EXHIBIT 1

Technical Specifications

for

Consent Decree-Ongoing Sewer Assessment and Rehabilitation Program (OSARP)

For

Major Gravity Sewer Line Capacity Restoration

August 26, 2019

Owner:

DeKalb County

Department of Watershed Management

1580 Roadhaven Drive

Stone Mountain, Georgia 30083

(770) 414-6181

SECTION 00000

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SECTION 01010

SUMMARY OF WORK

PART 1 — GENERAL

1.01 PURPOSE AND NEED

A. DeKalb County Department of Watershed Management's (DWM) Wastewater Collection and Transmission System (WCTS) includes an estimated 2,700 miles of sanitary sewer lines, 66 lift stations and 70,000 manholes. Per the Consent Decree (CD) entered with the United States Environmental Protection Agency, the County is implementing continuous sanitary sewer assessment and rehabilitation aimed at minimizing sanitary sewer overflows (SSOs). Pursuant to this effort, DWM has developed the Ongoing Sewer Assessment and Rehabilitation Program (OSARP) to provide for the identification, delineation, prioritization, and rehabilitation of Areas within DWM's WCTS. Under OSARP, Ranking Areas were identified and delineated, comprising of approximately two-thirds of the WCTS.

1.02 SCOPE OF WORK

A. The scope of work (excluding force mains and pump stations) includes TISCIT assessment for sanitary sewer lines >16" diameter, cleaning where directed, and post TISCIT assessment as verification of the cleaning process. In addition, the work will include Manhole Condition Assessment (MCA-Level 1 and Level 2), GPS surveys (Survey Grade and Mapping Grade) as defined in the specifications, and Stream Encroachment Assessments as assigned. The TISCIT/Cleaning work will be on specified assets located County-wide for large diameter lines (>16") with the main lines located as depicted on Attachment A. The Contractor will be provided with Work Orders and mapping in digital format (mobile map, ESRI shape file and/or geodatabase) based upon the current County GIS data maps specifying the asset ID's for the line segments to be assessed. Stream walks will be performed on specified assets along and crossing streams as specifically assigned by map and work order with locations County-wide.

B. The Program Manager will specify the sequencing and location including asset ID for the pipe segments to be assessed and for those pipe segments requiring cleaning.

C. The Work will include, but is not limited to, the following work activities to perform the assessment inspections and to gain access to perform the inspections as further defined in the Specifications of this Contract:

1. Data Management and associated QA/QC.
2. PACP TISCIT inspections for large diameter sewers
3. Cleaning of large diameter sewer mains where directed.
4. Easement access route construction, easement access clearing and associated right-of-entry coordination, where required.
5. Exposing and raising manholes to facilitate assessment.
6. Asset (sewer main and manhole) locating, MCA and GPS data collection, where required.

a. MACP:

1) Level 1: Structures properly mapped;

2) Level 2: Structures not mapped or improperly mapped

b. GPS Positioning:

1) Level 1: Survey grade (±1 cm) for all manholes not mapped or improperly mapped;

2) Level 2: Mapping grade for all other manholes as directed

7. Erosion Control as required for access or other construction.
8. Site Restoration as a result of providing access to assets, including but not limited to removal and/or replacement pavement, hardscape & landscaping features.
9. Access to assets will be in accordance with DWM's Community Outreach requirements which are meant to minimize impact to the citizens of DeKalb County.
10. Coordination with work by others.
11. Daily inspection status reporting using web-based mobile devices and production log copies.
12. Inspections for stream encroachments

D. All Work shall be performed in accordance with the requirements of the Contract Documents.

E. The Contractor shall perform work conforming to the Pipeline Assessment & Certification Program (PACP) for pipe inspections and the Manhole Assessment & Certification Program (MACP) as defined by the National Association of Sewer Service Companies (NASSCO) for all inspection and assessments as applicable and required of the Contract Documents.

F. Establish horizontal and vertical control utilizing RTK/GPS methodology. Primary horizontal control used or set, shall comply with Second Order Class II (1:20,000) or better. Primary vertical Control used or set, shall be Second Order Class II (0.035√m) or better

1.03 PROJECT LOCATION

A. The Work is required at multiple locations county-wide.

1.04 WORK COORDINATION

A. The Contractor shall coordinate the Work with third parties (such as public utilities, other DeKalb County departments, and emergency service providers) in areas where such parties may have rights to underground property or facilities; and request maps or other descriptive information as to the nature and locations of such underground facilities or property.

B. The Contractor shall coordinate the Work with owners of private and public property where access is required for the performance of the work. The Contractor will be required to obtain authorized access from property owners and provide

documentation to the Program Manager of such authorization as further described in the Contract Documents.

C. The Owner, through the Program Manager, will work with the Contractor to assign and schedule the work in a logical and efficient format. However, all items in this contract shall be priced so each item can be assigned independently or combined with other items at the Owner's sole discretion in regard to both quantity and scope. There shall be no consideration of any claim for extra payment arising from a decision by the Owner to assign potential work items under this contract in any combinations or in combination with another contract utilizing alternates by the Department of Watershed Management at the prices specified herein.

1.05 CONDITIONS AT THE SITES

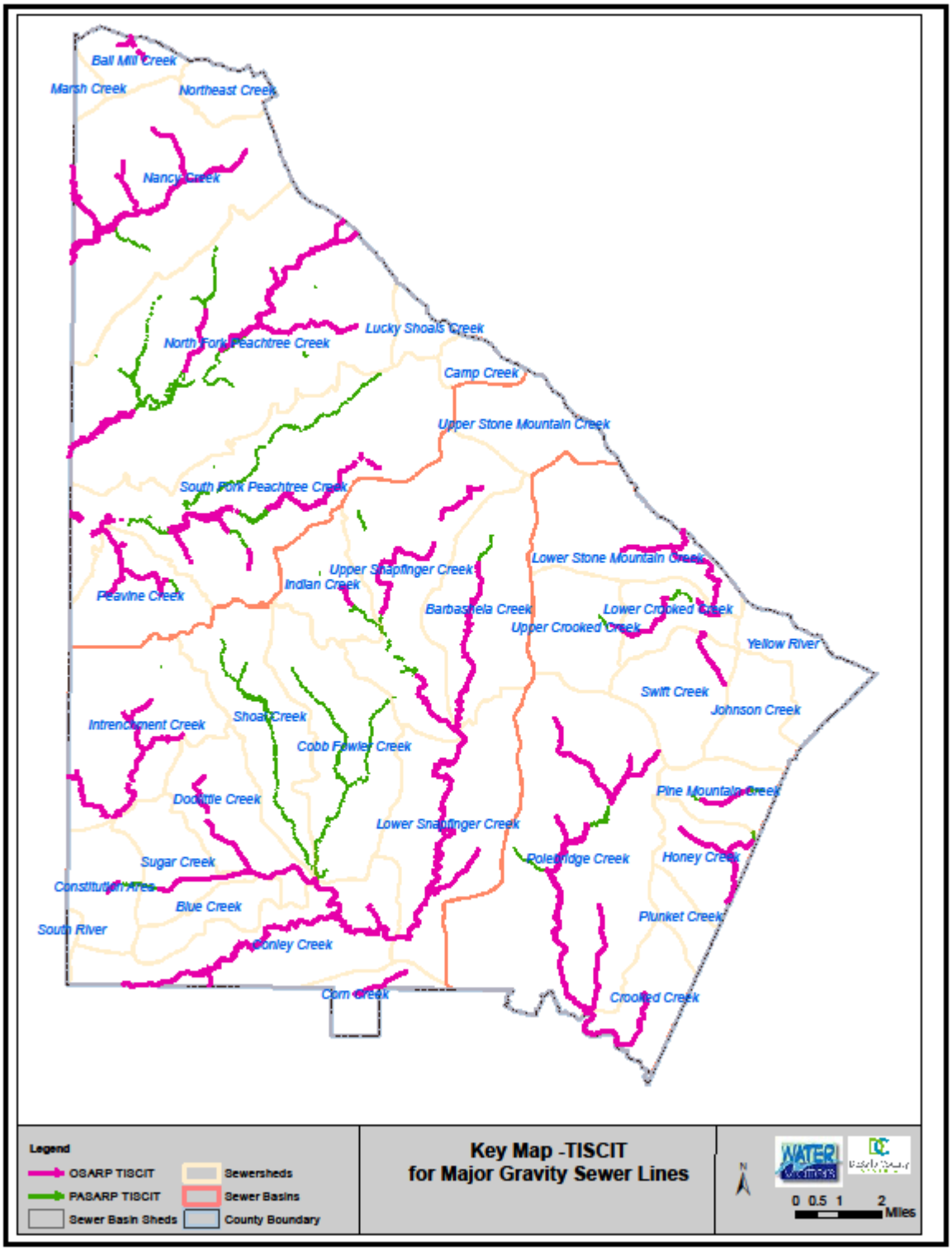
A. The Contractor shall make all necessary investigations to determine the existence and location of underground utilities and surface impacts that may be caused due to assessment activities.

B. The Contractor will be held responsible for any damage to and for maintenance and protection of existing utilities, structures, and personal property.

C. Nothing in these Contract Documents shall be construed as guarantee utilities are not located within the area of the operations.

END OF SECTION

Attachment A – Major Gravity Sewer Line Locations



END OF SECTION

SECTION 01015
CONTROL OF WORK

PART 1 — GENERAL

1.01 SECTION INCLUDES

This section includes the general use of the site including properties inside and outside of the right of way, work affecting existing utilities, roadways, streets, driveways, and traffic patterns. This section also includes requirements for notification to adjacent landowners and occupants.

1.02 PERSONNEL – COOPERATION WITHIN THIS CONTRACT

A. The Contractor shall furnish the manpower and equipment efficient, appropriate and large enough to secure a satisfactory quality of work and a rate of progress which will insure the completion of the work within the time stipulated in the Contract Documents. If at any time such project progression appears to the Owner to be inefficient, inappropriate, or insufficient for securing the quality of work required or for producing the rate of progress aforesaid, he or the Program Manager may order the Contractor to increase the project equipment and/or manpower, and the Contractor shall conform to such order. Failure of the Owner to give such order shall in no way relieve the Contractor of his obligations to secure the quality of the work and rate of progress required.

B. Cutting and patching, drilling and fitting shall be carried out where required by the trade or subcontractor having jurisdiction, unless otherwise indicated herein or as directed by the Owner or Program Manager.

PART 2 — PRODUCTS

(Not Used)

PART 3 — EXECUTION

3.01 INSTALLATION

A. PRIVATE LAND

The Contractor shall not enter or occupy any private land outside of easements, except by permission of the property owner and the County per the Public Notification requirements listed in all applicable Specification Sections.

B. MAINTENANCE OF TRAFFIC

1. Temporary Traffic Control shall be in accordance with the Manual On Uniform Traffic Control Devices (MUTCD) including necessary certifications as indicated in the Manual for responsible individuals (MUTCD Part 6C.01.03).
2. Unless permission to close the street is received in writing from the proper authority, all excavated material shall be placed so vehicular and

pedestrian traffic may be maintained at all times. If the Contractor's operations cause traffic hazards, the Contractor shall repair the road surface, provide temporary ways, erect wheel guards or fences, or take other measures for safety.

3. Detours around construction or assessment will be subject to the approval of the Owner and/or Program Manager and permitting authority. Where detours are permitted, the Contractor shall provide all necessary barricades and signs as required to divert the flow of traffic. While traffic is detoured, the Contractor shall expedite construction operations to minimize impacts to the flow of traffic. Allowable periods when traffic is being detoured will be strictly controlled by the Owner.

4. The Contractor shall take precautions to prevent injury to the public due to open trenches. Night watchmen may be required where special hazards exist, or police protection provided for traffic while work is in progress. The Contractor shall be fully responsible for damage or injuries whether or not police protection has been provided. Uniformed police officers from the jurisdiction in which the work is being performed are required where temporary traffic control extends through a signalized intersection and/or when required as a requirement of the permitting authority.

C. WORK WITHIN GDOT RIGHT-OF-WAY

1. All roadway restoration shall be done in accordance with the lawful requirements of the authorities within whose jurisdiction such pavement is located.

2. All highway utilities and traffic controls are to be maintained and work shall conform to the rules and regulations of the authorities, including the use of standard signs.

3. The Contractor shall furnish all such bonds or checks required by the highway authorities to ensure proper restoration of paved areas.

D. CARE AND PROTECTION OF PROPERTY

1. The Contractor shall be responsible for the preservation of all public and private property and shall use every precaution necessary to prevent damage thereto. If any direct or indirect damage is done to public or private property by or on account of any act, omission, neglect, misconduct in the execution of the work on the part of the Contractor, such property shall be restored by the Contractor, at his expense, to a condition similar or equal to that existing before the damage was done.

2. All sidewalks disturbed by the Contractor's operations shall be restored to their original condition by the use of similar or comparable materials. All curbing shall be restored in a condition equal to the original construction and in accordance with the best modern practice.

3. Along the location of this work all fences, walks, bushes, trees, shrubbery, and other physical features shall be protected and restored in a thoroughly workmanlike manner. Fences and other features removed by the Contractor shall be replaced in the original location as soon as conditions permit. All grass areas beyond the limits of

construction damaged by the Contractor shall be regraded and seeded or sodded to match existing ground cover.

4. The protection, removal, and replacement of existing physical features along the line of work shall be a part of the work under the Contract, and all costs in connection therewith shall be included in the unit and/or lump sum prices established under the items in the Contract Documents.

E. PROTECTION AND RELOCATION OF EXISTING STRUCTURES AND UTILITIES

1. The Contractor shall assume full responsibility for the protection of all buildings, structures, and utilities, public or private, including poles, signs, services to buildings, utilities in the street, such as pipes, water pipes, hydrants, sewers, drains, and electric and telephone cables. The Contractor shall carefully support and protect all such structures and utilities from injury of any kind. Any damage resulting from the Contractor's operations shall be repaired by him at his expense.

2. Protection and temporary removal and replacement of existing utilities and structures as described in this Section shall be considered as extra work and all costs in connection therewith shall be as outlined in the Contract Documents.

3. If, in the opinion of the Owner, permanent relocation of a utility is required, he may direct the Contractor, in writing, to perform the work. Work so ordered will be paid for at the Contract unit prices, if applicable, or as extra work under the General Conditions. If relocation of a privately owned utility is required, the Owner will notify the Utility to perform the work as expeditiously as possible. The Contractor shall fully cooperate with the Owner and Utility, and shall have no claim for delay due to such relocation. The Contractor shall notify public utility companies in writing at least 48 hours (excluding Saturdays, Sundays, and legal holidays) before excavating in any public way.

F. WATER FOR CONSTRUCTION PURPOSES

The approval of the Owner shall be obtained before County water is used. Hydrants shall only be operated under the supervision of the Owner. Contractor shall be responsible for obtaining a hydrant meter from the Owner for this water use as directed by the Program Manager. Contractor shall be responsible for all costs and water charges associated with the use of a hydrant meter(s). County charges for meter(s) rental and water usage paid by the Contractor will be reimbursed via the monthly pay request process when those charges and supporting documents are submitted for payment and verified by the Program Manager.

G. SANITARY LANDFILL

The Contractor is responsible for the proper removal and disposal of any debris and sedimentation in the existing sewers, laterals, and manholes, etc., attributable to his work under this Contract. The debris and liquids are to be disposed of properly in accordance with all applicable laws. The Owner/Program Manager will furnish a letter to the County Sanitation Department stating the contractor is authorized to dispose

of the non-hazardous materials at the Seminole Road Landfill. Debris and liquids type and quantities are to be tracked in the daily Contractor diary. Hauling and disposal costs will be borne by the Contractor. Disposal costs (landfill costs only) will be reimbursed the Contractor via the monthly pay request process when those charges and supporting documents indicating payment and tonnage are submitted for payment and verified by the Program Manager.

H. MAINTENANCE OF FLOW

The Contractor shall at his own cost, provide for the flow of sewers, drains, and water courses interrupted during the progress of the work. The entire procedure of maintaining existing flow shall be fully discussed with the Owner well in advance of the interruption of any flow.

3.02 CLEANUP

During the course of the work, the Contractor shall keep the site of his operations in as clean and neat a condition as possible. The Contractor, at his own cost, shall dispose of any and all residues resulting from the construction work and, at the conclusion of the work; the Contractor shall remove and haul away any surplus excavation, broken pavement, lumber, equipment, temporary structures, and any other refuse remaining from the construction operation. The Contractor shall leave the entire work site in a neat and orderly condition.

END OF SECTION

SECTION 01020 ALLOWANCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

This section includes administrative and procedural requirements governing allowances.

1.2 QUALIFICATIONS AND REQUIREMENTS

A. Contractor agrees a contingency allowance, if any, is for the sole use of the Owner to cover unanticipated costs for additional related work.

B. Selected materials and equipment, and in some cases, installation is included in Contract Documents by cash allowances. Allowances are established to defer selection or scope until more information is available. Other requirements will be issued by a Change Order.

C. Allowances are included in the Bid Tab for miscellaneous modifications, additional work necessary to provide access to the system for assessment, and other unforeseen conditions.

D. Procedures for submitting and handling Change Orders are included in General Conditions of these Contract Documents.

1. For work covered under this Section, the Contractor will provide a cost proposal for the work to be accomplished under the allowance and for consideration by the Program Manager. No work will be authorized without a written Work Directive issued by the Owner/Program Manager.
2. Related expenses not associated with current pay items may be submitted for consideration for approval under this section.

E. The allowance does not include incidental labor required to assist the Owner, or costs for retesting on failure of previous tests and inspections. The allowance does not include costs of services not required by Contract Documents.

F. Prior to final payment, an appropriate Change Order will be issued, as recommended by the Owner, to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

G. Any unused allowances will be returned to the Owner by deductive Change Order.

1.3 SCHEDULE OF ALLOWANCES

A. Unforeseen Conditions Contingency Allowance:

1. This item shall consist of miscellaneous work to be accomplished at the direction of the Owner. It shall include items of work consistent with and related to the project not indicated in the Contract Documents, but may be necessary to the successful completion of the contractual agreement. It is expected the work under this item will be accomplished utilizing pay items indicated in the Bid Tab.
2. All work performed under this section shall comply with the various sections of these specifications as appropriate to the specific items involved. This work shall be further described, by the Owner, in written form and/ or supplemental exhibits. In

any event, no work will be allowed under this section without the prior written approval of the Owner/Program Manager.

B. Owner Directed Additional Work Cash Allowance:

1. This allowance provides for related sewer assessment/rehabilitation work to be performed in conjunction with this project at the direction of the Owner. All work performed under this section shall comply with the various sections of these specifications and industry standards appropriate to the specific items involved. This work shall be further described, by the Owner, in written form and/or on modifications to the Contract Documents or supplemental exhibits. In any event, no work will be allowed under this section without the prior written approval by the Owner.

C. Owner Directed Site Restoration/Landscaping/Access Cash Allowance

1. This allowance provides for site restoration work, erosion & sediment control, access construction, etc. on private or County property outside the scope of the bid items necessary to enable the contracted assessment work. Site restoration shall only be considered for payment where property has been damaged during the course of the work, not due to contractor negligence.

1.4 SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances, in the form of a site/activity specific cost proposal.

B. Submit paid invoices for reimbursement of fire hydrant meter/water usage charges and DeKalb Sanitation Seminole Road dumping fees associated with work under this Contract.

C. Submit invoices or delivery slips to indicate quantities of materials delivered for use in fulfillment of each allowance.

D. At Project Closeout, the unused amounts remaining in the various allowances will be credited to the Owner by Change Order.

PART 2 – PRODUCTS

(Not Used)

PART 3 – EXECUTION

(Not Used)

END OF SECTION

SECTION 01025

MEASUREMENT AND PAYMENT

PART 1 — GENERAL

1.01 SECTION INCLUDES

Methods of measurement and payment for items of work under the Bidder's Unit Price Form.

1.02 SUMMARY

A. The total bid price shall cover all work required by the Contract Documents. All costs in connection with the proper and successful completion of the work, including all materials, equipment, supplies, and appurtenances; providing all equipment and tools; and performing all necessary labor and supervision to fully complete the work, shall be included in the unit and lump sum prices bid.

B. All work not specifically set forth as a pay item in the Bidder's Unit Price Form shall be considered subsidiary obligations of the Contractor and all costs in connection therewith shall be included in the prices bid.

C. All estimated quantities stipulated in the Bidder's Unit Price Form or other Contract Documents are approximate and are to be used only:

1. As a basis for estimating the probable cost of the Work.
2. For the purpose of comparing the bids submitted for the Work.

D. The basis of payment for work and materials will be the actual amount of work done and materials furnished. Payment for assessment and assessment-related activities or any other items of work for payment will be made on a linear foot, vertical foot, square foot, square yard, cubic yard, or each based on the Contractor's measurement, contingent on verification by the Owner or Owner's Representative. Contractor agrees he will make no claim for damages, anticipated profits, or otherwise on account of any difference between the amounts of work actually performed and materials actually furnished.

E. Pay requests for work performed shall be itemized by asset. The pay request should list each asset by ID number, describe the work performed per the payment bid form, provide the unit cost, and provide the extended cost. When seeking partial payment where work was attempted and could not be completed, adequate information should be provided on the pay request to justify the amount requested. Work performed on pipes should be listed in a separate table from work performed on manholes. The Program Manager will provide an example of the table format.

F. When submitting pay requests for periodic payment, the following documentation should be submitted at a minimum:

1. Contractor Payment Checklist
2. Application for Payment Form
3. Payments Summary Sheet
4. Narrative of Work Performed
5. LSBE Report/s

6. Updated Schedule for Assigned Work Activities
7. Photo Documentation of Construction Activities Illustrating Pre and Post Conditions
8. Hydrant Meter charges, payments and water usage
9. Sanitary Landfill charges, payments and tonnage

Additional instructions and/or requirements may be provided by the Program Manager at the project Kick-off meeting.

1.03 MEASUREMENT AND PAYMENT

A. GPS Locate and Data Collection (Level 1 & Level 2)– Manhole, Bid Pay Item 01056-1 - 2: Measurement for payment will be per each for the specific Level of inspection made and will constitute full compensation to locate, take coordinates, and provide attribution information as defined by the Level of Inspection per the directions provided in Section 01056. This payment includes compensation for all digital deliverables outlined in Section 01056.

1. GPS Level 1: Applies to all manholes that are found as part of the assessment process and are not mapped or are wrongly mapped on the County's system (survey grade GPS – 1 cm accuracy).
2. GPS Level 2: Applies to all manholes not requiring a Level 1 assessment (mapping grade GPS – 1 m accuracy).

B. Sonar/TISCIT Survey, 18" to 36" Diameter, Bid Items 01510-8.1-8.2: Measurement for payment will be per linear foot (LF) from center of manhole to center of manhole. Payment will constitute full compensation to perform a Sonar/TISCIT sewer pipe inspection on sewers. PACP Defect coding, header data and coding of service lateral locations are required as defined by NASSCO. There will be no separate payment made for data delivery. Payment shall only be made for the footage of sewer associated with the manhole. Maintenance of traffic and associated traffic control measures required for the work shall be included in the unit price. Costs shall include, but not limited to, labor, equipment, transportation, setup, tools, public notification, data management and all other related procedures and materials necessary to complete the inspections, in accordance with Section 01510.

C. Manhole Condition Assessment, Bid Item 01530-1-2: Measurement for payment will be per each (EA) manhole assessed. Payment will be full compensation for inspecting the full depth of the manhole, top and bottom conditions, and furnishing all labor, tools, equipment, public notification, data management and assessment necessary to perform all work in accordance with MACP Level 1 or Level 2 assessments as directed. Payment shall not be made until digital data files and reports are delivered and show complete and accurate information.

1. MACP Level 1 Assessment: Applies to all manholes that are found as part of the assessment process and are not mapped or are wrongly mapped on the County's system (Level 1 GPS).
2. MACP Level 2 Assessment: Applies to all manholes not requiring a Level 1 assessment (Level 2 GPS).

D. Sanitary Sewer Stream Encroachment Assessment, Bid Item 01535-1: Measurement for payment for Inspections, Sanitary Sewer Stream Encroachment will

be per Linear Foot (LF) complete and accepted and shall include all costs associated with the inspection as required by this specification including, but not limited to, documentation, coordination, public notification, data management including hardware and inspection media, and deliverables. Payment will be full compensation for furnishing all labor, tools, equipment and assessment necessary to perform all work. Payment shall not be made where database entries are incomplete, where recorded data are inconsistent or illegible, or where photographs are not present or are not properly staged and/or inclusive of required information. Payment shall not be made until digital data files and reports are delivered and show complete and accurate information. Payment will be based upon the GIS mapping distance between manholes unless proven otherwise.

E. Remove Protruding Lateral, Bid Item 02956-1: Measurement for payment will be per each (EA) for each protruding service lateral removed. Payment will constitute full compensation for cutting and/or grinding down protruding service laterals, including, but not limited to, labor, equipment, transportation, tools, and all other related procedures and materials necessary to produce the results specified in Section 02956. Contractor will advise the Program Manager in writing prior to proceeding.

F. Erosion and Sedimentation Control (suitably installed and maintained per the Manual for Erosion and Sediment Control of Georgia, Latest Edition): No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Clearing, Easement Access Road, etc) as a part of a work directive (appropriate allowance) for the activity with which the Erosion Control Item(s) is associated and shall constitute full compensation for all costs associated with Erosion and Sediment Control Best Management Practices, including installation, maintenance, repair, and removal. Quantities for payment shall be based upon actual quantity authorized by the Owner. Erosion and sedimentation control measures shall comply with the requirement of Sections 02110 and 02276 of these Specifications; the Georgia Erosion and Sedimentation Act of 1975, as amended; the Manual for Erosion and Sediment Control of Georgia, latest edition; and local soil erosion and sedimentation control ordinances.

G. Easement Access Road, Section 02110: No measurement for payment will be made. Payment will be made under the appropriate Allowance at the site specific price quoted and agreed upon by the Program Manager and shall constitute full compensation for all costs associated with installation, maintenance, repair, and removal of the Access Road and will include Clearing, Erosion & Sediment Control and all other activities ancillary to the work.

H. Easement Clearing, Light & Medium, Section 02110:: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc) as a part of a work directive (under appropriate allowance) for the activity with which the Easement Clearing Item is associated and shall constitute full compensation for all costs associated with tree protection fence, including installation, maintenance, repair, and removal and other ancillary items. Payment will constitute full compensation for easement clearing, including, but not limited to labor, equipment, transportation, tools, and other related procedures and materials necessary to remove vegetation and other debris on or near the surface of the ground in the construction area to produce the results specified in Section 02110. Easements will be cleared of debris or obstructions impeding access to work areas. Maintenance of traffic and associated traffic control measures required for the work shall be included in the cost proposal for the work directive.

I. Easement Clearing, Heavy, Section 02110:: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc) as a part of a work directive (under appropriate allowance) for the activity with which the Easement Clearing Item is associated and shall constitute full compensation for all associated costs including, but not limited to, labor, equipment, transportation, tools, and other related procedures and materials necessary to remove vegetation and other debris on or near the surface of the ground in the construction area to produce the results specified in Section 02110. Easements will be cleared of debris or obstructions impeding access to work areas. Maintenance of traffic and associated traffic control measures required for the work shall be included in the cost proposal for the work directive.

J. Tree Protection Fence, Section 02110: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc) as a part of a work directive (under appropriate allowance) for the activity with which the Tree Protection Fence (suitably installed and maintained per the Manual for Erosion and Sediment control of Georgia, latest edition) is associated and shall constitute full compensation for all costs associated with tree protection fencing, including installation, maintenance, repair, and removal.

K. Tree/Shrubbery Restoration, Section 02110: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc) as a part of a work directive (under appropriate allowance) for the activity with which the Tree/Shrubbery Restoration Item is associated and shall constitute full compensation for all associated costs for removing and replacement trees and/or shrubbery on private property, including, but not limited to, labor, equipment, transportation, tools, and other related procedures and materials necessary. Payment will constitute full compensation for removing and replacing trees or shrubbery on private property. Replacement may include removal and replanting, or replacing with new (as directed by the Owner/Program Manager) in accordance with Section 02110.

L. Chain Link Fence Removal & Replacement, Section 02110: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc.) as a part of a work directive (under appropriate allowance) for the activity with which the Fence Removal & Replacement Item is associated and shall constitute full compensation for all costs associated with remove & replace fence, including installation, maintenance, repair, and removal and other ancillary items. Payment will constitute full compensation for removing and replacing chain link fence, in kind, on public or private property in accordance with Section 02110.

M. Wood Fence Removal & Replacement, Section 02110: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc.) as a part of a work directive (under appropriate allowance) for the activity with which the Fence Removal & Replacement Item is associated and shall constitute full compensation for all costs associated with remove & replace fence, including installation, maintenance, repair, and removal and other ancillary items. Payment will constitute full compensation for removing and replacing wood fence, in kind, on public or private property in accordance with Section 02110.

N. Riprap, Section 02273: No measurement for payment will be made. Payment will be made under the appropriate Allowance at the site specific price quoted and agreed upon by the Program Manager and shall constitute full compensation for all costs associated with installation, maintenance, and repair of the Rip Rap. Payment will include filter fabric underlayment at a minimum 18 inch depth, or as directed by the Program Manager. When crossing a stream or ditch, the quantity eligible for payment shall be limited to 10 feet upstream and 10 feet downstream of top of disturbed area and from five feet from the top of bank, across a creek or ditch, banks and bottoms, to five feet beyond top of bank. Any areas at creeks or ditches disturbed by the Contractor requiring riprap shall be riprapped at no cost to the Owner.

O. Check Dam (Hay Bales) Section 02276: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc.) as a part of a work directive (under appropriate allowance) for the activity with which the Check Dam Item is associated and shall constitute full compensation for all costs associated with grading, installation(suitably installed and maintained per the Manual for Erosion and Sediment Control of Georgia, Latest Edition), maintenance, repair, and removal.

P. Inlet Sediment Trap, Section 02276: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc.) as a part of a work directive (under appropriate allowance) for the activity with which the Inlet Sediment Trap is associated and shall constitute full compensation for all costs associated with grading, installation (suitably installed and maintained per the Manual for Erosion and Sediment Control of Georgia, Latest Edition), maintenance, repair, and removal. Contractor shall be responsible for installing the number of sedimentation traps to adequately capture silt, thus minimizing silt leaving construction sites.

Q. Temporary Creek Crossings, Section 02276: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc) as a part of a work directive (under appropriate allowance) for the activity with which the Temporary Creek Crossing is associated and shall constitute full compensation for all costs associated with grading, installation (suitably installed and maintained per the Manual for Erosion and Sediment Control of Georgia, Latest Edition), maintenance, repair, and removal.

R. Sodding, Section 02485:: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc) as a part of a work directive (under appropriate allowance) for the activity with which the Sodding is associated and shall constitute full compensation for all costs associated with fine grading, fertilizing, and sodding previously landscaped areas on public or private property in accordance with Section 02485. Disturbed areas shall be sodded only when directed to do so by the Program Manager.

S. Seeding, Section 02486:: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc.) as a part of a work directive (under appropriate allowance) for the activity with which the Seeding is associated and shall constitute full compensation for all costs associated with fine grading, fertilizing, and seeding previously landscaped areas on public or private property in accordance with Section 02486..Grass seeding shall match in kind the existing adjacent grass of previously landscaped areas. Soil preparation and/or topsoil shall be included.

T. Silt Fence, Section 02542:,: No measurement for payment will be made. Payment will be included in the price bid for other items (i.e. Easement Access Road, etc) as a part of a work directive (under appropriate allowance) for the activity with which the Silt Fence (Type C silt fence(single row or double row, suitably installed and maintained per the Manual for Erosion and Sediment control of Georgia, latest edition)) is associated and shall constitute full compensation for all costs associated with Silt Fence, including installation, maintenance, repair, and removal.

U. Adjusting Manhole Height Up To 12", Bid Item 02607-1: Measurement for payment will be per each (EA) manhole for removing the casting frame and building up the chimney section of the manhole no more than 12 inches (reuse existing casting frame and cover). Payment will constitute full compensation for all costs for uncovering and/or adjusting each manhole to grade or higher including, but not limited to, labor, equipment, transportation, tools, and all other related procedures and materials necessary to produce the results specified in Section 02607. Replacement MH frame & cover castings, when required, will be provided by the Owner at no cost to the Contractor. Contractor will advise the Program Manager in writing prior to proceeding. There shall be no distinctions made for diameter of the manhole or its material composition. No separate payment shall be made for resetting existing manhole frames and covers. This work shall be considered an integral part of raising manholes. Maintenance of traffic and associated traffic control measures required for the work shall be included in the unit price.

V. Adjusting Manhole Height Greater Than 12", Bid Item 02607-2: Measurement for payment will be per vertical foot (VF) of manhole replaced exclusive of the manhole frame height. No separate payment will be made for 12" or less height adjustment Bid item 02607-5.3 above. Payment will constitute full compensation for all costs for uncovering and/or adjusting each manhole to grade or higher including, but not limited to, labor, equipment, transportation, tools, and all other related procedures and materials necessary to produce the results specified in Section 02607. Replacement MH frame & cover castings, when required, will be provided by the Owner at no cost to the Contractor. The Contractor will advise the Program Manager in writing prior to proceeding. There shall be no distinctions made for diameter of the manhole or its material composition. No separate payment shall be made for resetting existing manhole frames and covers. This work shall be considered an integral part of raising manholes. Maintenance of traffic and associated traffic control measures required for the work shall be included in the unit price.

W. Locate & Expose Manhole, Street & Non-Street, Bid Items 02607-4 & 5: Measurement for payment will be per each (EA) buried manhole located and exposed. There shall be no distinctions made for the diameter or invert depth of the manhole exposed. Manholes located beneath brick, cobbles, concrete or asphalt pavement sections will be considered "beneath street section". All other locations shall be considered "non-street section." Payment shall be made at the bid price for each buried manhole acceptably located and exposed and will constitute full compensation for furnishing all labor, materials, tools, and equipment necessary to perform all work. Manholes with minor ground litter and/or minor soil cover will not be considered buried if that manhole is in the approximate location provided by County records.

X. Road Pavement Patch, Section 02700: No measurement for payment will be made. Payment will be made under the appropriate Allowance at the site specific price quoted and agreed upon by the Program Manager and shall constitute full

compensation for all costs associated with the removal and disposal of existing pavement and placement of new pavement including restoration of existing pavement markings in accordance with the appropriate State/County standard. The price shall include, but not be limited to, labor, equipment, materials, transportation, permit acquisition and tools required to perform the work in accordance with the Georgia Department of Transportation Standard Patching Details (Number 1401). (Note: A copy of the Standard Details is available online at http://www.dot.state.ga.us/). Maintenance of traffic and associated traffic control measures required for the work shall be included in the unit price.

Y. Cleaning & Verification Bid Item 02956-4.1-4.6: Measurement for payment will be per linear foot (LF), measured along the centerline of the pipe, from centerline of structure to the end of survey or centerline of structure to centerline of structure, whichever is applicable. Payment will constitute full compensation for Program Manager or Owner's Representative authorized Cleaning completed and approved per Specification Section 02956. No payment will be made for any unauthorized Cleaning. No separate payment will be made for mobilization/demobilization that might be required to perform the Cleaning and to continue with Post TISCIT inspections. Maintenance of traffic and associated traffic control measures required for the work shall be included in the unit price. Costs shall include, but not limited to, labor, equipment, transportation, setup, tools, and all other related procedures and materials necessary to complete the Heavy Cleaning in accordance with Specification Section 02956.

1. Cleaning will be classified by pipe size and the Average Cross Sectional Area Blockage and will be determined by the actual measured (Pre-TISCIT) volume of deposits and other debris found in the pipe:
   a. <15%: Where the volume of debris/deposits/in the pipe segment calculated over the length of the total line segment equates to that of a line segment holding 15% blockage for that length (MH to MH);
   b. 15% - ≤ 25%: Where the volume of debris/deposits/in the pipe segment calculated over the length of the total line segment equates to that of a line segment holding 15% blockage for that length but less than or equal to that calculated over the total length of the line segment holding 25% blockage for the length (MH to MH);
   c. >25%: Where the volume of debris/deposits/in the pipe segment calculated over the length of the total line segment exceeds that of a line segment holding 25% blockage for the length of pipe (MH to MH);
   d. If the entire length of pipe cannot be assessed, the cleaning assignment will be based on the level as calculated for the length of pipe assessed.
2. Cleaning will not be considered complete and accepted until a Post-TISCIT verification (PACP standard) is performed indicating no deposits/obstructions in excess of 5%.

Z. Hydrant Meter/Water Consumption Charges: The Contractor will pay all fees associated with the acquisition, monthly charges, and water consumption associated with the Contract. These consumption charges will be reimbursed the Contractor as a part of the pay application process upon application for payment accompanied by backup information relative to consumption and payment.

AA. Sanitary Landfill: The Contractor will pay all disposal fees associated with the utilization of the County's Seminole Road Landfill. These County Sanitation Department charges will be reimbursed the Contractor as a part of the pay application process upon application for payment accompanied by backup information relative to fees and payment. No payment will be made for the use of landfills other than the County's facility.

END OF SECTION

SECTION 01030

SPECIAL PROJECT PROCEDURES

PART 1 — GENERAL

1.01 SECTION INCLUDES

This section includes responsibilities and requirements of the Contractor specific to this project.

PART 2 — PRODUCTS

(Not Used)

PART 3 — EXECUTION

3.01 INSTALLATION

A. The Contractor shall provide labor and material in a timely manner and of sufficient quantities to result in the performance of, but not limited to, the following:

1. Daily removal of all sanitary debris, work debris and trash resulting from any work activities identified within the Contract Documents. Disposal locations for any sanitary debris and/or hazardous materials shall be approved prior to disposal. Disposal of sanitary debris and/or hazardous materials shall be disposed only at approved locations. Manifests of hauling and disposal of such material shall be submitted to the Program Manager by the Contractor.
2. If any discrepancies exist between drawings and specifications, the more stringent shall apply.
3. Coordinate with all trades and other Owner or Program Manager work that may occur at or near the project location as generally described below.
4. It is this Contractor's responsibility to advise the Program Manager as to any discrepancies in the work of others prior to starting the work.
5. All field engineering and layout required for this work shall be the responsibility of this Contractor. The Contractor is expected to utilize off-road equipment so as to reduce the necessity for non-assessment work.
6. All protection of finished work, including the work of others shall be the responsibility of this Contractor.
7. The Contractor agrees to attend meetings promptly and their company will be represented with an authorized field representative and an authorized office representative capable and responsible for committing to delivery, manpower and completion dates for their work assignments
8. The Contractor agrees all forms and reports (including technical date reports and forms) required by the Owner and Program Manager will be completed as required of these Specifications or as otherwise directed. Failure to submit these completed on time could result in a delay in payment.

9. The Contractor agrees all Change Order work will be agreed upon in writing and signed by the Program Manager and the Owner before this work will begin.

10. The Contractor agrees to properly protect all materials and Owner assets from damage resulting from Contractor's work activities and assumes responsibility to replacement of such materials at their cost. This cost will be assessed by back charge and incorporated into a change order by the end of the month.

11. The Contractor agrees to properly protect all materials from damage by weather and assumes responsibility to replacement of such materials at their cost.

12. The Contractor agrees to work within the defined work hours of the Owner being typically 8:00 a.m. to 5 p.m. or other hours as directed by the Owner or Program Manager to adhere to the requirements of the Work, including those related to Public Outreach and Notification. The Contractor agrees to perform all necessary overtime to get their work back on schedule if necessary. If due to this Contractor's failure to perform in a timely manner, premium time is required by any other Contractor(s) to bring the project back to the original schedule, the cost of such premium time shall be borne solely by the Contractor.

13. The Contractor agrees to provide certificates of insurance prior to their mobilization. Prior to commencing work provide a current copy of the workman's compensation and liability insurance certificate.

14. The Contractor assumes responsibility for insurance coverage on all their equipment and tools against theft and damage. No claims will be registered against the Owner for loss of same. The Contractor will not lien the project for payment of any claims on equipment loss or damage due to vandalism or any other form.

15. The Contractor will abide by all OSHA requirements and/or instruction from the Program Manager and/or supervising and/or competent field personnel to make a safe work area. OSHA requirements to be the minimum safety level accepted.

16. Contractor agrees to respond to all Contractor change notifications within 24 hours and further to provide the Program Manager and/or Owner with the complete change estimate cost data within 7 calendar days.

17. Contractor shall provide fulltime onsite supervision of their work.

18. Contractor agrees with the performance schedule for each assessment assignment as established by the Program Manager and will provide any necessary measures required to achieve and maintain this schedule at no additional cost to the Owner, Program Manager and Owner's Representative.

19. Contractor agrees to provide all required submittals and receive approvals relative to crew supervisory personnel, manpower safety and training certifications, and equipment specifications prior to performing any field work. The Contractor will not occupy any assigned job site without a properly badged workforce and having other permissions including an approved Traffic Control Plan.

B. RESPONSIBILITY FOR OVERFLOWS/SPILLS AND DAMAGE TO PROPERTY AND UTILITIES:

1. Lodged Equipment (cameras, nozzles, cutters, etc.,):
   a. In the case where damage to the County infrastructure is caused by the Contractor, for any reason, such as would be caused by incorrect deployment of equipment or retrieval of lodged equipment, the cost of repair or remedy shall be borne solely by the Contractor and repaired immediately (repair work to begin within 24-hrs)
   b. Equipment lodged within the sewer main may require an external point repair to retrieve. For Contracts with applicable point repair pay items, the equipment will be retrieved under the applicable line item(s). If an applicable line item(s) is not included in the Contract, the Contractor will provide the County a cost proposal from three (3) qualified contractors capable of completing the work for review. The County will review the circumstances leading to the equipment becoming lodged and make a decision as to payment-to the Contractor for the necessary removal: none, partial, or all.
   c. Should the Contractor have equipment lodged in a sewer line, the Contractor will immediately have on standby, forces necessary to monitor the sanitary sewer collection system upstream of the obstructed line so as to prevent a sanitary sewer overflow and to install by-pass pumping if necessitated. Should the Contract not have a pay item for by-pass pumping, the Contractor will provide a cost proposal to the County representing the total cost of providing an appropriately sized and engineered continuous by-pass operation. The Project Manager as part of the review the circumstances leading to the equipment becoming lodged will make a decision as to payment-to the Contractor for the by-pass pumping: none, partial, or all.
   d. As a result of b and c, lodged equipment not associated with Contractor negligence will be removed by the Contractor at an agreed upon price at the direction of the County. Payment will be under the appropriate line item(s) if present or under the appropriate allowance.

2. It shall be the responsibility of the Contractor to schedule and perform the Work in a manner not causing or contributing to incidences of sanitary sewer overflows (SSOs) as defined in the latest Consent Decree.

3. In the event the Contractor's activities cause or contribute to SSOs, the Contractor shall immediately take appropriate action to contain and/or stop the overflow; cleanup the spillage, and disinfect the area affected by the SSO. Simultaneously, the Contractor will notify the Owner's Dispatch Center, the Owner, and the Program Manager to provide information concerning location, cause, volume of the SSO, and assessment whether the spill entered a stream or storm drain. The Contractor shall be familiar with the details of spill response referred to in the Sanitary Sewer Overflow Contingency and Emergency Response Plan (CERP) approved by Owner. This document can be found on Department of Watershed Management website under the Consent Decree Program or upon request to the Owner or Program Manager.

4. The Contractor shall indemnify and hold harmless the Owner and the Owner's Representatives (including the Program Manager) for any fines or third-party claims for personal or property damage arising out of an SSO that is fully or partially the responsibility of the Contractor, including the legal, engineering, and administrative expenses of the Owner and Owner's Representatives (including the Program Manager) in defending such fines and claims.

5. Any damage to public or private property due to the work performed by the Contractor is the sole responsibility of the Contractor. Any damage to County or private utilities caused by the Contractor's equipment or operation shall be repaired in a manner approved by the Owner/Program Manager at the Contractor's expense. Any damage caused by the Contractor to utilities or property belonging to other entities shall be repaired by the Contractor to the satisfaction of the utility/property owner at the Contractor's sole expense. Any equipment stuck or left in the sewer line/lateral shall be retrieved by the Contractor within twenty-four (24) hours. The Contractor is expected to use due caution when cleaning and assessing the sewer line segments and equipment stuck in the line due to the Contractor's negligence will require that equipment be recovered at the sole expense of the Contractor. If the equipment becomes lodged during the course of normal activities and not as a result of Contractor negligence or misuse, the removal will be paid as time and materials. Any damage to the Contractor's equipment is the Contractor's sole responsibility. If the equipment is stuck or left in the sewer line/lateral causes a SSO, then the Contractor is liable for the SSO and all associated damages.

6. The Owner (and the Program Manager) reserves the right to make any repairs or retrieve any equipment and charge the Contractor accordingly.

C. EXISTING UNDERGROUND PIPING, STRUCTURES, AND UTILITIES

1. The attention of the Contractor is drawn to the fact that during any earth disturbing activity, the possibility exists of the Contractor encountering various water, gas, telephone, electrical, or other utility lines not indicated. The Contractor shall exercise extreme care before and during any land disturbing activity to locate and flag these lines so as to avoid damage to the existing lines. Should damage occur to an existing line, the Contractor shall repair the line at no cost to the Owner.

2. The locations of existing underground piping structures and utilities are shown without express or implied representation, assurance, or guarantee that they are complete or correct or that they represent a true picture of underground piping to be encountered.

3. The existing piping and utilities that interfere with any assessment or construction to facilitate assessments shall be rerouted as shown, specified, or required. Before any piping and utilities not shown on the Drawings are disturbed, the Contractor shall notify the Program Manager of the location of the pipeline or utility and shall reroute or relocate the pipeline or utility as directed.

4. The Contractor shall exercise care in locating existing piping and utilities. All utilities, which do not interfere with complete work, shall be carefully protected against damage. Any existing utilities damaged in any way by the Contractor shall be restored or replaced by the Contractor at its expense as directed by the Program Manager.

D. HAZARDOUS LOCATIONS

The existing wet wells, manholes and related areas may be considered hazardous locations, in that explosive concentrations of sewage gas may be present. Compliance with 29 CFR 1910 and 1926 is required at all work locations.

E. WATER FOR CONSTRUCTION PURPOSES

Water as required for the work identified in the Contract will be furnished by the Owner if readily available connections are present and only as approved by the Program Manager. There shall be installed in each and every connection to the Owner's potable water supply, a backflow preventer and calibrated metering device meeting the requirements of the Owner. The Contractor is expected to pay all fees associated with the meter usage (monthly charge, consumption fee) and those fees will be reimbursable under the monthly pay application process when submitted for payment with accompanying backup information.

F. Sanitary Landfill

Sanitary Landfill facilities located at the County's Seminole Road Landfill will be provided to the Contractor for the proper disposal of cleanings and other debris generated through the work. The Contractor is responsible for the proper removal and disposal of any debris and sedimentation in the existing sewers, laterals, and manholes, etc., attributable to his work under this Contract. The debris and liquids are to be disposed of properly in accordance with all applicable laws. The Owner/Program Manager will furnish a letter to the County Sanitation Department stating the contractor is authorized to dispose of the non-hazardous materials at the Seminole Road Landfill. Debris and liquids type and quantities are to be tracked in the daily Contractor diary. The Contractor is expected to pay all disposal fees associated with the landfill and those fees will be reimbursed the Contractor under the monthly pay application process when submitted for payment with accompanying backup information.

G. CITYWORKS®

The Contractor will be required to provide updates to work orders received via the County's Cityworks asset management platform as work progresses. The Contractor shall provide field and office staff names and email addresses to the Program Manager for login access to the Cityworks platform, and Contractor will be responsible for providing a computer or tablet with internet access for use of the system. The Program Manager will provide access to the site, technical support, and training of up to three hours of instruction detailing how the Contractor shall receive and populate the work orders. The Contractor will provide appropriate employees for training at no cost to the County.

H. MOBILE MAPPING TOOL

The Contractor will be required to provide daily updates to a live web mapping tool to document the location and progress of the work. The tool will display the County's sewer system and asset identification numbers as well as the work area limits. The Contractor shall provide their own tablet or laptop with internet connection and shall download the free ESRI Collector (latest version compatible with AGOL 10.3) application if using a tablet. Each crew shall be equipped with mobile mapping capabilities to update the work progress during the day. The Contractor can choose to update the day's progress at the end of the day or the next day prior to beginning work. The intent is for the Contractor's work progress performed during the day to be entered and viewable to the Program Manager by the start of the Contractor's next work day. The Contractor shall provide an email address so that the Program Manager may set up a login for Contractor access to the web mapping tool. The Contractor will be able to perform simple edits to the web map such as placing points/symbols on assets on which work has been performed. Symbols will primarily represent the type of work accomplished. The Program Manager will provide the mobile mapping tool to the Contractor, including access and technical support. The Contractor shall provide any necessary hardware. The Program Manager will provide up to two hours of instruction on how the contractor shall populate the live web mapping tool.

I. DAILY CCTV/TISCIT/CLEANING VERIFICATION PRODUCTION REPORTS

For tracking purposes, the Contractor will provide Daily Production Logs for crews involved in CCTV, TISCIT, and TISCIT Cleaning Verification as soon as the Contractor's QA/QC process is completed but no later than one work week (5-days) after the work is completed. These reports of raw data will be utilized to check progress toward completion of the various areas assigned.

J. DAILY SCHEDULE

For inspection purposes the Contractor will provide a Daily Schedule for crews providing the starting location and service output for the various crews working. This schedule will be submitted to the County early each work day (as soon as routing is determined by the Contractor and before 8:00 AM as a minimum) so as to assist the County in making Inspector assignments.

K. Two-Week Look Ahead

The Contractor will provide a planning schedule every two weeks of probable crew activity associated with the Contract.

END OF SECTION

SECTION 01041
PROJECT COORDINATION

PART 1 — GENERAL

1.01 SECTION INCLUDES

The work under this Section includes the requirements of the Contractor to use standard methods of construction planning, coordination, inspection, scheduling and cost value documentation necessary for the proper and complete performance of the Work.

1.02 RELATED SECTIONS

This Section applies to the work of every division and every section of these Specifications.

1.03 QUALIFICATIONS AND REQUIREMENTS

A. Management of the Project shall be through the use of standard methods of construction planning, inspection, scheduling and cost value documentation.

1.04 RESPONSIBILITY FOR COORDINATION

A. Carefully coordinate work with all other contractors and/or subcontractors to ensure proper and adequate interface of the work of other assessment and rehabilitation activities at or near the assigned sewer collection and transmission system and every section of these Specifications.

B. The Contractor shall coordinate operations with all utility companies in or adjacent to the area of Contractor's work. The Contractor shall require said utilities to identify in the field their property and provide drawings as necessary to locate them.

C. The Contractor shall schedule the Contractor's Work so the Contractor does not interrupt the operation of any existing facility, including water mains and sewers. In the event certain tie-ins or other operations make it absolutely necessary to interrupt the operation of existing facilities, the Owner will be notified and such work will be done at a time and in a manner acceptable to the Owner/Program Manager.

D. The Contractor shall coordinate with all property owners and governing authorities impacted by the execution of work activities as to not prevent access or cause service interruptions to critical public institutions such as hospitals, schools, police and fire services, etc. and any other businesses deemed necessary for public welfare and safety. The Contractor shall notify the Program Manager of any related coordination efforts required prior to commencing work activities that may cause impacts. For off road work which includes land disturbance, even on an easement, the Owner requires that the Contractor notify the land owner of the property on which the Contractor intends to occupy and obtain a right-to-enter from that owner prior to beginning work.

E. The County owns and maintains a series of flow monitors and associated equipment throughout the sewer collection system. As such, the Contractor shall immediately notify the Program Manager whenever the Contractor is no less than 5 business days Work away from a manhole where flown monitoring equipment is installed. The

Program Manager will work with the Owner to have the equipment removed prior to the Contractor performing any assessment or rehabilitation on the manhole or connecting sewer mains in which flow monitoring equipment is located. Upon successful completion of the Contractor's Work, the Contractor shall notify the Program Manager within twenty-four (24) hours to have the flow monitoring equipment properly re-installed and calibrated. Locations of all monitoring equipment have been provided in the Exhibits attached to Section 01010. Should the Contractor locate flow monitoring equipment in manholes or locations deviant from the proved locations, the Contractor shall immediately notify the Program Manager of the discrepancy and no Work shall be completed by the Contractor until the Owner I able to successfully remove the equipment to allow Work to continue.

PART 2 — PRODUCTS

(Not Used)

PART 3 — EXECUTION

3.01 PREPARATION

A. Inspection

1. Prior to performing any work under a section, the Contractor shall carefully inspect the installed work of other trades and verify all such work is complete to the point where the work under the section may properly commence.
2. The Contractor shall verify all materials, equipment and products to be installed under a section may be installed in strict accordance with the original design and pertinent reviewed shop drawings.

B. Discrepancies

1. In the event of discrepancy, immediately notify the Program Manager.

3.02 REQUIREMENTS

A. The Contractor shall coordinate the work with the Owner/Program Manager so the construction will not restrain or hinder the operation of existing water or wastewater facilities. If at any time, any portion of the water or wastewater facilities are scheduled to be out of service, the Contractor must obtain prior approval from the Owner as to the date, time, and length of time that such facilities are out of service.

B. Connections to the existing facilities, temporary service interruptions and/or alteration of existing facilities will be made at times when the piping, asset, or facility involved is not in use, or at times, as established by the Owner, when the piping, asset, or facility involved can be conveniently interrupted for the period needed to execute the work activity involved.

C. After having coordinated the work with the Owner/Program Manager, the Contractor shall notify the Program Manager of the time, time limits, and methods of each connection or alteration and have the approval of the Program Manager before any work is undertaken on the connections or alterations.

D. Before any roadway or facilities are blocked off, the Owner's/Program Manager's approval shall be obtained to coordinate operations for water and wastewater facilities and assets, and any signage, plating, bypass pumping, sinking of bypass conduits, ramping, stream crossings, or any other temporary accommodation work shall be implemented by the Contractor as directed by the Program Manager.

3.03 PUBLIC NOTIFICATION

A. Public notification is critical and compliance with the public notification criteria is a prerequisite for the Work, especially when performing Work on sewers in easements which pass through private properties. Notification must be provided to all property occupiers/owners likely to be affected including residential, commercial and institutional (schools, hospitals, nursing homes, etc.). At a minimum, the following steps shall be taken:

1. The Contractor shall print and distribute pre-approved advance notice door hangers 72 hours before conducting Work, such as CCTV or Cleaning. The Contractor shall distribute the door hangers to the property owners (residential, commercial and institutional) in the affected area(s). The advance notice door hangers shall be customized by Public Outreach to suit this project and will be provided to the Contractor for printing prior to project's commencement. If the Work is delayed, the Contractor must re-distribute door hangers.
2. The Contractor is responsible for utilizing the "Right of Entry" (ROE) Protocol as a guide to obtain the ROE and/or Permission form from property owners.
    a. The Contractor is responsible for distributing pre-approved "Right-of-Entry" (ROE) forms if land disturbance will occur on the owner's property. Secured signatures from affected property owners on the ROE forms are needed prior to conducting Work activities such as CCTV and/or Cleaning.
    b. The Contractor is responsible for distributing pre-approved Permission forms and securing signatures from affected property owners, if access is needed to an owner's property and no land disturbance will occur. The Permission form is needed prior to conducting Work such as CCTV and/or Cleaning.
    c. The Contractor will utilize the ROE/Permission Form Cover letter to accompany both the ROE and/or Permission form.

B. The Contractor shall keep a daily log of the distribution of the door hangers. This shall be maintained and submitted to the Owner and/or Program Manager upon request.

C. The Contractor shall also utilize the Mobile Mapping tool to update the status of: the distribution of door hangers, and the ROE and/or Permission form needed at a particular address.

D. The Contractor shall alert the appropriate Owner, Program Manager and/or personnel of their work locations on a daily basis.

E. The Contractor will provide and place "Right-of-Way" signs in prominent locations where the Work is planned 24-hours in advance of commencing the inspection. Signs will be a minimum of 24 inches wide by 18 inches high with letters a minimum of 2

inches high. Signs will be supported at a minimum of 12 inches above grade by integral metal frames. Wording on the signs shall be similar to the following:

CLEANING AND/OR ASSESSMENT WILL BE CONDUCTED ON “date” and “time.” Contact “person” with “company” at “phone number” for additional information.

END OF SECTION

SECTION 01045
CUTTING AND PATCHING

PART 1 — GENERAL

1.01 SECTION INCLUDES

This section includes the Contractor's responsibility for all cutting, fitting, and patching, including excavation and backfill required to complete the work or to:

A. Make several parts fit together properly.

B. Uncover portions of the Work to provide for installation of ill-timed work.

C. Remove and replace defective work.

D. Remove and replace work not conforming to requirements of Contract Documents.

E. Remove samples of installed work as specified for testing.

1.02 RELATED SECTIONS

A. Section 01010: Summary of Work.

B. Division 2 Specifications: Site Work.

1.03 SUBMITTALS

A. Submit a written request to the Program Manager well in advance of executing any cutting or alteration affecting:

1. Work of the Owner or any separated contractor.
2. Structural value or integrity of any element of the Project.
3. Integrity or effectiveness of weather exposed or moisture resistant elements or systems.
4. Efficiency, operational life, maintenance or safety of operational elements.
5. Visual qualities of sight exposed elements.

B. Requests shall include:

1. Identification of the Project.
2. Description of the affected work.
3. The necessity for cutting, alteration or excavation.
4. Effect on work of Owner or any separate contractor, or on structural or weatherproof integrity of Project.
5. Description of proposed work:

a. Scope of cutting, patching, alteration, or excavation.
b. Trades who will execute the work.
c. Products proposed to be used.
d. Extent of refinishing to be done.
e. Plan to protect existing below and/or above grade structures, pipelines, etc.

6. Alternatives to cutting and patching.
7. Cost proposal, when applicable.
8. Written permission of any separate contractor whose work will be affected.

C. Submit written notice to Program Manager designating the date and the time the work will be uncovered.

PART 2 — PRODUCTS

2.01 MATERIALS

Comply with specifications and standards for each specific product involved.

PART 3 — EXECUTION

3.01 PREPARATION

A. Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.

B. After uncovering work, inspect conditions affecting installation of products, or performance of work.

C. Report unsatisfactory or questionable conditions to Program Manager in writing. Do not proceed with work until Program Manager has approved further instructions.

D. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of work.

E. Provide devices and methods to protect other portions of Project from damage.

F. Provide protection from the elements for the portion of the Project potentially exposed by cutting and patch work, and maintain excavations free from water.

3.02 INSTALLATION

A. Execute cutting and demolition by methods preventing damage to other work, and will provide proper surfaces to receive installation of repair.

B. Execute excavating and backfilling by methods preventing settlement or damage to other work.

C. Employ original Installer or Fabricator or perform cutting and patching for:

1. Weather exposed or moisture resistant elements.
2. Sight exposed finished surfaces.

D. Execute fitting and adjustment of products to provide a finished installation complying with specified products, functions, tolerances, and finishes.

E. Restore work cut or removed and install new products to provide completed work in accordance with the requirements of the Contract Documents.

F. Fit work airtight to pipes, sleeves, ducts, conduits, and other penetrations through surfaces.

G. Refinish entire surfaces as necessary to provide an even finish to match adjacent finishes:

1. For continuous surfaces, refinish to nearest intersection.
2. For an assembly, refinish entire unit.

END OF SECTION

SECTION 01056
GPS DATA COLLECTION

PART 1 — GENERAL

1.01 WORK FOR THIS SECTION

A. The purpose of this work is to establish the position of asset points in the sanitary sewer collection system using the Global Positioning System (GPS); establish the minimum quality of data; and, specify how the data will be delivered. The GPS position will be established for newly identified sanitary sewer system assets and corrected in the event of existing incorrectly mapped assets. GPS position will also be gathered for locations as noted in all other Sections of these Specifications.

B. General Requirements:

1. Properly mapped assets when directed will require a Level 2 (Mapping Grade) survey;
2. Improperly mapped assets and non-mapped assets will require a Level 1 (Survey Grade ±1 cm) survey.

C. GPS capture is required as described below.

1. All coordinates of all points X, Y & Z to the nearest 0.01 foot. When +/- 0.01-foot vertical/elevation relative accuracy tolerance is required RTK GPS. The relative horizontal and vertical accuracy shall conform to the 2cm accuracy standard per NGS Guidelines .

2. When GPS capture cannot be achieved on manholes, due to canopy or building interferences, the position will be obtained by conventional survey methods tied to the stated reference system or other applicable methods. at the accuracy listed above.

1.02 SUBMITTALS

A. The Contractor shall provide to the Program Manager in writing the following information prior to the set deadline, or at the indicated frequency, whichever is applicable.

Type of Submittal	Time/Frequency of Submittal
1. Digital Data related to New Assets	Weekly
2. Digital Data and revisions related to Existing Assets	Weekly

* Other submittals required at frequency as directed by the Program Manager for other assessment activities that include GPS data collection such as Smoke Testing, Dye Testing and additional assessments.

1.03 RELATED SECTIONS

A. The Work of the following Sections apply to the Work of this Section. Other Sections of the Specifications, not referenced below, shall also apply to the extent required for proper performance of the Work.

1. 01510: Sanitary Sewer Main Television & Sonar Inspection
2. 01530: Manhole Condition Assessment
3. 02956: Sanitary Sewer Cleaning

1.04 EXPERIENCED WORKERS

A. Supervisor of the field crews shall have received proper training in this function and have a minimum of three years' experience in performing such work including safe working practices, etc.

B. Crew Leaders/Field Supervisors obtaining GPS data shall have received proper training in this function and have a minimum of one year experience in performing such work including safe working practices, etc.

C. The Contractor shall provide the Program Manager with written documentation indicating all Crew Leaders/Field Supervisors responsible for obtaining GPS data have received the proper training and where required the requisite experience.

D. The Contractor shall provide a detailed account of satisfactory GPS experience during the last three years. Those references shall include contact, agency, telephone number and address.

1.05 REFERENCE COORDINATE SYSTEM

A. The horizontal (X&Y) position of points will be referenced to the Georgia State Plane West NAD-83 coordinate system.

1.06 PROVIDED BY Owner/Program Manager

A. A map of each area of work will be provided by the Program Manager from the Owner's existing GIS map. The map will contain, when available, streets with names, aerial imagery, sewer manholes with asset IDs and sewer lines with existing GIS information available.

1.07 CALIBRATION

A. Calibration shall be carried out in accordance with the GPS equipment manufacturer's instructions. Additional calibrations may be required during the course of the working day for large fluctuations of temperature and/or humidity, also in accordance with the manufacturer's instructions and tolerances.

1.08 INTERFERENCE

A. Contractor must obtain a GPS position of sanitary point structures regardless of the overhead conditions or other nearby obstructions interfering with satellite signals, at

no additional cost. Coverage conditions will not allow all positions to be obtained by setting directly over the point to be obtained. Contractor may use conventional surveying methods to obtain the position of the point.

PART 2 — PRODUCTS (NOT USED)

PART 3 — EXECUTION

3.01 General

A. The Contractor shall furnish all labor, tools, materials, software and equipment necessary for capturing the position of all points specified.

3.02 Preparation

A. Mission Planning: Contractor shall plan the collection of GPS data, using the appropriate software, to optimize the accuracy and speed of data collection while minimizing the impact and interference on traffic and other activities.

3.03 DATA

A. The inventory database deliverable(s) for newly discovered assets or existing mapped assets with incorrect existing position shall be submitted as an ESRI shapefile or geodatabase with each feature type represented in a different feature class (manholes, mains, etc.). Each attribute for manholes and mains are to be populated as provided in the attribute templates provided below. The data must be in the correct datum capable to be integrated into County's ESRI ArcGIS system which is the County's standard GIS software.

B. Manholes Attributes Template

ID	Northing	Easting	Top of Cover Elevation	Invert Elevation

C. For assets with only incorrect coordinate location information but already located within the mapped inventory, only the corrected coordinates will be provided by the Contractor. Necessary data will be logged so that uncorrected positions can be post-processed and coordinated with DWM GIS division, at the discretion of the Owner and Program Manager, to obtain more accurate positions.

D. For other assessment activities, including MACP, Smoke Testing, Dye Testing, Acoustic Inspection, and any other activity described in these Specifications, coordinates will be gathered per the instruction procedures of each respective assessment Specification Section. The GPS data collection for these activities as well as others should adhere to the coordinate system, accuracy level, and all additional procedures outlined in this Specification Section.

3.04 DELIVERABLES

A. Map corrections to the printed map will be illustrated on the printed map with red markings and delivered at the completion of each week. Supplemental sketches will be provided, as necessary, to clearly depict the actual site conditions.

B. Coordinate and attribute data will be provided in GIS digital format on a weekly basis as described in these Specifications or as directed by the Program Manager.

END OF SECTION

SECTION 01060

REGULATORY REQUIREMENTS

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. Contractors general responsibilities for adhering to all county, state, and federal regulatory divisions rules, regulations, and laws even when plans do not indicate required permitting actions required for the project.

B. Permits and Responsibilities: The Contractor shall, without additional expense to the Owner, comply with any applicable federal, state, County and municipal laws, codes and regulations, in connection with the execution of the Work.

C. The Contractor shall take proper safety and health precautions to protect the Work, the workers, the public and the property of others.

D. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the Work, except for any completed unit of work thereof which may heretofore have been accepted.

E. Business Licenses: The Contractor shall provide the Owner, on the proper form, proof of being licensed to do business within DeKalb County; proof of proper business licenses shall also be provided by the Contractor for any and all subcontractors coming under the jurisdiction of this Contract.

1.02 ROADWAY PERMITTING

A. The Contractor is responsible for obtaining road opening permits from the DeKalb County Department of Public Works Transportation Division at (770)492-5222, including providing any required restoration bonds.

B. The Contractor is responsible for supplying all data and/or supporting documentation to the Owner when the Owner is obtaining road opening permits or traffic interruption requests required by the GDOT. The Contractor is not permitted to make any type of cuts on roadways requiring a permit from the GDOT until such time as the permit is provided and prominently displayed on-site. All documents necessary for said application must be provided by the Contractor to the Owner and Program Manager. The Contractor is responsible for inputting schedule and other required information into the State's web-based system.

C. Traffic control shall be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD), latest edition.

1.03 EPD stream buffer Permits Activities

A. Buffers on state waters are valuable in protecting and conserving land and water resources, therefore buffers should be protected. The buffer variance process will apply to all projects legally eligible for variances and to all state waters having vegetation wrested from the channel by normal stream flow, provided adequate

erosion control measures are incorporated in the project plans and specifications and are implemented. The following activities do not require application to or approval from the Division:

1. stream crossings for water lines or stream crossing for sewer lines occurring at an angle, as measured from the point of crossing, within 25 degrees of perpendicular to the stream and cause a width of disturbance of not more than 50 feet within the buffer; or
2. where drainage structures must be constructed within the twenty-five (25) foot buffer area of any state water not classified as a trout stream; or
3. where roadway drainage structures must be constructed within the twenty-five (25) foot buffer area of any state waters or the fifty (50) foot buffer of any trout stream; or
4. construction of public water system reservoirs

1.04 ACOE Permits for MISCELLANEOUS Activities

A. Section 404 of the Clean Water Act requires all dredge and fill activities affecting the Nation's waters, including wetlands and other special aquatic sites to be permitted by a Nationwide Permit (NWP), Regional Permit, or Individual Permit, unless otherwise exempted.

B. All Department of Army Corps of Engineers (ACOE) Permits shall be obtained by the Owner. The Contractor shall be responsible for complying with all required permits and shall perform restoration activities where temporary dewatering of areas is required.

C. The ACOE has the authority to review project work within the Nation's water and to issue individual permits or approve the use of Nationwide and Regional Permits. The Environmental Protection Agency (EPA), Georgia Environmental Protection Division (EPD) and other natural resource agencies provide a key role in the review and establishing conditions of the permits.

D. Work in jurisdictional waters, jurisdictional wetlands and bank stabilization activities shall not commence until all permits have been issued.

E. Some NWPs require project proponents to notify ACOE district engineers prior to commencing NWP activities. These notifications are called pre-construction notifications (PCNs), and they provide district engineers with opportunities to confirm whether or not the proposed activities qualify for NWP authorization. For most NWPs, the district engineer has to respond to a notification within 45 days of receipt of a complete PCN (see General Condition 31). If, after reviewing the PCN, the district engineer determines the proposed activity qualifies for NWP authorization, the district engineer issues an NWP verification letter to the project proponent. The NWP verification may contain special conditions ensuring the NWP activity results in minimal individual and cumulative effects on the aquatic environment and the Corps public interest review factors.

1.05 Quality Assurance

A. Contractor shall perform all work under this Section in accordance with all pertinent Rules and regulations including, but not necessarily limited to, those stated herein and these Specifications, the more stringent provisions shall govern.

B. The Contractor shall allow access to ACOE, EPA and other enforcing personnel should they wish to visit the work sites. This includes assisting with transportation as may be required along easements, if necessary.

PART 2 — PRODUCTS

2.01 Materials

A. Materials required to comply with these regulations shall include bank stabilization materials, materials for construction of temporary roads or crossings, sandbags and rebar for reconstruction of beaver dams, mats for temporary road access.

B. Mats consist of wooden, rubber or metal structures capable of distributing the weight of heavy equipment to prevent soil displacement in wetland conditions.

PART 3 — EXECUTION

3.01 GENERAL

Provide all materials and promptly take actions necessary to achieve effective compliance with regulations in accordance with Section 404 of the Clean Water Act, the enforcing agency (ACOE) and these Specifications.

3.02 EPD STREAM BUFFER PERMIT CONDITIONS

Variance applications will be reviewed by the Director only where the applicant provides reasonable evidence that impacts to the buffer have been avoided or minimized to the fullest extent practicable and only in the following cases:

A. The project involves the construction or repair of a structure which, by its nature, must be located within the buffer. Such structures include dams, public water supply intake structures, detention/retention ponds, waste water discharges, docks including access ways, boat launches including access ways, and stabilization of areas of public access to water; or

B. The project will result in the restoration or enhancement to improve water quality and/or aquatic habitat quality; or

C. Buffer intrusion is necessary to provide reasonable access to a property or properties; or

D. The intrusion is for gravity-flow sewer lines that cannot reasonably be placed outside the buffer, and stream crossings and vegetative disturbance are minimized; or

E. Crossing for utility lines, including but not limited to gas, liquid, power, telephone, and other pipelines, provided the number of crossings and the amount of vegetative disturbance are minimized; or

F. Recreational foot trails and viewing areas, providing impacts to the buffer are minimal; or

G. The project involves construction of one (1) single family home for residential use by the owner of the subject property and, at the time of adoption of this rule, there is no opportunity to develop the home under any reasonable design configuration unless a buffer variance is granted. Variances will be considered for such single family homes only if construction is initiated or local government approval is obtained prior to the effective date of this rule; or

H. For non-trout waters, the proposed land disturbing activity within the buffer will require a permit from the United States Army Corps of Engineers under Section 404 of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1344, and the Corps of Engineers has approved a mitigation plan to be implemented as a condition of such a permit; or

I. For non-trout waters, a plan is provided for buffer intrusion showing, even with the proposed land disturbing activity within the buffer, the completed project will result in maintained or improved water quality downstream of the project; or

J. For non-trout waters, the project with a proposed land disturbing activity within the buffer is located in, or upstream and within ten linear miles of, a stream segment, or,

K. listed as impaired under Section 303(d) of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1313(d) and a plan is provided showing the completed project will result in maintained or improved water quality in such listed stream segment and the project has no adverse impact relative to the pollutants of concern in such stream segment; or

L. For non-trout waters, the proposed land disturbing activity within the buffer is not eligible for a permit from the United States Army Corps of Engineers under Section 404 of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1344, includes required mitigation in accordance with current EPD “Stream Buffer Variance Mitigation Guidance” document, and involves:

1. piping, filling, or re-routing of non-jurisdictional Waters of the U.S.; or
2. stream buffer impacts due to new infrastructure projects adjacent to state waters (jurisdictional and non-jurisdictional Waters of the U.S.). This criterion shall not apply to maintenance and/or modification to existing infrastructure, which are covered under 391-3-7.05(2)(a).
3. If the buffer impact will be temporary, the buffer variance request shall include the following information at a minimum:
    a. A site map including locations of all state waters, wetlands, floodplain boundaries and other natural features, as determined by field survey.
    b. A description of the shape, size, topography, slope, soils, vegetation and other physical characteristics of the property.

c. A dated and numbered detailed site plan showing the locations of all structures, impervious surfaces, and the boundaries of the area of soil disturbance, both inside and outside of the buffer. The exact area of the buffer to be impacted shall be accurately and clearly indicated.

d. A description of the project, with details of the buffer disturbance, including estimated length of time for the disturbance and justification for why the disturbance is necessary.

e. A calculation of the total area and length of buffer disturbance.

f. A letter from the issuing authority (if other than the Division and as applicable) stating it is aware of the project.

g. An erosion, sedimentation and pollution control plan, where applicable.

h. Proposed mitigation, if any, for the buffer disturbance and a restoration and re-vegetation plan, if applicable.

i. Any other reasonable information related to the project the Division may deem necessary to effectively evaluate the variance request. Division shall determine if this information is needed within 20 business days of receipt.

j. Application shall be on forms provided by the Division.

4. If the buffer impact will be permanent, the buffer variance request shall include all of the information in Sections (3)(a) thru (j) above, with the exception of (3)(h). A buffer variance request with permanent impact shall also include the following additional information:

a. For non-trout waters, a copy of the permit application, supporting documentation, and proposed mitigation plan, if applicable, as submitted to the United States Army Corps of Engineers under Section 404 of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1344, if applicable.

b. A buffer mitigation plan addressing impacts to critical buffer functions, including water quality, floodplain, watershed and ecological functions based on an evaluation of existing buffer conditions and predicted post construction buffer conditions pursuant to Section (7)(c) herein.

c. A plan for stormwater control once site stabilization is achieved, where applicable.

d. For variance requests made under Sections (2)(i) and (2)(j), the application shall include the following water quality information:

i. For variance requests under Section (2)(i), the application must include documentation that post-development conditions of the project will meet the four primary (water quality, downstream channel protection, overbank flood protection, and extreme flood protection) performance requirements in the Georgia Stormwater Management Manual or the equivalent.

ii. If the proposed variance is in, or within 10 linear miles of and upstream of, a stream segment listed as impaired under Section 303(d) of the federal Water Pollution Control Act Amendment of 1972, 33 U.S.C. Section 1313(d), the

application must include predicted pollutant loading under pre- and post-development conditions as estimated by models accepted by the Division. In addition, the applicant must document how the proposed project is in compliance with the TMDL implementation plan, if available, as required in Subsection 391-3-7-.05(5)(i).

5. Upon receipt of a completed application in accordance with Sections 391-3-7-.05(3) or 391- 3-7-.05(4), the Division shall consider the completed application and the following factors in determining whether to issue a variance:
   a. The shape, size, topography, slope, soils, vegetation and other physical characteristics of the property; and
   b. The locations of all state waters on the property as determined from field inspection; and
   c. The location and extent of buffer intrusion; and
   d. Whether reasonable alternative project designs, such as the use of retaining walls, are possible which do not require buffer intrusion or which require less buffer intrusion; and
   e. Where the buffer impact is temporary, the buffer restoration plan is low or no maintenance, and the plan provides net gain in buffer value/function (i.e. water quality, floodplain, watershed, ecological perspectives), the application will be approved unless the Director declines the application based on the exceptional existing buffer value/function; and
   f. Whether issuance of the variance is at least as protective of natural resources and the environment, and including wildlife habitat; and
   g. The current condition of the existing buffer, to be determined by:
      i. The extent the existing buffer vegetation is disturbed;
      ii. The hydrologic function of the buffer;
      iii. Stream characteristics such as bank vegetative cover, bank stability, prior channel alteration, or sediment deposition; and
   h. The extent the encroachment into the buffer may reasonably impair buffer functions.
      i. The value of mitigation activities conducted pursuant to this rule, particularly Subsections 391-3-7-.05(7)(c) and 391-3-7-.05(7)(d) herein, and shall take regional differences into consideration on-site or downstream, to be determined by development techniques or other measures contributing to the maintenance or improvement of water quality, including the use of low impact designs and integrated best management practices, and reduction in effective impervious surface area; and
6. The long-term water quality impacts of the proposed variance, as well as the construction impacts. For applications made under Subsections 391-3-7.05(2)(i) or 391-3-7-.05(2)(j), the following criteria, reflecting regional differences in the state, shall be used by the Director to assist in determining whether the project seeking a variance will, when completed and with approved mitigation, result in maintained or

improved water quality downstream of the project and minimal net impact to the buffer:

a. Division will assume the existing water quality conditions are commensurate with an undeveloped forested watershed unless the applicant provides documentation to the contrary. If the applicant chooses to provide baseline documentation, site and/or stream reach specific water quality, habitat, and/or biological data would be needed to document existing conditions. If additional data are needed to document existing conditions, the applicant may need to submit a monitoring plan and have it approved by the Division prior to collecting any monitoring data. Existing local data may be used, if available and of acceptable quality to the Division.

b. The results of the predicted pollutant loading under pre- and post-development conditions as estimated by models accepted by the Division indicate existing water quality conditions will be maintained or improved.

c. Projects for which a land disturbing activity is proposed within the buffer of a 303(d) listed stream, or upstream and within 10 linear miles of a 303(d) listed stream, the results of the model demonstrate the project has no adverse impact relative to the pollutants of concern in such stream segment.

7. Within 60 days of receipt of a complete buffer variance application, the Division will either provide written comments to the applicant or propose to issue a variance. When the Division proposes to issue a variance, it will send out a public advisory to all citizens and groups who request to receive the advisories. The applicant will then publish a notice in the legal organ of the local jurisdiction. The public advisory and public notice shall describe the proposed buffer modification, the location of the variance, where the public can go to review site plans, and where comments should be sent. The public shall have 30 days from the date of publication of the notice in the legal organ to comment on a variance proposal.

8. In all cases in which a buffer variance is issued, the following conditions shall apply:

a. The variance shall be the minimum reduction in buffer width necessary to provide relief. Streams shall not be piped if a buffer width reduction is sufficient to provide relief.

b. Disturbance of existing buffer vegetation shall be minimized.

c. Required mitigation shall offset the buffer encroachment and any loss of buffer functions. Where lost functions cannot be replaced, mitigation shall provide other buffer functions that are beneficial. Buffer functions include, but are not limited to:

i. temperature control (shading);

ii. streambank stabilization;

iii. trapping of sediments, if any;

iv. removal of nutrients, heavy metals, pesticides and other pollutants;

v. aquatic habitat and food chain;

vi. terrestrial habitat, food chain and migration corridor; and

vii. buffering of flood flows.

d. Mitigation should be on-site when possible. Depending on site conditions, acceptable forms of mitigation may include but are not limited to:

i. Restoration of the buffer to a naturally vegetated state;

ii. Bioengineering of channels to reduce bank erosion and improve habitat;

iii. Creation or restoration of wetlands;

iv. Stormwater management to better maintain the pre-development flow regime (with consideration given to downstream effects) that exceeds the requirements of applicable ordinances at the time of application;

v. Reduction in pollution sources, such as on-site water quality treatment or improving the level of treatment of septic systems;

vi. Other forms of mitigation that protects or improves water quality and/or aquatic wildlife habitat;

vii. An increase in buffer width elsewhere on the property;

viii. Mitigation required under a Clean Water Act Section 404 or Nationwide permit issued by the U.S. Army Corps of Engineers;

ix. Those described in the most recent publication of the Georgia Stormwater Management Manual.

e. Forms of mitigation which are *not* acceptable include:

i. Activities already required by the Georgia Erosion and Sedimentation Act, such as the minimal use of best management practices;

ii. Activities, already required by other federal, state and local laws, except as described in 391-3-7.05(7)(d) above. Corps of Engineers mitigation is acceptable.

f. The Division will not place a condition on a variance requiring a landowner to deed property or the development rights of property to the state or to any other entity. The landowner may voluntarily preserve property or the development rights of property as a mitigation option with the agreement of the Division.

9. If a variance issued by the Director is acceptable to the issuing authority, the variance shall be included as a condition of permitting and therefore, becomes a part of the permit for the proposed land disturbing activity project. If a stream buffer variance is not acceptable to the issuing authority, the issuing authority may issue a land disturbing permit without allowing encroachment into the buffer.

10. A general variance is provided for piping of trout streams with an average annual flow of 25 gpm or less.

11. To obtain this general variance in Section 391-3-7.05(9) for encroaching on the buffer of a trout stream, the applicant must submit information to the issuing authority or EPD if there is no issuing authority

demonstrating that the average annual flow in the stream is 25 gpm or less. There are two acceptable methods for making this determination.

a. The USGS unit area runoff map may be used to determine the threshold acreage producing an average annual flow of 25 gpm or less.

b. The applicant may submit a hydrologic analysis certified by a Registered Professional Engineer or Geologist presenting information sufficient to estimate the average annual flow of each stream to be piped is 25 gpm or less with a high level of certainty.

12. Any stream piping performed in accordance with this general variance in Section 391-3-7.05(9) shall be subject to the following terms:

a. The total length of stream piped in any one property shall not exceed 200 feet.

b. Any project involving more than 200 ft. of piping will require an individual variance for the entire project. The general variance may not be applied to a portion of a project; e.g., it is not permissible to pipe 200 ft. of a stream under the general variance and seek an individual variance for an additional length of pipe.

c. The downstream end of the pipe shall terminate at least 25 ft. before the property boundary.

d. The applicant for a Land Disturbing Activity Permit shall notify the appropriate issuing authority of the precise location and extent of all streams piping as part of the land disturbing activity permit application. The issuing authority (if other than the Division) shall compile this information and convey it to the Division annually.

e. Where piping of a stream increases the velocity of stream flow at the downstream end of the pipe, appropriate controls shall be employed to reduce flow velocity to the predevelopment level. Plans for such controls must be submitted as part of the land disturbing activity permit.

3.03 ACOE Permit Conditions

A. General: NWP including, but not limited to, 3, 13, 14, and 33 apply to activities anticipated on this project. Each permit contains specific criteria that must be satisfied to be in compliance with the permit. In addition, 15 general permit conditions cover all Nationwide Permits. Both specific criteria and general permit conditions are applicable to this project.

B. NWP 3 (Maintenance)

1. Application: For all serviceable structures of fill requiring rehabilitation and/or replacement, including raising manholes.

2. Permit Conditions: Use best management practices such as construction mats, proper erosion and sedimentation control and high-flotation tires on heavy equipment.

C. NWP 13 (Bank Stabilization)

1. Application: For all rehabilitation/replacement activities along stream banks and other areas.
2. Permit Conditions:
    a. No material is placed in excess of the minimum needed for erosion protection.
    b. The bank stabilization activity is less than 500 feet in length without approval by the ACOE.
    c. The activity will not exceed an average of 1 cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line.
    d. No material is placed in any special aquatic site, including wetlands.
    e. No material is of the type, or is placed in any location, or in any manner, so as to impair surface water flow into or out of any wetland area.
    f. No material is placed in a manner to be eroded by normal or expected high flows.

D. NWP 14 (Road Crossings)

1. Application: For all rehabilitation/replacement activities requiring road crossings of wetlands and streams.
2. Permit Conditions
    a. The width of fill is limited to the minimum necessary for the actual crossing.
    b. The crossing is culverted, bridged, or otherwise designed to prevent the restriction of, and to withstand, expected high flows, and to prevent the restriction of low flows and the movement of aquatic organisms. The width of the fill is limited to the minimum necessary for the actual crossing.
    c. The fill placed in the waters of the United States is limited to a filled area of no more than 1/3 acre. Furthermore, no more than a total of 200 linear feet of the fill for the roadway can occur in special aquatic sites, including wetlands.
    d. The crossing, including all attendance features, both temporary and permanent, is part of a single and complete project for crossing a water of the United States.

E. NWP 33 (Temporary Construction, Access and Dewatering)

1. Application: For temporary dewatering and access road construction activities.
2. Permit Conditions
    a. Temporary fill must be entirely removed to upland areas, or dredged material returned to its original location, following completion of the construction activity, and the affected areas must be returned to pre-construction conditions.
    b. Cofferdams or other structures cannot be used to dewater wetlands or other aquatic sites so as to change their use.

c. The permitee has notified the ACOE District Engineer prior to use of this permit. The notification must include a restoration plan.

3.04 Restoration

A. All wetland areas, streams, creeks and other areas containing bodies of water shall be restored as specified below:

1. Beaver Dam Removal and Replacement: The approved permitted activity may include breaching of a beaver dam at locations provided in the permit application. The location of the prescribed breach must not be changed without prior coordination with the Construction Manager or appointed liaison. Explosives are prohibited for beaver dam removal. If beaver dams are required to be breached, all beaver dams removed shall be restored as specified herein.
   a. Restoration shall be done with sandbags filled ¾ full with materials from the site; preferably sandy soils.
   b. Sandbags shall be placed in a staggered fashion to prevent a common seam from developing.
   c. Number 4 steel reinforcement bar shall be used to fortify sandbag dams.
   d. Reinforcement bar shall be driven a minimum of 2 feet below substrate and spaced per construction detail.
   e. Bottom row of sandbags shall be embedded a minimum of 6 inches below ground surface, or until resting on compacted substrate, whichever is deeper.
   f. Top elevation of sandbags should be determined by surveying the water elevation prior to removal of the dam.
   g. All excavation and fill activities should be conducted by non-mechanical means. Bobcat-type tractors may be used to transfer construction supplies.
   h. Dam shall be designed to allow flow over its middle section with the downstream channel lined with a row of sandbags.
   i. Quality Assurance: After construction, the restored dam will be inspected by the Program Manager or an appointed liaison to ensuring the proper restoration techniques were employed. Afterwards, the beaver dam will be monitored for one growing season to ensure success. The Contractor will be responsible for reconstruction of any failed dam.
2. Temporary Access Roads and Crossings
   a. Must comply with any applicable permits.
   b. Temporary construction roads may be constructed by earthen fill or crushed rock, or a combination of the two, for wetland or stream crossings.
   c. Temporary construction roads for stream crossings must be constructed with materials able to withstand expected high flows.
   d. Prior to placing fill within a wetland or stream, filter fabric should be placed beneath the fill area. The fabric will facilitate removal of the temporary fill materials.

e. All materials placed in a wetland or stream must be removed to an upland area following construction.

f. If culverts are required for a crossing, they must be designed to withstand and to prevent the restriction of expected high flows, and also to prevent the restriction of low flows and movement of aquatic organisms. Culverts must be removed and stream banks stabilized following the construction.

B. Existing stream banks and buffers surrounding bodies of water must be restored to at least existing conditions status with the exception of cleared easements and access for sanitary sewer asset inspection, operation and maintenance.

END OF SECTION

SECTION 01070
ABBREVIATIONS AND SYMBOLS

PART 1 — GENERAL

1.01 SECTION INCLUDES

This section includes a list of applicable abbreviations for technical societies, organizations, and bodies relevant to the work. Whenever reference is made to the furnishing of materials or testing thereof to conform to the standards of any technical society, organization, or body, it shall be construed to mean the latest standard, code, specification or tentative specification adopted and published at the time of advertisement. Such standards are made a part hereof to the extent which is indicated or intended.

1.02 DEFINITIONS AND ABBREVIATIONS

AA	Aluminum Association
AAMA	Architectural Aluminum Manufacturer's Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ACOE	Army Corps of Engineers
ACPA	American Concrete Pipe Association
AEIC	Association of Edison Illuminating Companies
AFBMA	Anti-Friction Bearing Manufacturers Association
AGA	American Gas Association
AGMA	American Gear Manufacturers Association
AI	Asphalt Institute
AIA	American Institute of Architects
AIEE	American Institute of Electrical Engineers
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
AMCA	Air Moving and Conditioning Association
ANSI	American National Standards Institute

APA	American Plywood Association
APHA	American Public Health Association
API	American Petroleum Institute
APWA	American Public Works Association
ARC	Appalachian Regional Commission
AREA	American Railway Engineering Association
ASA	American Standards Association
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers Association
AWS	American Welding Society
AWWA	American Water Works Association
CCTV	Closed Circuit Television
CD	Consent Decree
CFR	Code of Federal Regulations
CIPP	Cured-In Place Pipe
CMAA	Crane Manufacturers Association of America
CRSI	Concrete Reinforcing Steel Institute
CSI	Construction Specifications Institute
CTI	Cooling Tower Institute
DEMA	Diesel Engine Manufacturers Association
DIP	Ductile Iron Pipe
DT	Dye Testing
DVD	Digital Video Disc

DWM	DeKalb County Department of Watershed Management
EDA	Economic Development Administration
EIA	Electronic Industries Association
EIA	Electronic Industries Association
EPA	Environmental Protection Agency
EPD	Georgia Environmental Protection Division
FCC	Federal Communications Commission
FmHA	Farmers Home Administration
FS	Federal Specifications
GDOT	Georgia Department of Transportation
GIS	Geographic Information System
GPM	Gallons per Minute
GPS	Global Positioning System
HEI	Heat Exchange Institute
I/I	Infiltration and Inflow
IEEE	Institute of Electronic and Electrical Engineers
IES	Illuminating Engineering Society
IPC	Institute of Printed Circuits
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
LACP	Lateral Assessment and Certification Program
MACP	Manhole Assessment and Certification Program
MBMA	Metal Building Manufacturers Association
MMA	Monorail Manufacturers Association
MSS	Manufacturers Standardization Society of the Valve and Fitting Industry
MUTCD	Manual for Uniform Traffic Control Devices

NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NASSCO	National Association of Sewer Service Companies
NBFU	National Board of Fire Underwriters
NBS	National Bureau of Standards
NCPI	National Clay Pipe Institute
NEC	National Electric Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NRMA	National Ready-Mix Association
NTP	Notice to Proceed
NWP	Army Corps of Engineers Nationwide Permit
OSARP	Ongoing Sewer Assessment and Rehabilitation Program
OSHA	Occupational Safety and Health Administration
PACP	Pipeline Assessment & Certification Program
PASARP	Priority Areas Sewer Assessment and Rehabilitation Program
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PCN	Army Corps of Engineers Preconstruction Notification
PPE	Personal Protective Equipment
PVC	Polyvinyl Chloride Pipe
QA/QC	Quality Assurance / Quality Control
RFI	Request for Information
SBC	Southern Building Code
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
SSO	Sanitary Sewer Overflow

SSPC	Steel Structures Painting Council
ST	Smoke Testing
TAI	The Asphalt Institute
TCA	Tile Council of America
TEMA	Tubular Exchangers Manufacturers Association
TISCIT	Totally Integrated Sonar and CCTV Inspection Technique
UBC	Uniform Building Code
UL	Underwriters Laboratories
USDC	United States Department of Commerce
WCTS	Wastewater Collection and Transmission System
WPCF	Water Pollution Control Federation

END OF SECTION

SECTION 01200

PROJECT MEETINGS

PART 1 — GENERAL

1.01 SECTION INCLUDES

This section includes general requirements for project-related meetings with the Owner and Program Manager required throughout the project life cycle including, but not limited to: pre-assessment meetings, progress meetings, pre-installation meetings, and inspection tours.

1.02 RELATED SECTIONS

A. Section 01010: Summary of Work

B. Section 01300: Submittals

1.03 RESPONSIBILITY

A. The Program Manager will determine the agenda for and chair the meetings described below; and also shall prescribe the documentation and format of that documentation for the meetings to be presented. The Contractor will furnish information needed by the Program Manager when requested.

B. Periodic progress meetings and specially called progress meetings throughout the progress of the Work shall be held at times to be determined by the Program Manager, but at least on a monthly basis.

C. The Contractor shall have the following specific responsibilities:

1. Assist the Program Manager by providing information needed for the meeting
2. Comment on, recommend items for discussion, and/or approve the proposed meeting agenda
3. Provide appropriate personnel at the meeting to discuss items associated with the agenda
4. Review, comment on and/or approve minutes of the meeting

D. Representatives of contractors, subcontractors and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

E. The Owner/Program Manager shall attend progress meetings to ascertain the work is expedited consistent with the Contract Documents and the project schedules.

1.04 START-UP MEETING

A. The Program Manager will schedule this meeting within 5 days of the issuance of the Notice to Proceed.

B. The location of the meeting will be designated by the Program Manager.

C. The following parties shall attend the meeting:

1. Owner
2. Program Manager
3. Contractor's Superintendent and/or Representative
4. Subcontractors as appropriate to the agenda
5. Other agency representatives (EPD, EPA, DWM, etc.) as appropriate to the agenda
6. Representatives of suppliers and manufacturers as appropriate to the agenda
7. Others as requested by the Owner or Contractor

D. Suggested Agenda:

Distribution and discussion of:

1. List of major subcontractors and suppliers.
2. Projected Project Schedules.
3. Critical work sequencing.
4. Major equipment deliveries and priorities.
5. Project Coordination.
6. Designation of responsible personnel.
7. Procedures and processing of:
8. Field decisions.
9. Proposal requests.
10. Submittals.
11. Change Orders.
12. Applications for Payment.
13. Adequacy of distribution of Contract Documents.
14. Procedures for maintaining Record Documents.
15. Temporary utilities.
16. Safety and first aid procedures.
17. Security procedures.

1.05 ASSESSMENT PROGRESS MEETINGS

A. **Scheduling**: Meetings shall be conducted at least bi-weekly throughout the assessment phase or at other intervals directed by the Program Manager. Meeting frequency may be reduced at the request of the Program Manager.

B. **Location of the meetings:** DeKalb Watershed Management, 4572 Memorial DR, Decatur, GA 30032 or other location designated by the Program Manager.

C. **Attendance:**

1. Owner/User group representative(s), as appropriate
2. Program Manager's representative (at its option)
3. Resident Project Representative

4. Contractor's Program Manager, Superintendent, and other representative(s) as appropriate
5. Subcontractors and suppliers as appropriate to the agenda
6. Others as appropriate

D. Suggested minimum agenda:

1. Review and approval of minutes of previous meeting
2. Actual vs. scheduled progress since previous meeting
3. Planned activities for the next two weeks
4. Problems with and revisions to schedule
5. Corrective measures and procedures to regain projected schedule
6. Contract and/or Record Document clarifications
7. Field observations, problems, and conflicts
8. Quality control
9. Actual and potential changes and their impacts
10. Review proposed changes for:
    a. Effect on Schedule and on completion date.
    b. Effect on other components of the Project.
11. Safety issues

1.06 INSPECTION TOURS

A. Formal inspection tours shall be made of the job progress for the Owner and any other officials as the occasion warrants and as scheduled by the Program Manager.

B. If requested by the Program Manager, the Contractor shall be prepared to show and explain work completed and in progress throughout the Project to the inspection parties.

END OF SECTION

SECTION 01300
SUBMITTALS

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. Provisions in this Section are mandatory procedures for preparing and submitting equipment data sheets, assessment reports, procedures, schedules, certifications or any other submittals to be prepared and submitted as required of the Contract Documents.

B. Submissions shall be in orderly sequence and timed to cause no delay in the Work.

C. Delays occasioned by requirement of submissions of any required submittal data not in accordance with Contract Documents are Contractor's responsibility, and will not be considered valid justification for extension of Contract Time.

D. Project delays or delays in the purchasing of materials or equipment occasioned by the requirement for resubmission of submittal data initially rejected by the Program Manager and/or the Owner, or are not originally in accordance with the Contract Documents upon review by the Program Manager and/or Owner, are the Contractor's sole responsibility and will not be considered valid justification for time extensions.

E. No portion of the Work requiring the review of submittal data shall be commenced until each such submittal has been reviewed by the Program Manager and/or Owner, and the action required on the returned submittal does not require a correction and resubmittal (i.e., "Reviewed" or "Revise and Resubmit," or similar notation); and further, each installer shall have possession of such final reviewed submittal prior to commencing its portion of the Work.

F. At the time of submission the Contractor shall clearly delineate any deviations in the submittals from the requirements of the Contract Documents so, if the deviations are deemed acceptable, suitable action may be taken for proper adjustment. Otherwise, the Contractor will not be relieved of the responsibility for executing the work in accordance with the Control Documents.

1.02 RELATED SECTIONS

A. SECTION 01015 – CONTROL OF WORK

PART 2 — PRODUCTS

(Not Used)

PART 3 — EXECUTION

3.01 SUBMITTAL REQUIREMENTS

A. Within 2 weeks of receiving the Notice-To-Proceed, the Contractor shall submit to the Owner, data relating to materials and equipment he or she proposes to furnish for

the work. Such data shall be in sufficient detail to enable the Owner to identify the particular project and to form an opinion as to its conformity to the Specifications.

B. Provide six (6) hard copies and one (1) electronic copy of submittals to the Program Manager or as stipulated in individual work activities Specification.

C. Submittals shall be digitally submitted in PDF format in color with all pages legible when reprinted on 8.5" x 11" paper.

D. Each submission must be accompanied by a consecutively numbered letter of transmittal, listing the contents of the submission and identifying each item by reference to Specification Section or Drawing number. The Submittal shall contain a Submittal Identification Number.

E. Submittals shall contain:

1. The date of submission and the dates of any previous submissions.
2. The Project title and the Owner's Project Number.
3. Contract identification.
4. Identification of the submittal/product, with the Specification Section number.
5. Field dimensions, clearly identified as such.
6. Relation to adjacent or critical features of the work or materials.
7. Applicable standards, such as ASTM or Federal Specification numbers.
8. Identification of deviations from Contract Documents.
9. Identification of revisions on re-submittals.
10. An 8 inch by 3 inch blank space for Contractor and Program Manager stamp.
11. Contractor's stamp shall be initialed or signed, certifying approval of the submittal and to the coordination of the information within the submittal with the requirements of the work and of Contract Documents.

F. Other special requirements may be listed in the Technical Specifications and/or given to the Contractor by the Program Manager.

3.02 CONTRACTOR'S REVIEW

A. Review all submittals before forwarding to the Program Manager and stamp to indicate conformance with requirements of the Contract Documents.

B. Determine and verify field measurements and construction, materials, catalog numbers and similar data. Coordinate each submittal with requirements of work and Contract Documents.

C. Where work is indicated "By Others", Contractor shall indicate subcontractor responsibility for providing and coordinating such work.

D. Contractor agrees the submittals processed by the Program Manager are not Change Orders, the purpose of submittals by Contractor is to demonstrate the Contractor

understands design concept, he demonstrates his understanding by indicating materials he intends to furnish and install, and by detailing fabrication and installation methods he intends to use.

E. Contractor represents, by submitting any submittals he has complied with provisions specified above. Submissions made without Contractor's approval indicated thereon will be returned without being reviewed for compliance with this requirement.

F. Date each submittal and indicate name of Project, Program Manager, Contractor and Subcontractor, as applicable, description or name of submission

G. Accompany submittal with transmittal letter containing project name, Contractor's name, number of submittals, titles and other pertinent data. Transmittal shall outline deviations, if any, in submittals from requirements of Contract Documents.

3.03 PROGRAM MANAGER'S REVIEW

A. Program Manager will review submittals within 10 working days.

B. Program Manager's review is only to determine conformance with design concept of project and with information in Contract Documents. Program Manager's determination regarding an individual item shall not extend to the entire assembly in which the item functions.

C. Program Manager's review of submittals shall not relieve Contractor of responsibility for any deviation from requirements of Contract Documents unless Contractor has informed Program Manager in writing of such deviation at time of submission and Program Manager has given written acknowledgment of the specific deviation. Program Manager's review shall in no way relieve Contractor from responsibility for errors or omissions in submittals.

D. Program Manager will return submittals to Contractor marked with appropriate comment as defined below:

1. "Reviewed" indicates the drawings have been reviewed for conformance with design and no exceptions are taken. Proceed with the work.
2. "Revise and Resubmit" indicates the annotations are to be confirmed in a resubmittal of the affected drawing. However, subject to prior arrangement with the Engineer, the Contractor may proceed with the work as annotated during the interim required for resubmittal.
3. "Rejected" indicates drawing to be revised and resubmitted for further review prior to proceeding with the work.
4. "Furnish as Corrected" indicates Contractor is to move forward with minor corrections as indicated. A resubmittal to the Program Manager is not required before purchasing and/or proceeding. A final submittal with corrections will be submitted to the Program Manager upon completion.

E. Program Manager will return one (1) copy in PDF format for printing and distribution by Contractor.

3.04 RESUBMISSION

A. Make corrections and changes indicated for unacceptable submissions and resubmit in same manner as specified above. Resubmission for review shall be made by Contractor within 10 working days of documented receipt of returned submittals by Contractor.

B. In resubmission transmittal direct specific attention to revisions other than corrections requested by Program Manager on previous submissions, if any.

3.05 DISTRIBUTION

A. Contractor is responsible for obtaining and distributing copies of submittals to his Subcontractors and material suppliers after as well as before final approval.

PART 4 — PRODUCTS

(Not Used)

PART 5 — EXECUTION

(Not Used)

END OF SECTION

SECTION 01320
PROGRESS REPORTS & VIDEOS

PART 1 — GENERAL

1.01 SECTION INCLUDES

This Section includes administrative and procedural requirements for documenting the progress of assessment during performance of the Work, including the following:

A. Daily Reports

B. Pre & Post Work Site Videos

1.02 RELATED SECTIONS

A. Section 01300 - Submittals

B. Section 01420 - Inspection of Work

C. Section 01700 – Project Closeout

1.03 SUBMITTALS

A. DAILY REPORTS

1. The Contractor's Superintendent shall prepare and submit Daily Reports throughout the project, from Notice to Proceed to Final Acceptance. Daily Reports shall be kept in an orderly manner, available for inspection or review when requested by the Owner and Program Manager. Copies of Daily Reports shall be accumulated and submitted to the Program Manager on a weekly basis, on a regular day and time to be determined by the Program Manager. Failure to submit Daily Reports or to comply with the format requirements below is cause for the Owner to retain additional monies due the Contractor from the monthly Application(s) for Payment until such time as the reports have been brought up to date by the Contractor.

   a. Each Report shall include the following information at a minimum:

      1) Manpower by subcontractor, trade, and skill level
      2) Weather and temperatures (summary of conditions)
      3) List of visitors to the jobsite
      4) Specific work performed with locations
      5) Situations or circumstances which could delay the Work or give cause for a time extension or additional cost
      6) Instructions requested (and of whom)
      7) Materials received
      8) Major equipment arrival/departure
      9) Total days accrued under the terms of the Contract Documents

10) Accidents and incidents
11) Safety issues
12) Meetings
13) A copy of a delivery receipt of all deliveries, to the project on that day, of equipment and/or materials
14) A copy of all field reports from testing activities that were performed
15) Other significant events at the jobsite

2. Daily Production Log: The Contractor shall prepare and submit Daily Production Logs for the CCTV/Cleaning and TISCIT assessment upon completion of the internal QA/QC for the work, but not to exceed one work week (5-days) in duration:
   a. Daily Production Log – CCTV: The Contractor shall prepare and submit Daily Production Logs for the CCTV assessment
      1) Each Report shall include the following information at a minimum:
      2) Project Name
      3) Date
      4) UPS MH Asset ID
      5) DS MH Asset ID
      6) Pipe Size
      7) Feet Completed
      8) Light Cleaning
      9) Heavy Cleaning
      10) Address
      11) Completed Y/N
      12) Comments
      13) Direction (U/D)
      14) Operator
      15) Reverse (Y/N)
   b. Daily Production Log – TISCIT: The Contractor shall prepare and submit Daily Production Logs for the TISCIT assessment
      1) Each Report shall include the same fields as the Daily Production Log-CCTV with the exception of Light and Heavy Cleaning,
   c. Daily Schedule: Provide location and activity for all crews to be utilized in scheduling inspections.

3. The Contractor shall take the necessary action required to specifically alert the Program Manager to potential items impacting the progress of the Work. Such items shall be clearly highlighted in the report.
4. All Daily Reports shall be typed.
5. Contractor must adhere to reporting requirements in this Specification Section as well as any other reporting requirements listed in other

Specification Sections, specifically those related to reporting associated with assessment activities.

B. VIDEOS

1. Accompanying each work order/assignment and prior to the beginning of any work, the Contractor shall take a pre-site work video of the site work area to record existing conditions. Video shall show all conditions which might later be subject to disagreement. These conditions shall be shown in sufficient detail to provide a basis for decisions. The video shall be submitted in external hard drive format, with a log of the items taped prior to assessment activities. No request for payments will be processed until the pre-site work video has been submitted and approved by the Program Manager. 2 copies each. Required for close-out.
2. Following completion of the work, another recording shall be made showing the same site work areas and features as in the pre-site work video. Post-site work video shall be made prior to final acceptance and before submitting a request for final payment. Video shall be submitted in external hard drive format, with a log of the items taped, with the final payment application. 2 copies each. Required for close-out.
3. At the conclusion of the Project, the Contractor shall have all videos generated for the project consolidated and copied onto an external hard drive and prepare a Table of Contents for the drive. A copy of the external hard drive and Table of Contents for the external hard drive shall be transmitted to the Program Manager with the request for final payment. 2 copies each. Required for close-out.

END OF SECTION

SECTION 01420
INSPECTION OF WORK

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. This section includes guidelines for the inspection of contract work.

1.02 QUALIFICATIONS AND REQUIREMENTS

A. The Program Manager and Owner shall have the right of access to and inspection of the work at all times. Materials, equipment, and products shall be subject to the Program Manager's review as specified herein.

B. The Program Manager is responsible for general surveillance of the work on behalf of the Owner. The Program Manager is not responsible for construction means, methods, sequences, or procedures or for safety precautions and programs in connection with the work. The Program Manager is not responsible for supervision of the work and shall not give instruction to the Contractor's personnel as to methods of executing the work. The Program Manager is not responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents.

C. Any government representative or other individual identified by the Owner shall have access to the work wherever it is in preparation or progress. The Contractor shall provide proper facilities for such access and inspection.

1.03 RESPONSIBILITY OF THE CONTRACTOR

A. The Contractor is responsible for all materials, equipment, methods, and procedures in execution of the work.

B. The Contractor shall correct, to the satisfaction of the Program Manager, any work or material found to be defective or of deficient quality. Such corrections shall be made by the Contractor at no additional expense to the Owner.

1.04 RIGHT OF ENTRY

Representatives of DeKalb County, the Environmental Protection Division of the Georgia Department of Natural Resources, and the U.S. Environmental Protection Agency and others, as may be identified by the Owner, shall have access to the work wherever it is in preparation or progress. The Contractor shall provide proper facilities for such access and inspection.

END OF SECTION

SECTION 01510

SANITARY SEWER MAIN TELEVISION AND SONAR INSPECTION

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. This section includes guidelines and requirements for closed circuit television (CCTV) and sonar Inspection. CCTV inspection will lead to a condition assessment rating of the inspected Wastewater Collection and Transmission System (WCTS) sewers and supports subsequent sewer maintenance and rehabilitation activities. CCTV inspection identifies structural defects, maintenance concerns, and actual and potential sources of I/I in mainline sewers, service laterals, and manholes.

1.02 REFERENCES

A. Codes, Specifications, and Standards

1. NASSCO – National Association of Sewer Service Companies – Pipeline Assessment Certification Program (PACP) Reference Manual, Version 6.0.1, November 2010 or latest version.

B. Manual for Uniform Traffic Control Devices (MUTCD) standards

C. Attachment A – PACP Standard Exchange Database Anticipated Inspection Header Form Attribute Guidance Table (CCTV) (Reference NASSCO PACP Reference Manual, Version 6.0.1, Section 2 for related information.

The intent is for the Contractor to provide the minimum requirements of the Pipeline Assessment Certification Program. The owner reserves the right to request additional header items.

1.03 RELATED SECTIONS

A. Section 01056 – GPS Data Collection

B. Section 01320 - Progress Reports & Videos

C. Section 01520 – Sewer Flow Control

D. Section 02607 - Manhole Height Adjustment

E. Section 02956 – Sanitary Sewer Cleaning

1.04 DEFINITIONS

A. **Television Inspection:** Operation necessary to complete a true-color audio-visual inspection for verification of existing internal pipe conditions including pipe materials, pipe size, pipe grade, connections, cracks, leaking joints, seepage and roots. Contractor shall furnish all labor, materials, equipment, tools, and other incidental services for closed circuit television inspection (CCTV).

B. **MPEG:** MPEG (pronounced M-peg), which stands for Moving Pictures Experts Group, is the nickname given to a family of International Standards used for coding audio-visual information in a digital compressed format. For the purposes of this specification, MPEG shall be defined as an ISO-MPEG Level 4 standard (MPEG- 4) digital audio-visual coding having a minimum resolution of 500 lines. All video files shall be named using .mpg or .wmv as the file extension.

C. **External Hard Drive**: For the purposes of this specification, an external hard drive is a peripheral auxiliary device that connects to the computer via a high-speed interface cable. The interface cable allows the external hard drive to communicate with the computer so that data may be passed back and forth. The Contractor will deliver all inspection standard exchange databases, digital reports and media to the Owner/Program Manager on an external hard drive that is compatible with the Owner and Program Manager's equipment and software and will be of adequate storage to contain all deliverables as outlined in the Specifications.

D. **Sonar/Totally Integrated Sonar and CCTV Inspection Technique (TISCIT):** Operation necessary to complete a simultaneous CCTV and sonar inspection for verification of existing internal conditions. Both the CCTV and sonar will be displayed together on the audio visual documentation. Contractor shall furnish all labor, materials, equipment, tools, and other incidental services for the sonar/TISCIT inspection.

E. **Buried Manhole**: A manhole where the manhole cover (lid) is not visible at ground surface. Buried manholes usually require removing the material covering the manhole lid and raising the manhole frame and cover (lid). All buried manholes on the sanitary systems shall be reported for raising following their location discovery by the Contractor (Reference Specification Section 02607). Subsequently, the raised manholes shall be inspected.

    1. Note that manholes located as indicated on the County's mapping system and covered with a small layer of forest litter and/or a thin layer of soil or grass and where the location is apparent does not represent a "buried" manhole for "Locate & Expose" purposes.

1.05 SUBMITTALS

A. Submittals are to be in color PDF format for printed documents as well as other required formats when applicable for digital transfers.

B. Submit one example video on external hard drive of previous sewer inspection work that shows operational and structural defects in sewers, complete with audio commentary and inspection log(s).

    1. Videos and inspection logs will be reviewed by Program Manager to determine if quality of CCTV image is acceptable, if defects were properly identified, picture clarity, advancement speeds and lighting are acceptable and documented according to industry standards and the Program Manager's requirements. This video submittal is expected to represent the standard quality that the Contractor will provide throughout the Contract for all video submittals from all crews.
    2. Modify equipment and/or inspection procedures to achieve report material of acceptable quality.

3. Do not commence Work prior to approval of report material quality by the Program Manager. Upon acceptance, report material shall serve as standard for remaining Work.

C. Records reports shall include a separate report for each pipe segment showing inspection setup data, each defect and locations of laterals, and other coded information. Also, each report shall include photographs of moderate and severe defects. Each report shall also note the labeling number of the corresponding video recording of that pipe segment. The video record of the pipe inspections shall be provided digitally on an approved mass storage device. These records shall include all video information and narrations. The video files shall have unique name that are referenced in the PACP inspection database. The file name shall include manhole ID numbers for upstream and then downstream manholes as the start of the file name. It is preferred that the direction of the inspection and inspection date be included as well.

D. Camera specification sheet

E. Sonar/TISCIT survey equipment specification sheet

F. References: Contact names and telephone numbers

G. List of staff and equipment to be used on this Project

H. Supervisor and field crew leader's contact information including name and mobile telephone numbers

I. Confined space entry certification that staff to be used on this project have been properly trained should confined space entry be required

J. Contractor's Safety Plan

K. Training and inspection plan a minimum of 7 days prior to the first inspection

L. 14 day look ahead schedule weekly based on Program Manager's work priority schedule

M. Public notification door hanger based on Program Manager's provided example

N. Inspection (See Documentation Section for additional information);

1. Initial first day's inspections within 24 hours after first day's work is completed.

O. Include the following with each weekly submittal:

1. Inspection media (videos and photographs)
2. Quality controlled Inspection database (PACP Standard Exchange Access Database)
3. Inspection reports (PDF – Digital format)

P. Traffic control plan

Q. Quality control plan

1.06 EXPERIENCE

A. Supervisor of the field crews performing these functions shall have the proper training and up to date NASSCO PACP certification in these types of equipment and monitoring functions and have a minimum of five (5) years' experience in performing such assignments including safe work practices, etc.

B. Field crew leaders performing these functions shall have the proper training and up to date NASSCO PACP certification in these types of equipment and monitoring functions and have a minimum of two (2) years' experience in performing such assignments including safe working practices, etc.

C. The Contractor shall provide the Owner with written documentation (certification) that the supervisor, field crew leader and all crewmembers responsible for these assignments have the proper training and the requisite experience.

D. No crew members shall enter confined spaces without the necessary certified training and permit.

E. The required experience for the Field Crew Supervisor shall be documented in the Contractor's Bid submittal. Field Crew Leader qualifications will be reviewed and approved (if appropriate) by the Program Manager.

F. A PACP certified technician or supervisor shall control operation of television equipment and encoding of inspection. Should Contractor utilize any personnel to actually document the inspection results that is not PACP certified, those inspections shall be refused and re-survey shall be completely at the Contractor's sole expense.

1.07 RESPONSIBILITY FOR OVERFLOWS/SPILLS AND DAMAGE TO PROPERTY AND UTILITY

A. Reference Specification Section 01030 – Special Project Procedures.

PART 2 — PRODUCTS

2.01 CCTV/SONAR PERFORMANCE

A. The Contractor shall furnish the following, but not limited to: the mobile (off-road) television/sonar inspection studio, television camera, sonar, audio-visual digital encoding equipment / software, and other necessary equipment, materials, power, labor, and technicians as needed to perform the television inspection; Easement machine necessary to perform cleaning of lines.

B. The surveying/inspecting equipment will be capable of surveying/inspecting a length of sewer up to at least one-thousand five-hundred (1,500) feet when entry onto the sewer may be obtained at each end and up to one-hundred (100) feet by rodding or up to seven-hundred and fifty (750) feet where a self-propelled unit is used, where entry is possible at one (1) end only. This equipment will be maintained in full working order.

C. Each survey/inspection unit will contain a means of transporting the CCTV camera and/or sonar equipment in a stable condition through the sewer under survey and/or inspection. Such equipment will ensure the maintained location of the CCTV camera or sonar equipment when used independently on or near to the central axis of a circular shaped sewer when required in the prime position.

D. Where the CCTV camera and/or sonar head are towed by winch and bond through the sewer, all winches will be stable with either lockable or ratcheted drums. All bonds will be steel or of an equally non-elastic material to ensure the smooth and steady progress of the CCTV camera and/or sonar equipment. All winches will be inherently stable under loaded conditions. The bonds shall be oriented in such a manner as to enable unhindered extension or retraction through the line. All effort shall be made to prevent damage to the pipe during the television/sonar inspection. In the case where damage is caused by the Contractor, for any reason, such as would be caused by incorrect deployment of bonds or retrieval of lodged equipment, the cost of repair or remedy shall be borne solely by the Contractor and repaired immediately after notification to the Program Manager within 24 hours.

1. Equipment lodged within the sewer main may require an external point repair to retrieve. For Contracts with applicable point repair pay items, the equipment will be retrieved under the applicable line item(s). If an applicable line item(s) is not included in the Contract, the Contractor will provide the County a cost proposal from three (3) qualified contractors capable of completing the work for review. The County will review the circumstances leading to the equipment becoming lodged and make a decision as to payment-to the Contractor for the necessary removal: none, partial, or all.
2. Should the Contractor have equipment lodged in a sewer line, the Contractor will immediately have on standby, forces necessary to monitor the sanitary sewer collection system upstream of the obstructed line so as to prevent a sanitary sewer overflow and to install by-pass pumping if necessitated. Should the Contract not have a pay item for by-pass pumping, the Contractor will provide a cost proposal to the County representing the total cost of providing an appropriately sized and engineered continuous by-pass operation. The Project Manager as part of the review the circumstances leading to the equipment becoming lodged will make a decision as to payment-to the Contractor for the by-pass pumping: none, partial, or all.
3. As a result of b and c, lodged equipment not associated with Contractor negligence will be removed by the Contractor at an agreed upon price at the direction of the County. Payment will be under the appropriate line item(s) if present or under the appropriate allowance.

E. Each unit will carry sufficient numbers of guides and rollers such that, when surveying or inspecting, all bonds are supported away from pipe and manhole structures and all CCTV/sonar cables and/or lines used to measure the CCTV camera's/sonar head location within the sewer are maintained in a taut manner and set at right angles where possible, to run through or over the measuring equipment.

F. Each unit shall carry or have access to flow control plugs as required to accommodate the diameter range in which inspection is to occur. . See Sewer Flow Control Specification 01520 for additional details and requirements.

G. Each survey/inspection unit will have on-call equipment available to carry out the flushing, rodding, and jetting of sewers for “Light Cleaning” and “Heavy Cleaning”. See the definition of “Light Cleaning” and “Heavy Cleaning” in Sanitary Sewer Cleaning Specification 02956 for details.

H. Television/Sonar Inspection: The Contractor shall inspect pipelines with pan and tilt conventional television imagery and/or sonar as indicated in the contract documents so as to record all relevant features and defects of the pipeline under inspection. Inspection of pipelines shall be carried out utilizing the Owner approved formats only.

I. External Hard Drive (Videos):

1. Audio portion of videos shall be sufficiently free from electrical interference and background noise to provide complete intelligibility of oral report.
2. Store in upright position with temperature range of 45 to 80 degrees F (7 to 27 degrees C).
3. Identify each hard drive with labels showing Owner’s name, Contractor’s name, the inspection period, and project area or sewer segments on the hard drive.

J. Hard Drive Titling:

Each segment shown on the external hard drive should have its own video titled with the beginning and end point of the pipe segment.

K. CCTV Camera/Sonar Head Prime Position:

The CCTV camera/sonar head will be positioned to reduce the risk of picture distortion. In circular sewers the CCTV camera lens and/or sonar head will be positioned centrally (i.e. in prime position) within the sewer. In non-circular sewers, picture orientation will be taken at mid-height, unless otherwise agreed, and centered horizontally. In all instances the camera lens/sonar head will be positioned looking along the axis of the sewer when in prime position. A positioning tolerance of ± 10% of the vertical sewer dimension will be allowed when the camera is in prime position.

L. CCTV Camera/Sonar Head Speed:

The speed of the CCTV camera in the sewer will be limited to six (6) inches per second or 30 ft./min for surveys. Similar or slightly higher speed may be used on a case-by-case basis. Stop for a minimum of five (5) seconds at every lateral, defect, or adversity. The speed of scanning sonar will be limited to four (4) inches per second.

M. CCTV Color Camera:

The television camera used for the pipe line inspection shall be one specifically designed for hazardous and corrosive environments and constructed for pipeline inspection. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall adhere to the following requirements:

1. Waterproof and shall be operative in 100% humidity conditions without lens fogging and any conditions that may be encountered in the inspection environment. Camera lens will be free of scratches and other faults that may reduce the video quality. The operator will take precautions to clean the lens of all foreign matter prior to inserting the camera and will attempt to reduce the amount of water on the lens during the survey/cleaning process.
2. Self-leveling, color pan and tilt camera(s) to facilitate the survey and inspection of all laterals, including defects such as hydrogen sulfide corrosion in the soffit of sewers and benching or walls of manholes over and above the standard defects that require reporting.
3. A three-hundred sixty (360) degrees rotational scan indicating general condition must be implemented at every fifty (50) feet interval (min.) along sewers, and at manholes and any salient, specified, defect features.
4. The tilt arc must not be less than two-hundred seventy (270) degrees with adjustable supports designed for operation in connection with pipe inspection with a viewing angle of not less than 65 degrees.
5. The view seen by the television camera shall be transmitted to a monitor of not less than 11 inches in size.
6. The travel speed of the television inspection camera (through the pipe) shall be uniform and shall not exceed the maximum speed herein specified.
7. The camera, television monitor, and other components of the video system shall be capable of producing picture quality to the satisfaction of the Program Manager; and if unsatisfactory, equipment shall be removed and no payment will be made for an unsatisfactory inspection.
8. The adjustment of focus and iris will allow optimum picture quality to be achieved and will be remotely operated.
9. The adjustment of focus and iris will provide a minimum focal range from six (6) inches in front of the camera's lens to infinity.
10. The distance along the sewer in focus from the initial point of observation will be a minimum of twice the vertical height of the sewer.
11. The illumination must be mounted on and turned in the direction of the camera such as to allow an even distribution of the light around the sewer perimeter without the loss of contrast picture, flare out, or shadowing, light sensitivity to be greater than 1.5 lux minimum, minimize reflective glare, remote variable intensity control, provide a clear in-focus picture of entire inside periphery of pipe and the ability to achieve proper balance of tint and brightness.

N. Color CCTV/Sonar:

All CCTV and/or sonar work will use color CCTV/sonar reproduction.

O. CCTV Side Scanning Camera:

The Program Manager will consider high resolution digital CCTV side scanning cameras if proposed by the Contractor. The Program Manager may not accept the

side scanning camera use for this project if the contractor cannot provide supporting documents showing previous successful application.

P. Sonar Survey Requirements:

1. Sonar assessment will provide for a continuous output on external hard drive format of all sewers surveyed, supported by complete defect code sheets. Additionally, silt levels will be assessed as a percentage depth of sewers at a minimum of twenty-five (25) foot intervals for each pipeline surveyed in addition to locations where the silt layer varies from the previous by 5% or more .
2. Where combined CCTV and sonar imagery is used the output will display combined CCTV and sonar images of the sewer being surveyed. The sonar image will be superimposed on the real CCTV image as a combined operation.

Q. The survey/inspection vehicle for general public streets or assessable locations will comprise two (2) distinct separate areas. One (1) of these, designated as the viewing area, will be insulated against noise and extremes in temperature, include the provision for air conditioning, and will be provided with means of controlling external and internal sources of light in a manner capable of ensuring that the monitor screen display is in accordance with the requirements of this specification. Seating/and or space accommodations will be available to enable additional workers to clearly view the on-site monitor, which will display the survey/inspection as it proceeds.

R. The working area will be reserved for equipment, both operational and stored, and no equipment utilized within the sewer will be allowed to be stored in the viewing area.

S. The vehicle will be suitable for carrying the survey team and laborers and the equipment necessary to safely perform the work.

T. Off road inspection equipment/easement machine proposed by the Contractor shall be reviewed and approved by the Program Manager before the Contractor utilizes said equipment.

PART 3 — EXECUTION

3.01 GENERAL

A. The following guidelines concerning the use of CCTV and sonar will be followed:

1. Generally CCTV alone will be used for internal condition assessment where the depth of flow is less than twenty-five (25%) percent of overall sewer diameter at the start of the survey. A case-by-case determination will be made whether to use CCTV where the depth of flow is more than twenty-five (25%) percent level but no greater than forty (40%) percent of overall sewer diameter at any time throughout the length. The use of flow control (plugging, flow restriction and/or bypassing pumping) to reduce flow to 25% or less is required.
2. Generally CCTV combined with sonar will be used for internal condition assessment where depth of flow of sewage varies from twenty-five (25%) percent to seventy-five (75%) percent of overall sewer diameter for

sewers greater than or equal to eighteen (18) inches in diameter. Where the sewer is less than eighteen (18) inches in diameter and depth of flow of sewage exceeds twenty-five (25%) percent but is less than seventy-five (75%) percent of overall sewer diameter one of the following actions may be taken based on the Contractor and Program Manager's agreement: (a) continue using CCTV (where depth of flow is only marginally greater than twenty-five (25%) percent of overall diameter) or (b) use sonar (by damming or plugging the sewer so that the depth of flow exceeds seventy-five (75%) percent of overall diameter) or (c) use plugging and/or bypassing to reduce flow to 25% or less.

3. Generally sonar alone will be used where depth of flow in the sewer exceeds seventy-five (75%) percent of overall diameter and the level of the flow will be artificially increased, without the risk of flooding, to ensure that the pipe is completely surcharged.

B. Confined Space Entry: Crews shall minimize the physical entry into manholes. Manhole entry shall be performed in accordance with Federal, State, Local and any other regulations for confined space entry. Only trained crews and staff may perform confined space entry after obtaining an entry permit. Staff must use safety required equipment, including harnesses, ventilation equipment, etc.

C. The Contractor shall make map verifications and record and deliver GIS map corrections as necessary (Refer to Section 01056).

D. Traffic Control: All traffic control measures shall comply with the requirements of MUTCD, Part 6 – Temporary Traffic Control, Latest Edition as published by USDOT/FHWA.

E. Site Security: Wear all required safety equipment, such as safety vests, hardhats, safety glasses, and steel toe boots. Follow all applicable state and local traffic safety procedures. Alert the closest fire department/Emergency Medical Services (EMS) as to the location of the day's work and to stand by for emergencies.

F. Scheduling Time: Crews shall begin inspections after 8:00 am and terminate inspections no later than 5:00 pm each day unless otherwise directed by the Program Manager in order to address localized special requirements. Authorization should be obtained if work is to be performed outside of the designated hours. Work should be performed by the Contractor in time frames that will allow compliance with the County's noise ordinance.

G. Permits for Rights of Ways & Contract Utility Licensing:

The Contractor shall obtain work permits for all work to be performed in State and/or County Right of Ways. The Contractor shall also plan for all other insurances, traffic control measures, and other terms of the permit in advance. The Contractor shall also obtain all necessary and applicable licensing.

H. Sequence of Work:

1. Perform Work in the following sequence:
   a. Clean sewer lines and manholes in accordance with "Light Cleaning" requirements of Section 02956, Sanitary Sewer Cleaning.

b. Contractor shall remove debris in accordance with guidance in Section 02956, Sanitary Sewer Cleaning.

c. After cleaning, the manhole sections shall be visually inspected by means of closed-circuit television. The inspection then will be done one linear section at a time and the flow in the section being inspected will be suitably controlled as specified (see Sanitary Sewer Flow Control Specification). All CCTV inspections shall be performed in accordance with PACP standards including the specific date and time of inspection.

I. Inspection equipment shall utilize software capable of providing complete survey reports, inspection standard exchange database, and linked media files; equipped with modules necessary for NASSCO Pipeline Assessment and Certification Program inspection.

J. If television/sonar inspection(tractor mounted) of an entire manhole to manhole sewer segment cannot be successfully performed from one manhole, a reverse setup shall be performed to obtain a complete inspection. A reverse setup shall be considered incidental to and included in the segment's unit price bid for CCTV inspection. If upstream (reverse) setup, is required, establish new inspection run separate from downstream (normal) setup so two inspection records exist in the software, one with the normal setup and one with the reverse setup.

K. Televised pipe segment inspection is represented by one manhole-to-manhole pipe segment or other structural access-to-access point; not multiple manhole-to-manhole segments.

L. Show continuous footage reading and other required information on inspections image. Place on screen where it is clearly visible (if black font, do not place on dark background, if white font, do not place on light background).

M. Viewing shall be in direction of flow, except while camera is being used in a reverse setup. Inspection shall proceed from upstream to downstream, unless prohibited by obstruction.

N. Keep camera lens clean and clear. If material or debris obscures image or causes reduced visibility, clean or replace lens prior to proceeding with recording operation.

O. Camera lens shall remain above visible water level and may submerge only while passing through clearly identifiable line sags or vertical misalignments. If flow exceeds 25 percent of diameter, such that the camera lens becomes obscured, pause inspection until flow subsides. If necessary, reschedule CCTV operation. Surcharging and flooding of camera lens is not an excusable condition if it has been artificially created upstream, i.e., placement of flow plugs or freshwater flushing in pipe.

P. Pan the camera to record the inside of each lateral or connecting pipe and the connection of lateral or connecting pipe to sewer pipeline.

Q. Recordings shall clearly show all defects and observations, and their severity in addition to obvious features, i.e., laterals and joints.

R. Immediately report to Program Manager any obstructions that restrict flow and cause inspection to be interrupted. Assure that the obstruction is documented in the inspection with the appropriate defect code. Document condition with still photographs, and begin a reverse inspection setup or inspections of other pipelines to the satisfaction of the Program Manager.

S. Televise pipe segments from manhole to manhole on same video in continuous run.

1. Video shall clearly show camera starting and ending at manhole, unless defects do not allow it.
2. Do not perform partial televising on one video and then complete run on another video.
3. If line is partially televised, due to excusable condition, i.e., collapsed line, televised length shall be viewed by the Program Manager.
4. If a portion of the Contractor's inspection is unacceptable to the Owner or Program Manager, the entire pipe segment shall be deemed unacceptable and the Contractor shall re-televise the entire pipe segment at the Contractor's sole expense.

T. The Program Manager may, on occasion, accept a physical inspection that does not adhere to minimum standards if adverse conditions are encountered and re-inspection is not advised.

U. At the end of each day, update the status of what sewer segments were inspected using the web-based mobile device. Refer to Section 01030 – Special Project Procedures.

3.02 CCTV/SONAR INSPECTION

A. **Data Transfer:** Upon completion of CCTV inspection, transfer inspection data to an external hard drive (HD) of sufficient capacity and compatibility with Owner's and Program Manager's equipment and available programs; include code required for proper playback of video file.

B. Labeling:

1. Provide printed label on outside of HD that indicates the following:
   a. Name of owner
   b. Project title
   c. Date of submittal
   d. Inspection company
   e. Deliverable number
   f. Project assignment area (provided by Program Manager)

C. Media:

1. Video:
   a. Inspections completed, with a unique filename per manhole to manhole pipe segment inspection.

b. Continuous digital video recordings of the inspection view as it appears on the television monitor shall be taken. The recording shall also be used as a permanent record of defects.

c. The recording shall be MPEG-4. Separate MPEG-4 files shall be created for each pipe segment inspection. In case of a reverse setup, such inspection shall be stored in a separate inspection record and MPEG file. MPEG files shall be written to External Hard Drive media for delivery to the Program Manager.

d. MPEG files shall be named according to the following file specification:

TV_[Upstream Manhole]_[DownstreamManhole]_[MMDDYYYY]_[Incremental Number].mpg

e. The "IncrementalNumber" shall be used if multiple inspections are performed for the same line, such as a reverse inspection setup. IncrementalNumber is to ensure no two videos are the same. The number can be the video ID if the software doesn't already have a random number generator.

f. The Owner, at its sole discretion, reserves the right to refuse any MPEG, on the basis of poor image quality, excessive bit rates, inconsistent frame rates or any other characteristics that may affect usability by the Owner.

g. The digital video encoding shall include video information that can be reproduced with a video image equal or very close to the quality of the original picture on the television monitor. The replay of the recorded video information shall be free of electrical interference and shall produce a clear, stable image.

2. Audio:

a. Embedded in video file

b. Operator will include description of inspection setup, including related information from log form and unusual conditions.

c. Operation changes (for example, remove roots and restart inspection at footage prior to root removal)

d. Verbal description and location of each defect

e. Verbal description and location of each service connection

D. Still Photographs:

1. Provide color digital photographs showing inspection image whenever observation or defect has a moderate or major severity; looking into a lateral or connection pipe; or unless otherwise instructed by the Owner or Program Manager;

2. Each with a unique filename matching the asset ID with a random number;

3. Encoded in .JPEG format;

4. Minimum 1024 x 768 resolution; and

5. Provide label on front of photograph with structure identification number, footage (if not visible on photograph), and defect code (if applicable).

E. Database:

1. Include all inspections in a single consolidated PACP Version 6 or newer Access Standard Exchange database. Creating a database per inspection is not acceptable. Each submittal standard exchange database shall be cumulative containing all prior inspections as well as inspections conducted during interim period since previous submittal.
2. Provide PACP standard exchange database of collected data including anticipated inspection header field attribute information as shown in Attachment A to this Section.
3. File Type: MS Access, .MDB, .ACCDB
4. Database Format: PACP Version 6 or newer. NASSCO PACP data will be exported into Standard PACP Standard Exchange database.
5. List inspection media names in corresponding asset/inspection/defect information field within database.

F. Linear Measurement:

1. The CCTV/sonar monitor display will incorporate an automatically updated record in feet and tenths of a foot of the footage of the camera or center point of the transducer, whichever unit is being metered, from the cable calibration point, the pipe diameter (physical measurement by Contractor), and verified pipe material. The relative positions of the two (2) center points will also be noted.
2. The Contractor shall use a suitable metering devise that enables the cable length to be accurately measured; this shall be accurate to 0.20 feet. The Contractor shall use the footage readings to identify location of defects to the nearest 0.10 feet. Measurement shall be zeroed after each segment inspected. The Contractor shall calibrate the footage meter on a regular basis and demonstrate that the tolerance is being achieved by tape measurement between manholes on the surface. This taped measurement must be included on a quality control form which will be completed and submitted by the Contractor depicting the level of accuracy achieved.

G. Data Display, Recording and Start of Survey/Inspection:

1. At the start of each sewer length being surveyed or inspected and each reverse set-up, the length of pipeline from zero (0) footage, the entrance to the pipe, up to the cable calibration point will be recorded and reported in order to obtain a full record of the sewer length. Only one (1) survey will be indicated in the final report. All reverse set-ups, blind manholes, and buried manholes will be logged on a separate log. Regardless, each set-up will be recorded as a separate inspection and the header and observed defects recorded appropriately. Video digits will be recorded so that every recorded feature has a correct tape elapsed time stamp. Each log will make reference to a start and finish manhole unless abandonment took place because of blockage.

2. The footage reading entered on to the data display at the cable calibration point must allow for the distance from the start of the survey/inspection to the cable calibration point such that the footage at the start of the survey is zero (0).
3. In the case of surveying through a manhole where a new header sheet and file must be created, the footage will be set at zero (0) with the camera focused on the outgoing pipe entrance.
4. At the start of each manhole length a data generator will digitally generate and clearly display on the viewing monitor and subsequently on the video recording a record of data in alpha-numeric form containing the following minimum information:
    a. Automatic update of the camera's footage position in the sewer line from adjusted zero (0)
    b. Sewer dimensions
    c. Manhole/pipe asset ID number
    d. Date of survey
    e. Road name/location
    f. Direction of survey
    g. Time of start of survey
    h. Sewer use (SS - Sanitary Sewer)
    i. Material of construction of the pipe
    j. The size and position of the data display will be such as not to interfere with the main subject of the picture.
5. Once the survey of the pipeline is under way, the following minimum information will be continually displayed:
    a. Automatic update of the camera's footage position in the sewer line from adjusted zero (0).
    b. Manhole or pipe asset ID number.
    c. Defect/observation code(s) (temporarily display when encountered)
    d. Date and Time
6. Before camera enters the pipe, inspection shall provide video of the manhole. Video recording shall begin by facing pipe segment to be televised and then pan/tilt/zoom as necessary to point camera up toward the manhole opening.

H. **Coding:** Defect Coding, as well as material, shape, and lining coding, and conventions used will comply with PACP formats and will be compatible with the Owner's GIS.

3.03 DELIVERABLES

A. **Digital PACP Standard Exchange database** shall be submitted on external hard drive to the Program Manager. The database must contain all the data required by this specification.

B. **Final Television/Sonar Inspection Reports** shall be submitted to the Program Manager in PDF on the same external hard drive referenced above. Corresponding MPEG videos and photos shall also be submitted to the Program Manager as outlined by this specification.

3.04 PUBLIC NOTIFICATION – CCTV INSPECTION

A. Public notification is critical and compliance with the public notification criteria is a prerequisite for CCTV inspection, especially when conducting inspections on sewers in easements which pass through private property. Notification must be provided to all property occupiers/owners likely to be affected including residential, commercial and institutional (schools, hospitals, nursing homes, etc.). At a minimum, the following steps shall be taken:

1. The Contractor shall print and distribute pre-approved advance notice door hangers 72 hours before conducting CCTV inspection. The Contractor shall distribute the door hangers to the property owners (residential, commercial and institutional) in the affected area(s). The advance notice door hangers shall be customized by Public Outreach to suit this project and will be provided to the Contractor for printing prior to project commencement. If CCTV inspection is delayed, the Contractor must re-distribute door hangers.
    a. The Contractor is responsible for distributing pre-approved "Right-of-Entry" (ROE) forms and securing signatures from affected property owners on the ROE forms prior to conducting CCTV inspection.

B. The Contractor shall keep a daily log of the distribution of the door hangers. This shall be maintained and submitted to the Owner and/or Program Manager upon request.

C. The Contractor shall alert the appropriate Owner and Program Manager personnel of their work locations on a daily basis.

D. Contractor will provide and place "Right-of-Way" signs in prominent locations where CCTV is planned 24-hours in advance of commencing the inspection. Signs will be a minimum of 24 inches wide by 18 inches high with letters a minimum of 2 inches high. Signs will be supported a minimum of 12 inches above grade by integral metal frames. Wording on the signs shall be similar to the following:

CCTV INSPECTION WILL BE CONDUCTED ON "date" and "time." Contact "person" with "company" at "phone number" for additional information.

3.05 QUALITY ASSURANCE/QUALITY CONTROL

A. Prior to assessment data submission to the Program Manager, the Contractor shall perform a Quality Control (QC) check of the inspection documentation using the QC database provided by the Program Manager. The queries are developed by the Program Manager and provided to help the Contractor locate data gaps and errors prior to submitting the respective assessment access database. The Program Manager will provide at minimum two hours of training on use of the QC database tool for the Contractor. The Contractor shall correct any data conflict, missing data, or

other questionable entry identified by the QC reports prior to submitting the CCTV inspection data to the Program Manager.

B. The Program Manager will periodically request the Contractor to review the QC results with the Program Manager.

C. CCTV video of insufficient quality may result in the line segment being re-CCTV's at the Contractor's expense, depending upon circumstances. The video must be of sufficient quality to allow a review of the operator's assessment. The Contractor is directed to the initial approved CCTV submittal for quality check.

3.06 The Program Manager will perform random review checks of the Contractor's submitted data. Should accuracy or qualitative levels of any of the data fall below those deemed acceptable to the Program Manager; the data submittal will be refused and returned to the Contractor for correction. The Contractor will be required to correct or re-do inspections until the Program Manager is satisfied with the quality of the work."DOCUMENTATION

A. The Contractor shall complete work on each asset as described herein. Refer to the Measurement and Payment Section (Section 01025) on documentation requirements to be provided with each pay request.

B. **Measurement Units:** All dimensions will be in feet and tenths of a foot and/or feet and inches depending upon the technology performed. Measurement of sewers will be to the nearest tenth of a foot.

C. CCTV Photographs:

1. Photographs will be taken of all laterals or connecting pipes and moderate or severe pipeline defects. Where a defect is continuous or repeated the photographs will be taken at the beginning of the defect and at not less than ten (10) foot intervals thereafter.

D. The Contractor shall complete weekly and end of work television/inspection reports as described herein. These reports shall be per the format and defect codes of NASSCO's Pipeline Assessment and Certification Program (PACP). Prior to beginning work, the Contractor shall submit a digital sample of the television inspection report to the Program Manager for approval.

END OF SECTION

Attachment A - PACP Standard Exchange Database Anticipated Inspection Header Form Attribute Guidance Table (CCTV)

NOTE: All input to be as noted in the PACP Program description with the following additions as noted in the FIELD REQUIRED and Description columns.

NUMBER	FIELD	FIELD REQUIRED	DESCRIPTION/INSTRUCTIONS
1	Surveyed by	Y	
2	Certificate Number	Y	NASSCO PACP # of Surveyor – e.g. U-907-4396
3	Reviewed By	N	
4	Reviewer Certificate No	N	
5	Owner	N	DeKalb DWM
6	Customer	N	DeKalb DWM
7	P/O Number	Y	DeKalb DWM Contract number
8	Work Order Number	Y	DeKalb DWM Work Order number assigned
9	Media Label	Y	
10	Project	N	SSES OSARP_TIERED
11	Date	Y	
12	Time	Y	
13	Sheet Number	Y	
14	Weather	y	
15	Pre-Cleaning	Y	
16	Date Cleaned	Y	Date when sewer was cleaned prior to survey if applicable, YYYYMMDD
17	Flow Control	Y	
18	Purpose of Survey	N	
19	Direction of Survey	Y	
20	Inspection Technology Used	N	
21	Inspection Status	Y	
22	Consequence of Failure	N	
23	Pressure Value	N	
24	Drainage Area	Y	Ranking Area Name – e.g. TAZTEC3
NUMBER	**FIELD**	FIELD REQUIRED	**DESCRIPTION/INSTRUCTIONS**

25	Pipe Segment Ref	Y	USMH__DSMH - Pipe Facility ID
26	Street (Name & Number)	Y	
27	City	Y	
28	Location Code	N	
29	Location Details	N	
30	Pipe Use	Y	
31	Height (Diameter)	Y	
32	Width	Y	
33	Shape	Y	
34	Material	Y	
35	Lining Method	Y	
36	Coating Material	Y	
37	Pipe Joint Length	N	
38	Total Length	N	
39	Length Surveyed	Y	
40	Year Constructed	N	
41	Year Renewed	N	
42	Upstream MH Number	Y	Client provided designation for upstream manhole (e.g. 15-304-s122)
43	USMH Rim to Invert	Y	
44	USMH Rim to Grade	Y	
45	USMH Grade to Invert	Y	
46	USMH Northing	N	
47	USMH Easting	N	
48	USMH Elevation	N	
49	Downstream MH Number	Y	Client provided designation for downstream manhole (e.g. 18-325-s289)
50	DSMH Rim to Invert	N	
51	DSMH Rim to Grade	N	
52	DSMH Grade to Invert	N	
53	DSMH Northing	N	GPS Coordinate Northing - NAD83 State Plane Georgia West
NUMBER	**FIELD**	FIELD REQUIRED	**DESCRIPTION/INSTRUCTIONS**

54	DSMH Easting	N	GPS Coordinate Easting - NAD83 State Plane Georgia West
55	DSMH Elevation	N	
56	MH Coordinate System	N	
57	MH Vertical Datum	N	
58	GPS Accuracy	N	
	Video Location	Y	For digital recordings, path of video file relative to corresponding data file

Y - NASSCO required

Y- DeKalb County Required

SECTION 01530

MANHOLE CONDITION ASSESSMENT

PART 1 — GENERAL

1.01 WORK THIS SECTION

A. The purpose of manhole condition assessment (MCA) is to locate a manhole, document all incoming and outgoing pipes, and determine its physical dimensions, materials, structural condition, maintenance concerns, and sources of infiltration/inflow. NASSCO's MACP manhole condition assessment codes will be utilized. MACP Level 1 or Level 2 inspections will be conducted on every manhole in the assigned project area, unless otherwise directed by the Program Manager. MACP Level 1 inspections will be performed on all properly mapped manholes with MACP Level 2 inspections required for all structures found but not mapped or not properly mapped.

1.02 REFERENCES

A. Codes, Specifications, and Standards

B. NASSCO – National Association of Sewer Service Companies – Pipeline Assessment Certification Program (PACP) Reference Manual, Version 6.0.1, November 2010 or latest version

C. Manual for Uniform Traffic Control Devices (MUTCD) standards

D. Related Sections

E. Section 01056 – GPS Data Collection

F. Section 01320 – Progress Reports & Videos

G. Section 02607 – Manhole Height Adjustment

H. **Attachment A** – MACP Standard Exchange Database Anticipated Inspection Header Form Attribute Guidance Table (Manholes)

I. **Section 01510 - Attachment A** - PACP Standard Exchange Database Anticipated Inspection Header Form Attribute Guidance Table (Pole Camera)

1.03 DEFINITIONS

A. Buried Manhole: A manhole where the manhole cover (lid) is not visible at ground surface. Buried manholes usually require removing the material covering the manhole lid and raising the manhole frame and cover (lid). All buried manholes on the sanitary systems shall be reported for raising following their location discovery by the Contractor (Reference Specification Section 02607). Subsequently, the raised manholes shall be inspected. Properly mapped manholes covered with a thin layer of forest litter or debris are not considered to be buried for locate and expose purposes.

B. Designated Manhole(s): Manholes identified by Program Manager to be assessed. For the purpose of this contract, Designated Manholes shall be all manholes on the sanitary sewer systems including new manholes, raised manholes, buried manholes, and unmapped manholes discovered during the project.

C. Manhole: A subsurface structure where one or more pipes meet, with person access from the ground surface.

D. Manhole Structure: Reference to and all activities relevant to manhole structures throughout the text shall also be taken to include junction boxes, inspection chambers, drop shafts, sumps, and all other auxiliary structures appurtenant to the sanitary sewer system.

E. Mapped Manhole: A manhole that appears on the Owner's sewer system maps.

F. Raised Manhole: A manhole in which the frame and cover has been raised above their previous level.

G. Unburied Manhole: A manhole on a pipe to be assessed that was formerly buried below ground surface.

H. Unmapped Manhole: A manhole not included on the Owner's sewer system maps. An unmapped manhole is also known as an uncharted manhole.

I. Elevated Manhole: A manhole in which the frame and cover are more than 12-inches above ground level on any side.

1.04 Program Manager: The DeKalb County Department of Watershed Management (Owner) or authorized representative.

1.05 SUBMITTALS

A. Catalog and manufacturer's data sheets for photo camera and/or zoom camera equipment

B. References: Contact names and telephone numbers

C. List of staff, equipment and/or inspection technology to be used on this Project

D. Supervisor, field crew leader qualifications including certification of required experience and MACP certification training identification number

E. Supervisor and field crew leader's contact information including name and mobile telephone numbers

F. Confined space entry certification that staff to be used on this project have been properly trained should confined space entry be required

G. Contractor's Safety Plan

H. Training and inspection plan a minimum of 7 days prior to the first inspection

I. 14 day look ahead schedule weekly based on Program Manager's work priority schedule

J. Public notification door hanger based on Program Manager's provided example

K. Include the following with each weekly submittal:

L. Inspection media (videos and photographs)

M. Quality controlled Inspection database (MACP Standard Exchange Access Database)

N. Inspection reports (PDF – Digital format)

O. Traffic control plan

P. Quality control plan

1.06 EXPERIENCE

A. Supervisor of the field crews performing these functions shall have the proper training and up to date NASSCO MACP certification in these types of equipment and monitoring functions and have a minimum of five (5) years' experience in performing such assignments including safe work practices, etc. The Data Manager is required to have been in a leadership role on inventory and condition assessment projects with three (3) years of experience in preparation of reports, management of field data collection, data analysis, data management and quality assurance.

B. Field crew leaders performing these functions shall have the proper training and up to date NASSCO MACP certification in these types of equipment and monitoring functions and have a minimum of two (2) year experience in performing such assignments including safe working practices, etc.

C. The Contractor shall provide the Owner and Program Manager with written documentation (certification) that the supervisor, field crew leader and all crew members responsible for these assignments have the proper training and the requisite experience.

D. No crew members shall enter confined spaces without the necessary certified training.

E. The required experience shall be documented in the Contractor's submittal.

1.07 RESPONSIBILITY FOR OVERFLOWS/SPILLS AND DAMAGE TO PROPERTY AND UTILITY

A. Reference Specification Section 01030 – Special Project Procedures.

PART 2 — PRODUCTS/EQUIPMENT

2.01 GENERAL

A. The Contractor may employ inspection technology of their choosing so long the minimum performance requirements are met for MACP and associated documentation and deliverables specified herein. Any inspection technology proposed to perform the work defined of this Contract shall be submitted to and approved by the Program Manager prior to use by the Contractor.

B. Digital photographs shall be taken with a 3.0 mega pixel color camera, minimum.

C. The Contractor will provide high-powered hand held spotlights and mirrors (to direct natural sunlight into the manhole) to properly illuminate the interior of the manhole when a Top Side Inspection is performed.

D. The Contractor shall ensure that the zoom camera used for associated main inspections is centered in the middle of circular pipe lines and manhole risers at all times during inspection. Using a steel tape or graduated survey rod, Manhole depth is to include extent from rim elevation directly above the outflow invert to bottom of outflow invert. Depths to all incoming and outgoing pipe inverts shall be measured.

E. The pole camera shall be equipped with an optic telephoto lens with sufficient magnification that the effects of pixelization do not degrade the farthest image.

F. The pole camera light source will be adjustable to allow an even distribution of light around the sewer and manhole perimeter without loss of contrast, flare out of picture, or shadowing.

G. It is the responsibility of the Contractor to comply with OSHA regulations. The Contractor must provide all equipment required to comply with the regulations and guidelines.

H. The Contractor shall provide all labor, material, supplies, equipment, transportation, traffic control, etc., necessary to complete the manhole condition assessments and associated zoom camera inspections. The Contractor shall make provisions to have ready access to spare or back-up zoom cameras and other sensitive equipment to maintain the inspection schedule.

PART 3 — EXECUTION

3.01 GENERAL

A. Manholes to be assessed (designated manholes):

1. The Contractor shall identify all designated manholes on the sewer systems to be assessed and confirm the manhole referencing system to be used throughout the survey and for all subsequent reporting. The Contractor shall inspect and record both mapped and unmapped manholes as well as buried and unburied manholes in addition to designated manholes (Reference Specification Section 01056).

2. The visible portion of each of the Owner's sewers entering designated manholes shall also be inspected, when accessible, to assess overall structural and service condition and possible forms of infiltration using zoom camera.
3. For manholes without a pre-assigned Manhole ID number the contractor shall notify the Program Manager and assign a temporary unique identifier number to be coordinated with the Program Manager.
4. When buried manholes are discovered, Contractor will alert the Program Manager, and submit report of all buried manholes, their location and surface cover. Contractor will coordinate Manhole Height Adjustment (Specification Section 02607) with Program Manager.
5. When a broken manhole cover and/or casting are identified, Contractor will advise the Owner and Program Manager in writing of the location of such broken cover and/or casting on the daily reports within 24 hours.
6. Inspection data shall be submitted to the Program Manager in an approved MACP Standard Exchange Access database (Version 6 or newer). Digital data and high resolution digital photographs will be delivered to the County on external hard drives.
    a. Only approved standard exchange database shall be submitted
    b. Databases will be named by date, will include all inspections performed to date and will be accompanied with a description of the regions inspected to date.
    c. Include all inspections. Creating a database per inspection is not acceptable.
    d. Inspection media will be submitted in conjunction with database.
7. Digital photographs shall be provided for each unique manhole assessment inspection, include the Manhole Facility ID and be named in the following format:
    a. [ManholeID][Type Designation] [PhotoIncrementalNumber].jpg
    b. PhotoIncrementalNumber is to ensure no two photographs are the same. The number can be the photo ID if the software does not have a random number generator.
    c. Type Designation – A for Area Photo, I for Internal Photo, P for Pipe Photo and F for MH Defect Photo.

B. If manhole(s) to be inspected requires significant cleaning to facilitate or execute inspection, Contractor shall notify Program Manager. Program Manager will coordinate cleaning to be performed by the Owner and notify Contractor when manhole is available for inspection.

C. Confined Space Entry: Crews shall minimize the physical entry into manholes. Manhole entry shall be performed in accordance with Federal, State, Local and any other regulations for confined space entry. Only trained crews and staff may perform confined space entry after obtaining an entry permit. Staff must use safety required equipment, including harnesses, ventilation equipment, etc.

D. The Contractor shall take digital photos as described in this section, complete the assessment report, make map verifications, and record map corrections as necessary (Refer to Specification Section 01056).

E. Traffic Control: All traffic control measures shall comply with the requirements of MUTCD, Part 6 – Temporary Traffic Control, Latest Edition as published by USDOT/FHWA.

F. Site Security: Wear all required safety equipment, such as safety vests, hardhats, safety glasses, and steel toe boots. Follow all applicable state and local traffic safety procedures. Alert the closest fire department/Emergency Medical Services (EMS) as to the location of the day's work and to stand by for emergencies.

G. Scheduling Time: Crews shall begin inspections after 8:00 am and terminate inspections no later than 5:00 pm each day unless otherwise directed by the Program Manager in order to address localized special requirements. Authorization should be obtained if work is to be performed outside of the designated hours. Work should be performed by the Contractor in time frames that will allow compliance with the County's noise ordinance.

H. At the end of each day, update the status of what manholes were inspected using the web-based mobile device. Refer to Section 01030 – Special Project Procedures.

I. Permits for Rights of Ways & Contract Utility Licensing:

1. The Contractor shall obtain any applicable work permits for all work to be performed in State and/or County Right of Ways. The Contractor shall also plan for all other applicable insurances, traffic control measures, and other terms of the permit in advance. The Contractor shall also obtain all necessary and applicable licensing.

3.02 DOCUMENTATION

A. Manholes:

1. The data to satisfy all anticipated assessment form inspection header variables shown in **Attachment A** to this Section and associated defect codes will be recorded by the Contractor and submitted in the form of digital data in an MACP Standard Exchange Access database. The contractor will also submit digital reports, updated mapping information, and digital photos. Submitted data shall be included on an external hard drive. One copy of this hard drive will be included with each submittal on a weekly basis. The MACP Standard Exchange database with each submittal shall be consolidated and cumulative, including all prior assessed manholes as well as new manholes assessed for that pay period. MACP database anticipated attribute fields shall be populated per guidance of Section 9 (MACP) of NASSCO Pipeline Assessment Certification Program Reference Manual, Version 6.0.1 – November 2010 and as shown in **Attachment A** to this Section.

B. Pipes:

1. Contractor shall use the appropriate data collection software to capture and record information also related to the pipeline(s) connected to each inspected manhole using pole camera inspection. Anticipated attribute (**Attachment A to Section 01510**) data inspection header fields and formats for recorded defect code data should be in a PACP Standard

Exchange Access database. Submitted data shall be included on same external hard drive as other digital deliverables. The PACP Standard Exchange database with each submittal shall be consolidated and cumulative, including all prior assessed pipes as well as new pipes assessed for that pay period. Anticipated PACP database inspection header fields shall be populated per guidance of NASSCO Pipeline Assessment Certification Program Reference Manual, Version 6.0.1 – November 2010 and per the guidance of the zoom camera inspection column in **Attachment A to Section 01510**.

Photos of major observed defects will be captured in JPEG format.

3.03 PHOTOGRAPHIC DOCUMENTATION PROCEDURES

A. A set of high-resolution digital color photographs shall be taken for each manhole assessed, showing:

1. Above ground features and conditions in the vicinity of the manhole to be assessed – photo to be taken looking downstream with manhole in immediate foreground
2. View from surface, of manhole invert – outgoing pipe at 6:00 o'clock.
3. Any structural defects, evidence of leakage, obstructions, roots, mortar loss, evidence of hydrogen sulfide attack, etc.
4. Each photograph filename shall be entered into the digital standard exchange database in the appropriate record that it is associated with.
5. Digital photographs of all in/out pipes in the manhole shall also be submitted digitally at each interim submittal.

3.04 DELIVERABLES

A. Digital MACP Standard Exchange Access database Version 6.0 or newer with inventory and condition data, along with specified reports and photographs of each shall be submitted to the Program Manager. The digital database must contain all the data required by this specification.

1. Referencing the MACP Inspection Form, Header Section, the following General Information is required for the level of survey indicated. Dimensions will be in Feet and tenths of a foot and inches:
   a. Level 1: All mandatory sections with the addition of the following:
      1) 3. Reviewed By
      2) 4. Reviewer Certificate Number
      3) 25. Location Code
      4) 27. Inflow Potential from Runoff
      5) 34. Rim to Invert (FT)
      6) 35. Rim to Grade (FT)
      7) 38, 39, 40, and 43: Note that Contractor will populate these items with survey information paid under Section 1056, Pay Item GPS Locate & Data Collection-Manholes, Level 1 or Level 2.

8) 45. Cover Type
9) 46. Cover Shape
10) 47. Cover Size (IN)
11) 52. Hole Number
12) 85. Lining Interior
13) 88. Wall Diameter (IN)
14) 90. Material
15) 92. Wall Lining Interior
16) 94. Wall Condition
17) 98. Bench Condition
18) 103. Channel Condition
19) 107. Pipe No.
20) 108. Clock Position
21) 110. Direction.

b. Level 2: All mandatory sections with the addition of the following:
1) 38, 39, 40, and 43: Note that Contractor will populate these items with survey information paid under Section 1056, Pay Item GPS Locate & Data Collection-Manholes, Level 1.
2) 79. Lining Interior
3) 85. Lining Interior
4) 88. Wall Diameter (IN)
5) 92. Wall Lining Interior

B. Data Collection Methods: Digital data must be delivered in the prescribed method for uploading to the Owner's Mapping System. However, the Contractor may use whatever method the Contractor chooses to collect the data.

C. The Contractor shall complete work on each asset as described herein. Refer to the Measurement and Payment Section (Section 01025) on documentation requirements to be provided with each pay request.

3.05 PUBLIC NOTIFICATION – MANHOLE CONDITION ASSESSMENT

A. Public notification is critical and compliance with the public notification criteria is a prerequisite for manhole condition assessment, especially when conducting assessments on manholes in easements on private property. Notification must be provided to all property occupiers/owners likely to be affected including residential, commercial and institutional (schools, hospitals, nursing homes, etc.). At a minimum, the following steps shall be taken:

1. The Contractor shall print and distribute pre-approved advance notice door hangers 72 hours before conducting manhole condition assessment. The Contractor shall distribute the door hangers to the property owners (residential, commercial and institutional) in the affected area(s). The advance notice door hangers shall be customized

by Public Outreach to suit this project and will be provided to the Contractor for printing prior to project commencement. If manhole condition assessment is delayed, the Contractor must re-distribute door hangers.

B. The Contractor is responsible for distributing pre-approved "Right-of-Entry" (ROE) forms and securing signatures from affected property owners on the ROE forms prior to conducting manhole condition assessment.

C. The Contractor shall keep a daily log of the distribution of the door hangers. This shall be maintained and submitted to the Owner and/or Program Manager upon request.

D. The Contractor shall alert the appropriate Owner and Program Manager personnel of their work locations on a daily basis.

E. Contractor will provide and place "Right-of-Way" signs in prominent locations where manhole condition assessment is planned 24-hours in advance of commencing the assessment. Signs will be a minimum of 24 inches wide by 18 inches high with letters a minimum of 2 inches high. Signs will be supported a minimum of 12 inches above grade by integral metal frames. Wording on the signs shall be similar to the following:

1. MANHOLE CONDITION ASSESSMENT WILL BE CONDUCTED ON "DATE" AND "TIME." CONTACT "PERSON" WITH "COMPANY" AT "PHONE NUMBER" FOR ADDITIONAL INFORMATION.

3.06 QUALITY CONTROL PROCEDURES

A. Prior to assessment data submission to the Program Manager, the Contractor shall perform a Quality Control (QC) check of the inspection documentation using the QC database provided by the Program Manager. The queries are developed by the Program Manager and provided to help the Contractor locate data gaps and errors prior to submitting the respective assessment access database. The Program Manager will provide at minimum two hours of training on use of the QC database tool for the Contractor. The Contractor shall correct any data conflict, missing data, or other questionable entry identified by the QC reports prior to submitting the CCTV inspection data to the Program Manager.

B. The Program Manager will periodically request the Contractor to review the QC results with the Program Manager.

C. The Program Manager will perform random review checks of the Contractor's submitted data. Should accuracy or qualitative levels of any of the data fall below those deemed acceptable to the Program Manager; the data submittal will be refused and returned to the Contractor for correction. The Contractor will be required to correct or re-do inspections until the Program Manager is satisfied with the quality of the work.

3.07 COLLAPSING MANHOLES, COLLAPSING PIPES

A. Any manhole with severely compromised structural integrity and posing a hazard or threat of personal injury to the public must be reported to the Program Manager immediately for remedial action. Written confirmation of the report, including all details of the defect/hazard shall be made to the Program Manager within 24 hours of the discovery of the problem.

B. The Contractor must protect any manhole with conditions that pose a threat of personal injury to the public until the Owner and/or Program Manager arrives at the job site.

3.08 BOLTED COVERS

A. For all bolt-down style manhole covers, upon completion of the assessment, all bolts that were removed must be put back in place using sealing gaskets as necessary.

END OF SECTION

Attachment A - MACP Standard Exchange Database Anticipated Inspection Header Form Attribute Guidance Table

NOTE: All entries to be as required per NAASCO MACP program with additional information as noted below:

Number	Field	Required	Sample/Instructions/Comments
1	Surveyed By	Y	
2	Certificate Number	Y	
3	Reviewed By	N	
4	Reviewed Certificate Number	N	
5	Owner	N	DeKalb DWM
6	Customer	N	DeKalb DWM
7	PO Number	Y	DeKalb contract number
8	Work Order	N	
9	Media Label	Y	
10	Project	N	SSES OSARP_TIERED
11	Date	Y	
12	Time	Y	
13	Sheet Number	Y	
14	Weather	Y	
15	Pre Cleaning	Y	
16	Date Cleaned	N	
17	Purpose of Survey	Y	
18	Inspection Level	Y	
19	Inspection Status	Y	
20	Consequence of Failure	N	
21	Drainage Area	Y	Ranking Area Name - eg. TAZTEC3
22	MH Access Point No.	Y	Client provided designation for manhole
23	Street	Y	
24	City	Y	
25	Location Code	Y	
26	Surface Type	Y	
27	Inflow Potential from Runoff	Y	
28	Location Details	N	
29	MH Use	Y	
30	Access Type	Y	
31	Year Constructed	N	
32	Year Renewed	N	
33	Evidence of Surcharge	Y	
34	Rim to Invert	Y	
Number	Field	Required	Sample/Instructions/Comments

35	Rim to Grade	Y	
36	Grade to Invert	Y	
37	Rim to Grade Exposed	N	
38	Northing	Y	
39	Easting	Y	GPS Coordinate Easting - NAD83 State Plane Georgia West
40	Elevation	Y	
41	Coordinate System	Y	Required for Level 1/Level 2 inspections -NAD83 State Plane Georgia West
42	Vertical Datum	Y	
43	GPS Accuracy	Y	
44	Additional Information		
45	Cover Type	Y	
46	Cover Shape	Y	
47	Cover Size	Y	
48	Center Cover Size	N	
49	Cover Size Width	Y	
50	Cover Material	Y	
51	Hole Diameter (Vent)	Y	
52	Holes Number	Y	
53	Bearing Surface Diameter	Y	
54	Bearing Surface Width	Y	
55	Cover Frame Fit	Y	
56	Cover Condition	Y	
57	Cover Insert Type	Y	
58	Cover Insert Condition	Y	
59	Adjustment Ring Type	Y	
60	Adjustment Ring Material	Y	
61	Ring Condition	Y	
62	Adjustment Ring Height	N	
63	Frame Material	Y	
64	Frame Bearing Surface Width	Y	
65	Frame Bearing Surf Depth	Y	
66	Frame Clear Opening Dia	Y	
67	Frame Clear Opening Width	Y	
68	Frame Condition	Y	
69	Frame Seal Condition	Y	

Number	Field	Required	Sample/Instructions/Comments
70	Frame Offset Distance	Y	
71	Frame Seal Inflow	Y	
72	Frame Depth	N	
73	Chimney Present	Y	
74	Chimney First Material	Y	
75	Chimney Second Material	N	
76	Chimney II	Y	
77	Chimney Clear Opening	N	
78	Chimney Depth	Y	
79	Chimney Lining Interior	Y	
80	Chimney Lining Exterior	Y	
81	Chimney Condition	Y	
82	Cone Type	Y	
83	Cone Material	Y	
84	Cone Depth	Y	
85	Cone Lining Interior	Y	
86	Cone Lining Exterior	Y	
87	Cone Condition	Y	
88	Wall Diameter	Y	
89	Wall By Size	N	
90	Wall Material	Y	
91	Wall Depth	Y	
92	Wall Lining Interior	Y	
93	Wall Lining Exterior	Y	
94	Wall Condition	Y	
95	Bench Present	Y	
96	Bench Material	Y	
97	Bench Lining	Y	
98	Bench Condition	Y	
99	Channel Installed	Y	
100	Channel Material	Y	
101	Channel Type	Y	
102	Channel Exposure	Y	
103	Step Number	Y	
104	Step Material	Y	

Number	Field	Required	Sample/Instructions/Comments
105	Pipe Number	Y	
106	Additional Component Information	N	
107	Pipe Number	Y	
108	Clock Position	Y	
109	Rim to Invert	Y	
110	Direction	Y	
111	Material	Y	
112	Shape	Y	
113	Height	Y	
114	Width	Y	
115	Condition	Y	
116	Seal Condition	Y	
117	Pipe Type	Y	
118	Structure ID	N	
119	Comment	N	

Y - NASSCO required
Y- DeKalb County Required

END OF SECTION

SECTION 01535

STREAM ENCROACHMENT ASSESSMENT

PART 4 — GENERAL

WORK THIS SECTION

The purpose of stream crossing assessments is to inspect and assess the condition of the County's gravity sewer and force main creek crossings. The work includes the external visual inspection of stream crossings and internal inspections (no manned entry) of associated manholes for crossings located throughout DeKalb County as assigned by the Program Manager.

REFERENCES

Codes, Specifications, and Standards

Section 01041 – Project Coordination

Section 01200 Project Meetings

Section 01320 – Progress Reports & Videos

Attachment A – Sample data form

DEFINITIONS

Aerial Creek Crossing: Sanitary sewer gravity main or force main that crosses a creek and is suspended from steam bank to stream bank, by design. This includes pipes suspended under bridges, and pipes inside storm water culverts, and pipes installed above grade to cross wetlands or similar low-lying areas.

Buried Creek Crossing: Sanitary sewer gravity main or force main that is buried underground, by design, and crossing underneath or closely adjacent to a creek.

Pipe Casing: An outer pipe, usually made of steel, that is designed to protect an inner pipe.

Pipe Supports: Vertical or horizontal, includes piers, harnesses, and anchor collars (a clamp around the pipe)

Asset Identification (ID): Manhole IDs and pipe IDs (unique ID comprised of upstream manhole ID to downstream manhole IDs) are used to reference specific assets. These IDs are maintained in GIS and also available in Oracle WAM.

Stream Bank Encroachment: The condition that occurs when a stream bank erodes to the point where it exposes, or threatens to expose, assets that were designed and constructed to be in-ground rather than exposed.

SUBMITTALS

References: Contact names and telephone numbers

List of staff and equipment, equipment identification numbers to be used on this Project

Supervisor and field crew leader qualifications including certifications of required experience and training

Supervisor and field crew leader's contact information including name and mobile telephone numbers

Contractor's Safety Plan

14 day look ahead schedule weekly based on Program Manager's work priority schedule

Include the following with each weekly submittal:

Inspection media (videos and photographs)
Quality controlled Inspection database (MACP Standard Exchange Access Database)
Inspection reports (PDF – Digital format)

Quality control plan

RESPONSIBILITY FOR OVERFLOWS/SPILLS AND DAMAGE TO PROPERTY AND UTILITY

Reference Specification Section 01030 – Special Project Procedures.

— PRODUCTS/EQUIPMENT

GENERAL

The Contractor shall provide all labor, material, supplies, equipment, transportation, traffic control, etc., necessary to complete the stream crossing condition assessments and associated submittals. All data acquired by the Contractor will be uploaded to the County's Computerized Maintenance Management System (City Works) while in the field through an internet interface with the CMMS. The Contractor shall provide a tablet or laptop with internet connection for each crew performing the Work. (Web-based mapping tool with drop down menus for data entry into a work order)

The Contractor's assessment staff will be required to attend a County provided work shop on use of the CMMS system and Ranking criteria for scoring the various criteria.

— EXECUTION

GENERAL

Data Collection and Assessment Criteria

The following information shall be provided and shall be updated as necessary:

Crossing name, physical location, street address
Pipe identification numbers (Asset ID's) and Manhole ID's (upstream and downstream)
Pipe crossing type and pipe type
Pipe diameter, material of construction, shape
Pipe in casing, material of casing and diameter

The following information shall be collected for each stream crossing:

Easement accessibility

Manhole condition (external)

Structural pipe condition (external)

Pipe supports (horizontal and vertical), piers and collar/harness condition

Stream bank condition and erosion

Photographs (representative) of current conditions

Sanitary Sewer Crossings Parameters and Ranking Criteria

Each stream crossing shall be assessed according to the parameters and ranking criteria provided:

Easement Access (Score 1 to 3):

Score

1) Good: Clear, accessible access
2) Fair: Moderate vegetation or minor slope
3) Poor: Difficult access due to heavy vegetation or steep slope; requires clearing

Exterior Manhole Condition (Score 1-4; Downstream and Upstream Manholes):

Score

4) Good: No signs of deterioration, manhole in good condition
5) Fair: Manhole in fair condition (cracks)
6) Poor: Manhole in poor condition (deteriorating)
7) Severe: Manhole in severe condition, deteriorating, liner peeling, needs immediate attention

Exterior Structural Pipe Condition (Score 1-4 if no casing and pipe condition is visible)

Score

8) Good: No pipe defects, no signs of deterioration or corrosion, pipe joints with no gaps, no pipe sagging
9) Fair: Minor pipe defects, not compromising the integrity of the pipe
10) Poor: Defects noticeable, deteriorating, evidence of corrosion potentially compromising pipe integrity, pipe sagging, pipe shifted
11) Severe: Severe pipe defects, needs immediate attention, severe corrosion, pipe integrity compromised, pipe joint gaps visible, pipe sagging, line cave-in

NI) Not Inspected: buried pipe or pipe enclosed in casing

Pipe Casing (Score 1-4 if pipe in casing and casing visible):

Score

12) Good: No defects, no signs of deterioration or corrosion, no sagging

13) Fair: minor defects, dents

14) Poor: Defects noticeable, deteriorating, evidence of corrosion

15) Severe: Severe defects, needs immediate attention, severe corrosion

NA) Not Applicable: Pipe not enclosed in casing

NI) Not Inspected: Pipe enclosed in casing but casing not visible

Debris Accumulation (Score 1-4; Along exterior aerial pipe crossing):

Score

16) Not applicable: Buried pipe

17) None: No debris

18) Medium: Debris present on pipe crossing and quantity is 2 foot (vertical) or less

19) Heavy: Heavy accumulation of debris on sewer main, tree limbs, debris greater than 2 feet (vertical), log jam

Pipe Support/Pier Condition (Score 1-4 for each support/pier):

Score

20) Not applicable

21) Good: No signs of deterioration, good condition, structure stable, harness or anchor collar in good condition

22) Fair: Signs of deterioration, fair condition

23) Poor to Severe: Structure unstable, needs immediate attention, asset structure at risk of failing, washing out underneath support, support not functioning, harness not connected

Stream Bank Condition (Score 1-4 for each upstream and downstream bank):

Score

24) Not applicable

25) Good: No signs of erosion, stable

26) Fair: Moderate erosion

27) Poor to Severe: Erosion occurring in multiple areas along bank, unstable conditions, needs immediate attention, impacting pipe stability

Inspection Procedures: The procedures for inspecting each stream crossing shall include, but not be limited to, the following:

General Requirements:

28) The Contractor shall comply with the Standard Specification for the Project.

29) In accordance with the requirements of Security and Safety Specifications, when working in roadways, the contractor shall

secure applicable City, County, and GDOT permits and conform to their requirements.

30) The Contractor shall not enter water to inspect stream crossings.

31) The Contractor is required to obtain Rights-To-Enter for all private property accessed.

Urgent Conditions:

32) Immediately report any condition requiring urgent attention to the DWM Project Manager. Urgent conditions include, but are not limited to leaking pipes or manholes, evidence of sanitary sewer overflows, and conditions that have the potential to result in eminent failure of the sanitary sewer stream crossing

33) Active leaks or sanitary sewer overflows and evidence of past leaks or sanitary sewer overflows shall also be reported immediately to the County Dispatch Center at (770) 270-6243.

34) For all urgent conditions observed, the Contractor shall remain onsite until County personnel arrive unless directed otherwise by the Project Manager.

Inspect the Structural Integrity of the Pipe Crossing:

35) Record the structural condition of the pipe and pipe joints from creek bank. Do not enter the water. Observe the pipe with binoculars and document with zoom camera. Document any sagging or other defects in pipe. Observe and note condition of harnesses and supports to the pipe across the stream.

36) Observe and record any stream bank encroachment toward sewer mains.

37) Document tree and other debris on sewer main

38) Inspect stream easements, buffer zones, roads, stream flows, direction, and erosion.

Inspect Sanitary Sewer Manholes:

39) Contractor shall not enter manholes at any time.

40) Record the structural condition of the manhole exterior to include missing/damaged cover.

41) Record the general condition of the manhole interior.

Document Conditions:

42) Record conditions per criteria defined in Section 1.

43) Provide general observation notes as applicable

44) Digital Photographs (JPEG Format at 1024x768 resolution):

Collect a digital photograph of the interior and exterior of each manhole inspected. The exterior photograph shall be taken at a distance sufficient to capture adjacent permanent

structures. The interior photograph shall be of sufficient detail to record the condition observed.

Collect a digital photograph of each pipe crossing.

Collect additional digital photograph(s) in sufficient detail to record the observed condition for each of the following:

- Easement access with assessment score equal to 3;
- Debris accumulation scoring ≥ 3;
- Pipe crossing and/or casings scoring ≥ 2;
- Pipe supports/piers scoring ≥ 3;
- Stream bank conditions scoring ≥ 3;

4) Provide comments describing specific conditions for each of the following:

- Exterior and interior manhole parameters with a score ≥ 2;
- Debris accumulation score ≥ 3;
- Pipe crossing and/or casing scoring ≥ 2;
- Pipe supports/piers scoring ≥ 3;
- Stream band conditions scoring ≥ 3.

3. <u>Deliverables:</u>

a. The final deliverable to be provided upon completion of each calendar year inspection schedule shall include the following:

1) Conditions for each stream crossing as documented per criteria defined in Section 1 compiled into a Microsoft Excel spreadsheet or Microsoft Access database.

2) Digital photograph files named in accordance with the file naming convention below:

a) [Manhole ID if manhole photo, Pipe ID for all others]_[I=Interior, O=Outside]_[Parameter: M=Manhole, P=Pipe or casing, D=Debris, S=Pipe Support/Pier, E=Easement, B=Stream Bank]_[Sequential Number].jpg

b) Example Name: 18-058-s003__18-058-s001_I_P_1.jpg

3) Inspection Report summarizing findings including, but not limited to, presentation of the total number of inspections completed and charting of assessment data by assessment parameter and conditions score.

3.02 EXPERIENCE

b. The Project Manager and/or Supervisor of field crews shall be qualified to lead this project and must have a minimum of five (5) years' experience as project manager on similar projects. The Project Manager shall have been

in a leadership role on inventory and condition assessment projects of similar scale

c. The Data Manager shall have been in a leadership role on inventory and condition assessment projects of similar scale including three (3) years' experience in preparation of reports, management of field data collection, data analysis, data management and quality assurance.

d. The field crew leaders performing assessments shall have the proper training and have a minimum of two (2) years' experience in performing similar assessments including safe working practices, etc.

e. No crew members shall enter confined spaces without the necessary certified training and permit.

3.03 PUBLIC NOTIFICATION – STREAM CROSSING ASSESSMENT

A. The Contractor is responsible for distributing pre-approved "Right-of-Entry" (ROE) forms and securing signatures from affected property owners on the ROE forms prior to accessing and/or conducting assessments on private property.

The Contractor shall alert the appropriate Owner and Program Manager personnel of their work locations on a daily basis.

3.04 QUALITY CONTROL PROCEDURES

Data Quality Control Procedure:

A. The Program Manager will periodically request the Contractor to review the QC results with the Program Manager.

The data submissions shall undergo random review checks for Quality when uploaded to the CMMS. Should accuracy or qualitative levels fall below those deemed acceptable to the Program Manager, the data submittal will be refused and no payment will be released. Contractor will be required to correct or re-do inspections until the Program Manager is satisfied with the work.

BOLTED COVERS

For all bolt-down style manhole covers, upon completion of the assessment, all bolts that were removed must be put back in place using sealing gaskets as necessary.

Manholes:

Comments	Exterior Condition	Interior Condition	ID	NEAREST_ST
<Null>	Manhole in poor condition (deteriorating)	<Null>	NANCY_NEW_MH319	<Null>
<Null>	Manhole in poor condition (deteriorating)	Defects noticeable, deteriorating, evidence of corrosion, pipe sagging,	6-278-s015	4622 Peachtree Place Pky
<Null>	No signs of deterioration, manhole in good condition	Manhole in fair condition (cracks)	6-278-s014	4622 Peachtree Place Pky
<Null>	Manhole in fair condition (cracks)	Manhole in fair condition (cracks)	6-278-s013	4639 Peachtree Place Pky
<Null>	Manhole in fair condition (cracks)	Manhole in fair condition (cracks)	6-278-s005	4643 Peachtree Place Pky
<Null>	Manhole in fair condition (cracks)	Manhole in fair condition (cracks)	6-278-s004	4643 Peachtree Place Pky
<Null>	Manhole in fair condition (cracks)	Manhole in fair condition (cracks)	6-278-p256	4641 Peachtree Place Pky
<Null>	No signs of deterioration, manhole in good condition	No signs of deterioration, manhole in g	6-278-p253	4615 Peachtree Place Pky
<Null>	No signs of deterioration, manhole in good condition	No signs of deterioration, manhole in g	6-278-p048	6800 Peachtree Industrial Blvd

Pipes:

Exposed Pipe Condition	Spill Hazard	Comments	ID	DIAMETER	MATERIA	LENGTH	NEAREST_ST	SHAPE_Leng
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s006__18-240-s005	15	RCP	290.414664	2753 Mabry Rd NE	290.414664
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s007__18-240-s006	12	RCP	221.781675	2761 Mabry Rd NE	221.781675
Good: No pipe defects, no signs of deter	No	<Null>	18-240-s050__18-240-s084	<Null>	<Null>	<Null>	<Null>	155.769994
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s061__18-240-s050	<Null>	<Null>	<Null>	<Null>	303.580642
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s091__18-240-s001	<Null>	<Null>	<Null>	<Null>	429.728159
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s092__18-240-s091	<Null>	<Null>	<Null>	<Null>	79.497605
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s100__18-240-s101	8	CAST IRON	72.878416	1038 Brookhaven Walk NE	72.878416
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s203__18-240-s204	12	RCP	70.516464	1116 Brookhaven Row NE	70.516464
Buried pipe or pipe enclosed in casing	No	<Null>	18-240-s204__18-240-s007	12	RCP	205.454293	1120 Brookhaven Commons Dr NE	205.454293
Good: No pipe defects, no signs of deter	No	Service lateral	18-240-s205__18-240-s204	<Null>	<Null>	<Null>	<Null>	76.332042

Note: Photo Links input is direct from camera to CityWorks

END OF SECTION

SECTION 01540
SECURITY AND SAFETY

Part 1 - GENERAL

1.01 SECURITY PROGRAM

A. The Contractor shall protect the Work, including field office trailers and contents, from theft, vandalism, and unauthorized entry.

B. The Contractor shall initiate a site security program at the time of mobilization onto the Work site that provides adequate security for material stored and installed onsite.

C. The Contractor shall maintain the security program throughout the Contract duration.

D. The Contractor and subcontractors shall be wholly responsible for the security of its storage compound and laydown areas, and for plant, material, equipment, and tools at times.

E. The Contractor shall provide the County with a list of 24-hour emergency phone numbers, including chain of command.

F. The Contractor must cooperate with Owner on all security matters and must promptly comply with any project security arrangements established by the Owner or Program Manager.

G. It is the Contractor's obligations to comply with all applicable governmental requirements and regulations and to undertake reasonable actions to establish and maintain secure conditions at any job site.

H. The Contractor shall be solely responsible for the safety and security of materials, equipment, their employees, their subcontractors and or any person who enters County's premises for any reason(s) related to this contract.

I. The Contractor shall comply with the site safety and security program at all times on the Owner's facilities.

J. The Contractor shall only allow entry to authorized persons with proper Owner-approved identification. All Contractor and Subcontractor employees will be required to have personnel working at these facilities photographed for an Owner-provided identification (ID) badge before they start work.

K. It is the responsibility of the Contractor to ensure all articles of possible personal or monetary value found by the Contractor's employees are turned into the Owner or Program Manager.

L. The Contractor shall be responsible for maintaining satisfactory standards of employees' competency, conduct, courtesy, appearance, honesty and integrity,

and shall be responsible for taking such disciplinary action with respect to any employee, as may be necessary.

M. The Contractor shall provide the County with a list of 24-hour emergency phone numbers, including a chain of command.

N. Contractors with non-English speaking employees shall provide an English speaking person, who has the ability to translate or communicate vital project specific or safety information.

1.02 PROJECT SAFETY

A. DRUG AND ALCOHOL POLICY

Any person under the influence of /or in possession of, distributing and/or selling control substances and/or alcohol will be removed from the site immediately. Prescription medication is allowable if it is contained in its original package and does not affect an employee's performance. DWM has a zero tolerance Drug and Alcohol policy.

B. COMPETENT PERSON REQUIREMENTS

Contractor and their Subcontractor shall have a Competent Person on the project for all operations as required by OSHA Standards.

1. A competent person identified and on-site before any scaffold erection may begin and/or modified.

2. A competent person identified and on-site before any excavation may begin and/or modified.

3. A competent person identified and on-site before any Confined Space may begin.

4. A competent person identified and on-site before any rigging operation may begin.

5. A competent person identified to erect and inspect concrete formwork.

OSHA defines a competent person as one who is capable of identifying existing and predictable hazards in surroundings or working conditions that are unsanitary, hazardous or dangerous to employees, and who has the authority to take prompt corrective measures to eliminate them.

C. COMMUNICATIONS

1. Contractor shall Plan and execute all work in a manner, which complies with

the stated objectives of their Project Safety Program.

2. Contractor employees and their subcontractors shall complete a Project Site-Specific Health and Safety Orientation identifying projects hazards, detailing these specified project rules and DeKalb County Watershed Management Project Rules **(See Form C).** Employees shall complete this orientation before starting work.

3. Contractor shall create and maintain for project(s) an emergency action plan (EAP) which addresses the notification of the closet police, fire or ambulance and rescue services.

4. In case of a utility line break please contact 911 in addition to DWM Dispatch at 770-270-6243, the utility owner (Sewer, Water, Gas, Cable, and Electrical) and your project contract public relation representative. Please note: Gas Sewer and Electrical lines are considered Hazardous. Prompt emergency actions must follow immediately.

5. Contractors are required to have on file in the job trailer, a copy of their company's Safety Program and Hazard Communication Program.

6. All accidents must be reported to DWM Management immediately after occurrence. Accident reports and investigation forms must be completed and a copy to DWM Safety within 24 hours of an accident. All incidents or near misses must be reported to DWM Safety immediately for proper investigation and corrective actions to ensure prevention.

7. Contractor's accident/incident report shall contain (but not be limited too) the following:

    i. Name of person injured
    ii. Date and time of injury
    iii. Name(s) of all witnesses
    iv. Details of the accident
    v. Root Cause analysis of accident
    vi. Action taken to prevent re-occurrence of incident/accident
    vii. Nature/Extent of injury
    viii. Name of doctor/ emergency provider

8. All contractor personnel requiring medical attention shall be drug screened in accordance with the County's policy.

9. Tool Box Talks must be completed at least weekly. The toolbox talk must be documented with the signatures of all employees attending. Topics should include information relative to ongoing or upcoming operations and

previous week's accidents.

10. Subcontractors must maintain and have available first aid and bloodborne pathogens kit.

11. Contractors and their subcontractors are responsible for transportation and payment for treatment of their employees. It is the responsibility of each contractor to arrange for medical treatment of his or her injured employees.

12. Contractors and Subcontractors are responsible for the conduct of their employees and housekeeping of the construction/project site.

13. Any damage to existing or stored property or materials will financially be the sole responsibility of the offending subcontractor(s).

D. DISCIPLINARY POLICY

Contractor employees must work safely as a condition of employment on this project. DeKalb County reserves the right to remove any contractor employees from this project for unsafe behavior or failure to follow safe work practices. Insubordination or any act that causes an Immediately Dangerous to Life and Health (IDLH) situations will not be tolerated and will result in automatic removal.

E. PROJECT SITE

1. Vehicle parking is in designated areas only - Forward First Policy.
2. Report all unsafe site conditions to DWM Management for which the contractor does not have the resources or is not responsible to implement corrective action.
3. Only trained, certified and authorized employees shall operate forklifts, aerial lifts, cranes, machinery, heavy equipment, tools, and vehicles. All equipment shall be operated in accordance with manufacturer's specifications and all other applicable laws/standards. The operator must have certification cards on their person.

4. Cell phones are not allowed to be used onsite except for supervisors and management.

5. All subcontractors shall have warning devices on moving equipment and trucks in the proper working order while on site.

F. ELECTRICAL

Subcontractors must use either an assured grounding program and/or Ground Fault Circuit Interrupters (GFCI) for protection from shock/electrocution.

G. HAZARDOUS COMMUNICATION PROGRAM

Contractors are required to have on file with DWM and project job trailer, a copy of their company's Hazard Communication Program. Hazard Communication programs must include an inventory list of hazardous materials, explanation of their labeling system, and all corresponding safety data sheets (SDS) and name of the program coordinator. Contractor shall make the inventory list of hazardous materials available upon request by the County.

1.03 ENTRY CONTROL

A. The Contractor shall restrict entry of unauthorized personnel and vehicles onto the Project site.

B. The Contractor shall allow entry only to authorized persons with proper identification.

C. The Contractor shall maintain an Employee Log and Visitor Log and make the log available to the County upon request. This log shall be submitted to the County bi-weekly, or as necessary.

D. The Contractor shall require visitors to sign the Visitor Acknowledgment of the Program Site Rules/Visitor Log, which includes a release form. Copies of these forms shall be submitted to the County bi-weekly and maintained in the Contractor's security files on-site. See Form A.

E. The Contractor shall require each employee to sign the Employee Acknowledgment of Project Site Rules Log included in Form C. Employees, subcontractor employees, and lower-tier Contractor employees will receive a new employee orientation. Signing the Employee Log by the employee is certifying that the orientation training has been received.

F. The County has the right to refuse access to the site or request that a person or vehicle be removed from the site if found violating any of the Project safety, security, or conduct rules.

1.04 BARRICADES, LIGHTS, AND SIGNALS

A. The Contractor shall furnish and erect such barricades, fences, lights, and danger signals and shall provide such other precautionary measures for the protection of persons or property, and of the Work as necessary. Barricades shall be painted in a color that is visible at night. From sunset to sunrise, the Contractor shall furnish and maintain at least one light at each barricade and sufficient numbers of barricades shall be erected to keep vehicles from being driven on or into any Work under construction.

B. The Contractor shall be held responsible for damage to the Work and any resulting injuries due to failure of barricades, signs, and lights. Whenever evidence is found of such damage, the Contractor shall immediately remove the damaged portion and replace it at the Contractor's cost and expense. The Contractor's responsibility for the maintenance of barricades, signs, and lights shall not cease until the Project has been accepted by the County.

1.05 RESTRICTIONS

The Contractor shall not allow cameras on site or photographs taken without approval of the County, except as required under Section 01380.

1.06 CONTRACTOR SAFETY/HEALTH AND SECURITY PLAN

A. Within 30 days of Notice To Proceed, and prior to the performance of any Work, the Contractor shall prepare and submit a Contract-specific Health, Safety, and Security Plan signed by an officer of the Contractor's organization. Adequacy is the responsibility of the Contractor.

B. The County will review the Contractor's Health, Safety, and Security Plan for the adequacy of the plan. The plan shall:

1. Identify the person(s) responsible for implementation and enforcement of Health, Safety, and Security rules and regulations for this Project.
2. Address safe Work procedures for the activities within the Contractor's scope of Work.
3. Include a new employee orientation program to address job- and site-specific rules, regulations, and hazards.
4. Include the Contractor's Drug-Free Work Place Policy describing the substance abuse prevention and testing program.
5. Include provisions to protect the Contractor's employees, other persons, and organizations possibly affected by the Work from injury, damage, or loss.
6. Comply with current Fed/OSHA regulations; the Health, Safety, and Security Plan; the facility safety program (when applicable); and locally accepted safety codes, regulations, and practices.
7. Include a site-specific emergency action and evacuation plan.
8. Include Hazard Communication/Right-To-Know Program.
9. Include security procedures for the Contractor's Work, tools, and equipment.
10. Include the capability of providing the County with documentation to show compliance with the plan, plus accidents, and investigation reports.
11. Address other contract-specific requirements, including the Unique Requirements of these specifications.

C. Prior to the start of Work, Contractor shall provide Job Safety Analyses (JSAs) for unique Work activities necessary to prosecute the scope of Work.

D. Review of the Contractor's Health, Safety, and Security Plan by the County shall not impose any duty or responsibility upon the County for the Contractor's performance of the Work in a safe manner.

E. The Contractor shall be fully responsible for the safety and health of its employees, its subcontractors, and lower tier contractors during performance of its Work.

F. The Contractor shall provide the County with safety reports, training records, competent person list, and accident reports prepared in compliance with Fed/OSHA and the Project Health, Safety, and Security Plan.

1.07 PROJECT SAFETY COORDINATOR

A. The Contractor shall be responsible for the safety of the Contractor's and County's employees, the County's personnel and other personnel at the Work site. The Contractor shall identify a Project Safety Coordinator (PSA) on the job with an appropriate office on the job site to maintain and keep available safety records and up-to-date copies of pertinent safety rules and regulations.

B. The Project Safety Coordinator shall:

1. Comply with applicable health and safety requirements of governing legislation.
2. Schedule and conduct safety meetings and safety training programs as required by law and included in the Contractor Health, Safety, and Security Plan for personnel engaged in the Work.
3. Post appropriate notices regarding safety and health regulations at locations that afford maximum exposure to personnel at the job site.
4. Post the name(s), address and hours of the nearest medical doctor(s), names and addresses of nearby clinics and hospitals, and the telephone numbers of the fire and police departments.
5. Post appropriate instructions and warning signs with regard to hazardous areas or conditions.
6. Have proper safety and rescue equipment adequately maintained and readily available for any contingency. This equipment shall include such applicable items as: proper fire extinguishers, first aid kits, safety ropes, and harnesses; stretcher, life preservers, oxygen breathing apparatus, resuscitators, gas detectors, oxygen deficiency indicators, explosion meters; and other equipment mandated by law.
7. Inspect each Work crew at least once daily in accordance with an Inspection Checklist Report Form to make sure that workers are wearing their appropriate personal safety equipment; machines, tools, and equipment are

in safe operating condition; Work methods are not dangerous; and the Work site and Work methods are free of hazards.

8. Submit to the County, upon request, copies of inspection checklist report forms; safety records, safety inspection reports, and certifications from regulating agencies and insurance companies.
9. Immediately notify the County of a serious accident, followed by a detailed written report within 24 hours. “Serious accident” is defined as that requiring an absence of Work of more than two days and/or hospitalization.
10. Immediately notify the County in the event of a fatal accident.
11. Immediately notify the County of any accident claim against the Contractor or any subcontractor, followed by a detailed written report on the claim, and its resolution.
12. Review safety aspects of the Contractor’s submittals as applicable.

1.08 REMOVAL

A. The Contractor shall remove equipment and devices when no longer required and repair damage caused by installation.
B. Should the Contractor dismiss employees who have been given access to the DWM facilities while the contract is in force, the Contractor will advise the DWM Security Office.

C. The Owner may request the Contractor to immediately remove from the premises and/or dismiss any employee found unfit to perform duties due to one or more of the following reasons:

- Neglect of duty, absenteeism, security or safety problems and sleeping on the job
- Disorderly conduct, use of abusive or offensive language, quarreling, intimidation by words, actions or fighting.
- Theft, vandalism, immoral conduct or any other criminal action.
- Selling, consuming, possessing, or being under the influence of intoxicants, alcohol or illegal substances, which produce similar effects while on duty.
- Involved in a vehicle accident while on the Owner’s property or driving the Owner’s equipment. No employee, Contractor, or Subcontractor will be extended privileges to drive the Owner’s equipment on the Owner’s property if driving privileges have been withdrawn by the person’s State of residence.

D. All employees will be required to sign in and out on a designated log sheet.

E. All employees shall be required to wear at all times in an observable location, above the waist, on outer clothing, an appropriate photo I.D. badge to be furnished by the Contractor and approved by the Owner.

F. No one under age sixteen is permitted at work sites after normal working hours. Contractor's employees are allowed on work sites only during the specified hours and only when working on this contract. No Contractor employee will be allowed on sites when not specifically working on this Contract's predetermined times and dates.

G. All employees and agents of the Contractor must read the Project Site Rules statement and sign a log acknowledging understanding of project site rules provided in **(Forms A & C)**.

1.09 IDENTIFICATION BADGES AND SECURITY

A. All Contractor's employees and subcontractors' staff who will be working on-site shall be issued an ID badge by the County.

B. Special Circumstances. The County can grant/permit a Contractor the right to badge their employees and subcontractors. However, the badge template shall be approved by DWM Safety Division. The ID badge shall include worker's name, date of issue, picture, and company affiliation.

C. It is the Contractor's responsibility to collect the ID badge from any employee who is been discharged or resign prior to completion of the project as well as at completion of the project. Contractors shall return all ID badges to the DWM Safety Division within 48 hours. The Contractor shall be charged a fee of $25.00 per badge for any badges not returned at completion of the project. For ID badges lost during the term of the project, there will be a reissued fee of $15.00 per ID badge. The Contractor shall deduct these charges from its periodic or closeout payment request or the County shall deduct them.

D. The Contractor shall be responsible for maintaining a safe "drug-free" work environment.

E. The Contractor shall develop a Security Plan for use on the job site during construction. The Plan shall encompass at a minimum such topics as the use of pre-employment background checks for specific project staff, drug tests, crime prevention and anti-theft procedures, workplace violence, and methods to secure project documents. The staff working on the site shall be familiar with the requirements of the Security Plan.

F. County Ordinances prohibit the carrying of weapons on County property/jobsites. The County Police Department shall be notified of any person bringing weapons to the jobsite; they shall be removed immediately and prosecuted.

G. Persons on the jobsite shall report any suspicious activity by workers or by others at the jobsite area first to the Project Management, and/or DeKalb County Police and/or Fire Department by calling 911 and immediately to the Engineering and Construction Management Service Division Head.

Part 2 - (DWM) CONTRACTOR BADGE PROCEDURES

The ID badge will provide proof of authorization to be on the construction site, and aid DWM staff in affirming the contractor's employee has received safety training prior to the start of work at DWM project, site or facility.

2.01 GENERAL REQUIREMENTS

A. All individuals working on any DeKalb County Department of Watershed Management – construction projects, sites, and facilities shall be required to wear a County issued ID badge.

B. Contractors and subcontractors working on (DWM) projects, sites and facilities must have their assigned badge on their person at all times.

C. All contractors and subcontractors personnel without a current badge will not be allowed to continue to work at a (DWM) project, site or facility.

D. All workers must obtain and display an identification badge issued by the County's Safety Representative **before** reporting to work on any (DWM) construction project.

E. Although a contractor may only be required to visit our sites/property on an infrequent basis, badging is still a requirement.

F. Contractors and subcontractors vendors or their transient onsite visitors, which are not full-time employees of the site, shall be escorted while onsite as a visitor by a Department of Watershed Management badged contractor.

G. Contractors shall maintain a daily sign-in sheet/record/log of their daily workers under its supervision which includes subcontractor's vendors or their transient onsite visitors.

2.02 TRAINING REQUIREMENTS

A. Contractor and subcontractor employees are required to attend safety training prior to receiving a badge.

B. The **Contractor** is responsible for conduction and/or arrangement of their employee's training.

1. OSHA 10 hour, OSHA 30 hour or project site-specific safety training along with the contractor receiving a copy of DeKalb County Project Site Rules will suffice the training requirements to receive a badge and start work on the (DWM) construction project(s), site or facility.
2. OSHA 10 hour and 30-hour safety training received within 12 months prior to the start of work on the (DWM) construction project(s), will qualify as current.
3. Whereas the OSHA 10 hour and 30-hour training does not expire, the actual date of training must be less than 12 months prior to the start of work on the (DWM) construction project(s) to qualify as "current,"
4. In the case where the OSHA 10 hour and 30-hour date of training are more than 12 months prior to the start of work on the (DWM) construction project(s), project site-specific safety verification of training is required.
5. Contractor's training should include general construction safety and the specific safety concerns/hazards employees may encounter at the Watershed Management construction site.

6. DMW' Safety Division shall review a copy of the contractor's project site-specific safety training topics outline prior to the contractor's employees were approved for badging.
7. Contractor and subcontractor employees are required to read, understand and agree to abide by DeKalb County Project Site Rules. See Forms A & C.

2.03 VERIFICATION OF TRAINING

A. The contractor's management representative shall complete, sign and send a copy of each of their employee or their subcontractor's employee a copy of (DWM) Verification of Training Form. See Form E**.**

B. (DWM) Verification of Training Document will be sent to **VOTD@DeKalbcountyga.gov** prior to the contractor's employee badging date of appointment**.**

C. The contractor's/subcontractor's employee shall review and verify that the information on their individual (DWM) Verification of Training document is correct.

D. The contractor's employee shall also sign (DWM) Verification of Training Form verifying the information on the document is correct. The (DWM) Verification of Training Document signature statement is as follows:

"I have read, understand and agree to abide by the DEKALB COUNTY PROJECT SITE RULES. I have received a personal copy for my use and reference. Furthermore, I understand that knowingly or purposely falsifying records is grounds for being denied access to the project site."

2.04 VERIFICATION OF IDENTITY REQUIREMENTS

A. The contractor and subcontractor employees must provide documentation to DeKalb County to verify their identity and authorization to work.
B. DeKalb County only accepts **Form I-9** acceptable documents with accompanying photo.
C. **Form I-9** acceptable documents must be from List A and List B
Examples:

* ID cards issued by federal, state, local governmental agencies
* TWIC (Transportation Worker Identification Credential)
* Driver License or Identification card issued by a state motor vehicle department with a photo that clearly identifies the individual.

2.05 DWM MANAGEMENT SITE INSPECTIONS AND AUDITS

Field verification will be done randomly by the DWM Safety staff to ensure employees were trained and following County, OSHA & State regulations.

2.06 BADGING OFFICE ADDRESS IS AS FOLLOWS:

DeKalb County Watershed Management,
Safety Division
1641 Road haven Drive, Stone Mountain, GA 30083

Badging hours are Tuesdays & Thursdays from 9:00 am to 12:00 pm.

2.07 BADGE EXPIRATION DATE

Badges are valid until the expiration date of the prime contractor's contract.

2.08 TRANSFER CONTRACTORS

A. If a worker changes companies or projects, the badge must be surrendered, and a new badge will be issued if needed.
B. If applicable, the new employer will provide the employee certification that the safety training is completed.
C. Only those employees registered in the badging system are eligible to receive a badge,
D. After verification by the safety representative, the badging database will be updated, and a new badge issued.

2.09 SPECIAL CIRCUMSTANCES:

The County can grant/permit a Contractor the right to badge their employees and subcontractors. However, the badge template shall be approved by the DWM Safety Division. The ID badge shall include the worker's name, picture, and company affiliation.

2.10 ADDITIONAL TRAINING REQUIREMENTS:

Additional training requirements may be requested if there is a change in the contractor's scope of work or responsibilities.

2.11 BADGE REPLACEMENT

The contractor must notify DMW's Safety Division immediately if a badge is lost, stolen or an employee is no longer employed with the contractor.

2.12 BADGE COLLECTION/ RETURN POLICY

It shall be the Contractor's responsibility to collect the ID badge from any employee who is discharged or resigns prior to completion of the project as well as at the completion of the project. The Contractor shall return the ID badges to the DMW' Safety Division within 48 hours of their collection. The Contractor shall be charged a fee of $25.00 per badge for any badges not returned at the completion of the project. For ID badges lost during the term of the project, that shall be reissued, there shall be a charge of $15.00 per ID badge. The Contractor shall deduct these charges from its periodic or closeout payment request or the County shall deduct them.

This section is intentionally left blank. Forms will follow.

Form A

VISITOR ACKNOWLEDGMENT OF THE PROJECT SITE RULES

By signing this Visitor's Log, I acknowledge that I understand and agree to abide by the project rules outlined below.

In consideration of my receipt of a visitor's pass as issued by the **County** directly or indirectly for the **County**, I waive on behalf of myself, my heirs, employer, legal representatives and assigns and hereby release and discharge the **County**, each of its directors, officers, employees, representatives, and agents from any and all claims, actions, causes of action, or any charge of any kind whatsoever that may arise or could arise in the future as a result of my being present at the facility including injury, death, or property damage whether or not caused by the fault or negligence of any of the parties released hereunder.

I further acknowledge that I have been briefed on specific hazards, hazardous substances that are on site, and the site emergency action procedure.

PROHIBITED ACTIVITIES

- Unauthorized removal or theft of County property
- Violation of safety or security rules or procedures
- Possession of firearms or lethal weapons on jobsite
- Acts of sabotage
- Destruction or defacing of County property
- Failure to use sanitary facilities
- Knowingly or purposely failing to report accidents/incidents or job-related injuries
- Being under the apparent influence of drugs, alcohol, or other intoxicants or in possession
  of drugs, alcohol, or other intoxicants on the job site
- Wearing shorts or tennis shoes on the job site
- Failure to wear required personal protective equipment (PPE)
- Gambling, fighting, threatening behavior or engaging in horseplay on the job site
- Smoking in unauthorized areas on the job site
- Open fire cooking or making unauthorized fires on job site
- Selling items or raffles without authorization
- Use of unauthorized cameras on the job site
- Use of radio or television in the construction area
- Failure to park personal vehicle in authorized parking area
- Failure to wear designated identification [Site Specific]
- Failure to use designated gates
- Condoning or knowingly allowing a person to engage in or work around a patently
  unsafe or environmental compromising act or condition
- Knowingly or purposely falsifying records, documents or providing false testimony

I have read, understand, and agree to abide by the PROJECT SITE RULES. Furthermore, I understand failure to abide by these rules is grounds for being denied access to the project site. I have received a personal copy for my use and reference.

_____

_____

Print Name: **Signature:**

_____

Date:

Form B

VISITOR LOG

THE SIGNING OF THIS LOG ACKNOWLEDGES I HAVE READ, UNDERSTAND, AND AGREE TO ABIDE BY THE PROJECT RULES OUTLINED ABOVE. **THIS IS NOT A VEHICLE ACCESS PERMIT.**

NAME PRINT	SIGNATURE	COMPANY/PERSON VISITED	DATE	IN	OUT
				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm
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				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm
				am/pm	am/pm

Form C

EMPLOYEE ACKNOWLEDGMENT OF THE PROJECT SITE RULES

By signing this Employee Log, I acknowledge that I understand and agree to abide by the project rules outlined below.

PROHIBITED ACTIVITIES

- Unauthorized removal or theft of **County** property
- Violation of safety or security rules or procedures
- Possession of firearms or lethal weapons on jobsite
- Acts of sabotage
- Destruction or defacing **County** property
- Failure to use sanitary facilities
- Failure to report accidents or job-related injuries
- Under the apparent influence of drugs, alcohol, or other intoxicants or in possession of drugs, alcohol or, other intoxicants on the property
- Wearing shorts or tennis shoes on the jobsite
- Failure to wear a hardhat/safety glasses and safety vest
- Gambling at any time on the project
- Fighting, threatening behavior, or engaging in horseplay on the project
- Smoking in unauthorized areas on the project
- Open fire cooking or making unauthorized fires on project property
- Selling items or raffles without authorization
- Use of unauthorized cameras on the project
- Use of radio or television in the construction area
- Failure to park personal vehicle in authorized parking area
- Failure to wear designated identification [Site Specific]
- Failure to use designated gates

I have read, understand, and agree to abide by the PROJECT SITE RULES. Furthermore, I understand failure to abide by these rules is grounds for being denied access to the project site. I have received a personal copy for my use and reference.

_____ _____

Print Name: **Signature:**

_____

Date:

Form D

EMPLOYEE LOG

BY SIGNING THIS LOG ACKNOWLEDGMENT, I HAVE READ AND UNDERSTAND, AND AGREE TO ABIDE BY THE PROJECT RULES OUTLINED ABOVE AND ANY STATE, FEDERAL, LOCAL, OR ANY OTHER CONTRACT OBLIGATIONS THAT MAY APPLY. I FURTHER ACKNOWLEDGE THAT I HAVE BEEN ORIENTED AS TO THE SITE-SPECIFIC HAZARDS, ANY HAZARDOUS SUBSTANCES I MAY BE EXPOSED TO WHILE ON THE SITE, AND THE SITE/COMPANY EMERGENCY ACTION PROCEDURES, BY A REPRESENTATIVE OF THE COMPANY.

EMPLOYEES (PRINT)	SIGNATURE	COMPANY NAME	DATE
Signature of Company Representative:		*Date Signed:*	

Form E

DeKalb County Government Training Verification Form

Appointment Date: _____
(Tues./Thurs. 9am-12pm)

_____ Primary Contractor:

_____ DeKalb Contract #:

_____ Subcontractor Name:

_____ Contract End Date:

☐ **Course Name: Site Specific Safety Training in accordance with OSHA 29 CFR 1926 & 1910**

Successfully Completed: ☐ Yes ☐ No ☐ In Progress

Date Completed: _____

☐ **Course Name: OSHA 10 Hour**

Successfully Completed: ☐ Yes ☐ No ☐ In Progress

Date Completed: _____

☐ **Course Name: OSHA 24 HAZWOPER**

Successfully Completed: ☐ Yes ☐ No ☐ In Progress

Date Completed: _____

☐ **Course Name: OSHA 30 Hour**

Successfully Completed: ☐ Yes ☐ No ☐ In Progress

Date Completed: _____

☐ **Course Name: OSHA 40 HAZWOPER**

Successfully Completed: ☐ Yes ☐ No ☐ In Progress

Date Completed: _____

I HAVE READ, UNDERSTAND AND I HAVE BEEN PROVIDED A COPY OF THE DEKALB PROJECT SITE RULES. FURTHERMORE, I UNDERSTAND THAT KNOWINGLY OR PURPOSELY FALSIFYING RECORDS IS GROUNDS FOR BEING DENIED ACCESS TO THE PROJECT SITE. BY MY SIGNATURE BELOW, I AFFIRM THE ABOVE INFORMATION IS ACCURATE AND TRUE TO THE BEST OF MY KNOWLEDGE.

_____ **Employee's Name (Print):**

_____ **Employee's Name (Sign):**

_____ **Authorized Representative (Print):**

_____ **Authorized Representative (Sign):**

END OF SECTION 01540

SECTION 01545
TRAFFIC REGULATION

PART 1 - GENERAL

1.01 SCOPE

The Work specified in this section includes the provision of products, permits, services, procedures, and personnel by the **Contractor** to effect traffic control during the Work.

1.02 TRAFFIC CONTROL MANAGER REQUIREMENTS

A. The **Contractor** shall designate a qualified individual as the Traffic Control Manager (TCM) who shall be responsible for selecting, installing, and maintaining traffic control devices in accordance with the Plans and Specifications and the Manual of Uniform Traffic Control Devices (MUTCD). A written resume documenting the experience and credentials of the TCM shall be submitted and accepted by the **County** prior to beginning any Work that involves traffic control. The TCM shall be available on a 24-hour basis to perform his or her duties. If the Work requires traffic control activities to be performed during the daylight and nighttime hours, it shall be necessary for the **Contractor** to designate an alternate TCM. An alternate TCM shall meet the same requirements and qualifications as the primary TCM and be accepted by the **County** prior to beginning any traffic control duties. The TCM's traffic control responsibilities shall have priority over other assigned duties.

B. As the representative of the **Contractor**, the TCM shall have full authority to act on behalf of the **Contractor** in administering the Traffic Control Plan. The TCM shall have appropriate training in safe traffic control practices in accordance with Part VI of the MUTCD. In addition to the TCM, other individuals making decisions regarding traffic control shall meet the training requirements of Part VI of the MUTCD. The TCMs shall supervise the initial installation of traffic control devices. The **County,** prior to the beginning of construction, will review the initial installation. Modifications to traffic control devices as required by sequence of operations or staged construction shall be reviewed by the TCMs.

PART 2 - PRODUCTS

2.01 SIGNS, SIGNALS, AND DEVICES

A. The **Contractor** shall provide post-mounted and wall-mounted traffic control and informational signs as specified and required by local jurisdictions.

B. The **Contractor** shall provide automatic traffic control signals as approved by local jurisdictions.

C. The **Contractor** shall provide traffic cones and drums, and flashing lights as approved by local jurisdictions.

D. The **Contractor** shall provide flagmen equipment as required by local jurisdictions.

PART 3 - EXECUTION

3.01 PERMITS

A. The **Contractor** shall obtain permits from authorities having jurisdiction over road closures before closing any road. The **Contractor** shall use forms provided by authorities having jurisdiction (DeKalb County Department of Public Works, Georgia Department of Transportation, etc.).

B. The **Contractor** shall either fax or hand carry any permit applications to the DeKalb County Department of Public Works. Permit applications shall indicate the time (in days); length (in feet); the number of lanes; and the purpose of the closure.

C. All permits are approved for operations during off-peak hours, 9:00 a.m. to 4:00 p.m., unless special approval is received from the **County**.

D. Operations between the hours of 6:00 p.m. and 10:00 p.m. and Saturdays, and Sundays shall require approval by the **County.**

E. Full street closure permits shall require 96 hours' advance notice prior to road closure. The following additional information shall be provided by the **Contractor** prior to approval:

1. The recommended detour route with signage and Traffic Management Plan as per the MUTCD.
2. A copy of the resident and/or business notification letters about the closure. The residents/businesses located between the detour routes shall be notified about the closure at least 5 business days prior to the proposed closure.

F. The DeKalb County Department of Public Works will return full road closure permit applications to the **Contractor.** The Fire Chief, Chief of Police, DeKalb Hospital, MARTA, and the DeKalb County Board of Education shall be notified in writing at least 72 hours before commencing road closure activities.

Lane closure permits are issued during operating hours Mondays through Fridays. The DeKalb County Department of Public Works will return lane closure permit applications to the **Contractor.** The **Contractor** shall provide a minimum of 48-hour notice prior to closure. The **Contractor** shall continuously maintain the safety of the traveling public during lane closures in accordance with the requirements of the MUTCD and as stipulated by public officers.

3.02 PREPARATION OF TRAFFIC CONTROL PLANS

The Traffic Control Plan drawings included with the Contract Documents shall only be considered as a guide and are not intended to contain the traffic regulation details that shall be required by the specifications, permitting agencies, and the MUTCD. The **Contractor** shall develop detailed staging and traffic control plans for performing specific areas of the Work including, but not limited to: requirements for certified flagmen, additional traffic control devices, traffic shifts, detours, paces, lane closures, or other activities that disrupt traffic flow. The **Contractor** shall submit these plans in accordance with the Specifications to receive final approvals from permitting agencies and provide required traffic control devices as required by

both the permitting agencies and these specifications at no additional cost to the **County**.

3.03 CONSTRUCTION PARKING CONTROL

A. The **Contractor** shall control vehicular parking to prevent interference with public traffic and parking, access by emergency vehicles, and **County's** operations.

B. The **Contractor** shall monitor parking of construction personnel's vehicles in existing facilities and maintain vehicular access to and through parking areas.

C. The **Contractor** shall prevent parking on or adjacent to access roads or in non-designated areas.

3.04 MAINTENANCE OF TRAFFIC

A. Whenever and wherever, in the **County's** opinion, traffic is sufficiently congested or public safety is endangered, the **Contractor** shall furnish uniformed officers to direct traffic and to keep traffic off the highway area affected by construction operations.

B. When the Contract requires the maintenance of vehicular traffic on an existing road, street, or highway during the **Contractor's** performance of Work that is otherwise provided for in the Plans and these Specifications, the **Contractor** shall keep such road, street, or highway open to traffic and shall provide such maintenance as may be required to safely accommodate traffic. The **Contractor** shall furnish, erect, and maintain barricades, warning signs, flagmen, and other traffic control devices in conformity with the requirements of the Georgia Department of Transportation and other local jurisdictions. The **Contractor** shall also construct and maintain in a safe condition any temporary connections necessary to ingress to and egress from abutting property or intersecting roads, streets, or highways. The **Contractor** shall maintain traffic in accordance with any traffic control plans furnished with and made a part of the Plan assembly.

C. The **Contractor** shall make its own estimate of labor, materials, equipment, and incidentals necessary for providing the maintenance of traffic as specified in this section.

D. Unless specified in the Plans or these Specifications, and subject to the approval of the **County**, the cost of maintaining traffic specified in this section shall be considered incidental to the Work and no separate measurement or payment shall be made.

E. Contractor shall comply with DeKalb County Steel Plate For Residential Specification **(See Section A)**.

F. Contractor shall provide a pilot car or an escort vehicle when heavy equipment must be moved from one location to another by use of the roads, streets and through DeKalb County.

3.05 UNIFORMED POLICE OFFICER FOR TRAFFIC CONTROL

A. The **Contractor** shall provide uniformed police officers to regulate traffic when construction operations encroach on public traffic lanes, as approved by the **County**.

B. Officers shall be currently employed by a local jurisdiction, be in full uniform and have full arrest power while working.

C. Officers shall be employed and paid by the **Contractor**.

D. Officers' shall be responsible for directing traffic within the construction site.

E. Only a uniformed police officer can direct traffic when the contractor's operation interfere with or impede the operation of a traffic signal light.

3.06 FLAGMEN

A. The **Contractor** shall provide trained and equipped flagmen to regulate traffic when construction operations or traffic encroaches into public traffic lanes.

B. The contractor flagmen shall have 7' Stop/Slow paddles onsite during all operations involving traffic control.

3.07 FLASHING LIGHTS

The **Contractor** shall use flashing lights during hours of low visibility to delineate traffic lanes and to guide traffic.

3.08 HAUL ROUTES

A. The **Contractor** shall consult with authorities and establish public thoroughfares to be used for haul routes and site access.

B. The **Contractor** shall confine construction traffic to designated haul routes.

C. The **Contractor** shall provide traffic control at critical areas of haul routes to regulate traffic and minimize interference with public traffic.

3.09 ROAD CLOSURES ON COUNTY ROADS

A. No street, road, or highway shall be closed without the permission of the owner of any street, road, or highway and the fire department having jurisdiction. Prior to closing a street, road, or highway, signs shall be posted for a minimum of 7 days prior to actual closing, forewarning of the imminent closing. The **County** shall determine the information to be placed upon the signs by the **Contractor**. Where traffic is diverted from the Work, the **Contractor** shall provide materials and perform Work for the construction and maintenance of required temporary roadways, structures, barricades, signs, and signalization.

B. To obtain approval to close a road or street maintained by the **County**, the **Contractor** shall proceed as follows:

1. The **Contractor** shall obtain approval of the traffic plan from the **County.** The traffic plan shall be in accordance with the requirements of the Georgia Department of Transportation and DeKalb County.
2. The **Contractor** shall obtain a utility permit.
3. The **Contractor** shall apply in writing to the **County** and obtain a permit to close the road on a specific date.
4. The **Contractor** shall obtain a permit from the **County** before posting closure signs. Signs shall be posted for 7 days prior to the first day of closure. Signs shall be acceptable to the **County**.
5. The **County** will handle emergency road closures.

3.10 PROCEDURES FOR TRAFFIC DETOUR ROUTE PLAN

A. The **Contractor** shall provide a sketch map to the **County,** showing the traffic detour route plan The sketch map need not be drawn to scale, but should resemble, as closely as possible, the actual location. The sketch map shall be drawn in a manner so as to provide emergency agencies a better understanding of the detour for quick response. The sketch map shall include directional arrows showing the flow of traffic.

B. The **Contractor** shall erect “Road Closed Ahead” signs before the start point of the detour indicating the name of the street closed.

C. The **Contractor** shall erect “Detour” signs with appropriate directional arrows at intersection along the detour route until the end of the detour, when the traffic is back to the original street.

D. The **Contractor** shall erect an “End Detour” sign at the end of the detour.

E. The **Contractor** shall erect an accessory plate indicating the name of the street being detoured to accompany each “Detour” and “End Detour” sign.

F. The **Contractor** shall apply appropriate traffic control measures in accordance with the requirements of the MUTCD and **County** codes.

3.10 BARRICADES AND WARNING SIGNS

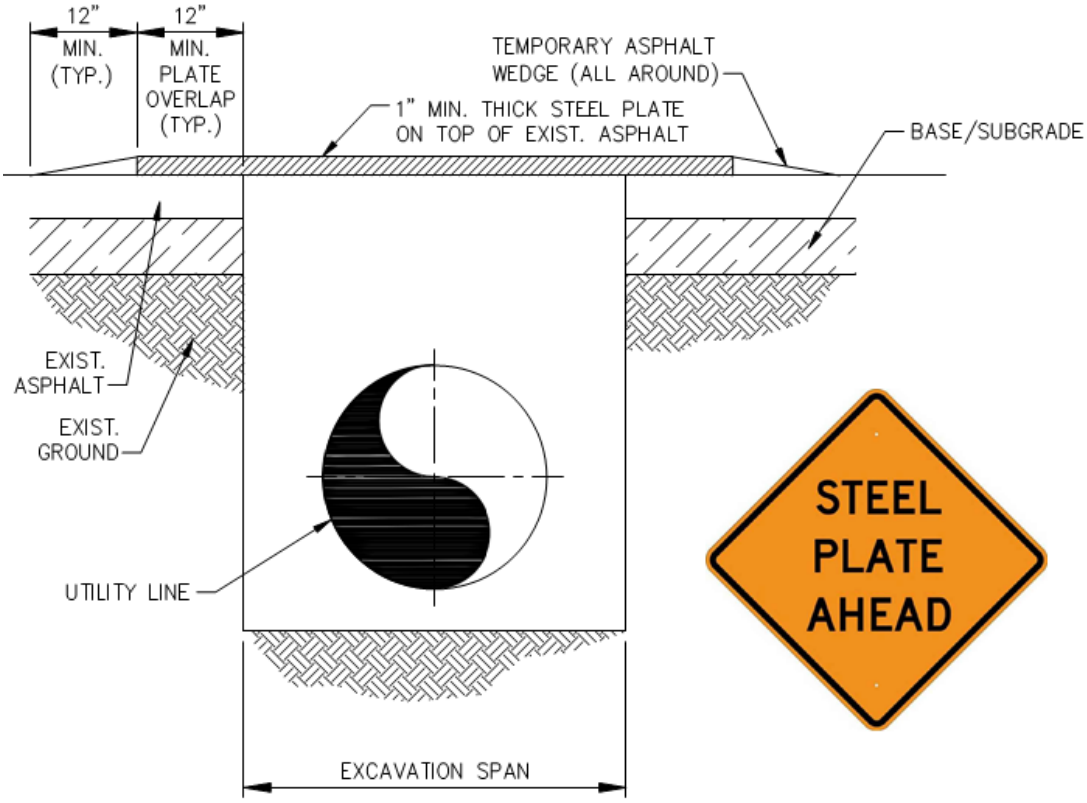
A. The **Contractor** shall furnish, erect, and maintain barricades and warning signs for hazards necessary to protect the public and the Work. When used during periods of darkness, such barricades, warning signs, and hazard markings shall be suitably illuminated or reflectorized.

B. For vehicular and pedestrian traffic, the **Contractor** shall furnish, erect, and maintain barricades, warning signs, lights, and other traffic control devices in conformity with the requirements of the Georgia Department of Transportation and DeKalb County.

C. The **Contractor** shall furnish and erect barricades and warning signs for hazards prior to commencing Work that requires such erection and shall maintain the barricades and warning signs for hazards until their dismantling is directed by the **County**.

Section A

Steel Plate Installation Urban and Residential



Notes:

1. Installation shall be used in areas where backfilling operations of an excavation in the roadway cannot meet the minimum compaction requirements and permanent patching placement within the same day.

2. All excavations shall be backfilled within the roadway.

3. Each plate is to overlap existing pavement 12” minimum in every direction and multiple plates shall abut and be secured to each other.

4. Each steel plate shall be anchored securely to prevent movement.

5. Temporary paving with a cold asphalt mix or approved equal shall be used to feather edges of the plate to form a wedged taper to cover the edges of the steel plate.

6. The steel plate shall be removed within 30 days of placement with the excavation meeting the minimum compaction requirements and permanent patching installed.

7. Any ditch line needing a steel plate longer than 30 days should have permanent patching.

8. Warning signs advising motorist that they should expect to encounter steel plates shall be placed approximately 100 feet in advance of the steel plate location. The signs shall meet MUTCD sign size requirements, shall state steel plate ahead, and shall be visible to motorist.

END OF SECTION 01545

SECTION 01700
PROJECT CLOSEOUT

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. Comply with requirements for administrative procedures stated in this Section and as required of the Contract Documents in closing out the Work. Closeout procedures are summarized in this Section.

1.02 RELATED SECTIONS

A. Conditions of the Contract. Fiscal provisions, legal submittals and additional administrative requirements.

1.03 QUALIFICATIONS AND REQUIREMENTS

A. Contract requirements shall be met when assessment assignments and related activities have successfully produced, in order, completion of these three closeout stages:

1. Substantial Completion
2. Final Completion
3. Final Payment

B. The Contractor shall provide all written notices and supporting documentation as described below when requesting Substantial Completion and Final Completion, respectively. Partial submittals of the required documents shall not represent a valid request, and the Program Manager shall not be liable for any delays in the Substantial and Final Completion dates arising there from.

1.04 SUBMITTALS

The Contractor shall provide to the Program Manager the following documents, in PDF and hard copy, in the quantity of one original and two copies unless otherwise noted. Note, with the exception of Subparagraphs G, H, and I below, the submittal for approval shall have already been made prior to Substantial Completion. Submittal under this Paragraph would be for a final submittal should revisions or additional copies be required of previously submitted documentation.

A. Evidence of Compliance with all requirements of governing authorities:

1. Certificates of Inspection.

B. Assessment record documents (reports, final data, etc.), as required of the Contract Documents.

C. **Subcontractor List:** A complete listing of all subcontractors and their suppliers, indicating business addresses, telephone numbers, contact names, and items supplied by each.

D. **Manufacturer List:** A listing of manufacturers of major materials, equipment and systems installed in the Work, and local contact addresses and phone numbers.

E. **Warranties:** All warranties transferred to the County.

F. **Payment of Debts and Claims and Consent of Surety:** The Contractor shall submit adequate evidence the Contractor has paid all obligations to date arising out of the Contract. Contractor shall also submit written consent of its Surety to final payment.

G. **Release of Claims and Liens:** The Contractor and each subcontractor shall also submit a certified Release of Claims and Liens, indicating the releases for waivers submitted are complete to the best of its knowledge and information upon receipt of final payment. Example form attached.

H. Certificate of Insurance for Products and Complete Operations.

I. No partial submittals of the above items are to be made to the Program Manager. All items of each category are to be collected by the Contractor and delivered at one time to the Owner, together with a letter of transmittal listing all items. Where items are to be delivered to the Program Manager or Owner's Representative, the Contractor shall include a copy of the transmittal letter listing all enclosures, signed by the respective representative acknowledging receipt.

1.05 REINSPECTION FEES

A. When the Program Manager performs re-inspections due to failure of the work to comply with the claims of status of completion made by the Contractor:

1. Owner will compensate Program Manager for such additional services.
2. Owner will deduct the amount of such compensation from the Final Payment to the Contractor.

1.06 FINAL ADJUSTMENT OF ACCOUNTS

A. Submit a final statement of accounting to the Program Manager.

B. Statement shall reflect all adjustments to the Contract Price:

1. The original Contract Price.
2. Additions and deductions resulting from:
   a. Previous Change Orders.
   b. Allowances.
   c. Unit Prices.
   d. Deductions for uncorrected work.
   e. Penalties and Bonuses.
   f. Deductions for liquidated damages.
   g. Deductions for re-inspection payments.
   h. Other adjustments.
3. Total Contract Price as adjusted.
4. Previous payments.

5. Sum remaining due.

C. Program Manager will prepare a final Change Order reflecting approved adjustments to the Contract Price not previously made by Change Orders.

1.07 APPLICATION FOR PAYMENT

A. Contractor shall submit the final Application for Payment in accordance with procedures and requirements stated in the Conditions of the Contract.

PART 2 — PRODUCTS

(Not Used)

PART 3 — EXECUTION

3.01 SUBSTANTIAL COMPLETION

A. Reference the Definitions, regarding Substantial Completion.

B. When the Work is substantially complete, the Contractor shall submit to the Program Manager:

1. A written notice the Work, or designated portion thereof, is substantially complete.
2. An original Certificate of Occupancy for the Project (as applicable).
3. A list of items to be completed or corrected (hereinafter referred to as a "Punch List").
4. All executed work orders/assignments signed and accepted by the Program Manager.
5. Project closeout documents, warranties, and certificates for review and approval.

C. Within 5 business days of such notice, the Contractor and Program Manager will make an inspection to determine the status of completion.

D. The Punch List submitted by the Contractor will be reviewed in detail, with items added or deleted to indicate Work to be corrected or completed.

1. The Program Manager reserves the right to issue a revised Punch List based on Contract Documents.
2. The Program Manager will reproduce and distribute all necessary copies of any revised Punch List to the Contractor and insure the items requiring correction or completion are given prompt attention by the Contractor.
3. The Program Manager may withhold the issuance of the Certificate of Substantial Completion until corrections required by said Punch List are made or all parties are satisfied they will be made.

E. Should the Program Manager determine the Work is not substantially complete:

1. The Program Manager will promptly notify the Contractor in writing, giving the reasons therefore.
2. The Contractor shall remedy the deficiencies in the Work, and then send a second written notice of Substantial Completion to the Program Manager.

F. When the Program Manager concurs the Work is substantially complete, the Program Manager will:

1. Prepare a Certificate of Substantial Completion accompanied by the Contractor's Punch List of items to be completed or corrected, as verified and amended by the Program Manager. (Note: Contract responsibilities are not altered by inclusion or omission of required Work for the Punch List.)
2. Sign the Certificate of Substantial Completion and submit it to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in the Certificate.

3.02 FINAL COMPLETION

A. Reference the Definitions, regarding Final Completion.

B. To attain Final Completion, the Contractor shall complete the activities pertaining to the Certificate of Substantial Completion and complete work on all Punch List items. Only then shall a written request to the Program Manager for final inspection be submitted.

C. When the Work is complete, the Contractor shall submit to the Owner written certification, signed jointly by the Program Manager, that:

1. The Contract Documents have been complied with in their entirety.
2. The Work has been inspected for compliance with Contract Documents.
3. The Work has been completed in accordance with Contract Documents.
4. The Work is completed and ready for final inspection.

D. The Contractor and Program Manager will make an inspection to verify the status of completion with reasonable promptness after receipt of such certification.

E. Should the Program Manager determine the Work is incomplete or defective:

1. The Program Manager will promptly notify the Contractor in writing, listing the incomplete or defective Work.
2. The Contractor shall take immediate steps to remedy the stated deficiencies, and send a second written certification to the Owner stating the Work is complete.

F. When the Program Manager finds the Work is acceptable under the Contract Documents, the Contractor will be requested to make a final closeout submittal.

END OF SECTION

UNCONDITIONAL WAIVER AND RELEASE
UPON FINAL PAYMENT

STATE OF GEORGIA

DEKALB COUNTY

The undersigned mechanic and/or materialman has been employed by _____ (name of contractor) to furnish _____ (describe materials and/or labor) for the construction of improvements known as _____ (title of the project or building) which is located in the City of _____, City of _____, and is owned by _____ (name of owner) and more particularly described as follows:

(DESCRIBE THE PROPERTY UPON WHICH THE IMPROVEMENTS WERE MADE BY USING EITHER A METES AND BOUNDS DESCRIPTION, THE LAND LOT DISTRICT, BLOCK AND LOT NUMBER, OR STREET ADDRESS OF THE PROJECT.)

Upon the receipt of the sum of $_____, the mechanic and/or materialman waives and releases any and all liens or claims of liens or any right against any labor and/or material bond it has upon the foregoing described property.

Given under hand and seal this _____ day of _____, 20__.

_____(Seal)

_____

_____
(Witness)

SECTION 01710

CLEAN-UP

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. This section includes policies and procedures preventing the accumulation of waste materials on the site and the clean-up of waste materials thereof, throughout the duration and upon the completion of work.

B. This section includes miscellaneous work related to quality control including, but not limited to, protecting active utilities, procedures for utility crossings, and relocating existing gas lines.

C. This section includes operations not specified in detail as separate items, but can be sufficiently described as to the kind and extent of work involved. Furnish all labor, materials, equipment and incidentals to complete the work under this Section.

1.02 RELATED SECTIONS

A. Section 02110: Easement Access and Clearing

B. Section 02276: Site Restoration and Erosion Control

1.03 QUALIFICATIONS AND REQUIREMENTS

A. Contractor shall keep the project site free from accumulated waste materials and rubbish at all times during the assessment period. At completion of the work, the Contractor shall remove all waste materials and rubbish from and about the Project, as well as his tools, equipment, machinery, and surplus materials, except those specifically required by the Contract Documents to be left for the Owner's maintenance.

B. If Contractor fails to keep project clean or to clean up prior to Date of Substantial Completion, the Owner may do so, and the cost thereof will be charged to the Contractor.

C. Attention is directed to the State Soil Erosion and Sediment Control laws, ordinances and requirements.

1.04 SAFETY

A. Store volatile waste in covered metal containers or as required by State and Federal requirements, and remove from project site daily to an approved facility.

1. Allow no volatile wastes to accumulate on project site.
2. Provide adequate ventilation during use of volatile substances.

B. Do not burn or bury waste materials and/or rubbish on project site.

C. Do not dispose any volatile wastes such as, but not limited to, mineral spirits, oil, or paint thinner in storm or sanitary drains, on pavements, in gutters, or on project site.

D. Do not dispose any waste or cleaning materials containing materials harmful to plant growth on project site. Clean up materials accidentally spilled as quickly as possible.

PART 2 — PRODUCTS

2.01 MATERIALS

Materials required for this section shall be of the same quality as materials to be restored. Where possible, reuse existing materials previously removed.

PART 3 — EXECUTION

3.01 INSTALLATION

A. Clean-up during construction

1. Execute cleaning procedures to insure the building, project site and adjacent properties are maintained free from debris, dust, and rubbish.
2. Wet down materials subject to blowing. Do not throw waste materials from heights.
3. Provide covered, on-site containers for waste collection. Place all waste materials and rubbish in containers in an expeditious manner to prevent accumulation. Remove waste from project site when containers become full.
4. Legally dispose all waste materials, rubbish, volatile materials and cleaning materials off project site.
5. When finishing work begins, maintain project in a "broom-clean" state until Date of Substantial Completion. Protect newly finished and clean surfaces from contamination during cleaning operations.
6. Do not allow debris contributing to the survival or spread of rodents, roaches or other pests to accumulate.
   a. Remove debris containing food scraps on a daily basis.
   b. Should pests inhabit project, Contractor shall be responsible for securing services of a pest exterminator at no additional cost to the Owner.

B. Protection and clean-up of roads

1. Spillovers on roads from trucks entering or leaving the site shall be cleaned up on a continuing basis so pavements and adjacent sidewalks will not be littered with earth, stones, or any other debris resulting from assessment operations.
2. Large accumulations of earth and mud shall be removed from vehicle wheels and loose accumulations of earth, sand or gravel shall be removed from vehicle underbodies and ledges as much as feasible before entry upon public roads.

C. Stripping

In areas so designated, topsoil shall be stockpiled. The topsoil shall be protected until it is placed as specified. Any topsoil remaining after all work is in place shall be used on-site in designated areas.

D. Bench marks

Carefully maintain all benchmarks, monuments, and other reference points. If disturbed, replace as directed by the Program Manager.

E. Incidental work

Do all incidental work not otherwise specified, but obviously necessary, for the proper completion of the contract as specified.

3.02 ACTIVE UTILITIES

A. Active utilities traversing the site shall be preserved in operating condition. Repair damage to all such utilities due to work under this Contract, to the satisfaction of the authority having jurisdiction over the utility.

B. Disconnect or arrange the disconnection of utility service in accordance with regulations of the governing utility concerned and interfering with the work.

C. Crossing Utilities:

This item shall include any extra work required in crossing culverts, water courses, or drains, including all sheeting and bracing, extra excavation and backfill, or any other work required for the crossing, whether or not shown on the drawings.

D. Relocating Existing Gas Lines:

Notify the proper utility authority involved when relocating gas lines is required. Coordinate all work and required permits by the utility so assessment progress will not be hampered.

3.03 FINAL CLEAN-UP

A. All general and specific cleaning shall be performed prior to Contractor's request the project or portion thereof be inspected for Substantial Completion.

B. Clean disturbed areas of project site of debris.

1. Broom clean paved surfaces. Remove oil and similar deleterious substances.

END OF SECTION

SECTION 02110

ACCESS ROUTE & EASEMENT ACCESS CLEARING

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. This section includes, but is not limited to, removing and disposing of trees, stumps, roots, brush, structures, abandoned utilities, trash, debris, and all other materials found on or near the surface of the ground in the construction area and, understood by generally accepted engineering practice, not to be suitable for construction of the type contemplated from the work site. Precautionary measures to prevent damage to existing features to remain are considered part of the work.

B. The Program Manager will designate all trees, shrubs, plants, and other things to remain. Paint required for cut or scarred surface of trees or shrubs selected for retention shall be an asphaltum base paint prepared especially for tree surgery and approved by the Program Manager.

C. Sewer Easement Clearing Operations shall be coordinated with temporary and permanent erosion and sedimentation control procedures.

1.02 RELATED SECTIONS

A. Section 02276 – Site Restoration and Erosion Control

B. Section 02486 – Seeding

C. Section 02542 – Silt Fence

1.03 DEFINITIONS

A. **Light Clearing:** This area requires "bush hog" equipment for tree and shrub removal.

B. **Medium Clearing:** This area requires "bush hog" and "chipper" equipment for tree and shrub removal.

C. **Heavy Clearing:** This area requires "timbering" equipment for tree and shrub material.

1.04 QUALIFICATIONS AND REQUIREMENTS

A. The Contractor shall comply with all applicable codes, ordinances, rules, regulations, and laws of local, municipal, State or Federal authorities having jurisdiction over the work. All required permits shall be obtained for construction operations by the Contractor and submitted to Program Manager for verification.

B. All persons involved in land disturbance work shall be trained and certified in accordance with the requirements of the Georgia Erosion and Sedimentation Act.

C. Open burning will not be permitted.

1.05 SUBMITTALS

A. Prior to beginning easement clearing, the Contractor shall submit to the Program Manager a map showing the location of all easements to be cleared. The Contractor shall label each easement as requiring light clearing, medium clearing or heavy clearing.

B. The Contractor shall submit to the Program Manager a schedule for clearing the easements.

C. The easement clearing map and schedule must be submitted to the Program Manager fourteen (14) calendar days prior to beginning easement clearing.

D. The easement clearing map and schedule must be approved by the Program Manager before the Contractor can begin work.

E. Copies of all permits required for clearing operations shall be provided to the Program Manager prior to beginning work.

F. Equipment list and specification for all pieces planned for use on site.

G. Maintenance log of equipment to be used to show that all equipment has been properly maintained.

H. Plan for approved fuel storage areas if applicable.

PART 2 — PRODUCTS

2.01 EQUIPMENT

A. The Contractor shall furnish equipment with operators of the type normally used in clearing and grubbing operations including, but not limited to tractors, trucks, loaders, stump grinders, and root rakes.

PART 3 — EXECUTION

3.01 INSTALLATION AND EXECUTION

A. Clearing and grubbing activities will be conducted at the minimum level necessary to provide access to an assessment or construction activity location.

B. Clear and grub the permanent easement, but not to exceed limits of easements on each side of the pipeline, before initiating other items of work. Remove all trees, growth, debris, stumps and other objectionable matter, except as directed by the Program Manager.

C. Materials to be cleared, grubbed and removed from the construction area include, but are not limited to the following: trees, stumps, roots, brush, trash, organic matter, paving, miscellaneous structures, debris, and abandoned utilities.

D. Grubbing shall consist of completely removing roots, stumps, trash, and other debris from all graded areas so the topsoil is free of roots and debris. Topsoil is to be left

sufficiently clean so further picking and raking will not be required. Grubbing shall only be performed at the specific direction of the Program Manager.

E. All stumps, roots, foundations and planking embedded in the ground shall be removed and disposed of in a proper manner. Piling and butts of utility poles shall be removed to a minimum depth of two feet below the limits of excavation for structures, trenches and roadways or two feet below finished grade, whichever is lower.

F. Prior to clearing landscaping features, but not necessarily limited to, specimen trees, fences, cultivated trees, cultivated shrubbery, property corners, man-made improvements, subdivision and other signs, shall be noted on the easement clearing maps and shall be reviewed with the Program Manager. The Program Manager will determine which landscape features are to remain undisturbed. The Contractor shall take extreme care in moving landscape features and shall re-establish these features as directed by the Program Manager.

G. Surface rocks and boulders shall be grubbed from the soil and removed from the site, if not suitable as rip rap.

H. Where tree limbs interfere with utility wires, or where the trees to be felled are in close proximity to utility wires, the tree shall be taken down in sections to eliminate the possibility of damage to the utility.

I. Any work pertaining to utility poles shall comply with the requirements of the appropriate utility.

J. Fences adjoining any excavation or embankment, in the Contractor's opinion, damaged or buried, shall be carefully removed, stored and replaced. Any fencing, in the Program Manager’s opinion, significantly damaged shall be replaced with new fence material of equal or better quality at the Contractor’s expense.

K. Stumps and roots shall be grubbed and removed to a depth not less than 2 feet below grade. All holes or cavities extended below the subgrade elevation of the proposed work shall be filled with crushed rock or other suitable material, compacted to the same density as surrounding material.

L. The Contractor shall exercise special precautions for the protection and preservation of trees, cultivated shrubs, sod, fences, etc. situated within limits of the construction area, but not directly within excavation and/or fill limits. The Contractor shall be held liable for any damage his operations have inflicted on such property.

M. The Contractor shall be responsible for all damages to existing improvements outside the permanent easement resulting from Contractor's operations.

N. Burying of residual materials will not be allowed.

3.02 CONSTRUCTION ACCESS ROUTE ON EASEMENT

A. When directed by the Program Manager, a construction access route shall be built for the purpose of accessing manholes and performing all other necessary work within the easement.

B. Construction roads, when required, shall be cut ten (10) feet wide and as long as required, and six (6) inches deep below existing grade, or as directed by the Program Manager. Filter fabric shall be placed at the bottom of the cut, and stone shall be placed on top of the fabric, filling the six inch depth along the road.

C. Provide and install the filter fabric and stone as indicated in the Manual for Erosion and Sediment Control in Georgia.

D. The Contractor is required to maintain the access roadway to include periodic top dressing of gravel to maintain a 6 inch depth. Remove all spilled materials and debris from graveled surfaces.

3.03 CLEAN-UP

A. The debris resulting from the clearing and grubbing operation shall be hauled to a disposal site secured by the Contractor and shall be disposed of in accordance with all requirements of Federal, State, County and municipal regulations. No debris of any kind shall be deposited in any stream or body of water, or in any street or alley. No debris shall be deposited upon any private property, except with written consent of the property owner. In no case shall any material or debris be left on the worksite, shoved onto abutting private properties, or buried on the worksite.

B. Open burning will not be permitted.

END OF SECTION

SECTION 02273

RIPRAP

PART 1 — GENERAL

1.01 SECTION INCLUDES

The section includes general requirements for providing stone riprap slope protection, including associated earthwork and geotextile filter material, complete and in place, in accordance with the Contract Documents.

1.02 RELATED SECTIONS

A. Section 01300: Submittals

B. Section 02276: Site Restoration and Erosion Control

1.03 REFERENCED SPECIFICATIONS, CODES, AND STANDARDS

A. This Section references the following Commercial Standards:

Georgia Department of Transportation (GA DOT), Standard Specifications

Construction of Roads and Bridges, 1993 Edition

ASTM C 88 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate

ASTM C 535 Standard Test Method for Resistance to Degradation of Large Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine.

AASHTO T 85 Standard Method of Test for Specific Gravity and

Absorption of Coarse Aggregate

AASHTO T 210 Method of Test for Aggregate Durability Index. AASHTO T 134 Optimum Moisture Content

1.04 SUBMITTALS

A. Shop Drawings: Description and location of proposed sources of riprap bedding and riprap.

B. The Contractor shall submit samples of all materials proposed to be used in the work. Sample size shall be as determined by the testing laboratory.

C. Testing certificates from a qualified testing agency shall be submitted prior to acceptance of the rock source to verify the gradation, abrasion resistance, and bulk density. Contractor shall, if requested, coordinate inspection of the rock source by the Program Manager.

D. Trip tickets showing source, type, and weight of each load of material delivered to the Site.

PART 2 — PRODUCTS

2.01 STONES FOR RIPRAP

A. All Stone for riprap shall be sound, durable pieces of quarried stone weighing 156-pounds per cubic foot or more. The stone shall be angular and random in shape; rounded boulders or cobbles shall not be used. Flat, slabby, or shaley pieces will not be acceptable. Stones shall be resistant to weathering and to water action and free from overburden, spoil, and organic material and shall meet the gradation requirements below.

B. Riprap shall be of the type indicated on the Drawings and shall conform to the size types as follows:

Type 2 – equivalent to GA DOT specification for "Plain Riprap":

Percent by Weight	Volume (cu.ft.)	Weight (lb.)	Diameter (in)
65 – 100%	0.75-2.0	125- 320	15-24
10-65%	0.04-0.75	7-125	5 – 15
0-10%	0.0-0.04	0-7	0-15

Type 3 – equivalent to GA DOT specification for "Dumped Riprap-Type 3":

Percent by Weight	Volume (cu.ft.)	Weight (lb.)	Diameter (in.)
65-100%	0.10-1.0	7 – 65	6-18
10-65%	0.01-0.1	2-17	2-6
0-10%	0.0-0.01	0 - 2	0 – 2

C. The durability index and percent absorption shall be determined by AASHTO T 210 and AASHTO T 85, respectively. The minimum apparent specific gravity of the stones shall be 2.5 as determined by AASHTO T 85.

D. Stones shall have less than 10 percent loss of weight after five cycles, when tested per ASTM C 88.

E. Stones shall have a wear not greater than 40 percent, when tested per ASTM C 535.

F. Control of gradation shall be by visual inspection. The Contractor shall furnish a sample of the proposed gradation of at least 5 tons or 10 percent of the total riprap weight, whichever is less. If approved, the sample may be incorporated

into the finished riprap at a location where it can be used as a frequent reference for judging the gradation of the remainder of riprap. Any difference of opinion between the Engineer and the Contractor shall be resolved by checking the gradation of two random truckloads of stones. Arranging for and the costs of mechanical equipment, a sorting site, and labor needed in checking gradation shall be the Contractor's responsibility.

G. The acceptability of the stones will be determined by the Program Manager prior to final placement.

2.02 GEOTEXTILE FABRIC FILTER

A. Geotextile fabric shall meet the requirements of GA DOT Section 881.06 for woven fabrics, having physical properties as follows:

Tensile Strength- any direction (ASTM D 4634)	200 lbs.
Bursting Strength (ASTM D 3786)	500 psi
Elongation Before Breaking (ASTM D 4634)	10-35%
Percent Open Area (GOT: 88)	4.0-6.0%

PART 3 — EXECUTION

3.01 SURFACE PREPARATION

A. Surfaces to receive filter materials and riprap, including the toe trench and slope, shall be brought to the line and grade indicated and shall be smooth and firm, free of brush, trees, stumps, and other objectionable material. Where filling of depressions is required or a filled bank is constructed, the new material shall be compacted with hand or mechanical tampers to a minimum of 85-percent of maximum density.

B. The Contractor shall remove and exclude all stormwater, groundwater and creek or stream water from the excavation. Sump pumps and sand bags or portable dams, diversions, or other approved means, shall be used to remove and exclude water and continuously maintain water level below the bottom of the excavation. Water shall be removed and excluded until both geotextile filter material and riprap have been placed. Any water removed from the excavation shall not be discharged into any surface stream or other water body unless such discharge meets water quality standards. Removed water may be disposed on-site by land application using sprinklers in an area designated by the Engineer or by discharge into an approved treatment system.

C. Cleared and excavated materials shall be hauled off site to an appropriate disposal location arranged by the Contractor and at its sole expense unless otherwise indicated or specified.

D. Riprap installed at the toe of a stream bank below the elevation of the water in a stream to prevent scour from undermining the riprap shall be backfilled and covered

with native soil to the original grade. The backfilled native soil shall be compacted with hand or mechanical tampers to a minimum of 85 percent of maximum density.

3.02 PLACEMENT OF GEOTEXTILE FABRIC

A. The fabric shall be placed with the long dimension running up the slope, with the upstream strip overlapping the downstream strip. Use a minimum of 2-foot overlap for each overlap. Use a wider overlap if recommended by the geotextile manufacturer.

B. The fabric shall be placed loosely with sufficient folded or gathered material to prevent stretching and tearing during riprap placement.

C. The fabric shall be anchored into place using securing pins with type and spacing as recommended by the manufacturer. In addition, the fabric shall be secured at the toe and crest of the slope using anchor trenches at least 2-feet deep. If a stream bank extends sufficiently above a stream such that riprap would not be installed to the top of the bank, then the fabric shall be anchored in a 2-foot deep trench up-slope from the top of the minimum free-board of 0.5 feet above the flow resulting from a 50-year, 24-hour storm runoff event.

3.03 STONE RIPRAP

A. Placement of riprap shall begin at the toe and proceed up the slope. The stones shall be placed, or dumped from a height of not more than three feet and placed with equipment or by hand. Sufficient hand work shall be performed to produce a neat and uniform surface.

B. Dumped riprap shall be used only where there is an existing road access to the top and/or bottom of the stream bank. Riprap shall be dumped into place, beginning at the toe and proceeding up the slope, and may be .spread using suitable equipment. Care must be taken to prevent damage to the underlying filter material. Sufficient hand work shall be performed to produce a neat and uniform surface.

END OF SECTION

SECTION 02276

SITE RESTORATION AND EROSION CONTROL

PART 1 — GENERAL REQUIREMENTS

1.01 SECTION INCLUDES

A. The work specified in this Section consists of providing, maintaining and removing temporary erosion and sedimentation controls as necessary.

B. Temporary erosion controls include, but are not limited to, Best Management Practices (BMP's) such as: grassing, mulching, netting, and watering, and reseeding on-site surfaces and spoil and borrow area surfaces and providing interceptor ditches at ends of berms and at those locations ensuring the erosion during construction will be either eliminated or maintained within acceptable limits as established by the Program Manager, Local Issuing Authority and State.

C. Temporary sedimentation controls include, but are not limited to, Best Management Practices (BMP's) such as: silt fencing, silt dams, temporary sediment traps, check dams, temporary inlet sediment traps, barriers, rock filter dams, temporary creek crossings, diversion ditches, tree protection fencing, and appurtenances at the foot of sloped surfaces ensuring the sedimentation pollution will be either eliminated or maintained.

1.02 RELATED SECTIONS

A. Section 02273: Riprap

B. Section 02485: Sodding

C. Section 02486: Seeding

D. Section 02542: Silt Fence

1.03 REFERENCES

A. Clean Water Act

B. Georgia Building Code

C. Any Soil Erosion and Sediment Control Ordinances in force by the local Government.

D. State of Georgia, Department of Transportation, Standard Specifications.

E. Manual for Erosion and Sediment Control in Georgia, latest edition.

F. Georgia Erosion and Sedimentation Control Act

G. Georgia Water Quality Control Act

1.04 QUALIFICATIONS AND REQUIREMENTS

A. Provide effective temporary erosion and sediment control measures during construction or until final controls become effective.

B. Erosion, Sedimentation and Pollution Control shall be performed in accordance with Georgia's NPDES Permit No. GAR 100001, 100002, or 100003, as applicable, and as detailed in the drawings.

PART 2 — PRODUCTS

2.01 EROSION CONTROL

A. Mulch

B. Temporary grass seed

C. Permanent grass seed

D. Sod

E. Dust control

F. Slope stabilization blankets

G. Flocculants and coagulants

H. Tackifiers

I. Stream bank stabilization products

J. Slope stabilization products:

1. Rolled Erosion Control Products (RECPs): A natural fiber blanket with single or double photodegradable or biodegradable nets.
   a. Blankets shall be non-toxic to vegetation, seed, or wildlife. At a minimum, the plastic or biodegradable netting shall be stitched to the fibrous matrix to maximize strength and provide for ease of handling.
   b. Products shall be determined to be non-toxic in accordance with EPA-821-R-02-012.
2. Hydraulic Erosion Control Products (HECPs): shall utilize straw, cotton, wood or other natural based fibers held together by a soil binding agent working to stabilize soil particles. Paper mulch should not be used for erosion control.
   a. HECPs shall be prepackaged from the manufacturer. Field mixing of performance enhancing additives will not be allowed. Fibrous components should be all natural or biodegradable.
   b. Products shall be determined to be non-toxic in accordance with EPA-821-R-02-012.

2.02 SEDIMENTATION CONTROL

A. Bales - clean, seed free cereal hay type.

B. Netting - fabricated of material acceptable to the Owner.

C. Filter stone - No. 57 - crushed stone.

D. Filter media sock, silt fencing (Type NS or Type S).

E. Tree save fencing.

PART 3 — EXECUTION

3.01 GENERAL

A. All erosion control measures are to be installed per the requirement listed in the construction documents as well as defined with Georgia's Manual for Erosion and Sediment Control, latest edition.

3.02 VEGETATIVE MEASURES

A. Erosion control should be addressed in the planning stages of all proposed land-disturbing activities. While erosion is difficult to control completely, methods to reduce it are practical, affordable, and cost effective. Erosion control techniques shall be used on all areas exposed for a prolonged period of time, including areas that will be paved or built upon in the future. Various types of vegetative practices are used for erosion control. The time-line for the implementation of various vegetative practices is as follows:

B. **Mulch, temporary vegetation, or permanent (perennial) vegetation shall be completed on all exposed areas within 14 days after disturbance.**

C. **Ds1 - Disturbed Area Stabilization (With Mulching Only)** Mulching can be used as a singular erosion control method on areas at rough grade. Mulch can be an option for up to six months provided the mulch is applied at the appropriate depth (depending on type of mulch used), anchored, and has a continuous 90% cover or greater of the soil surface. Maintenance shall be required to maintain appropriate depth, anchorage, and 90% cover. If an area will remain undisturbed for greater than six months, permanent (perennial) vegetation shall be used.

D. **Ds2 - Disturbed Area Stabilization (With Temporary Seeding)** Temporary vegetation may be employed instead of mulch if the area will remain undisturbed for less than six months.

E. **Ds3 - Disturbed Area Stabilization (With Permanent Vegetation)** Permanent (perennial) vegetation or sod shall be used immediately on areas at final grade. Permanent (perennial) vegetation shall be used on rough graded areas to be undisturbed for more than six months.

F. **Ds4 - Disturbed Area Stabilization (With Sodding)** may be used in place of Ds3.

G. **"Stabilization"** of an area is accomplished when 70% of the surface area is covered in a uniform, vegetative cover (permanent or temporary) or anchored mulch of the appropriate thickness with 90% coverage. "Final stabilization" means all soil disturbing activities at the site have been completed, and for unpaved areas and areas not covered by permanent structures and areas located outside the waste disposal limits of a landfill cell certified by EPD for waste disposal, 100% of the soil surface is uniformly covered in permanent vegetation with a density of 70% or greater, or landscaped according to the Plan (uniformly covered with landscaping materials in planned landscaped areas), or equivalent permanent stabilization measures.

H. **Permanent (perennial) vegetation** shall consist of: planted trees, shrubs, perennial vines; a crop of perennial vegetation appropriate for the time of year and region; or a crop of annual vegetation and a seeding of target crop perennials appropriate for the region, such that within the growing season a 70% coverage by perennial vegetation shall be achieved.

1. For linear construction projects on land used for agricultural or silvicultural purposes, final stabilization may be accomplished by stabilizing the disturbed land for its agricultural or silvicultural use.
2. For the purposes of this specification, permanent vegetation is used synonymously with perennial vegetation. Perennial vegetation is plant material that lives continuously from year to year although it may have a dormant season when the leaves and possibly the stems "die back" to the ground. No vegetative planting can technically be considered permanent. Annual vegetation is plant material lives for only one growing season. This type of vegetation is typically used for temporary establishment due to its quick germination. Some perennial vegetation can be used for temporary stabilization.

I. **Slope Stabilization**

1. It is the intention of this specification to allow interchangeable use of RECPs and HECPs for erosion protection on slopes. The project engineer should select the type of erosion control product best fitting the need of the particular site.
   a. Installation and stapling of RECPs and application rates for the HECPs shall conform to manufacturer's guidelines for application.
   b. Products shall have a maximum C-factor (ASTM D6459) for the following slope grade:

Slope (H:V)	C-Factor (max.)
3:1 or greater	0.080

2. RECPs will be categorized as follows:
   a. Short term (functional longevity 12 mos.)
      i. Photodegradable: Straw blankets with a top and bottom side photo degradable net. The maximum size of the mesh shall be openings of ½" X ½". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness

should be 0.35" and minimum density should be 0.5 lbs. per square yard.

ii. Biodegradable: Straw blanket with a top and bottom side biodegradable jute net. The top side net shall consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh shall be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.5 lbs. per square yard.

b. Extended term (functional longevity 24 mos.)

i. Photodegradable: Blankets that consist of 70% straw and 30% coconut with a top and bottom side photodegradable net. The top net should have ultraviolet additives to delay breakdown. The maximum size of the mesh shall be openings of 0.65" X 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.35" and minimum density should be 0.6 lbs. per square yard.

ii. Biodegradable: Blankets that consist of 70% straw and 30% coconut with a top and bottom side biodegradable jute net. The top side net shall consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh shall be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.65 lbs. per square yard.

c. Long-term (functional longevity 36 mos.)

i. Photodegradable: Blankets that consist of 100% coconut with a top and bottom side photodegradable net. Each net should have ultraviolet additives to delay breakdown. The maximum size of the mesh shall be openings of 0.65" X 0.65". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.3" and minimum density should be 0.5 lbs. per square yard.

ii. Biodegradable: Blankets that consist of 100% coconut with a top and bottom side biodegradable jute net. The top side net shall consist of machine direction strands that are twisted together and then interwoven with cross direction strands (leno weave). The bottom net may be leno weave or otherwise to meet requirements. The approximate size of the mesh shall be openings of 0.5" X 1.0". The blanket should be sewn together on 1.5" centers with degradable thread. Minimum thickness should be 0.25" and minimum density should be 0.5 lbs. per square yard.

d. **Site Preparation:** After the site has been shaped and graded to the approved design, prepare a friable seedbed relatively free from clods and rocks more than one inch in diameter, and any foreign material preventing contact of the soil stabilization mat with the soil surface. Surface must be smooth to ensure proper contact of blankets or matting to the soil surface. If necessary, redirect any runoff from the ditch or slope during installation.

i. **Maintenance:** All erosion control blankets and matting should be inspected periodically following installation, particularly after rainstorms to check for erosion and undermining. Any dislocation or failure should be repaired immediately. If washouts or breakage occurs, reinstall the material after repairing damage to the slope or ditch. Continue to monitor these areas until they become permanently stabilized.

3.03 SEDIMENTATION CONTROL

A. Install and maintain silt fencing, silt dams, traps, barriers and all other appurtenances as shown on the approved descriptions and working drawings. Hay bales, silt fencing, filter socks, and other BMP's which deteriorate and filter stone which is dislodged shall be replaced when needed.

B. Install and maintain temporary stream crossings as indicated in the Manual for Erosion and Sediment Control in Georgia, and as modified in these specifications.

C. Install and maintain riprap for all erosion and sediment control methodologies as indicated in the Manual for Erosion and Sediment Control in Georgia and as specified or modified in the Contract Documents. Refer to Specification Section 02273 – Riprap for general riprap requirements.

3.04 ACCEPTANCE

A. Should any of the temporary erosion and sediment control measures employed fail to produce results complying with the requirements of the State, immediately take whatever steps are necessary to correct the deficiency within the limits defined in the NPDES permit or Georgia's Manual for Erosion and Sediment Control.

B. For a product or practice to be approved as slope stabilization, that product or practice must have a documented C-factor of 0.080.

3.05 DOCUMENTATION

Contractor shall monitor, report and retain records as required by the GA NPDES Permit No. GAR 100001, 100002, or 100003, as applicable. Attached to the end of this section are the minimal, but not limited to, reports which should be performed and maintained. The following are the attached reports:

A. Daily Inspection Report

B. Daily Rainfall Monitoring Report

C. Weekly Inspection Report

D. Stormwater Monitoring Data

E. Monthly Inspection Report

F. Inspection Summary Report for violations and corrective actions.

G. Erosion and Sedimentation Control Inspection Report

END OF SECTION

Daily Inspection Report

Inspection performed by certified personnel each day construction activity occurs on-site

Project Information	
Date:	Project Name:
Project Location:	
Inspection Observations	
Rainfall within past 24 hours (inches):	Is rainfall greater than 0.5”? Inspection Required ☐
Inspection Observations	
Petroleum Product Storage Areas: Are all of the temporary and permanent controls contained in Plan in place? ☐ Yes ☐ No If no, describe the location(s) of deficiencies and corrective actions that must be taken.	
Vehicle Entrances and Exits: Is there tracking of sediment from locations where vehicles enter and leave the project? ☐ Yes ☐ No If yes, describe the location(s) and the corrective actions that must be taken.	
Other Observations	
Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:	
Corrective Actions and Date:	

Signature of Certified Personnel

Printed Name of Certified Personnel

Daily Rainfall Log

Project Name: _____

Project Location: _____

Month: _____ **Year:** _____

Type of Device Used to Measure Rainfall: _____

Device Location: _____

Daily Rainfall Monitoring Data

Date	Rainfall Amount, Inches	Time	Reported By

Weekly Inspection Report

Inspection performed by certified personnel at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater

Project Information	
Date:	Project Name:
Project Location:	
Name of Inspector:	
Inspection Event	
Regular weekly inspection: ☐	Inspection within 24 hours of 0.5" storm event ☐

Inspection Observations

Disturbed areas that have not undergone final stabilization:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Corrective Action Taken and Date:

Material storage areas exposed to precipitation:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Corrective Action Taken and Date:

Discharge locations or points.

Are erosion control measures preventing impacts to receiving waters? ☐ Yes ☐ No

If no, describe observations:

Structural control measures:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Control Measures	Location	Deficiency	Date Corrected

Other observations:

Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:

Signature of Certified Personnel

Printed Name of Certified Personnel

Month: _____ Year: _____
Submit to EPD by 15th of Following Month

Project Location: _____ Project Location: _____

Storm Water Monitoring Data

To be used within 24-hours of a qualifying rainfall event of 0.5-inches or more.

Date Sampled	Rainfall Amount (Inches)	Exact Location of Sample	Time Sampled	Sampling Technique (Manual or Automatic Grab)	Sampled by	Date of Analysis	Time Analyzed	Analyzed By	Analytical Technique or Method Used (Meter #)	Results (NTU)

I certify that all sampling and analysis was conducted as per the Plan. _____
(Signature of Certified Personnel)

Monthly Inspection Report

Inspection performed by certified personnel at least once per month

Project Information	
Date:	Project Name:
Project Location:	
Inspection Observations	
Rainfall within past 24 hours (inches):	Is rainfall greater than 0.5"? Inspection Required ☐
Inspection Observations	
Areas that have undergone final stabilization: Are all permanent stabilization controls contained in Plan in place? ☐ Yes ☐ No If no, describe the location(s) of deficiencies and corrective actions that must be taken.	
Other observations: Are pollutants entering the drainage system or receiving waters? ☐ Yes ☐ No If yes, describe the location(s) and the corrective actions that must be taken. Are all erosion and sediment control measures operating properly? ☐ Yes ☐ No If no, describe the location(s) and the corrective actions that must be taken.	
Other Observations	
Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:	
Corrective Actions and Date:	

Signature of Certified Personnel

Printed Name of Certified Personnel

Inspection Summary

Site:_____ **LDA No.**_____

Map Site	Violation	First Date	Date Corrected

Site Inspection Report

Erosion and Sedimentation Inspection Report

Maintain Reports on-site

Site:	**Date:**	**Time:**
Inspector:	**Accompanied By:**	
Stage of Construction:		
Site:		
Observation:		
Recommendations:		
Contractor's Corrective Action (and Date):		
Site:		
Observation:		
Recommendations:		
Contractor's Corrective Action (and Date):		

SECTION 02485
SODDING

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. This section includes the Contractor's responsibility to furnish all labor, materials, equipment, and incidentals necessary to place sod and maintain all sodded areas disturbed by the Contractor's operations.

B. Work includes all soil preparation, soil additives, and the storage, transportation, placing, and maintenance of sod at all locations as required or as directed by the Program Manager.

C. Ds3 and Ds4 Requirements for Regulatory Compliance

1.02 RELATED SECTIONS

A. Section 02276: Site Restoration and Erosion Control

1.03 SUBMITTALS

A. Product labels/data sheets.

B. Certification of sod; include source and harvest date of sod, and sod seed mix.

1.04 DELIVERY, STORAGE, AND PROTECTION

A. Sod:

1. Do not harvest if sod is excessively dry or wet to the extent survival may be adversely affected.
2. Harvest and deliver sod only after laying bed is prepared for sodding.
3. Roll or stack to prevent yellowing.
4. Deliver and lay within 64 hours of harvesting.
5. Keep moist and covered to protect from drying from time of harvesting until laid.

1.05 WEATHER RESTRICTIONS

A. Perform Work under favorable weather and soil moisture conditions as determined by accepted local practice.

1.06 GUARANTEE

A. Establish an acceptable growth of the specified sod on all areas as directed by the Program Manager.

B. An area is considered acceptable if the majority of each piece of sod is alive and healthy and generally free from weeds, insects, and disease.

C. The Contractor is responsible for watering, weeding, and mowing, the sod during the maintenance period.

1.07 MAINTENANCE SERVICE

A. Begin maintenance immediately after each area is planted and continue for a period of 60 days after all planting under this section is completed.

B. Perform maintenance operations during maintenance period to include:

1. Watering: First 2 weeks water daily, thereafter keep surface moist.
2. Washouts: Repair by filling with topsoil, liming, fertilizing, and resodding.
3. Mowing: Mow to 2 inches after grass height reaches 3 inches, and mow to maintain grass height from exceeding 3-1/2 inches.
4. Resod unsatisfactory areas, or portions thereof, immediately at the end of the maintenance period if a satisfactory stand has not been produced.

PART 2 — PRODUCTS

2.01 SOD

A. New sod consisting of live, dense, well rooted growth; well suited for the intended purpose and soil conditions; completely free of noxious weeds and grasses (crab grass, quack grass, Johnson grass, Canada thistle); and containing less than 5 plants of objectionable weeds per 100 square feet.

B. Obtain all sod from an approved nursery with a Georgia Live Plant license.

C. Replacement sod will match existing lawn grass type.

2.02 FERTILIZER

A. Commercially manufactured, Grade 10-10-10; furnished in standard containers clearly marked with the name, weight, and guaranteed analysis of the contents and ensuring proper protection in transportation and handling; and in compliance with all local, state, and federal fertilizer laws.

2.03 AGRICULTURAL LIMESTONE

A. Containing a minimum of 85 percent calcium carbonate and magnesium carbonate combined, 85 percent of which passes a No. 10 mesh sieve.

PART 3 — EXECUTION

3.01 PREPARATION

A. Place sod as soon as practical after its removal from point of origin. Keep it moist while displaced.

B. Scarify each area to be sodded a minimum of 2 inches and remove stones larger than 3/4 inch in any dimension.

C. Before beginning sodding operations in any area, complete placing the topsoil and final grading, and have the area approved by the Program Manager.

3.02 APPLICATION

A. Set sod between April 1 and October 31 and when the soil is in a workable condition. If weather is acceptable to the Program Manager, the dates may be extended beyond those stated.

B. Do not set sod out of season unless soil conditions are favorable and written permission is obtained from the Program Manager.

C. During times when sodding cannot be conducted, erosion control and silt fences shall be placed and maintained. If property owner and the Program Manager agree, seeding may be substituted for sodding.

D. Apply fertilizer and agricultural limestone uniformly over the sod bed at the rates shown below. Immediately prior to placing sod, water the sod bed until it is saturated to a depth of 1 inch, and keep it moist until the sod is placed.

1. Fertilizer: 15 pounds per 1,000 square feet of 10-10-10.
2. Agricultural Limestone: 40 pounds per 1,000 square feet.

E. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; to not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Tamp or roll lightly to ensure contact with subgrade. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent grass. Lay sod on slopes with short dimension running up and down.

F. Saturate sod with fine water spray within 2 hours of planting. During first week, water daily or more frequently as necessary to maintain moist soil to a minimum depth of 1-1/2 inches below sod.

G. E. Two weeks after the sod is installed, top dress and thoroughly water it. Top dressing shall consist of the following:

1. 1/2 to 1 Pound: 38 percent urea formaldehyde per 1,000 square feet.
2. 20 Pounds: 6-12-12 per 1,000 square feet.

3.03 MAINTENANCE

A. Begin maintenance immediately after sodding and continue until final acceptance of the Contract.

B. Maintain lawns for not less than three mowings or 60 days, whichever is longer.

C. Maintain lawns by watering, fertilizing, weeding, mowing, trimming, and other operations, such as rolling, re-grading and replanting, as required to establish an acceptable lawn, smooth and free of stones, weeds, and eroded or bare areas.

D. The standard of acceptability for bare areas is no larger than 3 inches in any dimension, nor greater than 5 percent of the lawn.

3.04 INSPECTION

A. The Program Manager shall inspect the sod within 30 days after installation and determine if it is acceptable.

B. The Program Manager will again review the sod for acceptance 30 and 60 days after installation. This acceptance by the Owner is for the purposes of payment only.

3.05 PROTECTION

A. No equipment, material storage, construction traffic, etc., will be permitted on newly sodded areas.

3.06 CLEANING

A. Dispose of all surplus material in compliance with all applicable laws and regulations and in accordance with contract requirements.

END OF SECTION

SECTION 02486
SEEDING

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. This section includes the Contractor's responsibility to furnish all labor, materials, equipment and incidentals necessary and place seed and maintain all seeded areas as specified herein including all areas disturbed by the Contractor's operations.

B. Ds3 and Ds4 Requirements for Regulatory Compliance

1.02 RELATED SECTIONS

A. Section 02276: Site Restoration and Erosion Control

1.03 SUBMITTALS

A. Product labels/data sheets

B. Seed: Certification of seed analysis, germination rate, and inoculation:

1. Certify each lot of seed has been tested by a testing laboratory certified in seed testing, within 6 months of date of delivery, Include with certification:
   a. Name and address of laboratory
   b. Date of test
   c. Lot number for each seed specified
   d. Test Results: (i) name, (ii) percentages of purity and of germination, and (iii) weed content for each kind of seed furnished
2. Mixtures: Proportions of each kind of seed

C. Seed Inoculant Certification: Bacteria prepared specifically for legume species to be inoculated

1.04 DELIVERY, STORAGE, AND PROTECTION

A. Furnish in standard containers with seed name, lot number, net weight, percentages of purity, germination, and hard seed and maximum weed seed content, clearly marked for each container of seed.

B. Keep dry during storage.

1.05 WEATHER RESTRICTIONS

A. Perform work under favorable weather and soil moisture conditions as determined by accepted local practice.

1.06 GUARANTEE

A. Secure an acceptable growth of grass in all areas designated for seeding

B. An area is considered acceptable if it is represented by a minimum of 100 seedlings per square foot of the permanent species of grass representative of the seed mixture. If an acceptable growth is not obtained on the first planting, reseeding and remulching will be required

C. If the planting is less than 50 percent successful, rework the ground, refertilize, reseed, and remulch the entire area.

1.07 MAINTENANCE

A. Begin maintenance immediately after each area is planted and continue until final acceptance of the Contract.

B. Maintenance is necessary to help establish a good healthy uniform growth over the entire seeded area. Maintenance to be performed includes the following:

1. Watering: First 2 weeks every day, thereafter keep surface moist.
2. Washouts: Re-grade and re-seed at the Contractor's expense until good sod is established.
3. Mulch: Replace wherever and whenever washed or blown away
4. Mowing:
   a. Mow to 2 inches after grass height reaches 3 inches, and mow to maintain grass height form exceeding 3-1/2 inches.
   b. Mowing should not be performed during the quail nesting season (May to September)
5. Rake clippings and leaves, and appurtenances until the project is completed.

PART 2 — PRODUCTS

2.01 MATERIALS

A. Products and applications to match Contract application period and meet manufacturers'' recommendations.

B. Fertilizer shall be a complete commercial fertilizer. It shall be delivered to the site in the original unopened containers each showing the manufacturer's guaranteed analysis of the contents and that ensure proper protection in transportation and handling, and in compliance with all local, state, and federal fertilizer laws. Store fertilizer, so when used, it shall be dry and free flowing.

C. Lime shall be ground limestone containing not less than 85 percent calcium and magnesium carbonates.

D. Seed shall be from the same or previous year's crop; each variety of seed shall have a percentage of germination not less than 90, a percentage purity of not less than 85, and shall have not more than one percent weed content.

E. The mixture for lawn areas shall consist of seed proportioned by weight as indicated on the drawings.

F. Seed Quality:

1. The term “pure live seed” is used to express the quality of seed and is not shown on the label. Pure live seed, PLS, is expressed as a percentage of the seeds that are pure and will germinate. Information on percent germination and purity can be found on seed tags. PLS is determined by multiplying the percent of pure seed with the percent of germination; i.e.,

   (PLS = % germination x % purity)

   EXAMPLE:

   Common Bermuda seed
   70% germination, 80% purity

   PLS = 70% germination x 80% purity
   PLS = 56%

2. The percent of PLS helps you determine the amount of seed you need. If the seeding rate is 10 pounds PLS and the bulk seed is 56 % PLS, the bulk seeding rate is:

   10 lbs. PLS/acre = 17.9 lbs. /acre
   56% PLS

3. You would need to plant 17.9 lbs. /acre to provide 10 lbs. /acre of pure live seed.

PART 3 — EXECUTION

3.01 PREPARATION

A. Soil samples to be obtained to determine lime requirements.

B. Lime shall be applied at the rate as shown on the drawings.

C. Agricultural lime is required at the rate of one to two tons per acre unless soil tests indicate otherwise. Graded areas require lime application. If lime is applied within six months of planting permanent perennial vegetation, additional lime is not required. Agricultural lime shall be within the specifications of the Georgia Department of Agriculture.

1. Lime spread by conventional equipment shall be “ground limestone.” Ground limestone is calcitic or dolomitic limestone ground so 90 percent of the material will pass through a 10-mesh sieve, not less than 50 percent will pass through a 50-mesh sieve, and not less than 25 percent will pass through a 100-mesh sieve.

2. Fast-acting lime spread by hydraulic seeding equipment should be "finely ground limestone" spanning from the 180 micron size to the 5 micron size. Finely ground limestone is calcitic or dolomitic limestone ground so 95 percent of the material will pass through a 100-mesh sieve.
3. It is desirable to use dolomitic limestone in the Sand Hills, Southern Coastal Plain and Atlantic Coast Flatwoods MLRAs.
4. Agricultural lime is generally not required where only trees are planted.
5. Initial fertilization, nitrogen, topdressing, and maintenance fertilizer requirements for each species or combination of species shall be followed.

D. Fertilizer shall be applied at the rate as shown per the drawings or at minimum follow the guidelines within the Georgia Manual for Erosion and Sediment Control latest edition.

3.02 INSTALLATION

A. Grading and shaping may not be required where hydraulic seeding and fertilizing equipment is to be used. Vertical banks shall be sloped to enable plant establishment.

1. When conventional seeding and fertilizing are to be done, grade and shape where feasible and practical, so equipment can be used safely and efficiently during seedbed preparation, seeding, mulching and maintenance of the vegetation.
2. Concentrations of water will cause excessive soil erosion and shall be diverted to a safe outlet. Diversions and other treatment practices shall conform to the appropriate standards and specifications.

B. The subgrade of all areas to be seeded shall be raked and all rubbish, sticks, roots and stones larger than 2 inches shall be removed.

C. When a hydraulic seeder is used, seedbed preparation is not required. When using conventional or hand-seeding, seedbed preparation is not required if the soil material is loose and not sealed by rainfall.

1. When soil has been sealed by rainfall or consists of smooth cut slopes, the soil shall be pitted, trenched or otherwise scarified to provide a place for seed to lodge and germinate.

D. Lime shall be spread evenly over surface and thoroughly incorporated with loam by heavy raking to at least 2 inches deep at a rate determined by soil samples to match Contract.

E. When hydraulic seeding equipment is used, the initial fertilizer shall be mixed with seed, inoculant (if needed), and wood cellulose or wood pulp fiber mulch and applied in a slurry. The inoculant, if needed, shall be mixed with the seed prior to being placed into the hydraulic seeder. The slurry mixture will be agitated during application to keep the ingredients thoroughly mixed. The mixture will be spread uniformly over the area within one hour after being placed in the GSWCC (Amended - 2013) 6-89 hydro seeder.

1. Finely ground limestone can be applied in the mulch slurry or in combination with the top dressing.
2. When conventional planting is to be done, lime and fertilizer shall be applied uniformly in one of the following ways:
    a. Apply before land preparation so it will be mixed with the soil during seedbed preparation.
    b. Mix with the soil used to fill the holes, distribute in furrows.
    c. Broadcast after steep surfaces are scarified, pitted or trenched.
    d. A fertilizer pellet shall be placed at root depth in the closing hole beside each pine tree seedling.

F. Fertilizer shall be uniformly spread and immediately mixed with the upper 2 inches of the soil.

G. Seeding

1. Hydraulic Seeding

Mix the seed (inoculated if needed), fertilizer, and wood cellulose or wood pulp fiber mulch with water and apply in a slurry uniformly over the area to be treated. Apply within one hour after the mixture is made.

2. Conventional Seeding

Seeding will be done on a freshly prepared and firmed seedbed. For broadcast planting, use a culti-packer-seeder, drill, rotary seeder, other mechanical seeder, or hand seeding to distribute the seed uniformly over the area to be treated. Cover the seed lightly with 1/8 to 1/4 inch of soil for small seed and 1/2 to 1 inch for large seed when using a cultipacker or other suitable equipment.

3. No-Till Seeding

No-till seeding is permissible into annual cover crops when planting is done following maturity of the cover crop or if the temporary cover stand is sparse enough to allow adequate growth of the permanent (perennial) species. No-till seeding shall be done with appropriate no-till seeding equipment. The seed must be uniformly distributed and planted at the proper depth.

H. Mulching

Mulching is required for all permanent vegetation applications. Mulch applied to seeded areas shall achieve 75% to 100% soil cover. When selecting mulch, design professionals should consider the mulch's functional longevity, vegetation establishment enhancement, and erosion control effectiveness. Select the mulching material from the following and apply as indicated:

1. Dry straw or dry hay of good quality and free of weed seeds can be used. Dry straw shall be applied at the rate of 2 tons per acre. Dry hay shall be applied at a rate of 2 1/2 tons per acre.
2. Wood cellulose mulch or wood pulp fiber shall be used with hydraulic seeding. It shall be applied at the rate of 500 pounds per acre. Dry straw

or dry hay shall be applied (at the rate indicated above) after hydraulic seeding.

3. One thousand pounds of wood cellulose or wood pulp fiber, which includes a tackifier, shall be used with hydraulic seeding on slopes 3/4:1 or steeper.

   a. Sericea Lespedeza hay containing mature seed shall be applied at a rate of three tons per acre.

   b. Pine straw or pine bark shall be applied at a thickness of 3 inches for bedding purposes. Other suitable materials in sufficient quantity may be used where ornamentals or other ground covers are planted. This is not appropriate for seeded areas.

   c. When using temporary erosion control blankets or block sod, mulch is not required.

   d. Bituminous treated roving may be applied on planted areas, slopes, in ditches or dry waterways to prevent erosion. Bituminous treated roving shall be applied within 24 hours after an area has been planted. Application rates and materials must meet Georgia Department of Transportation specifications.

   Wood cellulose and wood pulp fibers shall not contain germination or growth inhibiting factors. They shall be evenly dispersed when agitated in water. The fibers shall contain a dye to allow visual metering and aid in uniform application during seeding.

I. Immediately following this presentation the seed shall be uniformly applied and lightly raked into the surface. Lightly roll the surface and water with a fine spray. Seed shall be sown in a favorable season, as approved by the Program Manager.

J. Wildlife plantings should be included in critical area plantings.

END OF SECTION

SECTION 02542

SILT FENCE

PART 1 — GENERAL

1.01 SECTION INCLUDES

The work covered by this Section consists of furnishing all materials, equipment, and labor and performing all operations in connection with the construction of the Silt Fence System in accordance with the Contract Documents.

1.02 RELATED SECTIONS

A. Section 01300: Submittals

B. Section 02276: Site Restoration and Erosion Control

1.03 QUALIFICATIONS

A. Contractor and Applicator shall have all state erosion control certifications and be active at the time of installation.

B. Installation shall be by an experienced applicator approved by the manufacturer of the material supplied.

C. Applicator shall have a minimum of one year experience.

D. Submit written proof of qualifications to the Program Manager.

E. The woven fiber filter and appurtenances specified under this Section shall be furnished by a manufacturer who is fully experienced, reputable, and qualified in the manufacture of the fabric furnished. The woven fiber filter and all related appurtenances shall be designed, constructed and installed with the best practices and methods.

1.04 SUBMITTALS

A. Furnish sample 36 by 36 inches for each fabric, as specified in Section 01300.

B. Furnish composite filter media sock sample 36 inches in length.

C. Final acceptance of fabric and socks shall be contingent upon approval of samples.

D. Furnish an affidavit that all materials comply with these Specification requirements.

1.05 DELIVERY, STORAGE AND HANDLING

A. Prevent damage during delivery and handling.

B. Store all fabric in undamaged condition as packaged by the manufacturer, with manufacturer's seals and labels intact.

C. Store all materials in a clean, dry storage area.

D. Do not store fabric in an upright position.

E. Storage area temperature shall be maintained above 40 degrees F. with normal humidity.

PART 2 — PRODUCTS

2.01 POST SIZE

Table 6-27.2 Post Size			
Type	**Min Length**	**Type of Post**	**Size of Post**
NS	4'	Soft wood Oak Steel	3"dia or 2x4 1.5" x1.5" 1.3lb./ft. min
S	4"	Steel Oak	1.3lb./ft. min 2"x2"

2.02 FABRIC – Sd1

A. The filter fabric shall be designed to control water seepage of the fine particle and or soil without clogging under varying water flow conditions, thereby serving as a soil stabilizer.

B. The filter fabric shall be chemically resistant to prolonged exposure to fresh water, and either alkaline or acidic soil conditions.

C. Physical Properties: TEST METHOD

1.	Color	Black
2.	Weight, oz./sq. ft.	0.8 ASTM D-1910
3.	Equivalent opening size	70-100 CE-1310
4.	% open area	4-10 CE-1310
5.	Tensile Strength, #	400 x 280 ASTM D-1682
6.	Elongation, %	34 x 32 ASTM D-1682
7.	Trapezoidal tear strength, #	92x 40 ASTM D-2263
8.	Mullen burst, psi	510 ASTM D-751
9.	Puncture Strength, #	150 ASTM D-751-MS
10.	Abrasion resistance	ASTM D-01175-71
Abraded strength, #		80 ASTM D-1682

11. Weather-Ometer strength retention, %	90 ASTM E-42-69
12. Water permeability, water flow rates*, milliliters/min.	
6" head	460-520 Canvas Products
8" head	620-760 Assn.Intern'l
36" head	2510-2790 Test Method (for canvas)

*Water flow perpendicular to fabric

D. The upper level of the fabric form work edges shall be structured so as to accommodate the type of anchorage to be utilized at that point.

E. Individual mill-width panels shall be cut to suitable lengths, and the two layers of fabric separately jointed, edge-to-edge, by means of heavy, double-stitched nylon thread. The tensile strength of stitched joints shall not be less than 100 lbs. /inch.

2.03 FASTENERS

Table 6-27.3 Fasteners for Wood Posts				
	Gauge	**Crown**	**Legs**	**Staples / Post**
Wire Staples	17 min.	3/4" wide	1/2" long	5 min.
	Gauge	Length	Button Heads	Nail/ Post
Nails	14 min.	1"	3/4"	4 min.
Note: Filter Fabric may also be attached to the post by wire, anchors, and pockets or any other method provided minimum P-factor, as required by GSWCC, is met.				

2.04 COMPOST FILTER MEDIA SOCK

A. Compost used for compost filter sock filler material (filter media) shall be weed free and derived from a well-decomposed source of organic matter. The compost shall be produced using an aerobic composting process meeting CFR 503 regulations including time and temperature data. The compost shall be free of any refuse, contaminants or other materials toxic to plant growth. Non-composted products will not be accepted. Test methods for the items below should follow US Composting Council Test Methods for the Examinations of Composting and Compost guidelines for laboratory procedures:

1. PH – 5.0-8.0 in accordance with TMECC 04.11-A, "Electrometric pH Determinations of Compost"

2. Particle size – 99% passing in a 2 in (50mm) sieve and a maximum of 40% passing a 3/8 in (9.5mm) sieve, in accordance with TMECC 02.02-B, “ample Sieving for Aggregate Size Classification.” *(Note- In the field, product commonly is between ½ in [12.5mm] and 2 in [50mm] particle size.)*
3. Moisture content of less than 60% in accordance with standardized test methods for moisture determination.
4. Material shall be relatively free (<1% by dry weight) of inert of foreign man made materials.
5. A sample shall be submitted to the Program Manager for approval prior to being used and must comply with all local, state and federal regulations.

Table 2.

Material Type	Multi-Filament Polypropylene	Multi-Filament Polypropylene
Material Characteristic	Photodegradable	Photodegradable
Mesh Opening	3/8 in (10mm)	1/8 in (3mm)
Tensile Strength (ASTM 5035-95)	44 psi (3.09 kg/cm^2)	202 psi (14.2 kg/cm^2)
% Original Strength from Ultraviolet Exposure (ASTM G-155)	100% at 1000 hr.	100% at 1000 hr.

Table 3.

	12 in (300mm) Diameter
Effective Circumference	38 in (960 mm)
Density (when filled)	32 lbs./ft. (50kg/m)
Air Space	20%
Hydraulic Flow Through Rate	11.3 gpm/ft. (141 L/min/m)
P Factor (RUSLE)	0.1-0.32

PART 3 — EXECUTION

3.01 INSTALLATION

A. Installation instructions shall be supplied by the manufacturer. The fabric shall be applied in accordance with the manufacturer's recommendations.

B. The surfaces to be protected shall be prepared and graded to the extent they are normally stable in the absence of erosion forces. All stones, roots, and other waste material exposed on the slopes which could disturb the finished mat profile shall be removed. The fabric shall be positioned over these surfaces.

C. Construction Specifications

1. The compost filter sock shall be installed according to this specification, as shown on the plans or as directed by the Program Manager. For installation of the compost filter sock see the construction documents.
   a. Compost filter socks should be installed parallel to the base of the slope or other disturbed area. In extreme conditions (i.e., 2:1 slopes), a second compost filter sock shall be constructed at the top of the slope.
   b. Stakes shall be installed through the middle of the compost filter sock on 10 ft. (3m) centers, using 2 in (50mm) by 2 in (50mm) by 3 ft. (1m) wooden stakes. In the event skating is not possible, i.e., when compost filter socks are used on pavement, heavy concrete blocks shall be used behind the compost filter socks to help stabilize during rainfall/runoff events.
   c. Staking depth for sand and silt loam soils shall be 12 in (300mm), and 8 in (200mm) for clay soils.
   d. Loose compost may be backfilled along the upslope side of the compost filter sock, filling the seam between the soil surface and the device, improving filtration and sediment retention.
   e. If the compost filter sock is to be left as a permanent filter or part of the natural landscape, it may be seeded at time of installation for establishment of permanent vegetation. The engineer will specify seed requirements.
   f. Compost filter socks are not to be used in perennial, ephemeral, or intermittent streams.
2. Maintenance: Sediment shall be removed once it has accumulated to one-half the original height of the barrier. Compost filter socks shall be replaced whenever it has deteriorated to such an extent the effectiveness of the compost filter sock is reduced. Compost filter socks shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulation at the compost filter sock shall be removed and properly disposed of before the compost filter sock is removed.

D. Silt Fence

1. Non-sensitive areas

Sediment barriers being used as Type NS shall have a support spacing of no greater than 6 feet on center, with each driven into the ground a minimum of 18 inches. Type NS sediment barriers shall have a P-factor no greater the 0.045.

2. Sensitive areas

Sediment barriers being used as Type S shall have a support spacing of no greater than 4 feet on center, with each driven into the ground 18 inches. Type S sediment barriers shall have a P-factor no greater than 0.030.

3. Installation

a. Sediment barriers should be installed along the contour.

b. Temporary sediment barriers shall be installed according to the following specifications as shown on the plans or as directed by the design professional.

c. Post installation shall start at the center of a low point (if applicable) with the remaining posts spaced no greater than 6 feet apart for Type NS sediment barriers and no greater than 4 feet apart for Type S sediment barriers. For post size requirements, see Table 6-27.2. Fasteners for wood posts are listed in Table 6-27.3.

4. Static Slicing Method

The static slicing machine pulls a narrow blade through the ground to create a slit 12" deep, and simultaneously inserts the silt fence fabric into this slit behind the blade. The blade is designed to slightly disrupt soil upward next to the slit and to minimize horizontal compaction, thereby creating an optimum condition for compacting the soil vertically on both sides of the fabric. Compaction is achieved by rolling a tractor wheel along both sides of the slit in the ground 2 to 4 times to achieve nearly the same or greater compaction as the original undisturbed soil. This vertical compaction reduces the air spaces between soil particles, which minimizes infiltration. Without this compaction infiltration can saturate the soil, and water may find a pathway under the fence. When a silt fence is holding back several tons of accumulated water and sediment, it needs to be supported by posts that are driven 18 inches into the soil. Driving in the posts and attaching the fabric to them completes the installation.

5. Trenching Method

a. Trenching machines have been used for over twenty-five years to dig a trench for burying part of the filter fabric underground. Usually the trench is about 2-"6" wide with a 6" excavation. Post setting and fabric installation often precede compaction, which make effective compaction more difficult to achieve. EPA supported an independent technology evaluation (ASCE 2001), comparing three progressively better variations of the trenching method with static slicing method. The static slicing method performed better than two lower performance levels of the trenching method, and was as good as or better than the trenching method's highest performance level. The best trenching method typically required nearly triple the time and effort to achieve results comparable to the static slicing method.

b. Along all state waters and other sensitive areas, two rows of Type S sediment barriers shall be used. The two rows Type S should be placed a minimum of 36 inches apart.

3.02 MAINTENANCE

A. **Sediment shall be removed once it has accumulated to one-half the original height of the barrier.** This is extremely important when selecting BMPs with a lower profile.

B. Sediment barriers shall be replaced whenever they have deteriorated to such an extent that the effectiveness of the product is reduced (approximately six months) or the height of the product is not maintaining 80% of its properly installed height.

C. Temporary sediment barriers shall remain in place until disturbed areas have been permanently stabilized. All sediment accumulated at the barrier shall be removed and properly disposed of before the barrier is removed.

END OF SECTION

SECTION 02607

MANHOLE HEIGHT ADJUSTMENT

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. This specification section provides the requirements for the adjustment of height of manholes whose tops are below grade. These manhole height adjustments can facilitate sanitary sewer operation, maintenance and assessment activities.

1.02 RELATED SECTIONS

A. Section 01056: GPS Data Collection

B. Section 01300: Submittals

C. Section 01520: Sewer Flow Control

D. Section 01700: Project Closeout

E. Section 02276: Site Restoration and Erosion Control

1.03 REFERENCES

A. ASTM C32 - Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale).

B. ASTM C443 - Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets

C. ASTM A48/A48M - Standard Specification for Gray Iron Castings.

D. ASTM A536 - Standard Specification for Ductile Iron Castings

E. AASHTO M306

F. ASTM C270 – 12a Standard Specification for Mortar for Unit Masonry

G. Manual for Uniform Traffic Control Devices (MUTCD) standards

H. *"Potable Water Main, Gravity Sanitary Sewer, and Sanitary Sewer and Force Main Design Standards"*, Current Edition, DeKalb County Department of Watershed Management.

1.04 SUBMITTALS

A. The Contractor shall submit shop drawings and product data in accordance with the requirements of the Submittals section of these Specifications and those requirements outlined in Specifications Section 01300.

B. The Contractor shall complete a daily written record detailing the work carried out and any items of Work incidental to the Work. The Contractor shall include in his daily record and reference to the following:

1. **Delays:** Dense traffic, lack of information, sickness, labor or equipment shortage, etc.
2. **Weather:** Conditions [e.g., rain (quantity, time, duration), sunny, windy, etc.].
3. **Equipment:** On site (e.g., specialty cleaning, by-pass equipment, etc.).
4. **Submittals:** To the Owner's Program Manager or as directed in the submittals portion of these specifications.
5. **Personnel:** On site by name (e.g., all labor, specialty services, etc.).
6. **Accident:** Report (e.g., all injuries, vehicles, etc.).
7. **Incident:** Report (e.g., damage to property, property owner complaint, etc.).
8. **Major defects encountered:** including, but not limited to, collapsed pipe, if any, cave-ins, sink holes, etc.
9. **Visitors:** On site, time in and out.
10. **Disposals:** Type and quantity of debris (including liquids).

C. Ring Product submittal and manufacturer's specifications.

D. Frame and Cover and/or Cone Product submittal and manufacturer's specifications

E. Traffic safety plan and procedures for Right-of-Way work.

F. DOT Documents for permit.

1.05 RESPONSIBILITY FOR SANITARY SEWER OVERFLOWS AND DAMAGE TO PROPERTY AND UTILITY

A. Reference Specification Section 01030 – Special Project Procedures.

1.06 SAFETY

A. All work shall be performed in accordance with OSHA, Local and State DOT standards local, state and federal safety regulations.

B. Confined Space Entry: Crews shall minimize the physical entry into manholes. Manhole entry shall be performed in accordance with Federal, State, Local and any other regulations for confined space entry. Only trained crews and staff may perform confined space entry after obtaining an entry permit. Staff must use safety required equipment, including harnesses, ventilation equipment, etc.

C. Traffic Control: All traffic control measures shall comply with the requirements of MUTCD, Part 6 – Temporary Traffic Control, Latest Edition as published by USDOT/FHWA.

PART 2 — PRODUCTS

2.01 BRICK

A. Brick shall conform to the requirements of ASTM C32 for grade SM. Bricks shall conform to the following dimensions, unless otherwise approved by the Owner's Program Manager:

	Depth (inches)	Width (inches)	Length (inches)
Standard Size	2¼	3¾	8
Allowable Variation	±¼	±¼	±½

B. All brick shall be new and whole, of uniform standard size, and with substantially straight and parallel edges and square corners. Bricks shall be of compact textures, burned hard entirely through, tough and strong, free from injurious cracks and flaws, and shall have a clear ring when struck together. No soft or salmon brick shall be used. Brick shall be culled after delivery, if required, and no culls shall be used except at such places, to such extent, and under such conditions as may be approved by the Owner's Program Manager.

2.02 PRECAST BARREL JOINTS & CONES

A. Barrel joints shall be tongue and groove and shall meet the latest revision of ASTM C443 for 0-ring gaskets; see Standard Detail S-003 in Appendix I of *"Potable Water Main, Gravity Sanitary Sewer, and Sanitary Sewer and Force Main Design Standards",* 2009 Edition, Version 1.0, DeKalb County Department of Watershed Management. All barrel joints shall be installed to allow no infiltration into the manhole. Care should be exercised during the handling of the precast units to avoid disturbing or damaging the gasket and to attain proper alignment of the joints. Pre-formed flexible joint sealants shall not be used on sanitary sewer manholes. Joints and lift holes shall be grouted smooth with cement grout on inside and outside. In precast manhole construction, combination of joint lengths shall be selected to minimize the number of individual segments required to provide the total depth specified. Long joints shall be used in the bottom with shorter segments utilized for the top adjustments.

B. Manhole cones shall be precast concrete. The top elevation of manhole frames shall be adjusted to grade in areas such as streets, alleys, and parking lots or where indicated by the Program Manager. A maximum adjustment of eight (8) inches will be allowed for precast concrete adjusting rings. Adjustments greater than twelve (12) inches must be made by changing precast riser sections. The top of the wall of all manholes shall be leveled off with mortar so as to form a flat surface upon which the manhole frame is to rest.

2.03 MORTAR

A. The Contractor shall use mortar meeting the requirements of ASTM C270 Type S unless directed and approved otherwise by the Program Manager.

B. The Contractor shall prepare mortar only in quantities needed for immediate use. Mortar mixed for more than thirty (30) minutes or greater than the manufacturers limits, whichever is more restrictive, which has set, or which has been re-tempered shall not be used.

2.04 METAL RISER RING

A. **Cast Iron:** New cast iron riser rings shall be of domestic origin, conform to the latest edition of AASHTO M306. Contractor shall use cast iron riser rings for reconstruction and/or adjustment of the manhole frame and cover of less than 4 inches.

2.05 FRAMES & COVERS

A. Manhole frames and covers shall conform to the requirements outlined in Section III of *"Potable Water Main, Gravity Sanitary Sewer, and Sanitary Sewer and Force Main Design Standards",* Current Edition, DeKalb County Department of Watershed Management. The Owner will provide standard castings at no cost to the Contractor for manholes requiring replacement rings and covers.

PART 3 — EXECUTION

3.01 GENERAL

A. The Contractor shall take all necessary measures to prevent debris from entering the manhole under reconstruction. A temporary (waterproof) cover shall be required during the reconstruction period.

B. The Contractor shall take all necessary measures to prevent damage to the existing manhole frame and cover during the adjustment work.

C. In the event the existing manhole is located within a paved area, the Contractor is required to replace existing manhole frame and cover with a traffic manhole frame and cover (castings provided by Owner) and concrete collar in accordance with DeKalb Standard Detail #S-007. The Contractor is also required to provide a traffic safety plan to the Program Manager if the paved area is within the roadway Right-of-Way.

D. **Riser Rings:** The Contractor shall replace existing, deteriorated riser rings with new precast concrete riser rings and/or cast iron riser rings. All manholes designated to receive casting adjustment and/or alignment shall be adjusted to meet existing finished grade unless an alternative elevation is specified. A cementitious mortar shall be placed in between individual precast concrete riser rings, and precast concrete riser ring and cone joints. The mortar shall be struck smooth with the interior surface of the manhole and floated with a sponge float to a surface profile of 8-10 mils. An epoxy system designed for metal-to-metal adhesion shall be used to connect individual cast iron riser rings and the cast iron riser rings to the frame. Prior to backfilling, rubber external seal wraps shall be applied to the cone and manhole section joint, riser rings and frame.

E. **Manhole Frame and Cover:** Existing frames and covers removed to facilitate manhole rehabilitation, riser reconstruction, and/or casting alignment or grade adjustments

shall be salvaged and cleaned by the Contractor for replacement unless determined to be defective by the Program Manager. If manhole frame and/or cover are determined to be defective, Contractor shall replace with new frame and cover. Replacement frames and covers shall be furnished by the Owner and installed by the Contractor as approved by the Owner and Program Manager in accordance with this specification section. Frames shall be set in full mortar bed. The mortar shall be struck smooth with the interior surface of the manhole and floated with a sponge float to a surface profile of 8-10 mils.

3.02 PROCEDURES FOR MANHOLE HEIGHT ADJUSTMENT

A. The Contractor shall utilize maps, surveys, sounding instruments, or information from local residents to determine approximate locations of buried manholes. Manholes shall be exposed utilizing hand techniques or by carefully probing with mechanical equipment. Manhole exposure in paved areas shall be accomplished by making a square cut in the surface with sufficient width to allow for the excavation of the material around the manhole to expose it to a depth necessary for adequate adjustment.

B. Raising Manholes:

1. The Contractor shall adjust the top elevation of the manhole frame to grade as directed by the Program Manager conforming to the requirements of this section. A maximum adjustment of twelve (12) inches will be allowed using brick and mortar. Mortar shall be applied to create a smooth finish on the interior and exterior prior to backfill. Adjustments greater than twelve (12) inches shall be made by removing the cone section and adding the appropriate precast riser section.
2. In green (grass) areas, vertical height adjustments can be made using cast iron adjustment (riser) rings in lieu of brick and mortar. A maximum adjustment of eight (8) inches will be allowed using riser rings. Adjustments greater than twelve (12) inches shall be made by removing the cone section and adding the appropriate precast riser section. The number of riser rings shall be limited to the minimum number that is required to achieve grade.
    a. Joint sealant shall be applied on existing manhole frame and each joint of the riser ring(s) required to achieve grade. If the outdoor temperature is below 70 degrees Fahrenheit, the Contractor must heat the joint sealant before application.
    b. The Contractor shall place concrete (Class B) collar (8 inch at the bottom of the frame to 2 inch at the top of the frame) on exterior of the manhole frame. The concrete collar on exterior of the manhole frame shall receive a broom finish.
3. When a manhole height adjustment is performed in a paved area and the manhole is not to be rehabilitated by any other method, then the Contractor shall install a manhole frame seal in accordance with the requirements of these Specifications.

C. Lowering or raising manholes in paved and green areas require the removal of the manhole cone:

1. If the vertical height adjustment of the existing manhole is greater than 12 inches or the existing manhole must be lowered, the Contractor shall remove the manhole cone section to the straight barrel section of the existing manhole.
2. The manhole frame and cover shall be removed from the existing manhole.
3. The Contractor shall remove the manhole cone by either the saw cut method or explosive (shot) cord method.
4. The Contractor shall prepare the existing manhole barrel for the re-construction of the cast-in-place manhole as shown on the standard details.
5. The Contractor shall re-construct the cast-in-place concrete manhole as shown on the standard details.
6. If the manhole frame is not reset as part of the cast-in-place concrete manhole pour, the Contractor shall apply a 1½ inch bed of concrete (Class B) for the re-install the manhole frame on the cast-in-place concrete manhole. The Contractor shall also place concrete (Class B) collar (8 inch at the bottom of the frame to 2 inch at the top of the frame) on exterior of the manhole frame. The concrete collar on exterior of the manhole frame shall receive a broom finish.

D. Raising Brick Manholes

1. The manhole shall be carefully demolished down to the straight section of wall and shall be consistent with a level point of brick coursing.
2. The cut line for the demo shall be made with a masonry saw or other approved method that will minimize disturbance of the remaining brick and mortar.
3. All mortar shall be removed from the top of the remaining brick without disturbing the remaining mortared joints.
4. Extend manhole walls using ASTM C32 grade SM brick and Type S mortar.
5. All work shall comply with the applicable requirements of the “Potable Water Main, Gravity Sanitary Sewer, and Sanitary Sewer and Force Main Design Standards”, 2009 Edition, Version 1.0, DeKalb County Department of Watershed Management.

E. Raising Cast In Place Manholes

1. The manhole shall be carefully demolished down to the straight section of wall and shall be consistent with a level point of cut.
2. Work shall be in accordance with ACI 350R.
3. Concrete shall have a minimum 28 day strength of 4000 PSI and conform to ASTM C94.
4. All reinforcing steel shall be fabricated and installed in accordance with applicable portions of ACI 318.
5. All form work shall be in accordance with applicable portions of ACI 347R.

6. The extension of the wall shall be connected to the existing structure using adhesive dowels of the size and location on approved shop drawings.
7. All work shall comply with the applicable requirements of the "Potable Water Main, Gravity Sanitary Sewer, and Sanitary Sewer and Force Main Design Standards", 2009 Edition, Version 1.0, DeKalb County Department of Watershed Management.

3.03 CLEANUP

A. After the work is completed and all testing acceptable, the Contractor shall clean up the work area in accordance with these specifications.

B. All excess material and debris not incorporated into the permanent installation shall be disposed of by the Contractor. The debris and liquids are to be disposed of properly in accordance with all applicable laws. The County can furnish a letter to the landfill stating the Contractor is authorized to dispose of the non-hazardous materials. Debris and liquids type and quantities are to be tracked in the daily Contractor diary. Hauling and disposal costs will be borne by the Contractor.

C. The work area shall be left in a condition equal to or better than prior condition. Disturbed grassed areas shall be seeded or sod placed as directed by the Owner's Program Manager. The work site restoration work shall be completed in accordance with the requirements of these Specifications.

3.04 RECORD DRAWINGS

A. Unless noted otherwise, Record Drawings shall provide dimensions, distances and material type.

B. Unless noted otherwise, Record Drawings shall provide elevations to the nearest 0.01 ft. for all pertinent items constructed by Contractor.

C. At contract closeout, deliver Record Documents to the Program Manager for the Owner.

D. Accompany Submittal with transmittal letter, in duplicate, containing:

1. Date
2. Project title and number
3. Contractor's name and address
4. Title and number of each record document
5. Signature of Contractor or Contractor's authorized representative

E. Record Drawings Plan Submittal

1. The following Datum shall be used:
   a. Vertical: NAVD 88
   b. Horizontal: NAD 83 (modified to ground)
      i. Conversion factor shall be provided to convert back to State Plane (grid)

2. There are 2 STEPS to follow in order to complete the Record Drawing process:
   a. **Step 1** – Draft Plan Submittal and Review
   b. **Step 2** – Final Plan Submittal

      Following Program Manager's review of the draft submittal, the Contractor will then prepare the final submittal package based on Owner and Program Manager's review comments and submit to Owner. The final submittal package shall include the following items:

      i. Two bound, signed, half-sized print sets (11" x 17")
      ii. A disc containing both digital file (latest version of AutoCAD) and .pdf files
      iii. Digital drawings shall include appropriate line types/styles per Owner's CAD Standards.

F. Reference Section 01056 for Contractor responsibilities related to GIS updates to update manhole locations within the mapping inventory. This applies to newly discovered assets or assets with significant locational discrepancies.

G. Record Drawings shall be reproducible, shall have a title block indicating the drawings are Record Drawings, the name of the company preparing the Record Drawings, and the date the Record Drawings were prepared.

H. Legibly mark drawings to record actual construction, including:

1. All Construction:
   a. Changes of dimension and detail.
   b. Exact direction and location of existing and new utilities where field location varies from GIS drawing provided by the Owner for the project.
2. Site Improvements, Including Underground Utilities:
   a. Horizontal and vertical locations of all exposed and underground utilities and appurtenances, both new facilities constructed and those utilities encountered, referenced to permanent surface improvements.
   b. Location and dimensions of roadways and parking areas, providing dimensions to back of curb when present.
   c. The locations shall be referenced to at least two easily identifiable, permanent landmarks (e.g., power poles, valve markers, etc.) or benchmarks.
   d. The Record Drawings shall include the horizontal angle and distance between manhole covers.
3. Structures:
   a. Depths of various elements of foundation in relation to finish first floor datum or top of wall.
   b. Location of internal and buried utilities and appurtenances concealed in the construction, referenced to visible and accessible features of the structure.

3.05 WARRANTY

A. The Contractor shall guarantee the work for a warranty period of one (1) year from the date of final written acceptance of the Owner. If, at any time during the warranty period, any defect is identified the Contractor shall make repairs acceptable and at no additional cost to the Owner. In this case, the Contractor shall warrant the work for one (1) year in addition to the warranty required by the Contract from the date of repairs' final written acceptance.

B. If the frequency of similar defects requiring repair increases, then the entire project will be re-evaluated for warranty extensions.

END OF SECTION

SECTION 02700
PAVEMENT REPAIRS

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. Pavement Replacement.

B. Surface Preparation.

C. Equipment.

D. Asphaltic Concrete Placement.

E. Asphaltic Concrete Compaction.

F. Cleaning and Protection.

G. Standard Granite Curb, Grade B.

H. Specialty Brick Paver Replacement.

I. Special Brick Sidewalk Replacement.

1.02 RELATED SECTIONS

A. Section 02710 – Concrete Curbs, Gutters, & Sidewalks

1.03 REFERENCES

A. ASTM C94 - Standard Specification for Ready Mix Concrete.

B. ASTM C33 - Standard Specification for Concrete Aggregates.

C. ASTM C150 - Standard Specification for Portland Cement.

D. ACI 301 - Specifications for Structural Concrete.

E. ACI 304 - Guide for Measuring, Mixing, Transporting, and Placing Concrete.

F. ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.

G. ASTM A497 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.

H. ASTM C494 - Chemical Admixtures for Concrete.

I. ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction.

J. ASTM D3371 - Standard Specification for Viscosity-Graded Asphalt Cement for use in Pavement Construction.

K. ASTM D946 - Standard Specification for Penetration Graded Asphalt Cement for use in Pavement Construction.

L. AI (Asphalt Institute) - MS-2- Mix Design Methods for Asphalt Concrete and Other Hot Mix Types.

M. AI (Asphalt Institute) - MS-3- Asphalt Plant Manual.

N. AI (Asphalt Institute) - MS-8- Asphalt Paving Manual.

O. AI (Asphalt Institute) - MS-19 - Basic Asphalt Emulsion Manual.

P. AASHTO M147-65 - Materials for Aggregate and Soil Aggregates.

Q. ASTM C-136 - Sieve Analysis of Fine and Coarse Aggregates.

R. Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

1.04 SUBMITTALS

A. The Contractor shall submit asphalt mix design to the Program Manager for approval.

B. Certificates:

1. The Contractor shall submit certification of quality control and compliance with the requirements of this section. Certificates must be signed by asphalt and concrete producers and the Contractor.

C. GRADED AGGREGATE BASE DATA

D. TACK COAT

E. PRIME COAT

F. GRADE “B” GRANITE CURB

G. SPECIAL AND “SPECIALITY” BRICK PAVERS

H. PAVING SUBCONTRACT INFORMATION

I. CORE PATCH MATERIAL

1.05 PERFORMANCE REQUIREMENTS

A. The Contractor shall comply with the performance standards and requirements established by the Georgia Department of Transportation.

B. Paving: Pavement shall be designed for movement of trucks up to 60,000 lbs.

C. General: In addition to other specified conditions, the Contractor shall comply with the following minimum requirements:

1. Finished asphaltic concrete courses shall be compacted to the following densities:
   a. Asphaltic Concrete Hot Mix Surface Course; Not less than ninety-two (92) percent of theoretical density.
   b. Asphaltic Concrete Hot Mix Binder Course: Not less than ninety (90) percent of theoretical density.
2. On the day following placement of asphaltic materials, samples for the determination of in-place density shall be taken from the finished pavement. The Contractor shall core the samples at locations and in the manner directed by the Program Manager. The cuts made in taking such samples shall be repaired by the Contractor at no expense to the Owner other than for materials.

1.06 QUALITY ASSURANCE

A. The Contractor shall perform Work in accordance with the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

B. The Contractor shall obtain materials from the same source throughout the duration of the paving Work.

C. The Contractor shall use only materials which are furnished by a bulk asphalt concrete producer regularly engaged in production of hot-mix, hot-laid asphalt concrete.

1.07 REGULATORY REQUIREMENTS

The Contractor shall conform to applicable code for paving work on public and private properties.

1.08 JOB CONDITIONS

A. Weather Limitations:

1. The Contractor shall apply bituminous prime and tack coats only when the ambient temperature in the shade has been at least forty (40) degrees F.
2. The Contractor shall not conduct paving operations when the surface is wet, frozen, or contains excess moisture which would prevent uniform distribution and required penetration.
3. The Contractor shall construct asphaltic courses only when atmospheric temperature in the shade is above thirty-five (35) degrees F, when the underlying base is dry and when weather is not rainy.
4. The Contractor shall place base course when air temperature is above thirty-five (35) degrees F and rising. The Contractor shall not place base course on a frozen or muddy subgrade.

B. The Contractor shall establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.

C. Traffic Control: All traffic control measures shall comply with the requirements of MUTCD, Part 6 – Temporary Traffic Control, Latest Edition as published by USDOT/FHWA.

PART 2 — PRODUCTS

2.01 FLEXIBLE PAVEMENT

A. Aggregates for asphaltic concrete shall comply with the applicable requirements of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

B. Asphaltic cement for asphaltic concrete shall comply with the applicable requirements of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

C. Bituminous prime coat shall comply with the applicable requirements of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

D. Bituminous tack coat shall comply with the applicable requirements of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

E. Hot Mix asphaltic concrete construction shall comply with the applicable requirements of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

2.02 RIGID PAVEMENT

A. Concrete and reinforcing bars (where required) for rigid pavement shall conform to GDOT requirements. Concrete for pavement shall be Class A.

2.03 CURB AND GUTTER

A. Concrete for curb, curb and gutter, or valley gutter shall be Class A. Concrete shall conform to the requirements of Section 02710 – Concrete Curbs, Gutters and Sidewalks.

2.04 SIDEWALKS

A. Concrete for sidewalks shall be Class A conforming to the requirements of Section 02710 – Concrete Curbs, Gutters and Sidewalks.

2.05 DRIVEWAYS

A. Concrete for driveways shall be Class A conforming to the requirements of Section 02710 – Concrete Curbs, Gutters and Sidewalks.

2.06 STANDARD GRANITE CURB, GRADE B

A. Curbs shall be furnished in standard lengths of eight (8) feet in so far as possible employing shorter lengths where required such that the minimum length employed shall not be less than four (4) feet long. Curb sections shall have a split face and split top. On wheel chair ramps and driveways, the granite curb shall continue through depressed sections of these elements. On curve section of roadway, the granite curb shall be split or cut on the curve.

2.07 SPECIALTY BRICK PAVER REPLACEMENT

A. The Contractor shall verify the size, type, color, and pattern of the existing specialty brick pavement surface prior to removal. The Contractor shall submit to the Program Manager for review the proposed replacement brick paver material and installation information. Materials shall conform to the existing installation for pattern, color, and size.

2.08 SPECIAL BRICK SIDEWALK REPLACEMENT

A. All brick shall be solid pavers conforming to the requirements of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, Latest Edition. The Contractor shall submit to the Program Manager for review the brick to be used to replace brick sidewalks within the Project area. Materials shall conform to the existing installation for pattern, color, and size.

PART 3 – EXECUTION

3.01 PAVEMENT REPLACEMENT

A. The Contractor shall obtain prior approval from the Owner for any paving subcontracts.

B. The Contractor shall replace all pavements following the guidelines established by the Georgia Department of Transportation.

C. Where paved streets, sidewalks, driveways, and gutters are removed within the construction limits as specified, such replacement shall be paid for at the respective unit prices in the Bid Form. Such pavements removed or damaged by the Contractor beyond the specified construction limits shall be replaced in accordance with these specifications at the Contractor's expense.

D. Where chert, gravel, slag, or other unpaved street or driveway surfaces are removed or damaged, they shall be replaced with the same type of materials that were removed as an incidental part of the Work and no specific payment therefore shall be allowed. Unpaved drives shall be topped with gravel at no additional cost to the Owner.

E. In replacing pavements and unpaved surfaces, the materials used and the construction methods shall comply with the applicable requirements of the Georgia Department of Transportation Standard Specifications Construction of Transportation Systems, latest edition.

F. Service lines and small diameter pipes, eight (8) inches in diameter or less located across paved surfaces shall be installed by boring or other approved methods that will not require cutting or removing the pavement where feasible.

G. All concrete pavement replaced shall not be less than four (4) inches thick or equal to the original if greater than four (4) inches.

H. Pavements replaced shall be of the same type of construction as was removed, except that no asphalt surface replaced shall be less than three (3) inches thick consisting of a binder and seal coat. Wearing surfaces shall be slag sealed in accordance with the requirements established by the Georgia Department of Transportation.

3.02 SURFACE PREPARATION

A. Graded Aggregate Base Course:

1. The Contractor shall check subgrade for conformity with elevations and section immediately before placing aggregate base material.
2. The Contractor shall place aggregate base material in compacted layers not more than six (6) inches thick, unless continuing tests indicate that the required results are being obtained with thicker layers.
3. In no case shall more than eight (8) inches of compacted base be placed in one lift.
4. The Contractor shall spread, shape, and compact all aggregate base material deposited on the subgrade during the same day.
5. The compacted base shall have sufficient stability to support construction traffic without pumping.
6. If compacted base becomes unstable as a result of too much moisture, the base material and underlying subgrade, if necessary, shall be dried and reworked to a moisture content that can be recompacted.

B. Loose and Foreign Material:

1. The Contractor shall remove loose and foreign material from the surface immediately before application of paving.
2. The Contractor shall use power brooms or blowers, and hand brooming as required.
3. The Contractor shall not displace surface material.

C. Prime Coat:

1. The Contractor shall uniformly apply at a rate of 0.20 to 0.50 gallon per square yard over compacted and cleaned subbase surface.
2. The Contractor shall apply enough material to penetrate and seal, but not flood the surface.
3. The Contractor shall allow material to cure and dry as long as required to attain penetration and evaporation of volatile, and in no case less than twenty-four (24) hours unless otherwise acceptable to the Program Manager.

4. The Contractor shall blot excess asphalt with just enough sand to prevent pick-up under traffic.
5. The Contractor shall remove loose sand before paving.

D. Tack Coat:

1. The Contractor shall dilute material with equal parts of water and apply to contact surfaces of previously constructed asphalt concrete or Portland cement concrete and similar surfaces.
2. The Contractor shall apply at a rate of 0.05 to 0.15 gallons per square yard of surface.
3. The Contractor shall apply tack coat by brush to contact surfaces of curbs, gutters, manholes, and other structures projecting into or abutting asphalt concrete pavement.
4. The Contractor shall allow surfaces to dry until material is at a condition of tackiness to receive pavement.

3.03 EQUIPMENT

A. The Contractor shall provide size and quantity of equipment to complete the work specified in this section within the Project Schedule. NO CHANGES IN EQUIPMENT, EQUIPMENT SPEED OR EQUIPMENT PATTERNS WILL BE PREMITTED ONCE TEST STRIPS ARE APPROVED. IF CHANGES ARE MADE, NEW TEST STRIPS SHALL BE PERFORMED AT THE CONTRACTORS EXPENSE, INCLUDING ALL NECESSARY TESTING.

B. Bituminous pavers shall be self-propelled that spread hot asphalt concrete mixtures without tearing, shoving, or gouging surfaces, and control pavement edges to true lines without use of stationary forms.

C. Rolling equipment shall be self-propelled, steel-wheeled, and pneumatic-tired rollers that can reverse direction without backlash.

D. The Contractor shall provide rakes, lutes, shovels, tampers, smoothing irons, pavement cutters, portable heaters, and other miscellaneous small tools to complete the work specified in this section.

3.04 ASPHALTIC CONCRETE PLACEMENT

A. The Contractor shall place asphalt concrete mix on prepared surfaces, spread, and strike-off using paving machine.

B. The Contractor shall spread the asphaltic concrete mixture at a minimum temperature of two-hundred and twenty-five (225) degrees F.

C. Inaccessible and small areas may be placed by hand.

D. The Contractor shall place each course at a thickness such that when compacted it will conform to the indicated grade, cross-section, finish thickness, and density acceptable to the Program Manager.

E. Pavement Placing:

1. Unless otherwise directed by the Program Manager, the Contractor shall begin placing asphaltic concrete along the centerline of areas to be paved on crowned section, and at high side of sections on one-way slope, and in direction of traffic flow.
2. After first strip has been placed and rolled, the Contractor shall place succeeding strips and extend rolling to overlap previous strips.
3. The Contractor shall complete base courses for a section before placing surface courses.
4. The Contractor shall place the asphaltic concrete mixture in as continuous an operation as practical.

F. Hand Placing:

1. The Contractor shall spread, tamp, and finish the asphaltic concrete mixture using hand tools in areas where machine spreading is not possible, as acceptable to Program Manager.
2. The Contractor shall place the asphaltic concrete mixture at a rate that will ensure handling and compaction before mixture becomes cooler than acceptable working temperature.

G. Joints:

1. The Contractor shall carefully make joints between old and new pavements, or between successive days work, to ensure a continuous bond between adjoining work.
2. The Contractor shall construct joints to have the same texture, density, and smoothness as adjacent sections of asphalt concrete course.
3. The Contractor shall clean contact surfaces free of sand, dirt, or other objectionable material and apply tack coat.
4. The Contractor shall offset transverse joints in succeeding courses not less than twenty-four (24) inches.
5. The Contractor shall cut back edge of previously placed course to expose an even, vertical surface for full course thickness.
6. The Contractor shall offset longitudinal joints in succeeding courses not less than six (6) inches.
7. When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, the Contractor shall cut back unsatisfactory sections to expose an even, vertical surface for full course thickness.

3.05 ASPHALTIC CONCRETE COMPACTION

A. The Contractor shall provide sufficient rollers to obtain the required pavement density.

B. The Contractor shall begin rolling operations as soon after placing as the mixture will bear weight of roller without excessive displacement.

C. The Contractor shall not permit heavy equipment, including rollers to stand on finished surface before it has thoroughly cooled or set.

D. The Contractor shall compact the asphaltic concrete mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

E. The Contractor shall start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. The Contractor shall roll to slightly different lengths on alternate roller runs.

F. The Contractor shall not roll centers of sections first under any circumstances.

G. Breakdown Rolling:

1. The Contractor shall accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and the outside edge.
2. The Contractor shall operate rollers as close as possible to paver without causing pavement displacement.
3. The Contractor shall check crown, grade, and smoothness after breakdown rolling.
4. The Contractor shall repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

H. Second Rolling:

1. The Contractor shall follow breakdown rolling as soon as possible, while the asphaltic concrete mixture is hot and in condition for compaction.
2. The Contractor shall continue second rolling until the asphaltic concrete mixture has been thoroughly compacted.

I. Finish Rolling:

1. The Contractor shall perform finish rolling while the asphaltic concrete mixture is still warm enough for removal of roller marks.
2. The Contractor shall continue rolling until roller marks are eliminated and the course has attained specified density.

J. Patching:

1. The Contractor shall remove and replace defective areas.
2. The Contractor shall cut-out and fill with fresh, hot asphalt concrete.
3. The Contractor shall compact by rolling to specified surface density and smoothness.
4. The Contractor shall remove deficient areas for full depth of course.
5. The Contractor shall cut sides perpendicular and parallel to direction of traffic with edges vertical.
6. The Contractor shall apply tack coat to exposed surfaces before placing new asphaltic concrete mixture.

3.06 CLEANING AND PROTECTION

A. Cleaning: After completion of paving operations, the Contractor shall clean surfaces of excess or spilled asphalt materials to the satisfaction of the Program Manager.

B. Protection:

1. After final rolling, the Contractor shall not permit vehicular traffic on asphaltic concrete pavements until it has cooled and hardened and in no case no sooner than six (6) hours.
2. The Contractor shall provide barricades and warning devices as required to protect pavement and the general public.

C. Maintenance: The Contractor shall maintain the surfaces of pavements until the acceptance of the Work. Maintenance shall include replacement, overlaying, milling, and reshaping as necessary to prevent raveling of the road material, the preservation of smooth surfaces and the repair of damaged or unsatisfactory surfaces, to the satisfaction of the Program Manager.

3.07 STANDARD GRANITE CURB, GRADE B

A. This work shall consist of furnishing and installing the standard granite curb as directed by the Program Manager. In general, granite curb required to be installed shall match existing granite curb that has been removed or damaged in the progress of the Work.

B. Installation of standard granite curb, Grade B, shall include saw cutting existing asphalt concrete pavement a minimum of one (1) inch and removing remaining pavement to subgrade, excavation of base and subgrade as necessary to install the granite curbing and backfilling and compacting of the installation.

3.08 SPECIALTY BRICK PAVER REPLACEMENT

A. This work shall consist of replacing existing brick pavement required to be removed for installation of sanitary sewers or connection of services.

B. Existing brick pavers removed to accommodate sanitary sewers or services or damaged by the Work shall be removed in neat, rectangular sections the full width of the pavement. Existing concrete base slabs shall be cut with a concrete saw and removed prior to replacement. Replacement construction shall match existing pavement section including concrete base slab.

3.09 SPECIAL BRICK SIDEWALK REPLACEMENT

A. This work shall consist of replacing existing brick sidewalks required to be removed for connection of services or for installation of sanitary sewers.

B. Existing brick sidewalk removed to accommodate the sanitary sewers or services or damaged by the Work shall be removed in neat, rectangular sections the full width of the sidewalk or driveway on a line perpendicular to the street. Existing concrete base slabs shall be cut with a concrete saw and removed prior to replacement. Brick pavers shall be laid on a four (4)-inch thick concrete base slab and meet the same requirements as Standard Concrete Sidewalk four (4) inches thick.

END OF SECTION

SECTION 02710

CONCRETE CURBS, GUTTERS AND SIDEWALKS

PART 1 — GENERAL

1.01 SECTION INCLUDES

A. Preparation of Subgrade.

B. Setting Forms.

C. Curb Construction.

D. Sidewalk Construction.

1.02 RELATED SECTIONS

A. Section 02700 - Pavement Repairs

PART 2 — PRODUCTS

2.01 FORMS

A. Materials for curb forms shall be standard metal, wood, or fiberglass forms free from defects which would impair the appearance or structural quality of the completed curb. Form material for the face of the curb shall not have any horizontal joints closer than seven (7) inches from the top of the curb. The Contractor shall provide stakes and bracing materials as required to hold forms securely in place.

B. Materials for sidewalk forms shall be standard metal forms. The Contractor shall provide stakes and bracing materials as required to hold forms securely in place.

C. Use flexible spring steel forms or laminated boards to form radius bends as required.

2.02 CRUSHED ROCK BASE

A. Crushed rock base shall consist of clean three-quarters (3) inch or smaller crushed rock or crushed gravel, free from foreign material and meeting the Georgia Department of Transportation Standard Specifications, Construction and Transportation Systems, latest edition.

2.03 EXPANSION JOINT FILLER

A. Expansion joint filler shall be one-half (1/2) inch thick, preformed asphalt-impregnated, expansion joint material conforming to the requirements of ASTM D994.

2.04 CONCRETE

A. Ready-Mix, 3,000 psi compressive strength, conforming to ASTM C94.

2.05 CURING COMPOUND

A. Liquid membrane-forming curing compound shall be clear or translucent, suitable for spray application and shall conform to the requirements of ASTM C309, Type 1.

PART 3 — EXECUTION

3.01 PREPARATION OF SUBGRADE

A. The Contractor shall bring the areas on which curbs and sidewalks are to be constructed to required grade on undisturbed ground and compact by sprinkling and rolling or mechanical tamping. As depressions occur, the Contractor shall refill with suitable material and re-compact.

3.02 SETTING FORMS

A. The Contractor shall construct forms to the shape, lines, grades, and dimensions shown on the Plans. The Contractor shall stake wood or steel forms securely in place, true to line and grade.

B. Forms on the face of the curb shall not have any horizontal joints within seven (7) inches of the top of the curb. The Contractor shall brace forms to prevent change of shape or movement in any direction resulting from the weight of the concrete during placement. The Contractor shall construct short-radius curved forms to exact radius. Tops of forms shall not depart from grade line more than one-eighth (1/8) inch when checked with a ten (10) foot straightedge. Alignment of straight sections shall not vary more than one-eighth (1/8) inch in ten (10) feet.

3.03 CURB CONSTRUCTION

A. The Contractor shall construct curbs to line and grade shown on the Plans. Curbs shall conform to the details shown on the Plans.

B. The Contractor shall place preformed asphalt-impregnated expansion joints at intervals not exceeding fifty (50) feet and at the beginning and end of curved portions of the curb.

C. The Contractor shall place contraction joints in the curb at intervals not exceeding fifteen (15) feet. Contraction joints shall be of the open joint type and shall be provided by inserting a thin, oiled steel sheet vertically in the fresh concrete to force coarse aggregate away from the joint. The steel sheet shall be inserted in the full depth of the curb. The Contractor shall place, process, finish, and cure concrete in conformance with the applicable requirements of ACI 614, and the requirements of this section. Whenever the requirements differ, the more stringent shall govern. After initial set has occurred in the concrete and prior to removing the front curb form, steel sheet shall be removed with a sawing motion. The Contractor shall finish top of curb with a steel trowel and finish edges with a steel edging tool.

D. As soon as the concrete has set sufficiently to support its own weight, the Contractor shall form and finish all exposed surfaces. The Contractor shall finish formed face by rubbing with a burlap sack or similar device that will produce a uniformly textured surface, free of form marks, honeycomb, and other defects. All defective concrete shall be removed and replaced at the Contractor's sole expense. Upon completion of the finishing, the Contractor shall apply an approved curing compound to exposed surfaces of the curb. Curing shall continue for a minimum of five (5) days.

E. Upon completion of the curing period, but not before seven (7) days have elapsed since pouring the concrete, the Contractor shall backfill the curb with earth, free from rocks two (2) inches or larger and other foreign material. The Contractor shall tamp backfill firmly in place.

F. Finished curb shall present a uniform appearance for both grade and alignment. The Contractor shall remove any section of the curb showing abrupt changes in alignment or grade, or which is more than one-quarter (1/4.) inch away from its location as staked, and construct new curb in its place at the Contractor's sole expense.

3.04 SIDEWALK CONSTRUCTION

A. Sidewalks shall be four (4) inches thick in walk areas and six (6) inches thick in driveway areas.

B. At locations where the new sidewalks are to abut existing concrete, the Contractor shall saw concrete for a depth of one-half (1/2) inch and chip the old concrete back to sound material on a straight line, clean the surface, and apply a neat cement paste just prior to pouring the new sidewalk.

C. The Contractor shall place preformed asphalt expansion joints as in the adjacent curb, where the sidewalk ends at a curb, and around posts, poles, or other objects protruding through the sidewalk.

D. The Contractor shall provide contraction joints transversely to the walks at locations opposite the contraction joints in the curb. These joints shall be three-sixteenths (3/16) inch weakened plane joints. They shall be straight and at right angles to the surface of the walk.

E. The Contractor shall place, process, finish, and cure concrete in conformance with the applicable requirements of ACI 614 and the requirements of this section. Where the requirements differ, the more stringent shall govern.

F. The Contractor shall broom the surface with a fine-hair broom at right angles to the length of the walk and tool all edges, joints, and markings. The Contractor shall mark the walks transversely at five (5) foot intervals with a joining tool. Upon completion of the finishing, the Contractor shall apply an approved curing compound to exposed surfaces. The Contractor shall protect the sidewalk from damage for a period of seven (7) days from the date of pouring. DAMAGED SIDEWALK SHALL BE REPLACED AT NO ADDITIONAL COST.

END OF SECTION

SECTION 02956

SANITARY SEWER CLEANING

PART 1 — GENERAL

1.01 SECTION includes

A. This section includes specifications for sewer line cleaning to remove foreign materials and debris from the mains and restore the pipe to a minimum of 95% of the through flow channel and cross section, for clear viewing of the interior surfaces of the lines during television inspection, or as required for other specified rehabilitation or purpose.

1.02 Related Sections

A. Section 01510: Sanitary Sewer Main Television and Sonar Inspection

B. Section 01520: Sewer Flow Control

1.03 References

A. Codes, Specifications, and Standards

B. NASSCO – National Association of Sewer Service Companies

C. Testing and Materials Standards

1.04 Qualifications

A. Qualification documentation will be submitted as required of the Contract Documents.

B. The Contractor must meet all of the following criteria to be considered qualified to submit:

1. The Contractor, or their subcontractor, must document they, not their parent company or related company or the experience of an individual/s, have been in this line of business a minimum of five (5) years.
2. The Contractor, or their subcontractor, must document they, not their parent company or related company or the experience of an individual/s, have cleaned a minimum of 250,000 linear feet of sewer mains of the sizes involved for this contract in the past two (2) years. This documentation shall include locations, references (including names and phone numbers), pipe sizes and linear footages of those sizes.
3. The Contractor, or their subcontractor, must document that they, not their parent company or related company have available for use off road equipment , including easement machines , available for use in cleaning the lines without the need for construction of access roads.

1.05 Submittals

A. Prior to commencing work contractor is to submit to the Program Manager a cleaning plan that should include but not be limited to: proposed equipment to be used for both light and heavy cleaning (including limitations of the equipment, such as pipe material limitations), equipment used for verification of completed work, QA/QC plan, health and safety plan, disposal facility to be used, and a contingency plan,

B. References: Contact names and telephone numbers

C. Traffic and Quality Control Plan

D. At the end of each work week the contractor is to submit to the Program Manager all documentation described in section 3.05.

E. Debris disposal tickets from approved landfill

F. Documentation of Experience as indicated below. The documentation of Company experience and qualifications for Field Supervisors shall be submitted with the cost proposal. Other qualifications will be submitted to the program manager.

1.06 EXPERIENCE

A. Experience documentation will be submitted as required of the Contract Documents. The Contractor shall provide the Owner and Program Manager with written documentation the supervisor and field crew leaders responsible for this work have received the proper training, are certified, and have the requisite experience. This documentation will include dates of hands-on experience, employer, description of duties/experience, contact name and phone number. Documentation on any person shall not be longer than 1-page.

B. Supervisor of the field crews must be proper trained in this function and have a minimum of (3) years' experience in performing sanitary sewer cleaning including safe working practices, proper cleaning procedures, and experience operating the types of cleaning equipment used for this contract.

C. Field crew leaders must be proper trained in this function and have a minimum of two (2) years hands-on experience in performing sewer cleaning including safe working practices, proper cleaning procedures, and experience operating the types of cleaning equipment used for this contract.

D. No crew members shall enter confined spaces without the necessary certified training and proper permit.

1.07 PERSONNEL

A. The Supervisor must visit the project site daily checking on their personnel and subcontractors, meeting with the field crew leaders as well as checking on the status and progress of the project.

B. A field crew leader must be with their crew when their crew is working. Each field crew leader can only have one crew. Each crew must have its own field crew leader.

1.08 RESPONSIBILITY FOR OVERFLOWS/SPILLS AND DAMAGE TO PROPERTY AND UTILITY

A. Reference Specification Section 01030 – Special Project Procedures.

PART 2 — PRODUCTS

2.01 GENERAL

A. The Contractor shall provide all supervision, labor, material, supplies, equipment, transportation, traffic control, etc., necessary to satisfactorily clean the sewer main(s). The Contractor shall be responsible for selecting the type of equipment to perform the work. The selected equipment must meet the requirements described herein and have approval of the Program Manager prior to use.

B. **Hydraulically Propelled Equipment:** The equipment used shall be of a movable dam type and be constructed so a portion of the dam may be collapsed at any time during the cleaning operation to protect against flooding of the sewer. The movable dam shall be equal in diameter to the main being cleaned and shall provide a flexible scraper around the outer periphery to insure removal of grease. If sewer cleaning balls or other equipment, which cannot be collapsed, are used, special precautions to prevent flooding of the sewers and public or private property shall be taken.

C. **High-Velocity Jet (Hydrocleaning) Equipment:** All high-velocity sewer cleaning equipment shall be constructed for ease and safety of operation. The equipment shall have a selection of two or more high-velocity nozzles. The nozzles shall be capable of producing a scouring action from 15 to 45 degrees in all size mains designated to be cleaned. Specialized nozzles capable of concentrating pressurized water either to the crown or lower quadrant of the pipe to be cleaned shall be available on site. Equipment shall also include a high-velocity gun for washing and scouring manhole walls and floor. The gun shall be capable of producing flows from a fine spray to a solid stream. The equipment shall carry its own water tank, auxiliary engines, pumps, and hydraulically driven hose reel.

D. **Mechanically Powered Equipment:** Bucket machines shall be in pairs with sufficient power to perform the work in an efficient manner. Machines shall be belt operated or have an overload device. Machines with direct drive that could cause damage to the main will not be allowed. A power rodding machine shall be either a sectional or continuous rod type capable of holding a minimum of 500 feet of rod. The rod shall be specifically heat-treated steel. To insure safe operation, the machine shall be fully enclosed and have an automatic safety clutch or relief valve.

E. **Large Diameter Cleaning:** For cleaning large diameter sewer, storm or combination pipes, consideration should be given to a combination hydraulic high volume water and solids separation system. The flow from the sewer will provide water for the pump operation so no potable water is necessary and treatment costs are not a factor. Water volume of up to 250 GPM at 2000 psi+ will move solids to the downstream manhole in high flow conditions. The separation system will dewater solids to 95% (passing a paint filter test) and transfer them to a dump truck for

transport to a sewage treatment plant or approved landfill. Sewer water will be filtered to a point where it can be used in the pump for continuous cleaning. No by-passing of sewer flows will be necessary. The unit shall be capable of 24 hour operation and the unit shall not leave the manhole until a section is fully cleaned.

The flow of sewage in the sewer mains shall be utilized to provide the necessary pressures for hydraulic cleaning devices whenever possible. When additional quantities of water from fire hydrants are necessary to avoid delay in normal working procedures, the water shall be conserved and not used unnecessarily. The Contractor's truck/trailer must be permitted by the County as having the proper backflow prevention devices. The approval of the Owner shall be obtained before County water is used. Hydrants shall only be operated under the supervision of the Owner. Contractor shall be responsible for obtaining a hydrant meter from the Owner for this water use as directed by the Program Manager. Contractor shall be responsible for all costs associated with hydrant meter(s).

F. The Contractor shall be responsible for providing all other necessary hoses and tools for obtaining the water.

PART 3 — EXECUTION

3.01 GENERAL

A. **Cleaning Precautions:** During cleaning operations, satisfactory precautions shall be taken in the use of cleaning equipment. When hydraulically propelled cleaning tools (requiring water pressure to provide their cleaning force) or tools retarding the flow in the sewer main are used, precautions, including the direction of the cleaning operation, shall be taken to insure the water pressure created does not damage or cause flooding of public or private property being served by the pipe.

1. In the case where damage to the County infrastructure is caused by the Contractor, for any reason, such as would be caused by incorrect deployment of equipment or retrieval of lodged equipment, the cost of repair or remedy shall be borne solely by the Contractor and repaired immediately (repair work to begin within 24-hrs)
2. Equipment lodged within the sewer main may require an external point repair to retrieve. For Contracts with applicable point repair pay items, the equipment will be retrieved under the applicable line item(s). If an applicable line item(s) is not included in the Contract, the Contractor will provide the County a cost proposal from three (3) qualified contractors capable of completing the work for review. The County will review the circumstances leading to the equipment becoming lodged and make a decision as to payment-to the Contractor for the necessary removal: none, partial, or all.
3. Should the Contractor have equipment lodged in a sewer line, the Contractor will immediately have on standby, forces necessary to monitor the sanitary sewer collection system upstream of the obstructed line so as to prevent a sanitary sewer overflow and to install by-pass pumping if necessitated. Should the Contract not have a pay item for by-pass pumping, the Contractor will provide a cost proposal to the County representing the total cost of providing an appropriately sized and

engineered continuous by-pass operation. The Project Manager as part of the review the circumstances leading to the equipment becoming lodged will make a decision as to payment-to the Contractor for the by-pass pumping: none, partial, or all.

4. As a result of b and c, lodged equipment not associated with Contractor negligence will be removed by the Contractor at an agreed upon price at the direction of the County. Payment will be under the appropriate line item(s) if present or under the appropriate allowance.

B. **Cleaning:** The designated manhole sections shall be cleaned using hydraulically propelled, high-velocity jet, or mechanically powered equipment. Selection of the equipment used shall be based on the conditions of pipes at the time the work commences. The equipment and methods selected shall be satisfactory to the Owner. The equipment shall be capable of cleaning a minimum of 1200' linear feet and of removing dirt, grease, rocks, sand, and other materials and obstructions from the pipes and manholes. If cleaning an entire section cannot be successfully performed from one manhole, the equipment shall be set up on the other manhole and cleaning again attempted. Extreme care shall be taken when cleaning in a reverse setup so as not to cause flooding of service lines located along the sewer. If, again, successful cleaning cannot be performed or the equipment fails to traverse the entire manhole section, it will be assumed a major blockage exists and the cleaning effort shall be repeated with other types of equipment. All pipes shall be cleaned to the satisfaction of the Owner.

C. The term "clean", as used herein, shall mean the complete removal of all garbage, dirt, gravel, rocks, roots, grease, settled sludge and all other solid or semi-solid materials from the pipes and manholes. All line segments receiving CCTV will be cleaned (light or heavy as required) as part of the assessment process.

1. Cleaning will be classified by pipe size and the Average Cross Sectional Area Blockage and will be determined by the actual measured (Pre-TISCIT) volume of deposits and other debris found in the pipe:
   a. <15%: Where the volume of debris/deposits/in the pipe segment calculated over the length of the total line segment equates to that of a line segment holding 15% blockage for that length (MH to MH);
   b. 15% - ≤ 25%: Where the volume of debris/deposits/in the pipe segment calculated over the length of the total line segment equates to that of a line segment holding 15% blockage for that length but less than or equal to that calculated over the total length of the line segment holding 25% blockage for the length (MH to MH);
   c. >25%: Where the volume of debris/deposits/in the pipe segment calculated over the length of the total line segment exceeds that of a line segment holding 25% blockage for the length of pipe (MH to MH);
   d. If the entire length of pipe cannot be assessed, the cleaning assignment will be based on the level as calculated for the length of pipe assessed.
2. Cleaning will not be considered complete and accepted until a Post-TISCIT verification (PACP standard) is performed indicating no deposits/obstructions in excess of 5%.

D. Conditions, such as broken mains and major blockages, may prevent cleaning from being accomplished, especially where additional damage would result if cleaning were attempted, or continued. Should such conditions be encountered, the Contractor shall not be required to clean those specific main sections unless the Owner removes the apparent obstruction. The Contractor shall immediately notify the Program Manager and propose alternative cleaning procedures to clear the obstruction.

E. Whenever mains to be cleaned show evidence of being more than one-half filled with solids, bucket machines and/or rodding machines shall be utilized to remove the major portion of the material before hydraulic equipment or high velocity, hydro-cleaning equipment is brought into use for finishing the cleaning work.

1. When bucket machines are used, the bucketing process shall be done in one main section at a time. A bucket of the proper size shall be placed into the downstream manhole and pulled, in intervals, towards the upstream manhole.
2. The bucket shall be retrieved and emptied at varying intervals depending upon the amount of materials being removed. When a bucket is retrieved and it is completely full or overflowing with materials, then the length of travel into the main shall be reduced to ensure total removal of debris. This process shall be repeated until the bucket has been pulled through the entire main section. Upon completion of the bucketing or rodding operation, hydraulically propelled cleaning equipment or high velocity hydro-cleaning equipment shall be used to complete the cleaning work.

F. **Root Removal:** Roots shall be removed from sections designated to be cleaned. Special attention shall be used during the cleaning operation to assure complete removal of roots from the joints. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root saws, chain-slingers, porcupines, and equipment such as high-velocity jet cleaners.

G. **Material Removal:** All sludge, dirt, sand, rocks, grease, and other solid or semisolid material resulting from the cleaning operation shall be removed at the downstream manhole of the section being cleaned. Passing material from manhole section to manhole section, potentially causing main stoppages, accumulations of sand in wet wells, or damage pumping equipment, shall not be permitted.

H. **Disposal of Materials:** All solids, semisolids and/or liquids resulting from the cleaning operations shall be removed from the work site and disposed of at a site designated by the Owner and approved to accept wastewater debris and liquids. All materials shall be removed from the site no less often than at the end of each workday. Under no circumstances will the Contractor be allowed to accumulate debris, etc., on the site of work beyond the stated time, except in totally enclosed containers and as approved by the Owner. **Under no circumstances shall removed debris and/or liquids be dumped onto the ground or streets or into ditches, catch basins or storm drains for any length of time**. Contractor shall be responsible for legally disposing of all debris and all disposal costs. The Owner will provide landfill facilities and will reimburse the Contractor for dumping fees when invoiced with supporting information.

I. **Protruding Tap Removal:** Service taps extending into the pipe shall be removed by means of hydraulically or mechanically operated equipment. Chain cutters, clamshell cutters, and robotic lateral reinstatement cutters are typical equipment used to remove protruding taps. Taps should be removed so the resulting protrusion is less than 1" at the greatest point, or 10% of sewer main diameter, whichever is smaller. All debris resulting from protruding tap removal shall be removed immediately from the pipe. Where protruding taps are vitrified clay, grinding wheels may be used on lateral reinstatement cutters to insure a smooth finish. Where protruding taps prevent the passage of equipment through the pipe, notify the Owner immediately for point repair execution. Note: All protruding taps must be verified via television inspection prior to inserting any type of cutting tool into the main.

J. **Grease Removal**: Grease shall be removed in designated sections where grease is a known problem and shall be considered part of the cleaning procedures. The Contractor shall provide a list of lines requiring grease removal to the Owner and the Program Manager so they may be added to the Owner's on-going maintenance list. Special attention should be given during the cleaning operations to ensure the complete removal of grease from the top of the pipe. Procedures may include the use of mechanical equipment such as rodding machines, bucket machines and winches using root cutter and porcupines, and equipment such as high-velocity jet cleaners, and hot water. Chemical means of grease removal will be allowed upon request by the Contractor; however, it is considered subsidiary to Line Cleaning, and no additional payment will be allowed.

3.02 ACCEPTANCE

A. Acceptance of pipe cleaning shall be made upon the successful completion of the television/sonar inspection indicating a minimum of 95% of the through flow channel and cross section. If the inspection shows the cleaning to be unsatisfactory, the Contractor shall be required to re-clean and re-inspect the pipe until the cleaning is shown to be satisfactory at no additional cost to the Owner,

3.03 CLEANING PRECAUTIONS

A. Bucket machines or rodding machines shall be used very carefully because of their tendency to "hang-up" on or "wedge against" the sewer main and break it. Only experienced and well-trained operators shall operate the machines(s).

B. Whenever hydraulically propelled cleaning tools, or high velocity, hydro-cleaning equipment or any tools retarding the flow of water in the sewer mains are used, precautions shall be taken to ensure the water pressure created does not cause any damage or flooding to public or private property being served by the main involved.

C. Any damage to the sewer mains caused by the Contractor's operations shall be repaired in a manner approved by the Owner at the Contractor's expense. The Owner reserves the right to make said repairs itself and charge the Contractor accordingly.

D. Damage due to flooding of any public or private property being served by any main over-filled by Contractor's cleaning operations shall also be repaired or otherwise paid for by the Contractor.

3.04 PUBLIC NOTIFICATION – CLEANING

A. Reference Specification Section 01041 – Project Coordination. Public Notification for Cleaning will be included with the notification for CCTV.

3.05 DOCUMENTATION

A. The Contractor shall keep records (in a log-type Access Database form) of the work accomplished in the cleaning of the pipes. With each pay request, digital backup documentation is required. The following information shall be required as a minimum:

1. Location (street address) and type of surface cover
2. Upstream Manhole ID Number to Downstream Manhole ID Number
3. Pipe ID Number
4. Date and Time
5. Length of Pipe
6. Condition and depth of manholes
7. Size and type of main
8. Type and condition of manhole
9. Type of cleaning performed and various types of equipment used.
10. Meter readings (fire hydrant use)
11. Remarks as to type of materials removed, amount of materials removed, and number of hours spent on each pipe section

B. The Contractor shall complete work on each asset as assigned via the Program Manager. Upon start of work, the Contractor shall receive work orders/assignments as assigned by the Program Manager. The Contractor shall maintain and synchronize the status of each work order/assignment issued.

C. The Contractor shall keep records indicating payment for Fire Hydrant Meter charges and associated water usage and Landfill fees and associated tonnage for submittal with the pay application.

END OF SECTION