Georgia Department of Transportation

VOLUME 3

Programmatic Technical Provisions For

Design-Build Agreement

SR 21 at I-95 Diverging Diamond Interchange Project

PI No.0012722

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Volume 3 Attachments

1 GENERAL

Refer to volume 2.

2 PROJECT MANAGEMENT

The DB Team shall establish and maintain an organization that effectively manages all Elements of the Work. This project management effort shall be defined by and follow the Project Management Plan (PMP), which is a collection of several management plans describing discrete Elements of the Work. The PMP is an umbrella document that describes the DB Team's managerial approach, strategy, and quality procedures to design, and build the Project and achieve all requirements of the Design-Build (DB) Documents. The PMP should be written in a manner where it is beneficial for the management of the project and shall establish parameters to monitor the project's scope, schedule, and budget. The PMP shall establish procedures to track risks to the scope, schedule, and budget for the project as well as management strategies for mitigating such risks.

The DB Team will develop the PMP and obtain acceptance from Georgia Department of Transportation (GDOT), The DB Team is responsible for supplementing necessary information and material to complete the updates of the PMP, as required, such as the DB Team's quality management plan, DB Team's risk management plan, and DB Team's management structure and project team organization chart.

The DB Team shall submit to GDOT the PMP within thirty (30) days following Notice to Proceed (NTP) 1; and the DB Team shall obtain acceptance by GDOT prior to any design submittals. Revisions as necessary to the PMP will be made by the DB Team.

2.1 Project Management Plan Requirements

The Project Management Plan is the guide for implementing the project and documents assumptions and decisions regarding communication, management processes, execution and overall project control. The ultimate purpose of the Project Management Plan is to clearly define the roles, responsibilities, procedures and processes that will result in the project being managed such that it is completed:

- On-time,
- Within budget,
- With the highest degree of quality,
- In a safe manner for both the individuals working on the project and for the traveling public, and
- In a manner in which the public trust, support, and confidence in the project will be maintained.

The Project Management Plan addresses the entire project lifecycle and ensures that the project will be managed holistically and as a continuum, not incrementally as the project progresses. The DB Team is responsible to implement and comply with the Project Management Plan throughout the Project's lifecycle.

The format for the Project Management Plan follows, sections of the PMP listed below may be omitted if not applicable to the Project:

2.1.1 Project Descriptions and Scope of Work

The complete description of the project, along with the history of its development and important decisions shall be documented in the Project Management Plan. A clearly defined project scope shall be included. This scope statement should include all the requirements to be executed, verified and delivered. The Project Management Plan shall clearly define the project scope of work, including construction, environmental work, utilities, and right of way.

2.1.2 Project Organizational Chart, Roles, and Responsibilities

A project organizational chart shall be attached for clarity, with a brief description of roles and responsibilities for each section or individual team.

The DB Team will be responsible for preparing an organizational chart representing the DB Team's management structure and identifying the DB Team's project team. The DB Team's project team shall include technical and functional support teams such as right of way, utilities, design, construction, project controls, Quality Assurance (QA), Quality Control (QC), communications and outreach, environmental monitoring and review, safety, security, etc… (as required). Roles and responsibilities not required for this project do not need to be identified in the organizational chart.

The DB Team must match the personnel identified in the SOQ and DBA unless otherwise accepted by GDOT. Changes to the DB Team must be experienced key personnel dedicated to the success of the project, with the requisite technical, managerial, leadership, and communication skills needed to proficiently perform the required tasks.

2.1.3 Project Phases

The planning and project development and implementation process may include several phases. These phases should be determined based on the needs and scope of the Project as determined by the DB Team with consultation with GDOT. This section of the PMP shall include the phases of the Work and a description of each phase. The DB Team shall also provide personnel information required to manage and complete the work for each phase. Major tasks, milestones, and deliverables shall be listed for each phase. In addition, other governmental approvals and permits required to complete each phase shall be identified.

2.1.4 Design Quality Assurance

The DB Team shall develop an overall Quality Management Plan. The Quality Management Plan shall comprise of a Design Quality Assurance (QA) Plan to include the following:

- Overall design QA process.
- Design Quality Control (QC) Plan including procedures and documentation.
- Design standards to be adhered to, including but not limited to all references listed in Volume 3 Manuals.
- Design criteria specific to the individual project.
- Procedures for preparing and checking individual plans, specifications, estimates, calculations, and other submittal items.
- Procedures for preparing and checking any unique or highly specialized designs.
- Procedures for coordinating work performed by different persons for related tasks, to ensure that conflicts, omissions, or errors do not occur between drawings or between drawings and other design documents.
- Procedures for coordinating and obtaining permits from permitting agencies, utility companies, and railroad companies, as applicable. This shall include procedures for ensuring that all permitting, utility, and railroad requirements are incorporated into the design of the project; and procedures for coordinating submittals and agency reviews such that the overall project schedule is not delayed.
- Level, frequency, and methods of review of the adequacy of the total project design. Methods by which all Final Plans shall be independently reviewed; verified for constructability, completeness, clarity, and accuracy; and back-checked.
- Level and frequency of audit and oversight design reviews (concerning QA and validity of consultant payments) to be performed by GDOT, the Federal Highway Administration (FHWA) (as applicable), independent consultants, and/or other agencies (as applicable).
- Procedures for reviewing and checking design drawings and documents required during construction.
- Qualifications for all key design personnel.
- Documentation and submission procedures to ensure that the established design QA procedures have been followed.
- QA/QC statement letter is required to be submitted with all design submittals.

The design QA procedures will be part of the DB Team's Quality Management Plan to be developed and provided by the DB Team. The Quality Management Plan shall satisfy the requirements stated in the Technical Provisions.

2.1.5 Construction Quality Assurance

The DB Team's Quality Management Plan shall comprise of a Construction Quality Assurance Plan to include the following:

- Overall construction QC process.
- Construction QC Plan including QC procedures and documentation.
- When testing and inspection is required of the Contractor by the DB Contract, construction standards to be adhered to for performing construction inspection.

Documents to be used that will define materials to be certified, materials to be tested, sampling procedures, testing procedures, record keeping and reporting procedures, and nonconformance plan.

- Based on requirements of GDOT Standard Specifications and other requirements of the DB Contract, identify the party and personnel responsible for QA and QC, i.e., responsibilities of the contractor versus the GDOT for sampling, testing, monitoring, and reporting test results,
- Frequency and agency involvement for construction coordination (progress) and/or partnering meetings.
- Procedures for coordinating with permitting agencies, utility companies, and railroad companies (as applicable) during construction to ensure that all requirements are incorporated into the project such that the overall project schedule is not delayed.
- Level and frequency of inspections to identify and correct any deficiencies in the project construction that do not meet the requirements of the plans, specifications, and other binding documents.
- Level and frequency of audit and oversight construction reviews (concerning QA and validity of contractor payments) to be performed by the GDOT, FHWA (as applicable), independent consultants, and/or other agencies (as applicable).
- Qualifications for all key construction personnel.
- Documentation and submission procedures to ensure that the established construction QA procedures have been followed.

The construction QA procedures will be part of the DB Team's Quality Management Plan to be developed and provided by the DB Team. The Quality Management Plan shall satisfy the requirements stated in the Technical Provisions.

2.1.6 Environmental Monitoring

The DB Team shall adopt a proactive approach for overseeing and inspecting environmental Work during construction to help guard against unanticipated impacts to the environment. Unanticipated impacts to the environment can lead to fines and schedule delays.

2.1.7 Right of Way

The DB Team shall provide Right of Way plans for all Additional Properties as required in Section 7.2.

2.1.8 Safety and Security

The DB Team shall be responsible for the safety of its personnel and of the general public affected by the Project.

DB Team shall submit to GDOT for acceptance a comprehensive safety plan ("Safety Plan") that is consistent with and expands upon the preliminary safety plan submitted

with the Proposal. The Safety Plan shall fully describe DB Team's policies, plans, training programs, Work Site controls, and Incident response plans to ensure the health and safety of personnel involved in the Project and the general public affected by the Project during the Term of the Agreement.

DB Team's Safety Plan shall address procedures for immediately notifying GDOT of all Incidents arising out of or in connection with the performance of the Work, whether on or adjacent to the Project.

This section shall define the requirements to be incorporated into the Project in order to ensure that the Project is a safe and secure environment for all individuals working on the Project. The prevention of accidents during execution of the project shall be a primary concern of all participants, and shall be the responsibility of all levels of management. Safety shall never be sacrificed for production, but shall be considered an integral part of an efficient and quality Project.

It is suggested that safety and security procedures include the following:

- Safety and health standards to be adhered to.
- Roles and responsibilities of the safety/security staff.
- Contractors (meaning prime contractors and subcontractors combined) having a Safety Director and an accepted safety manual (or plan) available to all employees.
- Contractors holding periodic on-site safety meetings.
- Contractors conducting periodic on-site safety inspections.
- Contractors providing safety training for all new employees, and refresher training for all employees.
- Contractors conducting drug screening for all new hires.
- Contractors establishing daily housekeeping and clean-up procedures.
- Possible employee sharing of accident prevention savings.
- Having first-aid and medical kits readily available.
- Having a site security plan, possibly including such items as restricted parking near vulnerable structures, physical barriers (fences, barricades, etc.), coordinated efforts with local law enforcement officials during heightened threat levels, video surveillance, alarm systems, emergency telephones, etc.
- Having an emergency preparedness and incident management plan, including roles and responsibilities, emergency evacuations, communications, first responder awareness training, and field drills.
- Establishment of an employee identification (ID) system.
- Level and frequency of audit and oversight safety/security reviews to be performed by GDOT, FHWA, independent consultants, and/or other agencies (as applicable).
- Safety and security periodic reporting (normally monthly).

In addition, appropriate threat and vulnerability assessments shall be made and taken into consideration thought the Project's life cycle. The transportation elements of the project could have a significant impact on regional safety and security plans.

2.1.9 Traffic Management

The DB Team shall develop a Transportation Management Plan and a traffic control plan for each phase of its Work. The DB Team's Transportation Management Plan and the traffic control plans shall comply with the requirements of Section 18.

2.1.10 Project Communications (Media and Public Information)

Refer to Volume 2

2.1.11 Closeout Plan

A closeout plan consisting of the requirements to provide a coordinated transition from construction to operations along with the roles and responsibilities of various agencies and offices shall be included in the Project Management Plan.

2.1.12 Appendices

The DB Team shall include the various management plans required by the DB Agreement and the Technical Provisions in the Project Management Plan as appendices.

2.1.13 Project Management Plan Checklist

The following items shall be included in the Project Management Plan:

- Project Description and Scope of Work
- Goals and Objectives
- Project Organizational Chart, Roles, and Responsibilities
- Project Phases
- Procurement and Contract Management
- Project Reporting and Tracking
    - Executive Summary
    - Project Activities and Deliverables
    - Action Items/Outstanding Issues
    - Project Schedule
    - Project Cost
    - Project Quality
    - Other Status Reports
- Internal and Stakeholder Communications
- Project Management Controls (Scope, Cost, Schedule, Claims, etc.)
    - Risk Management Plan (if required)
    - Scope Management Plan (if required)

  - Scheduling Software
  - Change Order and Extra Work Order Procedures
  - Claims Management Procedures
  - Other Programs
- Design Quality Assurance
- Construction Quality Assurance
- Environmental Monitoring
- Right of Way
- Safety and Security
- Traffic Management
- Project Communications (Media and Public Information) (if required)
- Closeout Plan
- Project Documentation
- Other Possible Sections (as required)
- Appendices

Other items may be added depending on the Project's characteristics. An updated PMP should occur anytime there is a scope change to the project.

2.2 Schedule and Quality Management Requirements

2.2.1 General Schedule Requirements

The DB Team shall comply with the Critical Path Method (CPM) schedule requirements as defined in this Section 2.2. The DB Team shall be responsible for ensuring that all work sequences are logical and that the CPM schedule indicates a coordinated plan. The CPM schedule shall indicate the order and interdependence of activities and the sequence for accomplishing the work. The CPM schedule shall illustrate all activities that occur during the contractual life of the Project, whom is responsible for each respective activity, and the duration for each activity as set forth in the DB Documents.

2.2.2 Reserved

2.2.3 Project Baseline Schedule Requirements

DB Team shall use the Preliminary Baseline Schedule submitted with the Proposal as a foundation to prepare a Project Baseline Schedule and shall submit the Project Baseline Schedule to GDOT for review and acceptance. The schedule shall show milestones for intermediate and contract completion dates no later than those specified in the contract. All specified closure or restriction periods, non-work periods or any other time restrictions in the contract shall be incorporated in the project baseline schedule. The Project Baseline Schedule shall be submitted no later than ninety (90) calendar days after NTP 1. Should a NEPA/GEPA Reevaluation be required, the Project Baseline Schedule shall illustrate activities of both GDOT and the DB Team for the respective activities that each are responsible for. The NEPA/GEPA Reevaluation schedule

activities shall be in conformance with the approved NEPA/GEPA Reevaluation time provided for in Section 4.

The Project Baseline Schedule shall include all major Work activities required under the DB Documents, in sufficient detail to monitor and evaluate design and construction progress, from commencement of the Work to Final Acceptance of the Work. If required, the Project Baseline Schedule shall also include activities based on GDOT schedule for acquisition of any Proposed Right of Way, as well as for any DB Team identified Additional Properties, Utility Adjustments, permit acquisitions, and interfaces with other projects, localities, municipalities and other Governmental Entities. For each major activity, the DB Team shall indicate the duration (in Days) required to complete the activity, the anticipated start and finish date of each activity. In addition, the Project Baseline Schedule shall indicate the sequence of performing each major activity and the logical dependencies and inter-relationships between the activities.

The Project Baseline Schedule shall include a listing of all Submittals as called out in Volume 2, Section 23, other sections of the DB Documents, or as required to obtain any acceptance by GDOT or any other Government Entity. Submittal activity durations shall include specific durations for GDOT review and/or acceptance of DB Team's submittals.

Float shall not be considered as time for the exclusive use of or benefit of either GDOT or the DB Team, but shall be considered as a jointly owned, expiring resource available to the Project and shall not be used to the financial detriment of either party. Any method utilized to sequester Float calculations will be prohibited without prior acceptance of GDOT. Any schedule, including the Project Baseline Schedule and all updates thereto, showing an early completion date shall show the time between the scheduled completion date and the applicable Milestone Schedule Deadline as "Project Float."

The Project Baseline Schedule shall define the timeframe for completion of the Project and achievement of all contractual milestones, and be used to monitor progress and denote changes that occur during design and construction. Additional schedule requirements are as follows:

- The Project Baseline Schedule shall be organized in a Work Breakdown Structure (WBS). Each schedule activity shall be mapped to one and only one of the parent WBS activities. The Project Baseline Schedule shall include all major Work activities required under the DB Agreement. The WBS identified below shall be the basis for organizing all Work under the Contract Documents and shall be used to structure the baseline schedule. The WBS shall conform to the level of structure below, which represents the minimum levels of the WBS that all schedule information shall rollup to. Sections listed below that are not applicable to the project should be removed at the DB Team's discretion. The DB Team shall further develop and detail the base WBS, the minimum requirements of which are bulleted below, in accordance with its specific schedule activities and retaining the ability to summarize to at least the same level as shown in the base.

The DB Team may add additional activities to the levels presented below with GDOT's prior written acceptance. GDOT will provide a WBS template as a RID.

1.0 Project Name
- 1.1 Project Management
  - 1.1.1. Administration
  - 1.1.2. Bonds and Financing
  - 1.1.3. Insurance
  - 1.1.4 QA/QC
- 1.2. Design
  - 1.2.1. Environmental
    - 1.2.1.1. (By subsections determined by DB Team w/GDOT concurrence)
  - 1.2.2. Roadway
    - 1.2.2.1. (By subsections determined by DB Team w/GDOT concurrence)
  - 1.2.3. Drainage
    - 1.2.3.1. (By subsections determined by DB Team w/GDOT concurrence)
  - 1.2.4. Structures
    - 1.2.4.1. (By subsections determined by DB Team w/GDOT concurrence)
      - 1.2.4.1.1. Bridge
        - 1.2.4.1.1.1. (By Bridge No.)
      - 1.2.4.1.2. Retaining Wall/Noise Wall
        - 1.2.4.1.2.1. (By Retaining Wall/Noise Wall)
      - 1.2.4.1.3. Building
        - 1.2.4.1.3.1. (By Building)
  - 1.2.5. Railroad
    - 1.2.5.1. _____RR
    - 1.2.5.2. _____RR
  - 1.2.6. Landscape & Aesthetics
    - 1.2.6.1. (By subsections determined by DB Team w/GDOT concurrence)
  - 1.2.7. Traffic
    - 1.2.7.1. (By subsections determined by DB Team w/GDOT concurrence)
      - 1.2.7.1.1. Signing
      - 1.2.7.1.2. Traffic Signal Systems
      - 1.2.7.1.3. Roadway Illumination
  - 1.2.8. Intelligent Transportation System (ITS)
    - 1.2.8.1. (By subsections determined by DB Team w/GDOT concurrence)
  - 1.2.9. Traffic Management and Controls During Construction
    - 1.2.9.1. (By subsections determined by DB Team w/GDOT concurrence)
  - 1.2.10. Tolling
    - 1.2.10.1. (By subsections determined by DB Team w/GDOT concurrence)
  - 1.2.11. QA/QC
    - 1.2.11.1. (By subsections determined by DB Team w/GDOT concurrence)
- 1.3. Right of Way (ROW) Acquisition
  - 1.3.1. (By subsections determined by DB Team w/GDOT concurrence)
    - 1.3.1.1 (By Parcel No.)
- 1.4. Utility Adjustments

1.4.1. (By Utility Owner)
1.4.1.1. Negotiate Agreements
1.4.1.2. Locate Existing Utilities
1.4.1.3. Prepare Utility Assembly
1.4.1.4. Construct Utility Adjustment

1.5. Construction
1.5.1. Mobilization
1.5.2. Roads
1.5.2.1. (By subsections determined by DB Team w/GDOT concurrence)
1.5.2.1.1. Local Roads
1.5.2.1.1.1. Erosion Control
1.5.2.1.1.2. Earthwork
1.5.2.1.1.3. Pavement, Pvmt Markings
1.5.2.1.1.4. TCP/MOT
1.5.2.1.1.5. Other Rdwy. Appurtenances (Barriers, Guardrail, Impact Attenuators)
1.5.2.1.1.6. Fencing
1.5.2.1.2. Mainlines and Ramps
1.5.2.1.2.1. Erosion Control
1.5.2.1.2.2. Earthwork
1.5.2.1.2.3. Pavement, Pvmt Markings
1.5.2.1.2.4. TCP/MOT
1.5.2.1.2.5. Other Rdwy Appurtenances (Barriers, Guardrail, Impact Attenuators)
1.5.2.1.2.6. Fencing
1.5.2.1.3. Managed Toll Lanes
1.5.2.1.3.1. Erosion Control
1.5.2.1.3.2. Earthwork
1.5.2.1.3.3. Pavement, Pvmt Markings
1.5.2.1.3.4. TCP/MOT
1.5.2.1.3.5. Other Rdwy Appurtenances (Barriers, Guardrail, Impact Attenuators)
1.5.2.1.2.6. Fencing
1.5.3. Drainage
1.5.3.1. (By subsections determined by DB Team w/GDOT concurrence)
1.5.3.1.1. Cross Culverts
1.5.3.1.1.1. (By location)
1.5.3.1.2. Local Roads
1.5.3.1.2.1. Trunkline
1.5.3.1.2.2. Inlets and Laterals
1.5.3.1.3. Mainlanes, Managed Toll Lanes, and Ramps
1.5.3.1.3.1. Trunkline
1.5.3.1.3.2. Inlets and Laterals
1.5.3.1.4. Crossing Streets
1.5.3.1.4.1. (By Street)
1.5.4. Structures
1. 5.4.1. (By subsections determined by DB Team w/ GDOT concurrence)

1. 5.4.1.1. Bridges
1. 5.4.1.1.1. (By Bridge No.)
1. 5.4.1.1.1.1. Foundations
1. 5.4.1.1.1.2. Substructure
1. 5.4.1.1.1.3. Superstructure
1. 5.4.1.2. Retaining Walls
1. 5.4.1.2.1. (By Retaining Wall No.)
1. 5.4.1.3. Noise Walls
1. 5.4.1.3.1. (By Noise Wall No.)

1.5.5. Railroad

1.5.5.1. _____RR (By subsections determined by DB Team w/ GDOT concurrence)

1.5.5.1.1. Bridges
1.5.5.1.2. Trackwork
1.5.5.1.2.1. Track
1.5.5.1.2.2. Switches
1.5.5.1.2.3. Signal Work
1.5.5.1.204. Flagging

1.5.6. Landscaping

1.5.6.1. (By subsections determined by DB Team w/GDOT concurrence)

1.5.6.1.1. Trees and Shrubs
1.5.6.1.2. Seeding and Sodding
1.5.6.1.3. Plants and Ground Cover

1.5.7. Traffic Related Elements

1.5.7.1. (By subsections determined by DB Team w/GDOT concurrence)

1.5.7.1.1. Sign and Sign Support Structures
1.5.7.1.1.1 Mainlines and Ramps
1.5.7.1.1.2 Frontage Roads
1.5.7.1.1.3 Crossing Streets
1.5.7.1.2. Traffic Signal Systems
1.5.7.1.2.1. (By location)
1.5.7.1.3. Roadway Illumination
1.5.7.1.3.1. Mainlines and Ramps
1.5.7.1.3.2. Frontage Roads
1.5.7.1.3.3. Crossing Streets
1.5.7.1.3.3.1. (by Crossing Street)

1.5.8. ITS

1.5.8.1. (By subsections determined by DB Team w/GDOT concurrence)

1.5.8.1.1. Conduits
1.5.8.1.2. Closed Circuit Television (CCTV)
1.5.8.1.3. Vehicle Detection
1.5.8.1.4. Changeable Message Signs (CMS)
1.5.8.1.5. Lane Control Signals

1.5.9. Traffic Control During Construction

1.5.9.1. (By subsections determined by DB Team w/GDOT concurrence)

1.5.9.1.1. Traffic Mgmt. Strategy/All Stages
1.5.9.1.2. Traffic Control and Signing
1.5.9.1.3. Temporary Detours

1.5.10. Tolling
1.5.10.1. (By subsections determined by DB Team w/GDOT concurrence)
1.5.10.1.1. Electronic Toll Collection System (ETCS) Infrastructure
1.5.10.1.1.1. Conduit Systems and Hubs
1.5.10.1.1.2. Support Structures
1.5.10.1.2. ETCS Equipment
1.5.11. Buildings
1.5.11.1. (By subsections determined by DB Team w/GDOT concurrence)
1.5.11.1.1. (By Building)
1.6. Operations During Construction
1.6.1. Project Patrols and Inspections
1.6.2. Traffic Control and Incident Management
1.6.3. Policing
1.6.4. Power Costs
1.7. Maintenance During Construction
1.7.1. Roadway
1.7.2. Drainage
1.7.3. Structures
1.7.4. Pavement Marking, Object Markers, Barriers, Delineators
1.7.5. Guard Rail, Safety Barrier, Impact Attenuator
1.7.6. Signs
1.7.7. Traffic Signal Systems
1.7.8. Lighting
1.7.9. Fences and Noise Walls
1.7.10, Roadside Management
1.7.11. ITS and ETCS
1.7.12. Buildings
1.7.13. Incident Response
1.7.14. Customer Response

- The Project Baseline Schedule shall divide the Work into activities with appropriate logic ties to show the DB Team's overall approach to the planning, scheduling, and execution of the Work. The duration and logical relationships of the activities (or summaries at the project phase level) shall be based on the actual duration and relationships anticipated. The DB Team shall not use calendar dates or constraints to logically begin or complete any activity unless calendar dates are shown in the DB Documents (In a case where a specific date is required to start or finish an activity only a start-on-or-before or a finish-on-or-before constraint is to be used).

- Activity Identification: DB Team shall use standard and consistent activity identification numbers, textual descriptions, and codes in a manner acceptable to GDOT for the Project Baseline Schedule. DB Team shall maintain consistency with Schedule Template provided in the RID for all Activity Identifications. Only use an alphanumeric coding structure with no spaces, hyphens, symbols or

characters other than letters are to be used in the Activity ID. Each Project Baseline Schedule submittal shall be clearly identified. Resubmissions of a Project Baseline Schedule shall use the same revision number as the original submission individually identified by a sequential appended letter (A, B, etc.), as an indication of a revised version.

- Each required milestone as set forth in Volume 1, Exhibit 9 shall be included in the schedule and conform to the scheduling requirements set forth in the DB Documents, and be assigned a "finish on or before" constraint date.

- No unspecified milestones, constraints, float suppression techniques, or use of activity durations, logic ties, and/or sequences deemed unreasonable by GDOT, shall be used in the Project Baseline Schedule. Each Project Baseline Schedule submittal shall clearly and individually define the progression of the Work within the applicable time frame by using separate activities.

- The Project Baseline Schedule shall be used by all Parties for planning and monitoring the progress of the Work and may serve as supporting documentation for determining the Payment Request amount that may be compensable to be made to DB Team. The updated Project Baseline Schedule shall show actual progress and not calculated progress. Accepted logic changes and approved changes to the DB Documents shall be incorporated into the Project Baseline Schedule (these changes are to be identified with either the change notice number or other method accepted by GDOT to identify the change to the schedule) and identified in the narrative with each submittal.

- If the DB Team chooses to resource load the schedule, the following requirements should be met. The commodity, labor, or equipment quantity that the activity value will be based on, shall be indicated as a resource. Labor-loading of activities shall be based upon total number of workers, not total number of crews. Major construction equipment to be used by the DB Team and subcontractors at all tiers in prosecuting Work shall be assigned to applicable activities. The quantity shall represent the estimated effort in-place for the activity value.

- The WBS for each work element shall indicate the duration, timing, and logical relationship to other work elements, including relationships to activities other than the parent activity of the particular Work element. Activities shall be broken down minimally to work elements (for example, bridges shall be broken down into foundations, substructure, superstructure, and decks). All Work shall be broken down to similar manageable work elements. For Utility Adjustment Work, if the Work is not shown as an activity itself, such Work shall be shown as a work element, where applicable. For Mobilization pactivities or work elements, DB Team shall provide a list of Work items that are included in each activity or work element.

- The Project Baseline Schedule shall define the timeframe for completion of the Project and achievement of milestones, and be used to monitor progress and denote changes that occur during design and construction.

- The DB Team shall add an activity to the end of the schedule labeled "Weather Delays," this activity shall be a sum of the allotted number of days calculated in the Baseline Narrative Report in Section 2.2.4.

Project Baseline Schedule submittals shall include:

1. Electronic copy (Primavera P6 Version 7.x or greater) of the file used for the proposed Project Baseline Schedule revision

2. A schedule narrative meeting the requirements of Section 2.2.4.

3. A critical path schedule plot

4. A full schedule plot

2.2.3.1 Logic Requirements

Logic ties shall refer to all relationship types. All activities/tasks on the Project Baseline Schedule shall meet the logic requirements below:

- A maximum duration of twenty (20) Calendar Days, and not less than one (1) Day, except activities relating to acceptances and reviews by Governmental Entities, procurement activities, or as otherwise accepted by GDOT.
- Activity relationships shall be Finish-to-Start (FS) with no leads or lags, Finish-to-Finish (FF) or Start-to-Start (SS) with lags no more than ½ of the predecessor's duration.
- The use of lags with a negative value shall not be allowed on any activity relationship type.
- The schedule shall provide sufficient time for all submittals and re-submittal review times required in the DB Documents.
- All activities shown in the schedule, with the exception of the first and last activity, shall have a minimum of one predecessor and a minimum of one successor activity.

2.2.3.2 Calendar Requirements

The use of standard GDOT calendars is recommended for scheduling the Project. A list of standard GDOT calendars is provided for DB Team usage in the Schedule Template with the RID documents. The DB Team shall be allowed to modify or add to these calendars as needed for their specific use provided that the modified or additional calendars are Project Level Calendars and not Global Calendars.

2.2.4 Narrative Requirements

The Project Baseline Schedule and all schedule updates shall include a separate narrative report. The narrative report shall be updated with each schedule submission and pertain to the work identified in the schedule. For the baseline schedule submittals, the narrative report shall include the following separated into sections:

1. An explanation of the overall plan to complete the project, including where the work will begin and how the work and crews will progress through the project.

2. An explanation of the use and application of the workdays per week, number of shifts per day, number of hours per shift, holidays observed and how the schedule accommodates adverse weather days for each month. Submit a list of the calendars used in the schedule and a definition of their type.

3. Description of the work to be completed each season for multi-year projects.

4. A description of the critical path.

5. An explanation of the use of any allowed constraints, including the reason and purpose for each constraint.

6. A statement describing the status of any required permits.

7. The DB Team's proposed methods of operation for designing and constructing the major portions of the Work required by the DB Documents.

8. A statement that includes a calculation of the number of inclement weather (or weather delays) derived from the table in Section 2.2.8, and a formula showing how the number of days was calculated.

For Project Schedule Updates the narrative shall also include the following:

1. A description of the work performed since the last schedule update. The work performed shall match the work scheduled to be performed since the last schedule update. If the work performed does not match the work scheduled to be performed, the DB Team shall include a detailed description of why there is a discrepancy between the activities that should have been completed or progressed as indicated in the previous schedule submittal. GDOT may withhold payment if the reason for the discrepancy is not deemed an acceptable change in sequencing of activities or outside the DB Team's control (3rd party or weather related) until additional documentation or recovery plan is submitted and accepted as appropriate.

2. A description of the status of the scheduled completion date, focusing on any changes since the previous submission including an explanation if the scheduled completion date is projected to occur after the contract completion date.

3. An explanation if any contract milestone dates are projected to occur after the dates set out in the contract.

4. A description of unusual labor, shift, equipment or material conditions or restrictions encountered.

5. A description of any problems encountered or anticipated since the last schedule update.

6. A statement that identifies any current and anticipated delays. A discussion of delays in the narrative report does not constitute notice in accordance with 105.13.B.9. The statement should include identification of the delayed activity, the type of delay, the cause of the delay, the effect of the delay on other activities and project milestones and identification of actions required to mitigate the delay.

2.2.5 Project Schedule Update Requirements

DB Team shall update, on a monthly basis, the accepted Project Schedule to reflect the current status of the Project, and any accepted Compensation or Relief Events by GDOT. The Schedule Update shall be submitted monthly after acceptance of the Project Baseline Schedule and shall be developed in accordance with the applicable provisions of the DB Documents.

Each Project Schedule Update shall accurately reflect all activities completed as of the Data Date of the updated Project Schedule. All completed or started activities are to be at least one day prior to the Data Date of the schedule. DB Team shall submit the Project Schedule Update as an electronic version in .pdf and .xer formats. The DB Team shall also submit a PDF version of the Critical items graphical report for each Critical Path (zero float activities) sorted by activity early start date.

The Project Schedule Update shall include the following:

1. Electronic copy (Primavera P6 Version 7.x or greater) of the file used for the proposed Project Baseline Schedule revision

2. A schedule narrative meeting the requirements of Section 2.2.4

3. A critical path schedule plot

4. A full schedule plot

5. A five (5) week look ahead schedule for the activities to be completed between the schedule submittal and the following month’s schedule update

6. A detailed variance report of the previous months five (5) week look ahead schedule.

7. A letter stating the dates which the DB Team could not work on activities identified on the critical path due to inclement weather. If there were no weather delays experienced during the previous month the letter should state as such.

No changes in activity durations, calendar assignments, logic ties, or constraints will be allowed in the Project Status Schedule Update without prior written acceptance of GDOT.

No changes in activity durations, calendar assignments, logic ties, or constraints will be allowed in the Project Schedule Update without the written acceptance of GDOT.

The monthly Project Schedule Update(s) shall reflect updated progress to the Data Date, forecast the finish dates for in-progress activities, and reforecast early dates and late dates for remaining activities, but shall otherwise contain no changes in activity durations, logic ties, or constraints without acceptance from GDOT. The Project Schedule Update(s) shall also incorporate and fully specify all appropriate information from the previously accepted Project Baseline Schedule. Interruptions to an activity, after that activity has begun, shall be added a separate activity. The activity that is interrupted shall be split into two activities; the initial activity shall be marked as completed and the new activity shall have a FS relationship with the added interruption activity.

GDOT will review the monthly Project Schedule Update(s) for consistency with DB Team's WBS, the current accepted Project Baseline Schedule and the previous months accepted update for conformance with the DB Documents. DB Team shall correct any deficiencies and resubmit the monthly Project Schedule Update(s). GDOT may withhold payment until the Schedule Update is accepted.

2.2.6 Project Baseline Schedule Revisions

As it becomes necessary to modify the Project Baseline Schedule to reflect changes to the current accepted schedule, Work sequences, contractual changes (accepted Relief Events or Compensation Events), or to further subdivide the schedule. The DB Team shall request changes to the Project Baseline Schedule and submit such requested changes in writing to GDOT. GDOT shall have final acceptance authority for requested changes to the Project Baseline Schedule. No changes to the Project Baseline Schedule shall be made without the prior written acceptance of GDOT. Until GDOT approves a change, all Project Baseline Schedule submittals shall be tracked against the previously accepted Project Baseline Schedule. Accepted revisions will be incorporated into the Project Baseline Schedule at the next monthly schedule update.

Project Baseline Schedule revision submittals shall include:

1. Electronic copy (Primavera P6 Version 7.x or greater) of the file used for the proposed Project Baseline Schedule revision

2. Narrative describing in detail any proposed changes to the current version of the Project Baseline Schedule with justification for the changes, including, at the minimum, the following:
    - o Changes to activity original durations,
    - o Changes to activity relationships and/or schedule logic,
    - o Identification of activities that have been added, deleted, or modified,
    - o Changes to the Project Baseline Schedule critical path, and /or
    - o Changes or delay in any contractual completion date since the last Project Baseline Schedule submittal.

GDOT will review the Project Baseline Schedule Revision submittal(s) for consistency with DB Team's current accepted Project Baseline Schedule and for conformance with the DB Documents. Once a Project Baseline Schedule Revision is accepted by GDOT, it shall become the Project Baseline Schedule of record and be used as the basis for subsequent Project Schedule Update(s).

2.2.7 Schedule Display Requirements

Each schedule submitted to GDOT shall display the following items on each page:

- Activity ID
- Activity Description (or Activity Name)
- Original Duration
- Remaining Duration
- Early Start
- Early Finish
- Late Start
- Late Finish
- Actual Start
- Actual Finish
- Total Float
- Percent Complete
- Legend
    - o Contract Number
    - o District
    - o DB Team Name
    - o Project Location

- Original Contract Completion Date
- Revised Contract Completion Date (as Applicable)
- Data Date

2.2.8 Time Extensions and Inclement Weather Delays

If the DB Team believes work on the contract has been delayed for reasons beyond its control, a written request for extension of contract time may be submitted in accordance with Georgia Standard Specification 108.07.E.

The Weather Delays activity shall be a sum of the allotted number of days calculated from the tables below. Throughout the life of the Project if a weather delay is experienced on any particular day, that day should be marked as a nonworking day and activity Weather Delays should be reduced by one (1) day of duration. The following tables indicate the number of working and non-working days per month.

	Roadway - Zone 1 (Northern Zone)		Roadway - Zone 2 (Central Zone)		Roadway - Zone 1 (Southern Zone)	
	Working Days	Nonworking Days	Working Days	Nonworking Days	Working Days	Nonworking Days
JAN	11	20	13	18	14	17
FEB	12	16	14	14	15	13
MAR	16	15	17	14	18	13
APR	16	14	17	13	17	13
MAY	18	13	18	13	20	11
JUN	18	12	19	11	19	11
JUL	18	13	20	11	18	13
AUG	19	12	19	12	21	10
SEP	17	13	17	13	17	13
OCT	17	14	19	12	19	12
NOV	13	17	14	16	16	14
DEC	12	19	15	16	16	15
Total:	187	178	202	163	210	155

	Bridge - Zone 1 (Northern Zone)		Bridge - Zone 2 (Central Zone)		Bridge - Zone 1 (Southern Zone)	
	Working Days	Nonworking Days	Working Days	Nonworking Days	Working Days	Nonworking Days
JAN	14	17	15	16	15	16
FEB	15	13	15	13	16	12
MAR	18	13	18	13	19	12

APR	18	12	18	12	18	12
MAY	19	12	19	12	19	12
JUN	19	11	18	12	18	12
JUL	19	12	18	13	17	14
AUG	20	11	19	12	19	12
SEP	18	12	18	12	17	13
OCT	19	12	20	11	19	12
NOV	15	15	15	15	16	14
DEC	15	16	16	15	17	14
Total:	209	156	209	156	210	155

Note: In the event of a leap year, one (1) day will be added to the Working Days.

If the Project is controlled by bridge related items then the bridge table should be used for calculations.

If a Project spans multiple zones the average will be used for the calculation.

See Attachment 2-1 for delineation between zones.

As stated in Section 2.2.5 the DB Team shall submit a letter each month indicating experienced delay in critical path activities. Submission of this letter does not indicate that the Department agrees to any or all of the days claimed. The Department reserves the right to respond to the letter at any time. Weather delays will not be considered for non-critical path activities.

The DB Team's request for extension of time shall include its own analysis, using a method approved by the Engineer. Time extensions for weather delays will only be considered after the Project has reached substantial completion and the remaining activities to complete cannot be affected by weather.

2.3 Quality Management Requirements

2.3.1 Document Management

DB Team shall establish and maintain an electronic and hard copy document control system to store, catalog, and retrieve all Project related documents in a format that is accepted for use by GDOT. Unless otherwise directed by GDOT, record retention shall comply with the requirements included in the Retention Schedules for State Government Paper & Electronic Records, and the State Agency Specific Schedules for Department of Transportation, and shall be provided to GDOT at the time of the expiration or earlier termination of the Agreement.

2.3.2 Quality Management Plan Submittal Requirements

DB Team shall submit a comprehensive Quality Management Plan (QMP) to GDOT for acceptance that conforms to the quality assurance procedures with provisions

contained in 23 Code of Federal Regulations (CFR) 637 Subpart B. The QMP shall be submitted to GDOT for review no later than thirty (30) days from NTP 1. All audits, findings and reports shall be provided to GDOT with all submittals.

2.3.3 Quality Management Plan Requirements

DB Team shall develop, implement, and maintain the QMP for the Term. The QMP shall describe the system, policies, and procedures that ensure the Work meets the requirements of the DB Documents and provides documented evidence of same.

The complete QMP shall encompass all Work performed by DB Team and Contractors of all tiers.

The QMP shall contain detailed procedures for DB Team's quality control and quality assurance activities. DB Team's quality process shall incorporate planned and systematic verifications and audits undertaken by an independent party. DB Team shall conduct all quality control, quality assurance, and design overlay and coordination among design disciplines, all in accordance with the QMP and the requirements of the DB Documents.

When required by GDOT Specifications, inspections, reviews, and testing performed by the DB Team shall only be performed by entities prequalified by GDOT with training, qualifications, and certifications using equipment that is accurately calibrated and maintained in good operating condition at an AASHTO Materials Reference Laboratory (AMRL) (American Association of State Highway and Transportation Officials (AASHTO) R18, "*Establishing and Implementing a Quality System for Construction Materials Testing Laboratories*") accredited facility, or at a facility with comparable certification (e.g., International Organization for Standardization (ISO) 17025, "General Requirements for the Competence of Testing and Calibration Laboratories").

2.3.4 Quality Management Plan Structure

The DB Team shall organize the QMP as follows:

- **Project QMP** - a quality policy statement shall be provided which contains a complete description of the quality policies and objectives that the DB Team will implement throughout its organization. The policy shall demonstrate the DB Team senior management's commitment to implement and continually improve the quality management system for the Work. The Quality Management Plan will also include policies, plans, processes and procedures for:
    - Organizational requirements with contact information of the DB Team's Organization as defined
    - Roles and responsibilities of the Quality Team
    - Administrative processes and procedures common to both design and construction quality management
    - Quality records management processes and procedures

- A comprehensive noncompliance process

- **Design QMP** - including but not be limited to plans, processes and procedures for:
  - Design development including checking, peer review, cross-discipline coordination for developing Project plans, Project specifications and estimates with supporting technical documentation
  - Managing design reviews and changes during design and construction
  - Design Decision Making
  - Design communication, coordination, and collaboration
  - Managing GDOT Reviews and Responses to submittals, Work Change Directives, and Change Requests
  - Document control
  - Design and engineering support during construction, witnesses tests, reviewing quality inspection and test records, responding to Request For Information (RFI's) applications and field changes
  - Independent auditing of design quality management
  - Design criteria adherence
  - Non-compliance management

- **Construction Quality Management Plan (CQMP)** - including but not limited to plans, processes and procedures for:
  - Construction inspection, testing, management and administration (and party or personnel responsible for each activity: GDOT vs. DB Team)
  - Tracking, Measuring and documenting construction progress
  - Construction decision making
  - Ensuring that only the most up to date Released for Construction documents are be used
  - Plan/Protocols for inspection, testing and maintaining quality certifications
  - Managing reviews and responses to Construction Documentation (RFIs, Field Changes, Design Changes, Construction Changes, Claims, etc., during construction)
  - Managing and tracking accepted construction changes
  - Managing and controlling construction schedule
  - Construction communication, coordination, and collaboration
  - Environmental compliance
  - Non-compliance management

Quality Management Plan forms and checklists are to be used to facilitate and document QA efforts including pre-work activity checklists that depict all items required to perform the particular design, construction and operational efforts, such as; means and methods, subcontractor involvement, materials and inspection / testing requirements.

2.3.5 Nonconformance Report (NCR) System

A Nonconformance Report (NCR) process shall be required to document, report and track Work that fails to conform to the requirements of the DB Documents. Examples of nonconformance's are: physical defects, test failures, incorrect or inadequate documentation or changes from the design processes, inspection or test procedures described in the Project QMP.

GDOT will implement a web-based management system that will have the capability for documenting and implementing the NCRs that includes the description of the NCR, corrective action, action to prevent, the defined roles, dispositions, tracking log, and Work flow states.

The Originator of the NCR indicates the description of the nonconforming Work and the applicable requirements, and assigns the NCR to the Responsible Organization for disposition.

The Responsible Organization gives a full description of the nature, date, location and any other pertinent facts, and also indicates the root cause, corrective actions, actions to prevent recurrence and provides a proposed disposition of the nonconforming Work that is the subject of the NCR, by the DB Team's Quality Manager (QM), the Engineer of Record (EOR), and GDOT. If the disposition is accepted by GDOT Authorized Representative, the Responsible Organization is notified of the final determination. Upon verification that the disposition has been performed, the NCR is closed. If the disposition is not accepted by GDOT, the NCR will remain opened until the disposition is accepted by GDOT.

2.3.5.1 Role Definitions and Order of Review

For purposes of Nonconformance Reporting, the following terms have the meaning and roles identified below:

- **Originator** – The entity which initiates and creates the Nonconformance Report. The Originator can be the DB Team or GDOT. The Originator closes the Nonconformance Report document once all requirements have been met. The NCR cannot be closed until the Responsible Organization's disposition is accepted by GDOT.
- **Responsible Organization** – The entity to whom the Nonconformance Report is sent. The Responsible Organization is the entity directly responsible for the nonconforming Work on which the Nonconformance Report was written and who is responsible for correcting the nonconforming Work and provides proposed disposition to resolve the Nonconformance Report.
- **DB Team's Quality Manager (QM)** – The individual that is responsible for assuring quality of the Work. After the QM has reviewed the Responsible Organization's disposition, he forwards the Nonconformance Report to the Engineer of Record, and the GDOT Authorized Representative.
- **Engineer of Record (EOR)** – The individual that is responsible for the design of the Work. The Engineer of Record must review, reject or approve all

Nonconformance Reports and supporting documents, subject to the GDOT Authorized Representative's determination of the accepted Design Documents. Any changes from the requirements of the DB Documents must be presented for acceptance as a Change Request. If the subject of the NCR is not related to a subject that would typically require a design professional's input, the EOR must note that the NCR is "not applicable".

- **GDOT** – GDOT must review and make a recommendation to reject or accept all dispositions and supporting documents.
- **GDOT Authorized Representative –** The individual authorized that is responsible for monitoring the Nonconformance Report process.

2.3.5.2 Disposition Options

After the Originator of a Nonconformance Report (NCR) has activated an NCR, the Responsible Party provides a proposed disposition. Options available for the disposition are defined in the Nonconformance Report as follows:

- **Reject** – The Work is unsuitable for its intended use, and incapable of being reworked or repaired to meet the specified requirements of the DB Documents.
- **Rework** – The deficiency can be brought into conformance with the DB Documents through re-machining, reassembling, reprocessing, reinstallation, or completion of the required operations.
    - Inspection is required after the rework is completed to verify the rework is satisfactory to the Originating Party.
- **Repair** – Action is required that will result in making the Work acceptable for its intended use, as determined by an engineering evaluation although the item might not meet all of the requirements of the DB Documents.
    - Inspection is required after the repair is completed to verify the repair is satisfactory to the Originating Party.
- **Accept-As-Is** – Allows the use of the Work completed that does not meet all requirements of the Design Document requirements, but it is determined by engineering evaluation that the Work will satisfy its intended use.

2.3.5.3 Corrective Action

In addition to the resolution of nonconformance on an individual basis the corrective action process will urgently recognize, report and resolve systemic and serious deficiencies, including:

- Repetitive NCRs that indicate inadequacies in either production process or inspections
- Issues of safety or conditions likely to have a significant effect on the Project
- Quality procedures not being carried out in a timely fashion

The Corrective Action mechanism will address the possibility that the personnel responsible for the relevant activity might be a primary cause of the deficiencies.

Remedial action might involve additional training and in some cases removal of personnel from the activity and/or the Project.

2.3.5.4 Workflow States

The following workflow states are applicable to the Nonconformance Report:

State	Description
Draft	Indicates that the Nonconformance Report is being written.
Active	Indicates that the Nonconformance Report has been submitted to the Responsible Organization to provide causes, corrective actions, actions to prevent recurrence and a disposition for the nonconforming Work.
Pending Review/Correction	Indicates that the Responsible Organization has responded with a disposition and the disposition is under review. The document is routed to appropriate parties for concurrence/acceptance of the disposition.
Pending Closure	Indicates that the nonconforming has been corrected and Responsible Organization is waiting for inspection/verification and closure.
Closed	Indicates that the nonconforming has been resolved satisfactorily and the Nonconformance Report is closed.

2.3.6 Quality Management Updates

The DB Team shall regularly maintain the Quality Management Plan to contain current versions of the following information:

- The organizational chart that identifies all quality management personnel, their roles, authorities and line reporting relationships.
- Description of the roles and responsibilities of all quality management personnel and those who have the authority to stop Work
- Identification of testing agencies, including information on each agency's capability to provide the specific services required for the Work, certifications held, equipment and location of laboratories.

2.3.7 Responsibility and Authority of DB Team Staff

Personnel assigned to perform inspection, testing, or monitoring of characteristics for quality control shall not be those personnel performing or directly supervising the Work being accepted. The DB Team's Quality Manager and quality control staff shall have no responsibilities in the production of the Work.

The Quality Manager shall prepare a monthly report of the quality inspections and tests performed, results of such inspections and tests, and occurrences and resolution of non-conformance discoveries. The DB Team shall submit the monthly reports to GDOT for review.

The DB Team's Quality Manager, quality assurance manager, and quality control manager(s) shall have the authority to stop Work for quality-related issues.

2.3.8 Design Quality Management Plan

It shall be the DB Team's sole responsibility to provide Project plans, drawings, and specifications of such a nature to deliver the finished construction Work in accordance with all DB Documents requirements. GDOT comments pertaining to design documents shall not relieve the DB Team of that responsibility. The DB Team shall not begin Construction Work until all GDOT comments on the design submittal are resolved to the satisfaction of GDOT and the plan is accepted.

The DB Team shall assign a Design Manager that shall be responsible for the supervision and quality of all Design Work and design processes, including but not limited to each of the following:

- Accuracy
- Adequacy
- Conformance to professional standards of practice
- Compliance with all legal requirements and standards mandated by the Agreement
- Quality

The DB Team shall provide independent design checks by independent design review. Independent design reviews are to be performed and documented per the process defined in the DB Team Design Quality Management Plan and completed prior to any submittal to GDOT.

Elements of the Design Quality Management Plan process are:

- **Design Workshop** - Within fifteen (15) days of NTP 1, the DB Team shall arrange a design workshop which will be attended by the Designer's personnel, GDOT, and any invited participants of the Project. The purpose will be to familiarize involved personnel with the design concepts, issues, status, and review procedures. The DB Team and GDOT will jointly develop the agenda of the workshop and how it will be organized (i.e., by GDOT department and engineering discipline). Consensus will be determined during the Design Workshop on the use of Interim Design reviews for facility elements that pose complex or entail additional conflict resolution effort, if applicable. The workshop will also discuss the extent of GDOT reviews. The agenda will include developing agreements regarding time allowed for design reviews. The intent of

the workshop is to make the subsequent Design Reviews more effective and efficient for all parties.

- **ITS and Toll System Design Workshop(s) (For Toll Projects Only)** - After roadway geometry is established, but before beginning design efforts for the prototype toll-related ITS, ITS and tolling design plans, the DB Team shall arrange an ITS and Toll System Design Workshop which shall be attended by the DB Team's Design EOR for each of the key disciplines (including but not limited to ITS, Electrical, Structural, Mechanical) for the Tolling Plans / tolling components, GDOT, State Road and Tollway Authority (SRTA), SRTA Toll SI, and any invited participants of the Project. If the DB Team's Design EOR for each of the key disciplines (including but not limited to ITS, Electrical, Structural, Mechanical) for the Tolling Plans / tolling components is not the same, in other words multiple design teams are being utilized concurrently by the DB Team, then all are required to attend for the purpose of consistency in design.

  The purpose of this workshop will be to commence coordination with SRTA and SRTA's Toll SI on design elements related to the tolling components. The DB Team and SRTA will jointly develop the agenda of the workshop and location. The required prototype submittals locations will be selected based upon coordination at this workshop. Consensus will be determined during the Design Workshop on when best to schedule the second Toll Design workshop for tolling elements that pose complex site specific constraints or entail additional conflict resolution effort. Additional workshops may be scheduled at the consensus of the DB Team and SRTA as needed.

- **Design Review Quality Plan -** The Design Review Quality Plan shall be part of the Quality Management Plan and be submitted for GDOT review and acceptance within thirty (30) Days from NTP 1. No design submittals shall be provided until the Design Review Quality Plan is accepted by GDOT. The Design Review Quality Plan shall include both the quality responsibilities of the Design Manager and the independent responsibilities of the Quality Manager. The Design Review Quality Plan shall be specific to each stage of design development. The DB Team shall make a single independent comprehensive design check and design review for every submittal. The DB Team shall provide plans in accordance with the Plan Development Process (PDP), Electronic Data Guidelines (EDG) and the Plan Presentation Guide (PPG) and Manuals for GDOT reviews. Any change of software versions from the Technical Provisions used in producing the plans will be allow under the condition that the DB Team provides any software, access to software licenses, and training for use of the proposed software. The Design Review Quality Plan stages of design development per the accepted Construction Phasing Plan (see Section 23) are:
  - Preliminary Plans for the entire Project (See Section 23).
  - Final Plans for the Construction Phase Submittals (see Section 23).
  - Final Plans (Complete Set) for the accepted Construction Phase.
  - As builts.

The DB Team may choose to submit certain drawings for facilitating better communication with GDOT. Interim Design reviews are intended to resolve conflicts and unresolved comments after the Preliminary Plans have been accepted but prior to Final Plan submittals.

- **Independent Design Checks** - The DB Team shall ensure that independent design checks are carried out by an Independent Design Reviewer not involved in the production of the design being reviewed. Those performing the checks should have equal or greater qualifications and experience as the Engineer of Record for the design being checked. The DB Team shall provide to GDOT a plan / process and written procedures for this Independent Design Check. Independent design review shall be provided for each and every design submittal prior to being submitted to GDOT. The DB Team, when requested by GDOT, shall promptly provide access to all comments and comment responses between the DB Teams Engineer of Record and the Independent Design Reviewer for each submittal review.

  Independent design checks are comprised of design assessment and analytical checks as follows:
  - Design Assessment – is a review of general compliance with the requirements of the Agreement, taking into consideration the following areas:
    - Project design criteria;
    - Applicable codes and standards;
    - Methods of analysis;
    - Computer software and its validation;
    - Interface requirements;
    - Materials and material properties;
    - Durability requirements;
    - Constructability;
    - Context Sensitivity; and
    - Environmental Compliance.
    - Any required Design Exceptions and/or Variances.

    All Design Exceptions and Design Variances as required from specified standards shall be provided by the DB Team, stating why exceptions or variances are being proposed with supporting documentation and shall be submitted prior to GDOT and FHWA as appropriate for review and acceptance. All Design Exceptions and Design Variances shall be submitted and accepted prior to the Preliminary Plan submittal.

  - Analytical Check – using separate calculations (and without reference to Designer's calculations) to establish the structural adequacy and integrity of critical structural members. This includes, but not limited to the following:
    - Structural geometry and modeling;
    - Material properties;

- Member properties;
- Loading intensities;
- Foundation loads; and
- Structural boundary conditions

- **Changes Subsequent to Review -** If design is amended subsequent to the design review and acceptance by GDOT, the DB Team shall re-check and re-certify the design as an additional design review. Substantive changes to plans and specifications initiated by the DB Team and already checked by the Design Manager and certified by the Quality Manager shall be subjected to the Design Review process as an entirely new design.

- **Design Reviews -** Design review meetings and participation – Design reviews and meetings shall be conducted by the DB Team's Design Manager. The Quality Manager, the Design Manager, Engineer of Record, DB Team's Independent Design Reviewer, and any Design Professionals having significant input into the design or review shall be present. The DB Team shall notify and invite GDOT to participate in all design reviews. At a minimum, the Design Manager shall organize and facilitate design review kick off workshop with GDOT no later than thirty (30) days of NTP 1 to discuss design submittals. Thereafter, design review meetings shall be scheduled monthly until all submittals have been accepted or to the frequency determined by GDOT to ensure process and success is obtained for all design reviews. GDOT may also invite additional stakeholders to attend. GDOT's participation in design reviews shall not relieve the DB Team of its responsibility for the satisfactory completion of the Work in accordance with all requirements of the DB Documents.

  The DB Team's Design Manager shall provide the agenda of the meeting in advance of the meetings and provide a detailed summary status of all submittals provided to GDOT for their review. The detailed summary status list at a minimum shall provide date submitted, to whom, contractual required review period, total days in submission, date accepted, and comments.

  The DB Team shall provide or make available to review meeting participants all design documents (e.g., drawings, reports, specifications, basis of design memorandums and other technical memorandums as necessary to support design decisions) pertinent to the design review, including all prior comments and actions resulting there from. The DB Team shall prepare and distribute minutes from the review meetings. Design Reviews shall be conducted for the following:
  - Preliminary Plans submittal shall be the first design review meeting requiring participation of GDOT and is intended to verify that the concepts proposed by the DB Team comply with the requirements of the DB Documents. The Quality Manager shall verify in writing the compliance and completeness of the design submittal prior to presenting the Preliminary Plans to GDOT for review. The following issues shall be discussed:

- All requirements of the DB Documents applicable to the proposed concept documents, including all applicable standards and legal requirements and environmental permit conditions, have been identified, and the proposed designs are in compliance.
- The proposed concepts are substantiated and justified by adequate site investigation and analysis.
- Right of way requirements have been identified and any changes to the proposed Right of Way (ROW) have been addressed for GDOT to maintain and operate the Project after Final Acceptance.
- The proposed concepts are constructible.
- Required materials and equipment are available.
- The proposed concepts meet all quality requirements, and all required Quality Management Plan procedures have been followed including for site maps and concept drawings and draft specifications for any materials or methods that are not industry standard.
- That proposed concepts comply with permits and environmental compliance plan requirements.
- All Design Exceptions and Variances accepted.

o Optional limited Interim Design reviews are intended to resolve conflicts and unresolved comments after the Preliminary Plans have been accepted but prior to Final Plans. The DB Team should use Interim Design Reviews to remedy conflicts, account for exceptions, and incorporate betterments. The DB Team shall notify GDOT if Interim Design reviews are necessary and shall schedule the necessary design reviews. Workshops, meetings and "over-the-shoulder" reviews are means to facilitate Interim Design reviews by GDOT.

o The DB Team may also use Interim Plan reviews to verify that the concepts and parameters established and represented by Preliminary Plans are being followed, and that all requirements of the DB Documents continue to be met. The DB Team shall specifically highlight, check, and bring to the attention of GDOT any information differing from or supplemented to that presented at the Preliminary Plan review.

o Final Plan reviews shall verify that the concepts and parameters established and represented by Preliminary Plans and any Interim Designs are being followed and that all Agreement requirements continue to be met. The DB Team shall specifically highlight, check, and bring to the attention of GDOT any information differing from or supplemental to that presented previously. Prior to scheduling the Final Plan review with GDOT, the Quality Manager's independent review shall have been completed.

o The DB Team shall be responsible for demonstrating that any proposed specifications meet or exceed the minimum Agreement and permit requirements. GDOT shall have final determination at its sole discretion that these requirements are being met and that the specifications are suitable and appropriate to control the Work.

- Temporary work design reviews, except where public safety might be affected, are the responsibility of the DB Team to assure conformance with the Final Plansand specifications and in accordance with the Agreement requirements. The DB Team shall verify pertinent dimensions in the field prior to conducting a temporary works plan review. The DB Team shall check, review, and certify temporary works designs prior to their use in fabrication and/or construction.
- The review of as-built record documents shall be performed initially by the DB Team to assure "red-lines" and authorized changes to the Final Plans are properly notated on the record plans and specifications, and that quality documents and facility records indicating variances or changes have been reflected on the plans and specifications. Once the DB Team has completed their review the as-built records are to be submitted to GDOT for review and acceptance.
- Design quality records shall be maintained by the DB Team in an auditable format according to the Quality Management Plan procedures. GDOT has the right to audit the quality records for compliance with the Quality Management Plan and the Agreement requirements. Upon completion of the Project, the Quality Records are turned over to GDOT.

2.3.9 Record Drawings and Documentation

Within 30 days of Substantial Completion and prior to Final Acceptance, the DB Team shall submit to GDOT a complete set of Record or As-Built drawings for all the Construction Phases of the Project. The Record Drawings and documentation shall be an organized, complete record of Plans and supporting calculations and details that accurately represent what the DB Team constructed. The DB Team shall ensure that the Record Drawings reflect the actual condition of the constructed Work.

Record Drawings shall be submitted in hard copy and electronic format for the portion of the Project actually opened to traffic. Refer to Section 23 of Volume 2 for submittal requirements. The DB Team shall include a signed statement ensuring that the Record Drawings reflect the actual condition of the constructed Work.

2.4 Requirements for GDOT Office and Equipment

Refer to Volume 2

2.5 Web-Based Project Management Program

GDOT will implement a project web-based management website throughout the term of the Agreement for file storage, communication, and correspondence. This web-based management website is e-Builder.net. The DB Team is required to access and use the web-based project management system provided by GDOT.

This system provides all project team members:

- Simplification of communications
- Automated tracking of time-sensitive information
- Automated reporting
- Common document storage and management audit trail of information
- Secure, real-time 24/7 access and exchange of information

All project team members shall be required to use this system for all official project communications and interactions, including:

- Correspondence
- Quality Management Plan and submittals
- Issues
- Meetings
- Design Management
- RFIs (Requests for Information)
- Submittals
- Schedule submittals
- Nonconformance reporting (NCR's)
- Punch Lists
- Reporting
- Document Management (see table below for the required File Naming Convention)
- Construction Drawing Management (including management markups, versions and revisions)
- Project Archiving and Closeout
- As-Built Drawing Management
- Conformance to Web-Based System

All project team members shall use the web-based project management system on a daily basis to perform their project responsibilities in a timely manner.

Additional requirements/guidelines of the system:

- The web-based system shall be used to track and manage the Project and will be an official record of all project communication. Organizations shall post key project-related information to the system. GDOT shall provide a system that will at a minimum provide a shared interface for: meeting minutes, Requests for Information (RFIs), general correspondence / transmittals, Punch List, Nonconformance Reports (NCRs), inspection logs and reports, management audit logs and reports, and Submittals including schedule updates and schedule revisions.
- No later than thirty (30) calendar days after NTP 1, all project team organizations involved shall designate a web-based project management system coordinator (an internal point of contact) and provide coordinator's name, phone and e-mail to GDOT and DB Team.

- All users of this web-based project management system must complete training prior to having access to the system. GDOT will provide this training.
- All project team members will be solely responsible for establishing and furnishing high-speed internet connectivity (T1, cable modem, or DSL connectivity is recommended) to access the web-based project management system.
- Submittals must be made, tracked, and reviewed via the system. In the case where physical samples are required, the submittal will still be reviewed and tracked via the system. The sample itself will be transmitted to the reviewer via traditional means.
- The DB Team and GDOT shall utilize the filing naming convention as provided in the table below.

All Submittals shall be provided to the web-based project management system. Project documents shall comply with the naming convention requirements of GDOT's Electronic Data Guidelines (EDG). When not specified in the EDG, project documents transmitted via the system must comply with the following electronic formats:

- Documents generated in Computer Aided Design (CAD) applications (Microtation V8 or InRoads) shall be submitted in Portable Document Format (PDF) generated by a PDF writer from the CAD application.
- Documents that are marked up or unavailable in electronic format (drawings, sketches, correspondence, etc. generated by hand drafting methods) shall be scanned to Tagged Image Format version 5 or 6 [TIFF 5 or 6 (.TIF)], Bitonal [or Black and White (a.k.a. Line Art), on some scanners] (.tif) or PDF (.pdf), black and white with a resolution of 200 dpi using CCITT Group 4 (2d Fax) compression.
- Documents that have been generated using PDF printer drivers (not scanned) shall be submitted via the system.
- Electronic photographs shall be submitted in Joint Photographic Experts Group (JPEG) (.jpg) file format, sized at a minimum resolution of 1024x768 pixels.
- Grayscale or color photo images that are scanned shall be saved in JPEG (.jpg) file format with medium to low quality compression at a resolution of 200 dpi.
- Product data that is available for download from the manufacturer's website that has been generated using PDF printer drivers (not scanned) may also be submitted via the System.

File Naming Convention

The following file naming convention shall be used on all correspondence created or issued by the project and for filing any document.

PI_Date_File Type ID_File Name

All FINAL versions of documents to be saved in the "**Final Deliverables**" folder as follows:

PI_Date_File Type ID_File Name (Final)

Date will be represented in **YYYY-MM-DD** format; using two digits for the month and the date and four digits for the year. For example, July 4, 1776 will be represented as 1776-07-04.

You may use "versions" or "drafts" included in the file name portion of the naming convention for the non-final document.

File Type Indenitification Table

File Type ID	*File Type*	*File Type*
AB	As-Builts	
AC	Accidents	
AD	Advertisement	Advertisements to the public, such as advertisement for intent to post RFQ (NOI), advertisements for public meetings (PIOH & PHOH), etc.
AP	Acceptances	
AUD	Document Audit	
BND	Bond Related	All bond related items.
CAL	Calculations	
CI	Contractor Invoices	
CL	Claims	
CM	Construction Management Related	
CO	Change Order Documents	
COM	Comments	
COR	Correspondence	Not to be used for letters (see LTR) and memorandums (see MEM).
CR	Construction Reports	Construction reports of any frequency; the name of the file will clarify frequency of reporting/
CST	Cost Estimate	
CT	Contract Document, RFP, RFQ	
DBE	Disadvantaged Business Enterprise	
DW	Drawing	Examples: PDF of CAD drawings.

File Type ID	*File Type*	*File Type*
EEO	Equal Employment Opportunity	
EM	E-Mail	Emails are NOT considered deliverables, this is for record keeping purposes.
ENV	Environmental	All NEPA/GEPA related files and documents, including special studies.
FAX	Facsimile	
FP	Financial Plan	
INS	Insurance Related	All insurance related items.
IGA	Intergovernmental Agreements	
ISS	Issues	Design related issues and request for information.
LCR	Lane Closure Requests	
LD	Liquidated Damages	
LOG	Log	
LTR	Letter	
MA	Meeting Agenda	
MAT	Materials Related	
MDR	Materials Deficiency Reports	
MEM	Memorandum	To be used for correspondence with "memorandum" in the subject line.
MM	Meeting Minutes	
MOT	Maintenance of Traffic	
MP	Project Master Plans, Planning Documents	
MSC	Miscellaneous	
MSI	Meeting Minutes Sign-In Sheet	
MUN	Municipal	
NCR	Nonconformance Report	
NOI	Notice of Intent	Environmental related NOIs.
NTF	Note to File	
NTP	Notice to Proceed	
OM	Operation & Maintenance	
PCR	Project Change Request Document	

File Type ID	*File Type*	*File Type*
PDI	Product Data and Information	Examples: bottomless culvert product catalog, guardrail beam information, etc.
PER	Permit Related	
PIX	Photos	
PL	Punch List	
PM	Project Management	All project management related documents and files.
PP	Program Procedure	
PPM	Policies and Procedures Manual	
PS	Plan Specification(s)	
PST	Presentation	PowerPoint and other types of presentations; not to be used for animations (see VID)
PT	Permit	
PUB	Public Involvement	To be used for all outreach related documents and files, including stakeholder, industry, agency and legislator outreach
QA	Quality Assurance	
QC	Quality Control	
REG	Regulatory Agencies	To be used for documents and guidelines published by regulatory agencies; NOT to be used for permit related files and documents (see PT).
RES	Research	
REV	Plan Revisions	
RFI	Request for Information	Construction related issues and request for information.
RFP	Request for Proposal	
RFQ	Request for Qualifications	
ROW	Right of Way	
RP	Report (All Technical Reports)	All technical analyses, studies, whitepapers, etc.; EXCEPT environmental related documents and files (see ENV).
SCH	Schedule	
SDW	Shop Drawing	
SP	Specification/Special Provision	

File Type ID	*File Type*	*File Type*
SR	Status reports, progress reports	The name of the file needs to clarify type and frequency of reports.
SRV	Submittal Review	NOT to be used for plan revisions (see REV).
STD	Project Standards	
SUB	Subcontractors	
SUR	Survey	Land survey information and documents, not question surveys
TE	Time Extension	
TRF	Traffic Related	
TX	Transmittal	
UTL	Utility	
VID	Video	Animations; daily videos of construction sites
WAR	Warranty Related	All warranty related items

3 RESERVED

4 ENVIRONMENTAL

4.1 General Requirements

The DB Team shall comply with all environmental laws, regulations, and policies set forth by the federal, state, and local agencies with jurisdiction over the construction activities associated with the Design-Build Project as described in the approved environmental document and permits. The DB Team shall follow all pertinent policies and procedures as described in the 23 Code of Federal Regulations (CFR) 771, O.C.G.A. 12-16-1 and GDOT - Environmental Procedures Manual. The DB Team shall be responsible for coordination with GDOT, and if required FHWA to ensure that commitments made during the environmental review are being met. Any changes to the Project as described in the approved NEPA/GEPA document shall require the DB Team to reassess impacts. This may require resubmittal of environmental studies for approval by applicable agencies. The DB Team cannot complete the National Environmental Policy Act (NEPA) document or reevaluation. GDOT shall be responsible for completing and resubmitting NEPA documentation.

The DB Team shall execute the Environmental Commitments required by the, approved NEPA document, DB Documents Governmental Entities, Governmental Approvals, and all applicable federal and state laws and regulations.

The DB Team's obligation regarding Governmental Approvals and laws, including environmental laws and requlations, and the DB Team's obligation for environmental compliance is set forth in Volume 2, Section 4.1. Limits of the Project and Proposed Right of Way will be described in the approved environmental document.

The DB Team shall cause Work to comply with approved the approved environmental document, permits, and compliance requirements for any additional actions throughout the Term of the Agreement. The DB Team shall monitor and document Work activities so that documents providing evidence for compliance are available to FHWA (as applicable) and GDOT for inspection at any time. Evidence of compliance activities may include photo documentation and other appropriate methods to demonstrate compliance. The DB Team shall execute the environmental mitigation plan, which lists responsible parties for environmental commitments detailed in the NEPA/GEPA Approval documentation as agreed on by FHWA and/or GDOT.

The DB Team will commit to explore the use of environmentally sustainable practices and/or materials in the development of the Project.

If the NEPA document has not yet been approved, the alternative is not "selected"; therefore, the "No-Build" option is still a viable alternative for the Project.

If the "No-Build" alterative is selected, the Project will be terminated according to Article 19 of the Design-Build Agreement.

4.2 Environmental Approvals

4.2.1 Responsibilities Regarding Environmental Studies

Environmental documents shall be prepared and approved prior to the contract award. Such approvals may require re-evaluation, amendment, or supplement as the Work progresses or in order to accommodate actions not identified in the approved environmental document or covered specifically by existing resource agency coordination and permits. On behalf of GDOT, the DB Team shall be responsible to validate, provide design information to support additional environmental studies (cultural resources, ecology, aquatics, noise, and/or air) conducted by GDOT or on behalf of GDOT by others, as appropriate and requested by GDOT, and comply with the Environmental Commitments identified in the approved environmental document. The DB Team shall follow GDOT policies and procedures when conducting these activities for the Project.

Changes proposed by the DB Team to the Schematic Plan of Project, incorporation of Additional Properties or changes to the dimensions of the right of way of the Project, or changes to the Environmental Commitments previously accepted by GDOT may require new environmental studies subject to approval by environmental resource agencies. In order for GDOT and FHWA (as applicable) to determine if the project can advance, current design plans must be provided by the DB Team to support environmental impact analysis. The DB Team shall facilitate a meeting with GDOT within 45 days of NTP 1 to discuss potential deviations from the approved environmental document. The following terms define GDOT and/or FHWA required documentation needed to assess impacts to the approved environmental document:

- **No Change Reevaluation:** No design or regulatory changes have occurred since the last approved environmental document.

- **Change Reevaluation (design modifications):** There have been design modifications to the most current plan set since the last approved environmental document; the project corridor in the area of the changes (or as applicable) must be considered for additional or reduced impacts. There may be a need for additional agency coordination as result of the design changes.

- **Change Reevaluation (regulatory/policy changes):** Changes in law or regulatory practice may require additional survey or technical analysis, environmental condition changes over time, and associated agency coordination. The additional analysis may be required regardless of design changes, construction staging, etc. (There may be no action taken by the design team that would trigger the additional technical analysis).

The DB Team cannot complete the NEPA Approval document or reevaluation because of conflicts of interest due to financial interests in the outcome of the NEPA Approval (23

CFR Ch 1, Section 636.109(b)(6)). GDOT shall be responsible for preparing the NEPA document.

The DB Team will be responsible for ensuring compliance with the conditions and schedules set forth in amendments to any approved environmental document due to changes to the Schematic Plan of the Project.

The DB Team shall assume all schedule risk for all required environmental studies and re-evaluations not identified in the approved environmental document due to Project changes proposed by the DB Team and shall be responsible to provide design information to support any additional studies, and comply with all such GDOT policies and procedures and Governmental Entities having jurisdiction over the Project. GDOT shall be responsible for all coordination of environmental studies with appropriate Governmental Entities. The DB Team is responsible to provide GDOT with the necessary information as requested for coordination with Governmental Entities.

The approval time frames for NEPA/GEPA documentation and environmental studies are listed in Table 4-1 and 4-2. The Tables below do not include any required public comment period and responding to the public comments. GDOT shall be responsible for the NEPA/GEPA Reevaluation and studies as provided in Table 4-1 and 4-2. GDOT will coordinate and provide approved documentation to the appropriate Governmental Entities. The review and issuance time periods listed in Table 4-1 and 4-2 do not include the time frame for GDOT approval prior to submission to the appropriate Governmental Entity. GDOT reserves the right to request to revisions as needed to meet Governmental Entity approval.

Table 4-1 GDOT Led NEPA Approval

NEPA Document*	Governmental Entity Approval Time Frame	Reviewing Governmental Entity
NEPA Approval Reevaluation	30 days	FHWA
Ecology Report Addendum	45 days	FHWA (if project has a formal Section 7)
Assessment of Effects Addendum	45 days	State Historic Preservation Office (SHPO)
Noise Report Addendum	21 days	FHWA

Air Quality Report Addendum	45 days	GDOT
Traffic Report Addendum	45 days	GDOT or FHWA (per PoDI Agreement)

* Pursuant to Moving Ahead with Progress in the 21th Century (MAP-21), the FHWA intends to publish a notice in the Federal Register following NEPA Approval and the Section 404 permit, as applicable. If such a notice is published, claims seeking judicial review of this federal action will be barred unless such claims are filed within one hundred and fifty (150) days after the publication date of the Federal Register notice for each federal action (e.g. NEPA Approval and/or Section 404 permit). At minimum, the period of time may only be limited by the Administrative Procedures Act of 1946 (APA) (5 United States Code [USC] Section § 701-06).

4.2.2 GDOT Review and Approval of Environmental Permits

The DB Team shall be responsible for preparing required permits and permit modifications as stated in Table 4-2. The DB Team is responsible to obtain all other permits not included in Table 4-2 to meet the requirements of the Agreement. GDOT will be responsible for reviewing the permits and permit modifications and submitting to the appropriate Governmental Entities, unless the applicant is listed as the DB Team. Documentation not meeting current submission standards or requirements of Governmental Entities will be returned to GDOT, and shall be revised by the independent consultant at DB Team's cost. GDOT reserves the right to review, comment on, require revisions to, and reject for resubmission documentation submitted to GDOT by the consultant or the DB Team for environmental compliance or approval. The agency review time frame for permits is specified in Table 4-2. The review and issuance time periods listed in Table 4-2 for GDOT-Led Approvals do not apply to any revisions of the new permit applications proposed by the DB Team's "Schematic Plan of Project".

Table 4-2 GDOT-Led Environmental Permit Approval

Permit Required	Agency Review and Issuance Time Period (Calendar Days)**	Listed Applicant	Preparer of Application
United States Army Corps of Engineers (USACE) Section 404 Nationwide Permit	120	GDOT	DB Team
USACE Section 404 Regional Permit	120	GDOT	DB Team

Permit Required	Agency Review and Issuance Time Period (Calendar Days)**	Listed Applicant	Preparer of Application
Subsurface testing of all Underground Storage Tanks and Hazardous Materials	150	GDOT	DB Team
NPDES Construction General Permit (GAR1000002), Notice of Intent	90	DB Team	DB Team
NPDES Construction General Permit (GAR1000003), Notice of Intent	90	DB Team	DB Team
NPDES Construction General Permit (GAR 150000), Notice of Termination	90	DB Team	DB Team
Georgia Stream Buffer Variance	150	GDOT	DB Team
USACE Section 404 Individual Permit	365	GDOT	GDOT prior to NTP 1 (contingent approval)
USACE Section 404 Individual Permit	60 ***	GDOT	DB Team after NTP 1 (final approval)

** The review and issuance time periods shall commence once a completed permit package that complies with the requirements of the DB Documents is accepted by GDOT, submitted to the issuing agency and end once the permit is issued by the appropriate Governmental Entity. Therefore, the DB Team shall schedule several review periods to ensure proper planning to accomplish the entire process for each required permit. Each GDOT review period is thirty (30) Days. Should the Submittal not be complete or rejected as provided in Section 23, each subsequent review period shall be thirty (30) Days, and is excluded from the timeframe in Table 4-2 above.

*** The approval time frame does not include modifications related to design involving Section 404 resources or impacts to the Section 404 resources. The approval time frame is for no changes to the contingent approval of the Individual Permit application.

The above permits and review times do not contemplate offsite plant or other offsite activity that DB Team may propose for use in construction or other non-permanent construction.

4.3 Required Submittals

The DB Team will be required to provide Submittals in accordance with the DB Documents.

5 RESERVED

6 UTILITY ADJUSTMENTS

6.1 General Requirements

By Georgia Statues, utilities, whether public or privately owned, aerial or underground, are permitted by the Department and local governments to be accommodated within the public right of way. To this end, the DB Team will make every effort to avoid utilities. Design/construction techniques that minimize or avoid utility conflicts may involve increased upfront costs; however, those costs may be offset by savings during construction, in addition to the total cost savings for the Project (the Department or local government) and the respective utility owners.

Additional guidance for accommodating utilities within the right of way are given in the AASHTO publications: A Guide for Accommodating Utilities within Highway Right of Way, A Policy on Geometric Design of Highways and Streets; the TRB publication: Policies for Accommodation of Utilities on Highway Rights-of-Way; and in GDOT's Utility Accommodation Policy and Standards, current edition.

The Utility Plans are used as the primary tool to identify and resolve utility related conflicts/issues prior to beginning the construction of a Project. Also, when these plans are properly prepared, as indicated in this Section 6, they will support the vital coordination required between the DB Team and the Utility Owner during construction.

Utility plan sheets are comprised of completed roadway plan sheets, but shall contain more detailed information featuring existing and proposed utility facilities. Specific requirements for Utility Plans are detailed in this section 6.

The DB Team shall cause all Utility Adjustments necessary to accommodate the project. GDOT will assist the DB Team in the Utility Adjustment process to the extent as described in the Design-Build Agreement and the UAM (Utility Accommodation Manual). Some utility adjustments may be performed by the Utility Owner with its own forces and/or contractors and consultants; all others will be performed by the DB Team with its own forces and/or contractors and consultants (subject to the approval rights required by the utility owner for those working on their own facilities). The allocation of responsibility for the Utility Adjustment work between GDOT and the Utility Owner will be specified in the Utility Agreement.

6.1.1 When Utility Adjustment is Required

Utility Adjustment may be necessary to accommodate the Facility for either or both of the following reasons: (i) a physical conflict between the Facility and the Utility, and/or (ii) an incompatibility between the Facility and the Utility based on the requirements in Section 6.2.1 (Standards), even though there may be no physical conflict. The physical limits of all Utility Adjustments shall extend as necessary to functionally replace the existing Utility, whether inside or outside of the Existing ROW and Proposed ROW. Section 6.2.4.2 (Acquisition of Replacement Utility Property Interests) contains provisions that address the acquisition of easements for Utilities to be installed outside of the Existing ROW and Proposed ROW.

6.1.2 Certain Components of the Utility Adjustment Work

6.1.2.1 Coordination

The DB Team shall communicate, cooperate, and coordinate with GDOT, the Utility Owners, property owners, local agencies (Government Entities), locally impacted businesses, and potentially affected third parties, as necessary for performance of the Utility Adjustment Work. The DB Team shall provide advance notification to all impacted local agencies, business and property owners for and planned disruption of service. The DB Team shall coordinate with GDOT for any public outreach for planned utility disruptions as required. The DB Team shall be responsible for assisting in the preparation of all Utility Agreements. Utility Agreement Templates can be acquired from the State Pre-Construction Utility Engineer.

The DB Team shall have the responsibility of coordinating the Project design and construction with all utilities that may be affected. Coordinating responsibilities shall include but not be limited to the following:

- The DB Team shall initiate early coordination with all Utility Owners located within the Project limits. All Utility Coordination shall be performed to GDOT standards by a prequalified firm in Area Class 3.10 - Utility Coordination. Refer to the following website for a list of current prequalified firms:

  http://www.dot.ga.gov/doingbusiness/consultants/Pages/default.aspx

- The DB Team shall be responsible for the cost of Utility Coordination. Coordination shall include, but shall not be limited to, contacting each Utility Owner to advise of the proposed Project; supplemental verification of the locations of existing utility facilities (including the employment of additional Overhead/Underground Subsurface Utility Engineering investigations (SUE)) as needed in determining requirements for the relocation or adjustment of facilities.

- The DB Team shall meet with all Utility Owners within the project limits, Department's District Utilities Office and the State Subsurface Utilities Engineer (or designee) for a SUE Kick-Off meeting (concurrent with the first utility coordination meeting) within 15 days of the Notice to Proceed 1 to gain a full understanding of what is required with each submittal and the overall project utility coordination processes.

6.1.2.2 Betterments

Replacements for existing Utilities shall be designed and constructed to provide service at least equal to that offered by the existing Utilities, unless the Utility Owner specifies a lesser replacement. Utility Enhancements are not included in the Work; however, any

Betterment work furnished or performed by the DB Team as part of a Utility Adjustment shall be deemed added to the Work, on the date the Utility Agreement providing for same becomes fully effective. The DB Team shall perform all coordination necessary for Betterments.

- Titles 32-6-170 and 32-6-173, of the O.C.G.A., authorizes the Department to pay the cost of removing, adjusting, and relocating any public utility given certain provisions are met. Such provisions for reimbursement are detailed in Section 4.2 of the UAM. However, all such costs the Department is authorized to pay or participate in shall be limited to the costs of removing, adjusting, and relocating those facilities which are physically in place and in conflict with proposed construction and, where replacement is necessary, to the costs of replacement in-kind. That proportion of the costs representing improvement or betterment in a facility shall be excluded from the costs eligible for payment or participation by the Department, unless required to meet current laws, regulations, industry standards or codes.

- Costs of direct labor, materials, supplies, and equipment required to complete the adjustment or relocation, less salvage credit for any materials removed from the project and credits for any betterment not required by the highway project. The work may be accomplished with the Utility's own forces, or by contract upon prior Department acceptance of the Utility's continuing contract with a contractor or bid tabulations from a Utility's competitive bid for such work. (Requirements and procedures for acceptance of contractors are contained in Section 4.2.D of the UAM).

- **Contract Item Agreement (CIA)** - Used for including utility work in the Department's project and performed by the DB Team. Any utility system upgrades, betterments, or non-reimbursable relocations (not covered in the Cases specified in Section 4.2.A.2 of the UAM) to be installed in the Department's project shall require reimbursement to the DB Team from the Utility.

6.1.2.3 Protection in Place

The DB Team shall be responsible for Protection in Place through the use of a GDOT approved Retention Request of all Utilities impacted by the Project as necessary for their continued safe operation and structural integrity and to otherwise satisfy the requirements described in Section 6.2.1 (Standards). The DB Team shall submit to GDOT for review and acceptance a Retention Request for each utility that will remain in place in accordance with GDOT's *Utility Accommodation Policy and Standards Manual*.

6.1.2.4 Abandonment and Removal

The DB Team shall make all arrangements and perform all work necessary to complete each abandonment or removal (and disposal) of a Utility in accordance with the

requirements listed in Section 6.2.1 (Standards), including obtaining Governmental Approvals and consent from the affected Utility Owner and any affected landowner(s), or shall confirm that the Utility Owner has completed these tasks.

The Utility shall notify the DB Team and the Department in writing of the intention to abandon its facilities in place. Such abandoned installations within the right-of-way shall remain the responsibility of the Utility. The Department may give reasonable notice to require the removal of abandoned utility facilities and restoration of the right-of-way, or the filling of any such facility by an approved method, when necessary to avoid interference with the operation, maintenance or reconstruction of the highway. Any utility facility that the Utility requests to abandon shall conform to the following:

- All underground non-metallic utility facilities to be abandoned shall be locatable using a generally accepted electro-magnetic locating method to enable pipe and cable locates.

- Any underground utility facility, approved or elected to be abandoned in place, larger than 2 inches up to 6 inches, inside diameter, shall be plugged at all open ends of the abandoned facilities. All facilities with an inside diameter larger than 6 inches shall be grout filled 100%. A request for an exception to this policy may be made to the State Utilities Engineer on a case by case basis when proven that no detriment will come to the roadbed by doing so.

Hazardous Utility Facilities to be Abandoned

Whenever an existing utility facility contains a hazardous material and such facility exists
in the public rights of way of any highway, road, or street, and the Utility determines that such facilities will no longer be utilized, the Utility that owns and operates the utility facility shall submit the Request For Retention Of Abandoned Facilities Containing Hazardous Materials form (see Appendix) along with a permit through Georgia Utility Permitting System (GUPS) to the Department. Upon request for abandonment, the Utility shall have the discretion to:

- Remove and dispose of the asbestos pipe in accordance with federal laws and regulations;
- Leave the asbestos pipe in place and fill it with grout or other similar substance designed to harden within the pipe; or
- Allow the pipe to remain undisturbed in the ground and take no further action.

At the request of the Department or Utility, any hazardous material left in the right of way as authorized by the approval of the permit and accompanying Request for Retention of Abandoned Facilities Containing Hazardous Materials form shall be marked as to be locatable. The approved permit and form will indicate how the

abandoned facility will be located. The Utility shall not relinquish the ownership of said facility as stated in Official Code of Georgia Annotated (OCGA) Section 25-9 and Section 32-6-174; it shall be deemed abandoned and out of service. If the Utility selects either item (b) or (c) above as part of a new utility installation request and said abandoned facility is later determined, at any time in the future, to be part of a highway improvement or project that the Department is undertaking or plans to undertake, or is in conflict with any other operation or activity upon said rights of way, by either the Department or others, then said facility shall be removed by the Utility in accordance with federal laws and regulations. Any costs, claims, or other liability associated with the owner's decision pursuant to this section shall be borne by said Utility.

The entity shall also provide plans “marked so as to be locatable” with the following at each end of the proposed abandonment.

- X, Y, and Z using the North American Datum of 1983/1994 = NAD83(94) and North American Vertical Datum of 1988 = NAVD88.
- Elevation of top and/or bottom of utility tied to datum.
- Elevation of existing grade over end of facility tied to datum.
- Horizontal location referenced to coordinate datum.
- Furnish, install, and color code a permanent above ground marker (i.e.P.K. nail, peg,steel pin, or hub) directly above the centerline of the structure and record the elevation of the marker.
- Elevations shall have an accuracy of +/-0.05-ft.
- Horizontal data accurate to within +/-0.2-ft.

- Fiberglass composite markers, or equal, will be required to be installed at the right of way limits at the beginning and ending of proposed abandon facility and placed at intervals no to exceed 500 ft. in between. Markers shall be a minimum of 62” in length and 3.75” in width or diameter. Warning label shall state the following: Warning, Buried Asbestos line, Call Before you Dig logo, Owner Telephone Number(s), Owner Name, and appropriate horizontal offset distance to the abandoned facility noted.
- When determined by the engineer that flexible markers at the right of way line is undesirable for the area, warning buttons, 3” minimum diameter, with the same information may be permanently affixed on the sidewalk, curb, or at a location directed by the engineer.

6.1.2.5 Service Lines and Utility Appurtenances

Whenever required to accommodate construction, operation, maintenance and/or use of the Project, the DB Team shall cause service line adjustments and utility appurtenance adjustments. On completion of these, the DB Team shall cause full reinstatement of the roadway, including, but not limited to reconstruction of curb, gutter, sidewalks, and landscaping, whether the Utility Adjustment Work is performed by the Utility Owner or by the DB Team.

6.1.2.6 Early Adjustments

Early adjustments will be considered by the Department on a case by case basis.

6.1.3 Recordkeeping

The DB Team shall maintain construction and inspection records in order to ascertain that Utility Adjustment Work is accomplished in accordance with the terms and in the manner proposed on the approved Utility Work Plan(s) and otherwise as required by the Design-Build Agreement and the applicable Utility Agreement(s).

6.2 Administrative Requirements

6.2.1 Standards

All Utility Adjustment Work shall comply with all applicable Laws, the Technical Provisions, the Utility Adjustment Standards, and *GDOT's Utility Accommodation Policy and Standards Manual*.

6.2.2 Communications

6.2.2.1 Communication with Utility Owners: Meetings and Correspondence

The DB Team is responsible for holding meetings and otherwise communicating with each Utility Owner as necessary to timely accomplish the Utility Adjustments in compliance with the DB Documents. GDOT may participate in these meetings if requested by the Utility Owner or the DB Team or otherwise as GDOT deems appropriate.

At least seven (7) Days in advance of each scheduled meeting, the DB Team shall provide notice and an agenda for the meeting separately to GDOT and the appropriate Utility Owner. The DB Team shall prepare and distribute minutes of all meetings within seven (7) Days of the meeting with Utility Owners and shall keep copies of all correspondence between the DB Team and any Utility Owner.

The DB Team will be allowed to coordinate with Utility Companies for early coordination of Utility Adjustments.

6.2.3 Worksite Utility Coordination Supervisor

During the construction of the Project, the DB Team shall designate, prior to beginning any work, a Worksite Utility Coordination Supervisor (WUCS) who shall be responsible for initiating and conducting utility coordination meetings and accurately recording and reporting the progress of utility relocations and adjustment work. Also, the WUCS shall prepare an Emergency Response Plan for the purpose of planning, training, and communicating among the agencies responding to the emergency. The WUCS shall be the primary point of contact between all of the Utility companies, the DB Team and the Department. The WUCS shall recommend the rate of reoccurrence for utility

coordination meetings and the Engineer will have the final decision on the regularity for utility coordination meetings. In no case will utility coordination meetings occur less than monthly until controlling items of utility relocations and adjustment milestones are completed. The WUCS shall contact each of the utility companies for the purpose of obtaining information including, but not limited to, a Utility Adjustment Schedule for the controlling items of utility relocations and adjustments. The WUCS shall notify the appropriate utility company and/or utility subcontractor and the Department of the status of controlling items of relocations and adjustment milestones as they are completed. The WUCS shall furnish the Engineer, for acceptance, a Progress Schedule Chart, prior to beginning Construction unless otherwise specified, which includes the utility companies controlling items of work and other information in accordance with the Contract documents. Duties and Responsibility of the Worksite Utility Coordination Supervisor, (WUCS):

- Qualifications: The WUCS shall be an employee of the Prime DB Team, shall have at least one year experience directly related to highway and utility construction in a supervisory capacity and have a complete understanding of the Georgia Utilities Protection Center operations, and shall be knowledgeable of the High-voltage Safety Act and shall be trained on the Georgia Utility Facility Protection Act (GUFPA). The Department does not provide any training on GUFPA but will maintain a list of the Georgia Public Service Commission certified training programs developed by other agencies. Currently the following companies offer approved GUFPA training programs:

  Associated Damage Consultants
  Phone: 706.234.8218 or 706.853.1362

  Georgia Utility Contractors Association
  Phone: 404.362.9995

  Georgia Utilities Protection Center
  Phone: 678.291.0631 or 404.375.6209

  H B Training & Consulting
  Phone: 706.619.1669 or 877.442.4282 (Toll Free)

  The Prime DB Team is responsible for obtaining the GUFPA training for their employees.

  Questions concerning the Georgia Public Service Commission GUFPA training program shall be directed to:

  Georgia Public Service Commission
  244 Washington St. SW
  Atlanta, GA 30334-5701
  404.463.9784

Ticket Status

During the utility coordination meetings the WUCS shall collect and maintain the Ticket Status information to determine the status of all locate requests within the Project limits. This information will be used to assure those planning to use mechanized equipment to excavate or to work within the Project limits are prepared to begin work when they have reported or estimated beginning work. At points where the DB Team's or utility company's operations are adjacent to or conflict with overhead or underground utility facilities, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience, work shall not commence until all arrangements necessary for the protection thereof have been made.

Notice

The names of known utility companies and the location of known utility facilities will be shown on the Plans, or listed in the Overhead/Subsurface Utility Engineering Investigation if performed, or in the Special Provisions; and the WUCS shall give 24-hour notice to such utility companies before commencing work adjacent to said utility facilities which may result in damage thereto. The WUCS shall further notify utility companies of any changes in the DB Team's work schedules affecting required action by the utility company to protect or adjust their facilities. Furthermore, this 24-hour notice shall not satisfy or fulfill the requirements of the DB Team as stated in Chapter 9 of Title 25 of the Official Code of Georgia Annotated, known as the "Georgia Utility Facility Protection Act".

Agenda

The WUCS shall cooperate with the companies of any underground or overhead utility facilities in their removal and relocations or adjustment work in order that these operations may progress in a reasonable manner, that duplication of their removal and relocations or adjustment work may be reduced to a minimum, and services rendered by those parties will not be unnecessarily interrupted. To promote this effort the WUCS shall prepare an agenda for the utility coordination meetings and circulate same 7 business days in advance of the meeting to encourage input and participation from all of the utility companies. The agenda will be prepared by an examination of the Project site and may include photographs of potential/actual utility conflicts.

Submission

Provisions for reporting all utility coordination meetings, the progress of utility relocation and adjustment work milestones and ticket status information shall be reported on a form developed by the WUCS and will be distributed by the WUCS to all of the utility companies as milestones are met and shall be included as part of the Project records. These reports shall be delivered to the Engineer for review, on a monthly basis. The WUCS shall immediately report to the Engineer any delay between the utility relocation and adjustment work, the existing Utility Adjustment Schedule, or the proposed Utility Adjustment Schedule so that these differences can be reconciled.

The DB Team will be required to utilize prequalified utility consultants and contractors.

6.2.4 Real Property Matters

The DB Team shall provide the services described below in connection with existing and future occupancy of property by Utilities.

Determination of Utility Right-of-Way and Easement – The determination as to the need for replacement right-of-way or easement for utilities will be made as follows:

a. The Department will determine what right-of-way is required for construction of the highway project and will normally provide adequate right-of-way for the existing or typical utility facilities that will be permitted to be accommodated within that right-of-way. The DB Team will coordinate with each Utility to request any special right-of-way requirements necessary for their facilities.

b. If there is not sufficient space for the utility within the right-of-way or easement which will be required for the construction of the project, the DB Team will coordinate with the Utility to verify such circumstance and will obtain a written statement as to whether the Utility desires that the DB Team acquire such additional rights-of-way or easement as may be required for utility relocation under the provisions of the O.C.G.A. § 32-6-172. If the Utility insists on acquiring its own right-of-way or easement, the Utility shall notify the DB Team in writing of such and shall include this acquisition in the Work Plan. Additionally, if the Utility intends to acquire its own right-of-way or easement, it shall be the DB Teams and District Utilities Engineer's responsibility to ensure that the Department's monthly Right-of-Way Status Acquisition Reports be forwarded to such Utility as received from the State Right-of-Way Office. These reports are critical to ensure that the Utility can begin acquiring their required right-of-way or easement soon after the DB Team has completed its negotiations with each affected property owner. In either case, the following method of acquisition described in Section 4.1.C.6 of the UAM shall apply.

Method of Acquisition - It is desirable that replacement right-of-way and easements for utilities be acquired concurrently with acquisition of right-of-way for the highway project.

Adjustment on Projects

a. **Reimbursable Cases** - When the Utility is entitled to reimbursement for the cost of acquisition of replacement right-of- way or easements, the Department will request permission from the Utility, which must be obtained in writing, to acquire necessary utility right-of-way or easements concurrently with its acquisition of the normal highway right-of-way. If the Utility has some particular reason for insisting on acquiring the right-of-way or easement, this will be included in a Utility Agreement.

b. **Non-Reimbursable Cases** - If the cost of acquisition of replacement right-of-way or easement is not reimbursable, the Department will, at the written request of the Utility, acquire such right-of-way or easement under written agreement and the Utility will reimburse the Department for such cost in accordance with the State law. Any acquisition by the Department will comply with all requirements pertaining to the Department's acquisition of its own right-of-way or easement.

Interest to be Acquired - If the Utility agrees for the DB Team to acquire replacement right-of-way, or easement, the DB Team in conjunction with the Department's Office of Right-of-Way will determine what interest will be acquired and the instrument (i.e., quitclaim, easement limited agreement, etc.) to be used to transfer such interest from the Department to the Utility. The State Right-of-Way Engineer will notify the DB Team, District Utility Engineer and the State Utilities Office as to a determination regarding the Department's agreement to acquire the right-of-way and of what interest is proposed to acquire. The DB Team, in turn, will notify the Utility and District Utility Engineer of that determination and will promptly notify the State Right-of Way Office, with a copy to the State Utilities Engineer, of any exceptions the Utility may make to that determination. The State Utilities Engineer will be responsible for the establishment of Easement Limited Agreements (ELA) with the Utility after determination by the State Right-of-Way Engineer that such ELA is required to complete the rights of way acquisition. A copy of the ELA will be sent to the State Right-of-Way Office for legal recording.

6.2.4.1 Documentation of Existing Utility Property Interests – Affidavits

For each Existing Utility Property Interest within the Existing ROW and Proposed ROW claimed by any Utility Owner, the DB Team shall include an easement deed or an Affidavit of Property Interest in the applicable Utility Work Plan, with appropriate documentation of the Existing Utility Property Interest attached. Any such claim shall be subject to GDOT's acceptance as part of a Utility Work Plan review. Except as otherwise directed by GDOT, the DB Team shall prepare all Affidavits of Property Interest using the standard GDOT form.

6.2.4.2 Acquisition of Replacement Utility Property Interests

Each Utility Owner will be responsible for acquiring any Replacement Utility Property Interests that are necessary for its Utility Adjustments. DB Team shall have the following responsibilities for each acquisition:

- The DB Team shall coordinate with, and provide the necessary information to, each Utility Owner as necessary for the Utility Owner to acquire any Replacement Utility Property Interests required for its Utility Adjustments.
- If any of the DB Team-Related Entities assists a Utility Owner in acquiring a Replacement Utility Property Interest, such assistance shall be by separate

contract outside of the Work, and the DB Team shall ensure that the following requirements are met:

- The files and records must be kept separate and apart from all acquisition files and records for the Proposed ROW and Additional Properties.
- The items used in acquisition of Replacement Utility Property Interests (e.g., appraisals, written evaluations and owner contact reports) must be separate from the purchase of the Proposed ROW and Additional Properties.
- Any the DB Team-Related Entity personnel negotiating the acquisition of Replacement Utility Property Interests must be different from those negotiating the acquisition of Project ROW.

The DB Team is not responsible for Utility Owner condemnation proceedings.

6.2.4.3 Georgia Utility Permit

The DB Team shall cause Utility Owners to submit utility permit requests through the current GDOT approved utility permit tracking software to accommodate the following:

- Each Utility proposed to be relocated within the Existing ROW, Proposed ROW and Additional Properties.
- Each Utility proposed to remain in its existing location within the Existing ROW, Proposed ROW and Additional Properties.
- Any Existing Utility Property Interest located within the Existing ROW, Proposed ROW and Additional Properties that is not required to be relinquished pursuant to Section 6.2.4.3 (Relinquishment of Existing Utility Property Interests), and is not addressed in the foregoing clause (i) or clause (ii).

The DB Team shall arrange for the Utility Owner to execute each Georgia Utility Permit(s). Each Georgia Utility Permit (executed by the Utility Owner) shall be subject to GDOT's acceptance as part of a Utility Work Plan.

6.2.4.4 Documentation Requirements

The DB Team shall prepare, negotiate (to the extent permitted by this Section 6.2.4 (Real Property Matters), and obtain execution by the Utility Owner of (and record in the appropriate jurisdiction, if applicable) all agreements and deeds described in this Section 6.2.4, including all necessary exhibits and information concerning the Project (e.g., reports, Plans, and surveys). Each agreement or deed shall identify the subject Utility(ies) by the applicable Utility Permit Number, and shall also identify any real property interests by parcel number or highway station number, or by other identification acceptable to GDOT.

6.3 Design

6.3.1 DB Team's Responsibility for Utility Identification

The DB Team bears sole responsibility for ascertaining, at its own expense, all pertinent details of Utilities located within the Existing ROW, Proposed ROW, limits of Additional Properties or otherwise affected by the Facility, whether located on private property or within an existing public ROW, and including all Service Lines.

The DB Team may utilize Subsurface Utility Engineering (S.U.E) process for locating all existing utilities within the project limits to develop the Utility Work Plan.

GDOT will not participate in any of the Preliminary Engineering (PE) costs for the Utility Adjustments.

The DB Team will coordinate reviews of the utility relocation information and obtain acceptance from the Utility Owner and GDOT. The GDOT District Utility Engineer should be kept informed if preliminary plans indicate that no conflict exists, and if the owner concurs with this information, then the owner shall provide a letter of "no conflict" to the DB Team.

6.3.2 Technical Criteria and Performance Standards

All Design Documents for Utility Adjustment Work, whether furnished by the DB Team or by the Utility Owner, shall be consistent and compatible with the following:

- The applicable requirements of the DB Documents, including Section 6.2.1 (Standards)
- Any Utilities remaining in, or being installed in, the same vicinity
- All applicable Governmental Approvals
- Private approvals of any third parties necessary for such work

The DB Team shall ensure that the Design Documents are complete and include all utility adjustment schedules/utility work plans, utility relocation plans, and associated agreements necessary to address all foreseeable utility impacts that might affect the project. This includes utility issues affecting right-of-way acquisition, environmental clearances, project staging, and project constructability.

The Department has executed and provided a Memorandum of Understanding (MOU) between the Department and each Utility Owner. If a utility is impacted by the project and the impact requires a relocation of the utility, refer to the executed MOU for the party responsible for the cost of the relocations.

The DB Team shall endeavor to design the Project to avoid conflicts with utilities when feasible, and minimize impacts where conflicts cannot be avoided. The DB Team shall submit to the Department a SUE Utility Impact Analysis (UIA) in the Department's prescribed format as specified in Volume 2 Table 23-1.

When a utility owner claims prior rights in the MOU and does not include either design or construction in the Design-Build Agreement, the DB Team shall research and verify any compensable prior right claimed in the MOU that would result in reimbursement to the utility owner for any relocation design, construction or material cost. If there is a dispute over property interests with a Utility Owner, the DB Team shall be responsible

for resolving the dispute. The DB Team shall meet with the Department's District Utilities Engineer (or designee) and ITS Manager to present the property interests information gathered. This information must be sufficient for the District Utilities Engineer (or designee) to certify the extent of the Utility Owner's property interests. The Department shall have final approval authority as to the DB Team's determination of whether the Utility Owner has property interests. The DB Team will be responsible for all Design, Construction and Material costs when the design and construction are included in the Design-Build Agreement.

6.3.3 Memorandum of Understanding (MOU)

Depending on the provisions stipulated in the Memorandum of Understanding (MOU – See Attached) between the Department and each Utility Owner the DB Team shall be responsible for one of the following Design Activities:

- The DB Team shall be responsible for coordinating the design work of its subcontractors and the various Utility Owners. The resolution of any conflicts between Utilities and the construction of the Project shall be the responsibility of the DB Team. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the DB Team or its subcontractors due to interference from utilities or the operation of relocating utilities.
- The DB Team shall be responsible for designing all utility removal, relocation, and adjustments required to accommodate the proposed Project. This shall include any required inspection, permitting, testing and monitoring to ensure that the work is properly performed to the certified design package. The resolution of any conflicts between Utilities and the construction of the Project shall be the responsibility of the DB Team. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the DB Team or its subcontractors due to interference from utilities or the operation of relocating utilities.

The DB Team shall provide each Utility Owner with design plans and Preliminary Utility Plans as soon as the plans have reached a level of completeness adequate to allow them to fully understand the Project impacts. The Utility Owner will use the DB Team’s design plan for preparing Utility Relocation Plans, cost estimates, and respective Utility Adjustment Schedules (UAS). If a party other than the Utility Owner prepares Utility Relocation Plans, there shall be a concurrence box on the plans where the Utility Owner signs and accepts the Utility Relocation Plans as shown.

The DB Team shall prepare all engineering design, plans, technical specifications, cost estimates, and utility adjustment schedules required to perform the necessary utility relocations. The DB Team shall certify to the Department that the design package listed above has been reviewed and accepted by the each respective Utility Owner.

The DB Team shall be responsible for collecting the following from each Utility Owner that is located within the Project limits: Certified Utility Relocation Plans including a letter

of "no cost" where the Utility Owner does not have a prior right; Utility Agreements, certificates of eligibility, including cost estimate and Utility Relocation plans where the Utility Owner has a property interest; Letters of "no conflict" where the Utility Owner's facilities will not be impacted by the Project. The DB Team shall prepare and submit to the Department a Utility Retention Request for any utility which is to remain under the roadway within the construction limits.

The DB Team shall be responsible for determining if the Department has agreed to pay for in-kind relocations according to any approved Utility-Aid assistance package for publicly (government) owned utilities found within the Project's limits see the Department's Policies & Procedures (formerly known as TOPPS Policy #6863-11) for additional information regarding Utility-Aid. If the Department has approved Utility-Aid; it is the DB Team's responsibility to assemble the necessary information including any Utility Agreements in a final and complete form and in such a manner that the Department may accept the submittals with minimal review. Failure to submit such required Utility Agreements prior to the beginning of construction shall fully transfer the utility owner's obligations, as stated in the subject Utility-Aid assistance package, to the DB Team. Deductions to reimburse the Department for such obligations may be made from any current partial payment of the Lump Sum price.

The DB Team shall review all Utility Relocation Plans and Utility Agreements, Utility Estimates and certificates of eligibility to ensure that relocations comply with the Departments "Utility Accommodation Policy and Standards Manual". The DB Team shall review the utility plans to identify that there are no conflicts with the proposed highway improvements, and ensure that there are no conflicts between each of the Utility Owner's relocation plans. The DB Team shall show all existing and proposed utilities on the cross sections and drainage profiles.

6.3.4 Utility Work Plans

The DB Team shall submit Utility Work Plans after the DB Team has reviewed and addressed internal comments on the Utility Adjustment Preliminary Plan. Utility Work Plans, whether furnished by the DB Team or by the Utility Owner, shall be signed and sealed by a Registered Professional Engineer (PE) in the State of Georgia.

6.3.4.1 Plans Prepared by the DB Team

Where the DB Team and the Utility Owner have agreed that the DB Team will furnish a Utility Adjustment design, the DB Team shall prepare and obtain the Utility Owner's approval of plans, specifications, and cost estimates for the Utility Adjustments (collectively, "Utility Work Plans") by having an authorized representative of the Utility Owner sign the plans as "reviewed and approved for construction." The Utility Work Plan (as approved by the Utility Owner) shall be attached to the applicable Utility Agreement., for GDOT's acceptance.

Unless otherwise specified in the applicable Utility Agreement(s), all changes to Utility Work Plan(s) previously approved by the Utility Owner (excluding estimates, if the Utility Owner is not responsible for any costs) shall require written Utility Owner approval. The

DB Team shall transmit any GDOT comments to the Utility Owner, and shall coordinate any modification, re-approval by the Utility Owner and re-submittal to GDOT as necessary to obtain GDOT's acceptance.

6.3.4.2 Plans Prepared by the Utility Owner

For all Utility Adjustments to be furnished by a Utility Owner, the DB Team shall coordinate with the Utility Owner as necessary to confirm compliance with the applicable requirements. Those Utility Adjustments shall be attached to the applicable Utility Agreement, which the DB Team shall include in the appropriate Utility Work Plan for GDOT's acceptance. The DB Team shall transmit any GDOT comments to the Utility Owner, and shall coordinate any modification, review by the DB Team and re-submittal to GDOT as necessary to obtain GDOT's acceptance.

6.3.4.3 Design Documents

Each proposed Utility Adjustment shall be shown in the Design Documents, regardless of whether the Utility Work Plan is prepared by the DB Team or by the Utility Owner.

Required Information

a. Preliminary Utility Plans

1) Preliminary Utility Plan sheets are typically comprised of preliminary roadway plan sheets with the inclusion of all existing utility facility locations (overhead & underground) found within a Project's limits. The "degree of effort" exerted on the part of the Department and the Utility Owner varies with the type and location of the utility. The Department has classified these "degrees of effort" into different Quality Levels of information

2) Preliminary Utility Plans shall be produced and used by the DB Team in the utility coordination/relocation design activities outlined here. The following minimum information shall be shown on the Preliminary Utility Plans:

(a) Construction centerlines with Project stations and begin/end Project limits.

(b) Curb and gutter or edge of pavement (proposed and existing)

(c) Road and street names

(d) Existing and Required Right of Way limits, property lines, environmentally sensitive area limits, and property owners

(e) All proposed and existing easements (including existing utility easements)

(f) Proposed and existing drainage structures/features (excluding drainage text)

(g) Proposed construction limits (C/F lines)

(h) Topographical planimetrics (i.e. existing buildings/structures, existing tree/vegetation limits)

(i) All proposed bridges, walls, other structures and landscape hardscapes

(j) All proposed and existing strain poles (signal, sign, lighting)

(k) Utilities Legend

(l) Miscellaneous General Notes

(m) Existing overhead and underground utilities found within the Project's limits, Including size and material if known

(n) Sanitary sewer manhole top, and invert elevations. Sanitary Sewer pipe flow directions

(o) Railroad mainline and spur tracks with their respective property/easement limits

(p) Project Survey control point locations

b. Final Utility Plans

1) The Final Utility Plans shall clearly show all existing utilities on the plans and clearly indicate all existing utilities are "To Remain".

2) In addition to the information required for the Preliminary Utility Plans, the Final Utility Plans shall include: Miscellaneous General Notes required for coordination of utility facilities with roadway construction.

c. Overhead/Subsurface Utility Engineering (SUE) Investigations

The existing utility information provided in these definitions include a description of what "degree of confidence" there is in its accuracy. The Department has classified these "degrees of confidence" into different Quality Levels of information:

1) Quality Level "D" Information - Information obtained solely from a review of utility records and field verification. The comprehensiveness and accuracy of such information is highly limited. Even when existing information for a utility in a particular area is accurate, there are often other underground systems that are not shown on any records. Quality Level "D" may be appropriately used early in the development of a Project to determine the presence of utilities.

2) Quality Level "C" Information - Information obtained to augment Quality Level “D” information. This involves topographic surveying of visible, above-ground utility features (e.g., poles, hydrants, valve boxes, circuit breakers, etc.) and entering the topographic data into the CAD system. Since aerial utility lines are not surveyed, information provided for these facilities is considered Quality Level “C” also. Quality Level “C” may be appropriately used early in the development of a Project and shall provide better data than Quality Level “D” information alone. Designers shall be very cautious when working on Projects using information for underground utilities that is based only on Quality Levels “D” and “C” locates.

3) Quality Level "B" Information - Information obtained through the use of designating technologies (e.g., geophysical prospecting technologies). This is an application using scanning technologies, most of which have very specific capabilities. Applying a variety of techniques is essential to the process of preparing a comprehensive horizontal map of utilities and other underground structures on the site. Designating technologies are capable of providing good horizontal information.

4) Quality Level "A" (Test Hole) Information - Provides the highest level of accuracy of utility locations in three dimensions. This level may apply manual, mechanical or nondestructive (e.g., vacuum excavation) methods to physically expose utilities for measurement and data recording. Quality Levels “B”, “C”, and “D” locates are incorporated in Quality Level “A” locates.

Sheet Layout

a. The DB Team will ensure that any information and graphic data that is not necessary to depict the disposition of utilities found within the Project’s limits is removed by turning off the appropriate CAD levels(s) on which the data is stored. This will help ensure that information pertinent to utility facilities can be clearly seen in the Utility Plan sheets. Examples of extraneous information would be items such as horizontal curve data, superelevation data, roadway dimensions, misc. text, etc. All background information such as pavement limits, existing structures, etc. shall be screened back. Also, the DB Team shall ensure all text, line work, details, and symbols are clear and legible when plans are reduced to ½ size (typically, 11”x17”).

b. In order to maintain plan clarity all applicable general notes, tables, and the Utility Legend shall be placed separately from the Utility Plan sheets. A Utility Plan “Cover Sheet” shall be provided for both preliminary and final Utility Plans. A recommended example utility sheet schedule is provided below:

1) Utility Sheet 1 (Cover Sheet) – Utility General Notes, Utility Legend, Miscellaneous Details
2) Utility Sheet 2 (required as needed) – Additional Miscellaneous Details, Pole Data Table
3) Utility Plan Sheets – Utilities shown in plan view with respect to Project.
4) Utility Profile and Cross Sections Sheets - Proposed Utility facility profiles and cross sections (as required)
5) Miscellaneous Utilities Sheets – Miscellaneous proposed utility details (as required).

The above sheet schedule shall also be generally followed for all separate utility relocation plans (i.e. water & sewer plans) included in the Project plans.

Note on the Utility Plans whose responsibility it is for utility adjustment. For bridge plans required, the DB Team is to make sure the plans have made accommodations for utility crossings and attachments, if applicable. Any new utility crossings requests shall include the size, weight, and type of utility. In addition, the method of attachment to the bridge shall be fully detailed. Such requests shall be reviewed by the DB Team to ensure adequacy and constructability and final acceptance shall be obtained by the DB Team from the Department. The DB Team shall follow the approval process within this specification. The DB Team is responsible to ensure that all proposed and existing utilities are coordinated with the respective Project's Construction Staging Plans and Erosion Control Plans.

Upon completion of the Utility Relocation Plans, the DB Team will ensure that any additional environmental impacts due to utilities are addressed in the Project's environmental document/permit.

6.3.4.4 Certain Requirements for Underground Utilities

Casing as specified in GDOT's Utility Accommodation Policy and Standards Manual shall be used for all underground Utilities crossing the Existing ROW, Proposed ROW and/or Additional Properties.

Anytime underground operations, excavations or digging of any type is contemplated in the general area of the any utility facility, "Excavating" means any operation by which the level or grade of land is changed or earth, rock, or other material below existing grade is moved and includes, without limitation, grading, trenching, digging, ditching, auguring, scraping, directional boring, and pile driving. The Georgia Utility Facility Protection Act (GUFPA) mandates that, before starting any mechanized digging or excavation work, you must contact Georgia 811 at least 48 hours, but no more than 10 working days, in advance to have utility lines marked. Damage and Emergency locate request may be called in 24 hours a day, seven days a week. The DB Team shall take reasonable action to determine the location of any underground utility facilities in and near the area for which signs are to be placed. In addition to establishing the

approximate location of all utility facilities, the DB Team shall be required to fully expose the facility to verify its horizontal and vertical location, if underground operations are contemplated within the Tolerance Zone, which is defined to mean the approximate location of underground utility facilities defined as a strip of land at least 4 feet wide, but not wider than the width of the underground facility plus 2.0 feet on either side of the outside edge of such facility based upon the markings made by the locators. Excavation within the tolerance zone requires extra care and precaution. The DB Team shall avoid interference with underground utility facilities within the tolerance zone by utilizing such precautions that include, but are not limited to, hand excavation, vacuum excavation methods, and visually inspecting the excavation while in progress until clear of the existing marked facility. The DB Team shall provide, during and following excavation for placement of any signs, such support for existing underground utility facilities in and near the excavation as may be reasonably necessary for the protection of such facilities unless otherwise agreed to by GDOT and the Utility owner. The DB Team shall backfill all excavations in such manner and with such materials as may be reasonably necessary for the protection of existing underground utility facilities in and near the area of excavation or sign placement.

6.3.4.5 Utility Work Plan

Each Utility Adjustment (as well as each Utility remaining in place in the Facility ROW and not requiring any Protection in Place or other Utility Adjustment) shall be addressed in a Utility Work Plan prepared by the DB Team and submitted to GDOT for its review and acceptance. The Utility Work Plan is the combination of the Utility Plan and the Utility Adjustment Schedule. The DB Team shall provide Utility Work Plans for each individual Utility Owner and the Utility Work Plan shall be provided in accordance with the Utility Accommodations Policy and Standards Manual. The DB Team shall coordinate with the Utility Owner to prepare all components of each Utility Work Plan. Completion of the review and comment process for the applicable Utility Work Plan, as well as issuance of any required GDOT acceptances, shall be required before the start of construction for the affected Utility Adjustment Work.

Provisions governing the procedure for and timing of Utility Work Plan submittals are in Section 6.5 (Deliverables).

All Utility Adjustments covered by the same initial Utility Agreement shall be addressed in a single full Utility Work Plan.

Utility Work Plan Retention Requests: The DB Team shall prepare Utility Work Plan Retention Request for each Utility proposed to remain at its original location within the Existing ROW, Proposed ROW and limits of Additional Properties that is not required to be addressed in a Utility Agreement or for a group of such Utilities. Each Utility Work Plan Retention Request shall contain a transmittal memo recommending that the subject Utility(ies) remain in place, a completed Utility Work Plan Checklist, a certification from the Utility Owner approving leaving the Utility(ies) in place, as well as a Georgia Utility Permit and Affidavit(s) of Property Interest, if applicable.

Utility Adjustment Schedule (UAS)

The purpose of the UAS is to provide the DB Team with the pertinent information, including any utility staging required, dependent activities, or joint-use coordination that is required for the creation of a progress schedule chart that is feasible. Include the estimated duration for each of the applicable following tasks: Preliminary Engineering, Right-of-Way Acquisition, Construction Engineering, Material Procurement, Clearing and Trimming, Construction, Splicing or Tie-in work, Service Considerations and Temporary Work. A suitable UAS form is available from the Department for the WUCS to circulate to utility companies for any proposed Project construction staging. Ensure the WUCS submits the Progress Schedule Chart in accordance with the Contract and the proposed UAS from all utility companies to the Engineer for review and approval.

Scheduling Utility Adjustment Work

The DB Team is responsible for the scheduling of all utility relocations and adjustments. A written scheduled should be provided by the utility owner.

Revised Work Plan Acceptance - If previously unforeseen utility removal, relocation, or adjustment work is found necessary by the DB Team, the Utility or the DB Team after the start of construction of a project, the Utility shall provide a revised Work Plan within 30 calendar days after becoming aware of such work or upon receipt of the DB Team's written notification advising of such work. The incorporation of this revised Work Plan into the overall project schedule is not intended to correct errors and omissions with the original or current accepted Work Plans submitted to the Department. If such errors or omissions occur, it will be the Utility's responsibility to adhere to the original or current Work Plan submitted and approved. However, when it is deemed appropriate for a revised Work Plan to be submitted, the following procedure shall be followed for its acceptance: It is the responsibility of the DB Team to review all revised Work Plans submitted by the Utility found within a project's limits. After review and acceptance the revised Work Plan should be submitted to the District Utility Engineer for review and acceptance. Please note that the District Utilities Engineer will typically consult with the District Construction Office and GDOT Project Manager to determine the reasonability of such revised Work Plans. If, upon review, the District Utilities Engineer determines a revised Work Plan to be unreasonable based upon the required scope of utility adjustment and/or relocation required to accommodate a project, the District Utilities Engineer will initiate the escalation process to resolve such disputes involving the revised Work Plan whenever they may occur.

Post-Let Utility Certification

Upon receipt of the accepted utility relocation plans and the Preliminary Utility Status Report, the DB Team will review and forward that information to the District Utility Engineer for review. The District Utility Engineer will review the information and forward to the State Pre-Construction Utility Engineer for final acceptance. The State Pre-Construction Utility Engineer will perform the post-let utility certification and issue notice to proceed (NTP 3) released for construction.

6.4 Construction

6.4.1 Reserved

6.4.2 General Construction Criteria

At the time the DB Team notifies the Department that the DB Team deems the Project to have reached Final Completion, the DB Team shall certify to the Department that all Utilities have been identified and that those Utility Owners with property interests or other claims related to relocation or coordination with the Project have been relocated or their claims otherwise satisfied or shall be satisfied by the DB Team.

In addition to the above, the DB Team shall comply with all provisions set forth under subsection 107.21 of the Georgia Department of Transportation's Specifications, Construction of Transportation Systems, current edition.

The DB Team shall be responsible for determining if the Department has agreed to a Project Framework Agreement (PFA) with Local Government or, additional Specific Activity Agreements (SAA) within the Project's limits (see the Department's Policies & Procedures(formerly known as TOPPS Policy #7120-3) for additional information). If the Department has approved a PFA or SAA; it is the DB Team's responsibility to assemble the necessary information including any Utility Agreements in a final and complete form and in such manner that the Department may accept the submittals with minimal review. Failure to submit such required Utility Agreements prior to the beginning of construction shall fully transfer the obligations, as stated in the subject PFA or SAA package, to the DB Team. Deductions to reimburse the Department for such obligations may be made from any current partial payment of the Lump Sum price.

All Utility Adjustment construction performed by the DB Team shall conform to the requirements listed below. If the Utility Owner chooses to perform their own relocations and the Utility Owner holds no property interest, the Utility Owner shall confirm in writing to the DB Team that the Utility Owner will relocate its own facilities at no cost to the DB Team. All construction engineering and contract supervision shall be the responsibility of the DB Team to ensure that all utility relocation work included in the contract is accomplished in accordance with the contract plans and specifications. The DB Team will consult with the Utility Owner before authorizing any changes which affect the Utility Owners facilities. For work included in the DB Teams contract, the Utility Owner or Utility Owner's consultant shall have the right to visit and inspect the work at any time and advise the DB Team and GDOT of any observed discrepancies or potential issues. The DB Team will notify the Utility Owner when all utility relocation work is completed and ready for final inspection. Upon maintenance acceptance or final acceptance of the utility relocation included in the contract and upon certification by the Utility Owner that the work has been completed in accordance with the plans and specifications, the Utility Owner will accept the adjusted, relocated, and additional facilities. In addition, the DB Team is responsible for verifying that all Utility Adjustment construction performed by each Utility Owner conforms to the requirements described below. In case of nonconformance, the DB Team shall cause the Utility Owner (and/or its Contractors, as applicable) to complete all necessary corrective work or to otherwise take such steps as are necessary to conform to these requirements:

- All criteria identified in Section 6.3.2 (Technical Criteria and Performance Standards).

- The Utility Work Plan(s) included in the Utility Agreements approved by GDOT (other than Utility Adjustment Field Modifications complying with Section 6.4.7 (Utility Adjustment Field Modifications).
- All Facility safety and environmental requirements
- Overall Facility schedule or proposed Facility ROW schedule described in Section 7 (Right of Way).
- Ensure that the placed, abandoned, excavated or relocated within the project limits are all locatable. Locatable shall mean that the line can be field located using SUE QL-B methodology.

Depending on the provisions stipulated in the Memorandum of Understanding (MOU – see attached) between the Department and each Utility Owner the DB Team shall be responsible for one of the following construction activities:

- The DB Team shall be responsible for coordinating the construction work of its subcontractors and the various Utility Owners. The resolution of any conflicts between Utilities and the construction of the Project shall be the responsibility of the DB Team. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the DB Team or its subcontractors due to interference from utilities or the operation of relocating utilities.
- The DB Team shall be responsible for performing all utility removal, relocation, and adjustments required to accommodate the proposed Project. This shall include any required inspection, permitting, testing and monitoring to ensure that the work is properly performed to the certified design package. The resolution of any conflicts between Utilities and the construction of the Project shall be the responsibility of the DB Team. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the DB Team or its subcontractors due to interference from utilities or the operation of relocating utilities.

The DB Team shall be responsible for performing all utility removal, relocation, and adjustments required to accommodate the proposed Project. This shall include any required inspection, permitting, testing and monitoring to ensure that the work is properly performed to the certified design package. The resolution of any conflicts between Utilities and the construction of the Project shall be the responsibility of the DB Team. No additional compensation will be allowed for any delays, inconveniences, or damage sustained by the DB Team or its subcontractor due to interference from utilities or the operation of relocating utilities.

6.4.3 Inspection of Utility Owner Construction

The DB Team shall set forth procedures for inspection of all Utility Adjustment Work performed by Utility Owners (and/or their Contractors) to verify compliance with the applicable requirements described in Section 6.4.2 (General Construction Criteria).

6.4.4 Scheduling Utility Adjustment Work

The Utility Adjustment Work (other than construction) may begin at any time following issuance of NTP 1. Refer to Section 7.6.2 of the Agreement for the conditions to commencement of Utility Adjustment Construction Work by the DB Team. The DB Team shall not arrange for any Utility Owner to begin any demolition, removal, or other construction Work for any Utility Adjustment until all of the following conditions is satisfied:

- The Utility Adjustment is covered by an executed Utility Agreement (and any conditions to commencement of such activities that are included in the Utility Agreement have been satisfied)
- Availability and access to affected Replacement Utility Property Interests have been obtained by the Utility Owner (and provided to the DB Team, if applicable)
- If any part of the Utility Adjustment Construction Work will affect the Existing ROW, Proposed ROW and/or Additional Properties, availability and access to that portion of the Existing ROW. Proposed ROW and/or Additional Properties have been obtained in accordance with the applicable requirements of the DB Documents
- If applicable, the Alternate Procedure List has been approved by FHWA, and either (a) the affected Utility is on the approved Alternate Procedure List, as supplemented, or (b) the Utility Owner is on the approved Alternate Procedure List, as supplemented
- The review and comment process has been completed and required approvals have been obtained for the Utility Work Plan covering the Utility Adjustment.
- All Governmental Approvals necessary for the Utility Adjustment construction have been obtained, and any pre-construction requirements contained in those Governmental Approvals have been satisfied
- All other conditions to that Work stated in the DB Documents have been satisfied

6.4.5 Standard of Care Regarding Utilities

The DB Team shall carefully and skillfully carry out all Work impacting Utilities and shall mark, support, secure, exercise care, and otherwise act to avoid damage to Utilities in accordance with O.C.G.A. 25-9 (The Georgia Utility Protection Act). At the completion of the Work, the condition of all Utilities shall be at least as safe and permanent as before.

6.4.6 Emergency Procedures

Emergency Response Plan: The WUCS shall prepare and submit to the Department an Emergency Response Plan no later than 30 days prior to beginning construction. The WUCS shall clearly mark and highlight the gas, water and other pressurized pipeline shut-off valves and other utility services including overhead switch locations on the utility plans; and prepare a chart to indicate the location of each site (Street address or intersections), the utility company or operator of the facility with emergency contact information and the working condition of the device to facilitate prompt shut-off. The WUCS shall post the Emergency Response Plan in an area readily accessible to

the Department. In the event of interruption to gas, water or other utility services as a result of accidental breakage or as a result of being exposed or unsupported, the WUCS shall promptly notify the appropriate emergency officials, the Georgia Utilities Protection Center and the appropriate utility facility company or operator, if known. Until such time as the damage has been repaired, no person shall engage in excavating or blasting activities that may cause further damage to the utility facility.

6.4.7 Switch Over to New Facilities

After a newly Adjusted Utility has been accepted by the Utility Owner and is otherwise ready to be placed in service, the DB Team shall coordinate with the Utility Owner regarding the procedure and timing for placing the newly Adjusted Utility into service and terminating service at the Utility being replaced.

6.4.8 Traffic Control

The DB Team shall be responsible for, and the Construction Traffic Control Plan shall cover, all traffic control made necessary by for Utility Adjustment Work, whether performed by the DB Team or by the Utility Owner. Traffic control for Adjustments shall be coordinated with GDOT. Traffic control shall comply with the guidelines of the Manual of Traffic Control Devices (MUTCD), current edition, and of Section 18 (Traffic Control).

6.5 Deliverables

The DB Team shall time all Submittals described in this Section 6 to meet the Project Baseline Schedule, taking into account GDOT's applicable review and response times designated in this Section 6, or if not stated therein, then as stated in Article 6.3 of the Design-Build Agreement (Volume 1).

The DB Team will provide to GDOT concurrently with accepted construction as-built plans, one full sized, three half sized, one PDF and one MicroStation copy for review. GDOT will have 30 days to review and return accepted or with comments. DB Team will address any comments and return to GDOT for final review and acceptance. Upon GDOT review and acceptance, the DB Team will provide a copy of the accepted final as-built plans to all utility owners who's utility relocation work was included in the contract.

6.5.1 Utility Work Plan Submittals

DB Team shall coordinate all Submittals required pursuant to this Section 6.5, so as not to overburden GDOT's staff and consultants.

(i) DB Team shall transmit any GDOT comments to the Utility Owner, and shall coordinate any modification, review and approval by the Utility Owner and re-submittal to GDOT, as necessary to resolve all GDOT comments and/or obtain GDOT's acceptance, as applicable. Upon (i) GDOT's acceptance of any Utility Work Plan

components for which GDOT's acceptance is required, and (ii) completion of the review and comment process for all other Utility Work Plan components, GDOT will sign three originals of any approved Georgia Utility Permit and of any other components of the Utility Work Plan for which this Section 6 requires GDOT's signature.

6.5.2 Preliminary Utility Status Report

The DB Team shall prepare and submit to the Department a Preliminary Utility Status Report Concurrently with Accepted Relocated Utility Plans within 180 days after Notice to Proceed 1 has been given for the contract (see TABLE 6-1: REVIEWS). This report shall include a listing of all Utility Owners located within the Project limits and a recommendation as to the extent of each Utility Owner's property interests. This report shall include copies of easements, plans, or other supporting documentation that substantiates any property interests of the Utility Owners. The report shall a listing of each utility with contact information, agreements, current UIA and a preliminary assessment of the impact to each Utility Owner.

6.5.3 Subsurface Utility Engineering (SUE) Requirements

The DB Team shall compile, and submit to the Department all SUE deliverables, Utility Relocation Plans, SUE Utility Impact Analysis, Utility Adjustment Schedules, Utility Agreements, Utility Estimates (if estimates are provided by the utility owners), and Letters of "no conflict," as set forth above for the Project. The DB Team is expected to assemble the information included in the Utility Agreements and Utility Relocation Plans in a final and complete form and in such a manner that the Department may accept the submittals with minimal review. The Utility Owners shall not begin their Utility Relocation work until authorized in writing by the Department.

Each Utility Agreement and Utility Relocation Plan submitted shall be accompanied by a certification from the DB Team stating that the proposed relocation will not conflict with the proposed highway improvement and will not conflict with another Utility Owner's relocation plan.

6.5.4 Utility As-Builts Requirements

a. It shall be the responsibility of the DB Team's 3.10 Utility Coordination Consultant to manage and ensure accurate completion and delivery of all items within this section.

b. Utility as-builts must be completed after utility relocations are completed and prior to project closeout.

c. Provide Utility as-built plans in the Department's current CAD Software format to include each individual utility owner within the project limits.

d. Provide one (1) final full size, four (4) half size, and one (1) pdf set of as-built utility plans to the Department to include all utilities present, abandoned or relocated within the project limits. Provide respective Utility Owners whose work was included in the contract a copy of their as-builts for review and acceptance.

e. Ensure as-built utility plans for projects contain the following:
    1. Name
    2. Address
    3. Telephone number of the firm preparing the drawing
    4. Date the as-built plan data is collected via the revision block
    5. Surveyor's/Engineer's statement certifying that as-built plans reflect the true conditions in the field
    6. DB Teams' statement (with an original signature and Project Number on the cover sheet and transmittal letter) verifying that all construction specifications and product qualities have been met
    7. Label "AS-BUILT DRAWING" or "RECORD DRAWING" on each sheet
    8. Label all Street names
    9. Label all easements and right-of-ways
    10. Identify and label the location and elevation of the benchmark referenced (If the referenced benchmark is not within the project limits, then a complete description of its location will be provided to assist in future locating).
    11. Label any changes in details of design and/or additional supporting information such as approved placement details, pipe sizes, material changes, geo-coded photos, etc.

f. Ensure the as-built plans provide detailed and accurate information, in a useful format. Discretion must be employed by the draftsperson regarding the functional quality of the plans. If too much information is included on one sheet as to make their use impractical, a second, or third, drawing sheet may be necessary.

g. Survey all underground utilities that are placed, abandoned, excavated or relocated within the project limits to determine the exact location and position of the utility line. Utilities are defined as any communication, electrical, gas and water and sewer lines. This will include all ITS/ATMS, Fiber Optic, communication and electrical lines. This should include, but not limited to outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems, utility structure material compositions and condition; as well as identification of benchmarks used to determine elevations. Ensure elevations have an accuracy of +/- 0.05-ft and certified accurate to the benchmarks used to determine elevations. Horizontal data accurate to within +/- 0.2 ft. or applicable survey standards, whichever is more precise. Record and label the average depth below the surface of each run, all change of direction points, and all surface or underground components such as valves, manholes, drop inlets, clean outs, meters, etc.

h. For relocated aerial facilities:

1. Record the following information to including but not be limited to the pole owner, age, pole size, pole height, pole number, the material type, the general condition of the utility.
2. Record the horizontal location of existing poles for aerial utility facilities. Ensure horizontal surveying of existing poles for overhead utility facilities is surveyed to the same accuracies and precision as is required for the topographic data.
3. Determine the aerial utility owners (in addition to the pole owner) attached to the pole and correctly show the horizontal connectivity of the utilities between the poles, including major service drops (substations or industrial facilities).
4. Aerial utilities along with pole locations and appurtenances shall be returned to the DEPARTMENT in digital and reproducible certified plan sheet format.

i. Submit completed electronic files and reproducible as-built utility plan sheets to the Engineer for review and comments. Revise and make changes or adjustments to the utility related data as necessary. Work will not be considered complete until the DB Team has responded to the comments from this review to the satisfaction of the Engineer.

j. Assemble and present as-built plans in a format compatible with the DEPARTMENT'S current CAD systems (Microstation and InRoads) for use by the DEPARTMENT'S staff and ensure the Microstation and InRoads files are developed in accordance with the DEPARTMENT'S current Electronic Utility File Guidelines.

For each utility facility/owner, prepare and deliver one copy of the "as-built" or "record" plan to the DEPARTMENT. There shall be an "as-built" or "record" for each utility on the project, whether the utility work is included in the contract price, or the utility work is performed by the utility owner or the utility's DB Team.

7 RIGHT OF WAY (ROW) – ADDITIONAL PROPERTIES

7.1 General Requirements

DB Team's obligations with respect to the acquisition of Additional Properties are set forth in Article 2 of the Design-Build Agreement (Volume 1), the requirements of the Technical Provisions, and Volume 3 Manuals.

Additional Properties that require acquisition in addition to the Existing ROW owned by GDOT and RequiredROW as shown in the NEPA/GEPA and provided in the approved environmental document must be approved by GDOT and FHWA, if applicable, by a NEPA/GEPA re-evaluation. All cost to acquire Additional Properties shall be paid for by the DB Team and fully reimbursable to GDOT for actual costs to acquire. This Section 7 sets forth the ROW acquisition activities for only Additional Properties that will be provided by the DB Team and designates the ROW acquisition activities GDOT will conduct. The DB Team shall provide all engineering and ROW documents necessary to acquire title for Additional Properties, in form and substance acceptable to GDOT, in the name of the Georgia Department of Transportation; relocation of displacees; and clearance/demolition of the improvements from the Additional Properties, as more fully described in the following sub-sections.

7.2 Administrative Requirements

7.2.1 Revised ROW Acquisition Plan - Additional Property Submittals

DB Team shall prepare a plat and legal description for Additional Properties needed in accordance with the requirements of this Section 7. The DB Team shall revise the Existing and Proposed ROW Plan (Exhibit 4 of the Agreement) and shall submit within thirty (30) days from the Issuance of NTP 1. No acquisition activities by GDOT can begin until the the DB Team revised Existing and Proposed ROW Plan (Exhibit 4 of the Agreement) is accepted by GDOT, and if required FHWA and the NEPA Reevaluation is approved by FHWA. The review period for any proposed revised Existing and Proposed ROW plan is thirty (30) Days. The review period for any proposed parcel plat, appraisal, and legal description for any Additional Properties shall be fourteen (14) Days. Multiple parcel packages submittal (parcel plat, appraisal, legal description, and any other requirements in the DB Agreement) will be accepted as part of one review period of fourteen (14) Days as long as the submittal includes no more than ten (10) parcels for GDOT review. The next submittal review will not begin until any previous submittal package has been completed and returned to the DB Team.

The revised Existing and Proposed ROW Plan for Additional Properties shall be coordinated with the development of the Construction Phasing Plan (see Section 23). The DB Team's Preliminary Baseline Schedule and the Project Baseline Schedule must account for all newly proposed parcel acquisition and provide a Schedule Activity for each parcel. The DB Team shall provide time in the schedule for a maximum of fifteen

(15) months from the time the parcel package or any submittal is accepted by GDOT. The NEPA Reevaluation shall be approved before GDOT to commence acquisition activities for any parcel.

DB Team shall provide information of all proposed and final acquisition requirements, including but not limited to, temporary easements, permanent easements, full takes, or leased property for construction means and methods by the DB Team.

7.2.2 DB Team's ROW Properties Scope of Services

DB Team shall reimburse GDOT for all administrative activities and preparation of all documentation sufficient to acquire Additional Properties.

Upon DB Team request to GDOT to acquire any parcel, GDOT will request that the Office of Georgia Attorney General conduct the title work, closings, condemnations, and any necessary legal activities. The DB Team shall reimburse GDOT within thirty (30) days of receipt of the invoice from GDOT for the cost GDOT will pay the Office of Georgia Attorney General for its services.

DB Team shall not begin construction on any parcel of real estate unless property rights for the parcel have been obtained and recorded in favor of GDOT and possession has occurred. ROW Properties possession may be by use of Right of Entry (ROE) as may be granted by certain Governmental Entities, and/or certain Public Utilities provider owned parcels, and as accepted only by GDOT on a case by case basis.

7.2.3 Requirements of DB Team

DB Team's services to be provided with respect to the acquisition of the ROW Properties shall include, but are not limited to the following:

- Appraisals
- Environmental due diligence
- Letter from DB Team's design engineer certifying that the required ROW Properties acquisition is necessary and that any proposed alternatives are not feasible (*unless otherwise authorized by GDOT*)

7.2.4 DB Team Conflict of Interest

If at any time, DB Team or to the best of DB Team's knowledge, any DB Team-Related Entity directly or indirectly (i) acquires or has previously acquired any interest in real property likely to be parcels of the Additional Properties or the remainders of any such parcels; (ii) loans or has previously loaned money to any interest holder in any real property likely to be a parcel and accepts as security for such loan the parcel, or the remainder of any such parcel that is not a whole acquisition, or (iii) purchases or has previously purchased from an existing mortgagee the mortgage instrument that secures an existing loan against real property likely to be a parcel, or the remainder of any such parcel, DB Team shall promptly disclose the same to GDOT. In the case of

acquisitions, loans or mortgage purchases that occurred prior to the execution of the Agreement, such disclosure shall be made within fourteen (14) Days after execution of the Agreement.

In the event that DB Team, or any subsidiary or parent company of DB Team, acquires a real property interest, whether title or mortgage, in parcels of the real property interest acquired, or a release of mortgage as the case may be, shall be conveyed to the State of Georgia without the necessity of eminent domain.

DB Team shall not acquire or permit the acquisition by the DB Team or any DB Team-Related Entity of any real property interest in a parcel, whether in fee title or mortgage, for the purpose of avoiding compliance with the Laws, practices, guidelines, procedures and methods described in Section 7.2.1 and/or to gain an advantage over any competing interest of the DB Team.

7.2.5 Meetings

DB Team shall attend meetings as requested by GDOT. Meeting may include, but are not limited to property owner meetings and property acquisition status meetings. At such meetings DB Team shall provide exhibits, take minutes, and distribute minutes, as requested by GDOT, within five (5) calendar Days of the meeting. Minutes will not be finalized until an adequate comment period has been allowed.

7.2.6 Documentation and Reporting

All documentation relating to the activities in Section 7.2.5 shall be transmitted to GDOT within five (5) Days of taking place. Responsibilities of DB Team:

As set forth in, Article 2 Section 2.2.3.2 of the Design-Build Agreement (Volume 1) and as more fully described in this Section 7, DB Team shall be responsible for the reimbursement to GDOT for costs of all services and preparation of all documentation for all Additional Properties.

DB Team shall also be responsible for the costs of acquisition and documentation for the acquisition of any temporary right or interest in Project Specific Locations not necessary for the Project but that DB Team deems advisable for contractor preferred areas such as Project office requirements lay-down areas, material storage areas, borrow sites, or any other convenience of DB Team. The DB Team entering into negotiations with a property owner to use their property within Project Specific Locations or outside of the acquisition limits for mobile work trailers, storage, equipment, etc. will be strictly between the DB Team and the property owner and is to in no way to affect the negotiations of any parcel acquisition required for the Project. GDOT shall not be obligated to exercise its power of eminent domain in connection with DB Team's acquisition of any such temporary right or interest, and GDOT shall have no obligations or responsibilities with respect to the acquisition, maintenance or disposition of such temporary rights or interests.

7.2.7 Responsibilities of GDOT

GDOT shall be responsible for the activities set forth in the Section 7, in connection with acquisition of Additional Properties:

7.2.8 Responsibilities of the Office of Georgia Attorney General

The parties hereto acknowledge the statutory requirements that the Office of Georgia Attorney General has exclusive authority to represent and defend GDOT. In its role as attorney for GDOT, the Office of Georgia Attorney General has the responsibility to:

- Represent GDOT in all condemnation and eviction proceedings.
- Coordination with GDOT on all legal matters concerning acquisition processes, including all negotiated legal settlements.
- Analyze recommended parcel values and/or appraisal issues.
- Provide additional legal advice and opinions as needed by GDOT.
- Jury trials including determination of expert witnesses and all appeals.
- Preparation, obtaining, and filing of all necessary legal documentation for eviction of property owners or tenants.
- Prepare preliminary and final title opinions.
- Conduct all closing activities.

7.3 Reserved

7.4 Fencing

7.4.1 Reserved

7.4.2 Property Fencing

In connection with fencing, DB Team shall comply with *GDOT Policy and the 2009 International Building Code – 2009 Edition – International Code Council*, as well as, the specifications found in the current version of GDOT's *Standard Specifications for Construction of Highways, Streets and Bridges*, and any Supplemental Specifications. DB Team shall also comply with section 3.7 of GDOT's Design Policy Manual on fencing. Fencing standards for DB Team provided fencing shall conform to the overall aesthetics requirements found elsewhere in these DB Documents and referenced standards. All fencing installed by DB Team shall be preapproved by GDOT prior to installation.

7.5 Access to the Work

Following NTP 1, the DB Team shall be afforded access to the Property, provided that for any Proposed Right of Way, DB Team shall not have access to use of certain parcels, such parcels identified in Volume 2.

8 GEOTECHNICAL

8.1 General Requirements

DB Team shall perform all geotechnical investigations, testing, research, and analysis necessary to effectively determine and understand the existing surface and subsurface geotechnical conditions of the Existing ROW, Required ROW or Additional Properties to be used by the DB Team to carry out the Work. DB Team shall ensure the geotechnical investigations and analyses are both thorough and complete, so as to provide accurate information for the design of roadways, pavements, foundations, structures, and other facilities that result in a Project that is safe, and meets operational standards. The DB Team shall design the Project in general conformance with GDOT policies, guidelines, and Volume 3 Manuals.

8.2 Design Requirements

8.2.1 Subsurface Geotechnical Investigation by DB Team

DB Team shall determine the specific locations, frequency, and scope of all subsurface geotechnical investigations, testing, research, and any additional analysis the DB Team considers necessary to provide a safe and reliable roadway, pavement, foundation, structure, and other facilities for the Project.

DB Team shall prepare and amend, as needed, Geotechnical Engineering Reports documenting the assumptions, conditions, and results of the geotechnical investigation and analysis, including the following:

- The geology of the Project area, including soil and/or rock types, and drainage characteristics.
- Field investigations and laboratory test results used to characterize conditions, including moisture content, plasticity index, gradations for each major soil strata change, levels of shrink/swell potential soil compressibility, and short-term and long-term strength tests and properties.
- A discussion of conditions and results with reference to specific locations on the Project.
- Design and construction parameters resulting from the geotechnical investigation and analysis, including parameters for the design of pavements, pipes, structures, slopes, and embankments.
- Plan view locations of field sampling, boring logs and other field data, laboratory test results, calculations, and analyses that support design decisions.
- Include the slope stability analysis for embankment and excavation slopes including both short-term (undrained) and long-term (drained) conditions, and discussion of design measures undertaken to ensure stability and safety of all slopes. The analysis shall consider the potential for long-term surficial slide

failures common to high plasticity clays in Georgia, and specific recommendations shall be provided to minimize their occurrence.

Each Geotechnical Engineering Report, upon completion, shall be submitted to GDOT for review and comment as a Submittal.

If environmentally-sensitive conditions such as undocumented contaminated soil or archaeological sites are encountered during the subsurface exploration activities, DB Team shall notify GDOT and for hazardous materials follow the requirements GDOT Standard Specification 107.22.

8.2.2 Pavement Design

DB Team shall construct and maintain roadway pavements in conformance to *GDOT's Pavement Design Manual and* GDOT policies and procedures*.* DB Team shall follow the required minimum pavement design provided in Volume 2, Section 11.2.2.

If Pavement Design has not been previously approved by GDOT, then the DB Team shall prepare a pavement design report that confirms or revises the required minimum pavement design provided in Volume 2, Section 11.2.2. The pavement design report shall document the assumptions, considerations, and decisions contributing to the Project's pavement design and meet all requirements of the *GDOT's Pavement Design Manual*.:

For roadways adjacent to and crossing the Project that are disturbed by the construction activities of the Project, DB Team shall, at a minimum, match the in-place surface type and structure of the existing roadways. In addition, all new shoulders shall be constructed as full depth shoulders. DB Team shall design all tie-in Work to avoid differential settlement between the existing and new surfaces.

DB Team shall coordinate the design and construction of all cross roads with the Governmental Entity having jurisdiction whether a municipality, county, or GDOT.

8.3 Construction

Materials used to construct the Project shall meet the minimum requirement as specified in GDOT specifications, policies and procedures, guidelines, and Volume 3 Manuals. All materials used to construct the Project shall conform to the requirements of the GDOT Qualified Products List (QPL) or equivalent as approved by GDOT. Testing of materials shall be performed by personnel possessing the requisite GDOT materials certifications.

The DB Team shall be responsible for obtaining and complying with all Governmental Approvals for construction of the Project.

The DB Team shall submit to GDOT for review and acceptance any blasting plan(s). Blasting shall be performed in accordance with State Law, and in accordance with GDOT's specifications, policies and procedures.

8.4 Deliverables

Deliverables shall include Geotechnical Engineering Reports as described in Section 8.2.1, and pavement design reports as described in Section 8.2.2. All deliverables shall conform to the standards required in the Quality Management Plan including timely submittal of all documents.

All deliverables shall be presented to GDOT in both hard-copy, and electronic form compatible with GDOT software. All reports shall be signed and sealed by the responsible Registered Professional Engineer. Each report shall be accompanied by documentation that the report has completed all aspects of the Quality Management Plan including all reviews and acceptances.

9 SURVEYING AND MAPPING

9.1 General Requirements

The DB Team shall provide accurate and consistent land surveying and mapping necessary to support ROW acquisition, design, and construction of the Project. The DB Team is responsible for all surveying responsibilities in accordance with the GDOT *Automated Survey Manual*.

The DB Team shall review existing survey data and determine the requirements for updating or extending the existing survey and mapping data. The DB Team is responsible for the final precision, accuracy, and comprehensiveness of all survey and mapping.

The DB Team shall provide surveying and mapping activities in conformance with GDOT policies, guidelines, and Volume 3 Manuals.

9.2 Administrative Requirements

9.2.1 Property Owner Notification

The DB Team shall prepare for GDOT review and acceptance a property owner notification letter in accordance with the *GDOT Automated Survey Manual* prior to entering any private property outside the Existing ROW.

9.3 Design Requirements

9.3.1 Units

All survey Work shall be performed in U.S survey feet. Work shall conform to state plane coordinates.

The combined sea level and scale factor for the Project shall conform to the *GDOT Automated Survey Manual*.

9.3.2 Survey Control Requirements

The DB Team shall ensure that all surveying conforms to all applicable surveying laws and the *Georgia Professional Land Surveying Practices Act* and shall follow the *General Rules of Procedures and Practices* of the Georgia Board of Professional Engineers and Land Surveying. DB Team shall ensure that any person in charge of the survey is proficient in the technical aspects of surveying, and is a Registered Professional Land Surveyor licensed in the State of Georgia.

The DB Team shall establish all horizontal and vertical primary Project control from approved control provided by GDOT. If the DB Team chooses to use GPS methods,

the DB Team shall meet the guidelines as defined in the *GDOT Automated Survey Manual*.

The DB Team shall establish and maintain additional survey control as needed and final ROW monumentation throughout the duration of the Project.

The DB Team shall tie any additional horizontal and vertical control for the Project to the established primary Project control network.

All survey control points shall be set and/or verified by a Registered Professional Land Surveyor licensed in the State of Georgia.

The DB Team shall establish and maintain a permanent horizontal and vertical primary survey control network. The control network should consist of, at minimum, horizontal deltas coordinated and elevated set in intervisible pairs at spacing of no greater than three (3) miles. Control monuments set by the DB Team shall be installed per the National Geodetic Survey (NGS) guidelines (*National Geodetic Survey July 1996*). The horizontal deltas shall be installed per the *GDOT Automated Survey Manual*. Prior to construction, the DB Team in coordination with GDOT shall provide NOAA no less than a 90-day notification of planned activities that will disturb or destroy any geodetic control monuments. This will provide time to plan for and execute relocation of geodetic monuments. DB Team shall replace all existing horizontal and vertical primary survey control points disturbed or destroyed. DB Team shall make all survey computations and observations necessary to establish the exact position and elevation of all other control points based on the primary survey control.

The DB Team shall deliver to GDOT a survey control package in accordance with the *GDOT Automated Survey Manual*. In addition, DB Team shall deliver to GDOT a revised survey control package when survey monuments or control points are disturbed, destroyed or found to be in error.

9.3.3 Conventional Method (Horizontal & Vertical)

If the DB Team chooses to use conventional methods to establish additional horizontal control, the DB Team shall meet the accuracy of the appropriate level of survey as defined in the *GDOT Automated Survey Manual*.

9.3.3.1 Horizontal Accuracy Requirements for Conventional Surveys

Horizontal control is to be established (at a minimum) on the Georgia State Plane Coordinate System of 1985[NAD83 or GCS 85].

Upon request by the DB Team, GDOT will compile and provide to DB Team a survey control package of existing GDOT approved survey monumented data in the Project vicinity.

9.3.3.2 Vertical Accuracy Requirements for Conventional Surveys

Vertical control shall be established on the North American Vertical Datum of 1988 (NAVD 1988).

Table 9-1

	1st Order	2nd Order	3rd Order	Remarks And Formulae
Error of Closure	0.013 feet $\sqrt{M}$	0.026 feet $\sqrt{M}$	0.049 feet $\sqrt{M}$	Loop or between control monuments
Maximum Length of Sight	250 feet	300 feet		With good atmospheric conditions
Difference in Foresight and Backsight Distances	±10 feet	±20 feet	±30 feet	Per instrument set up
Total Difference in Foresight and Backsight Distances	±20 feet per second	±50 feet per second	±70 feet per second	Per total section or loop
Recommended Length of Section or Loop	2.0 miles	3.0 miles	4.0 miles	Maximum distance before closing or in loop
Maximum Recommended Distance Between Benchmarks	2000 feet	2500 feet	3000 feet	Permanent or temporary benchmarks set or observed along the route
Level Rod Reading	± 0.001 foot	± 0.001 foot	± 0.001 foot	
Recommended Instruments and Leveling Rods	Automatic or tilting w/ parallel plate micrometer precise rods	Automatic or tilting w/ optical micrometer precise rods	Automatic or quality spirit standard, quality rod	When two or more level rods are used, they should be identically matched

Principal Uses	Broad area control, subsidence or motion studies jig & tool settings	Broad area control, engineering projects basis for subsequent level work	Small area control, drainage studies, some construction and engineering	

9.3.4 Reserved

9.3.5 Right of Way Surveys

The DB Team shall base all surveys on the primary horizontal and vertical control network established for the Project.

9.3.5.1 Accuracy Standard

In performing ROW surveys consisting of boundary locations, the DB Team shall meet the accuracy standards of the appropriate level of survey as defined in the following table.

Table 9-2: Chart of Tolerances

	Urban / Rural	**Urban Business District**	**Remarks and Formulae**
Error of Closure	1:10,000	1:15,000	Loop or between Control Monuments
Angular Closure	15" $\sqrt{N}$	10" $\sqrt{N}$	*N* = Number of Angles in Traverse
Accuracy of Bearing in Relation to Source *	20 "	15 "	Sin α = denominator in error of closure divided into 1 (approx.)
Linear Distance Accuracy	0.1 foot per 1,000 feet	0.05 foot per 1,000 feet	Sin α x 1000 (approx.) where ± = Accuracy of Bearing
Positional Error of any Monument	*AC*/10,000	*AC*/15,000	*AC* = length of any course in traverse
Adjusted Mathematical Closure of Survey (No Less Than)	1:50,000	1:50,000	

* GDOT policy requires all bearings or angles be based on the following source: Grid bearing of the Georgia Coordinate System of 1985, with the proper zone and epoch specified.

9.3.6 Survey Records and Reports

The DB Team may use electronic field books to collect and store raw data. The DB Team shall preserve original raw data and document any changes or corrections made to field data, such as station name, height of instrument, or target. The DB Team shall also preserve raw and corrected field data in hardcopy output forms in a similar manner to conventional field books for preservation.

Field survey data and sketches that cannot be efficiently recorded in the electronic field Volume shall be recorded in a field note Volume and stored with copies of the electronic data.

All field notes shall be recorded in permanently bound books. (Loose leaf field notes will not be allowed.) The DB Team shall deliver copies of any or all field note Volumes to GDOT upon request.

9.4 Construction Requirements

9.4.1 Units

Comply with the Design Requirements in Section 9.3.

9.4.2 Construction Surveys

Comply with the Design Requirements in Section 9.3.

9.5 Deliverables

9.5.1 Final ROW Surveying and Mapping

The documents produced by the Surveyor, or the Surveyor's subcontractors, are the property of GDOT, and release of any such document shall be approved by GDOT.

All topographic mapping created by the DB Team shall be provided to GDOT in digital terrain model format using the software and version thereof being used by GDOT at the time of delivery.

9.5.2 ROW Monuments

Upon completion of the ROW acquisition and all Construction Work, such that the Final ROW Lines will not be disturbed by construction, the DB Team shall set permanent and stable concrete ROW monuments (constructed according to current GDOT specifications) located on the final ROW line at all points of curvature (PCs), points of tangency (PTs), points of intersection (PIs), miters and breaks, points of compound curvature (PCCs), points of reverse curvature (PRCs), and all intersecting crossroad ROW lines. In addition, the DB Team shall set permanent and stable concrete ROW monuments (constructed according to current GDOT specifications) located on all final ROW lines where the distance between such significant ROW line points exceeds fifteen hundred (1,500) feet.

The DB Team shall purchase all materials, supplies, and other items necessary for proper survey monumentation.

10 GRADING

10.1 General

DB Team shall conduct all Work necessary to meet the requirements of grading, including clearing and grubbing, excavation and embankment, removal of existing buildings, pavement and miscellaneous structures, subgrade preparation and stabilization, dust control, aggregate surfacing and earth shouldering, in accordance with Volume 3 Manuals (Technical Documents).

Borrow, Stockpile, and Waste Sites: All Borrow, Stockpile, and Waste Sites for this Project shall be environmentally approved prior to construction activities. All common fill or excess material disposed of outside the Project Limits shall be placed in either a permitted solid waste facility, a permitted inert waste landfill, or in an engineered fill.

There is no suitable place to bury existing bridge debris within the project's limits. The DB Team shall provide an environmentally approved site to dispose the existing bridge debris at no additional cost to GDOT.

Any features that are abandoned in place, e.g.; parking lots, abandoned pavements, sidewalks, driveways, catch basins, drop inlets, pipes, manholes, curbing, retaining walls, utilities, foundations, paved floors, underground tanks, fences, bridges, buildings, and other incidental structures shall be removed to the following depths:

Abandon Pavements: Ensure existing pavement inside the Project Limits no longer being used is obliterated, graded to drain, and grassed.

Abandon Pipes: Ensure abandoned pipes that are left in place are grout filled or filled with flowable fill.

Under Pavements: Remove to a depth of at least three (3) feet below the finished subgrade elevation.

Underneath Other Structures: Remove to at least three (3) feet below the foundations of any proposed structure, including installations such as guard rail posts and utility poles.

Elsewhere in the Right of Way and easement areas: Remove as follows: Remove to at least three (3) feet below the finished surface of slopes and shoulders and one (1) foot below natural ground outside construction lines.

Thoroughly crack or break abandoned structures that may impound water. These structures include but are not limited to concrete floors, basements, and catch basins within ten (10) feet of finished grade.

Break floors so that no section greater than ten (10) square feet remains intact.

10.2 Preparation within Project Limits

DB Team shall develop, implement, and maintain, for the Term, a Demolition and Abandonment Plan for all existing structures, features, and utilities as described in 10.1 above (types and sizes) that will be removed, abandoned or partially abandoned during the Term. The plan shall ensure that said structures are structurally sound after the abandonment procedure. The plan should show the locations of all existing features as listed in Section 10.1 that will be abandoned and the plan should show sufficient detail for the abandonment.

GDOT reserves the right to require DB Team, at any time to salvage equipment in an undamaged condition and deliver to a location designated by GDOT within the GDOT District in which the Project is located, any GDOT-owned equipment and materials in an undamaged condition. GDOT shall have first right of refusal to retain any salvage material or equipment. If GDOT decides not to salvage the material or equipment the DB Team may take possession but not reuse for the Project. All material incorporated into the Project shall be new.

The material from structures designated for demolition shall be DB Team's property. All material removed shall be properly disposed of by DB Team outside the limits of the Project.

10.3 Slopes and Topsoil

DB Team shall comply with Volume 3 Manuals regarding design limitations and roadside safety guidelines associated with the design of slopes along roadways. DB Team shall adjust grading to avoid and minimize disturbance to the identified waters of the U.S. DB Teams grading plan shall be in accordance with the approved NEPA/GEPA documents however the DB Team shall secure all associated Governmental Approvals to meet the Released for Construction(RFC) plans.

DB Team shall perform finished grading and place topsoil in all areas suitable for vegetative slope stabilization (and areas outside the limits of grading that are disturbed in the course of the Work) that are not paved.

10.4 Deliverables

10.4.1 Released for Construction Documents

The Demolition and Abandonment plan shall be submitted to GDOT for acceptance no later than one hundred and eighty (180) Days from NTP 1 but must be completed prior to any Construction Phase as specified in Section 23.

11 ROADWAYS

11.1 General Requirements

The objectives of the Project include the provision of a safe, reliable, cost-effective, and aesthetically-pleasing corridor for the traveling public. The requirements contained in this Section 11 provide the framework for the design and construction of the roadway improvements to help attain the project objectives.

DB Team shall coordinate their roadway design, construction, maintenance, and operation with all other Work planned or under construction by GDOT and/or Governmental Entity.

Whenever DB Team receives a design request from an adjacent property owner, DB Team shall, within thirty (30) Days of the request, produce a report to GDOT identifying the nature of the request, the financial consequences to GDOT of compliance (if any), DB Team's assessment of the feasibility of compliance, any Change Requests from the Technical Provisions that would be required and any potential risks to GDOT that may arise from implementation of the design request such as environmental and permitting risks. Where DB Team determines that there are no financial consequences to GDOT, time impacts to the Project and Change Request from the Technical Provisions, and provided that GDOT raises no objection within thirty (30) Days of DB Team's report, DB Team may proceed with the implementation of the design request at its option and shall advise GDOT in writing of its decision.

No open cutting (removal of pavement to construct, repair, or relocate utilities/drainage structures or for any purposes that cause a full depth cut of existing pavement and removal of any subgrade beneath) of the Travel Lane pavements or ramp pavements shall be allowed without prior acceptance of GDOT. Any pavement that is open cut as described in this paragraph shall be repaired in kind prior to the Travel Lane or ramp being opened to traffic.

The stockpiling of materials may be permitted on a case by case basis provided that participation is based on the appropriate value of approved specification materials delivered by the DB Team to the project site, or other designated location in the vicinity of the project and the terms and conditions below. Stockpiled materials that may qualify for material allowances include materials that are not readily available, can be easily identified and secured for this project, and, can be stockpiled for long periods without detriment. The procedure identified in GDOT Supplement Specifications 109.07.B shall be used to process a Material Allowance Request. Other provisions include:

- Stockpiles will be constructed in conformity with the provisions in the current GDOT Standard Specifications. Appropriate erosion control measures will be placed and maintained, and the site will be restored to its original condition. the DB Team will provide satisfactory evidence of insurance against loss by damage or disappearance,

- The stockpiled material is stored in such a manner that security and inventory can be maintained, and the contractor is responsible for any costs of storage of said materials.
- The material is supported by a paid invoice or receipt for delivery, with the DB Team to furnish the paid invoice within a reasonable time after receiving payment.
- The material conforms with the requirements of the plans and specifications,
- Any damage to material due to the delay in incorporation of the material into the Final Plans , shall be at the risk of the DB Team, and
- The quantity of material does not exceed the quantity required by the project, nor does the value exceed the appropriate portion of the contract item in which the material is to be incorporated.

11.2 Design Requirements

The design of the Project shall be in accordance with the NEPA/GEPA Approvals and Volume 3 Manuals (Technical Documents) and the DB Documents.

DB Team shall coordinate its roadway design with the design of all other components of the Project. The Project roadways shall be designed to integrate with streets and roadways that are adjacent or connecting to the Project.

The Project roadways shall be designed to incorporate roadway appurtenances, including, but not limited to fences, noise attenuators, barriers, and hazard protection as necessary to promote safety and to mitigate visual and noise impacts on neighboring properties. Fence type shall be replaced in accordance with GDOT Construction Standards and Details. Should the existing type of fence not match the type provided in the GDOT Construction Standards and Details, the type of proposed fence shall be accepted by GDOT.

The DB Team shall design and construct any and all proposed intersection reconstruction or rehabilitation to meet the requirements of the NEPA/GEPA Approvals and Volume 3 Manuals (Technical Documents).

Vibration Control

The DB Team is responsible for any and all vibration related damages to existing structures or other facilities located in the vicinity of construction related activities. Where vibration-inducing construction activities are to be performed in the vicinity of existing properties, structures, utilities, or other facilities, the DB Team shall evaluate potential impacts and develop a Vibration Control Plan for GDOT review and acceptance. The plan shall include certain triggers of action to ensure no damage to existing structures occurs as well as a means to resolve public concerns for the vibration at any level. Additional requirements for the Vibration Control Plan are as follows:

1. Use attenuation relationships published by applicable governmental agencies and/or applicable equipment manufacturers to estimate the zones within which vibrations caused by the Project may impact existing properties and facilities.
2. Within the zone of potential vibration impacts, conduct site reconnaissance of properties during site investigations to determine the sensitivity of each structure/facility to vibrations.
3. List all properties that may be adversely affected by vibrations.
4. Conduct a preconstruction survey of each structure determined to be susceptible to vibrations.
5. Provide the GDOT with recommendations to mitigate that may be adversely affected by vibrations.
6. Use the vibration monitoring records to develop attenuation curves for predicting vibrations at varying distances from the source.

The DB Team shall adjust operations immediately if the threshold readings above are exceeded.

Blasting

Follow GDOT Standard Specification 107.12

Control of Access

DB Team shall maintain all existing property accesses, including those not shown on the schematic, and shall not revise control of access without GDOT review and the written agreement of the affected property owner. Access control shall be in conformance with the GDOT *Regulations for Driveway and Encroachment Control*.

11.2.1 Typical Section(s) and Pavement Design

Refer to volume 2.

11.2.2 Additional Roadway Design Requirements

DB Team shall coordinate, design and construct the improvements on crossing streets in accordance with the Governmental Entity having jurisdiction of said roadway. All roadside safety devices used on the Project shall meet current crash test and other safety requirements that meet or exceed current GDOT requirements. GDOT does not allow longitudinal pavement joints in the wheel path of the traveling public unless otherwise accepted by GDOT.

When designing and constructing hardscape elements at intersections, at a minimum, DB Team shall use colored textured concrete in all raised medians. Monolithic concrete medians will not be accepted. Stamped concrete may only be used only where local communities agree to maintain them, and it meets the requirements in GDOT specifications, policies, procedures and Volume 3 Manuals (Technical Documents).

Concrete paving shall be used in hard to reach mowing areas or under structures (such as, but not limited to, areas near or next to or between guard fence posts, sign posts, bent columns, next to retaining walls, freeway ramp gores, paved ditches, flumes, ditch inlets, etc.) to improve roadway appearance.

When guardrail is required on interstates, freeways, and other 4-lane roadways, shoulder paving shall be extended beyond the usable paved shoulder to conform to GDOT Standards and Details.

11.2.3 Allowable Design Exception(s)/Variance(s)

Refer to volume 2.

11.2.4 Visual Quality

When lighting is required, DB Team shall provide luminaries of equal height along the roadway.

11.2.5 Permanent Lighting

The DB Team shall design the lighting of the Project in accordance with Volume 3 Manuals (Technical Provisions), the DB Documents, and at a minimum shall match the existing lighting illumination of the adjacent General Purpose lanes. The DB Team shall also make all necessary enhancements or changes to the existing General Purpose Lanes lighting system to maintain the existing illumination if diminished by the Project.

DB Team shall install mechanical copper wire theft deterrent devices in all Project electrical conduits supplying power to the Project. The theft deterrent devices typically consist of a rubber stopper mechanical device that compress against the electrical wiring and prevents the wires from being easily pulled through the conduits. DB Team shall also install electrical pull box lids that contain locking mechanisms that works with the use of cams to prevent unauthorized access.

DB Team shall prepare lighting studies that consider illumination levels, uniformity, and sources for the roadways, interchanges, and special areas including local roadway intersections. DB Team shall maintain an average horizontal luminance on the roadways that provided consistent illumination.

All third-party requests for lighting within the Project Site shall be subject to GDOT acceptance.

DB Team shall provide an average to minimum uniformity ratio per AASHTO's *Standard Specifications for Structural Supports for Highway Signs*, *Luminaire, and Traffic Signals*, the Illuminating Engineering Society of North America (IESNA) RP-14-0 *Recommended Practice for Roadway Lighting*. *Traveled Roadways* and the Roadway Lighting Design Guide for tolled lanes, general use lanes, High Occupancy Vehicle (HOV) lanes,

auxiliary lanes, ramps, frontage roads, and ramp terminal intersections with cross streets.

DB Team shall design the lighting system to minimize or eliminate illumination of areas outside the Existing ROW. Luminaires shall be, at a minimum, high pressure sodium and be in accordance with GDOT's Qualified Products List (QPL). Neither mercury vapor nor metal halide is allowed. Other energy efficient lighting technology will be considered by GDOT with acceptance, such as light emitting diodes (LED) or Induction luminaries.

DB Team shall design and construct the lighting system in a manner that will reduce and/or discourage vandalism.

Luminaire poles and breakaway bases shall be designed in accordance with AASHTO's *Standard Specifications for Structural Supports for Highway Signs, Luminaire, and Traffic Signals*. The DB Team shall install breakaway wiring connectors when using luminaire poles and breakaway bases. For all poles located within the clear zone of the roadways, DB Team's design shall incorporate breakaway devices that are pre-qualified by GDOT. Appropriate safety measures shall be used if DB Team does not use luminaire poles and breakaway bases. Luminaire poles and breakaway bases shall not be used when mounted on side barriers, median barriers or bridge structures.

DB Team shall place all understructure lighting in a configuration that minimizes the need for lane closures during maintenance.

DB Team shall determine and design appropriate foundation types and lengths for permanent lighting structures. GDOT requires consistent footing designs and has a minimum footing size criteria as follows:

Height of Pole in feet	**Diameter by depth of footing in**
Less than or equal to 40'	2' by 6'
40' to 50'	3' by 7'
50' to 60'	3' by 9'
High Mast min - 100' or greater	4' by 20'
NOTE: Poles for barrier mounted have a minimum of 2' by 4' base	

DB Team shall not place ITS cable, fiber-optic lines, signal conductors, or any other non-lighting related cables or conductors in the lighting conduit, ground boxes, or junction boxes.

Top latch mechanisms shall be used on all high mast lighting towers.

DB Team shall minimize the potential hazards of lighting poles through the careful consideration of mounting options and pole placements, including the following options:

- Placing mast arms on traffic signal poles

- Placing pole bases on existing or proposed concrete traffic barrier
- Placing poles behind existing or proposed concrete traffic barrier, guardrail or cable barrier
- Placing high mast lighting outside the clear zone, especially in roadway horizontal curves

DB Team shall ensure that lighting structures comply with Federal Aviation Administration (FAA) height restrictions within two miles airport facilities. In the event that proposed or existing luminaries, mast arms, or poles infringe into an airport's or heliport's base surface, DB Team shall coordinate with the FAA and GDOT to permit or relocate such structures. If FAA restrictions prohibit lighting structures from being placed in certain areas near an airport Project, DB Team shall find alternative ways of providing the required level of lighting.

DB Team shall coordinate with the Utility Owner(s) and ensure power service is initiated and maintained for permanent lighting systems. Where the Work impacts existing lighting, DB Team shall maintain the existing lighting as temporary lighting during construction and restore or replace prior to Substantial Completion.

DB Team shall place all bore pits safely away from traffic, provide positive barrier protection, and provide necessary signs to warn of the construction area.

DB Team shall contact Utility Owners regarding their specific required working clearance requirements.

DB Team shall ensure that roadway lighting is provided for the safety of vehicles and pedestrians as they approach local intersections.

DB Team shall affix an identification decal on each luminaire, ground box, and electrical service for inventory purposes and shall submit inventory information to GDOT in a GDOT-compatible format. This identification shall denote that these are property of GDOT and shall provide a contact phone number and address in the event of Emergency.

11.2.6 Related Transportation Facilities

DB Team shall design and construct all new roadway and bridges to accommodate the planned expansions or updates of Related Transportation Facilities as designated in the current transportation master plans found in Volume 2.

11.3 Deliverables

The DB Team shall provide the Submittals as required in Section 23 and in the DB Documents.

12 DRAINAGE

12.1 General Requirements

Effective performance of the Drainage System is an integral part of the success of the Project. All stormwater runoff that flows through the Project, whether originating within or outside the Project, must be accounted for in the design of the Drainage System. All existing and proposed riverine/tidal bridges, storm water conveyances (open-channel and closed-conduit), inlets and stormwater management are included as part of the Drainage System.

The design of the Project shall be in accordance with Volume 3 Manuals (Technical Documents) and the requirements of the DB Documents and Government Approvals.

The Drainage System shall meet the following requirements:

- The analysis, design and construction of all components of the Drainage System shall address the interim conditions during construction of the Project and the Final Plans.
- The System shall have adequate capacity to convey all storm water through the Project without any adverse impacts to upstream and/or downstream adjacent properties.

12.2 Administrative Requirements

12.2.1 Data Collection

The DB Team shall collect all necessary data, including those components outlined in this Section 12.2.1, to establish a Drainage System that complies with the requirements and accommodates the historical hydrologic flows within the Project limits.

The DB Team shall collect all available data identifying storm water resource obligations, including water quality regulations as imposed by local, State and federal governments; National Wetland Inventory and any other wetland/protected waters inventories; any local floodplain ordinances in effective Federal Emergency Management Agency (FEMA) floodplains; any restrictions on discharging storm water to environmentally sensitive areas, navigable waters or coastal zones; and official documents concerning the Project, such as the NEPA/GEPA document and any other drainage or environmental studies. The DB Team shall determine any storm water resource issues that may include areas with historically inadequate drainage (evidence of flooding or citizen complaints of flooding), maintenance problems associated with drainage, and areas known to contain Hazardous Materials. The DB Team shall identify watershed boundaries, protected waters, areas classified as wetlands, floodplains, and boundaries between regulatory agencies (e.g., watershed districts and watershed management organizations).

The DB Team shall acquire all applicable municipal drainage plans, Municipal Separate Storm Sewer System (MS4) permits, watershed management plans, coastal zone management plans and records of citizen concerns. The DB Team shall acquire all pertinent existing storm drain plans, bridge hydraulic studies and/or survey data, including data for all culverts, drainage systems, storm sewer systems, and bridge sites within the Project limits. The DB Team shall also identify existing drainage areas and calculate the estimated runoff to the highway drainage system. .

The DB Team shall obtain photogrammetric and/or geographic information system (GIS) data for the Project limits that depicts any impaired waters as listed by the Georgia Soil and Water Conservation Commission (GSWCC) and Environmental Protection Division (EPD) for Georgia Department of Natural Resources (DNR). The DB Team shall conduct surveys for information not available from other sources.

If documentation is not available for certain Components of the existing drainage system within the Project limits and these Components are scheduled to remain in place, The DB Team shall investigate and videotape or photograph these Components to determine condition, size, material, location, and other pertinent information.

The data collected shall be taken into account in the Final Plans of the drainage facilities.

12.2.2 Coordination with Other Agencies

The DB Team shall coordinate all water resource issues with affected interests and regulatory agencies. The DB Team shall document any resolutions of water resource issues.

12.3 Design Requirements

The DB Team shall upgrade all substandard drainage facilities within the Construction Maintenance Project Limits of the Project that are proposed to be utilized or impacted by the design and construction of the Project. A substandard drainage facility is any component of the stormwater drainage system that the existing structural condition per Section 13 (Structures) and/or design flow capacity per this Section 12 (Drainage) is not adequate to carry the additional stormwater generated from by the Project. The design of drainage systems shall include reconfiguration of the existing drainage systems within the Project limits and design of new storm drainage systems as required per the performance requirements, defined in this Section 12.

Damage to existing infrastructure due to the DB Team's operation shall be immediately repaired to maintain existing system capacity at all times. This permanent repair shall be at the DB Team's expense.

The DB Team shall provide facilities compatible with the existing drainage system and all applicable municipal drainage plans or accepted systems in adjacent properties. The DB Team shall preserve existing drainage patterns wherever possible.

The DB Team may utilize the existing drainage facilities, provided overall drainage requirements for the Project are achieved. Modifications of existing systems to create in-line/buried/subsurface detention or Stormwater runoff storage shall not be allowed. If no modification or upgrading of the existing GDOT stormwater system is required, the DB Team shall at a minimum maintain the existing system. This maintenance includes but is not limited to silt removal of any pipe, ditch or structure and removal of any debris prior to the use of any existing GDOT stormwater system. This maintenance shall be at the DB Team's expense.

The DB Team shall base its Final Plans on design computations and risk assessments for all aspects of Project drainage.

The DB Team shall design channels and ditches such that erosion within and downstream of the channels and ditches is minimized.

The DB Team shall coordinate with FEMA and/or the appropriate local community regarding any impacts to regulatory floodways and floodplains.

The DB Team shall design the Project to minimize impacts to FEMA regulated floodplains. This design may include but is not limited to bridge structures over streams, bridges or bottomless culverts over streams, increasing the tie slope and/or utilizing retaining walls to reduce fill in the floodplain.

All areas of the Project shall comply with the stormwater management requirements contained in the GDOT Drainage Manual.

Flood damage potential for the completed Project shall not exceed pre-Project conditions.

12.3.1 Surface Hydrology

12.3.1.1 Design Frequencies

The DB Team shall use the design frequencies listed in Table 12-1 below and comply with Code of Federal Regulations (CFR) Part 650-Bridges, Structures, and Hydraulics.

Table 12-1: Drainage Design Frequencies

Functional Classification and Structure Type			Design Year					Check
			2	5	10	25	50	100
Cross Drains and Culverts	Interstates and State Routes						X	X
	Not designated as State Routes (ADT)	0-99		X				
		100-399			X			
		400-1500				X		
		Over 1500					X	
Median Drains and Inlets					X			
Side Drains						X		
Ditches						X		
Channels in depressed areas that flow must escape through an inlet							X	
Closed Systems (includes all components: inlets, drains/pipes, junctions, etc.)					X			
Temporary Pipes and Inlets					X			
Erosion Control			See Manual for Erosion and Sediment Control in Georgia					

12.3.1.2 Hydrologic Analysis

The DB Team shall design the drainage system to accommodate the Project drainage areas. These areas may extend outside the Project Limits.

The DB Team shall perform hydrologic analyses for the design of drainage features during the staging of construction and for the Final Plans for the Project according to the GDOT Drainage Manual.

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12.3.2 Storm Sewer Systems

Where precluded from handling runoff with open channels or ditches, the DB Team shall design enclosed storm sewer systems to collect and convey runoff to appropriate discharge points.

The DB Team shall prepare a storm sewer drainage report encompassing all storm sewer systems that contains, at a minimum, the following items:

- Drainage area maps with each storm drain inlet and its pertinent data, such as delineated drainage area, topographic contours, runoff coefficients/design curve numbers, times of concentration, land uses, discharges, velocities and headwater elevations.
- Detailed tabulation of all existing and proposed storm drains. This includes but may not be limited to conveyance size and class or gauge; catch basin spacing/location and detailed structure designs.
- Specifications for the pipe bedding material and structural pipe backfill on all proposed pipes and pipe material alternates.
- Storm drain profiles, including pipe size, length, type, height of fill, class/gauge, gradient and design hydraulic grade line (HGL); and numbered drainage structures with station offsets from the roadway alignment and elevations.

Pipes

Storm drains with design flow velocities less than three (3) feet per second (fps) shall be designed for 80% full flow to account for sedimentation in the pipe. Other storm drains shall be designed using full flow. Storm drains shall be designed to prevent surcharging of the system at the flow rate for the design year event.

All travel bearing storm drains shall be reinforced concrete unless accepted otherwise by GDOT prior to installation. For other pipe materials, the DB Team shall show with a soil survey that appropriate materials are used.

Minimum pipe inside diameter shall be eighteen (18) inches. GDOT acceptance shall be required for all existing pipes to be replaced with a diameter less than eighteen (18) inches.

The maximum spacing for clean-out points (inlets and access holes) shall be four hundred (400) feet for less than or equal to thirty six (36) inch diameter pipe sizes and six hundred (600) feet for pipe sizes greater than thirty six (36) inch. Existing pipe systems not meeting this requirement that are not being impacted by the construction of the Project may remain. If an existing system is being impacted it shall be upgraded to meet the requirements of this Section 12.

Some existing culverts and storm drains were designed with a "step down" structural capacity. This step down design for reduced structural capacity occurs in the dead load zone of the fill slopes. Where there is "step down", the section of culvert/storm drain within the dead load influence has less structural capacity than the section of culvert/storm drain within the live and dead load influences. For the Project, the DB Team shall design all stormwater conveyances to accommodate all live and dead loads from the existing and proposed roadway system.

12.3.2.1 Municipal Separate Storm Sewer System (MS4)

The DB Team shall follow GDOT's Storm Water Management Program (SWMP) designed to reduce the discharge of pollutants from GDOT's MS4 in order to protect water quality and to satisfy water quality requirements of the GDOT Statewide MS4 Permit. The DB Team shall be directly responsible for the following:

- Illicit Discharge Detection and Elimination
- Construction Site Storm Water Runoff Control
- Post-Construction Storm Water Management in New Development and Redevelopment
- Pollution Prevention/Good Housekeeping for Municipal Operations

Thirty (30) Days prior to the end of each reporting period as defined in GDOT's Statewide MS4 Permit, the MS4 Permit, the DB Team shall provide to GDOT annual report data covering the portion of GDOT's MS4 within the Project Limits.

The DB Team shall:

- Attend a GDOT/EPD approved training program to educate contractors and employees conducting activities that may impact stormwater runoff.
- For existing conditions, provide GIS data of the existing storm sewer system and all ditches (right of way to right of way) prior to the start of any Construction Phase. GIS data shall comply with GDOT's Utility office's Phase I GIS mapping criteria per the State Stormwater Assessment Program (SSAP).
- Mark all proposed storm drain access covers within the Project Limits with a GDOT approved medallion educating the public to the destination of the storm drain contents.
- Provide as-built GIS data of the entire storm drain system (right of way to right of way).
- Clean the existing drainage system sufficiently enough to allow for the proper detailed inspection of the system within the Project Limits and as required in Section 19 for any proposed stormwater systems.
- Inspect outfalls for illicit discharges according to GDOT's Illicit Discharge Detection and Elimination Plan while mapping the storm sewer system right of way to right of way. This inspection shall identify any dry weather flows and determine if these flows are from an illicit discharge. Documentation of the outfall

inspections conducted each year shall be submitted to GDOT for inclusion in the annual report.

- Trace and eliminate any identified illicit discharges according to GDOT's Illicit Discharge Detection and Elimination Plan that are found to originate within the Project Limits. Report to GDOT all other identified illicit discharges.

12.3.2.2 Gutter Spread/Ponding

The DB Team shall design pavement drainage systems, in both staging of construction and the entire project, to limit ponding to the widths listed below for the design frequency event:

- All interstate highways and all roads other than interstates with design speeds of greater than 45 Miles Per Hour (mph); ponding shall be confined within the shoulder and have a spread no greater than ten (10) ft.. In no event shall any ponding occur in a travel lane;
- All roads other than interstates with design speeds of 45 mph or less, ponding shall be confined to within ½ lane adjacent to the gutter/shoulder and the gutter/shoulder;
- All bridge decks, ponding shall be limited to the shoulder and have a spread no greater than ten (10) ft.

Note: With a bicycle lane, the maximum gutter spread shall be ten (10) ft. from face of curb/barrier wall.

12.3.3 Hydraulic Structures (Culverts/Bridges)

The DB Team shall analyze existing and proposed culverts and bridges impacted, replaced, or created by the Project design, for any flooding problems.

For all culverts, the DB Team shall determine the maximum allowable headwater for the design frequency based on items such as potential damage or loss of use to adjacent property, the culvert, roadway, stream and/or floodplain; traffic interruption and hazard to human life.

All hydraulic computations, designs, and recommendations shall be consistent with past studies and projects in the area performed by local, State or federal agencies.

Where hydraulic design is influenced by upstream storage and/or tidal surges, the analysis of the storage and/or the tidal surges shall be considered in the design of the structure.

Bridge culverts shall have a minimum rise dimension of four (4) feet.

Fish passage shall be considered for every crossing over a perennial stream. Under the Regional Permit: fish passage is satisfied by a bridge, bottomless culvert, or embedded culvert.

12.3.3.1 Method Used to Estimate Flows

The DB Team shall ensure that the selected hydrologic method is appropriate for the watershed conditions.

As appropriate, the DB Team shall utilize flow information within FEMA Flood Insurance Studies (FIS) and any subsequent Letters of Map Revision (LOMR).

The DB Team should use published flow records, when available. This data is typically only collected on large stream channels, and therefore, this approach to defining design discharge is more commonly used for bridge and large culvert projects. A minimum record of ten (10) years should be used to provide a reasonable statistical base. This flow data may be gathered from a variety of agencies, such as the U.S. Geological Survey (USGS). Statistical analysis and probability techniques may be used to estimate the flood peak flow rates for the gauged site and for nearby sites on the same stream.

Peak annual stream flows are measured for many streams, primarily the streams with the largest drainage areas or with strategic locations. In instances where peak stream flow information is available, it can be statistically characterized and fit to a frequency distribution to estimate peak flow rates for floods with specific recurrence intervals. "*Guidelines for Determining Flood Flow Frequency*" establishes the Log-Pearson Type III frequency distribution as the base Statistical method to analyze an annual series of flood peaks. Manual computation, computer programs (such as Hydraulic Engineering Circular – Flood Frequency Analysis (HEC-FFA)), or websites such as http://pubs.usgs.gov/sir/2009/5043/ can be used to complete these calculations of peak flow rates.

For crossings not located within a FEMA FIS or on a gauged waterway, the DB Team shall utilize the required method for calculating the design flows according to the GDOT Drainage Manual.

12.3.3.2 Design Frequency

Culverts and storm drain systems shall be designed for the design-year frequency corresponding to the functional classification of the associated roadway, (see Table 12-1). Bridges shall be designed for the fifty (50) and one hundred (100)-year frequencies.

12.3.3.3 Hydraulic Analysis

The DB Team shall evaluate bridges for contraction and pier scour concerns and design for scour protection in accordance with the GDOT Drainage Manual.

The DB Team shall design riprap at abutments in accordance with the procedures outlined in HEC-23. For bridge abutments in urban areas, the DB Team shall install protection in accordance with Section 15 Landscape and Hardscape Enhancements.

12.3.3.4 Riverine Bridge/ Bridge Culvert Design

For existing bridges, the DB Team shall analyze the existing structure with the proposed flows to ensure the headwater does not exceed that of the current conditions and/or provides the required clearance to the low chord per the GDOT Drainage Manual. If neither of these conditions is met, the DB Team shall design a replacement structure with sufficient capacity to pass the design-frequency flows and ensure the maximum headwater for any frequency event does not exceed that of the corresponding event for the current condition. Bridge culvert extensions may increase the headwater elevation, but not above the maximum allowable headwater.

Bridge/bridge culvert design shall maintain the existing channel morphology through the structure, if possible.

12.3.3.5 Bridge Deck Drainage

Runoff from bridge decks shall be carried off the bridge and into the adjacent roadway drainage system. The roadway drainage design shall include bridge approach drains to intercept gutter/shoulder flow at each end of the bridge. Stormwater flowing toward the bridge shall be intercepted upstream of the bridge.

Open deck drains are not permissible for bridges passing over environmentally sensitive areas, roadways or railroads. In these situations, if ponding will exceed width limits, runoff shall be collected in inlets and conveyed in a closed deck drain system before discharging outside these areas.

12.3.3.6 Drainage Report for Major Stream Crossings

The DB Team shall prepare a Hydraulic report or H&H Study and any other required documentation for each major stream crossing per the GDOT – Manual on Drainage Design for Highways and any Environmental Commitments identified in the NEPA/GEPA Approval. Additional documentation may include but not be limited to the preparation and submittal of any CLOMR or LOMR required for community and/or FEMA coordination. The report shall further include the detailed calculations and electronic and printed copies of the computer software input and output files, as well as a discussion about hydrologic and hydraulic analysis and reasons for the design recommendations. At a minimum, for each crossing the report shall include:

<u>Hydrology</u>

- Drainage area maps with watershed characteristics, hardcopy
- Hydrologic calculations (where computer software is used, both hardcopy report and electronic input and output files on a disc)
- Historical or site data used to review computed flows

<u>Hydraulics and Recommended Waterway Opening and/or Structure</u>

- Photographs of Site (pre- and post-construction)

- General plan, profile, and elevation of recommended waterway opening and/or structure
- Calculations – hardcopy report of output, as well as electronic input and output files for all computer models used for final analysis or for permit request, as well as summary of the basis of the models
- Cross-sections of waterway (the DB Team shall provide a hard copy plot, plus any electronic data used)
- Channel profiles

Scour Analysis

- Channel cross-sections at bridge showing predicted scour depths
- Calculations and summary of calculations table, clearly showing predicted scour and assumptions regarding bridge opening and piers (dimensions, shape, etc.) used to calculate predicted scour
- Discussion of potential for long-term degradation/aggradations and effects
- Recommendation for abutment protection (type, size, dimensions, etc.).

This Study shall be a section in the Drainage Design Report.

Major stream crossings are waterways either listed in a FEMA Flood Insurance Study or requiring a bridge or Major Culvert structure. Otherwise, the waterway is a minor stream crossing.

12.4 Construction Requirements

The DB Team shall design the drainage system to accommodate construction staging. The design shall include temporary erosion control, sediment basins and other Best Management Practices needed to satisfy the NPDES and other regulatory requirements. All environmental approval commitments related to drainage design and erosion control shall be included as “notes” on the plans for each stage of construction.

Should the DB Team obtain GDOT acceptance during the Design-Build Period to utilize an existing stormwater system (any and all pipe, structure, ditch, detention/retention system or any other component necessary for the conveyance of stormwater) outside the Project Limits, maintenance responsibility and costs shall be as follows during the Design-Build Period:

Initial costs to reconstruct the substandard drainage facility(ies) outside of the Project Limits, upgraded or reconstructed by the DB Team shall be at the sole cost of the DB Team. Rehabilitation of substandard drainage facilities may be considered. The rehabilitation must meet the useful life as if the substandard drainage system structure was replaced as new. Any stormwater system accepted by GDOT during the Design-Build Period and constructed for the sole purpose of the Project outside the Project Limits shall be maintained by the DB Team at the DB Team’s sole expense during the Design-Build Period. The DB Team shall be responsible to provide maintenance work

and restore the existing system to its original intended purpose for any accepted existing stormwater system whether used jointly by the DB Team and GDOT or for the DB Teams sole use. Maintenance work includes but is not limited to silt removal of any pipe, ditch, or structure, removal of debris prior to the use of any existing GDOT stormwater system at the DB Team's expense.

12.5 Deliverables

The DB Team shall submit to GDOT for review and acceptance, a Drainage Design Report per the accepted Construction Phasing Plan, which shall be a complete documentation of all components of the Project's drainage system. At a minimum, the Report shall include:

- A set of all drainage computations, both hydrologic and hydraulic, with all support data
- Hydraulic notes, models, and tabulations
- Bridge and culvert designs and Hydraulic reports for major stream crossings. (Riverine bridge layouts/designs shall be submitted at the same time as their corresponding H&H Studies)
- Pond designs, including graphic display of treatment areas and maintenance guidelines for operation
- Correspondence file
- Drainage system data (location, type, material, size, and other pertinent information) in a suitable electronic format such as GIS
- Storm sewer drainage reports (if applicable)
- Temporary and Final drainage system layout with staged erosion control BMP location details

13 STRUCTURES

13.1 General Requirements

The structural Elements of the Project, including bridges, culverts, drainage structures, signage supports, illumination assemblies, traffic signals, retaining walls, and sound barrier, shall be designed and constructed in conformance with the requirements of the DB Documents, in order to provide the general public a safe, reliable, and aesthetically-pleasing facility.

DB Team shall prepare a detailed plan for such Elements constructed on the Project with recommended design and construction. The design of the Project shall be in accordance with Volume 3 Manuals (Technical Documents) and the requirements of the DB Documents.

13.2 Design Requirements

13.2.1 Design Parameters

DB Team shall ensure that bridges crossing over waterways are designed in accordance with Section 12 and the DB Documents.

The DB Team shall design and construct all new bridge structures to accommodate any planned expansions or updates of each facility by its respective Governmental Entity or GDOT as designated in their respective current transportation master plans. The current transportation master plans can be found in Section 11 of Volume 2. For the purpose of the Technical Provisions, superstructure is the portion of the bridge above and including the bearings and the substructure is the remaining portion of the bridge below the superstructure.

Longitudinal expansion joints shall not be placed in the travel lane.

Unless otherwise noted, design for all new roadway structural elements, incorporated within the Project (not including future replacement structures), shall be based on the Load Resistance Factor Design (LRFD) methodology.

Vertical Clearances

New bridges constructed over the interstate shall provide a minimum vertical clearance of seventeen (17) feet (new box girder bridges shall be seventeen (17) feet six (6) inches). Straddle bent substructure elements over the interstate shall provide a minimum vertical clearance of seventeen (17) feet six (6) inches. New bridges constructed over other roads such as State, Rural Secondary and Urban Routes, as defined by the GDOT Design Policy Manual shall provide a minimum vertical clearance of sixteen (16) feet nine (9) inches.

Bridge Design Live Loads and Load Ratings

All new or widened bridges must be designed to carry an HL-93 vehicle live load. The DB Team is responsible to ensure that the Final Plans of each bridge meet the load rating requirements for the design vehicle as well as all current state legal live loads. GDOT will perform a load rating as part of the final review for each bridge design. Load ratings will be performed according to the current GDOT policy and practices.

Seismic Design

Bridges shall be designed in accordance with the seismic design guidelines in the GDOT LRFD Bridge and Structures Manual as well as the AASHTO LRFD Bridge Design Specifications 5th Edition.

Fatigue Design

Fatigue design shall be in in accordance the GDOT LRFD Bridge and Structures Manual as well as the AASHTO LRFD Bridge Design Specifications 5th Edition.

13.2.2 Bridge Decks and Superstructures

Timber bridges, masonry bridges, unpainted weathering steel and structural plate arches will not be permitted. Bridges shall not use intermediate hinges.

DB Team shall minimize the number of deck joints wherever possible. DB Team shall locate joints to provide for maintenance accessibility and future replacement.

To the extent possible, DB Team shall make bridge superstructures, joints, and bearings accessible for long-term inspection and maintenance. DB Team shall make open-framed superstructures accessible with walkways or by use of ladders or an under-bridge inspection truck.

Provide concrete diaphragms for pre-stressed concrete beams spanning 40 feet or more.

Galvanized steel diaphragms are allowed on prestressed concrete beam bridges, with the following limitations:

- Only structures with substantial clearance (20 ft. or greater) over roadways or over waterways are acceptable locations for galvanized steel diaphragms.
- Concrete diaphragms shall be used over roadways where the beams may be impacted by over-height loads.
- Bolts shall not be exposed on the exterior face of concrete beams.
- Only Steel X-type cross frames shall be used.

The maximum weight of beam that may be transported on state routes is limited. Shipping weights larger than150,000 pounds, including the truck, shall be submitted to the Department to determine if a special hauling route is necessary for delivery.

Bolted field splices are allowed for use on steel girders providing the following requirements are met:

- Bolts shall be placed in double shear.
- Splice plates and bolts shall not encroach on the slab design thickness
- Direct Tension Indicators (DTIs) shall not be used.

DB Team shall install locked entryways on all hatches and points of access.

Cover plates are prohibited for use on new steel beams. When widening existing bridges “in kind” that have cover plated members, use a larger member size that will not require plates. For strengthening and rehabilitation work of existing steel beams determine if there are other methods available to provide the required capacity before submitting to the Department for acceptance. If accepted, cover plates shall be checked for fatigue in accordance with GDOT and AASHTO LRFD guidelines.

Fracture critical members (FCMs) shall not be used for bridges. Steel box girder straddle bent caps are considered to be FCMs due to their non-redundant properties and will not be permitted on the project. Post-tensioned concrete straddle bent caps are not considered FCMs as the posttensioning strands provide internal redundancy. Bridges designed using rolled steel beams, steel plate girders, pre-stressed concrete I-beams and pre-stressed concrete bulb-tee beams as the main members of the bridge superstructure shall be designed and constructed using a minimum of four (4) beams in the bridge typical section. Joints for all grade separation structures shall be sealed.

Box girder superstructures and substructures shall be accessible without impacting traffic below. DB Team shall make box girders and box beam pier caps with a minimum inside depth of six (6) feet to facilitate interior inspection. DB Team shall include a minimum access opening of 3’-0” diameter into all cells, and between cells, of the girders or pier caps to allow free flow of air during inspections. The outside access opening cover shall hinge to the inside of the box girder and pier caps. An electrical system (110V and 220V) shall be incorporated inside the box girder and pier caps with lighting and power outlets. DB Team shall install air-tight sealed and locked entryways on all hatches and points of access.

13.2.3 Bridge/ Retaining Wall Foundations

The foundation design shall be based on the recommendations of the accepted Bridge or Wall Foundation Investigation Report and the requirements of Section 8 of Volumes 2 and 3. The Contractor shall perform LRFD bridge and wall foundation investigations for all proposed walls and bridges to be constructed on this Project. Except as provided in Section 8 of Volume 2, any previously accepted reports provided by the Department are

for informational purposes only and the Department does not certify or warranty the information contained in these reports.

For bridges crossing streams or any other body of water: All foundations shall be evaluated and designed to account for the effects of scour. The design shall include the recommendations of the hydraulics and hydrological report to ensure that footings, piles and caissons/ drilled shafts have the proper embedment below the scour line. Protection of slopes with rip rap shall be in accordance with the recommendations of the hydraulics report.

Foundations shall be designed based on LRFD methodology in accordance with GDOT and AASHTO guidelines (Volume 3 Manuals).

13.2.4 Bridge Railing and Barriers

All barrier systems used on the Project shall meet current crash test and other safety requirements as determined by GDOT. All testing and associated costs for non-standard railings shall be the sole responsibility of DB Team and shall be accomplished through a third party acceptable to GDOT.

13.2.5 Retaining Walls

To the extent possible, DB Team shall design and construct to provide embankments without the use of retaining walls. Where earthen embankments are not feasible, DB Team may use retaining walls.

Metal walls, including bin walls and sheet pile walls, recycled material walls and timber walls shall not be permitted.

If pipe culverts are to extend through the retaining walls or sound barriers the pipe shall be installed so that no expansion joints are located within two pipe diameters from centerline of the pipe or under the wall.

No weep holes through the face of retaining walls shall be permitted, except at the base of the walls.

Modular walls employing interlocking blocks shall not be used where surcharge loads from vehicular traffic are present or as part of bridge abutments.

Mechanically Stabilized Earth (MSE) walls shall not be used to support spread footing abutment foundations on the Project.

13.2.6 Aesthetics

DB Team shall design retaining/structural walls to be similar in color, texture, and style that are consistent with other Elements present in the entire Project such as structures, landscaping, and other highway components.

All embellishments for structural Elements shall be coordinated with the DB Team's structural design team to facilitate constructability and maintain safety requirements. Structural element surfaces exposed to public view shall meet the requirements of the Standard Specifications, Construction of Transportation Systems.

No exposed conduits shall be allowed on bents, columns, bridge beams, overhangs or any other visible surface. The DB Team is to minimize drain pipe exposure to public view.

All bridge substructure columns shall be consistent in form and texture, with similar shapes and details used for all bridges.

Bridges with all or part of the structure visible to traffic either passing beneath the bridge or travelling in lanes adjacent to the bridge, shall use constant depth of fascia beams along the entire length of the bridge to maintain a uniform appearance. An exception to this requirement is at locations where the fascia beam material changes from steel to concrete or vice versa. In this case cheek walls may be used at piers to mask transitions where superstructure depth change is required due to the change in material type.

Bridges that are not visible to traffic either passing beneath the bridge or travelling in lanes located adjacent to the elevated portions of the bridge are not required to have all fascia beams constant throughout the bridge length

13.2.7 Drainage Structures

In developing the design of drainage structures, DB Team shall account for maximum anticipated loadings. "Step down" design shall not be utilized for any part of the proposed drainage system.

Energy dissipaters, if used, shall be considered as structural Elements.

13.2.8 Sign, Illumination, and Traffic Signal Supports

DB Team shall be responsible for the design of overhead sign supports to accommodate a full load of signs for the Project. DB Team shall use sign bridge (Type I), butterfly (Type III or VIII), or combination (Type IV) in accordance with GDOT's related standard specifications, policies, guidelines, and Volume 3 Manuals. Type II sign (cantilever type) structures are not permitted.

Support columns for Type I, III and IV overhead sign bridges shall not be mounted to any portion of the new or existing bridge superstructure. Where an overhead sign structure is required to be placed on a bridge it shall be mounted either on the bridge substructure directly, such as the concrete pier cap, or on a pier and foundation separate from the bridge entirely. For a sign structure that is mounted to the pier cap, the bridge pier must be designed for the additional loads and forces the sign structure will induce on the bridge substructure, including but not limited to: dead load, ice load,

wind load and vibration. Loads shall be developed in accordance with the current edition of the AASHTO Standard Specifications for Structural Supports for Highway Signs, Luminaires and Traffic Signals. For a sign structure mounted to a foundation that is independent from the bridge, the design of the sign foundation shall be in accordance with the current edition of the AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals."

13.2.9 Widening/Modification of Existing Structure

Structures to be widened are listed in Section 13.2.9 of Volume 2. DB Team is required to rehabilitate/strengthen/replace that portion of the existing structure as recommended by the most recent bridge condition and bridge deck condition surveys, and the portions of the existing structure that must be strengthened or upgraded as a direct result of the widening. Examples include strengthening of an existing fascia beam or improving the strength of a pier cap to meet the increased load capacity requirements due to the new load distribution on those elements. Any portion of the existing bridges damaged as a result of the widening operations will be replaced or repaired at the DB Team's cost, as determined by GDOT. The DB Team shall provide any studies, calculations, and plans that are required for GDOT review and acceptance prior to any bridge widening or modification.

13.2.10 Toll Gantry Structures

Requirements for toll gantries are provided in Section 21 and its subsections.

13.3 Construction Requirements

13.3.1 Concrete Finishes

Concrete finishes shall comply with the performance requirements as stated in Section 15 or as otherwise allowable in the DB Documents.

13.3.2 Structure Metals

Welding shall be in accordance with the requirements of the *American National Standards Institute* (ANSI)/*AASHTO/ American Welders Association (AWS) D1.5M/D1.5:2010 Bridge Welding Code*.

13.4 Final Bridge Inspection Prior to Service Commencement

GDOT shall inspect all bridges constructed prior to Service Commencement. GDOT will perform the initial bridge ratings as part of this Work. Bridges cannot be opened to traffic until bridges have been accepted by GDOT.

DB Team shall provide to GDOT an overall schedule of completion for each structure in accordance with the Construction Phasing Plan and coordinate an inspection schedule with GDOT that will meet the Service Commencement Date.

13.5 Deliverables

Preliminary Bridge Plan Layouts

Prepare Preliminary Bridge Plan Layouts in accordance with the GDOT Bridge Detailing Manual guidelines.

A. Additionally provide a typical section which indicates the following information:

1. The center to center spacing of girders
2. Overhang or distance from outside edge of slab to center of exterior girder: This distance (overhang) shall meet AASHTO requirements, but shall not exceed 4'-7½" or one half of the adjacent beam spacing, whichever is less. Overhangs shall be a minimum width of one-half top beam flange plus 6 inches.
3. Cross slope of the deck.
4. Deck thickness between girders and deck thickness at the centerline of girder measured from the top surface of deck to top of the flange.
5. Barrier location, height and width.
6. Gutter to gutter and out-to-out dimensions.
7. Location of the profile grade.

B. Any drawing and/or narrative description of the construction scheme necessary to indicate how the bridge is to be built, including traffic handling sketches and temporary barrier locations.

Preliminary Wall Plans

Prepare Preliminary Wall Plans in accordance with the GDOT Bridge Detailing Manual guidelines. The acceptable wall types are as follows:

1. MSE (Mechanically Stabilized Earth)
2. Alternate wall types, including cast-in place walls, are permissible. Soil-nail type walls and modular block type walls will not be permitted directly adjacent to areas subject to roadway surcharge loads.

1.

A. Any construction sequence requirements that will affect the construction of the walls and which will have to be accounted for in the preparation of retaining wall plans.

Bridge and Wall Construction Plans

After the preliminary bridge and wall layouts have been accepted by GDOT, the DB Team shall prepare final plans. The DB Team shall arrange a meeting with GDOT to specifically discuss how the plans will be prepared prior to beginning plan preparation on the Project.

The DB Team shall provide Submittals as required in Section 23, Volume 3 Manuals (Technical Documents), and in the DB Documents in addition to the following:

- Hardscape Enhancement Plan for bridges, retaining walls, sound barriers, sign structures, and other structure components as required in Section 15.

14 RESERVED

15 RESERVED

16 SIGNING, PAVEMENT MARKING, SIGNALIZATION

16.1 General Requirements

This Section 16 includes requirements with which DB Team shall design and construct all signing, delineation, pavement markings, and signalization for the Project. The DB Team shall design the Project in conformance with GDOT policies, guidelines, and Volume 3 Manuals (Technical Documents).

16.2 Administrative Requirements

16.2.1 Meetings

DB Team shall arrange and coordinate all meetings with local agencies that will assume responsibility for maintaining and operating traffic control devices including but not limited to traffic signals. DB Team shall provide GDOT with notification of such meetings a minimum of ten (10) business days prior to the start of the meeting. GDOT, in its discretion, may attend such meetings.

DB Team shall arrange and coordinate all meetings with requesting agencies or individuals regarding special signs.

16.3 Design Requirements

16.3.1 Final Plans

DB Team shall submit the Preliminary and Final Plans for the signing, delineation, pavement marking, and signalization for GDOT review and acceptance. In the event that additional property is needed to place any required signs, the DB Team shall acquire the additional property as Additional Properties. Any Additional Property acquisitions not provided in the approved environmental document must be approved by GDOT, and if required FHWA through a NEPA reevaluation.

16.3.2 Permanent Signing and Delineation

DB Team shall design and install all signs as shown on the Final Plans. Signs for the Project shall include all new signs required for the Project as well as replacing existing signs and structures that are impacted by the Project. DB Team's design shall include the locations of proposed ground-mounted and overhead signs as well as existing signs that are to remain, graphic representation of all signs, proposed pavement markings, delineation placement, guide sign and special sign details, clearance diagrams and structural and foundation requirements. Signs shall be located in a manner that avoids conflicts with other signs, vegetation, CMS, lighting, and structures. DB Team shall ensure that signs are clearly visible, provide clear direction and information for users, and comply with all applicable MUTCD requirements. The DB Team shall ensure that

placement, construction and installation activities of signage shall avoid impacts to waters of the U.S.

DB Team shall ensure that all sign placements meet or exceed appropriate sight line requirements and standards. All sign structures and overhead signs shall be designed and located to ensure that they and any existing GDOT overhead signs have minimum sight distance of 1000 feet and shall meet any other MUTCD or *GDOT Signing and Marking Guidelines*, allowable sign spacing requirements.

DB Team shall review with GDOT all requests for new signs, including traffic generators, or modifications of existing sign legend. Such requests are subject to GDOT's acceptance.

Any existing signs and sign structures impacted by the project or in conflict with proposed signs shall be replaced with new signs and structures that comply with the MUTCD, GDOT's related standard specifications, policies, guidelines, and Volume 3 Manuals Technical Documents), or as otherwise approved by GDOT.

All overhead signs on a single structure shall be the same height with the exception of general information or regulatory signs such as Rest Area or an R554-X.

Arrow per lane guide signs shall be required for all multi-lane exits at major interchanges that have an optional exit lane that also carries the through route and for all splits that include an option lane.

Sign attachments to any existing roadway bridge shall not be permitted. Support columns for Type I, III, and IV overhead sign bridges shall not be mounted to any portion of the new or existing bridge superstructure. When an overhead sign structure is required to be placed on a bridge it shall be mounted either on the bridge substructure directly, such as the concrete pier cap, or on a pier and foundation separate from the bridge entirely. For a sign structure that is mounted to the pier cap, the bridge pier must be designed for the additional loads and forces the sign structure will induce on the bridge substructure, including but not limited to: dead load, ice load, wind load and vibration. Loads shall be developed in accordance with AASHTO Standard Specifications for Highway Bridges, 17th Edition and the current edition of the AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals. For a sign structure mounted to a foundation that is independent from the bridge, the design of the sign foundation shall be in accordance with the current edition of the AASHTO Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals.

Supplemental signs on interstates shall comply with MUTCD. Guidance on destinations is provided in GDOT's Policies and Procedures 6775-9.

16.3.3 Project Signs – Outside the Existing and Required ROW

For signs located outside the Existing ROW, Required ROW and Additional Properties but within a public ROW, DB Team shall install the signs in existing rights-of-way controlled by local or other Governmental Entities. DB Team shall coordinate with applicable Governmental Entities for the design and installation of such signs. This shall include any trailblazing signing required for the project.

16.3.4 Reserved

16.3.5 Specific Service Signs

In addition to the warning, regulatory, and guide signs within the Premises, GDOT or Governmental Entities may allow specific service signs, such as logo signs to be installed. DB Team shall coordinate and cooperate with GDOT or any third party performing such work. The DB Team shall remove and remount any LOGO sign that conflicts with a proposed sign installation and also to allow for proper sign spacing in accordance with GDOT Signing and Marking Guidelines and the MUTCD.

The DB Team shall contact Georgia Logos, LLC 770-447-6399 prior to removing or resetting LOGO signs. Cost for removing, resetting, and maintaining LOGO signs as necessary to be included in the overall bid price. Existing LOGO signs shall be maintained during construction on a moveable structure. Any LOGO signs damaged during construction shall be replaced at no additional cost.

16.3.6 Sign Support Structures

DB Team shall determine foundation types and design sign foundations based upon geotechnical surveys/tests. Sign support structures shall be designed in accordance with GDOT Signing and Marking Design Guidelines and AASHTO's *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. The DB Team design of the structural support for overhead signs shall be provided to GDOT and must provide for the maximum allowable sign area that can be placed onto the structure support as defined in *GDOT Signing and Marking Guidelines*. Type III structures shall be designed to accommodate at least five hundred fifty (550) square feet of sign area. A GDOT structural support number shall be placed on the outside vertical support of structure. Requirements for the alphanumeric code are specified in the GDOT *Signing and Marking Design Guidelines*. DB Team shall use sign bridge (Type I), butterfly (Type III), or combination (Type IV) in accordance with GDOT's related standard specifications, policies, guidelines, and Volume 3 Manuals. Designs for sign supports shall also comply with requirements in Sections 13 (Structures). Type II cantilever signs may not be used for sign installations.

16.3.7 Permanent Pavement Marking

DB Team shall ensure that the design and installation of all pavement markings including Raised Pavement Markings (RPM) comply with the MUTCD, GDOT Signing

and Marking Guidelines, GDOT standards and details and in accordance with GDOT specifications. Ensure use of contrasting black border around pavement markings on bridges and all other concrete surfaces. RPM's shall be installed where new pavement marking is provided.

16.3.8 Permanent Signalization

16.3.8.1 Traffic Signal Requirements

DB Team shall design and install fully-actuated permanent traffic signals at all GDOT-permitted intersections within Project limits. In addition, DB Team shall modify, as appropriate, any existing traffic signals impacted by the Project. DB Team shall coordinate with GDOT and the applicable local Governmental Entities to define appropriate traffic signal design requirements, local agency oversight of DB Team's Work, and final acceptance of traffic signals. DB Team shall coordinate with local Governmental Entities for synchronization of traffic signal networks.

DB Team shall provide interconnection systems between new or modified signals and any other signal system within the Project Site as required by GDOT or the applicable local Governmental Entity. Connection of the completed intersection to the Governmental Entity's communications network shall be coordinated with the Governmental Entity. DB Team shall ensure continuous communication with the traffic signal system within the Project Site, and shall provide all communication hardware/equipment for GDOT or the applicable local Governmental Entity to communicate with the signal systems within the Project Site.

DB Team shall provide both pedestrian and vehicle detectors at all traffic signals per GDOT or applicable local Governmental Entity's (maintaining agency) requirements within the Project Site.

DB Team shall coordinate with TMC the District Traffic Operations to ensure that all signalized locations are permitted prior to submission of Final Plans.

16.3.8.2 Traffic Signal Timing Plans

DB Team shall coordinate and implement signal timing plans that optimize traffic flows and provide signal coordination with adjacent intersections and arterials for all existing and new traffic signals, modified signals, and interconnected signals. DB Team shall obtain acceptance with GDOT or applicable local Governmental Entity for the initial signal timings and updating signal timing as necessary to maintain optimized flow.

16.3.8.3 Traffic Signal Permit

As part of the design process, DB Team shall be responsible for obtaining necessary traffic signal permit or permit revisions by following applicable GDOT's or local Governmental Entities' signal permit process, prior to any new signal installation or existing signal modification.

16.3.8.4 Traffic Signal Support Structures

DB Team shall coordinate with GDOT and the local Governmental Agencies to determine the type of traffic signal support structures. DB Team shall obtain the maintaining agency's acceptance of traffic signal support structures to be used on new signal installations.

16.4 Construction Requirements

16.4.1 Permanent Signing and Delineation

DB Team shall use established industry and utility safety practices when erecting or removing signs located near any overhead or underground utilities, and shall consult with the appropriate Utility Owner(s) prior to beginning such work.

DB Team shall maintain all applicable advance guide signs and/or exit direction signs in place at all times and shall not obstruct the view of the signs to the motorist. DB Team shall replace any other removed signs before the end of the work day.

Signing reflectivity shall conform to the current edition of the MUTCD and *GDOT Signing and Marking Guidelines*.

16.4.2 Permanent Pavement Marking

DB Team shall install required full pattern pavement markings on all pavement courses before any roadway is opened to traffic in conformance with the MUTCD, GDOT Signing and Marking Guidelines and GDOT's standards, details and specifications. RPM's shall be placed and/or maintained when the roadway is open to traffic.

16.4.3 Permanent Signalization

DB Team shall coordinate with the Utility Owner(s) and ensure necessary power service is initiated and maintained for permanent signal systems.

16.5 Deliverables

All deliverables shall be presented to GDOT in both hardcopy, and electronic form compatible with GDOT software as required by the Volume 3 Manuals (Technical Documents) and the DB Documents.

16.5.1 Permanent Signing and Delineation

Before placing any permanent signs, delineation, third-party signs, or non-standard sign structures, DB Team shall provide GDOT a layout indicating the proposed location of such items. Overhead sign structures will be reviewed and accepted by GDOT Bridge Department.

16.5.2 Permanent Pavement Marking

Before placing any permanent pavement markings, DB Team shall provide GDOT a layout indicating the proposed location of such items.

16.5.3 Permanent Signalization

DB Team shall, after implementing accepted timing plans, provide GDOT and Governmental Entities (maintaining agencies) responsible for operation and maintenance of the traffic signal system legible written documentation of all intersection characteristics, timing plan parameters and installation information necessary for GDOT or the Governmental Entity to incorporate the completed signal installation into the central intersection management software being used.

17 RESERVED

18 TRAFFIC CONTROL

18.1 General Requirements

DB Team shall design and construct the Project, in conformance with the requirements stated in this Section 18, to provide for the safe and efficient movement of people, goods, and services, through and around the Project while minimizing negative impacts to Users, residents, and businesses.

The design of the Project shall be in accordance with Volume 3 Manuals (Technical Documents) and the DB Documents.

18.2 Administrative Requirements

18.2.1 Transportation Management Plan

DB Team shall prepare and implement a Transportation Management Plan (TMP), if required, that meets the requirements of the FHWA Work Zone Mobility and Safety Program which can be found at:

http://www.ops.fhwa.dot.gov/wz/resources/final_rule/tmp_examples/tmp_dev_resources.htm

At a minimum, the TMP shall include descriptions of the qualifications and duties of the traffic engineering manager, traffic control coordinator, Worksite Traffic Control Supervisor (WUCS), and other personnel with traffic control responsibilities. Additional requirements of the TMP are below:

- Procedures to identify and incorporate the needs of transit operators, Utility Owners, Governmental Entities, local governmental agencies, Emergency Service providers, school districts, business owners, and other related Users, Customer Groups or entities in the Project corridor and surrounding affected areas.
- Procedures for obtaining acceptance of detours, road and lane closures and other traffic pattern modifications from applicable Governmental Entities, and implementing and maintaining those modifications. At a minimum these procedures must include:
    - DB Team shall notify the traveling public by placing CMS's a minimum of seven (7) Days in advance of actual roadway closure or major traffic modifications. Where available and when possible, the DB Team shall coordinate and utilize Overhead Changeable Message Signs on the regional ITS system.
    - DB Team shall utilize off-duty uniformed police officers for mainline lane closures.
- Procedures for signing and marking transitions during construction from one stage to the next and from interim to permanent signing and marking.

- Procedures for maintenance and replacement of traffic control devices, including pavement markings and traffic barriers, if used.
- Procedures to regularly evaluate and modify, if necessary, traffic signal timings, and the procedures for the development, GDOT acceptance (and local Governmental Entity acceptance, if necessary), implementation, testing, and maintenance of all affected signals.
- Procedures to coordinate with the appropriate Governmental Entities operating signal networks along the Project or Project detour routes to ensure temporary system compatibility, establish responsibilities for temporary signal installation, maintenance, operation and removal, and coordinate traffic signal timing with local signal networks.
- Procedures and process for the safe ingress and egress of construction vehicles in the work zone
- Provisions to provide continuous access to established truck routes and Hazardous Material (HazMat) routes, and to provide suitable detour routes, including obtaining any acceptances required by the appropriate governmental entities for these uses.
- Procedures to modify plans as needed to adapt to current Project circumstances.
- If required, procedures to communicate TMP information to DB Team's public information personnel and notify the public of maintenance of traffic issues in conjunction with the requirements of Section 3, of Volume 2,
- Descriptions of contact methods, personnel available, and response times for any deficiencies or Emergency conditions requiring attention during off-hours.

The TMP shall be submitted within one hundred twenty (120) Days from NTP 1 and must be accepted by GDOT prior to NTP 3.

The safe, convenient passage of the traveling public shall be ensured by the DB Team at all times. The DB Team shall prepare contingency traffic control plans for use in relieving travel delays. If in GDOT's sole opinion, sustained traffic control placement creates unnecessary hindrance to the travelling public, the DB Team shall implement contingency plans that will alleviate traffic congestion immediately or cease traffic interruptions immediately upon notification from GDOT.

18.3 Design Requirements

18.3.1 Traffic Control Plans

DB Team shall use the procedures in the TMP (if applicable) and the standards of the MUTCD, AASHTO's *Roadside Design Guide,* as well as comply with GDOT *Special Provision 150 – Traffic Control* to develop detailed traffic control plans which provide for all Construction Phases and construction stages, as well as all required traffic shifts procedures.

DB Team shall produce a traffic control plan for every Construction Phase that impacts traffic. Each traffic control plan shall be submitted to GDOT for review a minimum of

fourteen (14) Days prior to implementation. The traffic control plan shall include details for all detours, traffic control devices, striping, and signage applicable to each Construction Phase. Information included in the traffic control plans shall be of sufficient detail to allow verification of design criteria and safety requirements, including typical sections, alignment, striping layout, drop off conditions, and temporary drainage. The traffic control plans shall clearly designate all temporary reductions in speed limits. Changes to posted speed limits will not be allowed unless specific prior acceptance is granted by GDOT.

Opposing traffic on a divided roadway shall be separated with appropriate traffic control devices in accordance with AASHTO's *Roadside Design Guide*, the MUTCD based on the roadway Design Speed, and Volume 3 Manuals (Technical Documents).

DB Team shall maintain signing continuity on all active roadways within or intersecting the Project at all times.

Throughout the Term, DB Team shall ensure all streets and intersections remain open to traffic to the greatest extent possible by constructing the Work in stages. DB Team shall maintain access to all adjacent streets and shall provide for ingress and egress to public and private properties at all times during the term of the Project.

DB Team shall prepare public information notices, if required, in coordination with Section 3 (Public Information and Communications), in advance of the implementation of any lane closures or traffic switches. These notices shall be referred to as Traffic Advisories.

18.3.1.1 Roadway Guidelines

DB Team shall produce traffic control plans for periods of construction in accordance with Volume 3 Manuals (Technical Provisions), Special Provision Section 150, and the DB Documents document.

18.3.1.1.1 *Design Parameters for Traffic Control*

Design Vehicle: Turning movements shall accommodate a design vehicle specified by the *GDOT Design Policy Manual* for specific road classifications. Turning movements on all other local streets and driveways shall, at a minimum, provide similar characteristics as existing Geometry.

Work Zone Speed Limits: The work zone speed limits on Interstate and State Highways shall be in conformance with *Special Provision 150*.

Number of Lanes: Except as allowed by Section 18 of Volume 2, the minimum number of lanes to be maintained shall be the number of lanes currently available on each controlled access facility, lane closures on other roadways may be considered so long as all traffic patterns and accesses are not reduced and are maintained.

Lane Widths: During construction, the minimum lane width for main lanes, frontage roads and major crossing streets is eleven (11) feet. For minor crossing streets, GDOT may, in its sole discretion, allow ten (10') lanes in limited circumstances during construction for short distances after reviewing the DB Team's traffic control plan.

18.3.1.1.2 *Allowable Shoulder/Lane/Roadway Closures and Traffic Stage Changes*

DB Team shall provide GDOT and appropriate Customer Groups a minimum of two weeks advance notice for lane/shoulder closures and/or traffic stage changes planned to be in effect longer than twenty four (24) hours, and a minimum of twenty four (24) hours advance notice for lane closures that are planned to be in effect less than twenty four (24) hours, using all appropriate tools as needed. The DB Team shall coordinate the closure restrictions with GDOT on all lane/shoulder closures (or an event that results in lane closures) into GDOTs ITS web based information tool.

Closures must be coordinated with adjacent projects to ensure the safe convenient passage of the traveling public. During construction of the Project, GDOT will facilitate coordination with all local entities for Traffic Control.

Lane and Shoulder Closure During Design-Build Period

DB Team may reduce the number of travel lanes in accordance with the restrictions in Section 18 of Volume 2.

The DB Team shall not install lane and shoulder closures, perform flagging, or move equipment on the travel way of any roads or streets from the Wednesday before Thanksgiving Day to the first Business day after New Year's Eve yearly between the hours of 5:00 a.m. to 11:00 p.m. Monday thru Friday and between the hours of 7:00 a.m. to 11:00 p.m. Saturday and Sunday.

Additional lanes may be closed during off peak or nighttime hours upon receipt of written permission from GDOT. Consideration will be given to traffic data collected in VPH/lane formatting during allowed closure periods that clearly demonstrates industry accepted traffic flow ratios can be maintained.

Full Roadway Closure

DB Team will not be permitted for any full (all lanes and shoulders) roadway closures unless accepted by GDOT and Governmental Entities having jurisdiction of roadways affected by the closure.

GDOT will have the right to lengthen, shorten, or otherwise modify the foregoing restrictions as actual traffic conditions may warrant. The detour route for these full roadway closures shall be limited to usage of the on and off ramps at the mainline interchange locations. DB Team shall utilize off-duty uniformed police officers for all detours.

Any complete roadway closure will require a Traffic Control Plan to be submitted and accepted by GDOT and Governmental Entities having jurisdiction of roadways affected by the closure. Availability of frontage roads, ramp locations and detour distances shall be considered in the design.

Holiday Restrictions

No work that restricts or interferes with traffic shall be allowed from 12:00 noon on the day preceding to 10:00 pm on the day after the following holiday schedule. GDOT has the right to lengthen, shorten, or otherwise modify these restrictions as actual traffic conditions may warrant.

- Memorial Day Weekend (Friday through Monday)
- Independence Day (July 3 through noon on July 5th)
- Labor Day Weekend (Friday through Monday)
- Thanksgiving Holiday (Wednesday through Sunday)
- Christmas Holiday (December 23 through 26)

18.4 Construction Requirements

Construction shall be in accordance with GDOT accepted DB Team's TMP, as well as applicable provisions of the MUTCD and GDOT Special Provision section 150 – Traffic Control.

18.4.1 DB Team Responsibility

If at any time GDOT determines DB Team's traffic control operations do not meet the intent of the TMP or any specific traffic control plan, DB Team shall immediately revise or discontinue such operations to correct the deficient conditions.

DB Team shall provide GDOT the names of the Certified Workzone Traffic Control Supervisor and support personnel, and the phone number(s) where they can be reached twenty four (24) hours per day, seven (7) days per week.

18.4.2 Access

Existing bicycle and pedestrian access and mobility shall be maintained across all cross streets. Access to existing transit stop locations shall be maintained during construction or reasonable alternative locations shall be provided, if applicable.

18.4.3 Detours

DB Team shall maintain all detours. A pavement transition, required in accordance with AASHTO's *Roadside Design Guide*, GDOT guidelines and the MUTCD based on the roadway Design Speed of the section shall be provided at all detour interfaces.

19 MAINTENANCE DURING THE DESIGN-BUILD PERIOD

19.1 General Requirements

The DB Team shall maintain the Project from NTP 3 through the remainder of the Design-Build Period in a manner that provides a safe and reliable transportation system. Upon NTP 3, the DB Team shall be fully responsible for maintenance as required by GDOT Standard Specification 105.14.

19.1.1 Reserved

19.1.2 GDOT Obligation to Repair

In the period between the Effective Date and the commencement of construction work, GDOT will reasonably perform the type of routine maintenance of each Element Category of the existing improvement which normally occurs in GDOT's highway maintenance and repair program. GDOT is not obligated to extend the Residual Life of any Element through reconstruction, rehabilitation, restoration, renewal, or replacement.

19.2 Construction Maintenance Limits Plan

The DB Team shall specify the physical boundaries of the DB Team's maintenance responsibilities for the Construction Work during the Design–Build Period. The Construction Maintenance Limits Plan can be provided as a drawing or set of drawings that highlight the exact area of the proposed construction and maintenance responsibilities within the ROW, as well as the limits of any Additional Properties to be acquired for the Project. This drawing will serve as the boundary for Construction Work and will also be used as the exact limits for DB Team to maintain any Element required to construct the Project beginning at the time of NTP3 through Final Acceptance. The DB Team shall be responsible for all maintenance activities, in accordance with the GDOT Standard Specifications, Construction of Transportation Systems, within these limits that is impacted due to the construction activity of Developer, including but not limited to:

- Pavement maintenance including pothole patching, concrete patching, striping, etc.;
- Existing ITS system and Drainage System continuity;
- Landscaping repair;
- Utility Adjustments; and
- Existing lighting system.

The DB Team shall provide the final Construction Maintenance Limits Plan no later than one hundred and fifty (150) Days from NTP1 or prior to the start of a construction phase (see Section 23). The drawing should show hash marks or a method to clearly depict the area of the Construction Maintenance Limits. The DB Team is required to depict in

the Construction Maintenance Limits Plan any and all proposed staging and lay down areas. All staging and lay down areas must have prior approval by GDOT.

Notwithstanding GDOT's approval of the Construction Maintenance Limits, The DB Team shall be responsible for any and all maintenance for any area(s) encroached on by the DB Team during the performance of the Construction Work.

The DB Team shall provide Construction Maintenance Limits phasing plan per the approved Construction Phasing Plan required in Section 23.

20 RESERVED

21 RESERVED

22 RESERVED

23 SUBMITTALS

23.1 General

The DB Team shall provide Project Submittals, in both electronic and hard copy format, as required to obtain any acceptance or final Release for Construction (as applicable) by GDOT and to demonstrate compliance with the DB Documents, Government Acceptances, and regulations. Volume 2 (Technical Provisions) provides a list of some of the required submittals. The Volume 3 Manuals (Technical Documents) or other requirements in the DB Documents may require additional Submittals. This list is intended to be a guide for coordinating reviews and facilitating the Work.

The DB Team may design and construct the Project in multiple phases. A Construction Phase is a portion (segment) of the overall Project. If the Project will be designed and constructed in multiple phases, then the DB Team shall provide a Construction Phasing Plan and Submittals Schedule per construction phase within thirty (30) days from NTP 1. The Construction Phasing Plan shall provide logical termini for each proposed segment or phase of the Work and must consider any phasing of required acceptances. For a given Construction Phase, DB Team shall be allowed to either submit a complete set of drawings or make a series of Staged Design Submittals (components). The timing and content of Staged Design Submittals must be logical and shall include or be preceded by related items (e.g., bridge submittals must include or be preceded by related highway geometry; a bridge and its related retaining walls must be submitted together; etc.). The Submittals Schedule shall identify all proposed Staged Design Submittals and what components will be included in each. The DB Team must obtain GDOT acceptance of the Construction Phasing Plan and the Submittals Schedule prior to providing any design submittals for GDOT review. In addition, a "Design Submittal Guide / Index" showing a proposed index of plan sheets for each Construction Phase must be submitted and accepted prior to providing any design submittal. Once accepted, this Design Submittal Guide / Index shall be updated and provided with each subsequent design submittal. File naming of each plan sheet in a submittal shall correspond to the final index name of the plans for ease of reference to create the final set of drawings. The Design Submittal Guide / Index shall also include all reports, specifications, studies, calculations, etc.

Sufficient review and revision time shall be provided in the schedule and account for possible multiple re-submittals to secure a final Released for Construction prior to starting construction on any particular Element of the Work. Construction cannot proceed on any of the work until the design submittal has been reviewed, accepted and Released for Construction as described in Section 23.3 below.

23.2 Design Submittals and Progress of Design Work

Each required Submittal shall be delivered to GDOT in conformance of the review times provided in Volume 2, Section 23.2. The times provided in Volume 2, Section 23.2 are specifically for the review period required for GDOT to comment and GDOT to

subsequently accept if all requirements of the DB Documents are met. Accuracy, completeness, and time spent to address GDOT comments are the responsibility of the DB Team. Notwithstanding the foregoing, notices sent after 12:00 p.m. Eastern Standard or Daylight Time (as applicable), including all notices, correspondence or communications (including e-mail and facsimile) received after 12:00 p.m. shall be deemed received on the first business day following delivery (that is, in order for a fax to be deemed received on the same day, at least the first page of the fax must have been received before 12:00 p.m.).

No fabrication, casting or construction will occur until all related design review and shop drawing review comments are resolved and the corresponding drawings and specifications have been accepted by GDOT and stamped "Released for Construction". All design submittals shall be complete along with all the supporting information necessary for review. The work must represent logical work activities and must show impacts on subsequent work on this Project. Any modification to the component construction due to subsequent design changes as a result of design development is solely at the DB Team's risk.

23.2.1 Construction Phasing and Additional Submittal Requirements

The DB Team is responsible for obtaining any Government Approvals or other approvals required to allow for implementation and construction of the phasing plan. The DB Team shall not begin any work including any land disturbing activities for the Construction Phase contemplated for construction until the following have been completed or accepted by GDOT, FHWA, and/or Governmental Entity as required:

- All required Management Plans are accepted and NTP 3 is issued (Construction Phase or entire Project)
- Acceptance of the Construction Phasing Plan
- Acceptance of the Construction Maintenance Limits Plan for the proposed Construction Phase of work
- Acceptance of the Submittals Schedule (Design Submittal Guide)
- Acceptance of the Project Baseline Schedule
- Acceptance of the Preliminary Plans for the entire Project by GDOT and FHWA (if applicable)
- Acceptance of the Drainage Report (for the contemplated Construction Phase)
- Acceptance and subsequent Release for Construction of the Final Plans for the construction contemplated (Construction Phase or entire Project).
- Utility Certification or recertification by GDOT and FHWA, as applicable (Construction Phase or entire Project)
- NEPA/GEPA re-evaluation by FHWA and/or GDOT (as applicable)
- Environmental recertification by GDOT
- Acceptance of any required Design Variances or Design Exceptions (Construction Phase or entire Project)

- Approved Permits (including but not limited to the Nationwide 14 USACE Section 404 permit and traffic signal permits)
- Acceptance of Erosion Sedimentation and Pollution Control Plans (Construction Phase or entire Project)
- Executed NPDES Notice of Intent (NOI) (Construction Phase or entire Project)
- Acceptance of Construction Quality Management Plan
- Acceptance of Traffic Control Plan (Construction Phase or entire Project)
- Acceptance of Traffic Management Plan
- Utility Agreements, Utility Encroachment Permits, Utility Relocation Plans, Utility Retentions (as required) and/or Contractor Certification of "No-Conflict"
- Provide the existing GIS data and existing mapping as required in Section 12.3.2.1

Staged Design Submittals

Once the Preliminary Plans for the entire Project have been accepted by GDOT and FHWA (if applicable), the DB Team shall be allowed to submit Staged Design Submittals (components) instead of a completed set of drawings for an entire accepted Construction Phase. A Staged Design Submittal is a submittal that consists of a portion or portions of the Work within the limits of an accepted Construction Phase. For example, a Staged Design submittal for a bridge might be categorized as foundations, substructures, abutments or complete continuous units of superstructure. Staged Design Submittals for other components of the Project might include grading, drainage, signing & pavement marking and erosion control. If the DB Team chooses to provide Staged Design Submittals, the list of Staged Design Submittals shall be identified as part of the proposed Construction Submittals Schedule.

Changes to Accepted and Released for Construction Submittals

After GDOT has accepted the Final Plans and has authorized them as Released for Construction then the DB Team shall submit to GDOT a request for any subsequent plan/design changes and include necessary documentation which supports the reasoning behind the change request. GDOT must accept the requested change with written notice prior to its implementation as a plan revision and subsequent construction activity.

Presentation Requirements

The DB Team shall provide all plan submittals in accordance with the *Plan Development Process (PDP)*, *Electronic Data Guidelines (EDG)* and the *Plan Presentation Guide (PPG)* Manuals for GDOT reviews.

The Plans shall be fully dimensioned in English units; all elevations necessary for construction shall be shown similar to the Department's normal practice. All plans are to be prepared on the scales according to GDOT's Plan Presentation Guide (PPG).

Each location shall include details for all civil elements and calculations within proximity of the site so that these locations can be reviewed holistically and connections with communication and electrical networks are clearly understood.

Construction Plans Organization and Sheet Index: Construction plans shall be assembled according to the GDOT Plan Presentation Guide (PPG).

Computations: All design computations and computer printouts shall be neatly recorded on 8 ½" by 11", fully titled, numbered, indexed, dated and signed by the designer/Project manager and checker. The computer files and two copies of the computations fully checked and appropriately bound, shall be submitted to GDOT with the plans. A complete tabulation of the drainage analysis along with the calculations used to determine the size of drainage structures shall be submitted to GDOT.

Submittal Formats: Each design submittal shall, in addition to electronic delivery in .pdf format on the web-based document management system, consist of ten (10) sets of scalable 11"x 17" or 12" x 18", six (6) full size 24" x 36" design drawings and six (6) sets of calculations and a DVD/CD of the submittal including all InRoads, MicroStation V8 format files. For all Final Plan submittals (plans, calculations, specifications, reports, etc.), each document shall be sealed by a qualified Registered Professional Engineer in the State of Georgia. In addition to written design review comments (if any), design drawings may be returned to the DB Team with any remarks indicated. After a design drawing submittal is "Released for Construction", the DB Team shall, in addition to posting the complete electronic files on the web-based document management system, furnish GDOT with one (1) full size 24" x 36" set and ten (10) sets of 11"x 17" or 12" x 18", corrected design drawings as well a DVD/CD containing the design drawings in In-Roads, Micro-station V8 format. After all individual Staged Design Submittals have been accepted for a particular Construction Phased Plan; a final complete set of plans for the Construction Phase will be compiled and provided to GDOT as the Released for Construction set.

Additional Specifications: In addition to the design drawings that include Georgia standards and details, the DB Team shall prepare and furnish to GDOT, specifications for construction work included in the plans which are not covered by the GDOT's *Standard Specifications*, the *Supplemental Specifications and/or the Special Provisions* as required in Volume 3 Manuals (Technical Documents).

Any submittal(s) received by GDOT after 12 PM (noon) shall be considered as being received the following business day.

23.3 Submittals Process

Review of the Design Documents by GDOT may be limited to the basic requirements of the DB Documents, relating to design compliance and material type(s) and may not include detailed review or checking of design of components and related details or the accuracy with which such designs are depicted on the design drawings.

Review and/or acceptance of any Design Documents shall not relieve the DB Team of responsibility under the Contract including the overall correctness of Design Documents including engineering mathematical computations. All Design Documents, including but not limited to plans, specifications, reports, calculations, shop drawings (where public safety is affected) and Permit documents shall be submitted to GDOT. GDOT will be responsible for distributing the submittals to all required parties of the contract.

All Submittals shall include a cover letter describing the submittal, review period and the due date for any GDOT response.

All Submittals shall include the DB Team's QC/QA certification statement (in addition to the design consultant's QC/QA certification statement for all design related submittals). GDOT will reject any submittal if the QC/QA certification statement is not included. Each submittal shall also provide a certification statement that the submittal complies with all terms and conditions of the DB Agreement signed by the Designer of Record.

Required Participants of the Process

GDOT, except as otherwise required in the DB Documents, will be primarily responsible for verifying that the accepted Design Quality Management Process as required in Section 2 has been followed, verifying that the submittal meets all contract requirements, ensuring that all necessary Governmental Approvals have been obtained by the DB Team, and performing any review(s) as provided for in Volume 2, Section 23.2.

DB Team is responsible to provide all required Submittals in compliance with the DB Documents and in compliance of the accepted Submittals Schedule. The DB Team must further provide a certification that the submittal meets the terms of the contract and has been independently reviewed in accordance with the accepted Design Quality Management Plan (see Section 2.3.15) with the each submittal.

Process

- The DB Team shall provide independent review for all submittals in compliance with the accepted Design Quality Management Plan as specified in Section 2.3.15.
- DB Team provides the submittal to GDOT via web based application and required hard copies in accordance with the submittal schedule. Submittals shall be categorized into "Discipline Groups" as follows:
    - Right of Way, Railroad and Utilities (RRU Group)
    - Roadway, Drainage and Maintenance of Traffic (RDMOT Group)
    - Bridge, Structures, Retaining Walls and Aesthetics (BSRA Group)
    - ITS, Traffic (includes signing, pavement marking, signals and lighting) (ITSTT)
    - All types (ALL Group)
    - Other (OTH)

- GDOT logs in the submittal and distributes to the required review participants.
- Review period begins (the following business day for any submittals received after 12p.m.) per the period as prescribed in Volume 2, Section 23.2, except where there is a maximum number of concurrent submittals of a particular type specifically noted in Volume 2, Section 23.2; in such cases and where the maximum is exceeded, the review period will begin when prior submittal reviews are completed so that the maximum number in concurrent review is not exceeded. For the general case where there is not a maximum number of concurrent submittals specifically noted in Volume 2, Section 23.2, an additional seven (7) days will be added to the prescribed review period whenever there are more than five (5) concurrent submittals in review in the subject document's particular Discipline Group. Further, an additional seven (7) days will be added for each additional increment of five (5) concurrent submittals in review in a Discipline Group. For example, if there are between six (6) and ten (10) submittals in concurrent review in a Discipline Group, then an additional seven (7) days are added; and if there are between eleven (11) and fifteen (15) submittals in concurrent review in a Discipline Group, then an additional fourteen (14) days are added, etc. For purposes of calculating the number of submittals, the accepted submittal schedule will generally be used as a guide except that complementary documents, for example bridge plans and bridge calculations, will be considered a single submittal. Documents that fully integrate multiple disciplines in the presentation, for example roadway and drainage plans, together with the respective calculations would be counted as one submittal. For example documents or packages that include multiple bridges or toll gantries, each individual bridge or toll gantry will be counted as a separate submittal.
- Once a review is complete the drawings and or Submittal will be designated by GDOT as either:
    - Accepted
    - Accepted with Comments
    - Rejected

  The terms "Accepted" and "Accepted with Comments" shall mean that the design process may proceed and is not a notice that construction may begin.
- If "Accepted" or "Accepted with Comments", the GDOT Representative will deliver the comments and, if necessary, return the drawings and/or Submittal via web based application and/or hard copy to the DB Team. For final Submittals, after updating the documents to resolve all comments (as applicable) and receiving written notice from GDOT that the drawings and/or Submittal are "Released for Construction" pursuant to Exhibit 1 of the DB Agreement, the DB Team shall stamp the accepted set "Released for Construction" and distribute copies as required within three (3) business days.
- If "Rejected", the GDOT Representative shall deliver the rejected drawings and/or Submittal via web based application and/or hard copy to the DB Team. The DB Team shall address the specific comments and resubmit. The resubmittal become a new Submittal and shall follow the same time period as provided in Volume 2, Section 23.2.

23.4 Shop Drawings and Temporary Works Submittals

23.4.1 General

Shop drawings include all working, shop, and erection drawings, associated trade literature, calculations, schedules, manuals, and similar documents submitted by the DB Team to define some portion of the project work. The type of work includes both permanent and temporary works as appropriate to the project. Permanent works include all the permanent structures and parts thereof required of the completed DB Documents. Temporary works include any temporary construction work necessary for the construction of the permanent works. This includes falsework, formwork, scaffolding, shoring, temporary earthworks, sheeting, cofferdams, special erection equipment, and the like. Falsework includes any temporary construction work used to support the permanent structure until it becomes self-supporting. Falsework includes steel or timber beams, girders, columns, piles and foundations, and any proprietary equipment including modular shoring frames, post shores, and adjustable horizontal shoring. Formwork includes any structure or mold used to retain plastic or fluid concrete in its designated shape until it hardens. Formwork comprises common materials such as wood or metal sheets, battens, soldiers and walers, ties, proprietary forming systems such as stay-in-place metal forms, and proprietary supporting bolts, hangers and brackets. Formwork may be either permanent formwork requiring a shop drawing submittal such as stay-in-place metal or concrete forms, or may be temporary formwork which requires certification by the Specialty Engineer for construction affecting public safety and for major and unusual structures. Scaffolding is an elevated work platform used to support workmen, materials and equipment, but not intended to support the structure. Shoring is a component of falsework such as horizontal, vertical or inclined support members. In this Section, this term is interchangeable with falsework.

Construction affecting public safety is defined as construction that may jeopardize public safety such as structures spanning functioning vehicular roadways, pedestrian walkways, railroads, navigation channels of navigable waterways and walls or other structure foundations located in embankments immediately adjacent to functioning roadways. It does not apply to those areas of the site under the DB Team's control and outside the limits of, or influence of, normal public access.

For the purpose of shop drawing review and processing as described in Section 23.4, the term "Specialty Engineer" will apply to the initiator or producer of shop drawings regardless of whether or not that party is normally the Engineer of Record; and the term "Engineer of Record" will apply to the shop drawing checker and certifier regardless of whether or not that party is normally the Engineer of Record or the Specialty Engineer.

23.4.2 Work Items Requiring Shop Drawings

In general, GDOT requires shop drawings for items of work not fully detailed in the plans which require additional drawings and coordination prior to constructing the item, including but not limited to:

- Bridge components not fully detailed in the plans, i.e. segments, steel girder details, post-tensioning details, handrails, etc.
- Retaining wall systems
- Precast Box Culverts
- Non-standard Drainage structures, attenuators, and other nonstructural items
- Building structures
- Drainage structures, attenuators, and other nonstructural items
- Design and structural details furnished by the DB Team in compliance with the Contract
- Temporary Works affecting public safety

23.4.3 Schedule of Submittals

Shop drawings shall be included on the submittal schedule described in Section 23.1. For each planned shop drawing submittal, define the type and approximate number of drawings or other documents that are included and the planned submittal date, considering the processing requirements herein. Coordinate subsequent submittals with Project Schedule to allow sufficient time for review and re-submittal as necessary.

23.4.4 Style, Numbering, and Material of Submittals

23.4.4.1 Drawings

The DB Team shall submit the shop drawings electronically in .pdf format on the web-based project management program. In addition to the electronic delivery, the DB Team shall furnish four sets of shop drawings to GDOT for review. Consecutively number each sheet in the submittal series, and indicate the total number in the series (i.e., 1 of 12, 2 of 12, . . ., 12 of 12). Include on each sheet the following items as a minimum requirement: Bridge Number(s), drawing title and number, a title block showing the names of the fabricator or producer and the DB Team for which the work is being done, the initials of the person(s) responsible for the drawing, the date on which the drawing was prepared, the location of the item(s) within the project, the DB Team's approval stamp with date and initials, and, when applicable, the signature and seal of the Specialty Engineer. A re-submittal will be requested when any of the required information is not included.

23.4.4.2 Other Documents

In addition to electronic delivery in .pdf format on the web-based project management program, the DB Team shall provide four sets of original documents or clearly legible photographic or xerographic copies of documents other than drawings, such as trade literature, catalogue information, calculations, and manuals. Clearly label and number

each sheet in the submittal to indicate the total number of sheets in the series (i.e., 1 of 12, 2 of 12, . . . 12 of 12). Provide an additional three sets of documentation for items involved with precast pre-stressed components. Provide an additional two sets of documentation for items involving structural steel components. Bind and submit all documents with a table of contents cover sheet. List on the cover sheet the total number of pages and appendices, and include a title referencing the submittal item(s), the name of the firm and person(s) responsible for the preparation of the document, the DB Team's approval stamp with date and initials, and, when applicable, the signature and seal of the Specialty Engineer. Submit appropriately prepared and checked calculations and manuals that clearly outline the design criteria. Include on the internal sheets the initials of the person(s) responsible for preparing and checking the document. Clearly label trade literature and catalogue information on the front cover with the title, date and name of the firm and person(s) responsible for that document.

23.4.5 Submittals and Copies

23.4.5.1 General

Shop drawings are not required for Qualified Products accepted by GDOT and included on the Qualified Product List as specified in Volume 3 Manuals. For non-Qualified Product, the DB Team will submit shop drawings to GDOT after the Engineer of Record has reviewed and accepted for conformance with the DB Documents and compliance to the design intent. Upon completion of GDOT's review, GDOT's red ink review stamp will signify an officially reviewed shop drawing and will state either "Released for Construction" or "Released for Construction as Noted".

23.4.5.2 DB Team-Originated Design

Submit shop drawings and applicable calculations to the Engineer of Record for review. Ensure that each sheet of the shop drawings and the cover sheet of the calculations are signed and sealed by the Specialty Engineer.

23.4.5.3 Temporary Works

For construction affecting public safety, submit to the Engineer of Record shop drawings and the applicable calculations for the design of special erection equipment, false-work, scaffolding, etc. Ensure that each sheet of the shop drawings and the cover sheet of the applicable calculations is signed and sealed by the Specialty Engineer.

23.4.5.4 Formwork and Scaffolding

The DB Team is solely responsible for the safe installation and use of all formwork and scaffolding. GDOT does not require any formwork or scaffolding submittals unless such work would be classified as construction affecting public safety.

23.4.5.5 Other Miscellaneous Design and Structural Details Furnished by the DB Team in Compliance with the Contract

Submit, to the Engineer of Record, shop drawings and the applicable calculations. Ensure that each sheet of the shop drawings and the cover sheet of the applicable calculations is signed and sealed by the Specialty Engineer.

23.4.6 Processing of Shop Drawings

23.4.6.1 DB Team Responsibility for Accuracy and Coordination of Shop Drawings

Coordinate, schedule, and control all submittals, with a regard for the required priority, including those of the various subcontractors, suppliers, and GDOTs, to provide for an orderly and balanced distribution of the work. Coordinate, review, date, stamp, accept and sign all shop drawings prepared by the DB Team, Contractors, or DB Team-Related Entities (subcontractor, fabricator, supplier, etc.) prior to submitting them to GDOT for review. Submittal of the drawings confirms verification of the work requirements, units of measurement, field measurements, construction criteria, sequence of assembly and erection, access and clearances, catalog numbers, and other similar data. Indicate on each series of drawings the specification section and page or drawing number of the Released for Construction plans to which the submission applies. Indicate on the shop drawings all changes from the Released for Construction drawings and itemize all changes in the letter of transmittal. Likewise, whenever a submittal conforms to the Released for Construction plans, clearly state so in the transmittal letter. Schedule the submission of shop drawings to allow a GDOT review period as specified in the DB Documents. The review period commences upon GDOT's receipt of the valid submittal or re-submittal and terminates upon the transmittal of the submittal back to the DB Team. The DB Team is discouraged from transmitting voluminous submittals of shop drawings at one time. For submittals transmitted in this manner, allow for additional review time. Only shop drawings distributed by GDOT with the "red ink" stamps are valid and all work that the DB Team performs in advance of GDOT's release of shop drawings will be at the DB Team's risk.

23.4.6.2 Scope of Review by the Engineer of Record

The Engineer of Record's review of the shop drawings is for conformity to the requirements of the DB Documents and to the intent of the design. The Engineer of Record's review of shop drawings, which includes means, methods, techniques, sequences, and construction procedures, is limited to the effects on the permanent works. The Engineer of Record's review of submittals, which includes means, methods, techniques, sequences, and construction procedures, does not include an in-depth check for the ability to perform the Work in a safe or efficient manner.

23.4.6.3 Special Review by the Engineer of Record of Shop Drawings for Construction Affecting Public Safety

For construction affecting public safety, the Engineer of Record will make an independent design review of all relevant shop drawings and similar documents. The

DB Team shall not proceed with construction of the permanent works until receiving the Engineer of Record's approval. Send a copy of the approval letter to GDOT. The review of these shop drawings is for overall structural adequacy of the item to support the imposed loads and does not include a check for economy, efficiency or ease of construction.

23.4.7 Other Requirements for Shop Drawings for Bridges

23.4.7.1 Shop Drawings for Structural Steel and Miscellaneous Metals

Furnish shop drawings for structural steel and miscellaneous metals. Shop drawings shall consist of working, shop, and erection drawings, welding procedures, and other working plans showing details, dimensions, sizes of material, and other information necessary for the complete fabrication and erection of the metal work.

23.4.7.2 Shop Drawings for Concrete Structures

Furnish shop drawings for concrete components that are not cast-in-place and are not otherwise exempted from submittal requirements. Also, furnish shop drawings for all details that are required for the effective prosecution of the concrete work and are not included in the DB Documents such as: special erection equipment, masonry layout diagrams, and diagrams for bending reinforcing steel, in addition to any details required for concrete components for the permanent work.

23.4.7.3 Special Construction Submittals

In addition to any other requirements, within 60 days from the issuance of the notice to proceed, the DB Team shall submit information to GDOT outlining the plan for integration into the overall approach to the project. Where applicable to the project, include, but do not limit this information to:

- The overall construction program for the duration of the DB Agreement. Clearly show the milestone dates. (For example, the need to open a structure by a certain time for traffic operations.)
- The overall construction sequence. The order in which individual structures are to be built, the sequence in which individual spans of girders or cantilevers are erected, and the sequence in which spans are to be made continuous. Erection plans and sequence drawings shall be provided for all bridge construction work to be perfomed on or over railroad ROW as defined in Section 14 of Volume 3.
- The general location of any physical obstacles to construction that might impose restraints or otherwise affect the construction, and an outline of how to deal with such obstacles while building the structure(s). (For example, obstacles might include road, rail and waterway clearances, temporary diversions, transmission lines, utilities, property, and the DB Team's own temporary works, such as haul roads, cofferdams, plant clearances and the like.)

- The approximate location of any special lifting equipment in relation to the structure, including clearances required for the operation of the equipment. (For example, crane positions, operating radii and the like.)
- The approximate location of any temporary falsework, and the conceptual outline of any special erection equipment. Provide the precise locations and details of attachments, fixing devices, loads, etc. in later detailed submittals.
- An outline of the handling, transportation, and storage of fabricated components, such as girders or concrete segments. Provide the precise details in later detailed submittals.
- Any other information pertinent to the proposed scheme or intended approach.
- Clearly and concisely present the above information on as few drawings as possible in order to provide an overall, integrated summary of the intended approach to the project. GDOT will use these drawings for information, review planning, and to assess the DB Team's approach in relation to the intent of the original design. The delivery to and receipt by GDOT does not constitute any GDOT acceptance or approval of the proposals shown thereon. Include the details of such proposals on subsequent detailed shop drawing submittals. Submit timely revisions and re-submittals for all variations from these overall scheme proposals.

23.4.7.4 Shop Drawings Requiring Railroad Coordination

GDOT acceptance of shop drawings and submittals involving railroad coordination and review does not constitute final acceptance to begin work on these items. Refer to the requirements of Section 14 for coordination and duration of shop drawing reviews for construction work being performed on or over the ROW of the railroad. Direct coordination between the RUU Group and the railroad will be necessary to ensure that all necessary approvals from the railroad are in place prior to beginning of construction activities in these areas.

23.4.8 Modifications on Construction

Where GDOT allows the DB Team to make modifications to the permanent works for the purposes of expediting the DB Team's chosen construction methods, the DB Team shall submit proposals to the Engineer of Record for review and approval prior to modifying the works. Submit proposals for minor modifications under the shop drawing process. Indicate on all drawings the change(s) from the DB Documents and itemize all Change Requests in the letter of transmittal. GDOT will require additional submittals for major modifications. Minor modifications are those items that, in the opinion of GDOT, do not significantly affect the quantity of measured work, or the integrity or maintainability of the structure or its components. (For example, adjusting concrete dimensions, substituting steel plate sizes, changing reinforcing bar size and spacing, etc., all within the acceptable limits of the design.) Major modifications are any modifications that, in the opinion of GDOT, significantly affect the quantity of measured work, or the integrity or maintainability of the structure or its' components. (For example, substituting alternative beam sizes and spacing's, changing material strength

or type, and the like.) Provide signed and sealed revised sheets to GDOT for any required revisions to the Released for Construction plans prior to submitting shop drawings. GDOT's decision on the delineation between a minor and a major modification and the disposition of a proposal is final.

23.5 As-Built Plans

Upon completion of the Construction Work, a complete set of As-Built Plans (Record Drawings), organized by Construction Phase shall be provided to GDOT as a condition to Final Acceptance and in the following formats:

- Two (2) CD-ROMs or DVDs containing:
  - all electronic design files, electronic calculations, etc.
  - full-size 24" x 36" .tiff images of each plan sheet – one sheet per file
  - full-size 24" x 36" .pdf containing the entire plan set
- One (1) hard copy of the design databook, and drainage calculations
- Two (2) full-size 24" x 36" set of bond prints
- Two (2) half-size 11" x 17" or 12" x 18" set of bond prints

These as-built Record Drawings shall not be field sketches or redlines, but shall be CAD generated drawings which compile all field changes, redlines, plan revisions, and all non-conforming work into a single "strike-through" format set of plans. Where appropriate, new drawings may be inserted to depict portions of the as-built work.

For toll projects:

The toll and toll-related ITS elements of the as-built Record Drawings shall be provided as a separate sub-set by Construction Phase and include but are not limited to, toll locations, toll-related ITS locations, communication hub, fiber back bone, ground boxes, and toll / toll-related ITS lateral locations which shall be provided to SRTA at turnover. These toll and toll-related ITS element as-built Record Drawings shall also be provided to the Department as a condition of Final Acceptance. Draft as-built plans shall be provided to the Department and SRTA for each Toll Location and toll-related ITS location as part of the site turnover process. In addition to the deliverables above, the as-built submittals for toll, toll-related ITS and GDOT ITS shall include an Excel spreadsheet with separate columns for latitude, longitude, station, roadway, device type, manufacturer and model number. Furthermore, linear features shall include a latitude and longitude value for the beginning and end points. Latitude and longitude values shall be accurate to two (2) feet and be in degrees, minutes, and seconds format. GPS points for polygon features (e.g. communication hub can be taken from an edge of the feature).

The DB Team shall be responsible for all production and delivery of materials needed for Department review. Both a member of the design team, who is a Professional Engineer, and a member who is a Registered Surveyor, licensed to practice engineering in the State of Georgia shall seal the As-Built plans.

All files are to conform to the criteria for the design platform of choice (CAiCE or InRoads) found in the Department's Electronic Data Guidelines (EDG), most current version, found at:

http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/Committee.aspx

Georgia Department of Transportation

Programmatic Technical Provisions

For

Design-Build Agreement

P.I. No. 0012722

SR 21 at I-95 Diverging Diamond Interchange Project

VOLUME 3 ATTACHMENTS

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Attachment 2-1

GDOT Weather Zones

GA Weather Stations and Divisions by National Oceanic and Atmospheric Administration (NOAA) with GDOT Weather Zones

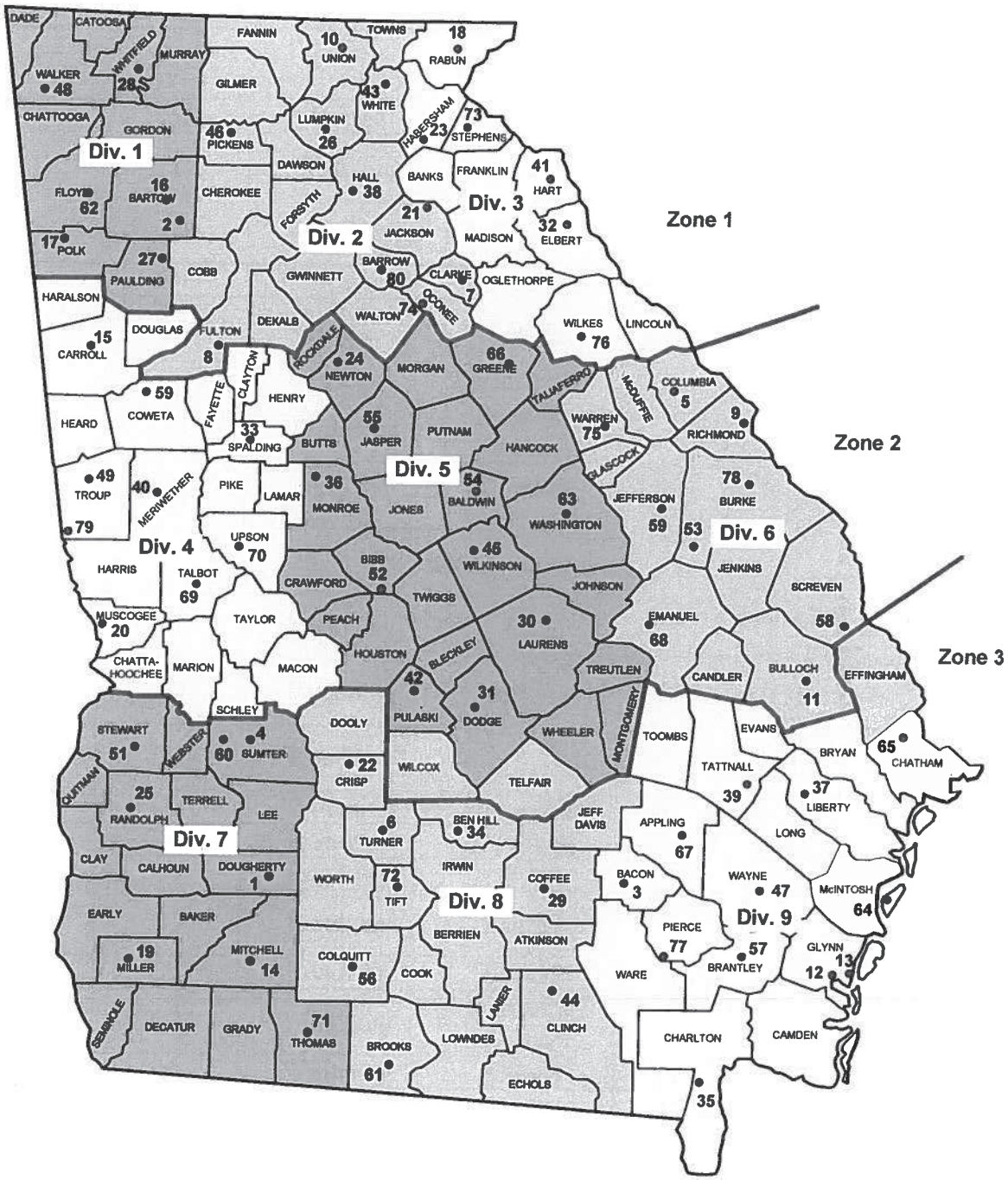

FIGURE 1 GDOT Weather Zones and NOAA Weather Stations and Divisions.

Georgia Department of Transportation

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Attachment 4-1

107.23G LEGAL REGULATIONS AND RESPNSIBILITY TO THE PUBLIC

Date: October 2, 2014

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SPECIAL PROVISION

Chatham County
P.I. # 0012722

Section 107 – Legal Regulations and Responsibility to the Public

Add the following to Subsection 107.23:

G. Protection of Federal Protected Environmentally Sensitive Species

The following conditions are intended as a minimum to protect this species and its habitat during any activities that are in close proximity to the known location(s) of these species.

1. The Contractor shall advise all project personnel employed to work on this project about the potential presence and arrival of wood storks (*Mycteria americana*) to the area and that there are civil and criminal penalties for harming, harassing, or killing these species which are protected under the Endangered Species Act of 1973.

2. All construction activities shall cease upon the sighting of a wood stork within 100 yards of the project area. Construction activities shall not resume until the wood stork has not been observed in the project area or within 100 yards of the project area for at least 30 minutes.

3. In the event any incident occurs that causes harm to wood storks the Contractor shall report the incident immediately to the Project Engineer who in turn shall notify the State Environmental Administrator, Georgia Department of Transportation, Office of Environmental Services (404) 631-1101.

   In addition, in the event of possible harm to wood storks, all activity within 100 yards of the incident shall cease pending consultation by the Department with the U. S. Fish and Wildlife Service and Federal Highway Administration (FHWA).

4. Following project completion, a report summarizing any incidents with wood storks shall be submitted by the Contractor to the:
   a. Project Engineer;
   b. Georgia Department of Transportation, Office of Environmental Services, 600 West Peachtree Street NW, Atlanta, GA 30308.

All costs pertaining to any requirement contained herein shall be included in the overall bid submitted unless such requirement is designated as a separate Pay Item in the Proposal.

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Attachment 6-1

SITE ACCEPTANCE CHECKLIST

LR1A

GDOT RIGHT OF WAY

LOCATE REQUEST FORM

* Indicates Required Field

Completing and returning this request does not cover utility locates provided by 811 you are responsible to contact them directly.

1	* DATE	* GDOT Manager	* GDOT PI or Permit #
2	* COMPANY NAME		* EMAIL ADDRESS
3	* NAME		* PHONE NUMBER WITH AREA CODE
4	* COMPANY ADDRESS		* CITY, STATE, ZIP CODE
5	* ONSITE CONTACT NAME		* PHONE NUMBER WITH AREA CODE
6	* Location, (e.g.,I-75)	* ☐ East Bound ☐ West Bound ☐ North Bound ☐ South Bound	* Mile Marker
7	*Acceptable formats: NAD83, WGS84, Decimal Degrees, Degrees Decimal Minutes and Degrees Minutes Decimal Seconds*	LATITUDE	LONGITUDE
8	**NEAREST CROSS STREET/ROAD REGARDLESS OF SIZE** (indicate street, road, etc.)		
9	ADDITIONAL ADDRESS OR DIRECTIONAL INFORMATION TO JOB SITE *(i.e., directions, landmarks, etc.)*		
10			
11	* It is requested the site be pre-marked in WHITE. Is this complete? ☐ YES		
12	* TYPE OF WORK (*Examples: trench for sewer, cable/telephone drops, ɛłǍŀšĐ ɛšǑŸ installation, plant trees/shrubs, ditch work, etc.)*		
13	*** EXTENT OF WORK (Examples: located at damaged guardrail, 3 feet off of road apron, spillway to curb, etc.)**		
14			
15	*** Requested work date and time of excavation**		**Dig by date (provided by GDOT)**
16	EXPIRATION DATE OF TICKET (*provided by ' Kd)*		**Maximo WO Number (provided by GDOT)**
17	**Confirmation will be sent via E-Mail when locate is cleared**		
18	REMARKS (Notes about excavation site)		
19			
20			
21			
22			
23			

Georgia Department of Transportation
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Design-Build Project

VOLUME 3 MANUALS
(Technical Documents)

Volume 3 Manuals (Technical Documents)

All Work shall conform with all applicable Manuals and Guidelines developed for and including AASHTO, FHWA, GDOT, and additional requirements stated in this document and reasonably inferred therefrom. It is the Design-Build Teams responsibility to verify order of the precedence of any State or Federal manual requirement where any potential conflict may exist. The Design-Build Team shall coordinate with the appropriate State and/or Federal agency to confirm the policy and regulations to avoid any conflict of the following manuals prior to design and/or construction. Following is a list of manuals and guidelines that shall be used, in the performance of Work provided that the Work shall not be governed solely by such manuals and guidelines listed herein, and provided further that it is the Design-Build Team's responsibility to locate and utilize the most current edition at the time of the RFP advertisement, including updates, of all such referenced materials for the Work required.

1. AASHTO – A Policy on Geometric Design of Highways and Streets
   https://bookstore.transportation.org/item_details.aspx?ID=110
2. AASHTO – Guide for High-Occupancy Vehicle Facilities
   https://bookstore.transportation.org/Item_details.aspx?id=114
3. AASHTO – Standard Specification for Structural Supports for Highway Signs, Luminaires and Traffic Signals (LTS-5)
   https://bookstore.transportation.org/item_details.aspx?ID=1319
4. AASHTO – Roadside Design Guide
   https://bookstore.transportation.org/item_details.aspx?ID=1802
5. AASHTO – Roadway Lighting Design Guide
   https://bookstore.transportation.org/item_details.aspx?ID=320
6. AASHTO – LFD Standard Specifications for Highway Bridges, 17th Edition
   https://bookstore.transportation.org/Item_details.aspx?id=51
7. AASHTO –Manual for Bridge Evaluation, 2nd Edition, with 2011 Interim Revisions
   https://bookstore.transportation.org/item_details.aspx?ID=1809
8. AASHTO – Guide Specification for Structural Design Sound Barrier
   https://bookstore.transportation.org/item_details.aspx?ID=1155
9. AASHTO – AWS D1.1/ANSI Structural Welding Code – Steel
   http://www.techstreet.com/cgi-bin/detail?doc_no=AWS%7CD1_1_D1_1M_2008&product_id=1519645
10. AASHTO – D1.5/AWS D1.5 Bridge Welding Code
    https://bookstore.transportation.org/item_details.aspx?ID=1756
11. AASHTO – Highway Capacity Manual
    http://www.techstreet.com/cgi-bin/detail?product_id=957255
12. Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM) and Guideline Handbook
    http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/index.cfm

13. AISC Manual of Steel Construction, referred to as “AISC Specifications”
http://www.aisc.org/store/p-1578-steel-construction-manual-thirteenth-edition.aspx
14. American National Standards Institute (ANSI)/ Illuminating Engineering Society of North America (IESNA) RP-8-00 Recommended Practice for Roadway Lighting
http://webstore.ansi.org/RecordDetail.aspx?sku=ANSI%2FIESNA+RP-8-00
15. America Disabilities Act Accessibility Guidelines (ADAAG)
http://www.ada.gov/stdspdf.htm
16. Manual of Uniform Traffic Control Devices (MUTCD)
http://mutcd.fhwa.dot.gov/
17. GDOT – Signing and Marking Design Guidelines
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
18. GDOT – Utility Accommodation Policy and Standards Manual
http://www.dot.ga.gov/doingbusiness/utilities/Pages/manual.aspx
19. GDOT - Geotechnical Engineering Manual and Guidelines
http://www.dot.ga.gov/doingbusiness/Materials/Pages/default.aspx
20. GDOT – STI (Sampling, Testing and Inspection) Quick Guide and Documents
http://www.dot.ga.gov/doingbusiness/TheSource/Pages/sti.aspx
21. GDOT – Qualified Products List (QPL)
http://www.dot.ga.gov/doingbusiness/Materials/Pages/default.aspx
22. GDOT – Pavement Design Manual
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
23. GDOT – Manual on Drainage Design for Highways
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
24. GDOT – Automated Survey Manual
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
25. GDOT – Regulations for Driveway and Encroachment Control
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
26. GDOT – Electronic Data Guidelines
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/Committee.aspx
27. GDOT – Plan Development Process
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/default.aspx
28. GDOT – Plan Presentation Guide
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/default.aspx
29. GDOT – Preliminary Field Plan Review Checklist
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/OtherResources.aspx
30. GDOT – Final Field Plan Review Checklist
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/OtherResources.aspx

31. GOT – Design Policy Manual
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/designpolicies/Pages/default.aspx
32. GDOT ITS Design Manual
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
33. GDOT – NPDES General Permit Guidance
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
34. GDOT – Bridge and Structures Design Policy Manual
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/DesignPolicies.aspx
35. GDOT – Environmental Procedures Manual
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/EnvironmentalProceduresManual.aspx
36. GDOT – Standard Specifications, Construction of Transportation Systems
http://www.dot.ga.gov/doingbusiness/TheSource/Pages/specifications.aspx
37. GDOT – Special Provisions; Shelf Special Provisions, Reference Special Provisions, Supplemental Specifications

    SharePoint Site
38. GDOT – Construction Standards and Details
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/Pages/default.aspx
39. GDOT – ROW Acquisition Guide
http://www.dot.ga.gov/localgovernment/Documents/AcquisitionGuide_2008_10-23-08.pdf
40. GDOT Statewide MS4 Permit
http://epd.georgia.gov/sites/epd.georgia.gov/files/related_files/site_page/Final_DOT_SW_NPDES_Permit_MS4_Dec_2011.pdf
41. GDOT - Design of Post-Construction BMPs
https://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/NPDES/GDOT%20Guidelines%20for%20Design%20of%20Post-Construction%20BMPs.pdf
42. Georgia Soil and Water Conservation Commission - Manual for Erosion and Sediment Control in Georgia
http://gaswcc.georgia.gov/manuals
43. Georgia State Stormwater Assessment Program
http://www.dot.ga.gov/doingbusiness/utilities/Documents/SSAPScopeOfServices.pdf
44. Bridge Inspection Evaluation Maintenance Manual
https://bookstore.transportation.org/item_details.aspx?ID=1617
45. FHWA Traffic Detector Handbook
http://www.fhwa.dot.gov/tfhrc/safety/pubs/Ip90002/intro.htm
46. FHWA Mitigation Strategies for Design Exceptions
http://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/fhwa_sa_07011.pdf
47. FHWA Traffic Monitoring Guide
http://www.fhwa.dot.gov/ohim/tmguide/index.htm

48. Occupational Safety and Health Administration Standards (OSHA)
http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=1&p_keyvalue=Construction
49. National Electrical Safety Code ANSI C2 (NESC)
http://standards.ieee.org/nesc/nesc_preprint.html
50. U. S. Environmental Protection Agency Regulations
http://www.epa.gov/lawsregs/
51. GDOT Public Information Policy Manual
52. American Railway Engineering and Maintenance-of-Way Association (AREMA)
http://www.arema.org/index.aspx
53. GDOT Work Zone Safety and Mobility Policy
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/pap/Documents/Policies/5240-1.pdf
54. GDOT –Quality Control and Quality Assurance Manual
http://www.dot.ga.gov/doingbusiness/PoliciesManuals/roads/OtherResources/GDOT_QCQA_Program.pdf
55. Federal Railroad Administration Regulations
http://www.fra.dot.gov
56. MUTCD-Standards Highway Signs and Markings
http://mutcd.fhwa.dot.gov/ser-shs_millennium.htm
57. Georgia Stormwater Management Manual
http://www.georgiastormwater.com/
58. GDOT ITS Strategic Deployment Plan (Posted on SharePoint)
59. ITE/AASHTO Traffic Management Data Dictionary (TMDD), Standards for Traffic Management Center to Center Communications Version 2.1
60. AASHTO – A Policy on Design Standards Interstate System
https://bookstore.transportation.org/item_details.aspx?ID=1175
61. Etowah Aquatic Habitat Conservation Plan Runoff Limits Manual
http://www.etowahhcp.org/runoff/runoff_limits_manual_draft_2009_09_15.pdf
62. Georgia Traffic Incident Management Guidelines
http://www.timetaskforce.com/documents/TIM/GeorgiaTIMGuidelines_FINAL_V0003.pdf
63. GDOT Construction Manual and Form Documents.

    http://www.dot.ga.gov/doingbusiness/TheSource/Pages/construction.aspx
64. Other manuals, documents, procedures and standards as referenced in the DB Documents.