Package. The time frame for plan review and approval shall be in accordance with the requirements outlined in the Contract Documents. The Offeror shall be responsible for the design details and ensuring that the design and construction work are properly coordinated. VDOT's formal acceptance of the design will occur at the time of Final Acceptance as provided in the Contract Documents.

2.11.2 Construction Management Plan

The plan requires that the Offeror shall have the overall responsibility for both the Quality Control ("QC") and Quality Assurance ("QA") activities. The Offeror shall be responsible for 100% QA work and QA sampling and testing for all materials used and work performed on the Project. These QA functions shall be performed by an independent firm that has no involvement in the construction QC program/activities. The Offeror will also be responsible for providing quality assurance and quality control testing for all materials manufactured off-site, excluding the items listed below:

- Prestressed Concrete Structural Elements (beams, girders (AASHTO and bulb-T), and piles).
- Structural Steel Elements (beams and girders).
- Pipe (concrete, steel, aluminum and high density polyethylene) for culverts, storm drains and underdrains.
- Precast Concrete Structures.
- Asphalt Concrete Mixtures.
- Aggregate (dense and open graded mixes).
- Metal Traffic Signal and Light Poles and Arms

VDOT will provide plant quality assurance and plant testing of these items. In the event that the Department determines that materials fail to meet the tolerances in the Road and Bridge specifications, a Non-Compliance Report ("NCR") will be issued by the VDOT Project Manager and addressed to the Offeror's QAM for resolution. The Offeror is responsible to submit a Source of Materials, Form C-25, for all materials the Department retains responsibility for testing. The C-25 is for informational purposes only for the Department for the purpose of performing QA inspections. The C-25 will not be approved or rejected by the Department since it is the Offeror's responsibility to obtain materials that meet the contractual requirements. The Offeror will be responsible for providing quality assurance and quality control testing of all off-site materials that are not identified above, to include materials obtained from off-site soil borrow pits.

The Offeror's QAM shall report directly to the Offeror's Project Manager and be independent of the Offeror's roadway, bridge and otherwise physical construction operations. The QAM shall establish quantities prior to commencing construction, and provide VDOT a total number of QC, QA, Independent Assurance (IA) and Independent Verification (IV) tests required as a result of the quantities and the sampling and testing requirements as set forth in Sections 105.4 and 105.5 (August 2008 QA/QC Guide). VDOT will provide all IA and IV tests and therefore final determination of the actual number of IA and IV tests to be performed will be made by the Department based on these quantities.

The QAM will be responsible for the QA inspection and testing of all materials used and work performed on the Project to include monitoring of the Contractor's QC activities, maintaining the Materials Notebook, documentation of all materials, sources of materials and method of verification used to demonstrate compliance with the Department Standards. This includes all materials where QA testing is to be performed by the Department. The QAM shall be vested with the authority and responsibility to stop any work not being performed according to the Contract requirements. The construction QA and QC inspection personnel shall perform all of the construction inspection and sampling and testing work that is normally performed by VDOT, as prescribed in the Construction Manual, Inspection Manual, Materials Manual of Instructions and all other applicable Reference Documents. This includes the documentation of construction activities and acceptance of manufactured materials.

VDOT's role during construction operations will be limited to verification sampling and testing, independent assurance, review and processing progress payments, and oversight of the Offeror's construction management scheduling, document control and other Project control and Project management/administration efforts necessary to properly administer and manage the Project. All construction QA and QC personnel shall hold current VDOT materials certifications when testing hydraulic cement concrete, asphalt concrete, soils and aggregate, pavement markings and for the safety and use of nuclear testing equipment, as required by the Road and Bridge Specifications. The QA programs must be performed under the direction of the QAM. The QC programs should be performed under the direction of the Construction Manager. Substitution of Construction Manager and the QAM shall require VDOT approval. In addition, VDOT shall have the right to order the removal of any construction QA and QC personnel to include the QAM and the Construction Manager for poor performance at the sole discretion of the VDOT Project Manager. The QA/QC plan shall include rapid reporting of non-compliance to the VDOT Project Manager, and the remedial actions to be taken as discussed in Section 105.12 of the Division 1 Amendments to the Standard Specifications (Part 5).

The Offeror shall provide, prior to Final Application for Payment, a complete set of Project records that included, but are not limited to the following:

- Project correspondence.
- Project diaries.
- Test reports.
- Invoices.

- Materials books.
- Certified survey records.
- DBE/EEO records.
- Warranties.
- Maintenance Manual.
- Special Tools, etc.

2.12 Traffic Management Plan

The Offeror shall prepare a Transportation Management Plan (TMP) in accordance with IIM 241.3 and TED-351.1 for all proposed work associated with the Project for approval by the VDOT Project Manager. The specific TMP project level requirements for this contract are for Type A projects. This plan shall be prepared and implemented to promote safe and efficient operation of adjacent public transportation facilities and State Highways. This plan shall reflect the work in the Culvert Specific Scope Sheets and all applicable VDOT Standards and Specifications and local ordinances regarding time of work. This plan shall, unless otherwise directed by VDOT, also incorporate a regular weekly update to the appropriate municipality regarding any scheduled lane closures and identification of work areas for the next two weeks following the update.

2.12.1 Holiday Restrictions

Unless otherwise approved by VDOT as part of the Transportation Management Plan, no temporary lane restrictions shall take place between 12:00 noon on the Friday preceding and 12:00 noon Tuesday following Memorial Day and Labor Day; or any State or Federal holiday if these holidays occur on Saturday, Sunday or Monday. If any State or Federal holiday falls on a week day other than Monday, there shall be no temporary lane restrictions between 12:00 noon the day before and 12:00 noon the day after each of these holidays. No lane restriction shall take place between 12:00 noon Wednesday preceding and 12:00 noon the Monday following Thanksgiving Day.

2.12.2 Weekend Restrictions

Unless otherwise approved by VDOT as part of the Transportation Management Plan, no weekend lane closures are allowed.

2.13 Plan Preparation

2.13.1 Geopak and MicroStation

When the Offeror is given the Date of Commencement, they will be furnished the following software and files which run in WindowsNT, Windows2000, or Windows XP Professional only: Geopak (current version used by VDOT), MicroStation (current version used by VDOT) and VDOT Standard Resources Files.

2.13.2 Software License Requirements

VDOT shall furnish license(s) for drafting software products only to the Offeror. The License(s) will be supplied upon request by the Offeror, based on the data provided on a completed Software License Form, LD-893, and subsequently reviewed and approved by the VDOT Project Manager.

All License(s) are provided for use on the Project as detailed on the request only for the duration specified for this Project. Any adjustment made to the Project schedule will be taken into consideration in adjusting the time the license(s) are available. Justification for the number of license(s) requested **MUST** include the estimated number of total computer hours for the task of design, detailing, relating Project management and other computer based engineering functions requiring the software requested.

The appropriate use of all license(s) provided to the Offeror will become the responsibility of the Offeror regardless of who on the team uses the license(s). The Offeror will be responsible for keeping track of the license(s) provided to them or a team member and the prompt return of the license(s) and removal of the software from any system used solely for the Project for which it was obtained.

2.13.3 Drafting Standards

All plans shall be prepared in accordance with the most recent version of the VDOT's Road Design Manual, Vol. I, VDOT's CADD Manual and VDOT's Instructional & Informational Memoranda (I&IM) and VDOT's Manual of the Structure and Bridge Division, Vol. V – Part 2 – Design Aids and Typical Details.

The approved plans shall be furnished by the Offeror with appropriate signature blocks and Professional Engineer seal on the title sheets indicating approval for construction.

2.13.4 Electronic Files

All plans shall also be submitted in electronic format using the provided versions of Microstation CADD software. Files shall be submitted in both DGN and TIFF formats. VDOT will furnish electronic files of all applicable standard detail sheets upon request by Offeror. An electronic copy of the Cover Sheet with signature block is included in the RFP Information Package - CD ROM. The files will use standard VDOT cell libraries, level structures, line types, text fonts, and naming conventions as described in the most recent version of the VDOT CADD Manual and VDOT's Manual of the Structure and Bridge Division, Vol. V – Part 2 – Design Aids and Typical Details. Files furnished to Offeror in electronic format shall be returned to VDOT and removed from Offeror and its designer's computer equipment upon completion of this Project.

2.13.5 Structure Plans

Each sheet of the contract plans shall be completely dimensioned, and all elevations necessary for construction purposes shall be shown. An Estimated Quantities table shall be included on the final structure plans for each structure. The Offeror shall provide complete details for steel and concrete structures or components, including, but not limited to, all sizes and overall dimensions of members, number and arrangement of all fasteners at joints, type and size of welds, size and placement of prestressing strands, and location of concrete inserts and embedments.

2.13.6 Construction Plans

Construction Plans are those that are issued for construction and approval by VDOT's Chief Engineer. This plan milestone includes plans that may be submitted as soon as sufficient information is available to develop Construction Plans for certain portions or elements of the Project. The Offeror shall meet commitments for review and approval by other entities/agencies as specified in other portions of the RFP and its attachments. These plans will be issued for construction following approval by VDOT's Chief Engineer. The roadway or structure plans may be submitted for approval in logical subsections (such as from bridge to bridge) and consisting of work packages such as: 1) clearing and grubbing along with erosion and siltation control, grading and drainage, 2) paving, and 3) traffic control. Individual bridge plans may be submitted in logical components such as: 1) foundation, 2) remaining substructure, and 3) superstructure. A submittal schedule and planned breakdown of work packages shall be submitted to VDOT for approval as part of their planned Project schedule.

In addition, the construction plans shall include the following: 1) for all proposed and relocated waterline and sanitary sewer lines provide plan and profiles prepared at 1 inch = 5 feet vertical and 1 inch = 25 feet horizontal and all calculation charts and models, 2) for all proposed and existing storm systems utilized for adequate outfall, provide plan and profiles prepared at 1 inch = 5 feet vertical and 1 inch = 25 feet horizontal and all associated calculation charts (capacity, inlet sizing, and HGL), and 3) provide adequate outfall cross sections and calculations.

The roadway or bridge plans described above shall be submitted to VDOT Project Manager. VDOT shall receive ten (10) full size sets and two (2) half size sets of each submission. The plan submissions shall be delivered, in accordance with Section 2.13.8.

2.13.7 Record (As-Built) Plans

The final plan milestone is Record (As-Built) Plans. As-Built Plans shall be prepared, certified and submitted to the Department with the final application for payment. These plans will show all adjustments and revisions to the Construction Plans made during construction and serve as a permanent record of the actual location of all constructed elements. The Offeror shall submit the Record (As-Built) Plans in both hard copy and electronic (DGN & TIFF) formats.

2.13.8 Plan Deliverables

Hard Copy paper plans and Electronic plans (DGN & TIFF) formats on CD or other approved media

- Approved for Construction Plans.
- Record Plans (As-Built).
- Working Drawings.
- Shop Drawings.
- Design Calculations.

2.14 Public Involvement / Relations

The Offeror will handle the fulfillment of all public involvement responsibilities. During the design and construction phases, the Offeror shall:

- hold informal meetings with affected local citizen groups and businesses as necessary and as directed by VDOT. Any meetings held will be in accordance with the VDOT Policy Manual for Public Participation in Transportation Projects, updated September 2004.
- provide to VDOT's Central Office Public Affairs written information about the Project suitable for posting by VDOT on its web site. Such information will include a Project overview, plan of work for the coming month, overall Project schedule and contact information as well as updated Project photos. Web content should be updated at least twice a month throughout the duration of the Project.
- during the construction phase, the Offeror shall provide to the Central Office Public Affairs at least weekly written information about the Project's effects on traffic (traffic updates) that may be used by VDOT for issuing news releases to the public.

2.15 Monthly Progress Meetings

Design-Builder shall participate in monthly progress meetings as described in Part 4 (General Conditions of Contract), Section 2.1.8.

2.16 Virginia Occupational Safety and Health Standards

The Project shall comply with Virginia Occupational Safety and Health Standards in accordance with Section 110.05 of the Division I Amendments to the Standard Specifications.

At a minimum, all Contractor personnel shall comply with the following, unless otherwise determined unsafe or inappropriate in accordance with OSHA regulations:

2.16.1 Hard hats shall be worn while participating in or observing all types of field work when outside of a building or outside of the cab of a vehicle, and exposed to, participating in or supervising construction.

2.16.2 Respiratory protective equipment shall be worn whenever an individual is exposed to any item listed in the OSHA Standards as needing such protection unless it is shown the employee is protected by engineering controls.

2.16.3 Adequate eye protection shall be worn in the proximity of grinding, breaking of rock and/or concrete, while using brush chippers, striking metal against metal or when working in situations where the eyesight may be in jeopardy.

2.16.4 Approved high visibility Safety apparel shall be worn by all exposed to vehicular traffic and construction equipment.

2.16.5 Standards and guidelines of the current Virginia Work Area Protection Manual shall be used when setting, reviewing, maintaining, and removing traffic controls.

2.16.6 Flaggers shall be certified in accordance with the Virginia Flagger Certification Program.

2.16.7 No person shall be permitted to position themselves under any raised load or between hinge points of equipment without first taking steps to support the load by the placing of a safety bar or blocking.

2.16.8 Explosives shall be purchased, transported, stored, used and disposed of by a Virginia State Certified Blaster in possession of a current criminal history record check and a commercial driver's license with hazardous materials endorsement and a valid medical examiner's certificate. All Federal, State and local regulations pertaining to explosives shall be strictly followed.

2.16.9 All electrical tools shall be adequately grounded or double insulated. Ground Fault Circuit Interrupter ("GFCI") protection must be installed in accordance with the National Electrical Code ("NEC") and current Virginia Occupational Safety and Health agency ("VOSH"). If extension cords are used, they shall be free of defects and designed for their environment and intended use.

2.16.10 No person shall enter a confined space without training, permits and authorization.

2.16.11 fall protection is required whenever an employee is exposed to a fall six feet or greater.

3.0 ATTACHMENTS

The following attachments are specifically made a part of, and incorporated by reference into, these Technical Information and Requirements:

All additional information is included in the RFP Information Package – CD-ROM referred to in Part 1, Section 2.7.4 of this RFP.